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OCCASIONAL PAPERS OF THE MUSEUM OF
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CHECK-LIST OF THE MAMMALS OF LOUISIANA AND
ADJACENT WATERS

By GEORGE H. LOWERY, JR.

Seven years have elapsed since the publication of the first and only systematic list of the mammals occurring in the State of Louisiana.¹ During that time several thousand specimens of Louisiana mammals have been added to the collections of the Louisiana State University Museum of Zoology. Many of these specimens came from parts of the State not covered in the preliminary survey; so in numerous cases the material now at hand provides a much more accurate picture of the distribution of the mammals of the State.

In order to determine many of the subspecies represented in the old material as well as the new, a partial revision of several taxonomic groups has been necessary, particularly with respect to the races occupying the Gulf Coast and Lower Mississippi Valley region. This has resulted in a few alterations in nomenclature and in the naming of several new races, four of which are herein described as new.² A revision of the southern races of *Sciurus niger* has already been published in collaboration with W. B. Davis, of the Agricultural and Mechanical College of Texas. Various other taxonomic studies have been published by Davis and by E. A. Goldman which have effected additions and changes in the nomenclature of the mammals inhabiting Louisiana. Collectively, the recent revisionary studies alone have rendered obsolete the initial check-list of

¹George H. Lowery, Jr., "A Preliminary Report on the Distribution of the Mammals of Louisiana," *Proc. La. Acad. of Sci.*, 3, 1936: 11-39.

²Geographical races of *Blarina brevicauda*, *Myotis austroriparius*, *Procyon lotor*, and *Tamias striatus*.

Louisiana mammals. Several other species in this general region are badly in need of critical study and possible revision, but as yet we do not have sufficient material on hand to complete such studies.

Field work during the past seven years has resulted not only in the collection of additional specimens of species and subspecies for which there are few previous records, but also has produced several forms not hitherto known to occur within the State. In this respect, the work of Horace A. Hays in the Natchitoches Parish region, in the interest of the Louisiana State University Museum, was outstanding. In the process of assembling approximately 300 beautifully prepared specimens from that previously neglected area, he added two species and two subspecies to the State list. His notes³ on the relative abundance of species encountered by him have been useful in preparing statements concerning the status of certain forms in northwestern Louisiana. Furthermore, his collections have supplied the Louisiana State University Museum with many excellent series of specimens which have been extremely valuable for comparison in other studies.

In preparing the first list, no attempt was made to include the marine species occurring in waters adjacent to Louisiana. This omission was necessitated by the lack of sufficient data and specimens at that time. The Louisiana State University Museum has since obtained a number of skulls and skeletal parts of marine mammals, and these have served as a basis for positive identification of certain species.

Whereas the first list included only sixty-one species and subspecies, the total number of forms known definitely to occur or to have occurred in relatively recent times in Louisiana and adjacent waters now stands at seventy-nine. Four of these forms are marine, nine have been introduced accidentally or otherwise into the State, and sixty-six are native land mammals. One of the latter (the Bison) is now extinct in Louisiana. The Cacomistle (*Bassariscus astutus*), which was included in the initial list, is here removed for reasons stated on page 231.

I am greatly indebted to a large number of individuals and institutions for help in many ways. Stanley C. Arthur, W. H. Burt, Edward Butler, H. B. Chase, W. B. Davis, Robert Glenk, James Nelson Gowanloch, H. H. T.

³ Horace A. Hays, "The Mammals of Natchitoches Parish [Louisiana]," thesis submitted to the Graduate Faculty of Louisiana State University in partial fulfillment of the requirements for the Degree of Master of Science, 1941. Copies on file in Louisiana State University Library.

Jackson, David H. Johnson, E. A. Goldman, E. Raymond Hall, Donald M. Hatfield, Remington Kellogg, W. H. Osgood, E. A. McIlhenny, Gerrit S. Miller, Ernst Schwarz, H. B. Sherman, R. A. Steinmayer, Percy Viosca, the late Philip N. Moulthrop, and the late Arthur H. Howell, have been especially helpful on various taxonomic problems, in furnishing data, and in the lending of specimens in their care. The Chicago Academy of Sciences, Cleveland Museum of Natural History, Field Museum of Natural History, Fish and Wildlife Service, Texas Cooperative Wildlife Collection, University of Michigan Museum of Zoology, and the United States National Museum have sent me much comparative material on loan. Special acknowledgements are due to many of my former students in Mammalogy at the Louisiana State University who have assisted in the preparation of specimens and who have followed with keen interest the taxonomic work on many of the groups studied. Their counsel has been stimulating and of considerable practical value. In this regard, Austin W. Burdick, Thomas R. Howell, M. G. Greig, Ted O'Neil, Sam M. Ray, Robert Tucker, and H. E. Wallace, deserve mention by name.

The sequence of the species of mammals follows that proposed by Miller.⁴ Capitalized color names are after Ridgway.⁵ Measurements, unless otherwise stated, are in millimeters. Common names are given only for full species. Where two or more geographical races of one species occur within the State, the same common name is used for each. Abbreviations following localities from which specimens are listed refer to the institution in which those specimens are deposited, as follows:

| | |
|------|--|
| AM | American Museum of Natural History |
| ANSP | Academy of Natural Sciences at Philadelphia |
| BS | Biological Surveys Collection of Fish and Wildlife Service |
| CAS | Chicago Academy of Sciences |
| FM | Field Museum of Natural History |
| LSU | Louisiana State University Museum of Zoology |
| MCZ | Museum of Comparative Zoology at Harvard |
| TU | Tulane University Museum |
| USNM | United States National Museum |

⁴ G. S. Miller, "List of North American Recent Mammals 1923," *U. S. Nat. Mus. Bull.* 128, 1924: 1-673.

⁵ Robert Ridgway, *Color Standards and Color Nomenclature*. (Washington, D. C., 1912).

LIST OF SPECIES

Family DIDELPHIIDAE

DIDELPHIS VIRGINIANA VIRGINIANA KERR

VIRGINIA OPOSSUM

The Opossum is abundantly represented and widely distributed throughout the State. There is considerable uncertainty regarding the feasibility of recognizing two races of *Didelphis virginiana* in Louisiana. Specimens examined from Monroe, Tallulah and Ruston, in northern Louisiana, are grayer (less black) than specimens from the remaining parts of the State, and, for this reason, are referred provisionally to the nominate race.

DIDELPHIS VIRGINIANA PIGRA BANGS

VIRGINIA OPOSSUM

Forty-one specimens (LSU) examined from Livingston, Tangipahoa, Washington, East Feliciana, West Feliciana, East Baton Rouge, Pointe Coupee, Cameron, Calcasieu, and Natchitoches parishes are considerably blacker than extreme northern Louisiana specimens and therefore, for the time being, are referred to *pigra*.

MARMOSA ALSTONI (ALLEN)

ALSTON OPOSSUM

An adult male specimen of this Central American species was trapped by Allan G. Watkins in a marsh near New Orleans on October 15, 1935. The specimen was identified by E. A. Goldman and is now in the Louisiana State University Museum. The animal was without question accidentally introduced into Louisiana, possibly on a fruit boat. Additional examples of this species, as well as other tropical mammals, may be expected to make their appearance in the State from time to time.

Family TALPIDAE

SCALOPUS AQUATICUS HOWELLI JACKSON

COMMON MOLE

This race of mole is confined in Louisiana to the Florida Parishes.⁶ A series (LSU) examined from Baton Rouge is intermediate between *pulcher* and *howelli* but closer to the latter. Six adult males from Baton

⁶ The Florida Parishes of Louisiana are those parishes lying east of the Mississippi River and north of Lakes Maurepas and Pontchartrain.



GAZETEER OF LOCALITIES SHOWN IN FIGURE 1

| Parishes | | | |
|----------------|------|------------------|------|
| Acadia | E-10 | Ashland | C-4 |
| Allen | D-9 | Avery Island | G-12 |
| Ascension | J-11 | Baines | H-8 |
| Assumption | I-12 | Basile | E-10 |
| Avoyelles | G-8 | Bastrop | G-2 |
| Beauregard | C-9 | Baton Rouge | I-10 |
| Bienvenue | C-3 | Bayou Lafourche | L-14 |
| Bossier | B-2 | Belair | M-12 |
| Caddo | A-3 | Belcher | A-2 |
| Calcasieu | B-10 | Bellwood | C-6 |
| Caldwell | F-4 | Blenville | D-4 |
| Cameron | C-12 | Bogalusa | M-8 |
| Catahoula | G-6 | Breton Island | O-13 |
| Claiborne | D-2 | Brush Island | O-11 |
| Concordia | H-6 | Bryceland | D-3 |
| De Soto | A-4 | Burbridge | M-13 |
| Evangeline | E-9 | Burtville | I-10 |
| E. Baton Rouge | I-10 | Cameron | C-12 |
| E. Carroll | I-2 | Cartville | E-10 |
| E. Feliciana | I-8 | Chenier au Tigre | F-13 |
| Franklin | G-4 | Chipola | J-8 |
| Grant | E-6 | Cinclare | H-10 |
| Iberia | G-10 | Clarks | F-4 |
| Iberville | H-10 | Clinton | I-8 |
| Jackson | E-3 | Colfax | D-6 |
| Jefferson | L-13 | Columbia | F-4 |
| Jeff. Davis | D-10 | Comite | I-9 |
| Lafayette | F-11 | Cornor | H-8 |
| Lafourche | K-13 | Covington | L-9 |
| LaSalle | F-6 | Cow Bayou | A-11 |
| Lincoln | E-2 | Cravens | D-8 |
| Livingston | J-10 | Crowley | F-11 |
| Madison | I-3 | Cypress | C-6 |
| Morehouse | G-2 | Denham Springs | J-10 |
| Natchitoches | C-6 | Donaldsonville | J-11 |
| Orleans | M-11 | Edgerley | B-11 |
| Ouachita | F-3 | Egan | E-10 |
| Plaquemines | M-13 | Enon | L-9 |
| Pointe Coupee | H-9 | Elton | D-10 |
| Rapides | E-7 | Erwinville | H-10 |
| Red River | C-4 | Fanny | M-12 |
| Richland | G-3 | Fishville | F-6 |
| Sabine | B-6 | Flora | C-6 |
| St. Bernard | K-12 | Floyd | H-12 |
| St. Charles | K-12 | Foster | H-12 |
| St. Helena | K-8 | Franklin | H-12 |
| St. James | J-11 | Ged | B-11 |
| St. John | K-11 | Gibson | J-12 |
| St. Landry | G-9 | Golden Meadow | L-13 |
| St. Martin | G-10 | Grangerville | J-9 |
| St. Mary | H-12 | Grand Chenier | D-12 |
| St. Tammany | L-9 | Grand Coteau | F-10 |
| Tangipahoa | K-9 | Grand Isle | M-14 |
| Tensas | I-4 | Grand Terre Id. | M-14 |
| Terrebonne | J-13 | Greensburg | J-9 |
| Union | E-1 | Gretna | L-12 |
| Vermilion | F-12 | Hackberry | B-11 |
| Vernon | C-7 | Hackley | L-8 |
| Washington | L-8 | Hammond | K-9 |
| Webster | C-2 | Haughton | B-2 |
| W. Baton Rouge | I-10 | Holden | J-9 |
| W. Carroll | H-1 | Hutton | C-7 |
| W. Feliciana | H-8 | Houma | J-13 |
| Winn | E-4 | Independence | K-9 |
| | | Indian Lake | H-4 |
| | | Indian Mound | I-9 |
| | | Indian Village | H-10 |
| | | Iowa | C-10 |
| | | Ile Derniere | J-15 |
| Towns | | Jena | F-6 |
| Abbeville | F-12 | Johnson's Bayou | B-12 |
| Alexandria | E-7 | Jonesville | G-6 |
| Amite | K-8 | Keithville | A-3 |
| Anacoco | B-7 | Kisatchie | C-6 |
| | | Kleinpeter | J-10 |

measure as follows: total length, 148.3 mm. (142.7-165.0); tail, (19.0-26.5); hind foot, 18.2 (17.3-20.0); greatest length of skull, (33.2-35.8); mastoidal width, 17.9 (17.2-18.4); interorbital width, 7.8 (7.4-8.1); palatal length, 14.7 (14.2-15.6).

SCALOPUS AQUATICUS PULCHER JACKSON

COMMON MOLE

This mole occupies apparently all of Louisiana west of the Mississippi River. Specimens have been collected at Columbia⁷ (FM), Clarks, Grand Chenier, Avery Island, Mer Rouge, Natchitoches, Shreveport (BS), Bienville, Ruston, Monroe, Basile, Shongaloo, Lafayette, Vowell's Mill, Provencher, and Kisatchie (LSU). Six adult males from Natchitoches Parish are as follows: total length, 164.7 mm. (152-180); tail, 26.3 (19.0-33.6); hind foot, 21.3 (19-23); greatest length of skull, 35.5 (33.2-36.8); mastoidal width, 18.6 (17.8-18.9); interorbital breadth, 7.8 (7.4-8.1); palatal length, 15.6 (15.0-16.2).

Family SORICIDAE

CRYPTOTIS PARVA PARVA (SAY)

LITTLE SHREW

This species is apparently quite common and well distributed throughout the State. Specimens have been collected at Baton Rouge, Clarks, Mon-

roe, and many other localities. Uncertainty surrounds the exact location of the "Columbia" referred to throughout the paper. Edmund Heller collected mammals there for the Field Museum in the early part of 1908. The larger town by that name is located in Caldwell Parish, central-northern Louisiana. A smaller town by that name is also located in St. John the Baptist Parish, not far from the City of New Orleans. In my first paper on the mammals of the State, I considered the latter place to be Heller's "Columbia." This opinion resulted from correspondence with Heller in which he informed me that he did not recall having collected in northern Louisiana. However, the term "northern Louisiana" may have implied the northern tier of parishes. Dr. Karl Schmidt studied the records in the Field Museum, including Heller's field catalogue, and advised me that the evidence is definitely in favor of the Caldwell Parish town by that name. Caldwell Parish is not mentioned specifically by name, but correspondence on file in the Field Museum reveals that C. B. Heller went to Louisiana, instructing him on two occasions to visit and collect in eastern Louisiana. The Columbia in Caldwell Parish corresponds fairly well with the execution of such instructions. Of the specimens collected by Heller at this locality, only *Peromyscus nuttalli* is significant. Heller took four specimens of the common house mouse which he labeled "Columbia." I would be much more inclined to doubt the occurrence of this species in the well-drained woodlands of Caldwell Parish than in the low, swampy areas of St. John the Baptist Parish.

roe, Ruston, Provencal, Lake Charles, Lowry (LSU), Mermentau, Columbia, Hackley (FM), and Belcher (BS).

BLARINA BREVICAUDA MINIMA new subspecies

SHORT-TAILED SHREW

Type.—Male, adult, skin and skull; number 2196, Louisiana State University Museum of Zoölogy; Comite River, 13 mi. NE Baton Rouge, East Baton Rouge Parish, Louisiana; collected December 28, 1942, by Ira D. George and prepared by Thomas R. Howell; original number TRH 4.

Distribution.—Extreme Lower Mississippi River Valley and central Gulf Coast region.

Diagnosis.—The smallest of the described races of *Blarina brevicauda* excepting, possibly, *B. b. plumbea* which may later prove to be a specific entity; total body length averaging less than 90 mm.; color and cranial characters similar to *B. b. carolinensis*, but differing slightly in minor details.

Comparisons.—This diminutive race of the Short-tailed Shrew requires close comparison only with *B. b. carolinensis*⁸ from which it differs by way of its much smaller body size. The skull closely resembles *carolinensis* in that the fifth unicuspid is extremely small. In the specimens examined, the skull of *minima* is perceptibly deeper at M³, and the teeth, even in cases of excessive wear, are decidedly more chestnut than in specimens of typical *carolinensis*. Although of approximately the same body size as *B. b. plumbea*,⁹ *minima* is apparently clearly differentiated by its much darker (less plumbeous) coloration and by pronounced cranial characters.¹⁰ *B. b. minima* differs so radically from all other described races of the Short-tailed Shrew that no detailed comparisons are necessary.¹¹

Measurements.—Type: total length, 82; tail, 17.5; hind foot, 11.0; greatest length of skull, 19.3; cranial breadth, 10.1; interorbital breadth, 5.4; palatal length, 8.3; post palatal length, 8.3; maxillary breadth across I³, 3.2. Body measurements of series of seventeen adults from Louisiana

are: 89.8 (81-95); 18.0 (16-21); 11.7 (11.0-12.5).¹² Cranial measurements of eleven Louisiana specimens (in the order given for the type) are: 19.3 (18.9-19.4); 9.9 (9.5-10.2); 5.2 (5.0-5.4); 8.1 (7.7-8.3); 8.3 (8.0-8.5); 3.1 (2.9-3.2).

Remarks.—Louisiana specimens of this species average so much smaller in body size than topotypical and near topotypical examples of *B. b. carolinensis* that they merit nomenclatural recognition. Six specimens from Washington, Mississippi, a locality in the central northwestern part of that State, include a female in which the total length is recorded as 103 mm. The remaining five specimens measure 89, 90, 91, 90, and 96, respectively, thus indicating that the population sample as a whole is closest to *minima*.

Specimens examined.—Total number, 33, as follows:

LOUISIANA. *East Baton Rouge Parish*: Baton Rouge, 6; Comite River, 13 mi NE Baton Rouge (the type), 1. *Caldwell Parish*: Columbia, 9. *Washington Parish*: Hackley, 1. *Lincoln Parish*: Ruston, 1. *Ouachita Parish*: Monroe, 2. *Calcasieu Parish*: Lake Charles, 1. *Natchitoches Parish*: Natchitoches, 2. *De Soto Parish*: Mansfield, 1.

MISSISSIPPI. *Bolivar County*: Rosedale, 1; unspecified, 1. *Harrison County*: Biloxi, 1. *Washington County*: Washington, 6.

Family VESPERTILIONIDAE

MYOTIS AUSTRORIPARIUS GATESI new subspecies

SOUTHEASTERN BAT

Type.—Male, adult, skin and skull; number 2074, Louisiana State University Museum of Zoölogy; University Campus near Baton Rouge, East Baton Rouge Parish, Louisiana; collected November 12, 1941, by Roland Abegg and prepared by George H. Lowery, Jr.; original number, GHL 104.

Distribution.—Known only from five specimens from two localities in Louisiana.

⁸ *Blarina brevicauda carolinensis* (Bachman), Jour. Acad. Nat. Sci. Phila., 7, Pl. 2, 1837: 366.

⁹ *Blarina brevicauda plumbea* Davis, Jour. Mamm., 22, 1941: 317-318.

¹⁰ W. B. Davis has kindly compared Louisiana specimens of *minima* with the type and paratype of *plumbea*.

¹¹ For a synopsis of the races of *Blarina brevicauda*, cf. Bole and Moulthrop, *Scient. Pub. Cleveland Mus. Nat. Hist.*, 5, No. 6, 1942: 99-133.

¹² The average measurements of fifteen males from localities in South Carolina, Georgia and Alabama (Kellogg, *Proc. U. S. Nat. Mus.*, 86, 1939: 253) are as follows: total length, 97.7 (94-110); tail, 18.8 (15-21); hind foot, 12 (11-13). Ten females from the same states measure as follows: 95 (86-103); tail, 19.9 (17-25); hind foot, 12 (11-13). Four South Carolina skulls measured by me average as follows: greatest length of skull, 19.4 (19.4-19.5); cranial breadth, 10.2 (10.0-10.5); interorbital breadth, 5.4 (5.2-5.5); palatal length, 8.2 (8.1-8.5); post palatal length, 8.5 (8.4-8.6); maxillary breadth across I³, 3.1 (3.0-3.2).

Diagnosis.—A medium-sized bat with extremely rich brownish upper parts (Amber Brown to Cinnamon Brown) and yellowish buff to ferruginous under parts; fur dense; hind foot strong; skull rather slender but with large, expanded brain case and distinct sagittal crest.

Comparisons. — Similar to *Myotis austroriparius austroriparius* (Rhoads),¹³ but differing in the distinctly richer coloration of the pelage above and below, and in the shorter length of the bones of the wing, particularly the third metacarpal.

Measurements and Specimens examined—See Table 1.

Remarks.—Only just recently, after completing the most careful study of the five known examples of this form, along with practically all of the specimens of *M. a. austroriparius* extant in the various museum collections (eighty-three from localities in Florida), did I finally arrive at the decision to consider *gatesi* subspecifically related to *austroriparius*, and not a specific entity. In preparing the initial draft of this description, *gatesi* was proposed as a full species, but at that time only twelve examples of *austroriparius* were available to me. Since then, through the kindness of H. B. Sherman, I have been permitted to study his excellent series of sixty-five specimens of the Florida form. Four additional specimens of *austroriparius* were obtained from the University of Michigan Museum of Zoölogy and two from the Field Museum of Natural History, thus bringing together practically all of the specimens of *Myotis austroriparius* extant. This excellent series demonstrates probably the maximum variation in that form and points to a somewhat closer relationship with the Louisiana bat than was evident at first. The two are quite dissimilar in color, *gatesi* being a rich brown above and yellowish below (in one specimen, between Ferruginous and Cinnamon Rufous), whereas, the upper parts in *austroriparius* are between a dark brown and fuscous, and the under parts are gray. In *gatesi*, the third metacarpal is decidedly shorter than the same bone in *austroriparius*, the difference being absolute and not bridged by the variation in the sixty-five specimens of the latter form measured in the present connection.

Notwithstanding the fact that striking color differences and the length of the wing bones are recognized as useful criteria in separating species of bats, I have been unable to detect a single constant skull character distinguishing *gatesi* from *austroriparius*. As the two forms lack trenchant skull

¹³ *Myotis austroriparius austroriparius* (Rhoads), Proc. Acad. Nat. Sci. Phila. 1897, pt. 2, p. 227. Type locality: Tarpon Springs, Pinellas County, Florida. Miller and Allen, "The American Bats of the Genera *Myotis* and *Pizonyx*," *Nat. Mus. Bul.* 144, 1928: 76-80.

MEASUREMENTS OF MYOTIS AUSTRORIPARIUS

| Museum and Number | SUBSPECIES AND LOCALITY | Sex | Total Length | Tail | Tibia | Foot | Forearm | Thumb | Third Metacarpal | Ear | Greatest Length of Skull | Zygomatic Breadth | Interorbital Breadth | Breadth of Brain Case | Maxillary Tooth Row | Breadth at M ¹ | Mandible | Mandibular Tooth Row |
|-----------------------------|---|-----|--------------|------|-------|------|---------|-------|------------------|------|--------------------------|-------------------|----------------------|-----------------------|---------------------|---------------------------|----------|----------------------|
| <i>M. a. austroriparius</i> | | | | | | | | | | | | | | | | | | |
| Copeland 806 | Florida: Pinellas Co., Bird Key (near topotypes)..... | ♂ | 89.0 | 38.5 | 15.6 | 9.4 | 38.0 | 6.0 | 36.0 | .... | 14.4 | 8.8 | 3.6 | 7.0 | 5.3 | 5.7 | 10.1 | 5.8 |
| 808 | " | ♂ | 88.0 | 38.0 | 16.2 | 9.5 | 37.4 | 6.2 | 35.6 | .... | 14.4 | 8.8 | 3.6 | 7.0 | 5.3 | 5.7 | 10.1 | 5.8 |
| 810 | " | ♂ | 88.0 | 38.0 | 16.2 | 9.4 | 38.4 | 6.2 | 35.6 | 14.0 | 14.2 | 9.2 | 3.6 | 7.0 | 5.3 | 5.7 | 10.1 | 5.8 |
| 811 | " | ♂ | 89.0 | 38.0 | 16.6 | 9.4 | 38.4 | 6.2 | 35.6 | 14.0 | 14.2 | 9.2 | 3.6 | 7.0 | 5.3 | 5.7 | 10.1 | 5.8 |
| 812 | " | ♂ | 87.0 | 36.5 | 16.8 | 9.6 | 40.4 | 6.4 | 36.4 | 14.0 | 14.8 | 9.0 | 3.6 | 7.2 | 5.3 | 5.7 | 10.1 | 5.8 |
| 813 | " | ♂ | 87.0 | 36.5 | 16.8 | 9.6 | 40.0 | 6.0 | 36.4 | 14.0 | 14.8 | 9.0 | 3.6 | 7.2 | 5.3 | 5.7 | 10.1 | 5.8 |
| 814 | " | ♂ | 88.0 | 37.0 | 16.0 | 9.6 | 38.2 | 6.0 | 35.2 | 13.0 | 14.2 | 9.2 | 3.6 | 7.2 | 5.3 | 5.7 | 10.1 | 5.8 |
| 817 | " | ♂ | 88.0 | 37.0 | 16.0 | 9.6 | 38.4 | 6.0 | 35.8 | 13.4 | 14.4 | 9.0 | 3.6 | 7.2 | 5.3 | 5.7 | 10.1 | 5.8 |
| 824 | " | ♂ | 87.5 | 36.5 | 16.2 | 9.6 | 38.6 | 6.0 | 35.8 | 13.4 | 14.4 | 9.0 | 3.6 | 7.2 | 5.3 | 5.7 | 10.1 | 5.8 |
| 825 | " | ♂ | 88.0 | 37.0 | 16.0 | 9.6 | 38.6 | 6.0 | 35.8 | 13.4 | 14.4 | 9.0 | 3.6 | 7.2 | 5.3 | 5.7 | 10.1 | 5.8 |
| 826 | " | ♂ | 85.0 | 32.0 | 15.0 | 8.8 | 37.0 | 5.8 | 33.2 | 12.0 | 14.4 | 9.0 | 3.6 | 7.2 | 5.3 | 5.7 | 10.1 | 5.8 |
| 827 | " | ♂ | 85.0 | 32.0 | 15.0 | 8.8 | 36.2 | 5.8 | 33.2 | 12.0 | 14.4 | 9.0 | 3.6 | 7.2 | 5.3 | 5.7 | 10.1 | 5.8 |
| | AVERAGE..... | | 87.1 | 36.3 | 16.1 | 9.1 | 38.4 | 6.1 | 35.6 | 13.0 | 14.4 | 9.0 | 3.7 | 7.1 | 5.3 | 5.7 | 10.1 | 5.8 |
| Sherman 404 | Florida: Alachua Co., Gainesville..... | ♂ | 90.0 | 39.0 | 15.9 | 10.6 | 38.0 | 6.5 | 33.8 | 13.5 | 14.1 | 8.9 | 3.7 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 408 | " | ♂ | 94.0 | 37.0 | 17.2 | 11.0 | 40.1 | 6.5 | 36.0 | 13.0 | 13.0 | 9.4 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 409 | " | ♂ | 94.0 | 38.5 | 17.5 | 11.0 | 38.8 | 6.0 | 35.2 | 13.0 | 14.2 | 9.4 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 410 | " | ♂ | 89.0 | 38.5 | 16.9 | 11.0 | 38.9 | 6.0 | 35.2 | 13.0 | 14.2 | 9.4 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 411 | " | ♂ | 93.0 | 41.0 | 17.5 | 11.0 | 38.9 | 6.0 | 35.2 | 13.0 | 14.2 | 9.4 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 418 | " | ♂ | 98.0 | 43.0 | 16.3 | 11.0 | 38.0 | 6.5 | 35.6 | 14.4 | 14.5 | 9.2 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 420 | " | ♂ | 90.0 | 40.5 | 16.3 | 11.0 | 38.0 | 6.5 | 35.6 | 14.4 | 14.5 | 9.2 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 423 | " | ♂ | 93.5 | 38.5 | 15.8 | 11.0 | 37.6 | 6.4 | 35.8 | 13.4 | 14.3 | 9.0 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 429 | " | ♂ | 91.0 | 39.0 | 16.0 | 11.0 | 37.6 | 6.4 | 35.8 | 13.4 | 14.3 | 9.0 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 430 | " | ♂ | 90.0 | 40.0 | 16.4 | 11.0 | 37.6 | 6.4 | 35.8 | 13.4 | 14.3 | 9.0 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 431 | " | ♂ | 90.0 | 39.0 | 16.3 | 11.0 | 38.2 | 6.4 | 35.8 | 13.4 | 14.3 | 9.0 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 433 | " | ♂ | 92.0 | 40.5 | 16.4 | 11.4 | 38.2 | 6.4 | 35.8 | 13.4 | 14.3 | 9.0 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 435 | " | ♂ | 94.5 | 39.0 | 15.6 | 11.3 | 37.6 | 6.4 | 36.4 | 13.4 | 14.1 | 8.9 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 436 | " | ♂ | 94.0 | 39.0 | 16.4 | 11.3 | 37.6 | 6.4 | 36.4 | 13.4 | 14.1 | 8.9 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 437 | " | ♂ | 94.4 | 39.0 | 16.7 | 11.8 | 38.0 | 6.0 | 34.7 | 14.4 | 14.4 | 9.0 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 438 | " | ♂ | 94.0 | 39.0 | 16.8 | 11.8 | 38.0 | 6.0 | 34.5 | 13.8 | 14.1 | 8.8 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 444 | " | ♂ | 90.0 | 39.0 | 15.9 | 11.2 | 37.3 | 7.2 | 34.5 | 13.8 | 14.1 | 8.8 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 447 | " | ♂ | 95.0 | 44.0 | 16.7 | 11.0 | 39.0 | 7.2 | 36.0 | 13.8 | 14.3 | 8.9 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 448 | " | ♂ | 90.0 | 38.0 | 16.5 | 11.6 | 37.5 | 7.6 | 36.0 | 13.2 | 14.5 | 8.9 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 449 | " | ♂ | 90.0 | 38.0 | 16.5 | 11.6 | 37.5 | 7.6 | 36.0 | 13.2 | 14.5 | 8.9 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 450 | " | ♂ | 95.0 | 43.0 | 17.3 | 11.0 | 38.2 | 7.0 | 35.5 | 14.4 | 14.3 | 8.9 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 455 | " | ♂ | 93.5 | 41.0 | 16.8 | 11.2 | 39.2 | 7.0 | 36.1 | 13.6 | 14.3 | 8.9 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 607 | " | ♂ | 91.0 | 39.0 | 17.2 | 11.2 | 39.3 | 7.3 | 36.0 | 14.2 | 14.3 | 9.1 | 3.8 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 628 | " | ♂ | 94.0 | 44.0 | 18.0 | 11.0 | 40.6 | 7.3 | 37.5 | 14.9 | 14.5 | 9.0 | 3.8 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 629 | " | ♂ | 93.0 | 42.0 | 18.0 | 11.2 | 39.3 | 7.5 | 36.0 | 14.1 | 14.5 | 8.9 | 3.8 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 630 | " | ♂ | 91.0 | 40.0 | 17.1 | 11.0 | 39.8 | 7.5 | 35.5 | 14.0 | 14.5 | 8.9 | 3.8 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 632 | " | ♂ | 94.0 | 42.0 | 17.5 | 11.0 | 39.5 | 7.3 | 35.5 | 14.0 | 14.5 | 8.9 | 3.8 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 640 | " | ♂ | 93.0 | 41.0 | 17.0 | 11.0 | 40.5 | 8.0 | 36.0 | 13.6 | 14.2 | 8.9 | 3.8 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 641 | " | ♂ | 93.0 | 42.0 | 17.0 | 11.0 | 40.6 | 8.0 | 35.7 | 14.8 | 14.3 | 9.1 | 3.8 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 643 | " | ♂ | 98.0 | 42.0 | 18.0 | 11.0 | 39.0 | 7.8 | 36.4 | 14.2 | 14.3 | 8.8 | 3.8 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 644 | " | ♂ | 94.0 | 39.0 | 16.8 | 11.0 | 38.3 | 7.0 | 35.5 | 13.5 | 14.2 | 8.9 | 3.7 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 645 | " | ♂ | 92.0 | 40.0 | 17.0 | 11.2 | 38.9 | 7.0 | 35.5 | 13.5 | 14.2 | 8.9 | 3.7 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 646 | " | ♂ | 98.0 | 43.0 | 17.4 | 11.2 | 41.0 | 8.0 | 36.8 | 13.4 | 14.6 | 9.0 | 3.7 | 7.1 | 5.0 | 4.8 | 10.2 | 5.4 |
| 661 | " | ♂ | 98.0 | 43.0 | 17.4 | 11.2 | 41.0 | 8.0 | 36.8 | 13.4 | 14.6 | 9.0 | 3.7 | 7.1 | 5.0 | 4.8 | 10.2 | 5.4 |
| 662 | " | ♂ | 92.0 | 40.0 | 16.8 | 11.1 | 39.0 | 7.5 | 35.2 | 13.6 | 14.0 | 8.8 | 3.8 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 674 | " | ♂ | 92.0 | 39.0 | 16.8 | 11.2 | 38.2 | 7.2 | 33.6 | 14.5 | 14.0 | 8.9 | 3.8 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 675 | " | ♂ | 90.0 | 38.0 | 16.3 | 11.2 | 38.5 | 7.6 | 35.2 | 14.2 | 14.5 | 9.2 | 3.6 | 7.1 | 5.0 | 4.8 | 10.2 | 5.4 |
| 676 | " | ♂ | 96.0 | 41.0 | 16.0 | 11.2 | 40.4 | 7.5 | 35.5 | 13.5 | 14.5 | 9.2 | 3.6 | 7.1 | 5.0 | 4.8 | 10.2 | 5.4 |
| 677 | " | ♂ | 99.0 | 44.0 | 17.4 | 11.3 | 39.6 | 7.2 | 36.2 | 13.5 | 14.5 | 9.1 | 3.6 | 7.1 | 5.0 | 4.8 | 10.2 | 5.4 |
| 678 | " | ♂ | 94.0 | 41.0 | 16.6 | 11.3 | 39.4 | 7.2 | 35.1 | 13.7 | 14.8 | 9.0 | 3.8 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 679 | " | ♂ | 92.0 | 42.0 | 17.2 | 11.2 | 39.4 | 7.0 | 36.6 | 14.2 | 14.0 | 8.9 | 3.7 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 680 | " | ♂ | 90.0 | 40.0 | 16.7 | 11.1 | 38.7 | 7.5 | 35.0 | 14.0 | 14.5 | 9.0 | 3.7 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 681 | " | ♂ | 91.0 | 40.0 | 17.0 | 10.8 | 38.6 | 7.2 | 33.0 | 14.0 | 14.5 | 9.0 | 3.7 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 706 | " | ♂ | 83.0 | 42.0 | 17.5 | 11.4 | 39.0 | 7.6 | 36.2 | 13.2 | 14.7 | 8.9 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 710 | " | ♂ | 85.0 | 44.0 | 17.8 | 10.9 | 40.7 | 7.5 | 36.3 | 13.2 | 14.7 | 8.9 | 3.6 | 7.0 | 5.0 | 4.8 | 10.2 | 5.4 |
| 726 | " | ♂ | 93.0 | 40.6 | 16.9 | 11.2 | 38.9 | 7.3 | 35.4 | 13.9 | 14.3 | 9.0 | 3.7 | 7.0 | 5.3 | 5.5 | 10.6 | 5.6 |
| | AVERAGE..... | | 93.0 | 40.6 | 16.9 | 11.2 | 38.9 | 7.3 | 35.4 | 13.9 | 14.3 | 9.0 | 3.7 | 7.0 | 5.3 | 5.5 | 10.6 | 5.6 |
| FM 44746 | Florida: Citrus Co., Inverness 10 mi. S..... | ♂ | 85.0 | 40.0 | 16.0 | 11.0 | 39.0 | 6.5 | 34.4 | 15.0 | 14.2 | 8.8 | 3.9 | 7.3 | 5.2 | 5.4 | 10.8 | 5.6 |
| 44747 | " | ♂ | 90.0 | 40.0 | .... | 10.0 | 41.0 | 6.4 | 35.8 | 15.0 | 14.6 | 8.8 | 3.8 | 7.5 | 5.2 | 5.5 | 10.6 | 5.6 |
| U. Mich. 58823 | Florida: Hillsboro Co., Tampa Bay, Indian Key..... | ♂ | 95.0 | 40.0 | 16.5 | 11.0 | 38.7 | 6.9 | 36.1 | 14.0 | 14.8 | 9.0 | 3.6 | 7.2 | 5.3 | 5.6 | 11.1 | 5.7 |
| 58824 | " | ♂ | 88.0 | 42.0 | 16.0 | 11.0 | 38.7 | 6.0 | 34.6 | 14.0 | 14.8 | 9.0 | 3.7 | 7.0 | 5.4 | 5.5 | 11.0 | 5.6 |
| 58825 | " | ♂ | 91.0 | 41.0 | 16.6 | 10.0 | 37.0 | 6.0 | 34.8 | 14.0 | 14.5 | 9.2 | 3.9 | 7.3 | 5.3 | 5.7 | 10.6 | 5.5 |
| 58827 | " | ♂ | 96.0 | .... | 15.3 | 11.0 | 37.0 | .... | 34.0 | 13.0 | 14.5 | 8.8 | 3.9 | 7.1 | 5.3 | 5.7 | 10.6 | 5.5 |
| | AVERAGE OF ALL FLORIDA SPECIMENS..... | | 91.7 | 39.9 | 16.6 | 10.7 | 38.8 | 7.0 | 35.4 | 13.8 | 14.4 | 9.0 | 3.7 | 7.1 | 5.3 | 5.5 | 10.5 | 5.6 |

Myotis austroriparius susp.?

| U. S. N. M. | | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ |
|--------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|---|
| 153630 | Indiana: Mitchell..... | 87.0 | 36.0 | 15.4 | 9.8 | 39.8 | 7.2 | 35.0 | .... | 15.0 | 9.0 | 3.8 | 7.6 | 5.6 | 5.8 | 10.6 | 6.0 | | |
| 153631 | " | 85.0 | 34.0 | 13.2 | 10.0 | 40.2 | 6.2 | 33.7 | .... | 14.8 | 9.0 | 3.8 | 7.6 | 5.6 | 5.8 | 10.6 | 6.0 | | |
| 153632 | " | 89.0 | 38.0 | 16.8 | 9.0 | 37.5 | 6.4 | 33.3 | .... | 14.8 | 9.0 | 3.8 | 7.2 | 5.4 | 5.8 | 11.0 | 6.0 | | |
| 153633 | " | 88.0 | 36.0 | 17.0 | 9.8 | 39.4 | 6.4 | 34.3 | .... | 14.6 | 9.3 | 3.8 | 7.2 | 5.4 | 5.9 | 11.0 | 6.0 | | |
| 251919 | " | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |  |  |
| AVERAGE..... | | 87.3 | 36.0 | 16.1 | 9.7 | 39.3 | 6.6 | 34.1 | .... | 14.8 | 9.1 | 3.8 | 7.3 | 5.5 | 5.9 | 10.9 | 6.0 | | |

differences, I believe now that they are best considered geographical representatives of the same species.

Outside of the Florida Peninsula, *Myotis austroriparius* has been previously recorded only from Mitchell, Indiana.¹⁵ Comparison of the four skins and five skulls from this interesting locality with both *gatesi* and *austroriparius* reveals that the Indiana population is slightly different from both forms, and probably worthy of nomenclatural recognition. Unfortunately, I am not convinced that these specimens do not show some signs of fading and "museum age." In color they resemble somewhat the Provencal, Louisiana, specimen of *gatesi* but are paler and lack the rather golden tinge evident in the latter. The skulls of the Indiana specimens average slightly larger than *gatesi*; the third metacarpal is the same length as in *austroriparius*, on which basis alone I would hesitate referring them to *gatesi*. Until additional material from the Upper Mississippi River Valley is made available, the status of the Mitchell, Indiana, specimens had best remain an open question. Any other action would be arbitrary and provisional.

There is practically no information available regarding the life history and relative abundance of this bat. The genus *Myotis* itself is herewith being recorded from Louisiana for the first time. The credit for obtaining the first specimen goes to Horace A. Hays of Provencal, Louisiana, who procured a single adult male at his home on November 23, 1939, when it flew through an open window at night. The skull was badly crushed and later the skin was partially damaged by insects before it reached the Louisiana State University Museum. Although classified as a member of the genus *Myotis*, not until a year later when another specimen was obtained at Baton Rouge was it evident that an undescribed form was involved. The first two specimens were then forwarded to Gerrit S. Miller who found nothing exactly comparable to them in the U. S. National Museum. Even though four years have elapsed during which time every possible effort has been made to obtain a considerable series, only five specimens are now extant, all of which have been obtained in the most fortuitous manner.

¹⁵ A single specimen in the British Museum of Natural History reputedly taken in Canada is generally regarded as erroneous. Also B. P. Bole, Jr., recently recorded (*Jour. of Mamm.* 24, 1943: 403) *austroriparius* from Indian Cave, Grainger County, Tennessee, based on a skin and skull found in a series of *Myotis grisescens* in the Cleveland Museum of Natural History. Through the courtesy of H. C. Oberholser, I have been permitted to examine this specimen and am able to assert definitely that Bole was in error in calling it *Myotis austroriparius*. The specimen in question proves to be an example of *Myotis lucifugus*.

For instance, I found the second specimen, the one which actually established the distinctness of the form, clinging to the wall of the hallway just outside the entrance to the Museum! The others were found by Austin Burdick, Sam M. Ray, and Roland Abegg, students in Mammalogy at the Louisiana State University, and in each instance the bats were alone and in hallways of buildings on the University campus. Since Louisiana lacks caves, bats must either be shot on the wing or be found in hollow trees or buildings.

This interesting bat is named for Professor William H. Gates of the Louisiana State University whose interest in mammals, particularly bats, is well known and who is largely responsible for the establishment of the Louisiana State University Museum of Zoölogy.

PIPISTRELLUS SUBFLAVUS SUBFLAVUS (F. CUVIER)

EASTERN PIPISTRELLE

Like most Louisiana bats, only a comparatively few specimens of this species have been collected, although it is apparently not uncommon in certain sections of the State. The species has been taken at Baton Rouge, Ruston, Provencal, Vowell's Mill, Fishville (LSU), Houma, Mer Rouge (BS), and St. Tammany (AM).

EPTESICUS FUSCUS FUSCUS (BEAUVOIS)

BIG BROWN BAT

This is an uncommon species which may occur principally as a winter visitor. Specimens have been taken during January, February, April and October at Provencal, Vowell's Mill and Ruston in northern Louisiana, and during May at Hammond, in southeastern Louisiana (LSU). The specimens from the latter place were taken from a small colony of eleven females studied during April and May, 1936, by W. H. Gates¹⁶. Since all of the bats gave birth to young during the period of observation, we are furnished with at least one definite breeding record for the species in the State. Additional examples have been collected at New Orleans, Mer Rouge (BS), and Columbia (FM).

LASIURUS BOREALIS BOREALIS (MÜLLER)

RED BAT

The Red Bat is apparently quite common and well distributed throughout the State. Specimens have been collected at Baton Rouge, Ruston,

¹⁶ Jour. Mamm., 18, 1937: 97-98.

Fishville, Vowell's Mill, Provencal, Lake Charles, Oakdale (LSU), Alexandria, Lafayette, New Orleans, Pineville, Shreveport (BS), St. Tammany (AM), Grand Coteau (USNM), and Columbia (FM).

LASIURUS SEMINOLUS (RHODS)

MAHOGANY BAT

The Mahogany Bat is common in southern Louisiana, but apparently rather rare in the northern part of the State. Specimens have been collected at Blind River in St. James Parish, Baton Rouge, Grand Isle, Kisatchie and Vowell's Mill (LSU), Madisonville, Mandeville, New Orleans, and in West Baton Rouge Parish (BS). The possibility still exists that *L. seminolus* is nothing more than a color phase of *L. b. borealis*. The two are identical in all respects except pelage color, which in the case of *borealis* is brick red; whereas in *seminolus* the color is mahogany. As to color pattern, the two agree in even minute details. Both forms are known to occur together in certain Louisiana localities. No intermediates have been found, and suckling young of both forms examined at Baton Rouge resembled the parents in color.

LASIURUS CINEREUS (BEAUVOIS)

HOARY BAT

There are only two Louisiana records for this species: an alcoholic specimen in the Biological Surveys Collection taken by R. J. Thompson at Pineville on May 27, 1892, and a male, skin and skull, in the Louisiana State University Museum, taken by Horace A. Hays at Vowell's Mill, in Natchitoches Parish, on January 22, 1940.

DASYPTERUS FLORIDANUS MILLER

FLORIDA YELLOW BAT

The Yellow Bat has been recorded in Louisiana from four localities, all of which are in the south-central part of the State. The Louisiana State University Museum has nineteen specimens from Baton Rouge and one from New Orleans. The Biological Surveys Collection contains two from Lafayette and two from Houma. Because of its large size and characteristic flight, the species is readily identified in the field. At Baton Rouge it is one of the more common bats. Body and skull measurements of the specimens from Baton Rouge average larger than measurements given by Miller¹⁷ for typical *floridanus*. Possibly when additional central Gulf

¹⁷ Proc. Acad. Nat. Sci., Philadelphia, 1902: 392.

Coast material becomes available, *D. floridanus* may have to be reduced to a subspecies of *D. intermedius* (H. Allen).

NYCTICEIUS HUMERALIS (RAFINESQUE)

RAFINESQUE BAT

The Rafinesque Bat is common and apparently well distributed throughout the State. Specimens have been examined from Provencal, Robeline, Ruston, Baton Rouge, Lake Charles, Monroe, Fishville (LSU), Mer Rouge, Pineville, and Tallulah (BS).

CORYNORHINUS MACROTIS (LECONTE)

LECONTE BIG-EARED BAT

This species is apparently locally distributed in the State. Specimens have been collected at Baton Rouge, New Orleans, Waverly, Kisatchie, Ruston (LSU), Houma, Lobdell, and Tallulah (BS). At Baton Rouge the species has been found in buildings and in hollow trees.

Family MOLOSSIDAE

TADARIDA CYNOCEPHALA (LECONTE)

LECONTE FREE-TAILED BAT

The Leconte Free-tailed Bat is without question the most common of the Louisiana bats, particularly in the larger towns. However, Hays was able to secure only one record of its occurrence in Natchitoches Parish, that of ten individuals located in a colony of approximately 500 Rafinesque Bats in a church at Robeline. The apparent scarcity of the Free-tailed Bat in Natchitoches Parish is surprising, for at Monroe, Ruston, Baton Rouge and New Orleans, as well as other towns throughout the State, the species occurs in extremely large colonies.

Family URSIDAE

EUARCTOS LUTEOLUS (GRIFFITH)

LOUISIANA BLACK BEAR

In former times bears ranged extensively over most of the State. However, at present they are restricted largely to the heavily timbered bottom lands of the Boeuf, Tensas, and Atchafalaya rivers of central and southern Louisiana. A few are killed each year in Madison, Richland, East Carroll and surrounding parishes, where, according to J. J. Kuhn, well-known guide and woodsman of that section, the species is still quite plentiful.

Also E. A. McIlhenny informs me (*in litt.*) that bears are not uncommon near Avery Island. The species is probably now extinct in the Florida Parishes, unless, however, a few still remain in the Devil Swamp-Tunica Hills section. As late as July, 1931, two were seen in that general area, near Baines, but they may have come down from Mississippi and the Homochitta Swamp. In northwestern Louisiana, bears have been largely, if not wholly, extirpated for over forty years. One was reported killed near Sarepta in 1898, and Horace A. Hays informs me of another killed at Kisatchie in 1900, which he believes was the last definitely encountered in that area. The Biological Surveys collection contains specimens from Abbeville, Avery Island, Franklin, Indian Lake, Morgan City, Newellton, Mer Rouge, St. Joseph, Tallulah, Tensas Bayou, Delhi, and Waverly. Material in the Louisiana State University Museum consists of two skulls only, both without specific locality. The so-called "Yellow Bear of Louisiana"¹⁸ refers probably to a color phase or to extremely worn and faded examples of a brown phase, for generally speaking, Louisiana bears are black.

Family PROCYONIDAE

PROCYON LOTOR VARIUS NELSON AND GOLDMAN

RACCOON

Specimens of this race have been examined from Baton Rouge, Plaquemine, Lafayette and Provencal (LSU). It occurs throughout the State, except in the southern tier of parishes where it is replaced by the following form. The less massive, rather narrow skull, and the extremely small molariform teeth immediately distinguish it from *megalodous*, a race which is herein described from southern Louisiana.

PROCYON LOTOR MEGALODOUS new subspecies

Type.—Male, adult, skin and skull; number 2321, Louisiana State University Museum of Zoölogy; Marsh Island, Iberia Parish, Louisiana; collected October 24, 1943, by Ted O'Neil and prepared by George H. Lowery, Jr.; original number, GHL 1152.

Distribution.—The coast region of southern Louisiana from St. Bernard Parish, west to Cameron Parish.

Diagnosis.—A medium-sized Raccoon in which the pelage is strongly suffused above with black and pale yellow. Skull massive and with ex-

¹⁸ Cf. C. Hart Merriam, "The Yellow Bear of Louisiana, *Ursus luteolus* Griffith," *Proc. Biol. Soc. Wash.*, 8, 1893: 147-151.

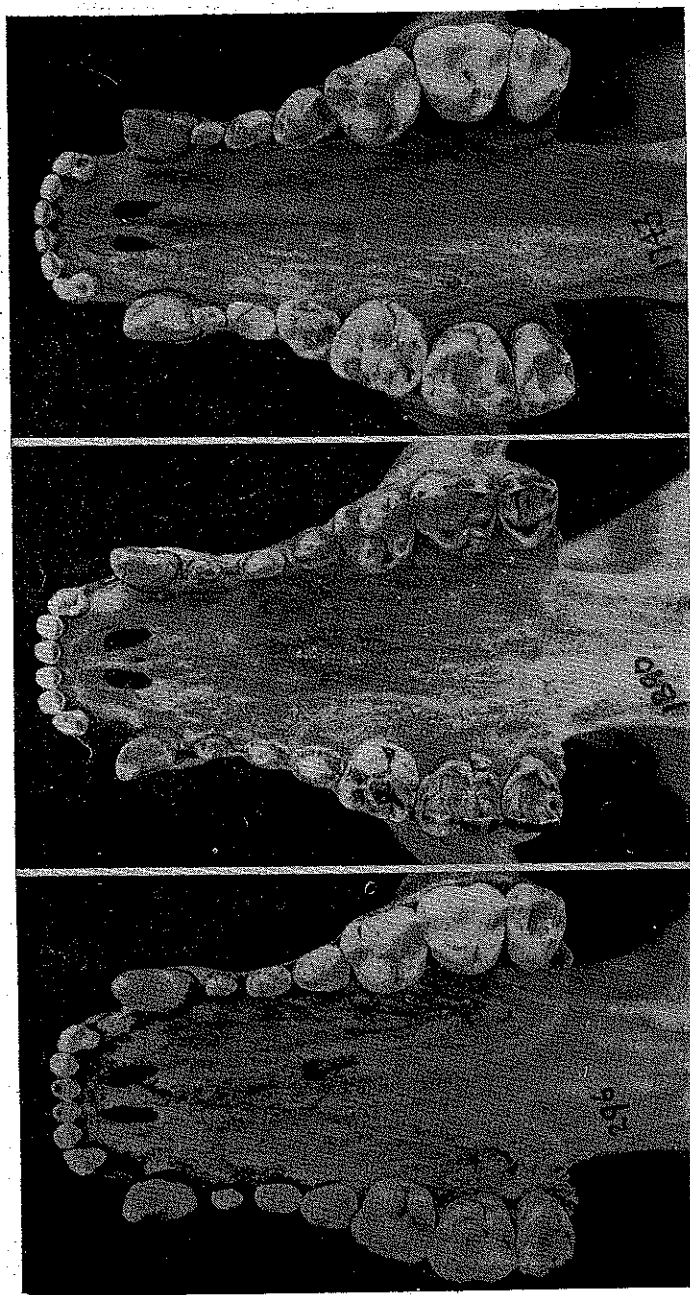


FIGURE 2. Photographs of skulls of three races of *Procyon lotor* showing differences in the size of the molariform teeth. L.S.U. 1743, 19. *P. l. megalodon*, Belair, Louisiana. L.S.U. 1890, ♀, *P. l. varius*, Baton Rouge, Louisiana. Texas Coop. Wildlife Coll. 1946, ♂, 19. *P. l. varius*, Kearsy, Louisiana, Texas.

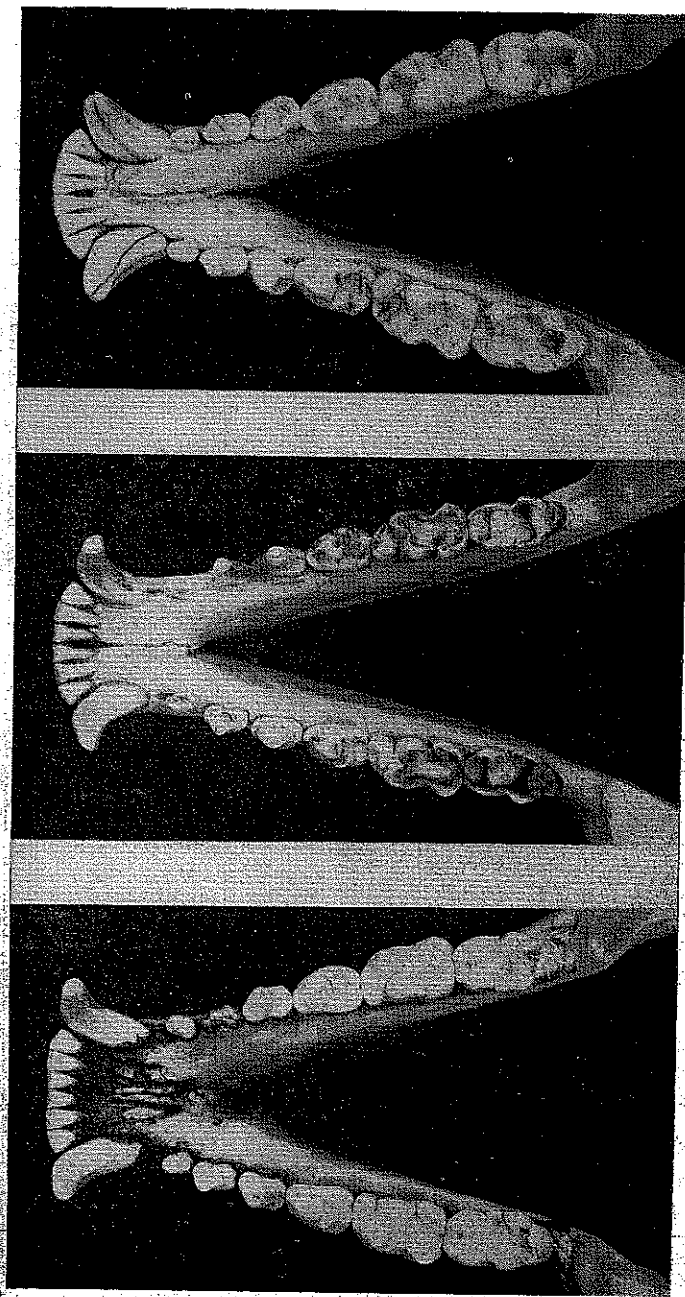


FIGURE 3. Lower jaws of skulls shown in Figure 2 arranged in the same order.

TABLE 2
MEASUREMENTS OF TEETH OF *PROCYON LOTOR*

[illegible]

P. l. megalodorus

| L. S. U. | Louisiana: | Toca Village | 763 |
|----------|------------|--------------|------|
| 1748 | Belar. | 1748 | 1748 |
| 1747 | " | 1747 | 1747 |
| 1746 | " | 1746 | 1746 |
| 1745 | " | 1745 | 1745 |
| 1744 | " | 1744 | 1744 |
| 1743 | " | 1743 | 1743 |
| 1738 | " | 1738 | 1738 |
| 1737 | " | 1737 | 1737 |
| 1736 | " | 1736 | 1736 |
| 1735 | " | 1735 | 1735 |
| 1734 | " | 1734 | 1734 |
| 1733 | " | 1733 | 1733 |
| 1732 | " | 1732 | 1732 |
| 1731 | " | 1731 | 1731 |
| 1730 | " | 1730 | 1730 |
| 1729 | " | 1729 | 1729 |
| 1728 | " | 1728 | 1728 |
| 1727 | " | 1727 | 1727 |
| 1726 | " | 1726 | 1726 |
| 1725 | " | 1725 | 1725 |
| 1724 | " | 1724 | 1724 |
| 1723 | " | 1723 | 1723 |
| 1722 | " | 1722 | 1722 |
| 1721 | " | 1721 | 1721 |
| 1720 | " | 1720 | 1720 |
| 1719 | " | 1719 | 1719 |
| 1718 | " | 1718 | 1718 |
| 1717 | " | 1717 | 1717 |
| 1716 | " | 1716 | 1716 |
| 1715 | " | 1715 | 1715 |
| 1714 | " | 1714 | 1714 |
| 1713 | " | 1713 | 1713 |
| 1712 | " | 1712 | 1712 |
| 1711 | " | 1711 | 1711 |
| 1710 | " | 1710 | 1710 |
| 1709 | " | 1709 | 1709 |
| 1708 | " | 1708 | 1708 |
| 1707 | " | 1707 | 1707 |
| 1706 | " | 1706 | 1706 |
| 1705 | " | 1705 | 1705 |
| 1704 | " | 1704 | 1704 |
| 1703 | " | 1703 | 1703 |
| 1702 | " | 1702 | 1702 |
| 1701 | " | 1701 | 1701 |
| 1700 | " | 1700 | 1700 |
| 1699 | " | 1699 | 1699 |
| 1698 | " | 1698 | 1698 |
| 1697 | " | 1697 | 1697 |
| 1696 | " | 1696 | 1696 |
| 1695 | " | 1695 | 1695 |
| 1694 | " | 1694 | 1694 |
| 1693 | " | 1693 | 1693 |
| 1692 | " | 1692 | 1692 |
| 1691 | " | 1691 | 1691 |
| 1690 | " | 1690 | 1690 |
| 1689 | " | 1689 | 1689 |
| 1688 | " | 1688 | 1688 |
| 1687 | " | 1687 | 1687 |
| 1686 | " | 1686 | 1686 |
| 1685 | " | 1685 | 1685 |
| 1684 | " | 1684 | 1684 |
| 1683 | " | 1683 | 1683 |
| 1682 | " | 1682 | 1682 |
| 1681 | " | 1681 | 1681 |
| 1680 | " | 1680 | 1680 |
| 1679 | " | 1679 | 1679 |
| 1678 | " | 1678 | 1678 |
| 1677 | " | 1677 | 1677 |
| 1676 | " | 1676 | 1676 |
| 1675 | " | 1675 | 1675 |
| 1674 | " | 1674 | 1674 |
| 1673 | " | 1673 | 1673 |
| 1672 | " | 1672 | 1672 |
| 1671 | " | 1671 | 1671 |
| 1670 | " | 1670 | 1670 |
| 1669 | " | 1669 | 1669 |
| 1668 | " | 1668 | 1668 |
| 1667 | " | 1667 | 1667 |
| 1666 | " | 1666 | 1666 |
| 1665 | " | 1665 | 1665 |
| 1664 | " | 1664 | 1664 |
| 1663 | " | 1663 | 1663 |
| 1662 | " | 1662 | 1662 |
| 1661 | " | 1661 | 1661 |
| 1660 | " | 1660 | 1660 |
| 1659 | " | 1659 | 1659 |
| 1658 | " | 1658 | 1658 |
| 1657 | " | 1657 | 1657 |
| 1656 | " | 1656 | 1656 |
| 1655 | " | 1655 | 1655 |
| 1654 | " | 1654 | 1654 |
| 1653 | " | 1653 | 1653 |
| 1652 | " | 1652 | 1652 |
| 1651 | " | 1651 | 1651 |

P. l. varius

[illegible]

P. l. fuscipes

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------|-----|------|------|----|----|-----|-----|-----|-----|------|------|------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Texas A. & M. | 2520 | 296 | 1877 | 2677 | 65 | 64 | ... | 920 | 919 | 840 | 2335 | 1456 | 1404 | 229 | 1878 | ... | 3.9 | 5.6 | 7.6 | 7.9 | 8.7 | 8.4 | 7.9 | 5.9 | 4.9 | 7.3 | 6.2 | 9.6 | 5.5 | 9.7 |
| Texas: Kerr County..... | 9 | 2 | 9 | 4 | 0 | 3 | 4 | 0 | 8 | 8 | 3 | 3 | 3 | 3 | 4 | 1 | ... | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| " " | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

tremely large molariform teeth, by which characters it is immediately distinguished from the two geographically adjacent races, *P. l. varius* and *P. l. fuscipes*.

Comparisons.—In coat color, *megalodous* is nearest to *P. l. varius*,¹⁹ but from which it is easily separable on the basis of its much more yellowish (less grayish) suffusion above and by the greater concentration of black along the mid-dorsal line; ears, light areas of face, legs, flanks, and under parts decidedly yellowish rather than gray as in *varius*. Skull clearly differentiated from *varius*, as follows: molariform teeth much larger; frontal "hump" distinctly higher and more pronounced; postorbital constriction conspicuous. Compared with *P. l. fuscipes*,²⁰ *megalodous* is differentiated as follows: coat color decidedly yellowish above and below (less gray), and with a much stronger suffusion of black; nape much more rufescent than in *fuscipes*; skull differing in detail, notably in the larger size of the molariform teeth.

Measurements (the type).—Total length, 804 mm.; tail, 262; hind foot, 128; ear, 60. Also see Table 2.

Remarks.—This new race of Raccoon, which is an abundant inhabitant of the Louisiana coastal marshes, is so clearly separable from all other races of *Procyon lotor* that it is surprising it has not been described until now. Superficially, it resembles *varius* of northern and eastern Louisiana, Mississippi and Alabama, but its much more yellowish pelage which is strongly suffused with black, and its massive skull and large molariform teeth clearly set it apart from that form. In coat color this new race bears no close similarity to *P. l. fuscipes* of Texas, being distinctive as outlined above. However, the two agree with respect to certain cranial characters. In both the skull is massive, the frontal "hump" distinct, and the postocular constriction evident, but the dentition of *megalodous* is so decidedly heavier that skulls of the latter are separable from *fuscipes* without much difficulty.

Three skins from Grand Terre Island are decidedly yellower than anything else examined in the present connection. The dark mid-dorsal area is restricted to a narrow but heavily concentrated band of dark brown (no black); hence the yellowish pelage of the sides and flanks is less suffused with dark hairs than in other Raccoon specimens. The pelage of these specimens lacks any vestige of gray or black, the hairs being either yellowish or brown. Although there is a definite tendency among marsh dwelling

¹⁹ *Procyon lotor varius* Nelson and Goldman, Jour. Mamm., 11, 1930: 456-457.

²⁰ *Procyon lotor fuscipes* Mearns, Proc. Biol. Soc. Wash., 27, 1914: 63-64.

Raccoons to assume a decided ^{the} xanchronistic appearance in late spring and summer, this condition is clearly associated with wear, stain, and fading. These latter factors are not at all evident in the Grand Terre Island specimens, which are in fresh fall pelage. Whether this island population merits taxonomic recognition is dependent upon how constant the above noted characters appear in additional material, which is not obtainable at present.

Specimens examined.—Total number, 20 skins and 40 skulls, as follows:

LOUISIANA. *Cameron Parish*: Rockefeller Refuge, 1 skin without skull; near Sabine Wildlife Refuge, 19 skulls. *Calcasieu Parish*: Lake Charles, 1 skin with skull. *Terrebonne Parish*: Timbalier Island, 1 skin with skull. *St. Bernard Parish*: Toca Village, 1 skin with skull; Belair, 9 skins and 10 skulls. *Plaquemines Parish*: Delta Refuge below Pilottown, 3 skins and 4 skulls. *Jefferson Parish*: Grand Terre Island, 3 skins with skulls and one miscellaneous skull. *Iberia Parish*: Marsh Island (skin with skull; type).

[Family BASSARISCIDAE

BASSARISCUS ASTUTUS (LICHTENSTEIN)

CACOMISTLE

This species was admitted to the 1936 preliminary list on the basis of a report by the Louisiana Department of Conservation²¹ which asserted that occasional specimens were received in consignment shipments of furs from western Louisiana. In view of the uncertainty as to whether the skins actually came from Louisiana and not from eastern Texas, and the fact that no other corroborative evidence has been obtained, the species is herewith removed from the list of mammals definitely known to occur within the borders of the State.]

Family MUSTELIDAE

MUSTELA FRENATA ARTHURI HALL

LONG-TAILED WEASEL

This well-marked race of the Long-tailed Weasel is found abundantly in south-central Louisiana in Ascension, Assumption, Plaquemines, and the surrounding parishes. Outside of this limited area, it is rare or absent. At Baton Rouge, a locality on the periphery of the area just outlined, the species is quite rare and only eight specimens have been recorded in the last ten years. At Baines, in West Feliciana Parish, the species is even rarer.

²¹ "Fur Animals of Louisiana," Dept. of Conservation, Bulletin 18, 1931: 98-102, 430.

TABLE 3. COMPARATIVE ANNUAL TAKES OF CERTAIN FUR ANIMALS IN LOUISIANA BETWEEN 1928 AND 1942²²

| Season | Muskrat | Opossum | Raccoon | Mink | Skunks Unspecified | Otter |
|-------------|------------|------------|------------|------------|--------------------|------------|
| 1928-29.... | 5,105,374 | 518,295 | 153,914 | 99,844 | 38,940 | 3,048 |
| 1929-30.... | 6,269,556 | 309,363 | 105,381 | 69,680 | 27,034 | 1,447 |
| 1930-31.... | 4,068,114 | 127,725 | 52,065 | 45,390 | 11,487 | 1,396 |
| 1931-32.... | 2,209,382 | 197,712 | 133,470 | 127,245 | 122,679 | 1,664 |
| 1932-33.... | 2,150,915 | 127,890 | 87,674 | 82,364 | 52,349 | 870 |
| 1933-34.... | 2,025,915 | 123,540 | 85,764 | 81,463 | 50,959 | 780 |
| 1934-35.... | 2,125,720 | 126,000 | 83,467 | 80,364 | 47,955 | 789 |
| 1935-36.... | 2,100,550 | 125,830 | 84,321 | 82,465 | 45,947 | 650 |
| 1936-37.... | 2,200,520 | 128,000 | 86,500 | 81,530 | 46,890 | 780 |
| 1937-38.... | 3,110,540 | 131,000 | 87,300 | 82,480 | 48,500 | 920 |
| 1938-39.... | no records | no records | no records | no records | no records | no records |
| 1939-40.... | 6,432,025 | 45,561 | 71,419 | 85,391 | 4,655 | 1,273 |
| 1940-41.... | 5,781,342 | 95,027 | 162,853 | 113,245 | 13,964 | 1,726 |
| 1941-42.... | 4,834,706 | 108,609 | 166,738 | 151,766 | 18,034 | 1,740 |

MUSTELA FRENATA PRIMULINA JACKSON

LONG-TAILED WEASEL

Weasels are apparently extremely rare in all sections of Louisiana except the limited area in the south-central part of the State where the race *arthuri* occurs. Suspecting that the weasel of infrequent occurrence in northern Louisiana might prove referable to another race, every effort was made during the last fourteen years to secure one or more specimens. Finally, on April 7, 1943, George H. Lowery, Sr. obtained for the Louisiana State University Museum an adult male, skin and skull, at Swartz, in Ouachita Parish, a locality only thirty miles south of the Arkansas-Louisiana state-line. This valuable specimen was immediately forwarded to E. Raymond Hall who identified it as an example of *primulina*. This record extends materially the southern range of this race and narrows considerably one of the few hiatuses in Hall's map showing the ranges of the subspecies of *Mustela frenata*.²³

MUSTELA VISON VULGIVAGA (BANGS)

MINK

The Mink ranges commonly throughout the State, but only in the southern part can it still be considered abundant.

²² Furnished through courtesy of the Louisiana Department of Conservation. These figures give only a very general idea of the relative abundance of the various species. Cognizance must be taken of the various factors affecting annual catches of which the prevailing market price is one of the most important.

²³ E. Raymond Hall, "Mustelid Mammals from the Pleistocene of North America with Systematic Notes on some Recent Members of the Genera *Mustela*, *Taxidea* and *Mephitis*." *Carnegie Institute of Washington Publications*, No. 473, 1936: 41-119.

LUTRA CANADENSIS TEXENSIS GOLDMAN²⁴

RIVER OTTER

The Otter no doubt at one time ranged over the entire State. Now the species is confined principally to the alluvial bottom lands of the central part of the State and to the coastal marshes. The Louisiana State University Museum has a skin and two skulls from Belair, in Plaquemines Parish.

SPILOGALE INDIANOLA MERRIAM

GULF SPOTTED SKUNK

The small Gulf Spotted Skunk is apparently confined to the extreme southern part of the State, where, nevertheless, it is quite common. There is no definite record of its occurrence north of Baton Rouge, but in the sugarcane fields immediately south of that locality the species is not uncommon.

MEPHITIS MEPHITIS ELONGATA BANGS

STRIPED SKUNK

This subspecies of the common Striped Skunk is confined in Louisiana to the area east of the Mississippi River. Intergradation doubtless occurs between *mesomelas* and *elongata* somewhere in the western part of the Florida Parishes, but at present this has not been demonstrated by actual specimens. Much additional material is needed before the exact range in Louisiana of this and the following form can be given.

MEPHITIS MEPHITIS MESOMELAS LICHTENSTEIN

STRIPED SKUNK

The race *mesomelas* occurs throughout Louisiana in the region not occupied by *elongata*. Specimens have been collected at Melville, Lake Charles, Cameron, Monroe, Tallulah (LSU), Cartville (USNM and MCZ), Pointe aux Loups Springs (MCZ), Abbeville, Calcasieu and Cameron Parishes (BS).

Family CANIDAE

VULPES FULVA (DESMAREST)

RED FOX

The Red Fox is probably not a native of Louisiana. Occasional specimens caught or trapped in northern Louisiana are, without much doubt, the

²⁴ For the use of this name, see Goldman, *Proc. Biol. Soc. Wash.*, 48, 1935: 184-185. Also cf. Hall, *op. cit.*, p. 76-77.

results of introductions made in that section. The species is reported as occurring commonly in northern Mississippi,²⁵ whence a few individuals may wander into Louisiana. I have examined a skin of a Red Fox killed near Monroe in 1937, and John S. Campbell verifies the fact that one was captured at Bienville in 1933. J. J. Kuhn, who is regarded as one of Louisiana's finest guides and woodsmen, says that the species occurs at Tallulah. In 1925 the West Monroe Fox Hunters Association imported sixteen young Red Foxes from Missouri and released them in the pine hills west of Monroe. However, this is only one of numerous introductions said to have been made in northern Louisiana.

UROCYON CINEREOARGENTUS FLORIDANUS RHOADS

GRAY FOX

The Gray Fox is fairly abundantly distributed throughout the wooded uplands and pine flats of the State. Specimens have been examined from Monroe, Provençal, St. Francisville, Bellwood, and Selma (LSU).

CANIS NIGER GREGORYI GOLDMAN²⁶

SOUTHERN WOLF

The Wolf now occurs principally in the alluvial swamps of northeastern Louisiana, although in former years it doubtless occurred over the greater part of the State. The species is also of frequent occurrence in the Florida Parishes where sheep raisers report considerable depredation. Whether these wolves are referable to *gregoryi* is uncertain. The Louisiana State University Museum has two topotypical skulls from Madison Parish and a single skull from La Salle Parish. Specimens in the Biological Survey Collection were taken at Avery Island, Floyd, Mer Rouge, Tallulah, Indian Lake (23 mi. SW Tallulah), Vidalia and from Beauregard Parish.

Family FELIDAE

FELIS CONCOLOR CORYI BANGS

COUGAR

The Cougar is apparently now restricted almost entirely to the swamps of northeastern and eastern Louisiana and the lower Atchafalaya River bottoms. Hays states that reliable persons reported seeing two Cougars

²⁵ Fanny A. Cook, "Game Animals of Mississippi," *Survey Bulletin Mississippi State Game and Fish Commission*, 1943: 8, 12.

²⁶ For the use of the name *Canis niger*, cf., Francis Harper, *Jour. Mamm.*, 1942: 339.

feeding on a freshly killed pig on the highway between Robeline and Spanish Lake, in Natchitoches Parish, during the fall of 1939. If this record is authentic, it constitutes by far the most recent occurrence of the species in western Louisiana where generally the species has been nearly if not wholly extirpated.

LYNX RUFUS FLORIDANUS (RAFINESQUE)

BOBCAT

This subspecies of the Bobcat is fairly common throughout the alluvial swamps of eastern, southern, and southeastern Louisiana. Specimens have been collected at Lottie, Baton Rouge (LSU), Abbeville, Calcasieu Parish, Lake Charles, Tallulah, Plaquemine, Vidalia and Tensas Bayou (BS).

LYNX RUFUS TEXENSIS (ALLEN)

BOBCAT

The only definite record for the occurrence of this race in Louisiana is that of an adult male specimen taken by Horace A. Hays at Kisatchie, in Natchitoches Parish, on December 28, 1938. Hays also examined two other specimens killed at the same place and states that they agreed with the specimen preserved by him. The collection and identification of a Bobcat from Natchitoches Parish as *texensis* confirms the belief held for many years, namely, that the large, brightly colored animals inhabiting northwestern Louisiana were different from the small, dark *floridanus* of eastern and southern Louisiana. This supposition was based upon several caged animals, reputedly taken in northwest Louisiana, that have come to my attention from time to time during the last ten years. The occurrence of a Texas race of the Bobcat in Natchitoches Parish is not surprising for the mammal fauna of that area bears a much closer relationship to that found in eastern Texas than to that found in the remainder of Louisiana.

Family SCIURIDAE

TAMIAS STRIATUS PIPILANS new subspecies

EASTERN CHIPMUNK

Type.—Male, adult, skin and skull; number 1377, Louisiana State University Museum of Zoölogy; 5 mi. S Tunica, West Feliciana Parish, Louisiana; collected September 13, 1939, by George H. Lowery, Jr.; original number 1069.

Distribution.—Central-southern Louisiana (West Feliciana and East Baton Rouge Parishes only) northward through central and western Mississippi, eastward to central northern Alabama.

Diagnosis.—The largest of the races of *Tamias striatus* (greatest length of skull averaging 43.7) and likewise the richest colored. Top of head Prout Brown washed with Russet or Clay Color; superciliary stripe and stripe immediately below the eye from nose to ear, Chamois to Cinnamon; lips and lower cheeks the same, except sometimes richer in color; narrow stripe from posterior corner of eye to ear, almost obsolete, but when apparent, a pale dusky; broad stripe from nose or face running posteriorly to the ear or beyond, pale Isabella Color to Brownish Olive; ears usually edged with Mikado Brown; median dorsal bands, Raw Umber washed with pale Cinnamon-Beige, shading posteriorly into color of rump, which is usually between Mahogany, Red and Hay's Russet; dark dorsal stripes black, very narrowly margined (sometimes obsolete) with russet; light dorsal stripe Pale Yellow-Orange to Light Orange-Yellow; feet Tawny, sometimes Ochraceous-Beige; under parts pale Cream Color, often Light Ochraceous-Salmon, especially posteriorly; tail beneath, Ferruginous bordered with fuscous and sprinkled with gray or very pale yellow.

Comparisons.—Closest to *T. s. striatus*²⁷ from which it differs by way of its larger size (particularly tail, total length, and greatest skull length) and its much lighter coloration of the upper parts. The buffy coloration of the cheeks, sides, and flanks of *pipilans* immediately separates it from *striatus*, in which these parts are deep Russet, Bay, or Auburn colored; the top of the head and the ears are much paler than in *striatus*, as are also the hind feet and tail. The under parts of *striatus* are usually creamy white, whereas in *pipilans* these parts are frequently tinged with buffy. Compared with *T. s. venustus*²⁸ easily separable on the basis of its much more buffy (less grayish) coloration above and on the cheeks and flanks; the rump is decidedly darker (Kaiser Brown in *venustus*). In size, *pipilans* averages slightly but significantly larger, particularly with respect to skull measurements. Compared with *T. s. lysteri*,²⁹ *T. s. griseus*,³⁰ and *T. s. rufescens*,³¹ coloration much darker (less grayish) throughout and skull averaging larger. Compared with *T. s. fisheri*,³² similar in color, but not quite as dark; *pipilans* is also easily distinguishable by its much larger skull, which in *fisheri* is among the smallest of the races. Compared with *T. s.*

²⁷ *Tamias striatus striatus* (Linnaeus). Syst. Nat., 1, ed. 10., 1758: 64.

²⁸ *Tamias striatus venustus* Bangs. Proc. Biol. Soc. Wash., 10, 1896: 137.

²⁹ *Tamias striatus lysteri* (Richardson), Fauna Boreali-Americana, 1, 1829: 181.

³⁰ *Tamias striatus griseus* Mearns, Bull. Amer. Mus. Nat. Hist., 3, 1891: 231.

³¹ *Tamias striatus rufescens* Bole and Moulthrop, Scient. Publ. Cleveland Mus. Nat. Hist., 5, 1942: 130-134.

³² *Tamias striatus fisheri* Howell, Jour. Mamm., 6, 1925: 51.

obionensis,³³ easily distinguished by its much brighter coloration throughout and by its much greater size.

Measurements.—See Table 4.

Remarks.—This race appears at first somewhat intermediate between *striatus* and *venustus*, yet a careful analysis of its color and skull characters demonstrates its distinctness from either of those forms. A rather extensive population in the Lower Mississippi River Valley is remarkably constant in the color characters assigned above and in being larger than any previously described races. Howell³⁴ assigned specimens from Mississippi and central-northern Alabama to *venustus*, a treatment which I have been totally unable to comprehend. The fact is certain that they are not *striatus*, for they are not nearly so dark, but at the same time, they show less affinities with the pale, brightly colored *venustus* of Oklahoma to which Howell assigned them. I have had an opportunity to examine these specimens and now refer them without question to *pipilans*. Had Howell possessed the fine series of Louisiana and Mississippi specimens available to me, there is not much doubt that he would have recognized the distinctive characteristics by which specimens from this area are easily recognized.

A single adult specimen from Vicksburg, Mississippi, is typical *pipilans*, but six adults from Bolivar County, a locality between Vicksburg and Memphis, Tennessee, are totally unlike anything examined in the present connection. These specimens might well represent an undescribed race, but much additional material needs to be obtained from northern Mississippi in order to determine the significance of the variation detected in the Bolivar County specimens.

Specimens examined.—Total number, 43, as follows:

LOUISIANA.—West Feliciana Parish: Tunica, 5 mi S, 12; Cornor, 11; Baines, 1; St. Francisville, 9 mi NW, 1.

MISSISSIPPI.—Wilkinson County: Tunica Hills, 1; unspecified, 1. Adams County: Foster, 1. Warren County: Vicksburg, 2 mi S, 1. Washington County: Washington, 1.

ALABAMA.—DeKalb County: Buck's Pocket, 6. Jackson County: Woodville, 3. Talladega County: Talladega Mt., 1. Marshall County: Gunterville, 1. Cullman County: Ardell, 1.

³³ *Tamias striatus obionensis* Bole and Moulthrop, *op. cit.*, p. 135-137.

³⁴ "Revision of the American Chipmunks," North Amer. Fauna No. 52, 1929: 22.

TABLE 4

MEASUREMENTS OF TYPICAL ADULTS OF *TAMIAS STRIATUS*

| SUBSPECIES AND LOCALITY | Number of Specimens | Total Length | Tail | Hind Foot | Ear | Greatest Length of Skull | Inter-orbital Breadth | Zygomatic Breadth | Length of Nasals |
|--|-----------------------|------------------------|-------------------|---------------------|---------------------|--------------------------|-----------------------|---------------------|---------------------|
| <i>T. s. striatus</i> ⁸⁶ Western North Carolina | 8 skins 11 skulls | 225 (215-230) | 86.4 (78-96) | 34.2 (32.0-36.5) | 14.8 (14-16) | 41.1 (39.8-42.6) | 11.0 (9.8-12.6) | 22.9 (22.1-23.5) | 14.4 (13.7-16.2) |
| <i>T. s. semistriatus</i> ⁸⁶ Eastern Oklahoma | 9 skins 6 skulls | 251.4 (230-265) | 96.7 (91-105) | 36.2 (35.0-37.0) | 18.5 (17.2-19.9) | 41.5 (39.9-43.6) | 11.7 (11.2-12.2) | 22.4 (21.4-24.0) | 14.3 (13.6-15.6) |
| <i>T. s. bipilatus</i> ⁸⁶ Topotypes and near topotypes | 18 skins 13 skulls | 254.5 (207-283) | 97 (83-115) | 35.6 (29.0-38.0) | 18.7 (15.5-21.0) | 43.7 (42.1-45.4) | 12.0 (11.2-12.9) | 23.8 (22.8-24.9) | 15.2 (14.6-16.1) |
| <i>T. s. fischeri</i> ⁸⁶ Highland Falls, New York | 10 skins 10 skulls | 245 (230-283) | 91.6 (83-97) | 34.2 (33-35) | 15.2 (14.0-16.5) | 40.1 (38.8-41.0) | 9.9 (9.4-10.4) | 22.0 (21.4-22.8) | 13.5 (12.6-14.3) |
| <i>T. s. lysteri</i> ⁸⁶ Mt. Forest and Ensedale, Ont. | 5 skins 7 skulls | 245.3 (228.6-257.0) | 93.8 (84-103) | 35.0 (34-36) | 15.1 (14.0-16.5) | 39.4 (38.0-40.7) | 10.5 (9.9-11.1) | 21.7 (21-22) | 14.0 (13.2-14.4) |
| <i>T. s. griseus</i> ⁸⁶ Topotypes | 11 skins 10 skulls | 268.4 (253-299) | 101.3 (93-110) | 36.6 (35-38) | 13.7 (12.0-16.5) | 41.4 (40.0-42.3) | 10.9 (10.2-11.9) | 22.9 (22.2-24.0) | 14.5 (14.0-15.0) |
| <i>T. s. tufescens</i> ⁸⁶ Chesterland Caves, Ohio | Type specimen | 230 | 72 | 33 | ..... | 39.5 | 10.8 | 21.9 | 13.5 |
| <i>T. s. okionensis</i> ⁸⁶ Cincinnati, Ohio | Type specimen | 247 | 92 | 34 | ..... | 40.3 | 10.6 | 21.2 | 13.6 |

⁸⁶ Measurements from Howell (op. cit.)⁸⁷ Measurements from Bole and Moulthrop (op. cit.)*SCIURUS CAROLINENSIS CAROLINENSIS* GMELIN

EASTERN GRAY SQUIRREL

An adequate series of specimens of this species from northern Louisiana is at present lacking. However, seven specimens in the Louisiana State University Museum from Anacoco, and six from Lotus and Provençal are clearly referable to *carolinensis* rather than to *fuliginosus*. Thirty-three specimens from Chipola, Cornor, Bogalusa, Greensburg, Tunica, Amite, Lindsay, McManus, Grangerville, Clinton, Holden, and Magnolia Crossing near Denham Springs, localities in the Florida Parishes, are intermediate between *carolinensis* and *fuliginosus*, but closer to the former.

SCIURUS CAROLINENSIS FULIGINOSUS (BACHMAN)

EASTERN GRAY SQUIRREL

The acquisition of a large collection of Gray Squirrels from the southern part of Louisiana demonstrates that this clearly marked race has a much wider distribution in the State than previously suspected. The Louisiana State University Museum has sixty-one typical examples from Toca Village, Lottie, Donaldsonville, Jonesville, Cinclare, Crowley, Indian Village, Erwinville, Port Allen, Bayou Sorrel below Plaquemine, Morgan City, Egan and Ponchatoula. Six specimens from Fanny, below New Orleans, possibly represent an undescribed race well worthy of nomenclatural recognition. Although the differential characters demonstrated by this series are well marked and uniform, much addition material is needed in order to understand the true significance of the variation. This is especially true in view of the fact that *fuliginosus* was described on the basis of a specimen reputedly from New Orleans. The latter race, as currently understood, reaches its maximum development in the middle and lower Atchafalaya basin. Squirrels from that area have extremely dark upper parts and frequently brown instead of gray under parts. John Woodhouse Audubon's portrait⁸⁷ of the Sooty Squirrel is an excellent likeness of the prevailing type of coloration found in squirrels throughout the Atchafalaya basin and to which we now assign the name *fuliginosus*. However, the critical point lies in determining from a representative series just what type of squirrel occurs in the immediate environs of New Orleans thereby definitely fixing the identity of *fuliginosus*. This will necessarily preclude any further analysis of the Fanny population, for the latter place is only a short distance south of New Orleans.

⁸⁷ John James Audubon and John Bachman, *The Quadrupeds of North America*, vol. 3, 1856: 240-241, plate 149, fig. 2.

SCIURUS NIGER BACHMANI LOWERY AND DAVIS³⁸

FOX SQUIRREL

The three races of the Fox Squirrel which occupy Louisiana are so radically distinct from one another that identification is accomplished without close comparison. The present race, *S. n. bachmani*, occurs in the area east of the Mississippi River and north of Lakes Maurepas and Pontchartrain. Specimens have been examined from Clinton, Mandeville, Chipola, Nott, Enon (type locality), 10 mi. E Baton Rouge (LSU), Independence, Amite City, Mandeville, Covington, Tangipahoa, and Ponchartroula (TU).

SCIURUS NIGER SUBAURATUS BACHMAN³⁸

FOX SQUIRREL

This diminutive, orange-bellied race of the Fox Squirrel inhabits north-eastern, central-eastern, and south-central Louisiana where it is confined almost entirely to the alluvial lands of the Mississippi, Tensas, Ouachita, and Atchafalaya River systems. The Louisiana State University Museum has specimens from Lakeland, Racourci Island, Lottie, Indian Village, Toca Village, Fanny, New Iberia, Erwinville, Cinclare, Oakgrove, Tallulah, St. Landry Parish unspecified, Jena, Jonesville, and Valentine Lake. Intergrades between *bachmani* and *subauratus* have been examined from East Baton Rouge Parish (University, 5 mi. S) and from West Feliciana Parish (St. Francisville area).

SCIURUS NIGER LUDOVICIANUS CUSTIS³⁸

FOX SQUIRREL

The race *ludovicianus* is an extremely large and pale form which is clearly differentiated from all other subspecies of *Sciurus niger*. The complete limits of its distribution still remain to be worked out, but on the basis of the material at hand it appears to range extensively throughout western Louisiana, eastern Texas and southwestern Arkansas. The Louisiana State University Museum has an excellent series of Louisiana specimens from the following localities: Ashland, Lotus, Cypress, Provencal, Bellwood, Kisatchie, Oberlin, Crowley and Ruston. Four specimens from Egan, in Acadia Parish, are intermediate between *subauratus* and *ludovicianus*, but closer to the latter.

³⁸ For a complete synopsis of the races of *Sciurus niger* in Louisiana, cf. Lowery and Davis, "A Revision of the Fox Squirrels of the Lower Mississippi Valley and Texas," *Occ. Papers Mus. Zool. La. State Univ.*, 9, 1942: 154-172.

GLAUCOMYS VOLANS SATURATUS HOWELL

FLYING SQUIRREL

This Flying Squirrel occupies all of central and eastern Louisiana. Insufficient material is available to show where *saturatus* intergrades with *texensis*. Three specimens in the Louisiana State University Museum from Bryceland are, however, somewhat intermediate, yet closer to this form than to *texensis*. Other specimens in the same collection from the Florida Parishes are typical *saturatus*.

GLAUCOMYS VOLANS TEXENSIS HOWELL

FLYING SQUIRREL

This race of the Flying Squirrel extends into western Louisiana and possibly occurs throughout that section of the State. However, at present only six specimens (LSU), taken by Hays at Simpson, in Vernon Parish, and at Kisatchie, Provencal, and Flora, in Natchitoches Parish, are referable to typical *texensis*.

Family GEOMYIDAE

GEOMYS BREVICEPS BREVICEPS BAIRDLOUISIANA POCKET GOPHER³⁹

The nominate race of *Geomys breviceps* is known only from the type locality at Mer Rouge, in Morehouse Parish. Davis writes (*loc. cit.*) as follows concerning the population of gophers at this locality: "Field work in the vicinity of Mer Rouge in the Spring of 1939 revealed that Pocket Gophers occur only in the sandy area south and west of town. This sandy 'island' is surrounded by low areas of heavy, clay soils in which no Pocket Gophers were found. Because of this it is inferred that the gophers in the vicinity are fairly effectively isolated. This inference is supported by the melanistic trend of the coat color, the great prepalatal length, and the large auditory bullae, characters not found . . . in population samples from other localities."

GEOMYS BREVICEPS DUTCHERI DAVIS

LOUISIANA POCKET GOPHER

This recently described (*loc. cit.*) Pocket Gopher occupies northwestern Louisiana and that area of the State lying between the flood plains of the Red and Ouachita rivers. As indicated by Davis (*loc. cit.*), the Red River

³⁹ For a complete synopsis of Louisiana Pocket Gophers, cf., W. B. Davis, "Distribution and Variation of Pocket Gophers (Genus *Geomys*) in Southwestern United States," *Texas Agri. Expt. Sta. Bull.*, 590, 1940: 1-21.

itself forms no effective barrier to the dispersal of Pocket Gophers except in such portions of its course where it is bordered by wide stretches of bottom lands composed of heavy, alluvial soils. Along the upper part of the Red River in Louisiana, the sandy soils extend down to the flood plain, which in many instances is unusually narrow. In places, sandy soils, which Pocket Gophers prefer, actually constitute the banks of the river. Through the agency of meander cut-offs alone, in which blocks of land are shifted from one side of the river to the other, Pocket Gophers may effectively spread across the river. Along the lower reaches of the Red River in Louisiana, the flood plain of the river is much wider, and being composed of heavy silt soils, does constitute an effective barrier to the dispersal of gophers. Specimens of this and the following race clearly demonstrate the facts just presented. Examples of *dutcheri* in the Louisiana State University Museum which have been identified by Davis, were collected at Colfax, Ruston, Fishville, and Keithville.

GEOMYS BREVICEPS PRATICOLUS DAVIS

LOUISIANA POCKET GOPHER

Pocket Gophers occupying the well-drained sandy soils of the coastal prairie of southwestern Louisiana have been assigned by Davis (*loc. cit.*) to this race. The Louisiana State University Museum has forty-three specimens from Provencal, Kisatchie, Vinton, Lake Charles, Hutton, and Cravens, most of which were used by Davis in describing *praticolus*. Additional specimens have been taken at Iowa Station and Ged (USNM).

Family HETEROMYIDAE

PEROGNATHUS HISPIDUS HISPIDUS BAIRD

HISPID POCKET MOUSE

One of the most interesting of the many surprises which Horace A. Hays produced in his studies of the mammals of the Natchitoches Parish region were the four specimens of the Hispid Pocket Mouse which he trapped at Vowell's Mill and Hutton (LSU). The species has not been taken elsewhere in Louisiana, and may be confined entirely to the Tertiary deposits in northwestern Louisiana. Hays found the species in dry, grassy fields. He further informs me that he obtained several other specimens in addition to the ones listed but that they had been partially eaten by some other animal, thus rendering them unfit for museum specimens.

Family CASTORIDAE

CASTOR CANADENSIS CAROLINENSIS RHOADS

BEAVER

The Beaver occurs now only along the Amite and Comite Rivers and their tributaries in the western part of the Florida Parishes, where it is quite common. In former times, the Beaver probably occurred throughout most of Louisiana for it is mentioned in many of the early "Travels." As late as 1850 a few were still to be found at Sicily Island, in central-eastern Louisiana, as evidenced by an account by A. R. Kilpatrick in *DeBow's Review*.⁴⁰ He wrote, as follows: "Beavers formerly very plentiful in this country [Catahoula Parish] . . . there are two Beaver dams on the lands of Dr. Peck at this time."

Family CRICETIDAE

REITHRODONTOMYS HUMULIS MERRIAM (ALLEN)

EASTERN HARVEST MOUSE

This species of Harvest Mouse is apparently rare in Louisiana and confined entirely to the southern part of the State. Known Louisiana specimens are as follows: Baton Rouge, 5; Lake Arthur, 1; Edgerley, 1 (LSU); Lafayette, 3 (BS); Hackley, 5; Mermentau, 4 (FM).

REITHRODONTOMYS FULVESCENS AURANTIUS (ALLEN)

GOLDEN HARVEST MOUSE

This is one of the most common small mammals in Louisiana. The species is usually associated with *Sigmodon* in grassy fields and along fence rows. The Louisiana State University Museum has sixty-six specimens from Clinton, Cameron, Lowry, Vowell's Mill, Provencal, Clarks, Monroe, Baton Rouge, Iowa, Vinton, Cornor, and Many. Other specimens have been collected at Avery Island, Belcher, Foster, Houma, Lafayette, Le-compte, Mer Rouge, Morgan City, Natchitoches, West Monroe (BS), Mermentau, Columbia (FM), Gibson (MCZ), Chenier au Tigre (ANSP).

PEROMYSCUS LEUCOPUS LEUCOPUS (RAFINESQUE)

WOOD MOUSE

This species is apparently confined to the central and western part of the State, and is either rare or absent from the Florida Parishes. At present no specimens are extant from the latter area. The subspecies *leucopus* occurs

⁴⁰ *The Commercial Review of the South and West*. Edited by J. D. B. DeBow, 12, 1852: 274-275.

in the bottom lands along the Mississippi and Atchafalaya River systems, and in central and south-central Louisiana, where it is locally common. In Madison Parish, in northeastern Louisiana, the species apparently exceeds in numbers the normally more abundant *P. gossypinus*. Specimens have been taken at Waverly and Gretna opposite New Orleans (LSU), Avery Island, Houma, Lafayette, Mer Rouge, Tallulah (BS), and in West Carroll Parish unspecified (FM).

PEROMYSCUS LEUCOPUS BREVICAUDUS DAVIS

WOOD MOUSE

In describing this new race,⁴¹ Davis predicted that specimens from western Louisiana would probably prove referable to *brevicaudus*. This was later confirmed by a single adult female collected by Horace A. Hays at Vowell's Mill, in Natchitoches Parish, and which is now deposited in the Louisiana State University Museum.

PEROMYSCUS GOSSYPINUS GOSSYPINUS (LECONTE)

COTTON MOUSE

The Cotton Mouse is fairly common and well distributed throughout the wooded area of Louisiana. Specimens in the Louisiana State University Museum from various localities in the Florida Parishes average smaller and darker than specimens from other parts of the state and are assigned to *gossypinus*.

PEROMYSCUS GOSSYPINUS MEGACEPHALUS (RHOADS)

COTTON MOUSE

Specimens in the Louisiana State University Museum from Waverly, Ruston, Monroe, Kisatchie, Clarks, Fishville, Bryceland and Leesville are slightly larger and paler than examples from eastern Louisiana and for the present are referred to this race. Much additional material is needed before the relationships between these two forms in Louisiana can be worked out satisfactorily.

PEROMYSCUS NUTTALLI AUREOLUS (AUDUBON AND BACHMAN)

GOLDEN MOUSE

The Golden Mouse appears to be locally distributed in Louisiana, and apparently nowhere common. The number of preserved specimens is so small that the taxonomic position of the populations inhabiting Louisiana

cannot be worked out at present. E. A. Goldman has recently examined this material for me and advises me (*in litt.*) that the seven specimens in the Field Museum from Columbia and Hackley, and the one specimen in the Louisiana State University Museum from Jackson, should be referred provisionally to *aureolus*. Goldman indicates further that this material may well represent an undescribed race, characterized in part by being paler in coloration than either *aureolus* or *flammeus*.⁴² A single specimen taken by me a number of years ago at Ruston, in extreme northern Louisiana, was identified as an example of *flammeus* by Goldman when he described that race. However, in view of the confused status of our knowledge of this mouse in Louisiana, I consider it inadvisable to recognize two forms in the present check-list.

ORYZOMYS PALUSTRIS TEXENSIS ALLEN

RICE RAT

The Rice Rat is widely and abundantly distributed throughout most of Louisiana. Specimens from the same locality show a wide variation in color. Some specimens are quite black on the back, others are lighter and grayer, and some incline toward reddish. Two small series from Breton and Brush Islands, belonging to the Chicago Academy of Sciences and examined in the present connection, are slightly differentiated from mainland specimens, as is also a small series in the Louisiana State University Museum from Grand Isle. E. A. Goldman has kindly compared our specimens with those in the Biological Surveys collection and has advised referring all Louisiana specimens to *texensis*, pending the receipt of additional material to determine the constancy of the variations noted in the various island populations.

SIGMODON HISPIDUS HISPIDUS SAY AND ORD

COTTON RAT

This race of the Cotton Rat is abundant throughout all of Louisiana except the northwestern part of the State where it is replaced by the following subspecies. The Louisiana State University Museum has eighty-five specimens of *hispidus* from Baton Rouge, Burtville, Alexandria, Clarks, New Orleans, Monroe, Iowa, Cameron, and Elton. The specimens from Iowa and Cameron might be expected to approach *texianus*; however, such is not the case.

⁴¹ W. B. Davis, A New *Peromyscus* From Texas, *Occ. Papers Mus. Zool. La. State Univ.*, 2, 1939: 13-14.

⁴² *Peromyscus nuttalli flammeus* Goldman, *Proc. Biol. Soc. Wash.*, 54, 1941: 189-191.

SIGMODON HISPIDUS TEXIANUS (AUDUBON AND BACHMAN)

COTTON RAT

Seventeen specimens in the Louisiana State University Museum from Kisatchie, Vowell's Mill, Many and Leesville, in western and northwestern Louisiana, are clearly referable as a series to this race, although some specimens are intermediate in certain characters toward *hispidus*.

NEOTOMA FLORIDANA RUBIDA BANGS

WOOD RAT

I have recently examined typical examples of this race from New Orleans, Morgan City, Franklin, Houma and Leesville (below Golden Meadow) (LSU). Other specimens which have not been studied in the present connection but which are surely referable to *rubida* have been collected at Avery Island (CAS), Gibson (including the type) and Burbridge (MCZ).

NEOTOMA FLORIDANA ILLINOENSIS HOWELL

WOOD RAT

The acquisition by the Louisiana State University Museum of fifteen adult Wood Rats from localities in northern Louisiana reveals the necessity of extending the range of *illinoensis* into that section of the State. Goldman⁴³ apparently considered following this treatment many years ago, but at that time he had only three specimens at his disposal, which he finally referred provisionally to *rubida*. I have recently compared specimens from Kisatchie, Provencal, Bryceland, Fishville and Tallulah with topotypes and near topotypes of both *rubida* and *illinoensis*. These northern Louisiana specimens agree closely with *illinoensis* in coat color and in having distinctly bicolored tails. Also their skulls are definitely like *illinoensis* in that the zygomatics are more squarely spread anteriorly with the sides more nearly parallel than in *rubida*. Three specimens from Erwinville, Lottie and Baton Rouge (14 mi. E) (LSU) are difficult to place. The specimens from the first two localities are apparently closer to *rubida*, but the Baton Rouge specimens cannot be distinguished from certain examples of *illinoensis*. Apparently an understanding of the relationships of these two forms in south-central Louisiana must await the receipt of much additional material.

⁴³ "Revision of the Wood Rats of the Genus *Neotoma*," *North Amer. Fauna*, No. 31, 1910: 23-24.

MICROTUS LUDOVICIANUS BAILEY

LOUISIANA MEADOW MOUSE

The Louisiana Meadow Mouse is today the enigma without equal of Louisiana mammalogy. The species was described in 1900 by Vernon Bailey, who obtained twenty-six specimens at Iowa, in Calcasieu Parish. Later, in 1905, Bailey recorded a specimen taken by Hollister at Sour Lake, Texas. To my knowledge the species has not been collected since that time. During the past ten years, I have spent many nights at Iowa and in the surrounding area trapping for small mammals in hopes of securing *Microtus ludovicianus*, yet so far without success. Although no record has been kept of the actual number of traps set near Iowa during this period, the total would probably exceed 1,200. On several occasions prior to his death, I discussed the matter with Mr. Bailey and obtained from him first-hand information regarding his capture of the type series. His advice and suggestions were later carried out in the field but still no meadow mice were obtained. Trapping near Iowa is by no means unprofitable, for a single night's catch usually includes large numbers of *Sigmodon* and *Oryzomys* and usually a few *Reithrodontomys*.

PITYMYS PINETORUM AURICULARIS (BAILEY)

PINE MOUSE

The Pine Mouse is apparently rare and locally distributed in Louisiana. Eleven specimens are known to have been taken within the borders of the State: two were secured by Howell at Mansfield (BS), two by Heller at Columbia (FM), and the Louisiana State University Museum has two from Bryceland and five from Baton Rouge.

ONDATRA ZIBETHICUS RIVALICUS (BANGS)

MUSKRAT

The Muskrat occurs principally in the coastal marshes of southern Louisiana, where several million specimens are taken annually by trappers.⁴⁴ However, the species is not uncommon in the fresh-water lakes around Baton Rouge, from which the Louisiana State University Museum has twenty-four specimens. The taxonomy and nomenclature of the Louisiana Muskrat has been discussed in a paper by Davis and Lowery,⁴⁵ from which the following quotation is taken: "Because of the obvious close affinity of

⁴⁴ See Table 3.

⁴⁵ "The Systematic Status of the Louisiana Muskrat," *Jour. of Mamm.*, 21, 1940: 212-213.

zibethicus and *rivalicus*, the complete lack of trenchant cranial differences, the fact that actual geographic intergradation between the two forms is shown by the specimens at Baton Rouge, it seems best to reduce *rivalicus* to its original status of subspecific rank."

Family MYOCASTORIDAE

MYOCASTOR COYPUS (MOLINA)

COYPÚ

The Coypú (also called "Nutria" and "Swamp Beaver") has been introduced into Louisiana by E. A. McIlhenny, of Avery Island. Eight pairs of this giant rat, which somewhat resembles externally the native Beaver except for the rounded instead of flat tail, were imported by McIlhenny from Argentina during the winter of 1937. The animals were originally kept in an especially constructed enclosure at Avery Island, where they reproduced prolifically. Approximately fifty or sixty pairs were reported released at that place, from which apparently they have emigrated considerable distances. McIlhenny further informs me (*in litt.*, August 13, 1943) that trappers have taken these animals in all parts of Iberia Parish, and that he has heard of others being captured at Morgan City, Marsh Island, Chenier au Tigre, Pecan Island, Lake Arthur, and in the marsh along the Sabine River near Toomy. There remains no doubt that Coypús are now established as part of the mammal fauna of the marshes of southern Louisiana. Time will tell whether the species will continue to flourish in this new, although apparently not unsuitable habitat. Likewise, the desirability of introducing this exotic mammal into an ecological niche already occupied by the valuable and well-adapted native muskrat remains to be shown. McIlhenny believes, on the basis of studies made at Avery Island, that the Coypú does not compete with the Muskrat, and that in time the animal will develop into a tremendous economic asset.⁴⁶

Specimens in the Louisiana State University Museum, consisting of a skin and skull and two miscellaneous skulls taken by trappers at Morgan City and Abbeville, are probably referable to the race *bonariensis* since they possess characters ascribed to that race, and since they were probably derived from Argentine stock.

⁴⁶ For an account of introductions of this species into France, cf. Glover M. Allen, "Extinct and Vanishing Mammals of the Western Hemisphere," *Amer. Committee for International Wild Life Protection*, Special Publ. No. 11, 1942: 386.

Family MURIDAE

MUS MUSCULUS DOMESTICUS RUTTY⁴⁷

HOUSE MOUSE

Ernst Schwarz has recently examined fifty-two specimens of House Mice from Louisiana which are deposited in the Louisiana State University Museum. He makes the following statement (*in litt.*) with respect to the series: "The mice in Louisiana are a mixed group made up of *domesticus* primarily, but also with a definite percentage of *brevirostris*. Hybrids are not uncommon, although the majority of the material at hand can be referred to one or the other of the two subspecies. Ecological segregation tends to restrict *brevirostris* to the open and *domesticus* to houses and their neighborhood. However, this segregation is not complete." Specimens from Baton Rouge, Kisatchie, Vowell's Mill, Provencal, Monroe, and Many were labeled by Schwarz as typical examples of this race. Two specimens from Baton Rouge were designated as hybrids between *domesticus* and *brevirostris*.

MUS MUSCULUS BREVIROSTRIS WATERHOUSE⁴⁷

HOUSE MOUSE

In the material referred to above as having been identified by Schwarz, only eleven specimens from Baton Rouge, Provencal and Grand Isle were considered typical examples of this subspecies. The preponderance of the *domesticus* type in Louisiana is, according to Schwarz (*in litt.*), to be expected because of the early French settlement of this general area.

RATTUS RATTUS RATTUS (LINNAEUS)⁴⁸

INTRODUCED HOUSE RAT

This race of *Rattus rattus*, usually referred to as the "Black Rat," is apparently very rare in Louisiana at present, although in former years it may have been more prevalent, especially prior to the establishment of *Rattus rattus norvegicus*. Rodent control men in New Orleans inform me that occasional "solid black" rats are obtained by them in that city. W. H. Gates reports the previous occurrence of the race at Baton Rouge, but informs me that he has not seen one during the last ten or fifteen years.

⁴⁷ For a synopsis of the wild and commensal stocks of *Mus musculus*, cf. Schwarz and Schwarz, *Jour. Mamm.*, 24, 1943: 59-72.

⁴⁸ Cf. Ernst Schwarz, "Notes on Commensal Rats," *Amer. Jour. Trop. Med.*, 22, 1942: 577-579. Also, "Identification of Domestic Rats of Medical Importance,"

Guide to Med. Protozoology and Helminthology, Appendix A.

RATTUS RATTUS NORVEGICUS (BERKENHOUT)

INTRODUCED HOUSE RAT

Specimens of this race have been taken only at Baton Rouge and New Orleans, although there is not much doubt but that it occurs in most of the larger towns throughout the State.

RATTUS RATTUS ALEXANDRINUS (GEOFFROY)

INTRODUCED HOUSE RAT

The Louisiana State University Museum has eight specimens of this race from Kisatchie, in Natchitoches Parish, obtained by Horace A. Hays. Hays did not find *Rattus rattus norvegicus* during his study of the mammals of Natchitoches Parish, which according to Schwarz (*in litt.*) is the principal factor accounting for the presence of *alexandrinus* in that locality.

RATTUS RATTUS FRUGIVORUS RAFINESQUE

INTRODUCED HOUSE RAT

This white-bellied race of *Rattus rattus* is apparently the prevailing form of the House Rat in Louisiana. Ernst Schwarz has recently identified thirty-seven specimens in the Louisiana State University Museum from Baton Rouge, Provencal, Monroe, Kisatchie, and New Orleans as typical examples of this race. Whereas *rattus* and *alexandrinus* do not occur normally in the presence of *norvegicus*, *frugivorus* apparently thrives in close association with it. However, well-defined ecological segregation has been observed in numerous instances at Baton Rouge. In this locality, at least, *frugivorus* occupies the upper parts of buildings and *norvegicus* the ground floors and basements.

Family LEPORIDAE

SYLVILAGUS FLORIDANUS ALACER (BANGS)

EASTERN COTTONTAIL

The Cottontail is abundant and wide-spread throughout Louisiana. Specimens have been collected at Baton Rouge, Kisatchie, Provencal (LSU), Columbia, Hackley (FM), Chenier au Tigre (ANSP), Avery Island, Ged, Pass a Loutre (CAS), Point aux Loups Springs, Cartville (MCZ), Madisonville, Rayne, Lake Catherine (AM), Avery Island, Alexandria, Belcher, Foster, Haughton, Lake Catherine, Lecompte, Madisonville, Mer Rouge, Natchitoches, Perry, Pointe aux Loups Springs, Rayne and Cartville (BS)!

SYLVILAGUS AQUATICUS AQUATICUS (BACHMAN)

SWAMP RABBIT

The large Swamp Rabbit occurs commonly throughout all of Louisiana. Specimens of the interior race, *aquaticus*, have been examined in the present connection from Leesville, Provencal, Lakeland, Lottie, Baton Rouge, Klempeter and Egan (LSU).

SYLVILAGUS AQUATICUS LITTORALIS NELSON

SWAMP RABBIT

This race of the Swamp Rabbit is apparently restricted to a narrow coastal belt, nearly, if not entirely, within the upper limits of tidewater. Specimens from Cameron and Pilottown (LSU) are typical in that they are darker and redder rumped than interior specimens.

Family CERVIDAE

ODOCOILEUS VIRGINIANUS LOUISIANAE (G. M. ALLEN)

WHITE-TAILED DEER

This deer ranges throughout the interior parts of the State although it is decidedly more abundant in the heavily wooded bottom lands, particularly in northeastern and central Louisiana. In some sections of eastern and western Louisiana the species is now rare or absent. The race *louisianae* is a large form and is clearly separable from the small deer found along the coast of Louisiana.

ODOCOILEUS VIRGINIANUS MCILHENNYI F. W. MILLER

WHITE-TAILED DEER

Since the exact distribution of the races of deer in the Lower Mississippi Valley and Gulf Coast region is understood so poorly and since the Louisiana State University Museum has such a small amount of material available at present, no special attempt has been made to draw a line of demarkation between the two forms known to occur within the State. Pending the publication of a complete revision of the White-tailed Deer promised by Goldman and Kellogg,⁴⁹ the use of the name *mcilhennyi* for the small-bodied, large-footed race occupying the coastal area of southern Louisiana is retained. This is, I understand, the treatment which Goldman and Kellogg intend to follow.

⁴⁹Proc. Biol. Soc. Wash., 54, 1941: 189.

Family BOVIDAE

BISON BISON (LINNAEUS)

BISON

Voluminous evidence exists relative to the extensive occurrence of the Bison throughout most of Louisiana up to and during the period of early French colonization. Many of the early French explorers (Bienville,⁵⁰ Iberville,⁵¹ Dumont de Montigny,⁵² Jolliet,⁵³ Bossu,⁵⁴ and others) mentioned the Bison in that part of the Louisiana Territory now known as Louisiana. They called the animal the *boeuf sauvage* or sometimes simply *boeuf*, and described its great abundance and its importance as a source of food, clothing, and other miscellaneous items. During the last of the seventeenth and first of the eighteenth centuries, vast numbers of Bison, which were part of the Southern Herd,⁵⁵ ranged extensively across northern Louisiana into the southeastern part of the State. The Bayou Terre Boeuf section of St. Bernard and Plaquemines Parishes, in southeastern Louisiana, was so named because of the great numbers of Bison that spent the winter months there.⁵⁶ De Remonville,⁵⁷ writing on December 10, 1697, described the country around New Orleans and mentioned the abundance of buffaloes in that area. He wrote: "We could also draw from thence a great quantity of buffalo hides every year, as the plains and forest are filled with the animals." That the Bison once occurred within the environs of Baton Rouge is evidenced by the interesting account of Penicaut,⁵⁸ who wrote in 1713, as

⁵⁰ Pierre Margry, *Découvertes et Établissements des Français dans l'Ouest et dans le sud de l'Amérique Septentrionale* (1614-1754). Paris, 1781. 4: 433-436.

⁵¹ "Journal of Paul du Ru (February 1 to May 8, 1700)," Trans. with introduction and notes from a manuscript in the Newberry Library by Ruth Lapham Butler. *The Caxton Club*. Chicago, 1934: 53, 65.

⁵² Butel Dumont de Montigny, *Mémoires Historiques sur la Louisiane*, Paris, 1753. Chap. 13: 74 (from a translation by Olivia Blanchard in mimeograph form in the Louisiana State University Library).

⁵³ Pierre Margry, *ibid.*, 1779. 1: 265.

⁵⁴ N. Bossu, *Travels Through that Part of North America Formerly Called Louisiana*. Translation from French by John Reinhold Forster. London, 1772. 355-356 (original account written at New Orleans in June, 1762).

⁵⁵ William T. Hornaday, "The Extirpation of the American Bison," *Report of the U. S. Nat. Mus.*, 1887: 367.

⁵⁶ Stanley C. Arthur, "Fur Animals of Louisiana," *Dept. of Conservation, Bull.* 18, 1931: 35.

⁵⁷ "Mémorial Addressed to Count de Pontchartrain," *Hist. Coll. of Louisiana and Florida* by B. F. French, new series, New York 1869: 2-3.

⁵⁸ "Annals of Louisiana from 1698-1722," *ibid.*, p. 47.

follows: "We ascended the Mississippi to Pass Manchac [Bayou Manchac], where we killed eight more buffaloes, and as many deer." The Bison evidently became rare or absent in southern Louisiana soon after the middle of the eighteenth century. As a matter of fact, the latest record of the occurrence of the animal anywhere in the State is apparently the account of H. Bry⁵⁹ in a geographical and historical treatise on the Ouachita River Region. This author wrote as follows: "The last buffalo seen in the neighborhood of Fort Miro [the present site of Monroe] was killed in 1803."

Family DASYPODIDAE

DASYPUS NOVEMCINCTUS MEXICANUS PETERS⁶⁰

NINE-BANDED ARMADILLO

The Armadillo first appeared in Louisiana some time immediately prior to 1925. Since that time it has become *extremely abundant* throughout the pine flats of southwestern Louisiana. The species also occurs commonly in the prairies and wooded uplands of most of western Louisiana. Furthermore, it appears not infrequently east of the Mississippi River in the Florida Parishes, but in this area the species has not yet become fully established. The Louisiana State University Museum has specimens from Lake Charles, Egan, Hutton, Kisatchie and Provencal.

Family TRICHECHIDAE

TRICHECHUS MANATUS LATIROSTRIS (HARLAN)

AMERICAN MANATEE

Apparently there are only two definite records for the occurrence of the Manatee in Louisiana or waters adjacent, both of which are cited by Ginter.⁶¹ One is that of a skull taken from a dead animal in Calcasieu Lake, during January, 1929, by Stanley C. Arthur, and now deposited in the U. S. National Museum.⁶² The other record is that of a skull and other miscellaneous parts of the skeleton found in Cow Bayou, near the town of Bayside, Texas, during July, 1928. This bayou empties into Sabine

⁵⁹ "Louisiana Ouachita Region," *De Bow's Review. The Commercial Review of the South and West*. Edited by J. D. B. De Bow, 3, 1847: 226.

⁶⁰ For the use of this name, cf. Ned Hollister, *Jour. Mamm.*, 6, 1925: 60.

⁶¹ "Occurrence of the Manatee in the United States, with Records from Texas," *Jour. Mamm.*, 22, 1941: 60-64.

⁶² A complete account of this Manatee written by Mr. Arthur appeared in the *New Orleans Item-Tribune* on September 15, 1929. Dynamite blastings by an oil survey party was suggested as the cause of the animal's death.

Lake which forms part of the western boundary between Louisiana and Texas, and for this reason there seems to be ample justification for considering it among "waters adjacent to Louisiana." The Manatee is doubtless very rare on the northern shores of the Gulf of Mexico.⁶³ Judging from what we know of the effect of cold weather on the south Florida population of Manatees, we would not expect the frequent occurrence of the species farther north where the temperature during certain parts of the winter averages considerably colder.

Family BALAENOPTERIDAE

BALAENOPTERA SP.

FINBACK WHALE

At least two and possibly three Finback Whales have been found stranded in Louisiana coastal waters. Unfortunately, such skeletal parts and photographs that are now available do not permit positive identification. Remington Kellogg has recently examined this material and has advised that all three whales be included here simply under the generic designation. The dates, localities, and other data pertaining to the three whales are as follows:

1916. Isle Derniere (= Last Island and Lost Island). Part of a jaw bone of this animal is now on display in Audubon Park, New Orleans. Other parts of the skeleton which were salvaged by the late A. M. Dupont, of Houma, and the late Gus Labarre, of Paincourtville, have apparently been lost. Some question exists relative to whether this particular whale was found in 1915 or 1916. Fragmentary records supplied by the Louisiana State Museum, in New Orleans, give the date as 1916.

1917. Pelican Island. The carcass of this whale was examined and measured by Robert Glenk and Percy Viosca, representing the Louisiana State Museum. No skeletal parts were saved, although a photograph (See Figure 4) was taken and a descriptive account published in the *New Orleans Times-Picayune* on February 13, 1917. The total length of the animal was given as 64 feet.

?1921. Bayou Bruleau (= Bayou Beauregard, a cut across Mendicant Island, in Barataria Bay near Grand Isle). Three whale vertebrae were dug from the sand along the beach at this locality. One of the vertebrae is located now in the Bayou Rigaud Store at Grand Isle; what became of the other two is not known. Kellogg

⁶³ Cf., Glover M. Allen, "Extinct and Vanishing Mammals of the Western Hemisphere," *Amer. Committee for International Wild Life Protection*, Special Publication No. 11, 1942: 545.



FIGURE 4. Reproduction of an old photograph which originally appeared in the *New Orleans Times-Picayune* showing dead whale found on Pelican Island, Louisiana, on February 13, 1917. The animal measured sixty-four feet in length and was, without much doubt, a member of the Finback group of the genus *Balaenoptera*.



FIGURE 5. Reproduction of poorly made photograph showing a section of the Gulf beach near the mouth of Bayou Lafourche and part of the forty-nine Blackfish (*Globicephala ventricosa*) which were stranded there following the hurricane of August 5, 1940.

examined photographs and detailed measurements of the remaining vertebra and states that it belongs, without much doubt, to a member of the genus *Balaenoptera*. The possibility exists that these vertebrae were part of the Pelican Island whale of 1917, for the mouth of Barataria Bay is only a comparatively short distance from Pelican Island. The whale from the latter place is definitely known to have been washed back into the Gulf by excessively high tides soon after it was visited by Glenk and Viosca.

The Louisiana State University Museum has a single blade of baleen identified by Kellogg as probably having come from a specimen of *Balaenoptera physalus* (Linnaeus). This blade of baleen was reputedly taken from a whale washed ashore on one of the channel islands situated off the coast of Mississippi and southeastern Louisiana during or about 1928. The specimen was originally sent to the Louisiana State Museum in New Orleans, but no information was recorded concerning the whale and my attempts to trace it at this time have failed.

Family DELPHINIDAE

Tursiops truncatus (MONTAGUE)

BOTTLE-NOSED DOLPHIN

This is the common dolphin or porpoise which inhabits the coastal waters of Louisiana, being noted individually or in small schools on frequent occasions just offshore in the Gulf and in the larger bays and inlets. Dolphins, presumably of this species, are also not infrequently seen considerable distances up the various rivers which empty directly into the Gulf. The animal has been thus observed in Lake Charles, through which the Calcasieu River passes, at New Orleans on the Mississippi River, and below Golden Meadow in Bayou Lafourche. The Louisiana State University Museum has a skull of this species from Timbalier Island, another from Port Eads, and two skulls (one with nearly complete skeleton) from Grand Isle.

The Long-snouted Dolphin (*Stenella plagiodon*), which is sometimes spotted, has been recorded from Florida and Texas, and therefore, should occur off the coast of Louisiana. "Spotted Dolphins" which have been seen on numerous occasions twelve to twenty miles offshore from the mouth of the Mississippi River may or may not represent this species. Until a skull or some other identifiable skeletal part of one of these animals is obtained the species is best omitted from the list of mammals known to occur within the State or waters adjacent to it.

Globicephala ventricosa (LACÉPÈDE)⁶⁴

BLACKFISH; PILOT WHALE

On August 5, 1940, a storm of hurricane intensity swept along the central Louisiana coast accompanied by high tides which completely inundated many of the coastal islands. Following the abatement of the hurricane, forty-nine Blackfish were discovered dead along the beach near the mouth of Bayou Lafourche. Through the cooperation of the Gulf Oil Company in allowing the use of one of their boats, I was able to make a brief visit to the scene on August 19. By that time, the whales were partially buried in the sand and in an advanced state of decomposition. Measurements and photographs were made and the head of one of the animals removed for preparation as a museum specimen, which is now in the Louisiana State University Museum. Twelve specimens measured (in feet) as follows: 18.5, 13.3, 11.5, 11.0, 10.0, 14.0, 9.1, 7.5, 9.4, 8.0, 7.5, 5.3. One can only speculate on the manner in which catastrophe overtook this fine school of Blackfish. Apparently they were driven close to shore by the powerful tides and winds and were then left stranded there helpless when the waters receded. As far as I know, the skull mentioned above is the only definite specimen of this species extant from the northern shores of the Gulf of Mexico.

⁶⁴ *Globicephala ventricosa* (Lacépède). Hist. Nat. Cétacés, p. xliii. (based on Small Grampus, Hunter, Philos. Trans. London, vol. 77, pl. 5. fig. 2, 1787.)