THE WILD MAMMALS OF KENDALL COUNTY, ILLINOIS

An Abstract of a thesis presented to

the Faculty of the School of Graduate Studies of

Western Illinois University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

by

Stephen Ray Calhoun

1971

The wild mammals of Kendall County were studied during the period June 10, 1968 through December 31, 1969. The highly agricultural area is largely a portion of the prairie biome and is located in the northeastern one-quarter of Illinois.

The wild mammals were differentiated into trappable and non-trappable species, based on whether or not adults of a species regularly could be taken with Museum Special Traps. Besides the use of Museum Special Traps, sightings, signs, questionnaires, interviews and shooting were procedures used to obtain information.

Information was obtained for about 1,900 individual wild mammals of Kendall County, Illinois. Of this number, 800 individuals were obtained in 5,555 trapnights. The remaining specimens were obtained by other means.

A total of 30 species of mammals were recorded as definite residents, eight were considered as probable county residents, and five were considered as possible residents.

The eight species considered as probable county residents were Myotis lucifugus, Myotis keenii, Lasionycteris noctivagans, Taxidea taxus, Canis latrans, Glaucomys volans, Synaptomys cooperi, and Microtus pinetorum and the five species considered as possible residents were Cryptotis parva, Pipistrellus subflavus, Nycticeius humeralis, Lynx rufus, and Reithrodontomys megalotis.

Significant results include the recording of four uncommon species and the successful re-establishment of two species into

their ancestral range. The four uncommon species were Sorex cinereus, Nycteris cinereus, Mustela nivalis, and Zapus hudsonius. The two species which had successfully re-established their ancestral range were Castor canadensis and Dama virginiana.

THIS THESIS HAS BEEN EXAMINED AND APPROVED:

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STEPHEN RAY CALHOUN

DR. JOHN E. WARNOCK, SPONSOR

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INTRODUCTION

The objectives of this study were to determine the diversity, distribution and abundance of the wild mammals of Kendall County, Illinois. Data were obtained on the habitat preferences and interspecific associations of the species found. With the realization that it is easier to prove the presence rather than the absence of a species, a special effort was made to discover mammals considered to be rare.

There are no previously published studies of the mammals of Kendall County, Illinois, and few published species records. County-wide studies for Illinois mammals have been published for Cook County (Kennicott 1855), for Champaign County (Wood 1910), and for Fulton County (Anderson 1951). Thomas (1861), Cory (1912), Mohr (1941), Necker and Hatfield (1941), and Hoffmeister and Mohr (1957) have reported on the mammals for all of Illinois.

GENERAL DESCRIPTION OF KENDALL COUNTY

Kendall County, Illinois, is nearly a square county about 18 miles on a side, with an area of approximately 324 square miles. Yorkville, the county seat, is 40 miles southwest of Chicago, 93 miles north of Urbana, 120 miles northeast of Springfield, and 120 miles northeast of Macomb, Illinois. The contiguous counties are Kane to the north, Grundy to the south, Will to the east, and LaSalle and DeKalb to the west (Figure I).

There are nine square townships in Kendall County, having approximately six miles on a side. All are equal in size by congressional boundaries; however, for civil boundaries the Fox River serves as a township boundary marker and this disrupts the square configuration of the five northern townships. The nine townships are Oswego, Bristol, Little Rock, Fox, Kendall, Na-Au-Say, Seward, Lisbon and Big Grove (Figure II).

There are five incorporated villages within the county and part of a sixth. The villages are Yorkville, with a population of 1,568; Oswego, with a population of 1,510; Plano, with a population of 4,059; Newark, with a population of 489; Lisbon, with a population of 234; and part of Millington, with a population of 309. Except for Na-Au-Say and Seward, each township contains at least part of a village.

The county is heavily populated but most residences are rural. The northern portion of the county, particularly Oswego Township,

Figure I. Map of the northern portion of the State of Illinois featuring the comparative position of Kendall County to remainder of Illinois as well as the comparative distances from Yorkville to the cities of Chicago, Urbana, Springfield and Macomb. (Reproduced by permission from United States Department of Commerce 1964.)

Scale

50 miles

FIGURE I

Figure II. Map of Kendall County showing comparative positions of townships, sections, watercourses, and roads. (Reproduced by permission from Kendall County Highway Department.)

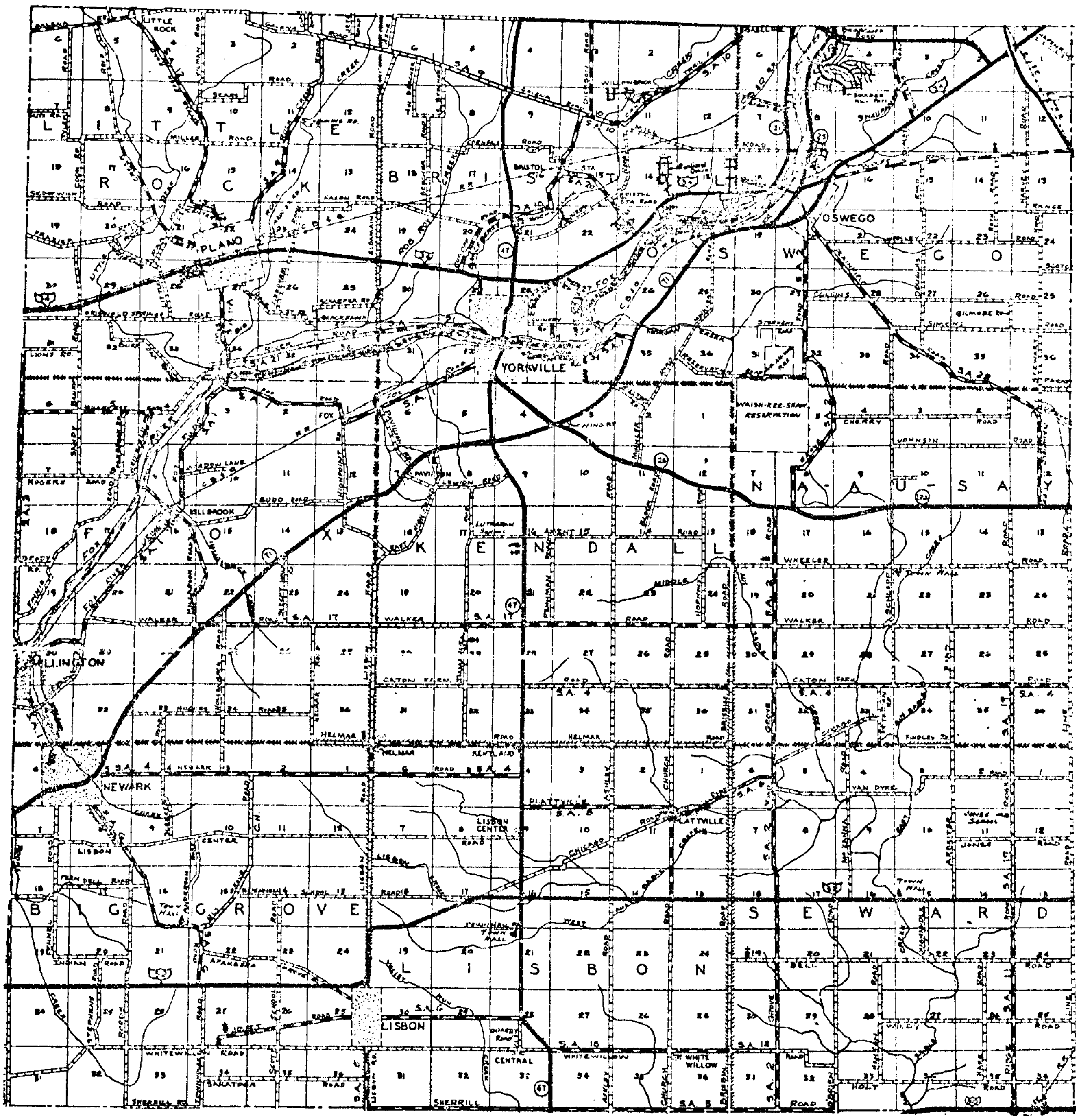
PLANO
YORKVILLE
OSWEGO
NEWARK
LISBON
L I T T L E R O C K
B R I S T O L
O S W E G O
F O X
K E N D A L L
N A - A U - S A Y
B I G G R O V E
L I S B O N
S E W A R D

FIGURE II

is more densely populated than the southern portion because of the unincorporated sub-divisions and suburbs of Aurora, a major city in adjoining Kane County.

Of the 102 counties in Illinois, 88 are larger and 13 are smaller than Kendall in total acreage. Kendall County has approximately 204,800 acres (United States Department of Commerce 1964). The predominant economic use of the land is for agricultural purposes. The number of farms declined from 936 in 1959 to 845 in 1964. The amount of land in farms decreased from 192,965 acres in 1959 to 190,909 acres in 1964 or a decrease of 2,056 acres.

The two types of vegetation found within Kendall County are prairie and deciduous forest (Jones 1963). Of the total 190,909 acres in farms, 182,864 acres were designated as cropland and 8,045 acres were designated as wooded by the United States Department of Commerce (1964). Thus, during 1964 the acreage of the county was approximately 91.0 per cent cropland, 4.0 per cent farm woodland, and 5.0 per cent non-agricultural lands. The average value per acre of $494.62 is surpassed by only 14 of the other 101 counties of Illinois (United States Department of Commerce 1964). This value gives some indication of the agricultural value and the demand for real estate for non-agricultural purposes.

The general drainage pattern of Kendall County consists of the Aux-Sable system which drains the three southeastern townships and flows southward into the Illinois and Michigan Canal, which

eventually empties into the Illinois River at Morris, Illinois. The other six townships are drained by tributaries of the Fox River, which flows southwestwardly through the county and empties into the Illinois River at Ottawa, Illinois. Major tributaries of the Fox are Little Rock and Big Rock Creeks of Little Rock Township, Rob Roy and Blackberry Creeks of Bristol Township, Waubonsee and Morgan Creeks of Oswego Township, and Roods and Hollenback Creeks of Big Grove Township and Fox Township.

A floristic analysis shows the silver maple (Acer saccharinum L.), box elder (Acer negundo L.), willow (Salix spp.), cottonwood (Populus deltoides Marsh.), American elm (Ulmus americana L.) and slippery elm (Ulmus rubra Muhl.) to be the dominant tree species in association with the principal water courses of the county. Other species of trees which occur primarily in the scattered woodlots are the white oak (Quercus alba L.), burr oak (Quercus macrocarpa Michx.), black oak (Quercus velutina Lam.), swamp white oak (Quercus bicolor Willd.), red oak (Quercus rubra L.), pin oak (Quercus palustris Muench.), shagbark hickory (Carya ovata (Mill.) K. Koch), walnut (Juglans nigra L.), basswood (Tilia americana L.), American elm, slippery elm, sugar maple (Acer saccharum Marsh.) and sycamore (Platanus occidentalis L.). Species of woody plants associated with communities of brush and shrubs, including some roadside areas, are wild black cherry (Prunus serotina Ehrh.), mulberry (Morus rubra L.), honey locust (Gleditsia triacanthos L.), osage-orange (Maclura pomifera (Raf.) Schneid.), poison ivy (Rhus

radicans L.), smooth sumac (Rhus glabra L.), wild grape (Vitis spp.), hackberry (Celtis occidentalis L.), American elm, slippery elm, box elder, and hawthornes (Crataegus spp.).

Vegetation of the grass roadsides consisted of predominantly bluegrass (Poa spp.), foxtails (Setaria spp.), crabgrasses (Digitaria spp.) and the panicums (Panicum spp.). As would be expected, the stage and type of secondary succession varied considerably along roadsides.

The vast majority of Kendall County is nearly level and the soils are quite fertile. The areas of rolling land are on the Marseilles moraine, south and approximately parallel to the Fox River, and the Minooka moraine, situated along the eastern border of Kendall County (Wascher and Odell 1952).

The Wisconsin glacier is considered to have greatly influenced the soils of Kendall County and many types of soils are present. Elevation varies from 800 feet above sea level at the highest point about two miles southwest of Yorkville on the Marseilles moraine to 550 feet above sea level recorded at the lowest point in the Fox River channel at the west boundary of the county (Wascher and Odell 1952).

MATERIALS AND METHODS

The species of wild mammals potentially present in Kendall County were considered in two main categories, trappable and non-trappable. Trappable mammals were those species which, as adults, were expected to be captured in Museum Special Traps. In addition to the snaptrapping, information on trappable species was obtained through actual sightings and signs of their presence. Non-trappable animals were species which, because of their size when adults, were not expected to be effectively captured in Museum Special Traps. Information on non-trappable species was obtained through sightings, signs, questionnaires, shooting, use of large traps and conversation with reputable persons. The least weasel (Mustela nivalis), thirteen-lined ground squirrel (Spermophilus tridecemlineatus), eastern chipmunk (Tamias striatus), Norway rat (Rattus norvegicus) and cottontail rabbit (Sylvilagus floridanus) were considered as non-trappable, but were listed in the trapping data because each species was taken at least once by snaptrapping (Table I).

The field work began June 10, 1968, and terminated December 31, 1969.

Information for the white-tailed deer (Dama virginiana) was obtained through personal interviews of sportsmen and the conservation officer located in Kendall County; and information

for the furbearing species was obtained through personal interviews of sportsmen and by the return of questionnaires which had been mailed along with a letter of explanation to county hunters and trappers for their completion (Figure III).

The majority of the field work consisted of snaptrapping in the various seral stages of the deciduous forest and grand prairie biomes of the county. In all cases, unless otherwise stated, 25 Museum Special Traps were baited with peanut butter and set ten paces apart (about 30 feet) in straight line transects for one night. This is a standard procedure for trapping small mammals (Beer, Lukens, and Olson 1954; Barbehenn 1958; Whitaker 1967; and Long 1968).

On one occasion commercial catfood of liver-kidney mixture was used as bait. Catfood was discontinued after the initial use because it was preferred over the peanut butter by ants, and it readily spoiled or became maggot-infested during the warm weather. Baits were not treated with insecticide as described by Coleman (1950) since problems caused by insects removing the bait were quite insignificant.

During warm periods, particularly June, July, and August, an individual would be useless as a study skin if not collected by early morning because of maggot infestation and decomposition.

Trapping for the county-wide survey was conducted in one township at a time to minimize driving expense and to best utilize the time available. Each township was divided into four equal

KENDALL COUNTY MAMMAL SURVEY
FURBEARER REPORT

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	APPROXIMATE NUMBER TAKEN						
	Nov. 16 to Nov. 29	Nov. 30 to Dec. 13	Dec. 14 to Dec. 31	Dec. 31 and Later	Area or Township	Value Per Hide	Population Up, Down, Or Same As Last Year
MUSKRAT							
RACCOON							
MINK							
SKUNK							
WEASEL							
OPOSSUM							
BEAVER							
RED FOX							
GREY FOX							
OTHERS (What)							

NUMBER OF TRAPS SET PER NIGHT _____

NUMBER OF SEASONS TRAPPED IN PAST _____

OTHER COMMENTS:

Figure III. Questionnaire sent to hunters and trappers following the 1968-69 season.

parts of nine sections to permit application of a more systematic sampling technique. For each township, the northeast quarter was sampled first, the northwest quarter second, the southwest quarter third, and the southeast quarter last.

It originally was planned to set transects of 25 snaptraps each in as many different habitats as could be found in a quarter township. Set time for each transect was planned for one night and was the set time employed unless otherwise specified. A typical field day consisted of checking and collecting all traps set the previous day, and resetting them in new locations. Additional time was spent driving, evaluating habitat for trapping, taking notes on habitats that had been trapped, processing and recording the daily catch, preparing specimens, and conversing with farm residents. It was difficult to set and maintain four transects simultaneously even with an all-day effort. Therefore, upon re-evaluation of the initial planned procedure, it was decided to disregard agricultural fields which were receiving attention from fastidious farmers during June and July, and to sample only four of the most dissimilar habitats found within each quarter township. Some townships possessed little actual diversity of habitats.

Habitats of the deciduous forest biome were categorized, sampled, and recorded as follows: 1) woodland interior, 2) woodland edge, 3) brushy habitats having growth less than 20 feet high, and 4) osage-orange hedge rows.

Areas where the vegetation was dominated by tree species over 20 feet tall and the canopy created a shaded environment not favorable for the growth of pasture grasses was categorized as woodland interior. All transects in this habitat were placed so that all traps were located over 50 feet from any greatly contrasting vegetation association, a distance thought to exceed the home ranges of small mammals expected to be caught (Blair 1940a, 1940b, 1940c, 1940d; Hayne 1950; Pearson 1963; Van Vleck 1969).

Transects placed in dense woodland within 50 feet of sharply contrasting vegetative associations were categorized as woodland edge.

All deciduous forests of the woodland interior and woodland edge represented a form of disclimax because of repeated logging or grazing. Most sampling areas were characterized by immature oak-hickory vegetation except some areas along the Fox River floodplain where a floodplain forest prevailed with silver maple as the dominant. Dominant species of oaks in the upland areas were white oak, swamp white oak, black oak, red oak, burr oak, and pin oak; the white oak was most common. The shagbark hickory was the characteristic representative of the Juglandaceae. Other common tree species observed were sugar maple, basswood, walnut, cottonwood, and hornbeam (Ostrya virginiana (Mill.) K. Koch).

Brushy habitats were categorized by the dominance of woody vegetation usually six to ten feet high but not exceeding about 20 feet. Dominant species were American elm, slippery elm, hackberry,

wild black cherry, box elder, silver maple, mulberry (Morus rubra L.), honey locust, poison ivy, sumac, wild grape, Virginia creeper (Parthenocissus quinquefolia (L.) Planch.), and various brushy shrubs of which hazelbrush (Corylus americana Walt.), common gooseberry (Ribes missouriense Nutt.), and black raspberry (Rubus occidentalis L.) were most common.

Osage-orange hedge represented an obvious distinct tree community. The understory vegetation of osage-orange hedge rows varied from dense and varied growths of giant ragweeds (Ambrosia trifida L.), common nettle (Urtica gracilis L.), milkweed (Asclepias syriaca L.), common ragweed (Ambrosia artemisiifolia L.), wild carrot (Daucus carota L.), thistles (Cirsium spp.), sunflowers (Helianthus spp.), goldenrods (Solidago spp.), and grasses to hedge rows which were practically void of understory vegetation.

Habitats of the prairie biome were categorized as: 1) herbaceous, 2) grass roadside, 3) wet meadow, and 4) bluegrass pasture.

The herbaceous habitat was characterized by a lack, or very small amount, of woody vegetation. Such vegetation represented a disclimax community due to effects of mowing, burning, herbicide applications and/or grazing. Dominant grasses were the panic grasses (Panicum spp.), foxtails (Setaria spp.), bluegrasses (Poa spp.), and bent grasses (Agrostis spp.). Dominant herbaceous species were wild carrot, wild parsnip (Pastinaca sativa L.), sunflowers, docks (Rumex spp.), milkweed, thistles, goldenrods, dandelions (Taraxacum officinale Wiggers), giant ragweed, common

ragweed, cocklebur (Xanthium spp.), and common burdock (Arctium minus L.).

Vegetation of the grass roadsides consisted largely of foxtails, Kentucky bluegrass (Poa pratensis L.), panicums, brome grasses (Bromus spp.), crabgrasses (Digitaria spp.), and bent grasses. Some wild carrot, milkweed, and thistles also were present. For the most part, vegetation in these areas was maintained in a state of disclimax because of mowing. Some woody vegetation of low stature was present along the steep ditch banks and in fence rows of the roadsides where mowing was difficult. Woody species present were raspberry, poison ivy, sumac, wild rose (Rosa spp.), wild black cherry, American elm, slippery elm, hackberry, box elder, honey locust, and mulberry.

The wet meadow habitat was characterized by moist soil with occasional standing water nearby. Dominant plants varied with soil moisture but sedges (Carex spp. and Scirpus spp.), rushes (Juncus spp.), and grasses of the canary grass tribe (Phalarideae) often were present. Cattail (Typha latifolia L.) and smartweed (Polygonum fluitans Eaton) were recorded occasionally in the wetter areas.

The bluegrass pasture habitat represented a disclimax similar in most cases to the vegetation make-up of the grass roadsides, but the physical configuration differed greatly. Kentucky bluegrass was the dominant species but the types of grasses previously listed for the roadsides contributed to the vegetation. More diverse plant associations were found where grazing was minimized.

A special category of habitat not assigned to either the forest or prairie biome consisted of areas where vegetation was comprised of woody and herbaceous species for which exact characterization was not possible. This category was termed mixed habitat.

The major purely agricultural vegetations trapped were corn (Zea mays L.) fields, soybean (Glycine max (L.) Merr.) fields, wheat (Triticum aestivum L.) fields, brome grass fields, and oat (Avena sativa L.) fields.

The majority of trapnights was recorded from lands that had public access because time required to get permission to work on private property was unjustified in relationship to the catch.

An automobile was used for transportation when possible and water courses and islands in the Fox River were reached by wading, canoeing, and walking.

All signs of wild mammals were recorded with the exception of three species. The recording of every sighting of the thirteen-lined ground squirrel was discontinued after the first week of the project due to its common occurrence. In addition, fox squirrels (Sciurus niger Linnaeus) and cottontail rabbits observed within Oswego, Illinois, were noted only once for a location record.

When possible, several study skins of "type" individuals were prepared for each species of mammal captured, but not all captured specimens were prepared as study skins.

The skulls of all captured Microtus, Blarnia, and Sorex individuals were kept and cleaned. Skulls were cleaned with the

method described by Gross and Gross (1966). Identification of Microtus skulls was accomplished by examination of the dentation of the third upper molar as suggested by DeCoursey (1957).

In a few instances at the beginning of the project, difficulty was experienced in differentiating between Peromyscus leucopus and Peromyscus maniculatus young. Species identification is such cases was conducted similar to the procedure of Long (1968), who assigned those unidentified young to the species of the most common Peromyscus spp. adult occurring in the catch.

While this method of identification for some young Peromyscus was not entirely satisfactory, the degree of error was thought to be quite small due to the small number of times it was employed. With increased experience gained through handling, it is the author's opinion that the degree of successful differentiation between the two species of young Peromyscus increased. Peromyscus spp. pelage change mentioned by Gottschang (1956) was not used as a criteria for identification because the numbers of individuals needed for a comparative differentiation were not available.

Special techniques were used to sex some shrews. The method described by Blair (1940a) was used to sex Blarnia brevicauda in non-reproductive condition. An appropriate amount of pressure was applied on the abdomen which forced the penis from its sheath if the individual was a male. The sex of Sorex cinereus was determined through dissection under a variable power dissecting microscope for the sex could not be determined accurately by the unaided eye. In

addition, the dentation of all Sorex shrews was analyzed under a variable power dissecting microscope for accurate identification. Blarnia brevicauda, for which sexing was a problem, and all Sorex cinereus were injected in the field with 70 per cent isopropyl alcohol as soon as possible to preserve them for later examination.

All skulls and study skins which were saved during the study were deposited in the mammal collection of the Department of Biological Sciences at Western Illinois University or in the author's personal collection.

Two intense studies were undertaken where methods varied somewhat from the county-wide survey. Both were conducted on private land, one in an area of variable habitats located upon the Fox River floodplain and the other in a diverted acres soil bank field of white sweet clover (Melilotus alba Desr.), yellow sweet clover (Melilotus officinalis (L.) Lam.), and red clover (Trifolium pratense L.).

Each study consisted of trapping transects for multiple day periods during contrasting seasons. For the county-wide survey, only summer trapping was conducted and transects were set for only one day. The intense studies were conducted to detect seasonal variations in results, to investigate the effects on catch of continued trapping at the same location, and in the case of the floodplain study, to detect influences of the Fox River on the catch.

The winter portion of the Fox River floodplain study (located in section 5, Oswego Township) was conducted between February 16 and

March 22, 1969. During this time 1,660 trapnights were recorded. The summer portion consisted of retrapping some of the same transects between July 30 and August 4, 1969. During the summer, 360 trapnights were recorded.

The floodplain study was conducted on seven separate areas. They were: 1) a Fox River island (Unnumbered; State of Illinois 1962), 2) a shore line woodlot, 3) an ungrazed pasture, 4) a marsh, 5) an alfalfa (Medicago sativa L.) field, 6) a pine (Pinus spp.) windbreak, and 7) the banks of a drainage ditch

The unnumbered island in the Fox River was about 45 feet from the closest shore. The island and woodlot each were approximately three and one-half acres in size. The woody growths on the island and the woodlot were in most respects the same, being predominantly silver maple, box elder, and willow. The trees on the island were smaller with box elder the dominant and ranging from four to ten inches in diameter at breast height. Small silver maples about the same diameter as the box elders were prevalent and occasional willows, some quite large, were growing near the edge of the water. Local residents state that the island was cleared of trees and farmed during the 1940's, exact years not being available. Ground litter consisted of occasional raspberry, an occasional piece of discarded litter or drift wood from the polluted river, numerous fallen logs and branches, and the remnants of a building. Herbaceous growth was scarce except for areas of the dried remains of giant ragweed and nettles. Summer vegetation was the same as winter

except for dense growths of giant ragweed and nettles.

The dominant species on the mainland woodlot was silver maple, ranging 16 to 20 inches in diameter at breast height. Two walnut trees were among the many silver maples and numerous box elders.

The area of ungrazed pasture comprised approximately two acres of Kentucky bluegrass and scattered clumps of multiflora rose (Rosa multiflora Thunb.). Mowing was conducted only on the pasture area once a year to meet civil requirements for noxious weed control.

The marsh area was a separate, low portion of the pasture. The marsh vegetation was largely bulrushes, cattails and smartweeds.

The alfalfa field was approximately five acres and the alfalfa had been cut and baled late in the growing season of 1968.

The pine windbreak was approximately one-half acre with trees nearly 25 feet high and from six to eight inches in diameter at breast height. The ground cover within the windbreak was void of vegetative growth and was covered with fallen needles.

The drainage ditch was about two feet wide. Its banks (approximately ten feet wide per side) were covered by the dried remains of giant ragweed and patches of Kentucky bluegrass.

The same sampling procedures were used in each of four small area habitats. These areas were the island, woodlot, ungrazed pasture, and the marsh. The alfalfa field, pine windbreak, and drainage creek were sampled differently.

The sampling method applied to the island, woodlot, ungrazed pasture and marsh consisted of transects of 20 traps, 10 paces apart, baited and checked daily but left in position for one week. The 20 traps then were moved to another transect in the same habitat which was located approximately 30 feet to the side (10 large paces). The second transect ran parallel to the first and was run for a week.

The alfalfa field was sampled by use of a transect of 20 traps, baited and checked daily but left on station for 12 days.

The pine windbreak was sampled by use of a transect of 20 traps, baited and checked daily but left on station for eight days.

The small drainage ditch was sampled by use of a transect of 20 traps, baited and checked daily but left on station for seven days. No additional transects were established.

The procedure for summer trapping of the island, woodlot, and ungrazed pasture was similar to that used during the winter except transects of 20 traps were baited, checked daily and left on station for only six days. The transects were not relocated; thus 120 trapnights were recorded for each area. The marsh, alfalfa field, pine windbreak and drainage ditch were not sampled during the summer.

The second intense study was conducted in section 35, Oswego Township, in a 40-acre field placed in a government diverted acres program. The cover crops of the field were conveniently planted into two equal 20-acre fields, one of yellow sweet clover and white sweet clover, and the other of red clover. The study consisted of

two parts. The spring portion was initiated on April 19, 1969, with 25 traps set in a straight transect through the center of the sweet clovers. These traps were left in position with daily checking and baiting until the norming of April 22, 1969, for a total of 100 trapnights. The 25 traps were collected and reset in the red clover where the transect was tended for another four nights until April 26, 1969, for a total of 100 trapnights.

The summer portion was initiated on June 27, 1969, with two 25-trap transects placed in the field and left on station until June 30, 1969, or 100 trapnights for each transect. Both transects were set at nearly the same locations of the two spring transects.

During April the ground litter of the two areas was dominated by the dried remains of the previous year's growth of clover. During June the red clover was in full blossom and the sweet clovers were between five and five and one-half feet tall.

Bats, because of their size and habits, were considered as non-trappable specimens and were collected by shooting with a 12-gauge shotgun firing size nine shot. Advertisement in a local newspaper was purchased in an attempt to locate bat roosts and/or areas to shoot flying bats at dusk. Trees, brushy shrubs and vines were searched in an attempt to find roosting bats; however, time did not warrant examination of old buildings.

The mammals of Kendall County were noted and evaluated in the taxonomic order as suggested by Hoffmeister and Mohr (1957).

The chronological account of the mammalian orders was as follows: Marsupialia, Insectivora, Chiroptera, Carnivora, Rodentia, Lagomorpha, and Artiodactyla.

Didelphis marsupialis Linnaeus

Opossum

Remarks:

The opossum is one of the more abundant mammalian residents of the county. Mohr (1941) includes it among those occurring in every county in Illinois. Mohr (1943a) included this species as a furbearer from Kendall County. It was recorded by sight or sign from each township of the county except Big Grove Township; however, it seems justifiable to assume that the opossum has county-wide status.

The greatest concentration of individuals seems to be in association with the woody areas along the Fox River and its tributaries, and along the Aux Sable drainage system. Sight and sign data indicated densities to be lowest in areas under intense cultivation. These findings support conclusions of Verts (1963), and Holmes and Sanderson (1965) that the opossum maintains greater densities in woody-brushy bluffs and bottom lands than in intensely farmed areas having little woody cover.

The opossum was included in the reports of five of seven sportsmen responding to the 1968-69 season furbearer mail survey. These five men accounted for a recorded harvest of 24 individuals. Two of the five sportsmen accounted for 20 of the total. The pelts were sold for fifty cents each, which is considerably higher than

the average price of thirteen cents for such pelts during the 1957-58 season and somewhat higher than the thirty-four cent average price of the 1959-60 season. However, this is lower than the war years' prices of sixty cents (Holmes 1961).

A farmer questioned in section 9, Lisbon Township, stated he had few opossums in his area but mentioned he had seen them on occasion. Another farmer in section 33, Na-Au-Say Township, stated he caught an opossum in a rat trap which had been set under his corn crib. On no occasion did farm residents speak unfavorably of the opossum as they did of the raccoon (Procyon lotor).

Records of occurrence:

Forty-six Kendall County specimens were recorded.

Of the 46 specimens recorded, 24 were reported as a fur harvest.

Roadkills totaling 17 were recorded from the following sections: 2, 8, 17, 19 and 29, Oswego Township; 12 and 16, Bristol Township; 28 and 34, Little Rock Township; 2 and 12, Fox Township; 3, 4 and 9, Kendall Township; 5 and 9, Na-Au-Say Township; and 15, Seward Township.

Four opossums were recorded as sightings in the following sections: two from section 5, Oswego Township on the unnumbered island during the Fox River floodplain study; and one from section 16 and one from section 23, Bristol Township.

Signs were recorded as tracks in a moist mud flat of West Aux Sable Creek in section 23, Bristol Township.

Scalopus aquaticus (Rafinesque)

Eastern Mole

Remarks:

The eastern mole is very common and county-wide in distribution. It was recorded by noting its characteristic mounds and runs which occurred with regularity throughout Kendall County. Mole signs were most often seen in grassy areas where mowing was conducted on a regular or occasional basis. Yards, cemeteries, roadsides, pastures, golf courses, railroad right-of-ways, woodlands, and fields where farm crops were rotated were frequented by moles. This indicates the diversity of habitats in which the mole "works" in search of food. Only when the ground was frozen hard during the coldest periods of winter, would fresh mole signs be absent.

Attempts to catch specimens in section 10, Lisbon Township, where eight large mounds were found in a brome grass-Kentucky bluegrass pasture with scattered clumps of timothy (Phleum pratense L.), failed. Mounds were dug into until the burrows could be located. Four large "rat-type" snaptraps were set, baited with a variety of baits, and the holes were covered with mats of wild timothy to shut out the light. Baits used were peanut butter, commercial catfood, earth worms, prunes, and bits of apple. This method of catching moles was prompted with hopes of duplicating the success of this practice for catching pocket gophers (Geomys bursarius) in other counties of Illinois.

After about 24 hours the traps were checked and the three holes

were found to have been filled from below by a "boiling" process of loose soil being forced upward. The fourth hole was undisturbed. Of the disturbed sets, all traps were unsnapped and covered by soil, two of which had been forced to approximately the level of the original pasture while the other had been forced upward only slightly.

One mole was captured by the author by use of an upright spring-operated type mole trap designed to kill by forcing sharp prongs into the animal when soil forced against the underside of the tredle springs the trap. The specimen was an adult female captured within 15 minutes after the trap was set in a yard in the town of Oswego, Illinois, on August 8, 1969. The animal was alive and appeared unharmed; it could have escaped from among the prongs.

At periodic intervals, constituting 17 weeks of set time, two traps were positioned above numerous runs in five lawns. The traps often were found sprung but there was no indication of injury to the moles.

Four other adult specimens were donated to the author by a resident of section 5, Oswego Township. They were captured in a rather unorthodox manner by a lady who disliked them in her lawn. She would sit quietly on a stool beside a mound and wait for movement in the soil. When movement was noticed, a small-gauge, sharp steel spike was rapidly and repeatedly thrust into the tunnel in the vicinity of the soil movement. The one male and three females captured by this method were taken on October 7,

September 9, 1968, May 7, 1969, and July 12, 1969, respectively.

A male was captured September 21, 1969, by a man using a spring-operated mole trap in his yard in section 13, Bristol Township.

Records of occurrence:

Six Kendall County specimens were recorded from the following sections: four from section 5, and one from section 20, Oswego Township; and one from section 13, Bristol Township.

The one male from section 5, Oswego Township, possessed measurements in the sequence total length, tail length, and hind foot length of 182 mm, 27 mm, and 22 mm. The one male from section 13, Bristol Township, possessed measurements of 182 mm, 27 mm, and 22 mm. The three females from section 5, Oswego Township, possessed measurements of 169 mm, 25 mm, and 17 mm; 151 mm, 27 mm, and 21 mm; 148 mm, 22 mm, and 19 mm. Average measurements for the six specimens examined were 163.6 mm, 25.0 mm, and 18.8 mm for total length, tail length, and hind foot length, respectively.

Condylura cristata (Linnaeus)

Star-nosed Mole

Remarks:

The star-nosed mole was not found to be a resident of Kendall County and has to date not been recorded as a resident of Illinois except "on the basis of sight records" (Hoffmeister and

Mohr 1957). Anderson (1951) refers to "a small mammal caught in a trap near Canton, Illinois", but the specimen was not retained for proper identification. This author is in agreement with Hoffmeister and Mohr (1957) that this species presently be omitted from the list of Illinois mammals.

Sorex cinereus Kerr

Masked Shrew

Remarks:

This small insectivore most likely is distributed throughout Kendall County in a variety of habitats. It usually is found under dense growths of weeds or in woods (Hoffmeister and Mohr 1957).

Fifty-five masked shrews were trapped in Kendall County and one specimen was observed in alcohol that had been caught and killed by a farmer on his back porch. Of those captured during snaptrapping, 12 were recorded during the county-wide survey in 3,135 trapnights for 0.39 shrews per 100 trapnights, 42 were recorded during the intensified Fox River floodplain study in 2,020 trapnights for 2.0 shrews per 100 trapnights, and one was trapped during the intensified soil-bank field study in 400 trapnights for 0.2 shrews per 100 trapnights (Tables I and II).

Of the specimens trapped during the county-wide study in 3,135 trapnights, five were caught along grass roadsides in 800 trapnights. In all cases mowing of the roadsides had been infrequent. Two Sorex were trapped in 240 trapnights in wet meadow

Table I. Snaptrapping results for Kendall County, Illinois, during the period June 10, 1968, through August 15, 1969

Habitat	Trapnights	Individuals captured	P. leucopus	P. maniculatus	M. musculus	B. brevicauda	M. pennsylvanicus	M. ochrogaster	S. cinereus	S. tridecemlineatus	Z. hudsonius	T. striatus	R. norvegicus	S. floridanus	M. nivalis
Woodland Interior	200	30	28	2											
Woodland Edge	70	11	7		2	2									
Brushy	255	62	43	4	7	6	1								
Osage Orange	150	68	60	4	1	2		1							
Grass Roadside	800	109	24	16	21	21	25	1	5	5	1				
Herbaceous	370	119	28	24	26	8	16			15	1	1			
Mixed	290	78	42	5	12	7	5	3	2	2					
Wet Meadow	240	46	3		9	12	19		2	1					
Bluegrass Pasture	235	19	2	4	6	1	5				1*				
Unharvested Corn	160	44	3	25	13					3					
Harvested Corn	110	7		5	2										
Oats Fields	25	2		2											
Wheat Fields	25	8		2	6										
Brome Grass	45	9		1	1		6		1						
Soybean Field	15	0													
Woody Fox River Islands	100	5	1				1		2						1
Brush Pile	10	7	6	1											
Subtotals	3135	645	249	98	109	59	68	5	12	27	3	2	0	1	0

* Captured by hand.

Table I. cont.

Habitat	Trapnights	Individuals captured	P. leucopus	P. maniculatus	M. musculus	B. brevicauda	M. pennsylvanicus	M. ochrogaster	S. cinereus	S. tridecemlineatus	Z. hudsonius	T. striatus	R. norvegicus	S. floridanus	M. nivalis
Flood Plain Study															
Winter	1660	79	31		1	2	6		38						1
Summer	360	28	14			2	8		4						
Subtotals	2020	107	45	0	1	4	14	0	42	0	0	0	0	0	1
Soil-bank Field Study															
Spring Sweetclover	100	7		3			3		1						
Clover	100	4		2			2								
Summer Sweetclover	100	25		1	19	2	2						1		
Clover	100	12		1	3		8								
Subtotals	400	48	0	7	22	2	15	0	1	0	0	0	1	0	0
Totals	5555	800	294	107	132	65	107	5	55	27	3	2	1	1	1
Individuals per 100 trapnights		14.4													

Table II. Small mammals in numbers per 100 trapnights in various habitats from Kendall County

Habitat	Peromyscus leucopus	Peromyscus maniculatus	Mus musculus	Blarina brevicauda	Microtus pennsylvanicus	Spermophilus tridecemlineatus	Sorex cinereus
Woodland Interior	14.0	1.0					
Woodland Edge	10.0		2.9	2.9			
Osage Orange	39.4	2.9	0.6	1.3			
Brushy	19.1	1.8	3.1	2.7	0.4		
Grass Roadside	3.0	2.0	2.6	2.6	3.1	0.6	0.6
Herbaceous	7.6	6.5	7.0	2.2	4.3	4.1	
Mixed	14.5	1.7	4.1	2.4	1.7	0.7	0.7
Wet Meadow	1.3		3.8	5.0	7.9	0.4	0.8
Grass Pasture	0.9	1.7	2.6	0.4	2.1		
Standing Corn	1.9	15.6	8.1			1.9	
Harvested Corn		4.5	1.8				
Fox River Islands	1.0				1.0		2.0

habitat. Two Sorex were trapped in 290 trapnights in mixed habitat, two were trapped in 100 trapnights on two wooded islands in the Fox River numbered 108 and 116, respectively (State of Illinois 1962), and one was caught in the brome grass fields in 45 trapnights (Table I). In all cases ground cover and litter were dense.

Of the 42 Sorex caught during the floodplain study, 38 were trapped in 1,660 trapnights (2.3 shrews per 100 trapnights) during the winter and four were trapped in 360 trapnights (1.1 shrews per 100 trapnights) during the summer.

Of the 38 Sorex trapped during the winter of the floodplain study (February 16 - March 22, 1969), fifteen were caught in the marsh, eight were caught in the woodlot, eight were caught along the drainage ditch, five were caught in the ungrazed pasture, one was caught in the alfalfa field, and one was caught in the pine windbreak. None was recorded from the island.

Of the four Sorex trapped during the summer of the floodplain study (July 30 - August 4, 1969), two were caught in the woodlot in 120 trapnights (1.6 shrews per 100 trapnights) and two were caught in the ungrazed pasture in 120 trapnights (1.6 shrews per 100 trapnights).

The one Sorex trapped in 100 trapnights in the soil-bank field study was taken on April 22, 1969, in the sweet clover area during the spring portion of the study.

Mohr (1947a) estimated five to 11 masked shrews occurred per acre. In the present study, 42 Sorex were captured in an area

of approximately nine to 10 acres.

The lower capture success obtained for the county-wide study as compared to the floodplain study is indicated by the fact that only eight of 38 Sorex were caught on the first trapnight of transect exposure in the areas of continuous trapping, while 30 were trapped on the second or later nights. This constituted 78.9 per cent of the total catch resulting from trapnights other than the first night of transect exposure. Only 20 (52.5 per cent) of 38 were trapped the first two nights of trap exposure. Twelve Sorex were trapped in the county-wide study in 3,315 trapnights, a situation where traps were left on location for only one night. Whitaker (1967) referred to the possibility of capturing more Sorex and Cryptotis if trapping at the same locations continues longer than three days.

Fitch (1954) found trap success of all species to vary with seasons. This probably was a factor in the Kendall County study because greater success resulted during the winter phase of the floodplain intense study than for the county-wide study which was conducted largely during the summer months. The possibility of an unusually dense population of Sorex inhabiting the floodplain area also must be considered as a factor.

The sex ratio of the 55 individuals was 34 males to 21 females. No explanation for the greater number of males can be offered except that male mammals are considered to be more active during the reproductive seasons and are more likely to be caught. Also, the male often maintains a larger home range and is more susceptible to

being caught as was demonstrated by Hamilton (1941) for the short-tailed shrew and Van Vleck (1969) for male Microtus.

There are few published reports of masked shrew captures in Illinois. Koestner (1942) accounts for 53 Illinois specimens. Kendall County was excluded from his list of county records; however, he reported a masked shrew from Kane County, Illinois, in 1929, and one from DuPage County, Illinois, in 1939. The farthest south that Koestner (1942) reported the masked shrew in Illinois was a specimen from Kankakee County in 1940. Wetzel (1947) reported three masked shrews from Illinois, one from each of Cook, Lake and Kankakee Counties. Verts (1961a) trapped 16 Sorex cinereus from Jo Daviess, Carroll, and Whiteside Counties. Warnock (personal communication) reported a masked shrew taken in Rock Island County during 1967. Miller (1969) captured a masked shrew five miles west of Terre Haute, Indiana, which is within a few miles of the east central Illinois counties of Clark and Edgar.

Records of occurrence:

Fifty-six Kendall County specimens were recorded from the following sections: 42 from section 5, Oswego Township; one from Fox River Island Number 116 (State of Illinois 1962) section 18, Oswego Township; one from section 23 and one from Fox River Island Number 108 (State of Illinois 1962) section 24, Bristol Township; one from section 16, one from section 17, two from section 22 and one from section 26, Fox Township; one from section 18, Kendall Township; one from section 33, Seward Township; and two from

section 30, Lisbon Township.

One specimen in alcohol was examined from section 8, Na-Au-Say Township, but the date of capture was not available from the collector.

Average measurements for those specimens examined, rounded to the nearest one-tenth millimeter, were 82.4 mm overall length, 32.9 mm tail length, and 9.0 mm hind foot length.

Sorex longirostris Bachman

Southeastern Shrew

Remarks:

This species was not recorded as a Kendall County specimen. Careful scrutiny was given to the dentition and measurements of all small shrews captured with hopes of recording this species.

Burt (1957), Collins (1959), and Hall and Kelson (1959) give the range for the southeastern shrew as encompassing most of Illinois. Hoffmeister and Mohr (1957) reported less than a dozen specimens have been collected in the state, and these from the southern counties of Alexander, Coles, Fayette, and Johnson. The mention of a specimen from Pistakee Bay in northern Illinois by Necker and Hatfield (1941) probably gave Burt (1957), Collins (1959) and Hall and Kelson (1959) justifiable reason for the northward extension of its range into Illinois. Hoffmeister and Mohr (1957) do not cite this specimen, and Hall and Kelson (1959) question the authenticity of the identification. The few published captures in the state, with

those from four southern counties, cause doubt to the authenticity of the Pistakee Bay specimen and consequently the reported northern extension of the range of this southeastern shrew.

Microsorex hoyi (Baird)

Pigmy Shrew

Remarks:

Except for the specimen which was captured inside a building in Cook County during severe winter weather in 1949 (Sanborn and Tibbitts 1949), and a probable prehistoric individual mentioned by Parmalee and Munyer (1966), no pigmy shrews have been recorded for the state of Illinois.

The skulls and measurements of all small shrews were carefully scrutinized in hopes of finding this species in Kendall County, but none was found.

Crypototis parva (Say)

Least Shrew

Remarks:

No specimens of this species were recorded in Kendall County. Emphasis was directed toward the recording of this insectivore by concentrating trapping effort in those grassy-weedy habitats where this species was expected. Hoffmeister and Mohr (1957) report the species as rare from the northern quarter of the state. Hall and Kelson (1959) list a specimen from DeKalb County, Illinois, captured

in 1858. Sanborn (1925) reports the recording of the "small short-tail only once from the area near Tremont, [Indiana,] in 1924." Hall and Kelson (1959) cite the northernmost individual of this species from southern Wisconsin. Anderson (1951) reported taking an individual in each grassy area that she sampled, which indicates that the least shrew is comparatively more common in Fulton County than in Kendall County. Fulton County is in west-central Illinois.

Blarina brevicauda (Say)

Short-tailed Shrew

Remarks:

According to the snaptrap results (Table I), the short-tailed shrew was common for Kendall County. Sixty-five of these insectivores were captured during the field project. The capture rates varied from 5.0 shrews per 100 trapnights in wet meadow habitat to 1.3 shrews per 100 trapnights in osage-orange hedge (Table II). Thus, the short-tailed shrew occurs in a variety of habitats as was found by Getz (1961). "This was not true at Terre Haute [Indiana], apparently a marginal area for the species. Blarina was most common in upland woods." (Whitaker 1967). Blair (1940a) found the short-tailed shrew to be an inhabitant of forest rather than grassland habitats.

An ecological relationship exists between the short-tailed shrew, house mouse (Mus musculus), white-footed mouse (Peromyscus leucopus), prairie-deer mouse (Peromyscus maniculatus), and

meadow vole (Microtus pennsylvanicus) and other species of mammals (Table I). Investigations of the influence of one species upon another were not incorporated within this project; however, Eadie (1952) found "meadow voles forming a significant portion of the fall and winter diet" of short-tailed shrews after a dropping analysis study, but could not conclude that a direct relationship existed as to fluctuating numbers of the two species. Barbehenn (1958) suggested that "the predatory abilities of the short-tailed shrew (B. brevicauda) have been recognized for over one hundred years; yet there is little information available concerning the ecological relationships of this aggressive insectivore to other small mammals." If the predatory influence would have been substantial, Barbehenn (1958) quite likely would have found data contrary to the fact that Microtus populations "appeared to fluctuate independently of short-tail shrew populations."

The sex ratio for the 65 specimens was 24 males to 41 females, or 37 per cent males and 63 per cent females. Hamilton (1929) and Blair (1940a) present contrasting data of 69 per cent males (in 93 specimens) and 51 per cent males, respectively. Hirth (1959) found 18 males to 23 females for 56.1 per cent females.

A female short-tailed shrew carrying six embryos was captured along a woodland edge in section 9, Little Rock Township, on July 15, 1968. The embryos had an average rump to crown length of six mm. Another female captured in wet meadow habitat in section 16, Oswego Township, on August 7, 1969, contained seven embryos which

had an average rump to crown length of five mm. In addition to the external scrutinization of all females, 12 females were dissected but no embryos were found.

Records of occurrence:

Sixty-five Kendall County individuals were examined from the following sections: two from section 5, two from section 12, five from section 16, one from section 23, three from section 26, and one from section 28, Oswego Township; two from section 4, two from section 8, one from section 9, one from section 10, one from section 11, one from section 14, and one from section 23, Bristol Township; one from section 2, one from section 4, one from section 8, two from section 9, and one from section 24, Little Rock Township; one from section 1, one from section 16, two from section 17, and one from section 20, Fox Township; one from section 18, one from section 20, and two from section 24, Kendall Township; two from section 17, and one from section 28, Na-Au-Say Township; two from section 2, one from section 3, two from section 5, two from section 9, three from section 19, one from section 21, two from section 34, and one from section 36, Seward Township; one from section 7 and one from section 7, one from section 11, two from section 14, one from section 16, and one from section 26, Lisbon Township; and three from section 26, Big Grove Township.

Eptesicus fuscus (Beauvois)

Big Brown Bat

Remarks:

This species was the bat most often collected in Kendall County as 20 Chiropterans were collected, 15 being big brown bats.

Bats were observed flying on few occasions, and collection by shot-gun often was impractical near those areas because of human residence.

The most productive collecting area was located in section 23, Bristol Township, which consisted of white oak trees scattered about a bluegrass pasture. At dusk on July 29, 1968, six big brown bats and one hoary (Nycteris cinereus) bat were collected at this site. Many bats were observed at the site on July 29 and it was thought that more remained than were collected. Collecting was repeated at the same location on August 6, 1968; five big brown bats and one red bat (Nycteris borealis) were collected. On September 3, 1968, the area again was hunted with four big brown bats being collected. Additional bats were observed on this date, but numbers were reduced greatly from those observed during the July 29 and August 6 collecting trips. Hunting was attempted on September 30, 1968, and October 2, 1968, but no bats were observed. Fall migration evidently occurred during the last weeks of September, 1968. Collecting attempts were directed to other areas with no additional big brown bats being collected.

Five males to 10 females constituted the sex ratio.

Records of occurrence:

Fifteen Kendall County specimens were recorded, all from the same area in section 23, Bristol Township.

The six specimens collected in July possessed measurements recorded in the sequence of total length, tail length, hind foot length and ear length as follows: male, 110 mm, 40 mm, 9 mm, and 17 mm; female, 106 mm, 41 mm, 9 mm, and 16 mm; female, 111 mm, 46 mm, 10 mm, and 17 mm; female, 114 mm, 41 mm, 11 mm, and 16 mm; female, 115 mm, 40 mm, 10 mm, and 16 mm; female, 116 mm, 44 mm, 11 mm, and 18 mm. Average measurements for those specimens collected in July were 112.0 mm total length, 42.0 mm tail length, 10.0 mm hind foot length, and 16.6 mm ear length. Information on the five specimens collected in August is as follows: male, 110 mm, 41 mm, 8 mm, and 15 mm; male, 98 mm, 40 mm, 10 mm, and 16 mm; female, 124 mm, 41 mm, 10 mm, and 18 mm; female, 123 mm, 41 mm, 10 mm, and 15 mm; female, 123 mm, 42 mm, 11 mm, and 16 mm. Average measurements for those specimens collected in August were 115.6 mm total length, 41.0 mm tail length, 11.8 mm hind foot length, and 16.0 mm ear length. Information on the four specimens collected in September is as follows: male, 110 mm, 33 mm, 9 mm, and 15 mm; male, 108 mm, 37 mm, 9 mm, and 17 mm; female, 115 mm, 38 mm, 10 mm, and 17 mm; female, 106 mm, 33 mm, 8 mm, and 15 mm. Average measurements for those specimens collected in September were 109.7 mm total length, 35.2 mm tail length, 9.0 mm hind foot length, and 16 mm ear length. Average measurements for all

specimens were 112.9 mm, 40.1 mm, 9.7 mm and 16.4 mm.

Nycteris cinereus (Beauvois)

Hoary Bat

Remarks:

The hoary bat was expected as a rare but possible summer resident of Kendall County, Illinois.

A male hoary bat was collected at dusk by shooting on July 29, 1968, in section 23, Bristol Township. This collection constitutes a Kendall County record of noteworthy importance to those mammalogists interested in this species in Illinois. Six brown bats were collected the same evening at the same location. The collection area was small (one-half acre) and open, located on the southeast bluff of the Fox River and consisted of scattered white oak trees growing in a bluegrass pasture.

Poole (1932) states that hoary bats are usually not solitary and the numerous sightings of many more unidentified flying bats than were collected stimulated a futile, following daytime search for roosting specimens. At no time during the field project could bats of any species be observed roosting in trees as found by McClure (1942).

The literature is vague concerning Illinois records of the hoary bat. Wood (1910) reported the bat in Champaign County, Illinois, and Cory (1912) refers to a specimen from Warsaw in Hancock County, Illinois. Provost and Kirkpatrick (1952) reported

a specimen collected on May 31, 1948, in Vermilion County, Illinois. Hoffmeister and Mohr (1957) attest to the rarity of the species in Illinois. Findley and Jones (1964) report the species as migratory and to be expected in Illinois from May through October. They also expected the females to migrate northward into Illinois first in the spring and that the males may not migrate northward at all.

Records of occurrence:

One male Kendall County specimen was recorded which measured 125 mm overall length, 43 mm tail length, 18 mm hind foot length, 10 mm ear length, and 6 mm testis length.

Nyctersis borealis (Muller)

Red Bat

Remarks:

The red bat was expected to be one of Kendall County's common Vespertilionids as Hoffmeister and Mohr (1957) refer to the species common state-wide status. The collection of bats during the project was quite difficult with only 20 Chiropterians being captured of which four were red bats.

Three red bats were obtained by shooting and one was donated by a resident of Kendall County. The sex ratio was one male to three females.

The first red bat, a female, was collected by gun August 6, 1968, along with five big brown bats. The bat was shot while flying around white oak trees growing in a bluegrass pasture.

This area, located in section 23, Bristol Township, was the spot of collection for 15 big brown bats and one hoary bat.

The first unidentified bat of the spring season was seen flying above deciduous trees in section 24, Bristol Township, on May 1, 1969. One male red bat was collected on May 28, 1969, in section 5, Oswego Township. Four other bats were seen at this location but none were obtained. On June 15, 1969, at the same area, a female was collected which contained three embryos. They averaged 25 mm in length from crown to rump, 35 mm overall length, 10 mm in tail length, and 6 mm in hind foot length. A fourth red bat was found dead under a grape arbor on July 3, 1969, by a resident living in section 7, Oswego Township. Attached to this dead female were two young, one dead and the other alive. The two young averaged 45 mm in length, 13 mm in tail length, and 6 mm in hind foot length.

Additional unidentified bats were seen flying about street lights in Oswego and Plano, Illinois, during the summers of 1968 and 1969. One flying bat was seen during a collecting attempt in section 5, Na-Au-Say Township, on August 2, 1968, and one was observed on August 10, 1968, in section 7, Oswego Township. No other places were found in Kendall County where bats could be seen or collected.

In response to a newspaper advertisement, one resident of Yorkville, Illinois, reported that bats were about her street light. Due to the city location, collection was impossible by

shooting and the roosts were not found.

Records of occurrence:

Four Kendall County specimens, one male and three females, were collected in section 23, Bristol Township and in sections 5 and 7, Oswego Township.

Other Species of Bats

Remarks:

Other species not recorded but expected as residents of the Kendall County according to Cory (1912), Burt (1957), Hoffmeister and Mohr (1957), Collins (1959), and Hall and Kelson (1959) are the little brown (Myotis lucifugus), Keen's (Myotis keenii), and silver-haired (Lasionycteris noctivagans) bats. Additional less common species that might occur in Kendall County are the eastern pipistrel (Pipistrellus subflavus) and the evening (Nycticeius humeralis) bats.

The possibility of an extremely uncommon bat species being recorded, as was the case of the Brazilian free-tailed bat (Tadarida brasiliensis) captured in DeKalb County (Walley 1970), would be ever present.

Due to the migratory habits of bats, the occurrence of particular species is difficult to determine.

Procyon lotor (Linnaeus)

Raccoon

Remarks:

The raccoon is distributed throughout Kendall County and probably is the most common wild carnivore in the county. Mohr (1941) and Hoffmeister and Mohr (1957) include this species among those known to occur in every county of Illinois and John C. Knight, Jr. reported that his father had never observed "coon population" to be as high as during 1947 (Mohr 1947b). The scats and tracks of this mammal, as well as roadkills, were used as indicators of the animal's occurrence. The streams of the Fox River and Aux Sable drainage systems, with the associated brushy-wooded areas, probably support greater numbers than the highly tilled prairie areas. Similar to the finding of Anderson (1951) for Fulton County, sign was most common along the wooded water courses and least common in the open prairie-agricultural areas.

Tracks and/or roadkills were found in every township of the county. The smallest streams offered forage areas for these animals but flowing water was not found to be a requirement. Farmers located miles from the nearest streams reported the raccoon around their outbuildings. Most rural residents do not hold favorable opinions of the "coon". Its reputation as a chicken predator is upheld by many. It also possesses the reputation of being quite adept at harvesting sweet corn just

before the crop is ready for human consumption.

The pelt of the raccoon is sought for monetary gain. Mohr (1943a) reported no raccoon pelts from Kendall County. However, seven trappers interviewed following the 1968-69 trapping and hunting season reported a harvest of 33 raccoons at an average value of $4.00 a pelt.

Records of occurrence:

Fifteen Kendall County specimens were recorded.

All specimens examined were roadkills from the following sections: 1, 8, 10 and 20, Oswego Township; 32 and 34, Bristol Township; 21, 23 and 34, Little Rock Township; 15, Fox Township; 3, Kendall Township; 10 and 12, Na-Au-Say Township; 14, Seward Township; and 8, Lisbon Township. No specimens were examined from Big Grove Township.

Signs were observed in every township and in such numbers that actual listing would not be significant.

Martes americana (Turton)

Pine Marten

Remarks:

The pine marten is a historic resident of northern Illinois but never has been recorded specifically from Kendall County. It no longer can be expected as a county resident. Kennicott (1855) recorded the pine marten from Cook County, Illinois. Martens were last recorded alive in the Illinois wild over 100 years ago

(Hoffmeister 1967). There are no present day records of this species from Illinois, but a skeleton from "northern Illinois" is housed in the Museum of the Chicago Academy of Science (Hoffmeister and Mohr 1957). Hoffmeister and Mohr (1957) mention several from Wisconsin but specific locations were not presented. Any specimen recorded from Illinois in the future must be scrutinized carefully as representing an escapee from a zoo or fur farm rather than a wild specimen.

The pine marten (Martes americana) is believed to be more rare throughout all its range than the river otter, but not as rare as the fisher (Martes pennanti). Soper (1970) reports the pine marten as being well represented in Jasper National Park, Alberta, Canada, but "distribution is spotty from few, if any, to other areas where the animals verge on abundance." These areas of abundant populations are reported as usually being in remote tracts far from human activity.

Illinois is practically void of the large, secluded areas of forest which seem to be required by the marten. Much interest was created with the capture of a feral stone marten (Martes foina) on December 20, 1965, along Blackberry Creek, four miles north of Sugar Grove, Illinois, in Kane County (Hoffmeister 1967). This old world native was trapped approximately seven miles north of the northern boundary of Kendall County. It was "in good shape physically." Attempts to determine its origin revealed there were no zoo escapees nor were fur ranchers raising stone martens

in the vicinity of its capture.

Martes pennanti (Erxleben)

Fisher

Remarks:

The fisher probably is the rarest mustelid discussed in this study and was not found to be a Kendall County resident. A Kendall County or even an Illinois record would be more unexpected than one for the river otter (Lutra canadensis) or pine martin. Kennicott (1855) reported that it was frequently observed in heavy timber along the shores of Lake Michigan. To serve as an indication of the species' rare status elsewhere, Soper (1970) offers the following for the less populated, seemingly more optimum Alberta, Canada: "This valuable furbearer, also known as pekan, has become one of the rarest of Alberta species. It has been ruthlessly exterminated in one district after another owing to the demand for a high-priced fur rivaling that of the martin in quality." Attesting to the lack of response by the fisher to recover its numbers as the martin has after it was completely protected, he further states,

> The ravished area includes most of what is now Jasper Park. The damage was done before the park was created in 1907; since then, despite full protection, the species has failed to make much, if any, recovery. It is doubtful, indeed, whether more than a few pairs survive in the most remote northern wilds of the park.

Mustela nivalis (Bangs)

Least Weasel

Remarks:

This species was recorded as a Kendall County resident by the live capture of a female least weasel on March 8, 1969, in section 5, Oswego Township. The animal was captured in a Museum Special Trap baited with peanut butter in an abandoned pasture. It was caged in the Department of Biological Sciences at Western Illinois University in Macomb, Illinois, until its death from unknown causes during August, 1969. While in captivity it subsisted primarily upon Peromyscus, Mus, and Microtus which were accepted equally well whether dead or alive.

The specimen constitutes a Kendall County record and the species is listed by Hoffmeister and Mohr (1957) as uncommon. Necker and Hatfield (1941) reported a specimen from Lee County. Mohr (1943a) states that least weasels are commonly reported from Lake and McHenry Counties, and he observed a roadkill from Lee County. Hall (1951) mentions single specimens from Lake County and Cook County. The species has been recorded in Illinois only as far south as Champaign County where Hoffmeister (1956) collected five specimens. Verts (1961a) captured two least weasels from unreported locations in three northwestern counties of Jo Daviess, Carroll and Whiteside. Schmidt and Lewin (1968) collected three least weasels and found a mummy in McLean County, Illinois.

A possible southern extension of the present day range is suggested by Parmalee and Munyer (1966) based on least weasel bones found in a limestone fissure in Monroe County, Illinois. These bones, which were found in association with skull fragments identified as those of the pigmy shrew (Microsorex hoyi), were believed to have been deposited sometime shortly following the last glacier ice sheet, the Wisconsin, but during prehistoric times. The site of discovery in Monroe County is approximately 175 miles southeast of the collection site reported by Hoffmeister (1956) for Champaign County.

It is the opinion of the author that this small mustelid probably is more common than presently believed. The secretive and nocturnal habits of members of the genus Mustela frequently results in a general unawareness of their presence in the minds of laymen and field biologists alike. Because of the low pelt value, most trappers would discard captured least weasels rather than expend the effort to skin and market these small animals. Due to the small size of the animal too, they often fail to trip a trap, therefore making the chance of capture in a steel trap unlikely.

Habitat of the least weasel would be brushy-grassy areas in association with streams. The diet consists of mice and insects (Hoffmeister and Mohr 1957). It also may be assumed that small birds, as well as other animals that can be overpowered, are included in the diet. The least weasel's habits probably are quite similar to those of the larger long-tailed weasel (Mustela frenata).

Records of occurrence:

One female least weasel was captured in section 5, Oswego Township. The measurements of the specimen were 180 mm total length, 31 mm tail length, 21 mm hind foot length, and 13 mm ear length. The animal weighed 29.4 gm before preparation as a study skin.

Mustela frenata Lichtenstein

Long-tailed Weasel

Remarks:

One Kendall County specimen was recorded based on a conversation with a veteran trapper of 35 seasons. The man described a single "weasel" which he trapped and discarded because of low pelt value. He had caught the animal in its second successive night of killing homing pigeons in his pigeon loft during February, 1969. The author believes the trapper accurately described a male long-tailed weasel. The seven trappers interviewed by questionnaire following the 1968-69 trapping and hunting season did not mention catching weasels of any kind. But, according to their statements, concentrated trapping efforts were not made to capture weasels.

Mohr (1941) includes this species in the list of species known to occur in every county of the state, and Hoffmeister and Mohr (1957) mention that "the long-tailed weasel occurs the length and breadth of Illinois." Range maps presented for this species by

Burt (1957), Collins (1959), and Hall and Kelson (1959) include all of Illinois.

The author believes the long-tailed weasel probably is distributed throughout Kendall County along streams, in woods and brushlands, and about rural outbuildings.

The long-tailed weasel most likely would be expected in habitat offering readily available prey.

Mustela erminea Linnaeus

Short-tailed Weasel or Ermine

Remarks:

To date this species has not been identified as an Illinois resident. Its known occurrence at Beaver Dam, Wisconsin, only 70 miles from the Illinois-Wisconsin border (Hoffmeister and Mohr 1957) attests to the strong possibility that it does or soon will occur within Illinois. The expected habitat would be similar to that of the least and long-tailed weasels and would be dependent upon available prey species.

Mustela vison Schreber

Mink

Remarks:

The mink is thought by the author to occur throughout Kendall County usually in association with water. Hoffmeister and Mohr (1957) reported the mink as "fairly common" in all parts of Illinois.

The mink is probably more common than people realize. This is because of the general unawareness caused by its nocturnal and secretive habits. The mink is the most sought after furbearer within the county. Seven Kendall County trappers interviewed following the 1968-69 trapping and hunting season reported a total harvest of 21 mink. The rich dark brown inner pelt of the males is economically more desirable than the lighter brown coat of the smaller female. Sex ratios were not obtainable; however, the average amount earned was $16.00 per male and $6.00 per female.

Mohr (1941 and 1943a) mentions the mink as a furbearer from Kendall County and includes it as a species ubiquitous for the state. Inclusion of this species in the Kendall County list is further justified by the early morning sighting on February 22, 1969, of one specimen swimming in the Fox River in section 5, Oswego Township. A roadkill near a bridge over the north branch of Morgan Creek in section 29, Oswego Township, was reported to the author on March 27, 1969. The specimen was not found and it is believed that is was picked up by a passerby. This practice is not uncommon among those people knowing the value of mink pelts.

Hoffmeister and Mohr (1957) refer to its occasional common name of water weasel but it sometimes is found considerable distance from water when hunting in meadows, grass waterways, and wooded draws. Its home range, better suggested for this species as a hunting range, is believed to be several miles in diameter.

This assumption is derived from conversations with experienced mink trappers, and an isolated case experienced by the author during December, 1969, outside the study area in Hancock County, Illinois. The tracks of two mink were found in fresh snow along a frozen stream and were carefully checked daily. No mink tracks were seen until two sets again were noticed the morning of the third day. This suggests the possibility that mink may hunt in pairs and do not cover the same area daily. This assumption disregards the possibility of two additional mink making the second set of tracks or the mink under question not traveling on the night involved.

Records of occurrence:

Sighting, section 5, Oswego Township.

Lutra canadensis (Schreber)

River Otter

Remarks:

The otter most likely now is not a resident of Kendall County. If observed in the county in the future, the Fox River would be the most likely place to find it. Hoffmeister and Mohr (1957) attest to the rarity of the species in the state since 1900. Anderson (1951) reports sight records in 1860 and 1915 from Fulton County, Illinois, and Mohr (1943a) mentions pelts taken in Fulton County in 1909 and 1912, but excludes Kendall County occurrences.

Burt (1957), Collins (1959), and Hall and Kelson (1959)

indicate the range of the otter to be most of the United States and Canada. Present day numbers of otters are quite reduced from those present before the arrival of the white man to North America (Burt 1957), and he refers to protection measures implemented in some areas due to depleted numbers of otters. The otter never was thought to be abundant over any part of its range (Audubon Nature Encyclopedia 1965). Soper (1970) attests to the scarcity of this species in the remote northern extent of its range such as Jasper National Park in Alberta, Canada. He states: "An extremely scarce and thinly dispersed member of the park's wildlife. It has seldom been encountered by anyone, and over the territory as a whole is either very rare or absent."

Mephitis mephitis (Schreber)

Striped Skunk

Remarks:

The striped skunk is county-wide in occurrence. It frequents brushy and wooded areas, and commonly is found around buildings. The striped skunk is among those species ubiquitous in Illinois (Mohr 1941 and Verts 1961b). Hoffmeister and Mohr (1957) report "the striped skunk is moderately common in all counties of Illinois."

The tell-tale smell of the skunk, as well as sighting of roadkills, permitted recording the species for every township of Kendall County. Occurrence showed a marked relationship with the wooded areas about the watercourses of the county. However, two

farmers reported skunks about or under outbuildings in section 12, Oswego Township, and in section 2, Kendall Township. These areas were as far as six miles from a major wooded water course. The sighted roadkills, conversations with people, and the detection of musk give rise to the opinion that the striped skunk probably is one of the two most commonly detected carnivores within the county. Of the non-trappables, the skunk quite possibly could be rated in numbers behind the thirteen-lined group squirrel, cottontail rabbit, fox squirrel, raccoon, and opossum.

An Anderson (1951) pointed out, the actual abundance of the skink is difficult to ascertain.

None of the seven trappers interviewed listed skunks in their catch for the 1968-69 trapping season which is most difficult to understand. Even though the pelt of this furbearer is not economically worthwhile because of the distasteful task of handling the animal and pelt, one would expect some accidental catches. These sportsmen whose quarry was the mink, muskrat, raccoon, red fox, and beaver probably would have the greatest chance to encounter skunks in sets made for the red fox. The habit of procuring a den from any existing hole in the ground (Hoffmeister and Mohr 1957) casts the question as to why none were reported as being caught in fox sets. One very successful fox trapper reported capturing "eight opossums, some house cats and dogs, but no skunks."

Rural residents who were interviewed knew of the presence of skunks, but none spoke unfavorably of the species except for the

occasional odor about outbuildings or on family dogs.

The expected habitat for skunks seems to be non-restrictive as signtings and signs occurred throughout Kendall County while their presence was indicated in the prairie-agricultural areas. They were most common in the forested areas. Like most other predators, the skunk would be expected to frequent habitats where food is available. Their food, consisting largely of mice, eggs, insects, small birds, fruits, and snakes (Hoffmeister and Mohr 1957) is a determining factor in habitat selection. Verts (1961b) reports that it is not uncommon for a skunk "to consume 300 to 400 grasshoppers and beetles each night."

Records of occurrence:

Thirteen Kendall County specimens were recorded.

Roadkills were observed from the following sections: 10, 17, and 28, Oswego Township; 12 and 21, Bristol Township; 11, Little Rock Township; 20, Fox Township; 7 and 9, Kendall Township; 8, Na-Au-Say Township; 34, Seward Township; and 29, Lisbon Township.

Musk was detected in section 25, Big Grove Township; section 36, Seward Township; and section 1, Fox Township.

A small male believed to be young was examined June 18, 1968, after it was found dead along the tracks of the C. B. & Q. Railroad within the limits of Oswego, Illinois.

Spilogale putorius (Linnaeus)

Spotted Skunk

Remarks:

The spotted skunk has to date not been recorded as a resident of Illinois. Hoffmeister and Mohr (1957) refer to an "unreliable" sight record from Golconda in Pope County, Illinois, in 1910. The range maps of Collins (1959) and Hall and Kelson (1959) show an eastern boundary of the Mississippi River along the western border of Illinois and then eastward into the southern states of Kentucky, Tennessee, Mississippi, Alabama, Florida and Georgia. Constant vigilance in the future by informed persons may well result in a state record for this species.

Taxidea taxus (Schreber)

Badger

Remarks:

While the badger likely occurs as a rare resident of Kendall County, at no time during the field study were any signs of this mammal observed by the author. Large dens found throughout the county were checked for the horizontal oval-shaped openings having the majority of claw marks situated on the side walls. This description reported by Hoffmeister and Mohr (1957) is an indication of a badger digging. Kennicott (1855) reported the badger as common in DeKalb and Cook Counties and "somewhat common" as far south as Kankakee County, Illinois. Anderson (1951) reported badgers in

Fulton County. Badgers were recorded from McDonough and Hancock Counties during 1970 (Warnock, personal communication). Mohr (1943a) reports the accounts of trappers and hunters who testified that "badgers were killed each year since 1935 in DuPage, Kendall, and Livingston Counties." Additional evidence for believing the badger to be a resident of Kendall County are the reports by two high school biology teachers. One reported an undated afternoon sighting in a corn field in Will County, five miles from Oswego Township. The second reported two "young" badgers were sighted after a heavy rain in August, 1970, at an undisclosed location in Oswego Township. In addition, the author observed a roadkill on June 23, 1970, along Interstate 80, one-half mile west of the Illinois Route 71, crossing in LaSalle County at a location on the east side of the Fox River and about 14 miles from Big Grove Township of Kendall County.

Hoffmeister and Mohr (1957) state that "the badger lives in open country and seems to prefer sand prairie, as it occurs less frequently on prairies with heavier soils." The many acres of prairie in Kendall County warrant the strong possibility of the occurrence of badgers; however, the soil is not of the apparently optimum sandy composition favored by these animals.

Vulpes vulpes (Desmarest)

Red Fox

Remarks:

The red fox is common throughout Kendall County. Mohr (1941) includes the red fox among those species found in every county of Illinois. This animal's ability to survive successfully in an intensely tilled area and the showing of "unusual capabilities in the severe competition for survival in our civilization" (Scott 1955) is exemplified by its distribution throughout Kendall County. None of the farmers interviewed mentioned the red fox as a bothersome predator, but pheasant hunters and members of a local varmit shooting group chastised it as a devastator of "pheasants and rabbits."

The manager of the Millbrook Hunting Club, located in sections 8 and 17, Fox Township, kept traps set "the year around for foxes and coon." He mentioned shooting every fox possible because they killed pheasants. It is not known how many he eliminated.

The red fox is pursued by sportsmen for its pelt and because of the $3.00 bounty paid for each animal. The county clerk's office paid $882.00 in bounties for foxes during the period December 1, 1967, through November 30, 1968. Payment of bounty was terminated on December 30, 1970.

Three of the seven trappers interviewed following the 1968-69 trapping and hunting season accounted for a fur harvest of 34 red

foxes compared to a harvest of two gray foxes (Urocyon cinereoargenteus). Bob May of Yorkville, Illinois, captured 32 red foxes through use of 30 steel traps set for 20 days. Twenty-two of these red foxes were caught during the period November 16 through 29. Six were caught from November 30 through December 13, and four were caught from December 14 through 31. This sportsman reported an average pelt value of $8.00. This amount plus the $3.00 bounty he collected for each animal amounted to a total return of $352.00. He reported trapping the red foxes in Bristol Township, but was unable to offer the sex ratio.

Foxes also were taken each winter by trackers who walk the foxes "down" following a fresh snowfall. The technique involved leaving a rural road and walking into an area in hopes of crossing a fresh fox track. Once the track was found, the animal was followed until spotted. Careful stalking gets the hunter within gun range. Hunters often mention hillsides, grass waterways, thickets, and brush piles which receive the sun's rays and are out of the wind as likely places to see the animals. John C. Knight, Jr. reported "numerous tracks of foxes" in Kendall County during 1947 as compared to "few fox tracks seven or eight years before" (Mohr 1947b).

One Newark, Illinois, hunter who hunts foxes from ambush or with the aid of a predator call scored his 500th fox on May 5, 1968, since he began his count in 1953. He never shot "many" gray foxes and finds fox numbers "about the same in the last few years." As to areas to hunt, he reported, "Where you find pheasants and rabbits, you'll

find foxes." (Chapman, personal communication).

Many hunters are among the most vocal in disagreeing with the fox season imposed by the Illinois Department of Conservation during 1969 which opened at noon, November 1 and closed at noon, March 15, 1970.

It is the contrasting opinion of many that red and gray foxes are not detrimental to the abundance of game species as was concluded following a study conducted by the New York State Conservation Department (Anonymous 1951). Likewise, Scott (1955) thought it to be "a mistake to claim or expect an increase in numbers of prey species [which at times are game species] in response solely to the reduction or elimination of red foxes."

Records of occurrence:

In addition to the 34 red foxes reported as fur-harvested, four dens were observed, two of which were reported by nearby residents to house foxes. Around each were some of the signs described by Hoffmeister and Mohr (1957). These dens were located in the following sections: sections 26 and 32, Oswego Township; section 12, Little Rock Township; and section 2, Na-Au-Say Township.

Tracks in a straight line as described by Scott (1955) were observed in snow in section 31, Bristol Township and section 8, Fox Township.

Urocyon cinereoargenteus (Schreber)

Gray Fox

Remarks:

The gray fox is likely to be found along the Fox River and its wooded tributaries as well as within the other few scattered areas of timber throughout Kendall County. Because the gray fox is a forest and wooded-river bottom inhabitant (Hoffmeister and Mohr 1957), its density in Kendall County is assumed to be much less than the red fox. This assumption is based on the fact that deciduous forest and woody-brushy areas comprise approximately four per cent of Kendall County while the remainder is considered as unwooded.

A gray fox was observed by the author in a timber in section 15, Fox Township, on May 3, 1969. John C. Knight, Jr. referred to two gray foxes in "many years of hunting and trapping Kendall County (Mohr 1947b).

Two gray foxes were reported by one of the seven trappers interviewed during the furbearer survey following the 1968-69 trapping and hunting season. No other gray foxes were reported.

The low number of gray foxes from Kendall County in comparison to the number of red foxes (based on the trapping survey) may well be due to the low monetary value of the grey fox pelt. Trappers also have a greater area to trap in Kendall County where red foxes rather than gray foxes are more likely to be caught.

The major fur buyer for the area in Sugar Grove, Illinois,

stated that he paid $2.00 for good gray fox pelts. He reported buying "one or two gray fox pelts to every 10 or 15 red fox pelts." Trappers from the immediate area around Sugar Grove, Illinois, constituted the majority of his business; however, he referred to trappers from Lake, Cook, Will, Grundy, LaSalle, DeKalb, and McHenry Counties from whom he bought furs.

Records of occurrence:

One gray fox was observed in section 15, Fox Township.

Canis latrans Say

Coyote

Remarks:

The coyote, also called the brush or prairie wolf, is believed to be an occasional, though not abundant, county resident in the open areas of Kendall County. The townships with the majority of prairie acres are Na-Au-Say, Kendall, Lisbon, and Big Grove.

On March 3, 1969, during a conversation with the conservation officer for Kendall County, it was learned that he had known of the coyote on "rare" occasion, and thought it occurred more often than the bobcat (Lynx rufus). Mohr (1943a) reported the coyote in Kendall County in 1912.

The office of the clerk of Kendall County reported paying one $5.00 "wolf" bounty during the December 1, 1967, to November 30, 1968, paying period. This possibly could have been a prairie wolf

(coyote) because payment for a timber wolf (Canis lupus) or red wolf (Canis niger) would be highly unlikely. The animal may have been a domestic dog as was found by Wood (1910) in Champaign County, Illinois. This animal was believed to have been shot during a fox "drive" in February, 1968 (Staff member of County Clerk's office, personal communication). Anderson (1951) reported payment of bounty on 65 coyotes over a five-year period (presumedly 1947 through 1951) from Fulton County, Illinois. Coyote numbers of that indication cannot be expected from Kendall County.

Lynx rufus (Schreber)

Bobcat

Remarks:

The bobcat may occur from time to time in Kendall County throughout the more heavily wooded and brushy areas. It was learned during a conversation on March 3, 1969, with the conservation officer for the county that bobcats do occur on occasion. The warden knew of a "den with an old one and two young just outside Plano, Illinois" during the 1967 breeding season. The exact area was not indicated. No bobcats were reported to him during 1968, but he could remember of two individuals from 1966 and two individuals from 1967 (Burson, personal communication).

Hoffmeister and Mohr (1957) report the bobcat as rare in

Illinois, but occurs in the heavily wooded regions of southern and possibly in northwestern Illinois.

Marmota monax (Linnaeus)

Woodchucks

Remarks:

This animal, often referred to as the ground hog, is a common resident of Kendall County; however, Mohr (1943b) did not list the woodchuck for Kendall County.

Woodchucks or their dens most often were observed along railroad right-of-ways, roadsides, stream banks, around (or dug into) brush piles, and along osage-orange hedge rows. Cropland often was nearby; however, farmers interviewed did not mention the woodchuck as a pest.

The first woodchuck of spring, 1969, was noticed March 23 along Mill Road in section 7, Oswego Township.

The data suggest a greater density of woodchucks in the township of Oswego, Bristol and Little Rock, which are more wooded and less agriculturalized than other townships of Kendall County. No major soil differences are significant to warrant the population diversity as suggested by Seaton (1909) that, "wooded clay banks and gravelly ridges are much to its taste, and its distribution in Manitoba will be found dependent on their presence."

Records of occurrence:

Thirteen Kendall County specimens were recorded from the

following sections: one from section 7, one from section 8, one from section 16, one from section 17, and one from section 20, Oswego Township; two from section 11 and one from section 13, Bristol Township; one from section 24, Little Rock Township; one from section 16, and one from section 20, Fox Township; one from section 4, Kendall Township; and one from section 14, Lisbon Township.

Dens only were recorded as follows: sections 1, 2, 5, 7, 8, 12, 16, 17, 20, 24 and 35, Oswego Township; sections 8, 9, 11, 12, 13, 15, 17, 20, 22, 24 and 26, Bristol Township; sections 20, 23, 24, 25, 28 and 29, Little Rock Township; sections 9, 10 and 26, Fox Township; sections 4 and 36, Seward Township; section 14, Lisbon Township; and section 26, Big Grove Township.

Spermophilus tridecemlineatus (Mitchill)

Thirteen-lined Ground Squirrel or Striped Gopher

Remarks:

This animal is one of the most numerous appearing mammals of Kendall County. It was recorded from each township through multiple sightings and captures. Mohr (1943b) indicated that this ground squirrel occurred in Kendall County. The thirteen-lined ground squirrel was not considered a species that would readily be trapped in Museum Special Traps; however, it occasionally was caught in these traps (Table I).

The number of observations suggests that, with the exception of some species of mice, this animal quite possibly is the most abundant mammal in Kendall County. Initially, dated records were kept of all sightings, signs, and roadkill locations; but, soon it became obvious that this animal was so numerous that recording each individual observed would be too time-consuming.

The thirteen-lined ground squirrel frequently was found in association with the eastern mole. Grassy roadsides, lawns, parks, cemeteries, pastures, and wet meadows, because of the closely cropped vegetation, allow the thirteen-lined ground squirrel to be easily observed.

Even though the animal consistently was seen more along the open, short grassy areas, it was trapped with greater frequency in areas of tall herbaceous habitat (Table I). In such areas 15 were caught in 370 trapnights for 4.1 ground squirrels per 100 trapnights compared to five captured along grassy roadsides in 800 trapnights for 0.6 ground squirrels per 100 trapnights (Tables I and II). Twelve of the fifteen from herbaceous habitats were subadults, suggesting that such areas may be used by nesting females. Contrary to the findings of Long (1968), this species more often than "rarely" was found in tall vegetation.

Three subadults were captured at least 50 yards from the nearest grassy or herbaceous area in a weedless corn field on July 22, 1968. All were caught along the same transect and were the only thirteen-lined ground squirrels caught in corn during

the entire study. No burrows were found in the field that were large enough to be used by these animals, indicating they had traveled at least 50 yards into the corn before capture.

The last thirteen-lined ground squirrel recorded the fall of 1968 was seen October 20 along Illinois Route 71 in section 7, Kendall Township. The first ground squirrel recorded the spring of 1969 was seen March 20 along Caton Farm Road in section 28, Na-Au-Say Township.

Twenty-seven thirteen-lined ground squirrels were examined. Seventeen of the 27 were young of the year having a sex ratio of 7 males to 10 females. Of the remaining 10 specimens examined, nine were adult females and one was an adult male. One lactating female captured June 10, 1968, was taken in a large rat-type snaptrap. The adult male was taken with a spring-operated wire gopher trap inserted into a burrow. A second adult female was found dying six feet from a sprung Museum Special Trap and one young of the year was found alive but badly injured in a Museum Special Trap.

A total of 27 thirteen-lined ground squirrels (10 adults) were captured in Museum Special Traps; however, many traps of particular transects were found empty and sprung in areas frequented by this species giving reason to exclude this animal from the list of trappable species.

Roadkills of this species were located in every township in such numbers that not all kills were recorded.

Records of occurrence:

Thirty-five Kendall County specimens were recorded.

Twenty-seven Kendall County specimens were trapped from the following sections: one from section 10, and one from section 19, Bristol Township; three from section 17, one from section 23, one from section 24, and two from section 35, Little Rock Township; six from section 1, one from section 4, one from section 16, and one from section 25, Fox Township; one from section 34 and seven from section 36, Seward Township; and one from section 12, Big Grove Township.

Eight Kendall County specimens were observed as roadkills from the following sections: one from section 4, and one from section 16, Oswego Township; one from section 10, and one from section 33, Kendall Township; one from section 8, and one from section 12, Na-Au-Say Township; and one from section 10, and one from section 15, Lisbon Township.

Spermophilus franklinii (Sabine)

Franklin's Ground Squirrel or Gray Gopher

Remarks:

This animal was predicted at the offset of the project to be a common resident of Kendall County, but only one individual was observed during the course of the project. Mohr (1943b) reported the Franklin's ground squirrel in Kendall County.

The one specimen recorded was observed on June 6, 1968, in section 10, Lisbon Township, where Chicago Road crosses the north branch of the West Aux-Sable Creek. The animal was seen crossing the road into tall clumps of timothy situated near the bridge. Burrows meeting the description of Hoffmeister and Mohr (1957) were found in the timothy. Three large rat-type snaptraps were set and left on station for 48 hours with no results. In addition to this sighting, on October 6, 1968, the author found at the entrance of a burrow a gray left front foot believed to be that of a Franklin's ground squirrel. The burrow was located along the C. B. & Q. Railroad tracks in section 14, Bristol Township. Traps were set at this and a nearby burrow for a period of 48 hours with no success. Trapping near burrows of this species also was unsuccessful on June 16, 1968, along the C. B. & Q. Railroad in section 16, Bristol Township, and on March 23, 1969, along the same railroad in section 7, Oswego Township.

The Kendall County Crow Shooters, a Yorkville, Illinois, varmit shooting group, conducts an annual one-day varmit shoot. The gray gopher is given varmit status and assigned a point value. A spokesman for the group mentioned "they haven't been turned in in the last few years."

This animal inhabits tall herbaceous vegetation, and is by nature very secretive and shy which makes them seem relatively scarce (Hoffmeister and Mohr 1957).

Records of occurrence:

One Franklin ground squirrel was sighted in section 10, Lisbon Township.

Burrows were located in sections 14 and 16, Bristol Township, and section 7, Oswego Township.

Tamias striatus (Linnaeus)

Eastern Chipmunk

Remarks:

In Kendall County this chipmunk inhabits the woodlands along the Fox River and its tributaries, as well as the wooded areas associated with the Aux-Sable drainage system.

While not considered as a trappable species, two were caught in snaptraps (Table I). In addition, one roadkill and six sightings were recorded for Kendall County.

An adult male was captured in herbaceous habitat on June 28, 1968, along the C. B. & Q. Railroad in section 1, Fox Township. This unusual habitat for a chipmunk was completely void of woody vegetation.

A second adult male was captured in brushy habitat on June 29, 1968, along the C. B. & Q. Railroad in section 9, Fox Township. It had pulled the Museum Special Trap approximately 20 feet before dying. The next trap of the transect was lost, suggesting the possibility that another chipmunk was caught and pulled the trap to an area where it could not be found.

A roadkill male was found July 27, 1968, at the intersection of Needham and Hale Street Roads in section 26, Little Rock Township. The general area was quite woody on both sides of the road.

Records of occurrence:

Nine Kendall County specimens were recorded.

Three chipmunks were collected in the following sections: one from section 1, and one from section 9, Fox Township; and one from section 26, Little Rock Township.

Six chipmunks were recorded as sightings in the following sections: one from section 4, and two from section 26, Bristol Township; two from section 20, and one from section 26, Little Rock Township; and one from section 1, and two from section 9, Fox Township.

Sciurus carolinensis Gmelin

Eastern Gray Squirrel

Remarks:

The gray squirrel was not recorded as a definite resident of Kendall County but may be considered as a rare resident. During an interview on June 28, 1968, the manager of Millbrook Hunting Club, located in sections 8 and 17 of Fox Township mentioned seeing an "occasional" gray squirrel as compared to "lots" of fox squirrels (*Sciurus niger*). Unfortunately, no definite information was obtained on this species.

Mohr (1941) cites the occurrence of five gray squirrels from

three nearby counties: two from LaSalle, two from Kane and one from DuPage.

The range maps of Collins (1959) and Hall and Kelson (1959) encompass Kendall County. Hoffmeister and Mohr (1957) refer to the gray squirrel as "fairly common in wooded areas of Illinois."

Sciurus niger Linnaeus

Eastern Fox Squirrel

Remarks:

The Eastern fox squirrel is a very common resident of Kendall County, and they were observed or their signs noted in every township. The animals are quite common in towns where large trees are present, and squirrels or their nests were seen in every wooded area of Kendall County including osage-orange hedge rows. Because of the county-wide occurrence of the fox squirrel and the apparent rarity of the Eastern gray squirrel, all observed squirrel signs were recorded as those of fox squirrels.

Records of occurrence:

Seventeen Kendall County specimens were sighted and recorded from the following sections: one from sections 5 and 18, Oswego Township; one from sections 14 and 33, Bristol Township; one from sections 23 and 26, Little Rock Township; one from sections 4 and 15, Fox Township; one from section 4, Kendall Township; one from sections 5 and 8, Na-Au-Say Township; one from sections 16 and 34, Seward Township; one from sections 30 and 34, Lisbon Township;

and one from sections 5 and 18, Big Grove Township.

Glaucomys volans (Linnaeus)

Southern Flying Squirrel

Remarks:

The flying squirrel is believed to occur in Kendall County; however, no evidence of it was seen during the project. A nest of flying squirrels was reported "two years ago in her attic" by a woman responding to a newspaper advertisement during July, 1968.

These mammals probably are common in areas having large trees with cavities. The entire course of the Fox River appears ecologically suitable for the flying squirrel. Cory (1912), Burt (1957), Collins (1959), and Hall and Kelson (1959) all show Kendall County well within the expected range of this species.

On several occasions, rapping with a stick on trees possessing woodpecker holes (Collins 1959) failed to cause the appearance of any flying squirrels at cavity openings.

The flying squirrel could easily have escaped detection because of its nocturnal habits.

Geomys bursarius (Shaw)

Plains Pocket Gopher

Remarks:

The pocket gopher was not considered a resident of Kendall County, and no evidence was obtained to indicate the presence of

this species.

Mohr (1946) refers to "old records" which indicate the "gopher" was once more widely distributed than it was in 1946 such as Baily's (1895) published map "showing the gopher present near Chicago." He believed the location was based on reports of Kennicott (1855).

Mohr (1946) indicated on a distribution map all known locations of pocket gophers in Illinois to be south of the Illinois River. Hoffmeister and Mohr (1957) are in agreement by reporting the pocket gopher in Illinois west of the Kankakee River and south of the Illinois River.

Castor canadensis Kuhl

Beaver

Remarks:

The beaver is believed quite common along the entire length of the Fox River and some of its tributaries within the boundaries of Kendall County.

One beaver was observed as it entered the Fox River from an island in section 23, Bristol Township, on June 26, 1968.

The recording of beaver in Kendall County is a record of noteworthy importance to the field biologist which indicates the re-establishment of its ancestorial range from times of probable state-wide extinction.

James (1823), referring to observations noted in the general

area of Illinois, reported "deer, turkies, and beaver" as "plenty in the low lands along both sides of the Mississippi [River] ."

Kennicott (1855) referred to "remains of beaver dams" in "several streams" in Cook County, Illinois, and Thomas (1861) reported "that any individual of this species now existing in this State is doubtful, yet possible." Also, Wood (1910) reported that there was "probably not a wild beaver in the state" and Sanborn (1925) listed the beaver among those "extirpated within historic times" from an area 50 miles from the center of Chicago.

Cory (1912) reported the beaver as common along wooded streams of Illinois "in early days" and "were common in suitable localities throughout the state in the early part of the last century." He also reported their numbers had remained high in the state until the arrival of permanent settlers.

Mohr (1943a) excluded the beaver as a Kendall County furbearer as did Pietsch (1956) when he interviewed conservation officers and excluded Kendall County from the lists of 34 counties reporting beaver in 1949, 45 counties reporting beaver in 1950, and 55 counties reporting beaver in 1954.

The beaver contributed slightly to the Kendall County fur harvest in 1968-69 as two of the seven sportsmen interviewed reported a total harvest of four beaver. The pelts were sold for $5.00 each. The 1968-69 pelt value was quite similiar to average values of $7.48 during 1951-52, $4.47 during 1952-53, and $5.43 during 1953-54 (Pietsch 1956).

The cutting and damming activities of this animal have caused numerous complaints to be lodged with the county conservation officer (Burson, personal communication). At one location in section 26, Oswego Township, work crews used a crane to clear a dam from a culvert under the C. B. & Q. Railroad. The following morning the dam was rebuilt inside the culvert in such a manner as to make clearing difficult. Members of an adjoining sportsmen club find the beavers desirable for maintaining a more favorable water level in a fishing pond.

Records of occurrence:

One Kendall County specimen was recorded by observation and 10 locations were recorded by signs in the following sections: one observation in section 23, Bristol Township; signs in sections 5, 8, 17, and 26, Oswego Township; sections 23, 24, 26, 27, Bristol Township; section 34, Little Rock Township; and section 9, Fox Township.

Reithrodontomys megalotis (Baird)

Western Harvest Mouse

Remarks:

The Western harvest mouse was expected as a possible but uncommon member of the mammalian fauna of Kendall County. None was captured during the 5,555 trapnights of the project. Habitats such as described by Hoffmeister and Warnock (1955), Klimstra (1957), Stains and Stuckey (1960) and Birkenholz (1967) were sampled on

2,215 trapnights. Since its initial capture on November 27, 1953, in Carroll County (Hoffmeister and Warnock 1955), it has been reported in Illinois from Whiteside County on March 22, 1956 (Klimstra 1957); Stark County on August 16, 1958 (Stains and Stuckey 1960); Jo Daviess, Carroll, and Whiteside Counties (Verts 1961a); Tazewell and Morgan Counties (Stains and Turner 1962); Mason County (Birkenholz 1967); Hancock, Schuyler and McDonough Counties (Warnock, personal communication); and Champaign County (Pinkham and Meade 1970).

These reports indicate a southward and eastward extension of its range from where it first was caught in Illinois.

Peromyscus maniculatus (Wagner)

Deer Mouse or Prairie Deer Mouse

Remarks:

This mouse was recorded in all townships of Kendall County through capture of 107 specimens (Table I).

Similar to the findings of Dice (1922), Johnson (1926), and Blair (1940b), most deer mice were captured in grassy habitats (Table I).

Surprisingly, the highest rate of trapping success for this species, 15.6 deer mice per 100 trapnights, occurred in fields of standing corn (Table II). Five corn field transects of 20 traps and one of 10 traps were conducted during the period July 22, 1968, through July 24, 1968, and July 25, 1969, through August 3, 1969.

Failure to observe any small mammal burrows in the soil of the corn fields while trapping makes the results appear even more amazing.

Turner and Stains (1967) reported Peromyscus leucopus as the dominant small mammal species trapped in standing corn in southern Illinois. In their study, capture success increased from June through September which they related to corn ear development. At no time during the present study were any developing ears observed that appeared to have been eaten by mice. However, five harvested corn fields were sampled for a total of 110 trapnights on February 20 and 23, March 23 and April 12, 1969. Only five deer mice were captured for a capture rate of 4.5 deer mice per 100 trapnights (Tables I and II).

The apparent greater population of deer mice in standing corn compared to harvested corn suggests that there either was considerable reproduction or an influx of this species into the fields during summer and fall.

Fields of developing corn would be comparatively analogous to an early stage of natural secondary succession. Immigration of deer mice into developing corn would represent a situation similar to that reported by Wetzel (1958) who found deer mice to be "one of the earliest invaders" into areas of midwestern floodplain which had been artificially cleared.

Other workers have investigated the demonstrated differences between Peromyscus maniculatus and Peromyscus leucopus in habitat preferences. Chenoweth (1917) reported that forest deer mice

(Peromyscus leucopus) tend to avoid conditions of high evaporation rate "by staying in the forests." However, Dice (1922) and Johnson (1926) failed to find interspecific difference between Peromyscus maniculatus and Peromyscus leucopus for water, food, temperature or air humidity preferences. The selection of habitat by Peromyscus maniculatus based on food preferences was not thought an important factor by Cogshall (1928) and Hamilton (1941). Also, Harris (1952) reports a possible "psychological preference for a treeless habitat" and Horner (1954) offers the possibility that Peromyscus maniculatus possesses less "climbing ability" than woodland species. Whatever the reasons might be, Peromyscus maniculatus definitely exhibits a preference for open, grassland areas while Peromyscus leucopus demonstrates a preference for areas of woody vegetation.

The deer mouse was caught in association with Blarina brevicauda, Peromyscus leucopus, Microtus pennsylvanicus and Mus musculus (Table I); thus, interspecific relationships are assumed. Interspecific animosity between Peromyscus maniculatus and Peromyscus leucopus was disaffirmed by Wetzel (1958). Negative interspecific influences were indicated when Babcock (1914), Hamilton (1941), Fisher (1945), and Eadie (1952) reported interspecific predation by Blarnia brevicauda and Microtus pennsylvanicus.

On July 21, 1969, two deer mice were found infected in the genital region by larva believed to be those of the bot-fly (Cuterebra fontinella Clark). Hirth (1959) reported infection of

Peromyscus maniculatus by this parasite.

Of the total catch of deer mice, the sex ratio was 58 males to 49 females. More males than females may have been caught because males may have a larger home range (Blair 1940a), a greater wandering tendency, and/or greater level of activity during the breeding season (Townsend 1935).

Testes measurements of 20 adult males captured during the period April 19, 1969, through August 3, 1969, averaged 10.0 mm.

Unfortunately only four females were detected carrying embryos. They were captured and recorded as follows: April 19, 1969, four embryos; June 28, 1969, four embryos and five embryos; and August 3, 1969, four embryos.

Records of occurrence:

One hundred and seven Kendall County specimens were recorded. These specimens were taken from all townships, and it does not seem particularly useful to list in detail all capture locations.

Peromyscus leucopus (Rafinesque)

White-footed Mouse, Woodland Deer Mouse, or Woodland White-Foot

Remarks:

The white-footed mouse was found to be extremely common throughout Kendall County as 294 specimens were trapped (Table I). It appeared to be the most numerous of the Kendall County mammals. Though it was captured in most types of habitat, it was taken most frequently in direct association with woody habitat (Tables I

and II).

Wood (1910) referred to the association of the white-footed mouse with woody cover when he stated, "Every large old stump, decayed log, brush heap [pile] or similar shelter is pretty sure to be a home for one." Similar findings were obtained for Kendall County. Even Peromyscus leucopus found in prairie habitats usually were captured not far from some small amount of woody cover such as a single wild black cherry, box elder, osage-orange, stump, log, or brush pile. Numerous opened wild black cherry pits often were found in areas where white-footed mice were trapped. Osgood (1909) reported the white-footed mouse was fond of wild black cherry pits. Whitaker (1967) found wild black cherry pits forming the majority of the food in the stomachs of most Peromyscus leucopus captured along wild black cherry hedge rows.

Because of its high numbers in a variety of habitats, the existence of interspecific competition between the white-footed mouse, prairie deer mouse, feral house mouse, and short-tailed shrew would be anticipated. This would contribute to the "environmental resistance" (Chapman 1928) on populations of all these species.

Of 800 specimens trapped, 294 or 36.8 per cent were white-footed mice (Table I). It was trapped most successfully along osage-orange hedge rows, followed by brushy habitat, mixed habitat, woodland interior habitat, woodland edge habitat, followed by a low rate of success in herbaceous habitats (Table II).

The high rate of trap success along osage-orange hedge may have resulted from an unusually high population density of white-footed mice per unit area of woody growth and/or from greater exposure to traps by nature of the linear habitat. Closely planted mature osage-orange trees and the numerous seeds produced as possible food would appear to be optimum habitat.

All trapping within woodland interiors during the county-wide survey was conducted during June, July and August. Wood (1910) reported a failure to catch white-footed mice in woodland interiors in the summer but did catch them in the woodland interiors during fall and winter. He suggested migration from the interiors to outlying areas in the spring and a return in the fall.

During the floodplain concentrated study, 45 Peromyscus leucopus were trapped in 2,020 trapnights (Table I). of the 45, 31 were caught during the winter in 1,660 trapnights and 14 were caught during the summer in 360 trapnights.

Of the 31 trapped during the winter, 23 were captured in the woodlot in 280 trapnights, six were captured in the marsh in 280 trapnights, and two were captured in the pine windbreak in 160 trapnights.

Of the 14 trapped during the summer, 13 were captured in the woodlot in 120 trapnights, and one was captured in the ungrazed pasture in 120 trapnights.

In the woodlot, trap success varied from 8.1 white-footed mice per 100 trapnights during the winter to 10.8 white-footed mice per

100 trapnights in the summer. These data indicate that white-footed mice might be captured with more success in the summer; however, more data are necessary to justify a conclusion. Fitch (1954) reported trap success of Peromyscus leucopus to vary with season with the species being susceptible to baited traps when natural foods are not abundant.

No white-footed mice were captured on the wooded island during 280 winter trapnights nor during 120 summer trapnights. The apparent absence of all trappable species indicates that either they have not been able to reach the island since the last flood, if the flood decimated populations present, or the island is unfavorable habitat. Both theories are plausible; however, a local resident reported that the river never has frozen from shore to the island because of the strong current nor had flooding of the island occurred in at least 10 years. Superficially, the island appeared no different than four other Fox River islands (Numbers 108, 110, 116, and 117; State of Illinois 1962) on which five specimens were captured, one being a white-footed mouse (Table I). It was not known if the river ever had completely frozen between the mainland and these islands.

Orr (1933), Teeters (1945), and Sheppe (1965) reported swimming Peromyscus leucopus or Peromyscus maniculatus which suggests colonization as probable even without ice formation between islands and mainland. Beer, Lukens, and Olson (1954) refer to drift wood as an important method of colonization over water by hibernating species,

but found "ice became a highway for dispersal of the various non-hibernating species."

Of the 294 white-footed mice captured, 163, or 55.4 per cent, were males and 131, or 44.5 per cent, were females. Hirth (1959) recorded 56 per cent males and 44 per cent females during breeding season and offered greater activity of males and less activity of pregnant females during breeding season as an explanation of the sex ratio imbalance.

Reproductive data were limited to the testis measurements of 13 males captured between April 12, 1969, and June 29, 1969. Three males captured April 12, 1969, possessed testes measuring 11 mm, 13 mm, and 17 mm. One male captured April 19, 1969, possessed a testis measuring 15 mm. Four males captured June 21, 1969, possessed testes measuring 7 mm, 7 mm, 8 mm, and 9 mm. Five males taken June 29, 1969, possessed testes measuring 6 mm, 7 mm, 10 mm, 11 mm, and 12 mm. Average singular testicular length was 10.2 mm for the 13 animals. The smaller individual values likely represent sub-adults in the sample; however, obvious young Peromyscus were excluded. Average testicular length appears to subside around June 21, but the data hardly are substantial enough to warrant a valid conclusion.

Records of occurrence:

Two hundred and ninety-four Kendall County specimens were recorded from the townships within the county. It does not seem particularly useful to list in detail all capture locations.

Synaptomys cooperi Baird

Southern Bog Lemming

Remarks:

The bog lemming was considered to be an uncommon resident of Kendall County at the offset of the project. Much effort was directed toward trapping the supposed preferred habitats of the animal, but no bog lemmings were captured or observed during the study.

A total of 240 trapnights was recorded from wet meadows and 235 from bluegrass pastures. Toward the end of the project, efforts were directed solely to the capture of this and other undetected species, but with no success.

Cory (1912) reported "so few specimens" caught in Illinois that "little is known if its habits in the state." Necker and Hatfield (1941) listed only five Illinois localities from which bog lemmings were captured. There are no literature reports of captures near Kendall County; however, Hoffmeister and Warnock (1955) reported capturing southern bog lemmings in Carroll County.

If this animal is a Kendall County resident, the capture techniques employed were not effective or sampling was conducted during a period of low population density when capture success would be expected at a minimum.

Microtus pennsylvanicus (Ord)

Meadow Vole or Meadow Mouse

Remarks:

The meadow vole was the most common Microtus found in Kendall County as 107 were captured. Hoffmeister and Mohr (1957) remark to the common status of this vole in "extreme northern Illinois."

The highest capture success was recorded from wet meadow habitat (Table II). Interestingly, high trap success also occurred in brome grass and red clover where signs of runways and cuttings were not obvious (Table I).

Traps set in runways of these voles also captured short-tailed shrews on occasion. The direct influence of one species upon the other is not known and was not within the scope of this project; however, predation by these shrews upon meadow voles is suspected as earlier suggested by Babcock (1914), Eadie (1952), and Barhehenn (1958).

Of the 107 meadow voles captured, 56 were males and 51 were females indicating sex does not affect capture rate providing the population possesses a sex ratio of nearly 1:1.

Reproductive data for the meadow vole consists of testis measurements from 19 males and embryo counts from 12 females.

Two males captured June 14 and 19, 1968, each possessed a testis 17 mm in length. Two males captured June 21, 1968, each possessed a testis 9 mm and 16 mm in length, respectively. Four males captured July 6, 10, 11, and 22, 1968, each possessed a

testis 16 mm, 16 mm, 14 mm, and 17 mm in length, respectively. Two males captured April 12, 1969, each possessed a testis 14 mm and 15 mm in length, respectively. One male captured April 25, 1969, possessed a testis 14 mm in length. Four males captured on April 27, 1969, each possessed a testis 10 mm, 13 mm, 14 mm, and 17 mm in length, respectively. Three males captured July 21, 27, and 29, 1969, each possessed a testis 16 mm, 15 mm, and 8 mm in length, respectively. One male captured August 7, 1969, possessed a testis 13 mm in length. Average testicular length was 14.3 mm with a range of 8 mm through 17 mm in length.

Two females containing five and eight embryos, respectively, were captured on April 12, 1969; four females possessing five, six, six, and eight embryos were captured on April 27, 1969; and one female possessing five embryos was captured on July 2, 1969. The average number of embryos per pregnant female was 6.4.

Records of occurrence:

One hundred and seven Kendall County specimens were recorded. These specimens were taken from all townships and it does not seem particularly useful to list in detail all capture locations.

Microtus ochrogaster (Wagner)

Prairie Vole

Remarks:

The prairie vole was not found to be abundant in Kendall County, but is believed to be county-wide in occurrence. Five

prairie voles were captured in 5,555 trapnights (Table I). Grassy areas similar to those described by Hoffmeister and Mohr (1957) and Getz (1963) were trapped for 1,035 trapnights during the county-wide study and for 560 trapnights during the floodplain study. Getz (1963) thought dryer, grassy areas were more optimum for the prairie vole than the meadow vole.

Hoffmeister and Mohr (1957) refer to this vole as being "most abundant in central and southern Illinois", but occurring "in suitable habitats throughout the state." With this knowledge, it was assumed that Kendall County is near the northern boundary of the optimum range of this vole. Findley (1954) suggested that Microtine populations living towards their range extremes are found only in their optimum habitats.

The possible effects of a low population density on trapping success during the project period should not be disregarded. Population fluctuations occurring on a regular basis for many species were reported by Cole (1954). Mohr (1947b) suggests a three-year cycle for the prairie vole in Illinois instead of the four-year cycle associated with many rodents.

Records of occurrence:

Five Kendall County specimens were recorded and were caught during July, 1968.

Two males were captured in a dry area carpeted by bluegrass on a bank along the C. B. & Q. Railroad in section 16, Fox Township; one male was captured in a small, dry, grassy area along an osage-

orange hedge row in section 30, Seward Township; one female was captured along a dry, grassy roadside in section 1, Little Rock Township; and one female was captured in a grassy area along the C. B. & Q. Railroad in section 24, Little Rock Township.

Microtus pinetorum (LeConte)

Pine Vole

Remarks:

The pine vole was anticipated as a resident of Kendall County, but was not collected. Hoffmeister and Mohr (1957) report the species as "state-wide but sporadic in occurrence and usually uncommon." Anderson (1951) reports five specimens from Fulton County taken from an ungrazed timber area. Extensive effort was expended trapping habitats expected to be suitable for this vole. Networks of underground burrows similar to those mentioned by Hoffmeister and Mohr (1957) were found in a catalpa (Catalpa spp.) grove in section 34, Lisbon Township, in a oak-hickory timber in sections 25 and 30, Little Rock Township, and in another oak-hickory timber in section 6, Na-Au-Say Township.

Ondatra zibethicus (Linnaeus)

Muskrat

Remarks:

The muskrat is common throughout Kendall County, inhabiting all streams and lakes of the area. Mohr (1941) included the muskrat

as inhabiting every county of Illinois.

Individuals were observed by the author on five occasions. Three observations were of live specimens and two of dead individuals. Signs were recorded on numerous other occasions.

The animal is eagerly sought by Illinois fur-trappers. From a fur-trapper survey conducted following the 1968-69 trapping and hunting season, it was learned that each of the seven sportsmen interviewed contributed to a total muskrat harvest of 726. It was the furbearer most frequently taken by the seven trappers. Price per pelt varied from $.80 to $1.25, depending upon pelt size and condition.

Exact locations of the 726 muskrats were not obtainable, but most were believed taken from Bristol, Little Rock, Fox, and Kendall Townships. One trapper reported catching 56 muskrats, all from a small five-acre lake in section 26, Bristol Township.

The most successful muskrat trapper interviewed was Bob May of Yorkville, Illinois. He captured 437 using 150 traps in 10 days. He harvested muskrats sometime during the last two weeks of November, 1968; the exact 10 days were not determined.

One farmer reported the muskrat as bothersome because they were eating early soybeans (Glycine max) in a field bordering a branch of the West Aux-Sable Creek in section 11, Lisbon Township.

Records of occurrence:

Five Kendall County specimens were observed by the author, 726 muskrats were reported during the 1968-69 fur harvest, and signs were

recorded from numerous locations.

Five muskrats were observed in the following sections: one from section 13, Oswego Township; one from section 17, and one from section 27, Bristol Township; one from section 20, Fox Township; and one from section 27, Na-Au-Say Township.

Muskrat signs frequently were observed along the Fox River between Oswego and Yorkville, Illinois, during a canoe trip in June, 1968. Additional signs were seen along the Fox River near bridges in section 34, Little Rock Township, and sections 9 and 30, Fox Township. Signs were observed along Waubonsee Creek in sections 3, 9, 10 and 17, Oswego Township; along Blackberry Creek in sections 14, 20 and 29, Bristol Township; along Rob Roy Creek in sections 4, 8, 17, 19 and 30, Bristol Township and sections 35 and 36, Little Rock Township; along Big Rock Creek in sections 1, 11, 23, 27 and 34, Little Rock Township; along Little Rock Creek in sections 8, 16, 20, 21, 29 and 34, Little Rock Township; along Hollenback Creek in section 15, Fox Township; along the Aux-Sable Creek system in sections 3, 4, 5, 9, 22, 27, 28, 29 and 34, Seward Township, and in sections 9, 10, 11, 14 and 16, Lisbon Township; along Valley Run Creek in section 29, Lisbon Township; and a drainage creek in section 26, Big Grove Township. The greatest concentration of muskrat dens found dug into the stream bank was believed to occur along Rob Roy Creek in section 4, Bristol Township.

Rattus norvegicus (Berkenhout)

Norway Rat, Brown Rat, or Barn Rat

Remarks:

This rat is common throughout Kendall County, particularly around the outbuildings of farms. For this study, it was not considered a trappable mammal; however, one young male of the year was taken in a Museum Special Trap. It was taken in the soil-bank sweet clover field on June 29, 1969. A pile of corn cobs which had been placed in an eroded area in the field was 10 yards from the set and may have been related to the establisment of a rat population in the field.

Two other Norway rats were donated to the author. One, a male subadult, was killed within the city limits of Oswego, Illinois, on July 8, 1968. The other was an adult female taken during March, 1969, in a large rat-type snaptrap around some rat diggings located under a willow tree (Salix spp.) stump along the Fox River in section 5, Oswego Township.

On only one occasion were distinct signs of the Norway rat found away from buildings. Burrows, fresh diggings, droppings, and corn cobs were found along a fence where Light Road approaches the C. B. & Q. Railroad in section 7, Oswego Township. Two rat-type snaptraps were set for two nights with no success.

According to numerous farmers in Hancock County, Illinois, rats occurred in large numbers along fence rows located far from buildings during the spring of 1968. No such situation was found

by the author in Kendall County; however, Mohr (1947b) described two locations in Kendall County of Norway rat outbreaks during 1939.

Anderson (1951) reported stream banks of Fulton County as suitable habitat for this species. No particular effort was expended toward examining stream banks for signs of Norway rats. However, a roadkill was observed on a bridge above Waubonsee Creek on Route 34 in Oswego Township.

Depending upon the conditions under which the rat must exist such as food supply, presence of poisons, and predators, it is found in widely varying concentrations about buildings. All rural county residents interviewed knew of rats about and kept commercial rat poison available at all times. They also relied upon house cats for rat control.

Records of occurrence:

Four Kendall County specimens were recorded from Oswego Township in sections 5, 16, 17 and 35.

Buildings examined in sections 16, 26 and 35, Oswego Township, section 13, Bristol Township, sections 5 and 14, Na-Au-Say Township, section 8, Lisbon Township, and section 25, Big Grove Township possessed some type of rat signs.

Mus musculus Linnaeus

House Mouse

Remarks:

This feral Murid rodent has successfully established itself as a member of the Kendall County wild animal community which is reflected by the capture of 107 specimens (Table I).

Trapping success was highest in standing corn and herbaceous habitat suggesting close association by this species with the short-tailed shrew, prairie deer mouse, and the meadow vole (Table II).

Whitaker (1967) reported the house mouse as "regularly" occupying only two non-cultivated habitats. These were weedy fields (herbaceous habitat) and grassy fields.

The higher capture rate in standing corn compared to harvested corn is similar to the findings on the prairie deer mouse (Table II). These population increases in standing corn are believed due to emigration from surrounding areas as a result of seasonal population increases and pressures rather than an influx into the fields to utilize available food. Whitaker (1967) found no house mice in plowed fields, thereby suggesting that the species "must move away from these areas when they are plowed." Whitaker (1967) also reported corn as an important habitat from July through December.

Wood (1910) stated that "there seems to be an eruption of them [house mice] into the corn after the crop is cut" suggesting higher densities occurring after a fall harvest date. However, harvested corn was left in shocks in 1910 creating a somewhat

different situation than would be found in corn fields of 1970. During the winter no house mice were captured in either the sweet clover or red clover areas of the soil-bank field. During the summer, 19 house mice were captured in the sweet clover area and three were captured in the clover, suggesting that an increase in house mouse numbers in the taller sweet clover field occurred sometime between April 22 and June 27, 1969. The increase could have resulted from an influx into the field from nearby buildings and/or increased reproduction within the field.

Of the 19 house mice trapped in the sweet clovers, 12 were trapped the first night, four were trapped the second night, one was trapped the third night, and two were trapped the fourth and last night.

Schwartz and Schwartz (1959) and Whitaker (1967) thought the house mouse congregated in buildings in the fall. This phenomenon was suspected to occur in Kendall County because during the first week of November, 1968, three house mice were caught in a trap continuously left set and baited in a garage from June 10, 1968, through November 9, 1968. No other small mammals were captured in the trap. A resident in section 5, Oswego Township, reported trapping "many house mice and an occasional white-footed mouse" in his garage each fall.

Negative interspecific influences of the feral house mouse on other species with which it associates was suspected because it was assumed that feral house mice dominate native mice, "and may

forcibly drive them out of an area" (Wood 1910 and Hoffmeister and Mohr 1957).

Of the 107 house mice captured, 49, or 45.8 per cent, were males and 58, or 54.1 per cent, were females.

One male captured June 21, 1969, possessed a testis measuring 7 mm in length. Six males captured June 28, 1968, possessed a testis measuring 6 mm, 7 mm, 7 mm, 7 mm, 8 mm and 8 mm in length, respectively. One male captured August 3, 1969, possessed a testis measuring 7 mm in length. The average testis length was 7.1 mm.

One female captured on June 28, 1969, was carrying five embryos. Unfortunately, no other females carrying embryos were dissected.

Records of occurrence:

One hundred and seven Kendall County specimens were recorded. The specimens were captured in each township and it does not seem particularly useful to make a detailed listing of occurrence for this species.

Zapus hudsonius (Zimmermann)

Meadow Jumping Mouse

Remarks:

Three meadow jumping mice were captured during the county-wide trapping survey. An adult female with well-developed mammary glands was trapped on June 29, 1968, in herbaceous habitat along the C. B. & Q. Railroad in section 1, Fox Township. The appearance

of the mammary glands indicated she had weaned a litter shortly before capture.

A subadult female was trapped on July 20, 1968, in a grassy area near a fence along Creek Road in section 5, Little Rock Township.

A subadult male was captured by hand on July 22, 1968, in a moist grassy area of Kentucky bluegrass pasture in section 20, Little Rock Township.

Trapping of only two meadow jumping mice in 5,555 trapnights either indicates their uncommon status or their unsusceptability to the trapping methods employed.

Wood (1910) alluded to the uncommon status of this mouse when he suggested the desirability of recording all specimens found in Illinois. He also stated that this species "may be on the verge of extinction."

Gersbacher and Swayne (1951) and Stains (1963) attest to the rarity of this species in southern Illinois. Verts (1961a) recorded six Zapus hudsonius in Jo Daviess, Carroll, and Whiteside Counties.

Records of occurrence:

Three Kendall County specimens were recorded from the following sections: one from section 1, Fox Township; one from section 5, and one from section 20, Little Rock Township.

Measurements listed in order of capture for the three Zapus

hudsonius were: 203 mm total length, 117 mm tail length, 27 mm hind foot length, and 8 mm ear length; 192 mm total length, 116 mm tail length, 26 mm hind foot length, and 12 mm ear length; and 199 mm total length, 119 mm tail length, 27 mm hind foot length, and 11 mm ear length.

Sylvilagus floridanus (Allen)

Eastern Cottontail or Cottontail Rabbit

Remarks:

The cottontail is a common resident of Kendall County. Rabbit droppings as well as tracks in snow were observed with little effort in all areas of Kendall County. Areas of brushy habitat, osage-orange hedge rows, herbaceous habitats, mixed habitats, and wet meadows exhibited more rabbits or signs than the clear prairie areas under intensive cultivation.

Cottontail rabbits were not considered a trappable species; however, one male juvenile was caught in a Museum Special Trap on August 14, 1969, on Fox River Island 108 (State of Illinois 1962) section 24, Bristol Township (Table I). Rabbits were seen on this island as well as on an unnumbered island (State of Illinois 1962) located in section 5, Oswego Township.

Mohr (1941) considered the cottontail to be in every county of Illinois. Lord (1963) reports that "although parts of Illinois do not rank as optimum habitat for the cottontail, there probably isn't a square mile of the state (outside of downtown Chicago) that does

not have some cottontails living on it." Yeatter and Thompson (1952) and Lord (1963) reported a greater rabbit population in Illinois during 1936 and 1937 than when their investigations were conducted. Hunter success for Kendall County following the 1936-37 season was reported as 15 to 20 rabbits per hunter compared with zero to 10 rabbits per hunter following the 1957-58 hunting season (Lord 1963).

Records of occurrence:

One cottontail rabbit was trapped and numerous individuals were observed either alive or as roadkills from each township of Kendall County. It does not seem particularly useful to list in detail all capture locations.

Lepus townsendii Bachman

White-tailed Jackrabbit

Remarks:

No jackrabbits were thought to live in Kendall County at the initiation of the project, and no evidence of their existence in the county was found.

A large gray rabbit in an advanced state of decomposition was found along State Route 71 in section 26, Bristol Township, on June 10, 1968. This rabbit was two to three times larger than the eastern cottontail and was thought to be a domestic escapee.

Dama virginiana (Zimmermann)

White-tailed Deer or Virginia Whitetail

Remarks:

The white-tailed deer is an inconspicuous resident of Kendall County. It is closely associated with the woodlands and brushy areas of the county particularly the Fox River floodplain.

The white-tailed deer apparently are increasing in numbers each year (Burson, personal communication). Paul (1970) refers to the success of this species as a pleasant change of pace from the usual sufferings and sometime disappearance of many game species as a result of man's activities. Re-establishment within the county has occurred within the last 20 years for Pietsch (1954) referred to an Illinois deer herd estimated at more than 3,075 in 68 of the 102 counties; Kendall was not included in the 68.

The deer noted farthest from the general area of concentration along the Fox River floodplain was an antlerless animal sighted in standing corn by a farm resident in section 1, Oswego Township, an area quite void of woodland and brushy areas. "The substituting of standing corn for timber as a source of cover" is mentioned by Paul (1970) and is a behavioral adaptation contributing to the successful re-establishment of the deer in many parts of Illinois.

Records of occurrence:

Fifty Kendall County specimens were recorded through signs, or brought to the attention of the author between June, 1968, and December, 1969.

Roadkills totaling 19 were recorded by the Conservation Office of Kendall County, nine during 1968 and 10 during 1969. Thirteen deer were legally harvested by shot-gun hunters, seven during 1968 and six during 1969, and one was harvested by bow and arrow hunters. One illegal kill was noted. Sightings totaling 11 were reported by reputable persons and tracks were recorded by the author for five areas.

On November 10, 1968, a deer of unknown sex was killed on Minkler Road in section 25, Bristol Township. An apparent deer death trap exists along a one-mile stretch of Illinois Route 47 between Yorkville and Illinois Route 71 as six roadkills in 1968 and three in 1969, the exact dates unknown, were reported along this unmarked stretch of highway. The conservation office also reported a spike buck killed at the west edge of Yorkville, Illinois, in section 29, Bristol Township, and a deer of unknown sex killed along U. S. Route 34 in section 29, Little Rock Township. Both deer were killed during February, 1968; however, exact dates were not recorded. During 1969, one deer was killed on Cherry Road in section 4, Na-Au-Say Township; one deer was killed at the point where the section line crosses Illinois Route 71 between sections 12 and 13, Fox Township; two deer were killed along Route 71, one in section 25, and the other in section 26, Bristol Township; one deer was killed along Fox River Drive, section 9, Fox Township; one deer was killed along Griswold Springs Road in section 28, Little Rock Township; and one was killed near the bridge over Big Rock Creek along

Galena Road in section 1, Little Rock Township. Exact dates of the 1969 roadkill deer were not available from the conservation office in Kendall County.

The split 1968 six-day shot-gun hunting season of November 22 through 24 and December 6 through 8 resulted in the harvest of seven deer. Buck fawns weighing 72 and 96 pounds were harvested in section 1, Kendall Township; a buck fawn weighing 72 pounds was harvested in section 2, and a buck fawn weighing 61 pounds was harvested in section 4, Kendall Township. A two and one-half year old doe weighing 132 pounds was harvested in section 16, Fox Township. A three and one-half year old doe weighing 187 pounds was harvested in section 28, Little Rock Township and the hunter reported spotting three other deer during the hunt. The seventh deer harvested during the 1968 hunting season (also the only deer harvested during the last three days of the split season) was a 94-pound doe fawn taken at an unknown location. The only 1968 bow and arrow harvest was a 145-pound buck taken in section 4, Kendall Township. All harvested deer weights were reported in field-dressed condition. Unfortunately, no data other than the six deer harvested during the 1969 gun season were obtained.

The poaching of a doe occurred during the second week of November, 1968, in section 26, Bristol Township.

A deer was sighted by a farm resident on November 5, 1968, in section 1, Oswego Township. Four deer were reported by a pheasant hunter on November 16, 1968, in section 23, Bristol Township.

The author arrived at this farm the following day and found three sets of tracks, apparently a doe with two fawns, but observed no deer. At least one buck also had been in the area as was indicated by a buck rub on several small saplings. Two deer were observed by residents during August, 1969, one in section 2 and one in section 9, Fox Township; one deer was observed by a resident during September, 1969, in section 4, Fox Township; two deer were seen by a resident during October, 1969, in section 3, Kendall Township; and one deer was seen by a resident during November, 1969, in section 4, Na-Au-Say Township.

Droppings and/or tracks were noted on May 3, 1969, in section 15 and 17, Fox Township; on July 24, 1969, in the Waish-Kee-Shaw Park, sections 5 and 6, Na-Au-Say Township; and on December 22, 1969, in section 26, Bristol Township.

Table III. Checklist of species of mammals known to occur in Kendall County, Illinois as of January 1, 1970.

Species	New Record for Kendall County	Observations Recorded by the Author	Signs Recorded by the Author	Reports received by Author and Believed Valid
Order Marsupialia				
Family Didelphidae--opossums				
Didelphis marsupialis		X	X	X
Order Insectivora				
Family Talpidae--moles				
Scalopus aquaticus		X	X	
Family Soricidae--shrews				
Sorex cinereus	X	X		
Blarina brevicauda	X	X		
Order Chiroptera				
Family Vespertilionidae--bats				
Eptesicus fuscus	X	X		
Nycteris cinereus	X	X		
Nycteris borealis	X	X		
Order Carnivora				
Family Procyonidae--raccoons				
Procyon lotor		X	X	X
Family Mustelidae--weasels and skunks				
Mustela nivalis	X	X		
Mustela frenata				X
Mustela vision		X	X	X
Mephitis mephitis		X	X	X
Family Canidae--foxes				
Vulpes vulpes			X	X
Urocyon cinereoargenteus		X		X

Table III. (Continued)

Species	New Record for Kendall County	Observations Recorded by the Author	Signs Recorded by the Author	Reports Received by Author and Believed Valid
Order Rodentia				
Family Sciuridae--squirrels				
Marmota monax	X	X	X	
Spermophilus tridecemlineatus		X	X	
Spermophilus franklinii		X	X	
Tamias striatus	X	X		
Sciurus niger		X	X	
Family Castoridae--beaver				
Castor canadensis		X	X	X
Family Cricetidae--native mice and muskrat				
Peromyscus maniculatus		X		
Peromyscus leucopus		X		
Microtus pennsylvanicus	X	X		
Microtus ochrogaster	X	X		
Ondatra zibethicus		X	X	X
Family Muridae--Old World mice and rats				
Rattus norvegicus		X	X	
Mus musculus		X		
Family Zapodidae--jumping mice				
Zapus hudsonius	X	X	X	
Order Lagomorpha				
Family Leporidae--rabbits and hares				
Sylvilagus floridanus		X	X	
Order Artiodactyla				
Family Cervidae--deer				
Dama virginiana			X	X
Totals:	11	28	15	11

SUMMARY

Of the approximately 1,900 observations and reports of individual wild mammals of Kendall County recorded during the period June 10, 1968, through December 31, 1969, 800 were collected by trapping, 20 bats were collected by shooting, 162 were obtained as roadkills and 852 were either donated or reported to the author by other people. Nearly 100 sightings of free roaming individuals were recorded by the author.

Specimens were considered as trappable or non-trappable depending upon whether the adult of the species could reasonably be expected to be captured in Museum Special Traps.

Peromyscus leucopus, Mus musculus, Peromyscus maniculatus, Microtus pennsylvanicus, and Blarina brevicauda were trapped in large numbers because they were most susceptible to Museum Special Traps and they usually maintain high population densities compared to other species of Illinois mammals.

Peromyscus leucopus was found most often in or near some form of woody habitat, while Mus musculus, Peromyscus maniculatus, Microtus pennsylvanicus, and Blarina brevicauda most often were found in herbaceous habitat.

The less common trappable species found in Kendall County were Sorex cinereus, Microtus ochrogaster, and Zapus hudsonius.

Of the non-trappable species, Spermophilus tridecemlineatus, Scalopus aquaticus, Sylvilagus floridanus, Sciurus niger, Procyon

lotor, Marmota monax, Didelphis marsupialis, Rattus norvegicus, Mephitis mephitis, Ondatra zibethicus, and Vulpes vulpes were found to be common.

The less common species of non-trappables found in Kendall County were Mustela nivalis, Mustela frenata, Mustela vision, Urocyon cinereoargenteus, Spermophilus franklinii, Tamias striatus, Castor canadensis, and Dama virginiana.

The capture of the uncommon Mustela nivalis was a record of noteworthy importance. The species is not considered common in Illinois with few actual captures reported in the literature.

The recording of Castor canadensis and Dama virginiana for Kendall County is important due to both species re-establishing their ancestoral range in Illinois which includes Kendall County. Both species had been reported as extinct county-wide, but now again have become important members of the county's wild community within the last 20 years.

The bat fauna of Kendall County is believed to vary greatly with season. Only Eptesicus fuscus, Nycteris borealis, and Nycteris cinereus were definitely determined to occur in Kendall County. The capture of the uncommon Nycteris cinereus was a record of noteworthy importance. The species is not considered common in Illinois with few actual captures reported in the literature.

Other probable, but unrecorded, residents of Kendall County were Taxidea taxus, Canis latrans, Glaucomys volans, Synaptomys cooperi, and Microtus pinetorum. The failure to definitely record

these species related to their general uncommon status as well as probable "spotty" occurrences.

Some species of Kendall County mammals were harvested seasonally. After the 1968-69 trapping season, seven fur trappers responded to a questionnaire and reported a harvest of 844 furbearers. These men reported an income of $820.00 from muskrats, $425.00 from raccoons, $272.00 plus $3.00 bounty for each kill from red foxes, $226.00 from mink, $21.00 from beaver, $12.00 from opossum, and $4.00 from gray foxes for a total income of $1,780.00.

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