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KANSAS MAMMALS

By Paul Allen



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EDITOR'S INTRODUCTION

Through the ten years of its existence as a publication of the BULLETIN OF INFORMATION series of the Kansas State Teachers College of Emporia, it has been the purpose of *Studies in Education* (of which this is the nineteenth issue) to give to its Kansas readers a wide variety of information on topics which are at least potentially interesting and useful.

The material presented in the present issue represents several years of persistent and consistent work by the author, Paul Allen, of the Ottawa City Schools, and his adviser, Dr. John Breukelman, of the Kansas State Teachers College staff.

No claim is made to absolute accuracy, as the author states in his introduction, but a claim is made to as great accuracy as is possible under conditions which make accuracy difficult.

Kansas is at the crossroads of continental United States. Climatic changes are the rule rather than the exception. Because of these changes, wild life in the state's more than 82,000 square miles changes its habitat much from one climatic cycle to another. This movement, of course, makes the location of comparatively rare species (as far as Kansas is concerned) by counties difficult. If the mammal is found only in the border counties of the state, species may cease to exist within the political boundaries following drastic changes in weather conditions lasting over a period of years. Again, the same conditions may cause movement to the state of species hitherto existing in either Nebraska, Missouri, Oklahoma, or Colorado, but not in Kansas.

In *Kansas Mammals*, the author presents, in the form of a handbook, an addition to the already considerable volume of literature from other workers. The value of research lies always, to some extent at least, in the use made of it. This issue of *Studies in Education* will be sent to any Kansas citizen gratis as long as the supply lasts.

EDWIN J. BROWN,
Editor, Studies in Education.

ACKNOWLEDGMENT

The writer expresses his appreciation to Dr. John Breukelman, Head of the Biology Department, Kansas State Teachers College of Emporia, who suggested the problem and gave much time and invaluable assistance in the direction of this thesis.

The writer is also indebted to Dr. Edwin J. Brown, director of the Graduate School, Kansas State Teachers College of Emporia, for his helpful criticism and welcome suggestions in the organization of this paper, and to Mr. Claude W. Hibbard and Mr. C. D. Bunker, both of Dyche Museum of Natural History, University of Kansas, Lawrence, for their helpful suggestions and kind coöperation.

P. A.

Kansas Mammals

INTRODUCTION

It has been the purpose of this study to make a nontechnical key whereby the mammals found in Kansas might be easily and quickly identified. An attempt has been made to eliminate as many as possible of the technical terms, phrases, and characters and yet give definite information, making the study suitable for popular use. It is hoped that it will be an aid to those who have had no previous training in systematic zoölogy.

Complete lists of Kansas mammals were presented by Knox (1875), Lantz (1904), Hibbard (1933), and Black (1937). Additions and revisions were made by Baker (1899), Hibbard (1934), Black (1935), and others. In this study an attempt has been made to include all undomesticated mammals definitely known to live within the state. The selection has been made on the basis of the lists of Hibbard (1933) and Black (1937). Keys have been prepared for ninety-four species and subspecies. Not included in the keys, but in a supplementary list following the descriptions of the species, are forms which are now extinct in Kansas or for some reason or other are of doubtful occurrence.

The scientific names were checked with the 1923 edition of Miller's "List of North American Recent Mammals." The common names here used were nearly all taken from Anthony's "Field Book of North American Mammals." Common names vary from locality to locality, sometimes the same one is applied to several mammals, and often more than one common name is given to the same.

The descriptions of the mammals were taken from Anthony's "Field Book of North American Mammals" and Cory's "Mammals of Illinois and Wisconsin," modified for Kansas after examination of specimens in the museums of the University of Kansas at Lawrence, the Kansas State College of Agriculture and Applied Science at Manhattan, and the Kansas State Teachers College at Emporia. The Kansas distributions in each description are based on actual records kept by the above institutions and the Kansas State College at Hays. These are necessarily incomplete, due to the fact that not all parts of the state have been worked over by collectors and not all specimens actually collected have been reported to these institutions.

Furthermore, it must not be supposed that animal distribution and

proportional populations are static. There are constant changes due to changing climatic conditions, introduction of new species of plants and animals, changing in bounty and protection laws, damming of streams, drainage of swamps, and the like. Very little detailed research has been done on these problems. Changes due to drought were reported by Wooster in 1931 and 1936.

One of the influences which affects the mammalian life of Kansas is the peculiar geographical location which it has relative to the life zones of animals. These life zones are occasioned largely by temperature and rainfall factors. All of Kansas is in the upper Austral zone with the exception of the southeast corner and one small spot in the southwestern part. The eastern two-thirds of Kansas is in the Carolinian zone, while the western one-third is in the Upper Sonoran. An extension of the Austroriparian zone includes the counties of Cherokee, Crawford, Labette, Montgomery, Chautauqua and Cowley. A lesser extension of the Lower Sonoran takes in Barber, Comanche, Meade and Seward counties.

There are several cases of intergradation within the state. For instance, the wood rat, *Neotoma floridana baileyi*, intergrades with *Neotoma floridana campestris* on the west and with *Neotoma floridana attwateri* on the south. Within the area of intergradation there will be found individuals which are intermediate between the two forms.

The preparation of this paper has clearly convinced the writer that there is still much to be done before a definite knowledge of the distribution habits, economic value, control, and conservation of the mammals of our state can be had. The work involved will include collecting of specimens, their study and comparison in the museum, and field study of the animals in their natural environment. Accurate records must be kept over a period of years before definite conclusions may be drawn as to some of the forms now suspected to be present. Some outstanding work along this line has been done by Wooster (1935, 1936, 1938, 1939).

As used in this study, the term dentition means the dental formula, or number of teeth. As an example the permanent dentition of man may be expressed as follows, $\frac{2 \ 1 \ 2 \ 3}{2 \ 1 \ 2 \ 3}$, in which the figures above the horizontal line indicate in order from left to right the number of incisors, canines, premolars, and molars on the right side of the upper jaw, while the figures below the line stand for the corresponding teeth in the lower jaw. It is unnecessary to indicate the teeth of the left side which are like those on the right except in reverse order.

HOW TO USE THE KEYS

The keys in this study are arranged on the alternative basis. This means that either one or another of contrasted statements is true. The statements are placed together so that they may be more easily contrasted. Each statement is followed by its alternatives.

With the specimen at hand the family to which it belongs must first be determined. For instance, if the specimen at hand is *lynx rufus* (wild cat), to determine the family, the family key is used. To do this turn to the family key and select the first statement. "Tail bare" is not true, so go to the second statement, "tail hairy," which is followed by the number two. Going to number two, the statement "wings absent" is true and refers next to number four. "Canines present and prominent" fits the specimen and again refers to number five. Going to number five, "foot constructed for walking on sole," it is found upon examination that the animal at hand does walk on the whole sole of its foot. When number six, which appeared after the above statement, is read it says "claws retractile" and gives the family name "Felidae" together with the number of the key where the description of the species of that family may be found. Turning to key number 10, the first statement, "Tail short with distinct collar of brown," describes the specimen and is followed by the number of the species. The descriptions of the species are in order, beginning with the opossum.

In using the key, follow each statement read until the name of the family of species is found. In checking the specimen against the species description be sure to note the geographic distribution in Kansas. Often this point alone is enough to make a fairly reliable decision.

CLASSIFIED LIST OF KANSAS MAMMALS

ORDER I. MARSUPIALIA (Pouched Mammals).

FAMILY 1. Didelphidae (Opossums).

1. *Didelphis virginiana virginiana* Kerr, Virginia opossum.

ORDER II. INSECTIVORA (Moles and Shrews).

FAMILY 2. Talpidae (Moles).

2. *Scalopus aquaticus machrinoides*, Jackson, Missouri Valley mole.
3. *Scalopus aquaticus intermedius* (Elliot) Southern plains mole.
4. *Scalopus aquaticus caryi*, Jackson, Northern plains mole.

FAMILY 3. Soricidae (Shrews).

5. *Cryptotis parva* (Say) Small shrew.
6. *Blarina brevicauda brevicauda* (Say) Short-tailed shrew.
7. *Blarina brevicauda carolinensis* (Bachman) Woodland shrew.

ORDER III. CHIROPTERA (Bats).

FAMILY 4. Vespertilionidae (Bats).

8. *Myotis velifer incautus* (Allen) Cave bat.
9. *Myotis lucifugus lucifugus* (LeConte) Little brown bat.
10. *Myotis subulatus subulatus* (Say) Small-winged bat.
11. *Lasionycteris noctivagans* (LeConte) Silver-haired bat.
12. *Pipistrellus subflavus subflavus* (Cuvier) Yellow brown bat.
13. *Eptesicus fuscus fuscus* (Beauvois) Big brown bat.
14. *Nycteris borealis borealis* (Muller) Red bat.
15. *Nycteris cinerea* (Beauvois) Hoary bat.
16. *Corynorhinus rafinesquii pallescens* (Miller) Pallid-eared bat.
17. *Antrozous bunkerii* Hibbard.

FAMILY 5. Molossidae (Free-tailed Bats).

18. *Tadarida mexicana* (Saussure) Mexican free-tailed bat.

ORDER IV. CARNIVORA (Flesh-eating Mammals).

FAMILY 6. Procyonidae (Raccoons).

19. *Procyon lotor hirtus* Nelson & Goldman, Missouri Valley raccoon.

FAMILY 7. Mustelidae (Weasels and skunks).

20. *Mustela longicauda longicauda* Bonaparte, Long-tailed weasel.
21. *Mustela longicauda primulina* Jackson, Missouri weasel.
22. *Mustela frenata neomexicana* (Barber & Cockerell) New Mexico bridled weasel.
23. *Mustela vison letifera* Hollister, Eastern mink.
24. *Mustela nigripes* (Audubon & Brachman) Blackfooted ferret.
25. *Spilogale interrupta* (Rafinesque) Spotted skunk.
26. *Mephitis mesomelas avia* (Bangs) Illinois skunk.
27. *Mephitis mesomelas varians* (Gray) Long-tailed skunk.
28. *Taxidea taxus taxus* (Schreber) Common badger.

FAMILY 8. Canidae (Dogs, etc.).

29. *Vulpes fulvus fulvus* (Demarest) Eastern red fox.
30. *Vulpes velox velox* (Say) Swift fox.
31. *Canis nebracensis nebracensis* Merriam, Nebraska coyote.
32. *Canis latrans* Say, Say's coyote.
33. *Urocyon cinereoargenteus ocythous* Bangs, Gray fox.

FAMILY 9. Felidae (Cats).

34. *Lynx rufus rufus* (Schreber) Wildcat or bobcat.
35. *Lynx rufus baileyi* Merriam, Plateau bobcat.

ORDER V. RODENTIA (Rodents).

FAMILY 10. Sciuridae (Squirrels).

36. *Marmota monax bunkerii* Black, Kansas woodchuck.
37. *Citellus franklinii* (Sabine) Franklin's spermophile.
38. *Citellus obsoletus* (Kennicott) Kennicott's spermophile.
39. *Citellus spilosoma major* (Merriam) Large spotted ground squirrel.
40. *Citellus tridecemlineatus tridecemlineatus* (Mitchill) Thirteen-lined ground squirrel.
41. *Citellus tridecemlineatus pallidus* (Allen) Pale striped ground squirrel.
42. *Citellus tridecemlineatus arenicola* Howell, Kansas striped ground squirrel.

43. *Citellus tridecemlineatus texensis* (Merriam) Texas striped ground squirrel.
44. *Cynomys ludovicianus ludovicianus* (Ord) Prairie dog.
45. *Tamias striatus griseus* Mearns, Gray striped chipmunk.
46. *Tamias striatus venustus* Bangs, Southern chipmunk.
47. *Sciurus carolinensis carolinensis* Gmelin, Gray squirrel.
48. *Sciurus niger rufiventer* (Geoffroy) Fox squirrel.
49. *Glaucomys volans volans* (Linne) Flying squirrel.
- FAMILY 11. Geomyidae (Gophers).
50. *Geomys bursarius bursarius* (Shaw) Shaw's pocket gopher.
51. *Geomys lutescens* (Merriam) Yellow pocket gopher.
52. *Geomys breviceps llanensis* Bailey, Mesquite plains gopher.
- FAMILY 12. Heteromyidae (Pocket mice).
53. *Perognathus flavescens flavescens* (Merriam) Plains pocket mouse.
54. *Perognathus flavus flavus* Baird, Baird's pocket mouse.
55. *Perognathus hispidus paradoxus* (Merriam) Kansas pocket mouse.
56. *Perognathus hispidus spilotus* (Elliot) Texas pocket mouse.
57. *Perodipus montanus richardsoni* Allen, Kangaroo rat.
- FAMILY 13. Castoridae (Beavers).
58. *Castor canadensis missouriensis* Bailey, Missouri river beaver.
- FAMILY 14. Cricetidae (Native Rats and Mice).
59. *Onychomys leucogaster arcticeps* (Rhoads) New Mexico grasshopper mouse.
60. *Onychomys leucogaster breviauritus* Hollister, Oklahoma grasshopper mouse.
61. *Reithrodontomys albescens griseus* (Bailey) Little gray harvest mouse.
62. *Reithrodontomys megalotis dychei* (Allen) Dyche's harvest mouse.
63. *Reithrodontomys fulvescens aurantius* (Allen) Golden harvest mouse.
64. *Peromyscus maniculatus osgoodi* (Mearns) Black-eared mouse.
65. *Peromyscus maniculatus nebrascensis* (Coues) Nebraska deer mouse.
66. *Peromyscus maniculatus bairdii* (Hoy & Kennicott) Baird's white-footed mouse.
67. *Peromyscus leucopus noveboracensis* (Fisher) Northern deer mouse.
68. *Peromyscus leucopus tornillo* (Mearns) Deer mouse.
69. *Peromyscus leucopus aridulus* (Osgood) Badlands white-footed mouse.
70. *Peromyscus boylii attwateri* (Allen) Attwater's deer mouse.
71. *Oryzomys palustris texensis* (Allen) Texas rice rat.
72. *Sigmodon hispidus texianus* (Audubon & Bachman) Texas cotton rat.
73. *Neotoma floridana baileyi* (Merriam) Bailey's wood rat.
74. *Neotoma floridana campestris* (Allen) Plains wood rat.
75. *Neotoma micropus micropus* Baird, Baird's wood rat.
76. *Neotoma micropus canescens* Allen, Hoary wood rat.
77. *Synaptomys cooperi gossi* (Coues) Goss lemming mouse.
78. *Microtus ochrogaster ochrogaster* (Wagner) Meadow mouse.
79. *Microtus ochrogaster haydenii* (Baird) Hayden's meadow mouse.

80. *Pitymys nemoralis* (Bailey) Pine mouse.
 81. *Ondatra zibethica zibethica* (Linnaeus) Muskrat.
 82. *Ondatra zibethica cinnamomina* Hollister, Great plains muskrat.

FAMILY 15. Muridae (no native species; two introduced).

83. *Mus musculus musculus* Linnaeus, House mouse.
 84. *Rattus norvegicus* (Erxleben) House rat.

FAMILY 16. Zapodidae (Jumping mice).

85. *Zapus hudsonius campestris* Preble, Prairie jumping mouse.

FAMILY 17. Erethizontidae (American porcupines).

86. *Erethizon epixanthum bruneri* Swenk, Nebraska yellow-haired porcupine.

ORDER VI. LAGOMORPHA (Hares and Rabbits).

FAMILY 18. Leporidae (Hares and rabbits).

87. *Lepus townsendii campanius* Hollister, White-tailed jack rabbit.
 88. *Lepus californicus melanotis* (Mearns) Black-eared jack rabbit.
 89. *Sylvilagus floridanus mearnsii* (Allen) Mearns' cottontail.
 90. *Sylvilagus floridanus similis* Nelson, Nebraska cottontail.
 91. *Sylvilagus floridanus alacer* (Bangs) Oklahoma cottontail.
 92. *Sylvilagus auduboni baileyi* (Merriam) Wyoming cottontail.
 93. *Sylvilagus auduboni neomexicanus* Nelson, New Mexico cottontail.
 94. *Sylvilagus aquaticus aquaticus* (Bachman) Swamp rabbit.

KEY 1. FAMILIES OF KANSAS MAMMALS

- | | |
|--|----|
| 1. Tail bare; female with ventral pouch for carrying young; Family Didelphidae, Key 2. | |
| Tail hairy; no such pouch present..... | 2 |
| 2. Wings present | 3 |
| Wings absent | 4 |
| 3. About half the total length of tail free; Family Molossidae, Key 6. | |
| Tail practically all included in membrane; Family Vespertilionidae, Key 5. | |
| 4. Canine teeth present and prominent..... | 5 |
| Canine teeth present and not prominent..... | 8 |
| Canine teeth absent | 9 |
| 5. Foot constructed for walking on sole..... | 6 |
| Foot constructed for walking on toes..... | 7 |
| 6. Claws retractile; Family Felidae, Key 10. | |
| Claws nonretractile; Family Canidae, Key 9. | |
| 7. Tail bushy with rings; Family Procyonidae, Key 7. | |
| Tail sometimes bushy, never ringed; Family Mustelidae, Key 8. | |
| 8. Forefeet modified for digging; external ear absent; Family Talpidae, Key 3. | |
| Forefeet not modified for digging, external ear present; Family Soricidae, Key 4. | |
| 9. Four incisors in upper jaws, ears and hind legs long; Family Leporidae, Key 19. | |
| Two incisors in upper jaws, ears and hind legs not long..... | 10 |
| 10. Body covered with spines or quills; Family Erethizontidae, Key 18. | |
| Without spines or quills..... | 11 |
| 11. Flat tail; Family Castoridae, Key 14. | |
| Tail not flat..... | 12 |

12. Hind legs elongated; Zapodidae, Key 17.
Hind legs not elongated..... 13
13. Tail bushy; Family Sciuridae, Key 11.
Tail not bushy..... 14
14. External cheek pouches present..... 15
External cheek pouches not present..... 16
15. Tail slim and long as head and body; Family Heteromyidae, Key 13.
Tail thick and one-third length of head and body; Family Geomyidae,
Key 12.
16. Crown pattern of cheek teeth two longitudinal rows of tubercles on oval
to circular ridges; Family Cricetidae, Key 15.
Crown pattern of cheek teeth three longitudinal rows of tubercles;
Family Muridae, Key 16.

KEYS TO SPECIES OF KANSAS MAMMALS

Key 2. Family DIDELPHIDAE (Opossums)

Tail bare, ears nearly so, abdominal pouch present in females; *Didelphis virginiana virginiana*, No. 1.

Key 3. Family TALPIDAE (Moles)

1. Color grayish in summer, clove brown in winter; *Scalopus aquaticus machrinoides*, No. 2.
Same as above but much lighter..... 2
2. Nose and ankles tipped with ochreous; *Scalopus aquaticus intermedius*,
No. 3.
Nose and ankles not tipped with ochreous but usually with ivory yellow;
Scalopus aquaticus caryi, No. 4.

Key 4. Family SORICIDAE (Shrews)

1. 3-3.5 inches long; 30 teeth; *Cryptotis parva*, No. 5.
3.5-5 inches long; 32 teeth..... 2
2. Tail black above; *Blarina brevicauda brevicauda*, No. 6.
Tail brown above; *Blarina brevicauda carolinensis*, No. 7.

Key 5. Family VESPERTILIONIDAE (Bats)

1. Fur brownish or blackish with white tips; 36 teeth; *Lasionycteris noctivagans*, No. 11.
Fur brownish with no white tips..... 2
2. Ears narrow and long, reaching to nostril when laid forward; 38 teeth;
Myotis lucifugus lucifugus, No. 9.
Ears narrow and long, reaching beyond tip of nose when laid forward;
38 teeth; *Myotis subulatus subulatus*, No. 10.
Ears broad and low, rounded at tip and reaching beyond tip of nose
when laid forward; 34 teeth; *Pipistrellus subflavus subflavus*, No. 12.
Ears medium length and narrowly rounded at tip; 32 teeth; *Eptesicus fuscus fuscus*, No. 13.
Ears joined across forehead and with narrow tips; 36 teeth; *Corynorhinus rafinesquii pallescens*, No. 16.
Ears large and broad, crossed by 9 or 10 fine transverse lines; *Antrozous bunkerii Hibbard*, No. 17.
Ears short and pointed; color light brown; 38 teeth; *Myotis velifer incautus*, No. 8.
Ears low, broad, and rounded; color conspicuous reddish; 32 teeth;
Nycteris borealis borealis, No. 14.
Color gray; 32 teeth; *Nycteris cinerea*, No. 15.

Key 6. Family MOLOSSIDAE (Free-tailed bats)

1. Tail projecting beyond femoral membrane; *Tadarida mexicana*, No. 18.

Key 7. Family PROCYONIDAE (Raccoons)

1. Tail ringed and black band across eyes; *Procyon lotor hirtus*, No. 19.

Key 8. Family MUSTELIDAE (Skunks, badgers, and weasels)

1. Claws retractile or semiretractile..... 2
Claws nonretractile 4
2. Color buff; *Mustela nigripes*, No. 24.
Color above and below brown except white spot on the chin, throat,
and breast; *Mustela vison letifera*, No. 23.
Color above brown with yellowish underparts..... 3
3. Chin white; *Mustela primulina*, No. 21.
Chin and upper lip white; *Mustela longicauda longicauda*, No. 20.
V-shaped white band from nose around to throat over eyes and under
ears; *Mustela frenata neomexicana*, No. 22.
4. Tail elongated and more than one-fourth total length of body..... 5
Tail short and fat, less than one-fourth total length of body; *Taxidea
taxus taxus*, No. 28.
5. Upper parts with four interrupted white stripes; *Spilogale interrupta*,
No. 25.
Upper parts with 2 white stripes..... 6
6. Tail with white tip; *Mephitis mesomelas avia*, No. 26.
Tail without white tip; *Mephitis mesomelas varians*, No. 27.

Key 9. Family CANIDAE (Wolves and Coyotes)

1. Color on sides of neck yellow and brown, pupil of eye elliptical..... 2
Color on sides of neck not yellow or brown, pupil of eye round..... 4
2. Back and sides red, yellow or brown, on tail fine, mixed with soft
underfur 3
Back and sides not brown or red, hair on tail coarse, not mixed with
soft underfur; *Urocyon cinereoargenteus ocythous*, No. 33.
3. Tail vertebrae more than 16 inches long; *Vulpes fulvus fulvus*, No. 29.
Tail vertebrae 9 inches or less; *Vulpes velox velox*, No. 30.
4. Color of back reddish-brown; *Canis latrans*, No. 32.
Color of back buffy; *Canis nebracensis nebracensis*, No. 31.

Key 10. Family FELIDAE (Lynx and Bobcat)

1. Tail short, less than one-fourth length of body, upper parts brown and
white mixed with distinct brown; *Lynx rufus rufus*, No. 34.
Upper parts grayish buffy with no distinct brown; *Lynx rufus baileyi*,
No. 35.

Key 11. Family SCIURIDAE (Squirrels)

1. Tail more than one-fourth length of body..... 2
Tail less than one-fourth length of body..... 11
2. Fore and hind legs connected by a membrane; *Glaucomys volans volans*,
No. 49.
Fore and hind legs not connected by a membrane..... 3
3. Internal cheek pouches present..... 4
Internal cheek pouches not present..... 10
4. With 22 teeth; (6 premolars)..... 5
With 20 teeth (4 premolars)..... 9

- 5. Upper parts striped 6
Upper parts not striped..... 7
- 6. Color whitish with dark-brown stripes; size 11 inches; *Citellus tridecemlineatus tridecemlineatus*, No. 40.
Color as above, but paler and stripes snuff brown; *Citellus tridecemlineatus arenicola*, No. 42.
Color same as above, but smaller and lighter; size 9 inches; *Citellus tridecemlineatus pallidus*, No. 41.
Color reddish; *Citellus tridecemlineatus texensis*, No. 43.
- 7. Length over 12 inches; *Citellus franklini*, No. 37.
Length 9½ inches or less..... 8
- 8. Color cinnamon brown with distinct spots; *Citellus Spilosoma major*, No. 39.
Color gray, not conspicuous spots; *Citellus obsoletus*, No. 38.
- 9. Color dull gray with stripes from shoulder to rump; *Tamias striatus griseus*, No. 45.
Color light, stripes not so long; *Tamias striatus venustus*, No. 46.
- 10. Color grayish; *Sciurus carolinensis carolinensis*, No. 47.
Color ferruginous; *Sciurus niger rufiventer*, No. 48.
- 11. Forefeet with 4 clawed digits; *Marmota monax bunkeri*, No. 36.
Forefeet with 5 clawed digits; *Cynomys ludovicianus ludovicianus*, No. 44.

Key 12. Family GEOMYIDAE (Gophers)

- 1. Color rufous brown; *Geomys bursarius bursarius*, No. 50.
Color cinnamon drab; *Geomys lutescens*, No. 51.
Color liver brown; *Geomys breviceps llanensis*, No. 52.

Key 13. Family HETEROMYIDAE (Pocket Mice)

- 1. White ring at base of tail; *Perodipus montanus richardsoni*, No. 57.
No white ring at base of tail..... 2
- 2. Sole of hind foot entirely naked..... 3
Sole of hind foot naked on front half..... 4
- 3. Color pale yellowish brown; *Perognathus flavescens flavescens*, No. 53.
Color pinkish buff; *Perognathus flavus flavus*, No. 54.
- 4. Tail color black above and white below; *Perognathus hispidus paradoxus*, No. 55.
Tail color brownish-black above and white below; *Perognathus hispidus spilotus*, No. 56.

Key 14. Family CASTORIDAE (Beavers)

- 1. Short; fat with flat tail; *Castor canadensis missouriensis*, No. 58.

Key 15. Family CRICETIDAE (Native Rats and Mice)

- 1. Large size, length 21 to 24 inches; tail flattened sidewise..... 2
Smaller, not over 16 inches long; tail round..... 3
- 2. Upper parts dark brown to black; *Ondatra zibethica zibethica*, No. 81.
Upper parts cinnamon-brown; *Ondatra zibethica cinnamomina*, No. 82.
- 3. Ridge over eye socket..... 4
No ridge over eye socket..... 7
- 4. Tail longer than head and body; *Oryzomys palustris texensis*, No. 71.
Tail shorter than head and body..... 5
- 5. Feet white; *Sigmodon hispidus texianus*, No. 72.
Feet brown 6

6. Color light yellowish-gray; *Neotoma floridana campestris*, No. 74.
 Color dark rusty brown; *Neotoma micropus micropus*, No. 75.
 Color paler, vinaceous buff; *Neotoma micropus canescens*, No. 76.
 Color reddish-brown to buffy gray, tail brownish-gray above and white below; *Neotoma floridana baileyi*, No. 73.
7. Front side of incisors grooved..... 8
 Front side of incisors not grooved..... 11
8. Tail length more than one-half body length..... 9
 Tail length less than one-half body length; *Synaptomys cooperi gossi*, No. 77.
9. Tail as long as head and body, over 3¼ inches; *Reithrodontomys fulvescens aurantius*, No. 63.
 Tail shorter than length of head and body, less than 3¼ inches..... 10
10. Color dark buff to brown, ear plain; *Reithrodontomys megalotis dychei*, No. 62.
 Color gray or light buff, ear with black spot on outer side; *Reithrodontomys albescens griseus*, No. 61.
11. Tail short, less than one-half body length, under 1.75 inches..... 12
 Tail more than one-half body length, over 1.75 inches..... 16
12. Tail stout, four tubercles on hind foot..... 13
 Tail more slender, five tubercles on hind foot..... 14
13. Color pink or cinnamon buff; *Onychomys leucogaster arcticeps*, No. 59.
 Color very dark brown; *Onychomys leucogaster breviauritus*, No. 60.
14. Claws of hind foot longest; hair short, coarse, not glossy..... 15
 Claws of fore foot longest; hair long, fine, dense, glossy; *Pitymys nemoralis*, No. 80.
15. Color dark gray with fulvous; *Microtus ochrogaster ochrogaster*, No. 78.
 Color grayish-yellow with fulvous; *Microtus ochrogaster haydeni*, No. 79.
16. Tail covered with fine hairs and with prominent tuft of hair at tip; ears very large; *Peromyscus boylii attwaterii*, No. 70.
 Tail with stiff hairs and without prominent end tuft; ears normal..... 17
17. Length usually over 6.5 inches, tail only faintly bicolor..... 18
 Length usually under 6.5 inches, tail sharply bicolor..... 19
18. Color fawn to tawny; *Peromyscus leucopus noveboracensis*, No. 67.
 Color paler fawn to cinnamon; *Peromyscus leucopus tornillo*, No. 68.
 Color reddish buff; *Peromyscus leucopus aridulus*, No. 69.
19. Color creamy buff; *Peromyscus maniculatus osgoodi*, No. 64.
 Color buff; *Peromyscus maniculatus nebrascensis*, No. 65.
 Color dark brown to almost black; *Peromyscus maniculatus bairdi*, No. 66.

Key 16. Family MURIDAE (Mice and Rats)

1. Tail small and hairy; *Mus musculus musculus*, No. 83.
 Tail large and sparsely haired; *Rattus norvegicus*, No. 84.

Key 17. Family ZAPODIDAE (Jumping Mice)

1. *Zapus hudsonius campestris*, No. 85.

Key 18. Family ERETHIZONTIDAE (Porcupine)

1. *Erethizon epixanthum bruneri*, No. 86.

Key 19. Family LEPORIDAE (Rabbits)

1. Tail completely white; *Lepus townsendi campanius*, No. 87.
Tail with black top; *Lepus californicus melanotis*, No. 88.
Under side of tail white..... 2
2. Ears short, generally less than $2\frac{1}{4}$ inches..... 3
Ears medium length, generally more than $2\frac{1}{4}$ inches..... 5
3. Upper parts pale buffy gray; *Sylvilagus floridana similis*, No. 90.
Upper parts rusty reddish..... 4
4. Size medium (16 inches), *Sylvilagus floridanus alacer*, No. 91.
Size large (18 inches), *Sylvilagus floridanus mearnsi*, No. 89.
5. Upper parts pale creamy buff; *Sylvilagus auduboni baileyi*, No. 92.
Upper parts slightly rusty gray; *Sylvilagus auduboni neomexicanus*,
No. 93.
Tail small, slender, and thinly haired; *Sylvilagus aquaticus aquaticus*,
No. 94.

DESCRIPTIONS OF SPECIES

1. *Didelphia virginiana virginiana* Kerr

(Opossum)

$$\text{Dentition } \frac{5 \ 1 \ 3 \ 4}{4 \ 1 \ 3 \ 4} = 50$$

Head long with slender muzzle; ears prominent, naked; naked tail; forefeet with five toes, each with nail; hind feet with five toes, the first toe nailless, soles naked. *Coloration:* Upper parts long, outer fur a mixture of black and white hairs to give the grizzled appearance, head whitish to yellowish, cheeks white, black about top of head, ears with yellow spot on upper edge; under parts a mixture of dark and white hairs to give a dusky appearance; legs and feet dusky, tail naked, scaly portion black at base then yellowish-white. Marsupial pouch found on females, a fur-lined opening along lower abdomen. *Habits and habitat:* Lives on land or in trees. *Food:* Small animal life or fruit. *Range:* From New York to Florida and from Atlantic Coast to the Great Lakes and Texas.

In Kansas—probably found over entire state, but common only east of the Flint Hills.

2. *Scalopus aquaticus machrinoides* Jackson

(Missouri Valley Mole)

$$\text{Dentition } \frac{3 \ 1 \ 3 \ 3}{2 \ 0 \ 3 \ 3} = 36$$

Soft velvety fur, naked tail, piglike snout, eyes and ears so small as to escape detection. *Coloration:* Soft close fur, velvety grayish in summer, clove brown in winter; muzzle naked; feet and tail whitish; tail thick and almost naked. Under parts—slightly paler than above, tinged with brown on chest. *Habits and habitat:* Seldom seen above ground, presence is known only through raised ridges and mounds of earth pushed up from below. *Food:* Animal, insects, and meadow mice. *Range:* All of eastern North America and as far west as Colorado.

In Kansas—eastern third of state. Records as far west as Cloud and Harvey counties.

3. *Scalopus aquaticus intermedius* (Elliot)

(Southern Plains Mole)

Same as above but much darker and more ochraceous, nose and ankles tipped with ochraceous. *Range*: Southwestern Kansas, central and western Oklahoma, adjacent parts of northern Texas.

In Kansas—actual records only from Morton, Meade, Clark, Barber, Sumner, Pratt and Stafford counties.

4. *Scalopus aquaticus caryi* Jackson

(Northern Plains Mole)

Much paler in color than either of the above-named forms. Nose and ankles usually tipped with ivory yellow. *Range*: Plains region to central and western Nebraska, northwestern Colorado, and northwestern Kansas.

In Kansas—actual records only from Rawlins, Phillips, Smith and Trego counties. Range probably meets *intermedius* on the south and *machrinoides* on the east.

5. *Cryptotis parva* (Say)

(Small Shrew)

$$\text{Dentition } \frac{3 \ 1 \ 2 \ 3}{2 \ 0 \ 1 \ 3} = 30$$

Smallest of American mammals, muzzle sharp and pointed, eyes small, slender body, tail short, covered with hair. *Color*: Upper parts sepia or dark brown, tail brown above and gray below; under parts ashy gray. *Habits and habitat*: Found where there is abundant vegetation. Very nervous and quick in movements. May be seen in the daytime, but are best seen at night. *Food*: Insects, any animal it can capture. Fond of dark, damp localities. *Range*: From New York to Florida and as far west as Texas and eastern Nebraska.

In Kansas—eastern third of state; farthest west record from Harvey county.

6. *Blarina brevicauda brevicauda* (Say)

(The Large Short-tailed Shrew)

$$\text{Dentition } \frac{4 \ 1 \ 2 \ 3}{2 \ 0 \ 1 \ 3} = 32$$

Color: Upper parts slate color in winter; tail blackish above and paler below; under parts, ashy gray. *Habits and habitat*: Prefer old logs, mossy banks and damp localities; seldom seen in daytime;

occasionally dig their own burrows. *Food*: Insects and mice. *Habits and Food*: Typical shrew. *Range*: Eastern half of North America.

In Kansas—east of Flint Hills, south to Greenwood county.

7. *Blarina brevicauda carolinensis* (Bachman)

(Sylvan Short-tailed Shrew)

Smaller than *brevicauda brevicauda* and lighter colored; tail very short. *Color*: Upper parts silvery gray to light brownish, tail—above, brown; below, brownish white; under parts, light gray. *Habits, habitat, and food*: Same as *brevicauda brevicauda*. *Range*: Oklahoma and Kansas.

In Kansas—east of Flint Hills.

8. *Myotis velifer incautus* (Allen)

(Cave Bat)

$$\text{Dentition } \frac{2 \ 1 \ 3 \ 3}{3 \ 1 \ 3 \ 3} = 38$$

Large, delicately built, hairy face, long tail, ears short and pointed, fur fairly long and soft. *Color*: Upper parts dull, light brown olive shade; membranes, blackish-brown. Under parts, grayish, washed with buff. *Habits and habitat*: Generally flies at dusk, flies close to the ground. Voice, fine wiry squeak. Lives in caves, hollow trees, under the eaves, and in vacant buildings. Best observed at the edge of a forest clearing, under bridges, over surface of a lake, or near an open shed or barn. *Food*: Eats flying insects. *Range*: New Mexico, Texas, Kansas and Oklahoma.

In Kansas—records only from Barber, Comanche and Pratt counties.

9. *Myotis lucifugus lucifugus* (LeConte)

(Little Brown Bat)

Same as above except ear reaches nostril when laid forward. *Range*: The whole of North America, north of southern boundary of U. S., except in Rocky Mountains and on Pacific coast of California, Oregon, Washington and British Columbia and Southern Alaska.

In Kansas—records only from Douglas and Comanche counties. Black (1937) says "At Lawrence it is rare, but of regular occurrence, and has been found present in small numbers every summer. Winter specimens are as yet unknown from the state. The range of this bat almost certainly extends over the entire state to meet *carissima*

either in Western Kansas or eastern Colorado, probably in Kansas, as indicated by the Barber county specimen, practically indistinguishable from specimens taken at Estes Park, Colorado."

10. *Myotis subulatus subulatus* (Say)

(Small Winged Bat)

Same as *incautus* except upper parts yellowish-brown, under parts slightly paler. Membranes dark brown. Face and ears brown, forming a mask. Long ears which reach well beyond the tip of the nose when laid forward. *Range*: Irregularly distributed in North America east of the Rocky Mountains.

In Kansas—records only from Trego and Logan counties.

11. *Lasionycteris noctivagans* (LeConte)

(Silver-haired Bat)

$$\text{Dentition } \frac{2 \ 1 \ 2 \ 3}{3 \ 1 \ 3 \ 3} = 36$$

Medium-sized bat, dark appearance. Ear medium size, broad, rounded at tip. *Color*: Upper parts dark chocolate-brown, tipped with silvery white; under parts much like upper parts with less light tips. *Habits and habitats*: Prefer banks of forested streams or mountain meadows. *Food*: Flying insects. *Range*: North America north of Mexico from Atlantic to Pacific. Probably not breeding south of the Transition Zone.

In Kansas—may be expected anywhere during migration. Records at present only from Douglas and Trego counties.

12. *Pipistrellus subflavus subflavus* Miller

(Yellow Brown Bat)

$$\text{Dentition } \frac{2 \ 1 \ 2 \ 3}{3 \ 1 \ 2 \ 3} = 34$$

Among the smallest of the bats; ear of medium size, broad rounded at tip and reaching slightly beyond nostril when laid forward. Fur everywhere slaty black at base. *Color*: Upper parts light yellowish-brown; under parts very much like upper or slightly paler. *Habits and habitats*: Show a preference for cliffs and rocky hillsides. Appear after sunset or very early in the morning. *Food*: Flying insects. *Range*: Eastern United States from Atlantic Coast to Iowa to southern Texas.

In Kansas—records only from Barber, Butler and Woodson counties.

13. *Eptesicus fuscus fuscus* (Beauvois)

(Common Brown Bat or Big Brown Bat)

$$\text{Dentition } \frac{2 \ 1 \ 1 \ 3}{3 \ 1 \ 2 \ 3} = 32$$

A large bat, brown in color, with ears of medium length and narrowly rounded at tip. *Color*: Upper part varies from sepia to cinnamon brown. Membranes blackish. Face and ears blackish. Under parts—somewhat lighter. *Habits and habitats*: A very steady flyer, may be seen shortly after sundown. May be found in meadows, forest clearing, or over watercourses. May be found hibernating in buildings. *Food*: Flying insects. *Range*: Found in Austral, Transition and lower edge of Boreal Zones, throughout greater part of United States and adjoining British provinces.

In Kansas—throughout the state; common east of the 99th meridian.

14. *Nycteris borealis borealis* (Muller)

(Northern Red Bat)

$$\text{Dentition } \frac{1 \ 1 \ 2 \ 3}{3 \ 1 \ 2 \ 3} = 32$$

Medium-sized bat, conspicuous reddish coloration, ears low, broad and rounded. *Coloration*: Upper parts bright rufous red; fur blackish at base, sprinkled with whitish tips; color varies somewhat and may be yellowish-gray above, generally with a faint tinge of salmon; a yellowish-white shoulder patch present. Under parts—paler and less reddish than upper parts. *Habits*: ———. *Food*: Flying insects. *Range*: Found in Boreal, Transition, and Austral zones in eastern North America from Canada to Florida and Texas and as far west as Colorado.

In Kansas—common east of Flint Hills; recorded as far west as Stafford county.

15. *Nycteris cinerea* (Beauvois)

(Hoary Bat)

Dentition, same as *borealis*. Larger than *borealis*. Broad low ear, which is furred almost to the tip and rimmed with black. *Color*: Upper parts grayish-white, with darker color showing through, hairs brownish black at base, then pale yellowish-brown, followed by a narrow band of chocolate-brown and, finally, tipped with whitish. Under parts yellower and without so much of white tipping, except on throat, where long hairs form a sort of ruff, colored like back. Membranes brownish-black except for a narrow yellowish-brown

strip along forearms and half way down fingers on upper side. *Habits and habitat:* Flight very swift and erratic; appears after twilight is nearly past and flies quite high. *Food:* Flying insects. *Range:* Boreal North America from Atlantic to Pacific. Migrating in autumn and winter to southern border of United States.

In Kansas—recorded only from Riley, Douglas, Anderson and Woodson counties.

16. *Corynorhinus rafinesquii pallescens* (Miller)

(Pallid Lump-nosed Bat)

$$\text{Dentition } \frac{2 \ 1 \ 2 \ 3}{3 \ 1 \ 3 \ 3} = 36$$

Medium-sized bat with peculiar lumplike, warty outgrowth on muzzle and very large ears. Ears much longer than head and joined across the forehead with narrow band. *Color:* Upper parts pinkish buff; whitish patch back of ear. Under parts pale ochreous buff. Fur everywhere gray at base, except on mid-throat where hairs are colored alike from root to tip. *Habits and habitat:* These bats prefer to live in caves although occasionally found in abandoned mine shafts. They appear at twilight and sleep during the day. May be found in buildings. *Food:* Flying insects. *Range:* From Southwest South Dakota, south to western Texas and west to Pacific Coast.

In Kansas—recorded only from Barber and Comanche counties.

17. *Antrozous bunkerii* Hibbard

(Pale Bat)

$$\text{Dentition } \frac{1 \ 1 \ 1 \ 3}{2 \ 1 \ 2 \ 3} = 28$$

Definite ridge above nostrils. Large bat with big ears, extending considerably beyond end of nose when laid forward, crossed by 9 or 10 transverse lines, tip narrowly rounded. *Color:* Upper parts: hairs cream buff at base tipped with broccoli brown; sides pale cream buff. Under parts, grayish-white. Feet and wing membranes sepia. Brown band running from shoulders to forehead between ears. *Habits and habitat:* May be found in roofs of buildings or other darkened nooks and in crevices and cliffs. *Food:* Flying insects and crickets. *Range:* Known only from a specimen taken in Barber county.

18. *Tatarida mexicana* (Saussure)

(Free-tailed Bat)

$$\text{Dentition } \frac{1 \ 1 \ 2 \ 3}{2 \ 1 \ 2 \ 3} \text{ or } \frac{1 \ 1 \ 2 \ 3}{3 \ 1 \ 2 \ 3} = 30 \text{ or } 32$$

Medium-sized bat with tail free for about half its length; ears low, very broad, stiff bristly hairs on face, upper lip wrinkled, wings very narrow, feet with long hairs on toes. *Color:* Upper parts warm brown, membranes brownish. Under parts lighter than upper parts and more yellow. *Habits and habitat:* These bats may be found in colonies in darkened nooks in buildings. Very swift flyers. *Food:* Flying insects. *Range:* Southwestern United States from Kansas south into Mexico, west to Pacific Coast.

In Kansas—probably common only in the Barber county cave area.

19. *Procyon lotor hirtus* Nelson and Goldman

(Missouri Valley Raccoon)

$$\text{Dentition } \frac{3 \ 1 \ 4 \ 2}{3 \ 1 \ 4 \ 2} = 40$$

A fair-sized animal with long hair and long, banded, rather bushy tail, muzzle long and slender, head broad across the cheeks, ears erect and prominent, fore and hind feet with five toes, soles naked. *Color:* Upper parts grizzled gray, brown and black. Fur, dull brown at base, a black band across forehead and eyes, grayish on muzzle and back of ears; tail banded with 6 or 7 alternate grayish and blackish rings, hands and feet yellowish gray. Under parts dull brownish grizzled with yellowish gray. *Habits and habitat:* Found near streams, lakes, or marshes. Live in hollow trees, hollow logs, rocks, or burrows. Always wash their food before eating it. Almost never seen in daytime. *Food:* Omnivorous. *Range:* Kansas.

In Kansas—wherever water and timber abound. Actual records only from eastern part of state.

20. *Mustela longicauda longicauda* Bonaparte

(Long-tailed Weasel)

$$\text{Dentition } \frac{3 \ 1 \ 3 \ 1}{3 \ 1 \ 3 \ 2} = 34$$

A slender, long bodied, short legged, predatory mammal, small in size. Head small, ears low and rounded, tail short, tipped with black, soles of hands and feet furry. Pelage composed of soft, close

underfur and long, hard, glistening, outer hairs; brown of upper parts in sharp contrast to whitish under parts; summer pelage brown above, winter pelage white all over except for black tip of tail. *Color:* Upper parts pale yellowish-brown, darker on head; white on upper lip and chin. Under parts deep buffy yellow to warm ochraceous, white in winter. *Habits and habitat:* Most active at night, rests much of day, hunts on ground or in burrows under the ground. Quick of movement, very curious. Kill for sheer pleasure rather than food. Have musk glands capable of secreting a very powerful and disagreeable odor. *Food:* Small mammals and birds, warm blood which is sucked from neck or base of skull. *Range:* Great plains region of United States from Kansas northward.

In Kansas—as far south as Pratt county.

21. *Mustela primulina* Jackson

(Missouri Weasel)

Dentition, same as *longicauda*. Description same as above except in color. Upper parts brussels brown, chin white. Under parts yellow, not buff. *Habits and habitat:* Same as above. *Range:* Missouri and Kansas.

In Kansas—east of Flint Hills.

22. *Mustela frenata neomexicana* (Barber and Cockerell)

(New Mexico Bridled Weasel)

Dentition, as *longicauda*.

A long-tailed weasel, large with conspicuous white on head, tail with approximate two-inch black tip. *Color:* Upper parts pale yellowish ochre. Under parts similar but lighter, head brownish-black with large whitish patch between eyes and broad whitish band between eye and ear. *Habits and food:* Same as above. *Range:* Southwest Kansas, southeast Colorado and New Mexico.

23. *Mustela vison letifera* Hollister

(Eastern Mink)

A weasel-like mammal nearly as large as a small housecat, but much more slender. Body elongate and supple; head subtriangular viewed from above; ears small; neck long; legs short; tail about half as long as head and body, moderately bushy; feet with five toes; pelage composed of soft underfur more or less concealed by long, glistening guard-hairs; color dark, glossy brown; anal musk-gland well developed; semiaquatic in habit; alert and active in behavior. *Color:* Upper parts light umber brown slightly darker

along back and tail. Under parts same as upper except for white area on chin and irregular white spots on throat and breast. *Habits and habitat*: Found in vicinity of streams and forests, capable of catching fish, very disagreeable odor of musk when aroused. Not as blood-thirsty as smaller weasels. *Food*: Carnivorous—fish, frogs, snakes, muskrats, rabbits, and birds. *Range*: From northern Wisconsin and South Dakota, south to northern Illinois, northern Missouri and southern Kansas.

In Kansas—formerly common in eastern part; now decreasing.

24. *Mustela nigripes* (Audubon and Bachman)

(Black-footed Ferret)

Dentition, same as *longicauda*.

Larger than weasels, nearly as large as a housecat, but long, slender neck and body. *Color*: Upper parts pale buffy yellow with a sprinkling of dark-brown hairs on crown and back. Under parts buffy or cream colored. Hands and feet blackish, broad black band across eyes like a mask, tail short, colored like body, except for short blackish tip. *Habits and habitat*: Same as weasels. *Food*: Same as weasels with addition of prairie dogs. *Range*: Great Plains from northern Montana to Texas.

In Kansas—formerly found in prairie dog areas. Farthest east records from Lincoln and Kingman counties. Now very scarce.

25. *Spilogale interrupta* (Rafinesque)

(Little Spotted Skunk)

$$\text{Dentition } \frac{3 \ 1 \ 3 \ 1}{3 \ 1 \ 3 \ 2} = 34$$

Size of half-grown housecat, head small and weasel-like. Legs short, tail bushy, anal scent glands highly developed. *Color*: Upper parts, body and tail black, white spots on forehead between eyes, small white frontal spot. White ear spot usually not running into white back stripe. Tail entirely black or small terminal tuft white. Dorsal stripes very narrow, interrupted, broken into widely separated spots. Under parts black. *Habits and habitat*: A terrestrial creature, living in holes in the ground. Rather inquisitive and peaceful. Digs after food. Given to playing in the afternoon and evening; may be seen at any time of day. *Foods*: Insects, small mammals, birds, eggs, lizards, and fruit. *Range*: Iowa, southern Minnesota, Nebraska, Kansas, Missouri, Oklahoma, and south to east Texas to about middle of the state.

In Kansas—statewide.

26. *Mephitis mesomelas avia* (Bangs)

(Illinois Skunk)

$$\text{Dentition } \frac{3 \ 1 \ 3 \ 1}{3 \ 1 \ 3 \ 2} = 34$$

Heavy, body size of housecat, legs short, claws of forefeet developed for digging. Pelage, long, hard hairs over short soft underfur. Weight, about eight pounds. *Color*: Upper parts, glistening black with broad white stripe from top of head to shoulders; from shoulders to base of tail two white stripes enclosing a middle black area. Narrow white stripe from tip of nose to top of head. Tail black and white, having tail hairs white at base, black at outside. Under parts—solid black. (Considerable variation in color according to individual.) *Habits and habitat*: Same as *Spilogale*. *Food*: Insectivorous and carnivorous. *Range*: Prairie region of Illinois, west Indiana, eastern Iowa, and eastern Kansas.

27. *Mephitis mesomelas varians* (Gray)

(Long-tailed Skunk)

Dentition, same as *avia*.

Large, long tail without white tip. *Color*: Upper parts narrow white stripe from nose to between ears. Same as *Mephitis*. Fairly constant in markings. Under parts black. *Habits and habitat*: Same as *Spilogale*. *Food*: Insectivorous and carnivorous. *Range*: South and west Texas, east New Mexico, north into Oklahoma, Colorado, Kansas and Nebraska.

In Kansas—probably statewide.

28. *Taxidea taxus taxus* (Schreber)

(Common Badger)

$$\text{Dentition } \frac{3 \ 1 \ 3 \ 2}{3 \ 1 \ 3 \ 2} \text{ or } \frac{3 \ 1 \ 3 \ 1}{3 \ 1 \ 3 \ 2} = 34 \text{ or } 36$$

Large, powerful, heavy body. Head small, broad, and flat. Ears, low and rounded, body squat and low, legs short and powerful, feet with five toes, claws large, well-developed, especially on foretoes, tail short and thick. *Color*: Upper parts, hairs dirty gray at base, then grayish-white, followed by black band and tipped with silver white. Pelage on head much shorter than on body. Narrow whitish stripe from muzzle to shoulder. White patch on face below eye and below ear, top of head and back of ear, dusky gray. Under parts—feet blackish, yellowish-white to soiled whitish. *Habits and habitat*: Found in holes and on the ground, very fond of digging. Occasion-

ally seen in daytime, mostly at night. *Foods:* Small mammals, birds, eggs, and insects. *Range:* Great Lakes, Saskatchewan and the Athabaska and Clearwater rivers, Alberta on the north, Wisconsin on the east, south to Texas.

In Kansas—probably statewide.

29. *Vulpes fulvus fulvus* (Demarest)

(Eastern Red Fox)

$$\text{Dentition } \frac{3 \ 1 \ 4 \ 2}{3 \ 1 \ 4 \ 3} = 42$$

Resembles small, slender, sharp-nosed dog, muzzle long and slender; ears large and erect; tail long and bushy; claws medium length and sharp. Pelage long and soft, pupil of eye linear. *Color:* Upper parts bright and golden yellow, darker along middorsal region, rump grizzled with white; head reddish-yellow grizzled with white, forefeet to elbow, black, hind feet black. Under parts: Tail yellow, mixed with black, black spots on upper surface near base, tip white. *Habits and habitat:* Terrestrial. *Foods:* Rats, mice, fish, birds, poultry, small mammals, fruit and berries. *Range:* Northeastern United States west to Kansas and south to Georgia.

In Kansas—east of Flint Hills.

30. *Vulpes velox velox* (Say)

(Swift Fox)

Dentition, same as *fulvus*.

Delicately built, smallest of foxes, size of housecat. *Color:* Upper parts buffy yellow, frosted with tipped hairs, sprinkled with black-tipped hairs, back of ears and outer sides of limbs yellowish-brown; black spot on sides of snout, tail buffy gray, black spot near base of tail, tip black. Under parts whitish. Tail yellowish below. *Habits and habitat:* Plains or prairie dweller, lives in burrows, stays within range five to ten miles in area. Tracks much like small dog. *Foods:* Smaller mammals. *Range:* Northwestern Oklahoma north through eastern Colorado, all of Kansas, Nebraska to plains of Saskatchewan. Formerly common, now rare.

31. *Canis nebracensis nebracensis* Merriam

(Nebraska Coyote)

$$\text{Dentition } \frac{3 \ 1 \ 4 \ 2}{3 \ 1 \ 4 \ 3} = 42$$

A small, slender wolf, resembling a shepherd dog. Hair long and heavy especially in winter; tail large and bushy. *Color:* Upper parts coarse grizzled buff, gray and black; yellowish on muzzle, ears,

and outer side of legs; grizzled gray on top of head; buffy back of ears. Tail above like back, below whitish near base, pale yellowish, tipped black. Under parts whitish, throat with some black hairs. *Habits and habitat*: Much the same as dogs; skulks under cover in daytime and comes out at night. Known by its distinctive yapping bark. *Food*: Small mammals, birds, insects, fruit, and carrion. *Range*: Arid plains of eastern Colorado and western Kansas to Montana.

In Kansas—west of Flint Hills.

32. *Canis latrans* Say

(Northern Coyote or Say Coyote)

Description same as *nebracensis* except much larger and the color of back reddish-brown rather than buffy. *Range*: Humid prairies and bordering woodlands of northern Mississippi valley, westward to base of Rocky Mountains.

In Kansas—statewide.

33. *Urocyon cinereoargenteus ocythous* Bangs

(Wisconsin Gray Fox)

$$\text{Dentition } \frac{3 \ 1 \ 4 \ 2}{3 \ 1 \ 4 \ 3} = 42$$

Much like red fox except for color. Trifle longer in leg. The calls resemble those of red fox, but are a trifle coarser. Muzzle fairly long, ears erect, tail long, bushy with a concealed mane of stiff hairs. *Color*: Upper parts grizzled gray and black, lighter on sides, reddish-brown about ears, sides of neck, sides of legs; muzzle blackish; long tail heavily marked with black. Cheek and inside of ear, white. Under parts—white with yellowish along lower sides and tail. Blackish on chin. *Habits and habitat*: May climb trees. Chiefly nocturnal, however may be seen in daytime. Easy to trap. "Trees" quickly when chased by dog. Digs burrows in ground. Fur much inferior to that of red fox. *Foods*: Smaller mammals and eggs of birds. *Range*: Upper Mississippi Valley from southern Wisconsin south to eastern Kansas and Missouri.

In Kansas—east of Flint Hills.

34. *Lynx rufus rufus* (Schreber)

(Wildcat or Bobcat)

Description, same as *baileyi*, except feet smaller, ears but slightly or not at all tufted. Tail not black all around the tip, fur brownish and spotted rather than grizzled. Hair not so long, top of head streaked with black, no bands on tail, ears marked heavily with

black, on back side with a large gray spot. Tuft on ear, if present, small and black. *Habits and habitat*: Same as *baileyi*. *Range*: In eastern United States from Maine to Georgia and west to Kansas.

In Kansas—Flint Hills and eastward.

35. *Lynx rufus baileyi* Merriam

(Plateau Bobcat)

$$\text{Dentition } \frac{3 \ 1 \ 2 \ 1}{3 \ 1 \ 2 \ 1} = 28$$

A good sized cat with tufted ears, tail very short, long limbs, large broad feet and rather long loose fur. *Color*: Upper parts buffy and brown mixed with a sprinkling of gray. Tail with black tip having one blackish and one fulvous band in front of black tip. This band is found only on top side of tail. Under parts—same as upper except lighter. *Habits and habitat*: Found both on ground and in trees, especially fond of trees. Mainly found at night, but occasionally seen in the day. It is active the year around. *Food*: Mammals up to size of adult sheep. *Range*: Kansas to Texas west to eastern half of California.

In Kansas—west of Flint Hills.

36. *Marmota monax bunkerii* Black

(Kansas Woodchuck)

$$\text{Dentition } \frac{1 \ 0 \ 2 \ 3}{1 \ 0 \ 1 \ 3} = 22$$

Also known as groundhog. A large squirrel-like animal with short bushy tail, very large skull and hind foot. Females as large as males. Ears low, rounded. Claws strong and adapted for digging. *Color*: Silver—grizzled gray to blackish—grizzled with darker rufous; cinnamon patches under forelegs and on groin. Buffy areas on sides of face, nose, lips, and chin. Size—total length 25 to 27 inches; tail, vertebrae, 6 inches. *Food*: Vegetation and foliage. *Range*: Most of North America from 35° in the south to 55° in the north.

In Kansas—actual records exist from Franklin, Douglas, Leavenworth, Atchison, Doniphan and Riley counties.

37. *Citellus franklinii* (Sabine)

(Franklin's Ground Squirrel)

$$\text{Dentition } \frac{1 \ 0 \ 2 \ 3}{1 \ 0 \ 1 \ 3} = 22$$

Relatively large animal, nearly equal to gray squirrel in size. Head rather rounded and nose blunt; ears low and rounded. Limbs

short, tail flat and moderately bushy. *Color*: Upper parts iron gray, pepper and salt to brownish, marked with small light and dark spots. Tail mixed black and gray. Under parts—grayish to buffy. *Habits and habitat*: Are found on ground or in burrows. Are good swimmers; found in open fields, prairies and meadows. Usually the dirt about mouth of burrow is scattered about so that none of it shows. *Food*: Grain, fruits, insects, eggs, and small mammals. *Range*: Central United States and Canada from Oklahoma and Illinois to Athabasca river.

In Kansas—east and north-central parts.

38. *Citellus obsoletus* Kennicott

(Kennicott's spermophile or
Northern Spotted Ground Squirrel)

Dentition, same as *franklinii*. Small spotted squirrel; short tail, half as long as head and body; ears small. Claws long and slender. Tail round, slightly bushy toward tip. *Color*: Upper parts sandy gray with yellowish tinge, indistinctly spotted with grayish white; hands and feet whitish, tail above like back. Somewhat bushy on end and banded with black. Below pale ochreous, banded with black near tip and fringed with yellowish. Under parts—whitish to creamy white. *Habits and food*: Same as *franklinii*. *Range*: Western Nebraska, South Dakota, Colorado, Utah and Kansas.

In Kansas—recorded from Cheyenne county only.

39. *Citellus pilosoma major* (Merriam)

(Large Spotted Ground Squirrel)

Dentition, same as typical *citellus*.

Somewhat larger than *obsoletus*. *Color*: Upper parts, light brown spots indistinct and most numerous on rump; nose tinged with pale fulvus; tail pale reddish-brown on body end, buffy brown on outer end, with black band on top of tail; tail below, buffy. Under parts—white. *Habits and food*: Same as *obsoletus*. *Range*: Eastern New Mexico, Colorado, Kansas as far as Arkansas river valley.

40. *Citellus tridecemlineatus tridecemlineatus* (Mitchell)

(Thirteen-striped Ground Squirrel)

Small to medium size squirrel with conspicuously striped and color pattern; ears very small; body slender rather than large; tail short, less than one-half total length. *Color*: Upper parts heavily marked with alternate longitudinal stripes of dark brown and whitish, the dark stripes with central rows of whitish spots, stripes on neck to shoulders, solid and unbroken by spotting; end of nose yellowish-brown, top of head indistinctly striped; sides of neck, lower sides of

body, fore limbs, and under parts yellowish; tail mixed black and buffy. *Habits and food*: Same as above. *Range*: Southern Illinois and northern Missouri to northwestern Ohio, southern Michigan, and central Wisconsin, west and northwest to North Dakota and Saskatchewan.

In Kansas—Flint Hills and eastward; south to Lyon and Anderson counties where it meets *C. t. texensis*.

41. *Citellus tridecemlineatus pallidus* (Allen)

(Pale Striped Ground Squirrel)

Slightly smaller than typical *tridecemlineatus* and paler in color. *Color*: Ground color of upper parts, chestnut sparingly sprinkled with black, the light markings creamy white and as wide as the dark ones. Under parts, pale yellowish white. *Food and habits*: As above. *Range*: From Montana and Southwestern North Dakota southeast to Kansas and south to Western Texas and New Mexico.

In Kansas—west half of state.

42. *Citellus tridecemlineatus arenicola* Howell

(Kansas Striped Ground Squirrel)

Similar to typical *tridecemlineatus*, but smaller and paler, the dark dorsal stripes snuff brown (instead of sepia). *Food and habits*: Those of typical *tridecemlineatus*. *Range*: Western Kansas, extreme Eastern Colorado, Northwest Texas, to Western Oklahoma and Eastern New Mexico.

43. *Citellus tridecemlineatus texensis* (Merriam)

(Texas Striped Ground Squirrel)

Smaller than the typical *tridecemlineatus*, and redder in color. *Color*: Upper parts chestnut with light markings buffy; tail above with tinge of rusty red outer half, below strongly marked with rusty red. Under parts and edges of tail buffy. *Food and habits*: Same as above. *Range*: Found between 96 and 98 degrees in Texas north to Kansas. Limits of range unknown.

In Kansas—eastern part of state north to Woodson and Greenwood counties, where it meets *C. t. tridecemlineatus*.

44. *Cynomys ludovicianus ludovicianus* (Ord)

(Prairie Dog)

$$\text{Dentition } \frac{1 \ 0 \ 2 \ 3}{1 \ 0 \ 1 \ 3} = 22$$

A heavy-bodied squirrel-like animal. About the size of a small woodchuck; head broad and rounded; ears low and rounded; body

stout; tail very short, flat, and well haired; legs short, wrist and heel well furred with tuft of hair in center of palm, forefeet with five claws; cheek pouches present. Fur rather coarse. *Color*: Upper parts dark pinkish cinnamon with grizzling of buff; whitish or buffy on sides of nose, upper lip, and eye ring; sides, arms, and legs pale cinnamon; feet buffy, tail like back except for outer third which is blackish, under side of tail paler than above. Under parts, whitish to buffy white. *Habits and habitat*: Live in colonies, dig deep holes, piling the dirt around the opening. Sit up on their haunches and bark at their enemies. Very destructive. *Food*: Green vegetation, grass, and grass roots. *Range*: Great plains region of western United States, south from near the Canadian border in Montana to west central Texas (Mason county to eastern Pecos Valley), east to about the ninety-seventh meridian in Nebraska, Kansas, and Oklahoma; west to the Rocky Mountains in central Montana, Wyoming, and Colorado, and in extreme eastern New Mexico.

In Kansas—few left west of Flint Hills.

45. *Tamias striatus griseus* Mearns

(Gray Striped Chipmunk)

$$\text{Dentition } \frac{1 \ 0 \ 1 \ 3}{1 \ 0 \ 1 \ 3} = 20$$

A small, terrestrial squirrel, with five conspicuous dorsal stripes; flattened and hairy tail; well developed cheek pouches; ears prominent, but short and rounded. *Color*: Upper parts: Summer, grizzled rusty red to reddish-brown from nose to rump, clearest and brightest on rump; five blackish stripes extending from shoulders to rump, arranged as follows: a black median stripe running from between ears almost to root of tail, most conspicuous from shoulders to hips; on either side of the median stripe is a narrow band of the grizzled reddish or chestnut body color; then on either side are two dark stripes, shoulders to hips, separated by a light-colored stripe, bright buffy to whitish. While these dark and light stripes are brilliantly conspicuous along most of their extent, they fade away more gradually into the body color of the neck and shoulders and rump. Upper side of tail similar to back, the hairs banded with black and tipped with whitish or yellowish; ochraceous or buffy stripes above and below the eye and a dark stripe passing through eye; flanks and sides tawny brown or chestnut; hands and feet ochraceous to tawny. Under parts—much lighter colored than above, generally whitish, sometimes with suffusion of buffy or ochre-

ous; under side of tail rufous, bordered laterally with blackish and fringed with gray. *Habits and habitat*: Generally found on ground although it can climb trees when feeding or running from dogs. When alarmed gives a sharp, chirping whistle, accompanied by short twitchings of the body or tail. *Food*: A great variety of seeds, grains, nuts, acorns, berries, and some insects, birds' eggs, and young mice. *Range*: Eastern North America through northern Illinois, Wisconsin, Minnesota, Michigan, Iowa, and eastward to the Atlantic, south to about latitude 34°.

In Kansas—records only from Doniphan, Douglas, Leavenworth, Wyandotte and Riley counties.

46. *Tamias striatus venustus* Bangs

(Southern Chipmunk)

Dorsal stripes shorter, but colors brighter and more intense than in typical *striatus*. Habits and foods are same as above. *Range*: Found in the extreme southwestern limits of the range of the *striatus* group. Oklahoma and Kansas.

In Kansas—records only from Cherokee and Montgomery counties.

47. *Sciurus carolinensis carolinensis* Gmelin

(Gray Squirrel)

$$\text{Dentition } \frac{1 \ 0 \ 2 \ 3}{1 \ 0 \ 1 \ 3} = 22$$

A large, arboreal squirrel with long, flat, bushy tail; ears usually without tufts; prevailing color of upper parts grayish. *Color*: Upper parts mixed gray and yellowish brown, head and back darker and with more of a brownish tinge than sides of limbs, neck, and rump which are grayish; ears yellowish white; hairs of tail yellowish at base, banded with black, tipped with white, the general impression being blackish overlaid with white. Under parts—whitish. *Habits and food*: Mainly of vegetable nature, such as nuts, fruits, buds, seeds, grains, some animal food such as insects, and their larvae, young birds and eggs. *Range*: Forest parts of eastern North America from Florida to southern New Brunswick and Ontario, west through the Alleghenies south of Pennsylvania to Indiana, Missouri, Oklahoma, and the edge of the plains.

In Kansas—east half of state.

48. *Sciurus niger rufiventer* (Geoffroy)

(Western Fox Squirrel)

Rather medium sized squirrel, total length approximately 21 inches. *Color*: Variable, but usually tawny brown, grizzled with gray above, pale reddish or yellowish brown below. Nose and ears never white, tail mixed black and tawny. *Range*: Greater part of Mississippi valley from northern Louisiana to southern Wisconsin.

In Kansas—northeastern half of state.

49. *Glaucomys volans volans* (Linnaeus)

(Flying Squirrel)

$$\text{Dentition } \frac{1 \ 0 \ 2 \ 3}{1 \ 0 \ 1 \ 3} = 22$$

An arboreal squirrel of small to medium size, with large eyes, very soft pelage, and broad, lateral folds of skin extending from wrists to ankles which enclose a slender, cartilaginous process or stiffening rod arising from the wrist. Tail flat and broad, tip rounded. *Color*: Upper parts—varying with the individual, from drab to pinkish cinnamon; washed with pinkish buff along sides; fur slate-colored at base; head grayish, ears light brown; tail above similar to back, but without pinkish suffusion, below, light pinkish cinnamon; hind feet hair brown, toes white. Under parts—white to roots of hairs, under side of flying membrane edged with pinkish cinnamon. Summer specimens are darker than winter ones. *Habits and foods*: Nuts, seeds, berries, buds, grain, occasional insects, and meat when it can be secured. Very nocturnal; almost never seen during the day. *Range*: Found in northeastern United States and extreme southern Canada, from central Minnesota, Wisconsin, and Michigan, southern Ontario, northern New York and southern New Hampshire south to North Carolina, Tennessee and northern Arkansas and Oklahoma, eastern Nebraska and eastern Kansas.

50. *Geomys bursarius bursarius* (Shaw)

(Shaw's Pocket Gopher)

$$\text{Dentition } \frac{1 \ 0 \ 1 \ 3}{1 \ 0 \ 1 \ 3} = 20$$

Large in size and dark in color. *Color*: Upper parts dark brown to chestnut; forefeet white, hind feet dirty white; tail white toward tip, brownish toward body. Under parts—lighter brown than upper parts. *Habits and habitat*: Lives in burrows in ground. Strictly terrestrial. *Food*: Strictly vegetable as roots and underground

tubers, bulbs as well as surface foliage and green vegetation, occasionally bark. Destructive to crops such as potatoes, garden vegetables, alfalfa, clover, grain, and in orchards to the roots of fruit trees, especially apple and pear. *Range*: Found in upper Mississippi Valley from a short distance south of the Canadian boundary southward to northeastern Kansas, southeastern Missouri, and southern Illinois east nearly to Lake Michigan, west to the Dakotas and Nebraska.

51. *Geomys lutescens* (Merriam)

(Yellow Pocket Gopher)

A pale, medium-sized species, with tail of medium length; scantily haired. *Color*: Upper parts in summer pale, dull yellowish to buffy ochraceous; under parts buffy. In winter, drab above, with many black tipped hairs along dorsal line to form dorsal band. *Habits and habitat*: Live in burrows in the ground, storing up food in underground bins or holes. May be quite destructive to small trees due to cutting of roots. *Food*: Vegetation, seeds, etc. *Range*: The Upper Sonoran Belt of the Great Plains from southwestern South Dakota southward to Colorado, Texas, covering the sand hill region of western Nebraska, extreme eastern Wyoming, western Kansas, eastern Colorado, western Oklahoma, and western Texas.

52. *Geomys breviceps llanensis* Bailey

(Mesquite Plains Gopher)

Larger and lighter colored than typical *breviceps*. *Color*: Upper parts light liver brown above, sometimes darker, back dusky. Under parts creamy to buffy white. *Habits and food*: Seeds and few roots, same as Kansas pocket mouse. Likes sandy river bottoms or in scattered mesquite bushes. *Range*: Texas, Colorado, and south central Kansas.

53. *Perognathus flavescens flavescens* (Merriam)

(Plains Pocket Mouse)

$$\text{Dentition } \frac{1 \ 0 \ 1 \ 3}{1 \ 0 \ 1 \ 3} = 20$$

A small mouse with fur-lined cheek pockets; tail fairly long; hind legs long; ears small but not hidden in fur; nocturnal in habit. *Color*: Upper parts light grayish buff mixed with dusky; tail indistinctly bicolor; under parts, feet and legs white. *Habits*: Burrow in ground but play at night. They carry seeds and nuts in the cheek

pockets to an underground storehouse. Found in sandy parts of the plains. *Food*: Seeds, nuts, vegetable bulbs. *Range*: Upper Austral Plains of South Dakota, Nebraska, and Kansas, south possibly to northern Texas, and west to base of Rocky Mountains.

In Kansas—western half of state.

54. *Perognathus flavus flavus* Baird

(Baird's Pocket Mouse)

Very small; pelage very soft; tail short, moderately haired; sole of hind foot hairy on upper half. *Color*: Upper parts pinkish buff with light sprinkling of black, darkest on back; lateral line not sharply differentiated; a prominent buffy spot back of ear; tail almost uniform color, slightly dusky above, pale buffy below. Under parts pure white. *Habits and food*: Same as Kansas pocket mouse. *Range*: Found in Upper and Lower Sonoran Zones from northeastern Colorado and western Nebraska to northern Mexico, extending westward into central Arizona and eastward to western Texas.

In Kansas—western third of state.

55. *Perognathus hispidus paradoxus* (Merriam)

(Kansas Pocket Mouse)

Like typical *hispidus*, but larger and with softer pelage. *Color*: Paler and duller. *Habits and foods*: Dwellers in loose soil or sand; burrow extensively. Spend much time above ground. Seeds and grains. Store up much food. Strictly nocturnal. *Range*: Upper Sonoran Zone of the Great Plains from the Dakotas to Texas, westward to base of Rocky Mountains.

In Kansas—west half of state.

56. *Perognathus hispidus spilotus* Merriam

(Texas Pocket Mouse)

Resembling typical *hispidus*, but larger in size and brighter in color. *Color*: Upper parts ochreous heavily mixed with black; face without so much black; lateral line bright ochraceous buff; inside of ear dusky, outside buffy; tail above blackish brown, below, white, sides buffy. Underparts white. *Range*: Found in Cleveland county, Oklahoma. Limits unknown.

In Kansas—records only from Cowley, Greenwood, Riley and Woodson counties.

57. *Perodipus montanus richardsoni* Allen

(Kangaroo Rat)

$$\text{Dentition } \frac{1 \ 0 \ 1 \ 3}{1 \ 0 \ 1 \ 3} = 20$$

Upper parts pale buffy ochraceous, sprinkled with black. *Habits and food:* Seeds are main food. Do not hibernate. Very clean little animals, very gentle disposition, make fascinating pets. Usually live on prairies, arid plains, and deserts. Like sandy, loose, dry soil. Burrow extensively and spend most of the daytime underground. *Range:* Found in Oklahoma, western half of Kansas and Texas, eastern New Mexico, Colorado, northeastern Utah and Wyoming.

58. *Castor canadensis missouriensis* Bailey

(Missouri River Beaver)

$$\text{Dentition } \frac{1 \ 0 \ 1 \ 3}{1 \ 0 \ 1 \ 3} = 20$$

Size very large, largest of North American rodents; form heavy; tail broad, flat, scaly; ears short; five toes on fore and hind feet; hind feet webbed, with claw of second toe split or double; fur made up of long, hard hairs and soft underfur. *Color:* Upper parts rich dark brown, the long hairs chestnut brown, the underfur without any reddish tinge; head brighter; incisors orange; under parts somewhat lighter in tone than upper parts and lacking the chestnut tinge. *Habits and habitat:* Noted for its pelt. Found near watercourses where it builds its home in the bank with the opening leading into it from under the water. The beaver constructs dams on streams, felling the trees with its teeth. A beaver cannot "fell" a tree in any direction, but rather lets it fall where it may and then cuts it up into sections and drags it down to the water. *Food:* Bark, twigs, and even trees as aspen, cottonwoods, and willows. Also roots of water plants and grass. *Range:* Found on the Missouri river drainage from Nebraska north and west to Montana.

In Kansas—general in the state along suitable streams.

59. *Onychomys leucogaster arcticeps* (Rhoads)

(New Mexico Grasshopper Mouse)

$$\text{Dentition } \frac{1 \ 0 \ 0 \ 3}{1 \ 0 \ 0 \ 3} = 16$$

A rather sturdily built mouse with a comparatively short tail which is thick and tapering. Forefeet fairly large with five tubercles; hind feet with four tubercles, densely furred on sole from heel

to tubercles; color pattern sharply bicolor. *Color*: Upper parts light wood brown washed with pinkish cinnamon sprinkled with dark brown hairs, darkest along back region and top of head; nose grayish; pure white tufts at the base of ears; ears dark brown on front, whitish behind; lined inside with white hairs; tail white with narrow middle stripe above. Under parts—clear white in marked contrast to upper parts, white reaching up on lower sides and cheeks, and extending down on feet; fur of upper parts blackish slate at base, fur of under parts white at base on throat, chin, and forelegs, blackish slate at base on middle chest and abdomen. *Habits and habitat*: Found on plains and dry areas, not in woods. Live in burrows in the ground. Easily identified by the white underparts and the short thick tail. *Food*: Insects, seeds, and other vegetation. *Range*: Upper Sonoran and Great Plains, Wyoming and South Dakota to Texas, north to Big Horn river in Wyoming and to the Cheyenne river in South Dakota, Kansas, south to Fort Lancaster, Texas, and west to Bear river divide in southwestern Wyoming; Golden and Salida, Colorado; Santa Rosa, New Mexico.

In Kansas—western third of state.

60. *Onychomys leucogaster breviauritus* Hollister

(Oklahoma Grasshopper Mouse)

Larger than *arcticeps*. Tail short; no conspicuous ear tufts. *Color*: Upper parts (winter) rich blackish brown; sides lighter; hips and rump almost pure pinkish cinnamon; gray on nose; cinnamon at base of whiskers; cinnamon-buff ear tufts; grayish-brown on upper side of tail; under parts white. Summer, grayish brown above, no conspicuous tufts on ears. *Food and habits*: Same as *arcticeps*. *Range*: Eastern Nebraska, eastern and south-central Kansas and Oklahoma.

61. *Reithrodontomys albescens griseus* (Bailey)

(Gray Harvest Mouse)

$$\text{Dentition } \frac{1 \ 0 \ 0 \ 3}{1 \ 0 \ 0 \ 3} = 16$$

A small long-tailed mouse with longitudinally grooved incisors. Ears large and prominent, no cheek pouches; tail slender; sparsely haired; soles of hind feet with six tubercles. Looks somewhat like a small housemouse. *Color*: Upper parts dark brown, darkest along middle of line of back forming an indistinct stripe. Under parts, grayish washed with light pinkish cinnamon; under parts sand color of sides merging into one another. *Food*: Mostly wild

or native vegetation, rarely eats cultivated vegetation. *Habits:* Same as above. *Range:* Southern Nebraska, Kansas, Oklahoma, and central and western Texas and eastern New Mexico.

In Kansas—probably statewide.

62. *Reithrodontomys megalotis dychei* (Allen)

(Dyche's Harvest Mouse or Prairie)

Same size as *griseus*. *Color:* Blacker with an ochreous tinge, tail bicolor, brown above, white below. Under parts white. *Habits and food:* Same as *griseus*. *Range:* Kansas, Nebraska, Iowa, Missouri, South Dakota, southern North Dakota; southeastern Montana; eastern Colorado and eastern Wyoming.

In Kansas—probably statewide.

63. *Reithrodontomys fulvescens aurantius* (Allen)

(Golden Harvest Mouse)

Description and dentition, same as typical *reithrodontomys*. *Color:* Upper parts dark yellowish buff with heavy mixture of blackish brown along back, sides dark rich yellow or tawny. Under parts grayish-white, often washed with pale buff; tail brownish above, grayish-white below. *Habits and food:* Same as typical *Reithrodontomys*. *Range:* West of Mississippi river, in Louisiana, south and east central Arkansas, eastern Texas, and eastern Oklahoma, southwestern Missouri, and southeastern Kansas.

In Kansas—records only from Anderson and Cherokee counties.

64. *Peromyscus maniculatus osgoodi** (Mearns)

(Black-eared Mouse)

$$\text{Dentition } \frac{1\ 0\ 0\ 3}{1\ 0\ 0\ 3} = 16$$

Mouse of medium size; tail long and well haired; ears of good size, thinly covered with hair; eyes rather large; soles of hind feet with six tubercles. Color pattern distinctly bicolor. *Color:* Upper parts cream buff to pale yellowish buff with light sprinkling of dusky. Back not much darker than sides; white tufts on front side of ear at base, clear buffy spots at back side of ear on base. Ankles buffy, sometimes touched with dusky; tail bicolor, blackish-brown above and white below. Under parts—clear creamy white. *Habits and*

* After this manuscript was sent to press the appearance of a paper by Sprague (1939) indicates that *P. m. osgoodi* does not occur in Kansas. Sprague writes ". . . on the basis of such evidence as presented above, it does not seem advisable to refer any of the western Kansas *maniculatus* to the subspecies *osgoodi*, but rather to assign them to *nebrascensis*, at least until subsequent collecting can clarify the problem."

food: Strictly ground inhabitants, prefer cover such as woods or long grass; easily recognized by white underparts and white feet. *Food:* Seeds and grains, nuts and dry vegetable food. *Range:* Eastern parts of Montana, Wyoming, Colorado, western parts of Nebraska and Kansas.

In Kansas—southwest fourth of state.

65. *Peromyscus maniculatus nebrascensis* (Coues)

(Nebraska Deer Mouse)

Resembles *osgoodii*, except small in size, ears noticeably smaller and color brighter. *Color:* Upper parts yellowish buff, sometimes much brighter and near orange buff, with light sprinkling of dusky; no distinct stripe on back. Under parts—clear creamy white. Feet white. *Habits and food:* Same as typical *Peromyscus*. *Range:* sandhill region of western Nebraska and adjoining parts of states of Kansas, Colorado, South Dakota, Wyoming. Possibly western North Dakota and south to western Oklahoma.

In Kansas—northwest fourth of state.

66. *Peromyscus maniculatus bairdii* (Hoy and Kennicott)

(Baird White-footed Mouse)

Description similar in size to *nebrascensis*, but darker in color. *Color:* Upper parts russet or warm brown, heavily sprinkled with black, usually darker along mid back; a narrow russet lateral line may be present; tufts at bases of ears, russet mixes with blackish upper side of tail in sharp contrast to white underside. Under parts, clear white. *Habits and food:* Same as typical *Peromyscus*. *Range:* Prairie region of Upper Mississippi valley in southern Wisconsin, Minnesota, Illinois, and Indiana, eastern Ohio, Iowa, Missouri, Oklahoma, and eastern parts of Kansas and Nebraska, South Dakota, North Dakota, north to southern Manitoba. Upper Austral and Transition Zones.

In Kansas—west to Harvey and Riley counties.

67. *Peromyscus leucopus noveboracensis* (Fischer)

(Northern White-footed Mouse)

Size in common with *maniculatus*. Hind foot hairy on front $\frac{2}{5}$. Feet white, hairy tail, color fawn to cinnamon rufous or bright tawny, with light sprinkling of dusky, heaviest on back, less on sides. Under parts, creamy white. *Habits and food:* Same as *maniculatus*. *Range:* Upper Austral and Transition Zones of

eastern United States and Canada, from Nova Scotia to central Minnesota, then south through eastern Nebraska and Kansas and eastward to Atlantic Coast.

In Kansas—east half of state.

68. *Peromyscus leucopus tornillo* (Mearns)

(Tornillo Mouse)

Resembles *aridulus*, but paler fawn colored instead of yellowish. *Color*: Upper parts fawn, finely lined, with dusky tail, indistinctly bicolor, pale brownish above and white below. Under parts, clear creamy white. *Habits and food*: Typical *leucopus*. *Range*: Upper Sonoran Zones and part of lower Sonoran Zone of western Texas and eastern New Mexico; north to southwestern Kansas, south-eastern Colorado, and western Oklahoma.

In Kansas—recorded only from Morton county.

69. *Peromyscus leucopus aridulus* Osgood

(Bad Lands White-footed Mouse)

Larger and paler than *noveboracensis*. *Color*: Upper parts yellowish buff, lightly sprinkled with dusky; back very little darker than sides. Under parts, creamy white. *Habits and food*: Same as *noveboracensis*. *Range*: Upper Sonoran Zone of eastern Montana and Wyoming and adjoining western parts of South Dakota and Nebraska; south to Oklahoma and Kansas, west into eastern Colorado.

In Kansas—western two-thirds except extreme southwest corner.

70. *Peromyscus boylüi attwateri* (Allen)

(Attwater's Deer Mouse)

Tail as long or longer than length of head and body; tail hairy; ears medium size; under side of hind foot hairy, fore front $\frac{2}{5}$ hairy. *Color*: Under parts, creamy white; upper parts pale cinnamon sprinkled with dusky; slightly grayish about head; yellowish buff on lower sides of face, narrow line on back, dusky on hind leg down as far as upper side of hind foot. *Habits and food*: Found chiefly in rocky cliffs, eats mostly seeds and grains, dry vegetable food. *Range*: South central and parts of western Texas; north to eastern Oklahoma, central Missouri, southern Kansas.

In Kansas—recorded only from Cherokee county.

71. *Oryzomys palustris texensis* Allen

(Texas Rice Rat)

$$\text{Dentition } \frac{1 \ 0 \ 0 \ 3}{1 \ 0 \ 0 \ 3} = 16$$

Very rare. Similar to typical *palustris*, but paler in color, with less coloring above. *Color*: Upper parts grayish-brown without the wash of tawny or buffy. Under parts, sometimes with a light buffy wash. *Habits and foods*: Frequents meadows and grassy lands, mainly nocturnal. Eats grasses, sedges, and foliage of shrubs, rice and seeds of native plants, some animal food such as small crustaceans, mollusks, and meat. *Range*: From Corpus Christi Bay north and east along the Gulf Coast of Texas and Louisiana to the delta of the Mississippi, thence north in the Mississippi valley to southeastern Missouri; general range reaching southeastern Kansas probably by way of Arkansas river valley through Oklahoma.

72. *Sigmodon hispidus texianus* (Audubon and Bachman)

(Texas Cotton Rat)

$$\text{Dentition } \frac{1 \ 0 \ 0 \ 3}{1 \ 0 \ 0 \ 3} = 16$$

Rather small rat with long, rather rough hair. Ears nearly hidden in fur; tail slightly less than equal to length of head and body, scaly and thinly haired. *Color*: Upper parts grayish-brown to dark buffy gray; feet gray; under parts, whitish to grayish white. *Habits*: Found in grass lands and open places, may prove injurious to crops, may be found in burrows, under rocks, logs, or other surface shelters. *Food*: Stems, foliage and seeds of plants, grasses, and cultivated crops. *Range*: Approximate eastern half of Texas, westward to Vernon and San Antonio, northward to southwestern Missouri and southeastern one-fourth of Kansas.

73. *Neotoma floridana baileyi* Merriam

(Bailey's Wood Rat)

$$\text{Dentition } \frac{1 \ 0 \ 0 \ 3}{1 \ 0 \ 0 \ 3} = 16$$

Pelage longer than in typical *floridana*; grayer in color; tail shorter, bicolored. *Color*: Upper parts in winter creamy buff to buffy gray sprinkled with dusky on back; sides clearer in tone than back; feet white; tail brownish-gray above, white below in sharp contrast. Summer pelage dark rusty brown above. Under parts, white. *Habits and food*: Usually builds large conspicuous nests of dead twigs, grass and debris. Seems to be possessed of an inquisitive

or collecting instinct. Sometimes called trade rat, will often take coins, nails or any bright object and bring something else in return for them. May be seen either night or day. *Food*: Green vegetation such as foliage and grass; fruit, roots, bulbs, bark, fungi, and seed and nuts. In desert regions cactus is an article of diet. *Range*: Western North America southward into Mexico and the Gulf states; Florida, and a narrow belt from southern New York to Tennessee.

In Kansas—Flint Hills and eastward.

74. *Neotoma floridana campestris* Allen

(Kansas Wood Rat)

Almost like *baileyi*, except softer fur and slight color difference. *Color*: Upper parts buffy ochraceous to light yellowish-gray; a white stripe from posterior base of ear down side of neck to throat; no ochraceous spot on side of throat in front of foreleg; tail paler below than above but not sharply bicolor. *Foods and habits*: Same as *baileyi*. *Range*: Found in western Kansas and eastern Colorado.

In Kansas—west of Flint Hills except extreme southwest corner.

75. *Neotoma micropus micropus* Baird

(Baird's Wood Rat)

Paler than *campestris*, fur short and somewhat coarse in texture. *Color*: Upper parts in winter pale ecru drab, with dusky hairs along back; tail above blackish, below grayish; feet white. Under parts, white, on pectoral and inguinal regions white to roots of hair. *Habits and food*: Same as *baileyi*. *Range*: Found in southeastern Colorado and southern Kansas, south through Oklahoma and central Texas to southern Tamaulipas, mainly in Lower Sonoran Zone.

In Kansas—south and south central part; overlaps *N. f. campestris* to the northeast and intergrades with *N. m. canescens* to the southwest.

76. *Neotoma micropus canescens* Allen

(Hoary Wood Rat)

Smaller than typical *micropus* with longer fur and paler color. *Color*: Upper parts in winter pale ashy gray with light blackish wash on back; tail grayish-brown to blackish above; rest of pelage as in typical *micropus*. *Habits and food*: Same as *baileyi*. *Range*: Southeastern Colorado, northwestern Oklahoma, and northern and western Texas, west in New Mexico to the Rio Grande Valley and south to southern Coahuila, mainly in lower Sonoran Zone.

In Kansas—recorded only from Morton county.

77. *Synaptomys cooperi gossi* (Coues)

(Goss' Lemming Mouse)

$$\text{Dentition } \frac{1\ 0\ 0\ 3}{1\ 0\ 0\ 3} = 16$$

Very much like a short-tailed meadow mouse. Form thick set; tail very short; fur coarse, incisors orange; upper incisors with longitudinal groove, molars rootless, nail of first toe of forefoot flat. *Color*: Upper parts mixed grey, reddish-brown and black, giving a grizzled appearance similar to reddish-brown. Tail brownish above, white below. Under parts, soiled whitish. *Habits*: Found in boggy or sepia areas, preferably covered with bluegrass; seems to appear in cycles. May be found in a given area one season, then disappear for a few seasons, only to reappear. Cause unknown. *Food*: Green grass, bulbs, insects. Not much is known about food habits. *Range*: West central Mississippi valley. Mostly in upper Austral Zone, from northeastern Arkansas and southern Illinois and into Kansas and Iowa, and in extreme southeastern South Dakota. In Kansas—east central; west to Stafford county.

78. *Microtus ochrogaster ochrogaster* (Wagner)

(Meadow Mouse)

$$\text{Dentition } \frac{1\ 0\ 0\ 3}{1\ 0\ 0\ 3} = 16$$

Medium size mouse, long loose fur, comparatively short tail, ears medium size, five tubercles on sole of foot, hind legs not elongated, tail covered with short hairs, upper incisors ungrooved. *Color*: Upper parts dark gray, grizzled black pale reddish, sides paler, feet dusky, tail bicolor dusky and buffy. Under parts, pale cinnamon to reddish. *Habits*: May be found under all conditions from swamp lands to plains and sea level to highest mountain ranges. Usually found in meadows and grass lands, making well-defined runways through the grass. Best place to discover them is in rank heavy grass which retains moisture. Here their runways may be traced for long distances. The mice cut the grass to form clear passage or tunnel. Are generally active throughout day and night. Live in underground burrows. *Food*: Vegetation, plants, shrubs, trees, and meat upon some occasions. *Range*: Central part of Mississippi valley and from southern Wisconsin to southern Missouri and Fort Reno, Oklahoma, west into eastern Nebraska and Kansas.

In Kansas—west to Republic, Cloud and Pratt counties.

79. *Microtus ochrogaster haydenii* (Baird)

(Hayden's Meadow Mouse)

Description same as *ochrogaster*, only larger and lighter colored. *Color*: Light gray, grizzled whitish and blackish; feet dusky gray; tail bicolor, dusky and whitish; under parts, silvery whitish to soiled whitish or light buff. *Habits and food*: Same as *ochrogaster*. *Range*: Plains region of South Dakota, Nebraska, and Kansas, eastern Colorado and Wyoming, and southern Montana, in Transition Zone.

In Kansas—northwest one-fourth.

80. *Pitymys nemoralis* (Bailey)

(Woodland Pine Mouse)

$$\text{Dentition } \frac{1\ 0\ 0\ 3}{1\ 0\ 0\ 3} = 16$$

Ears large, fur long and coarse, tail short, colors bright. *Color*: Upper parts dull chestnut sprinkled with blackish; sides paler; feet pale buffy to dusky; tail faintly bicolor, above like back, below like belly. Under parts, washed with bright cinnamon. *Habits and food*: Live in molelike tunnels just below surface of ground. Eat roots and bulbs, much like meadow mice in other habits. *Range*: West of the Mississippi river from central Arkansas north to Council Bluffs, Iowa.

In Kansas—east of Flint Hills.

81. *Ondatra zibethica zibethica* (Linnaeus)

(Common Muskrat)

$$\text{Dentition } \frac{1\ 0\ 0\ 3}{1\ 0\ 0\ 3} = 16$$

A large rat, short legs, broad feet specialized for swimming, hind feet partially webbed; tail long, flat, scaly, and sparsely haired; ears scarcely show above fur; secretes strong odor of musk. Has two types of hair, a close, waterproof underfur and longer, glistening guard hairs. *Color*: Upper parts dark brown, slightly darker on head; sides chestnut, pelage glossy; underfur slate colored at base. Under parts like pelage of sides, but washed with tawny and lighter in appearance, whitish on throat and belly; a blackish spot on chin and blackish about wrists and heels, tail black; feet, dark brown. *Habits*: Always live near water. *Food*: Eats mainly vegetation, mostly water plants, but sometimes traveling from water for other vegetation; some animal food such as mussels, fish, and salamanders.

Range: Southeastern Canada, southeastern and east central United States from New Brunswick and Quebec west to Minnesota, and south to northern Georgia and Arkansas except along the Atlantic seaboard south of Delaware Bay.

In Kansas—extreme southeast corner of state; intergrades with *cinnamomina* to the north.

82. *Ondatra zibethica cinnamomina* Hollister

(Great Plains Muskrat)

Smaller than typical *zibethica*, pale in color with cinnamon brown upper parts. *Habits and food:* Same as *zibethica*. *Range:* Great central plains region of western United States and Canada; from Manitoba south to northern Texas, east to central Iowa and west to the Rocky Mountains.

In Kansas—statewide, except extreme southeast corner.

83. *Mus musculus musculus* Linnaeus

(House Mouse)

$$\text{Dentition } \frac{1 \ 0 \ 0 \ 3}{1 \ 0 \ 0 \ 3} = 16$$

A small mouse with long tail, sparsely haired, pelage dull in color, no great contrast between upper and lower parts. *Color:* Upper parts mixed yellowish-brown and black, feet brownish, tail above dusky, below slightly lighter; under parts, ashy gray. *Habits and food:* Not necessarily a house mouse, but in northern climates must seek shelter in winter; almost omnivorous, but prefers grain and vegetable products. *Range:* Found almost everywhere in United States and Canada where settlements or commerce exist.

In Kansas—statewide.

84. *Rattus norvegicus* (Erxleben)

(House Rat)

$$\text{Dentition } \frac{1 \ 0 \ 0 \ 3}{1 \ 0 \ 0 \ 3} = 16$$

A good-sized rat, with large, nearly naked, ears; long seminaked tail with rather conspicuous annulations; pelage somewhat coarse; brown or grayish above, ashy below. *Color:* Upper parts grayish or brownish, with mixture of more or less black; feet grayish or whitish; tail not distinctly bicolor, dusky above, somewhat lighter below. Under parts, grayish to soiled whitish; transition in color from sides to under parts gradual. *Habits and food:* Frequently lives under filthy conditions, carrying diseases, and very destructive.

Practically omnivorous: eats grain, green vegetation, meat, eggs, etc. *Range*: Nearly everywhere men have settled.

In Kansas—statewide.

85. *Zapus hudsonius campestris* Preble

(Prairie Jumping-mouse)

$$\text{Dentition } \frac{1 \ 0 \ 1 \ 3}{1 \ 0 \ 0 \ 3} = 18$$

Medium-sized mouse, with greatly elongated hind legs; very long slender tapering tail; short forelegs. *Color*: Upper parts mixed yellowish-fawn and black; fur slate colored at base; a dark band from crown of head to base of tail on back. Tail above, grayish-brown, below, white; feet white. Underparts, white. *Habits and food*: These mice show a fondness for meadow and grassy spots. Found in forested sections and on less arid plains. Hibernate during cold weather. *Food*: Vegetation, seeds, and grain. *Range*: Most of United States and Canada, north to Arctic Circle, south to California, North Carolina.

In Kansas—recorded only from Brown, Douglas, Anderson, Elk, and Trego counties.

86. *Erethizon epixanthum bruneri* Swenk

(Nebraska Yellow-haired Porcupine)

$$\text{Dentition } \frac{1 \ 0 \ 1 \ 3}{1 \ 0 \ 1 \ 3} = 20$$

A large, clumsy rodent, with long sharp spines in its fur. Head proportionally small; muzzle blunt; lips hairy; body thick and heavy; limbs short, four claws on fore feet, five on hind feet; tail short, thick, muscular. Hair fairly long, soft, woolly, with which is mixed much longer, hard, glistening hairs and long spines. Spines stiff, sharp, and barbed and occurring all over upper parts from crown of head and sides to end of tail. Under parts, spineless. *Color*: Upper parts very slaty black or brownish-black, liberally sprinkled on upper parts and sides with light-tipped hairs which are whitish to yellowish-white; spines yellowish-white, tipped with greenish-yellow; spines most conspicuous on rump and tail; incisors orange red; under side of the tail largely or wholly brownish-yellow. *Habits*: Usually found on ground, but may climb trees, often live in burrows. Very fond of salt and will frequently come to a habitation in search of anything salty. These animals may kill trees by removing too much bark or by girdling. The thick tail is used as a weapon of defense, and the spines may be deposited in an enemy

by a quick slap of it. Porcupines do not shoot quills. The base of the quill is loosely fastened in the skin of the porcupine and any slight pressure against an enemy is enough to sink the barbs in, thus pulling them from their original position. *Food*: Bark, buds, foliage of trees, shrubs, and plants. *Range*: Found in forested area in Nebraska, Wyoming, Montana and Kansas. Limits of range unknown.

In Kansas—recorded only from Decatur, Logan, Trego, Kingman and Barber counties.

87. *Lepus townsendii campanius* Hollister

(White-tailed Jack Rabbit)

$$\text{Dentition } \frac{2 \ 0 \ 3 \ 3}{1 \ 0 \ 2 \ 3} = 28$$

One of the largest of the rabbits, heavy body, long ears (4 inches or more in length), tail long and white throughout the year. *Color*: Upper parts a uniform buffy gray with yellowish suffusion; nape buffy to grayish; tail completely white, sometimes with a faint dusky median line above; legs much like back; tops of hind feet whitish. Under parts white, except for throat, which is gray with buffy wash; ears brownish, washed with buffy or gray, black tipped and with white on posterior half. Winter pelage in northern part of range, pure white except for black tips to ears and irregular buffy patches on top side of forefeet, nose, and about eyes, dark rusty area about front and inside of ears; underfur of upper parts usually reddish-brown. *Habits and food*: Usually live on the plains, but may be found on mountain slopes to high elevations. Very fast runners, run with powerful leaps, twelve to twenty feet. Can outrun Black-tailed rabbits and almost all breeds of dogs. *Food*: Foliage, grass, grain, trees, and plants. *Range*: Found on the Great Plains of southern Canada and then south on plains of the United States east of the Rocky Mountains, over Montana, Wyoming, the Dakotas, Minnesota, to extreme southeastern corner Iowa, east to the Mississippi river, Nebraska, northern half of Kansas, Colorado, east of summit of the Rocky Mountains, and middle northern border of New Mexico.

88. *Lepus californicus melanotis* (Mearns)

(Great Plains Jack Rabbit or Black-eared Rabbit)

Same as *campanius*, except ears are longer and has a large whitish rump patch; black band from rump onto tail broad and well developed. *Color*: Upper parts pale buffy gray with light black wash,

throat richly colored, deep yellowish buff. Under parts, white. *Habits:* In running, the animal dodges from side to side and occasionally leaps into the air, possibly to ascertain the whereabouts of the pursuer. May be found in open prairies and slightly forested areas. When not eating or running, animals may be found crouched down beneath a tuft of grass, by a weed, or in a small depression in the ground, with ears laid back. It blends so well with the surroundings that one may walk by without noticing it. *Food:* Typical Lepus. *Range:* Great Plains from east-central and northern Texas, northeastern New Mexico and north through western half of Indian Territory, all of Oklahoma, extreme eastern parts, southwestern Dakota, southeastern Wyoming, and all of Colorado east of the Rocky Mountains.

In Kansas—statewide.

89. *Sylvilagus floridanus mearnsi* (Allen)

(Mearns' Cottontail)

$$\text{Dentition } \frac{2 \ 0 \ 3 \ 3}{1 \ 0 \ 2 \ 3} = 28$$

A small medium-size rabbit; hind legs long, not so well developed as in Jack rabbits; ears large, but not excessively developed. Tail short, white underside. Average total length of adult, 18 inches. *Color:* Upper parts varying from light buffy brown, with grayish wash; sides, rump, and back finely sprinkled with black, forelegs dark reddish cinnamon, forefeet more buffy than legs. Tail above rusty brown, below, clear white. Ears dark grayish, buffy bordered with black. Under parts, white except for buffy area on throat. *Habits and food:* May be found in all regions. Comes out for feed in late afternoon or early morning, on the prairies, commonest where green vegetation affords them food. Live in burrows in the ground. While it can run fast it depends on shelter for protection. *Food:* Green vegetation, grasses, bark, etc. *Range:* West of Allegheny Mountains from Lake Simcoe, Toronto, Canada, central New York, central Pennsylvania, western West Virginia, and eastern Kentucky, and eastern Tennessee, west through southern Michigan and Wisconsin to southeastern Minnesota, and south through Iowa, as far west as Trego county and as far south as Coffey county, Kansas, northern Missouri and Illinois, and all of Indiana and Ohio.

90. *Sylvilagus floridanus similis* Nelson

(Nebraska Cottontail)

Same as *mearnsi*, except smaller. Average total length of adult, 16 inches. *Color*: Upper parts pale pinkish buffy washed with grayish over shoulders and black over rest of back. Under parts, white. *Habits and food*: Same as *mearnsi*. *Range*: Found on dry plains (mainly along wooded streams) of extreme western Minnesota, eastern North and South Dakota, all of Nebraska (except along the Missouri bottom lands), northern Kansas, northeastern Colorado, along tributaries of Platte river to base of mountains near Denver and southeastern Wyoming.

In Kansas—northwestern one-sixth of state.

91. *Sylvilagus floridanus alacer* (Bangs)

(Oklahoma Cottontail)

Closely resembles *mearnsi*, except paler, with more rusty red on upper parts. *Color*: Same as *mearnsi* except rusty red on upper parts. *Habits and food*: Same as *mearnsi*. *Range*: Found on Gulf coast from Mobile Bay, north through most of Alabama, northwestern Georgia; all of Mississippi, Louisiana, and Arkansas; western Tennessee and Kentucky, extreme southern Illinois, southern Missouri, southeastern Kansas, all of Oklahoma, except extreme western parts, and western Texas to eastern border of Panhandle.

In Kansas—southern one-third of state.

92. *Sylvilagus sudubonii baileyi* (Merriam)

(Wyoming Cottontail)

Slightly smaller than *mearnsi*. Average total length of adult, 17 inches. Fur long and thick, ears and feet hairy. *Color*: Upper parts pale creamy buff, lightly washed with black, neck light reddish, throat dark to creamy buff. Under parts, white. *Habits and food*: Same as *mearnsi*. *Range*: Found in plains and valleys of eastern Montana, most of Wyoming, northeastern Utah, northwestern and eastern Colorado (east of the mountains), western parts of North and South Dakota, Nebraska, and as far east as Trego county, Kansas.

93. *Sylvilagus audubonii neomexicanus* Nelson

(New Mexico Cottontail)

Smaller than *mearnsi*, total length, approximately 15 inches, ears and hind feet about the same length as *mearnsi*, more red in color. *Color*: Upper parts dark buffy gray, nape rufous; poorly outlined rump patch dull iron-gray; throat dark ochreous buffy. Under parts, white. *Habits and food*: Same as typical *Sylvilagus*. *Range*: In Pecos Valley from near Fort Stockton, Texas, north to about Fort Sumner, New Mexico, and thence east to Abilene and Wichita Falls, Texas, and north through eastern New Mexico, western Texas, and western Oklahoma to extreme south central Kansas.

94. *Sylvilagus aquaticus aquaticus* (Bachman)

(Swamp Rabbit)

A large rabbit (total length of adult, approximately 22 inches) with large ears. *Color*: Upper parts grayish-brown washed with buffy, top of head yellowish buffy brown; rump reddish-brown; sides grayer than back; legs and feet cinnamon; ears like top of head in color; tail, above, like rump, below, white. Under parts, clear white; throat dull buffy grayish. *Habits and habitat*: May usually be found in swamps or on the high ground between sunken areas. *Food*: Vegetation, berries, and nuts. *Range*: River bottoms and swamp woods from southwestern Georgia, west to near San Antonio, middle Texas, north to southeastern Kansas and wooded bottoms of Ohio and Mississippi rivers to southern Illinois.

In Kansas—recorded only from Cherokee, Crawford, and Labette counties.

SUPPLEMENTARY LIST

1. *Myotis keenii septentrionalis* (Trouessart). Bat.
This bat should be found in the extreme northeastern corner of Kansas; may be distinguished from *Myotis lucifugus lucifugus* by its longer ears and from *Myotis subulatus subulatus* by the absence of the mask.
2. *Myotis grisescens* Howell. Gray Bat.
The gray bat has been taken in the southwest corner of Missouri and should occasionally occur in southeastern Kansas.
3. *Eptesicus fuscus pallidus* (Young). Pale Brown Bat.
There is considerable controversy as to whether this should be recognized as a separate form. If it is to be considered as distinct it may be considered a resident of the western third of the state. It is paler in coloration than *Eptesicus fuscus fuscus*.
4. *Nycticeius humeralis* (Rafinesque). Rafinesque Bat.
This bat should occur occasionally in eastern Kansas, as specimens have been taken in Oklahoma, Arkansas and Nebraska.
5. *Mustela vison mink* (Peale and Beauvois). Southern Mink.
The mink along the streams in the southeast corner of Kansas should be of these subspecies.
6. *Vulpes macroura* Baird. Mountain Red Fox.
According to N. S. Goss (*Forest and Stream*, vol. 27, p. 465, January 6, 1887, A Prairie Fox), *Vulpes macroura* Baird was taken in Cowley county sometime in 1885. The specimen was mounted and taken to the home of Mr. Fred Whitney, in Meade county. If this specimen could be found and proven to be the Mountain Red Fox it should be included in the list of Kansas mammals.
7. *Peromyscus nuttali aureolis* (Audubon and Bachman).
This mouse should occur along the Neosho river lowlands. Black says, "Recent sight records from Colony could hardly refer to any other mouse . . . reports from Colony of the occurrence of a 'red mouse' or a 'golden mouse' from that region which lives in trees clearly indicates its presence there."
8. *Neotoma floridana attwateri* (Mearns). Texas Pack Rat.
Pack or Wood Rats have been reported from Cherokee, Labette and Montgomery counties. These rats should be of this subspecies, if they occur.
9. *Euarctos americanus americanus* (Pallas). Black Bear.
This bear was once common in extreme eastern portion of Kansas. Now extinct in the state.
10. *Euarctos americanus amblyceps* (Baird). New Mexico Black Bear.
In early days this bear was found in south-central Kansas in the gypsum caves. Now extinct in the state.
11. *Ursus horribilis horribilis* Ord. Plains Grizzly.
The Plains Grizzly was once common throughout Kansas west of the Flint Hills. Now extinct in the state.
12. *Lutra canadensis laxatina* (F. Cuvier). Carolina Otter.
This otter once was found along the streams in Kansas, but is now extinct in the state.

13. *Canis nubilus* Say. Timber or Gray Wolf.
The Gray Wolf was once common throughout the state. Now extinct in the state.
14. *Felis cougar* Kerr. Panther.
The Panther was occasionally found in the eastern part of the state in the early days. Now extinct in the state.
15. *Felis oregonensis hippolestes* (Merriam). Rocky Mountain Lion.
Probably occurred over most of the western part of the state before it was settled. Now extinct in the state.
16. *Castor canadensis carolinensis* Rhodes. Southern Beaver.
Once common throughout the state, but exterminated by trappers.
17. *Rattus rattus rattus* (Linnaeus). Black Rat.
Once common throughout the state, but has been replaced by *Rattus norvegicus*.
18. *Cervus canadensis canadensis* (Erxleben). Elk or Wapiti.
The Elk was once abundant in Kansas, but is now extinct.
19. *Odocoileus hemionus hemionus* (Rafinesque). Mule Deer.
This Deer was once abundant in the plains section bordering streams. Now extinct.
20. *Odocoileus virginianus macrourus* (Rafinesque). White-tailed Deer.
Once common in Kansas. Now extinct.
21. *Antilocapra americana americana* (Ord). American Antelope.
The Antelope existed in this state until a very few years ago. Now extinct.
22. *Bison bison bison* (Linnaeus). Plains bison.
Once found on the plains, but now extinct except for a few small protected herds.

GLOSSARY

- Arboreal—living in trees.
Bicolor—with two colors.
Canine—the usually large, single-coned tooth between the premolars and incisors; sometimes missing.
Carnivorous—meat-eating.
Digit—any toe or finger.
Diurnal—active during the day.
Dorsal—pertaining to the back.
Femoral—pertaining to thighs, as membrane on some of the bats.
Ferruginous—the color commonly called rusty.
Fulvous—color composed of yellow, brown and gray.
Gregarious—feeding or living in groups.
Habitat—the place where an animal lives.
Incisor—any of the front teeth before the canine.
Inguinal—pertaining to groin; area between abdomen and thigh.
Insectivorous—feeding on insects.
Molar—permanent jaw tooth; always farthest back in the jaw.
Nocturnal—active during the night.
Ochreous—dull or tawny yellow.
Omnivorous—eating all kinds of food.
Pectoral—pertaining to upper thorax, or chest.
Pelage—the hair or fur of a mammal.
Premolar—cheek tooth; between the canine and molars; sometimes missing.
Retractile—capable of being withdrawn, as the claws of cats.
Terrestrial—living on land.
Transverse—crosswise.
Tubercle—a small rounded elevation; refers to foot pads or crown pattern of teeth.
Ventral—under surface of body, opposite of dorsal.
Vinaceous—wine-colored.

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