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History of Mammal Study in Iowa

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The first records of mammals in Iowa were from explorers, survey parties heading westward and early settlers. Generation of checklists of state mammals began in 1840 and culminated with the annotated list by Scott (1937) and biogeographic analysis by Bowles (1975). Recent focus has been on rare species status and mammalian ecology, e.g., Loess Hills, riparian habitat, agricultural practices, and reestablished grasslands.

INDEX DESCRIPTORS: Iowa, mammals, mammalogy, Iowa natural history.

The earliest published reference to mammals in Iowa seems to be that of the French explorers Louis Joliet and Jacques Marquette, who recorded observations on bison and deer on the banks of the Mississippi River near the present town of McGregor, Clayton County, on 17 July 1673. Subsequently, explorers, fur traders, and missionaries passed through Iowa in the 17th and 18th centuries. Among the most notable of the early fur traders that entered Iowa were J.J. Astor, J.B. Faribault, and Manuel Lisa (see especially Robeson 1925). At that time, Iowa was included in the Louisiana Territory and subsequently sold to the United States in 1803. Shortly afterward (1804 and 1806), the western border of Iowa along the Missouri River was traversed by Lewis and Clark, who recorded significant observations on mammals (see Petersen 1952 for details). Other noteworthy naturalists and explorers who entered Iowa and reported information on mammals included Z.M. Pike in 1805-06, H.M. Brackenridge in 1811, Maximilian in 1833-34, C.A. Murray in 1835, and J.J. Audubon in 1843 (Bowles 1975).

Perhaps because there are no intriguing topographic irregularities — mountain ranges, deserts, and the like, Iowa was only a stopping place for survey parties passing through on their way westward. The Stephen H. Long Expedition to the Rocky Mountains in 1819-20, for example, spent the winter at the Engineer Cantonment, Washington County, Nebraska, but small groups crossed the Missouri River into Iowa, especially to the area along the Boyer River (James 1823). Comments relative to the occurrence of large mammals, as well as important habitat information were recorded by members of the United States Army expeditions — especially those led by Stephen W. Kearney in 1829 and again in 1835 (Bowles 1975), and by Captain James Allen in 1844 (Allen 1846). Representatives of the United States Biological Survey made collections in the late 1800's at Knoxville, Marion County, and Hillsboro, Henry County, but these are the only localities at which extensive collecting was done by that organization. In addition to these accounts, the historical literature of Iowa contains many diaries of early pioneers in which pertinent data on mammals can be found (e.g., Brewer-Bonebright 1921, Savage 1933).

The first efforts to describe the larger mammals on a statewide basis were those of Isaac Galland in 1840 (1921 reprint) and J.B. Newhall (1841), but the earliest published checklist of Iowan mammals was compiled 30 years later by J.A. Allen (1870), based mostly on his collections and observations in the state in 1867 and on information published by Baird (1858). Subsequent lists of Iowan mammals were published by Goding (1883), Osborn (1890, 1892), and Van Hyning and Pellett (1910); the only publications on mammals of specific areas in the state were those for northwestern counties (Ruthven and Wood 1912), Sac County (Spurrell 1917), Marshall County (Gabrielson 1921), the lake region (Stephens 1922), and Floyd County (Brown 1917). Although historical volumes of several southern counties published in 1881 and 1882 by the State Historical Company of Des Moines contained lists of mammals supposedly found in those counties, the authors are anonymous and give no documentation to substantiate the records (many are inaccurate). Other information relative to the occurrence of large mammals is found in historical accounts published early

in this century prior to, and during, early settlement of Iowa (see especially those of B.F. Bowen and Company of Indianapolis, Lewis Publishing Company and S.J. Clarke Company of Chicago). In 1971, I published a summary of historical records of several large mammals from Iowa that could be authenticated and clearly fit regional distributional patterns (Bowles 1971).

The publication by Stoner (1918) on the orders Lagomorpha and Rodentia was the first summary of specific taxa, while the most comprehensive work on mammals in the state was done by T.G. Scott in 1937; his work later was supplemented by E.B. Polder (1953, 1958). In addition, Errington (1963 and elsewhere) contributed considerable information on muskrats and Scott (1947 and elsewhere) published on the red fox. During this period, there were several theses on game and fur-bearing mammals generated; these are housed in the Iowa State University Library (see Bowles 1975).

My work on mammals of Iowa began in December 1964 and culminated in 1971 with the completion of *Distribution and Biogeography of the mammals of Iowa* (Bowles 1975). That publication included information on mammals housed in several museum collections and from contemporary publications, especially bats (e.g., Kunz and Schlitter 1968) as well as unpublished studies on rare mammals and on state preserves (e.g., red-backed vole by Blagen 1967, Kalso Prairie by Brennan 1969).

Generation of the state endangered species list (Roosa 1977) helped spur efforts to collect additional data on rare species with funds from the Iowa Conservation Commission (now Department of Natural Resources), e.g., grasshopper mouse (Lampe 1982), red-backed vole (Lampe 1982), short-tailed weasel (Lampe 1984), otter (Wilson and Milligan 1984), plains pocket mouse (Wilson et al. *in prep.*), and several species of bats (B.K. Clark et al. 1987, B.S. Clark et al. 1987). Meanwhile, DNR personnel along with Iowa State University faculty and graduate students continued studies on game and furbearers, e.g., muskrats (Clark 1987), red foxes (Andrews 1981 and elsewhere), coyotes (Andrews and Boggess 1978), white-tailed deer (Gladfelter 1984, Haugen 1975), fox squirrels (McCloskey and Vohs 1971), and raccoons (Clark et al. 1989, Hasbrouck 1991). At the same time, there were increased efforts to examine ecological aspects of small mammals in Iowa, e.g., railroad right-of-way (Braband 1979), flood plain shoreline (Heideman et al. 1983), riparian habitat (Geier and Best 1980); and continued surveying of state preserves, e.g., Brushy Creek (Wilson 1981) and a cave survey for bats (Pruszek and Bowles 1986).

Formation of the Iowa Natural History Association in 1980 and its Iowa Academy of Science symposia and annual collecting forays resulted in both state-wide status and regional summaries, e.g., *Iowa's mammal fauna: an era of decline* (Bowles 1981), *Annotated checklist of the mammals of the Loess Hills of western Iowa* (Lampe and Bowles 1985). An update of the current status of rarer mammals in Iowa is in progress (Bowles, Lampe, and D. Howell, *in prep.*). Only recently efforts have focused on small mammal population trends in specific habitats, especially those related to newer farming practices (e.g., Young 1984) and reestablishment of native grassland (e.g., Bowles and Copey 1992 and Shimek 1990).

Much has been learned about Iowa's mammalian fauna in the last twenty years, but there is much more to do. Populations in state preserves and other protected lands should be regularly monitored and studies on the biology of certain rare species are needed, including the southern bog lemming, plains pocket mouse, red-backed and woodland voles, and grasshopper mouse. Similarly, the apparent prairie vole displacement by the meadow vole and probable decline of the least shrew need documentation. With continued ecological changes ahead, state-wide efforts are needed to insure that future human generations will benefit from the same diversity of mammals that now exists in Iowa.

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