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A Check List of Mammals of Present *Occurrence* in Iowa with Notes on New Additions and Distribution Since 1937

By EMMETT POLDER

There is little definite information regarding the distribution limits of mammals known to occur in Iowa and neighboring states. The purpose of this paper is to add to the rather sketchy knowledge of mammal distribution in Iowa. There is need for much more observation and collection of specimens and data before a comprehensive picture of mammal distribution is completed. A better knowledge of where certain mammalian forms do, or do not, occur is important to the students of ecology, game management, parasitology, taxonomy, and agriculture since the mammal coactions with other life forms have important relations to these fields.

The last complete list of mammals for the state was published by Thomas G. Scott in the Iowa State College Journal of Science, Vol. XII, No. 1, October 1937. Since that time six new races of mammals have been added to the state's fauna. At the present time it is reasonably certain that there are 63 mammalian forms present in the state either as established residents or as occasional migrants. Large mammals such as the timber wolf and cougar which were once present in the state but have not been reliably reported within the past 20 years are not included in the present list. Introduced species, such as the nutria, which have escaped captivity but have not become an established breeding form are not included.

The nomenclature of some species has been revised and a few subspecies have been described since the publication of Scott's list in 1937. The writer is indebted to Wm. H. Burt, former editor of the Journal of Mammalogy, for verification of current nomenclature and for information regarding Iowa specimens at the University of Michigan Museum of Natural History. Valuable assistance was rendered by H. H. T. Jackson, Viola Schantz, and Stanley P. Young, of the U. S. Fish and Wildlife Service, who examined and identified specimens collected by the writer. Other valuable information on the extension of ranges of Iowa mammals was provided in reprints and letters from Dr. G. O. Hendrickson, Glenn Sanderson and Jack Musgrove.

CLASSIFIED LIST OF MAMMALS OF PRESENT OCCURANCE

Order I. MARSUPIALIA

Family *DIDELPHIDAE*

Virginia Opossum, *Didelphis virginiana virginiana* Kerr.

Order II. INSECTIVORA

Family *TALPIDAE*

Prairie Mole, *Scalopus aquaticus machrinus* (Rafinesque).

Missouri Valley Mole, *Scalopus aquaticus machrinoides* Jackson.

Family *SORICIDAE*

Masked Shrew, *Sorex cinereus cinereus* (Kerr).

Hayden Shrew, *Sorex cinereus haydeni* (Baird).

Hoy Pygmy Shrew, *Microsorex hoyi hoyi* (Baird).

Least Shrew, *Cryptotis parva parva* (Say).

Short-Tailed Shrew, *Blarina brevicauda brevicauda* (Say).

Order III. CHIROPTERA

Family *VESPERTILIONIDAE*

Little Brown Bat, *Myotis lucifugus lucifugus* (Le Conte).

Trouessart's Bat, *Myotis Keeni septentrionalis* (Trouessart).

Say Bat, *Myotis subulatus* Say.

Silver-Haired Bat, *Lasionycteris noctivagans* (Le Conte).

Eastern Pipistrelle, *Pipistrellus subflavus subflavus* (F. Cuvier).

Big Brown Bat, *Eptesicus fuscus fuscus* (Beauvois).

Northern Red Bat, *Lasiurus borealis borealis* (Muller).

Hoary Bat, *Lasiurus cinereus* (Beauvois).

Family *MOLLOSSIDAE*

Big Free-Tailed Bat, *Tadaridia macrotis* (Gray).

Order IV. CARNIVORA

Family *PROCYONIDAE*

Upper Mississippi Valley Raccoon, *Procyon lotor hirtus* Nelson and Goldman.

Family *MUSTELIDAE*

Bonepartes Weasel, *Mustela cicognani cicognani* Boneparte.

Least Weasel, *Mustela rixosa allegheniensis* (Rhoads).

Minnesota Weasel, *Mustela frenata spadix* Bangs.

Missouri Weasel, *Mustela frenata primulina* Jackson.

Common Mink, *Mustela vison mink* (Peale and Beauvois).

Mississippi Valley Mink, *Mustela vison letifera* (Hollister).

Canada Otter, *Lutra canadensis canadensis* (Schreber).

Prairie Spotted Skunk, *Spilogale interrupta* (Rafinesque).

Northern Plains Skunk, *Mephitis mephitis hudsonica* (Richardson).

Illinois Skunk, *Mephitis mephitis avia* (Bangs).

Iowa Badger, *Taxidea taxus iowae* Schantz.

Family *CANIDAE*

Northern Plains Red Fox, *Vulpes fulva regalis* Merriam.

Wisconsin Gray Fox, *Urocyon cinereoargenteus ocythous* Bangs.

Coyote, *Canis latrans latrans* Say.

Family *FELIDAE*

Wild Cat, *Lynx rufus rufus* (Schreber).

Order V. RODENTIA

Family *SCIURIDAE*

Southern Woodchuck, *Marmota monax monax* (Linnaeus).

Thirteen-Lined Ground Squirrel, *Citellus tridecemlineatus tridecemlineatus* (Mitchell).

Franklin's Ground Squirrel, *Citellus franklini* (Sabine).

Gray Eastern Chipmunk, *Tamias striatus griseus* Mearns.

Southern Red Squirrel, *Tamiasciurus hudsonicus loquax* Bangs.

Minnesota Red Squirrel, *Tamiasciurus hudsonicus minnesota* Allen.

Northern Gray Squirrel, *Sciurus carolinensis leucotis* (Gapper).

Western Fox Squirrel, *Sciurus niger rufiventor* (Geoffroy).

Little Flying Squirrel, *Glaucomys volans volans* (Linnaeus).

Family *GEOMYIDAE*

Mississippi Valley Pocket Gopher, *Geomys bursarius bursarius* (Shaw).

Family *HETEROMIDAE*

Dusky Pocket Mouse, *Perognathus flavescens perniger* Osgood.

Family *CASTORIDAE*

Missouri River Beaver, *Castor canadensis missouriensis* Bailey.

Family *CRICETIDAE*

Northern Grasshopper Mouse, *Onychomys leucogaster breviauritus* Hollister.

Prairie Harvest Mouse, *Reithrodontomys megalotis dychii* (Allen).

Pectoral Harvest Mouse, *Reithrodontomys megalotis pectoralis* Hanson.

Prairie White-Footed Mouse, *Peromyscus maniculatus bairdi* (Hoy and Kenticott).

Northern White-Footed Mouse, *Peromyscus leucopus noveboracensis* (Fischer).

Goss Lemming Mouse, *Synaptomys cooperi gossi* (Coues).

Boreal Red-Backed Mouse, *Clethrionomys gapperi loringi* Bailly.

Pennsylvania Meadow Mouse, *Microtus pennsylvanicus pennsylvanicus* (Ord).

Prairie Meadow Mouse, *Microtus ochrogaster ochrogaster* (Wagner).

Woodland Pine Mouse, *Pitymys pinetorum nemoralis* (Bailly).

Common Muskrat, *Ondatra zibethica zibethica* (Linnaeus).

Great Plains Muskrat, *Ondatra zibethica cinnamomina* (Hollister).

Family *MURIDAE*

Norway Rat, *Rattus norvegicus* Berkenhout.

House Mouse, *Mus musculus* Linnaeus.

Family *ZAPODIDAE*

Prairie Jumping Mouse, *Zapus hudsonicus campestris* Preble.

Order VI. LAGOMORPHA

Family *LEPORIDAE*

Whitetail Jack Rabbit, *Lepus townsendi campanius* Hollister.

Mearns Cottontail, *Sylvilagus floridanus mearnsi* (Allen).

Order VII. ARTIODACTYLA

Family *CERVIDAE*

Plains White-Tailed Deer, *Odocoileus virginianus macrourus* (Rafinesque).

ADDITIONS TO THE LIST OF IOWA MAMMALS SINCE 1937

EASTERN PIPISTRELLE, *Pipistrellus subflavus subflavus*.—A published record by Scott (1939) revealed the presence of this bat in eastern Iowa. He listed two specimens preserved in the Iowa State College Museum that were collected from Dubuque and Jackson Counties. The writer has observed specimens from Julien Cave, Dubuque County, and Backbone Cave in Delaware County. A single specimen killed by a screech owl was collected by the writer at a farm grove in Fairfield Township, Grundy County; this specimen is preserved in alcohol in the writer's private collection.

This bat may possibly range over southern and Central Iowa since it is reported by Swanson (1945) from the eastern half of Minnesota, and it has been reported in a collection of live bats from Lincoln, Nebraska examined by P. H. Krutsch (1950).

SAY BAT, *Myotis subulatus*.—The Say Bat was regarded by Scott, in his 1937 list, as a synonymy for the Trouessart Bat, *M. keeni septentrionalis*. In 1939 Scott reported discovery of a preserved specimen in the Iowa State College Museum that had been reported by Osborn in 1892. No other valid specimen records are known for the state. Since this bat has a superficial resemblance to the common little brown bat, *M. lucifugus*, it is entirely possible that it has been overlooked by later collectors. The Osborn specimen was collected at Ames, Iowa, hence it is probable that this bat may range over much of the western half of the state.

LEAST WEASEL, *Mustela rixosa*.—Scott (1939) reported the remains of two least weasels found in owl pellets collected in Palo Alto County in northwest Iowa and from Wapello county in southeast Iowa. Three Butler County specimens in winter pelage, collected by the writer, were donated to the Department of Zoology, Iowa State College, in the winter of 1939. An adult male in summer pelage, collected in Linn County, was identified for the writer by H. H. T. Jackson as the subspecies *M. rixosa allegheniensis*. The writer has trapped specimens in Grundy, Story, Butler, Linn, and Dubuque Counties and has observed their tracks in the snow in Black Hawk, Bremer, Fayette, and Delaware Counties. Other Iowa records are for Davenport, Iowa, by T. J. Morrisey (1941) and Benton, Guthrie, and Dallas Counties reported in a letter by Glenn Sanderson, Iowa State Game Biologist.

This weasel often lives in stubble, plowed fields, and other scanty cover as well as in heavy weed and grass cover. The writer has taken four specimens in two nights on a single 160 acre farm in Butler County. Evidence obtained by tracking indicates that the

mid-winter least weasel population may reach as many as 16 to 20 individuals per square mile in favorable years.

MISSOURI WEASEL, *Mustela frenata primulina*.—Scott (1939) reported two specimens added to the Iowa State College Museum collection that were collected from southern Dubuque County and Boone County. A specimen collected at Ames, Iowa, by the writer was identified by Dr. E. R. Hall as an intergrade between *M. frenata spadix* and *M. frenata primulina*. Specimens from Delaware and Linn Counties and from Dyersville, Dubuque County, were examined for the writer by Dr. H. H. T. Jackson who considered them to be representative of the *spadix* subspecies. Southern Dubuque County and all counties crossed by U. S. Highway 30 appear to lie in the zone of intergration. To the writers knowledge there have been no specimens critically examined west of Boone County, but on the basis of present information the subspecies *primulina* appears to range over all of southern Iowa south of U. S. Highway 30.

PECTORAL HARVEST MOUSE, *Reithrodontomys megalotis pectoralis*.—This mouse was described by Harold Hanson (1944) who gave its range as the driftless area of Wisconsin and southeastern Minnesota. Three specimens collected at Dyersville on the Delaware-Dubuque County boundary by the writer were examined by Dr. Stanley P. Young who tentatively classed them as the subspecies *pectoralis* although they did not show the well-defined buff pectoral spot characteristic of the Wisconsin specimens described by Hanson. Scott, in a letter to the writer, reported collecting a single specimen from Dyersville that was examined by Dr. A. H. Howell of the U. S. Fish and Wildlife Service in 1938. The Scott specimen was recognized as not representative of the *dychii* subspecies common to southern and western Iowa and was set aside for further study when more specimens are made available. The four Dyersville specimens are in the possession of the U. S. Biological Surveys Collection, Washington, D. C.

All of these harvest mice were taken on gravelly and sandy soils at Dyersville. Extensive trapping in sandy fields at Lansing, Allamakee County, failed to take harvest mice although they have been reported from Huston County, Minnesota, which borders Allamakee County on the north. The known localities where specimens have been collected indicates that the range of the pectoral harvest mouse probably includes Dubuque, Delaware, Clayton, and Allamakee Counties.

BOREAL RED-BACKED MOUSE, *Clethrionomys gapperi loringi*.—Dr. Wm. H. Burt, in a letter written in 1952, informed the writer that two specimens of this mouse were in the University of Michigan Museum of Natural History collection. The specimens were collected in Hancock County and Winnebago County by Irving J. Cantrall of the University of Michigan staff.

NOTES ON CHANGES OF RANGE

MASKED SHREW, *Sorex cinereus cinereus*.—The range of the masked shrew was described by Scott as extending from Dubuque to Hamilton County and as embracing all counties north of this line. Glenn Sanderson (letter, March 20, 1953) informed the writer that he collected five specimens seven miles north of Marion in Linn County during August 1951. This extends the known range one tier of counties south of the previously described range in eastern Iowa.

OTTER, *Lutra canadensis*.—Scott noted that the otter is a wanderer and continued to appear in the state at infrequent intervals until 1913. The latest authentic records are specimens obtained by conservation officers from trappers and commercial fishermen who had taken them accidentally or illegally within the past 12 years in traps or nets. All records reported in the Iowa Conservationist are from Allamakee and Clayton Counties. Trappers report that tracks and fecal scats of this species are sometimes found in the Mississippi islands in northern Dubuque County.

GRAY FOX, *Urocyon cinereoargenteus*.—This fox has long been known as a resident of northeast Iowa but its distribution in the rest of the state has never been determined. Scott considered the Moinonia red fox study area in Boone County to be uncontaminated by gray fox signs during his 1937 to 1941 research. A photograph of a rabid fox that was killed when it attacked a man in Dakota City in Humboldt County appeared in a recent issue of the Iowa Conservationist. The fox shown was unmistakably a gray fox. This location would indicate that the range in northern Iowa extends west to the East Fork of the Des Moines River. The westward range in southern Minnesota shown by Swanson (1945) extends almost due north of this location. In a letter (March 30, 1953) Jack Musgrove, Museum Director of the Iowa State Department of History and Archives, informed the writer that a gray fox record was obtained from Council Bluffs, Pottawattamie County, Sanderson (letter, 1953) reports that he has two gray fox skulls in his collection from Bloomfield, Iowa. The widely scattered distribution

records indicate that the gray fox ranges over eastern Iowa and is scattered over the southern counties west to the Missouri River. There are no records for the counties north of Pottawattamie County and west of the Des Moines River. A check of county auditors in counties where fox bounties are paid and of fur buyers in the northwest and western counties could be a source of added distribution records. Study skins and skulls of southern Iowa should be given critical examination to determine their taxonomic status since the ranges of southern, eastern, and northern races of gray foxes are indefinite.

WILD CAT, *Lynx rufus*.—Reports of this predator have been given in the Iowa Conservationist within the past ten years. Two specimens have been shot within the state in that period. One report was for Jones County; the other was for Black Hawk County.

GRAY EASTERN CHIPMUNK, *Tamias striatus griseus*.—Damon (1941) reported sight records of this species in Dolliver Park, Webster County. Velich (1947) reported it from Omaha, Nebraska. The writer has observed them at Ames and Boone, Iowa. There are no reports, to the writer's knowledge, from the area of the state west of Webster County and north of Pottawattamie County. It is possible this chipmunk may be found in the oak woods along the west tributaries of the Des Moines River west of the present known points of distribution.

RED SQUIRREL, *Tamiasciurus hudsonicus*.—Scott (1937) wrote, "The exact range of the southern red squirrel is undetermined, but is probably over the southern half of the state". He considered the red squirrel of northern Iowa a representative of another race *T. hudsonicus minnesota*. Bernard Nelson (M.S., 1943), after extensive examination 180 specimens from two Minnesota collections, concluded that *minnesota* was doubtfully separable from *loquax* and should be considered a synonymy for the latter. Other records in addition to those listed by Scott for the two races are a Black Hawk County specimen from Finchford, donated by the writer to the Iowa State College Department of Zoology, and a sight record at Nortons Corners, Butler County, by the writer. Sanderson mentioned in his letter a record of three specimens from Emmett County found in the possession of a hunter during a game bag check.

GRAY SQUIRREL, *Sciurus carolinensis*.—The gray squirrel is a retiring animal that prefers dense timber. Although clearing has disturbed much of its former environment hunter records collected by Sanderson indicate that this species still ranges over a wide area in

eastern Iowa. He has records for Cerro Gordo, Winnebago, and Bremer Counties and all counties east of these in northeast Iowa. In southeast Iowa he has records from Lucas and Appanoose Counties and all counties east of these. There are scattered records from Marshall and Jasper Counties and other counties in east central Iowa.

The taxonomic status of the southern Iowa gray squirrel should be investigated since the range of the northern and southern subspecies is not well established for the Missouri-Iowa border area.

DUSKY POCKET MOUSE, *Perognathus flavescens perniger*.—Scott reported specimens from western Iowa and surmised that this mouse probably ranged over the western two-thirds of the state. The writer collected specimens from the Butler and Black Hawk County border area near Finchford. The easternmost record obtained by the writer was two specimens from Backbone Park, Delaware County, which were donated to the Iowa State College Department of Zoology in 1938.

GOSS LEMMING MOUSE, *Synaptomys cooperi gossii*.—Scott (1937) wrote that this mouse appears to be confined to the wet meadows of the southern part of the state. Two specimens in the writers collection were taken March 7 and March 11, 1942, at Lansing, Allamakee County. These specimens were taken on a dry sandstone hilltop under a clump of white pines. Other collectors would do well to sample a variety of environments when attempting to take lemming mice since these records indicate that they are not restricted to wet grasslands.

The Lansing specimens were examined by Dr. H. H. T. Jackson who identified them as *S. cooperi gossii* although they bore a pronounced resemblance to *S. cooperi stoni*, a race found in Wisconsin directly across the Mississippi River from Lansing. The Lansing specimens apparently approach the northern limit of their range since Swanson (1945) found all Minnesota specimens to be *S. cooperi cooperi*.

PINE MOUSE, *Pitymys pinetorum nemoralis*.—Scott stated that the pine mouse is found in southern Iowa. Swanson reported a single specimen from Houston County in extreme southeast Minnesota. This mouse is probably found in northeastern Iowa but the writer was unable to trap it at Lansing during three months of extensive trapping. Glenn Sanderson collected one specimen at Pali-sades State Park, Linn County, on August 25, 1952. This is the northernmost specimen record for the state and supports the claim

made by Stoner (1918) that he had collected this species at Iowa City, Johnson County.

GREAT PLAINS MUSKRAT, *Ondatra zibethica cinnamomina*.—Stoner (1918) and Scott (1937) did not give a definite range for this race. The writer has taken bright reddish individuals typical of this race as far east as Cedar Falls in Black Hawk County. In my field notes on a group of 72 specimens taken at New Hartford, Butler County, eight were of typical bright *cinnamomina* coloration.

PRAIRIE JUMPING MOUSE, *Zapus hudsonicus campestris*.—Scott (1937) recorded specimens from western Iowa and gave the Hudson Bay jumping mouse, *Z. hudsonicus hudsonicus* hypothetical range in extreme eastern Iowa on the basis of a paper by Preble (1899). A Dubuque County specimen taken by the writer at Dyersville, in September 1950, was considered a typical member of the *campestris* race by Dr. Stanley P. Young who examined it. The specimen is now in the U. S. Biological Surveys collection, Washington, D. C. The Dubuque County record would appear to preclude the presence of the *hudsonicus* subspecies in eastern Iowa.

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