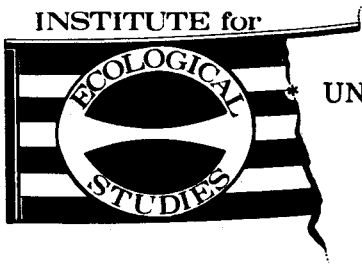
VERTEBRATES OF SOUTHWESTERN NORTH DAKOTA: AMPHIBIANS, REPTILES, BIRDS, MAMMALS

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VERTEBRATES OF SOUTHWESTERN NORTH DAKOTA:

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ABSTRACT

A study of representative terrestrial vertebrates in the portion of the Missouri Slope south and west of the Missouri River, and McLean County in North Dakota was undertaken in the summers of 1976 and 1977. Data were tabulated relative to species occurrence and abundance by major habitat type and geographic area. Habitats sampled were river bottom, hardwood draws, upland grassland, rolling grassland, juniper draw, ponderosa/limber pine, deciduous forest, wetlands, terraces, upland breaks, river breaks, rockland, toe slopes, hilly scoria and agricultural/disturbed. Data were collected from population sampling, existing literature and unpublished reports and interviews.

Breeding bird populations were sampled by total counts on quarter-section guadrats. Raptors were censused on four-square-mile tracts surrounding each quarter-section bird sampling unit. Additional data on game birds and endangered and special interest species were obtained from cooperating agencies. Data on migratory species were obtained from existing literature and by field observation.

All mammals observed on the quarter-section bird quadrats were recorded. Small mammals were sampled by saturation trapping on 2-hectare subunits of the quadrats. Data on big game and furbearers were obtained from state and federal agencies. Data on endangered and special interest species were obtained from cooperating agencies and supplemented by field observations and interview.

Occurrence of amphibians and reptiles were recorded on the bird and mammal sampling units; additional observations were made in restricted and aquatic habitats.

Of the 226 species of terrestrial vertebrates observed in southwestern North Dakota, there were 8 amphibian, 12 reptilian, 158 avian and 48 mammalian species recorded by distribution, significant habitats, and abundance.

Bird counts were compared for areas also censused in 1967. A few species (i.e. McCown's Longspur, several swallows) seemingly are reduced from surveys conducted 8-10 years ago, while counts of upland game birds, flycatchers, thrushes, warblers, blackbirds and sparrows were higher. Such discrepancies may reflect real trends, short-term vagaries in weather or resources, random variation, or intensity of sampling.

There are 273 confirmed prairie dog towns in the project area, having a mean size of 38 acres. Prairie dog populations appear to be increasing, presumably due to cessation of control measures.

Of the principal habitats censused, total species diversity ranged from 1 (toe slopes) to 58 (moderately grazed rolling grasslands). The general habitats of ponderosa/limber pine, riparian woodland, hardwood draw, deciduous forest and wetlands contributed greatly to species diversity and total faunal components, considering their limited extent in total geographic area.

Long-term monitoring is recommended along with studies of community structure and function, endangered and unique species and the black-tailed prairie dog. Establishment of permanent study sites, standardized habitat classification systems and a census evaluation program is also recommended.

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SECTION 1. INTRODUCTION

1.1 Purpose of Study

The purpose of this study was to survey populations of representative terrestrial vertebrates in that portion of the Missouri Slope south and west of the Missouri River and in McLean County in North Dakota. Amphibians, reptiles, birds and mammals were censused for species occurrence, geographic area and major habitat type.

1.2 Significance of Study

Many terrestrial vertebrates are of high significance to human health, economics, recreation, or aesthetics in the state of North Dakota. Furthermore, changing land use and increased human population density may drastically shift population levels and species occurrence.

Southwestern North Dakota has a rich and varied fauna of game birds and mammals which are an important recreational resource and indirectly provide significant economic impact to local communities. Some terrestrial vertebrates (e.g. small rodents) are of potential significance as reservoirs of infection for human diseases or as agricultural pests, while others (laxuli bunting, mountain bluebird, Audubon's warbler) are of high aesthetic value. Certain species (e.g. black-footed ferret, peregrine falcon, prairie falcon) have been classified as endangered or threatened by the U.S. Fish and Wildlife Service and others, while not endangered on a national scale, may be threatened within the state of North Dakota. Furthermore, many species are highly sensitive to changes in habitat and may prove to be useful as "ecological indicators" of a changing environment.

1.3 Previous Work

Bird populations and their distributions in North Dakota have been studied by Stewart and Kantrud (1972, 1973) and Stewart (1975). The study of Stewart and Kantrud (1972) provides an excellent precedent for bird surveys in North Dakota but their data are now nearly ten years old and their sampling design did not include a number of key habitats in the southwestern portion of the state. As with other game species, the North Dakota Game and Fish Department has conducted population surveys of game birds in southwestern North Dakota for many years. In addition, a number of site-specific environmental impact reports have been recently published on birds and other vertebrates in the coal lands of southwestern North Dakota.

Mammals, unlike the birds, have not been sampled systematically in North Dakota, except for certain game species. Distributional data are provided in Bailey (1926), Svihovec (1967), Jones and Genoways (1966), Genoways and Jones (1972), and Hibbard (1972). Much of this information, however, is old or too general in scope to be utilized as a reliable data source.

There has been even less work done on the amphibians and reptiles of North Dakota. The reports by Wheeler and Wheeler (1966) and Hibbard (1972) include the only distributional data available on amphibians and reptiles in the state.

SECTION 2. THE STUDY AREA

2.1 Location and Selection of Sampling Sites

The project area included that portion of North Dakota south and west of the Missouri River plus McLean County, an area of approximately 22,000 square miles. Within the project area, 59 sites were censused, 33 of which had been selected randomly by Stewart and Kantrud (1972) for their breeding bird survey of North Dakota (Fig. 1). Twenty-six additional sites were selected in the field to supplement the Stewart and Kantrud sites. The basis for selection of the additional sites was to include certain key habitats not covered by Stewart and Kantrud (1972), and to provide resonable distribution by county. Consequently, this non-randomized sampling regime was intended to provide insight into faunal diversity, habitat preference, and site population density, rather than population estimates extrapolated to the entire project area.

Each site consisted of a quarter-section breeding bird plot, a four-section raptor survey plot and a 2-hectare small mammal sampling plot. A typical configuration of the three types of sites is presented in Figure 2. Principal habitats were identified, and acreages were estimated by visual assessment, existing maps and examination of aerial photographs. A general cover type map was prepared for each site.

2.2 Study Area Description

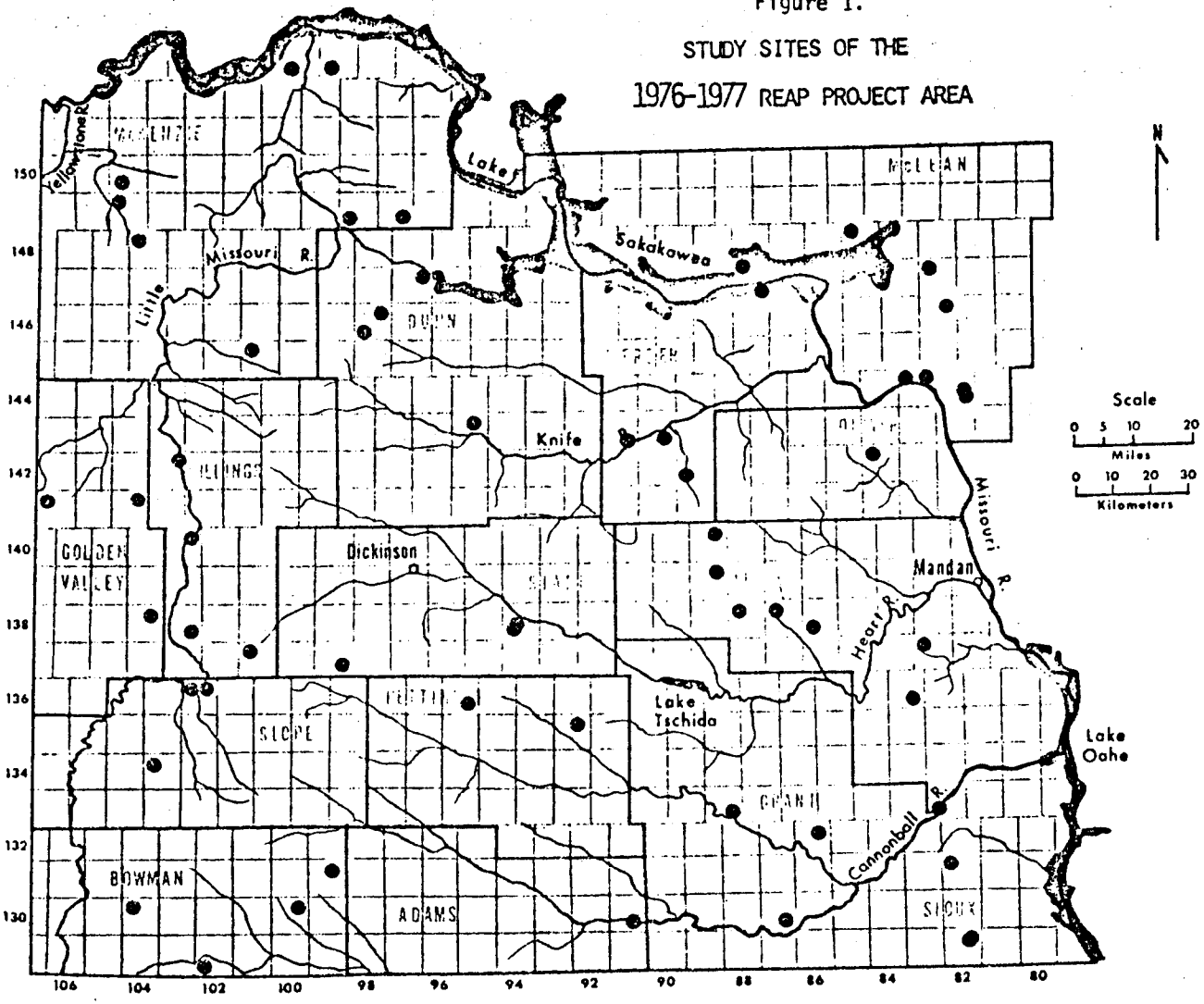
The principal habitats of each study site were determined by visual inspection and examination of ASCS aerial photographs. These were categorized to conform to a habitat classification modified from the U.S. Forest Service (1974). The following types were recognized and are described more fully in Appendix 2:

1. River Bottoms
   a. True River Bottom
   b. Riparian Woodland
2. Hardwood Draw
   a. Hardwood Draw with Brush Only
   b. Hardwood Draw with Brush and Trees
3. Upland Grassland
   a. Predominantly Grasses with Sagebrush and Erosion
   b. Sagebrush Flats and Bottoms
4. Rolling Grassland
   a. Ungrazed or Lightly Grazed
   b. Moderately Grazed
   c. Heavily Grazed
   d. Hayed

Figure 1.

STUDY SITES OF THE

1976-1977 REAP PROJECT AREA



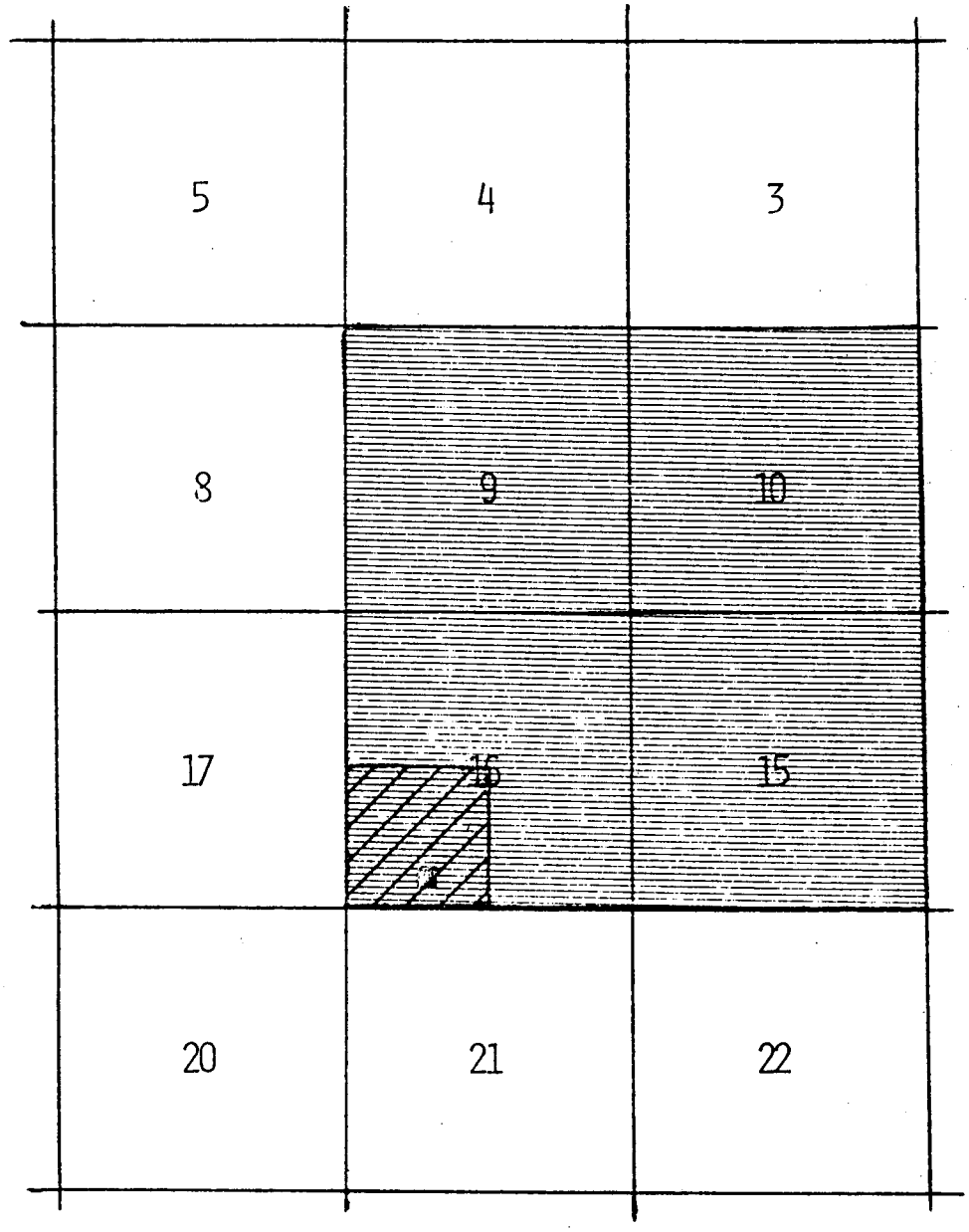


FIGURE 2. Typical Configuration of Breeding Bird, Raptor and Small Mammal Sampling Site.

= Raptor = Breeding Bird = Small Mammal

5. Juniper Draw
6. Ponderosa Pine/Limber Pine
7. Deciduous Forest
8. Wetlands
    a. Reservoirs
    b. Dugouts
    c. Natural wetlands
9. Terraces
10. Upland Breaks
11. River Breaks
12. Rockland
13. Toe Slopes
14. Hilly Scoria
15. Agricultural/Disturbed
    a. Spoil Piles
    b. Retired Croplands
    c. Haylands
    d. Seeded Cropland
    e. Fallow Lands
    f. Stubble
    g. Roadsides
    h. Shelterbelts
    i. Farmsteads

Acreages and percentages of the various habitat types in the sites sampled are presented in Table 8.

SECTION 3. METHODS

3.1 Breeding Bird Surveys

Birds were surveyed primarily by making total counts on quarter-section study plots according to the methods outlined in Stewart and Kantrud (1972). Each count was made by two investigators, beginning one-half hour after sunrise. Birds were identified by both sight and sound and the respective habitat type was recorded. Attempts were made to survey the plot on each of three consecutive days. Data from other resource agencies such as the North Dakota Game and Fish Department were considered where appropriate.

Because of the large number of bird species in the project area, only data for 1976 were used for analysis. Two species, however, were recorded in 1977, but not in 1976; in these two instances, 1977 data were used for analysis.

Many schemes of describing bird abundance are in existance, but none of these are amenable to our area or survey methods. We, thus, adopted several arbitrary categories to aid in abundance classification:

Rare - 1 to 5 observations (one observation refers to a species' presence on a single quarter-section, or, in the case of raptors, its presence on a four-square mile area)

Uncommon - 6 to 15 observations

Fairly Common - 16 to 25 observations

Common - more than 25 observations

The terms "local" or "locally" were used to describe abundance when we felt a species tended to be unevenly distributed in the project area.

The quarter-section bird survey method (Stewart and Kantrud, 1972) is probably a reliable method of obtaining trend information in grassland habitats. This method, however, is not good for some species. Secretive species, such as rails and nesting upland game birds are likely to be underrated. Species in which males commonly have several mates during the breeding season are also likely to be underestimated, because, in many cases, we counted one territorial male as only one breeding pair.

3.2 Raptor Surveys

In addition to information gained on quarter-section plots, raptors (hawks and owls) were also surveyed on four-section study areas. The quarter-section bird plot was contained in the four-section raptor plot, usually in the extreme southwestern corner. Three investigators surveyed the plots, counting all raptors seen and identifying preferred habitat to the extent possible.

3.3 Mammal Surveys

Small mammals were sampled by trapping of a 2-hectare plot of relatively homogenous habitat located within the quarter-section bird plot. Trap configuration followed that established by Wrigley (1974); four hundred mousetraps were placed in 28 rows at approximately 7-meter intervals along the 200-meter boundaries. When animal sign indicated, additional rat traps and pocket gopher traps were placed on the plot. Trapping was conducted on three nights, which theoretically depleted the plot of small mammals. Voucher specimens of each species were prepared and deposited in the Vertebrate Museum, University of North Dakota.

Larger species of mammals were recorded as observed on the quarter-section breeding bird plots and on the raptor plots. In addition, Game and Fish Department data were utilized whenever feasible to determine populations of furbearers and big game.

A significant effort was expended in the census of black-tailed prairie dog towns in the project area since this includes the total known range of the species in the state. All towns recorded by the State Game and Fish Department, U.S. Forest Service and other agencies were field checked for verification. Potential towns were identified by using large scale ASCS aerial photographs and were field checked for final verification. Field teams located additional towns by interviewing local authorities and land owners. Locations and sizes of all known towns were then plotted and compiled into a comprehensive list.

Considerable effort was expended in searching for sign and verification of sightings of species classified as endangered or threatened. This involved searching prairie dog towns for black-footed ferret sign, flood lighting prairie dog towns at night, interviewing local authorities and land owners, and corresponding with observers who had reported sightings.

3.4 Amphibian and Reptile (Herptiles) Surveys

Small mammal and breeding bird plots were thoroughly examined for herptiles, and voucher specimens were collected. In addition, ranchers and local authorities were interviewed to ascertain locations of rattlesnake dens including legal description and ecological situations under which they were found. As with other vertebrates, general observations were made of amphibians and reptiles, and locations and habitats were recorded. Voucher specimens were collected as deemed necessary.

SECTION 4. RESULTS

4.1 Species Accounts

The following sections document the distribution and abundance of 226 species of terrestrial vertebrates in southwestern North Dakota. Species accounts are based upon REAP field team general observations and census, personal interview, and data generated by cooperating agencies.

In the species accounts, discussion of frequency of observations may not reflect local abundance. Some species (e.g. Sagebrush Vole) may be fairly commonly observed throughout much of the project area, but in sparse populations. Others (e.g. Yellow-rumped Warbler) may be absent or rarely observed over much of the project area, but fairly abundant where they do occur.

4.2 Amphibians and Reptiles (Herptiles)

North Dakota has a sparse fauna of amphibians and reptiles. While individual species populations may get quite high, total species diversity is low. The state's semi-arid climate provides only marginal conditions for breeding and hibernation of amphibians, while low winter temperatures and the short growing seasons appear to be primary limiting factors for reptiles (Wheeler and Wheeler, 1966). Amphibians are especially limited in the dry southwestern quarter of the state, but the relatively longer growing season there enhances survival of a more varied reptilian fauna.

Herptiles are secretive and mostly nocturnal. Since they are poikilothermic, their behavior patterns are modified from day to day depending on temperature and moisture. Consequently, these characteristics tend to complicate valid population census. In the limited time available for sampling such a large area, it was not possible to account for variabilities in the weather. Therefore, the following discussion is limited to distribution patterns and a subjective interpretation of relative abundance of 20 species of amphibians and reptiles. Herptiles have been treated on a species level, and classification and species descriptions follow Wheeler and Wheeler (1966) except where otherwise noted. The terms "rare," "uncommon," and "common" refer to numbers of observations of the species, while "sparse" and "abundant" refer to relative population densities where observed.

CLASS: Amphibia - This class comprises the salamanders, frogs and toads. Their eggs are dark-colored above, light-colored below and are enclosed in one or more transparent gelatinous envelopes which are laid in water. The eggs hatch into aquatic larvae equipped with external gills. Most larvae metamorphose into moist-skinned adults capable of terrestrial existence in moist environments.

ORDER: Caudata (Salamanders)

FAMILY: Ambystomidae - This family is distinguished by a row of teeth across the roof of the mouth. These salamanders breed in the spring and are generally found underground the rest of their lives.

Tiger Salamander (*Ambystoma tigrinum*) - The adult tiger salamander is 18-33 cm. long, variable in color, and very secretive. Food items include earthworms, insects and other small animals. Breeding in North Dakota occurs shortly before the ice melts. Its range in North America is most of the United States east of the Rocky Mountains, including all of North Dakota.

Distribution in the project area: Collection or observation sites for A. *tigrinum* were located throughout the project area (Fig. 3). These observations, together with those of Wheeler and Wheeler (1966), indicate that distribution is throughout the project area.

Habitat: The tiger salamander was observed associated with water and areas close to water. The three most common habitat types were: dugouts, true river bottoms and natural wetlands. The tiger salamander was also observed in haylands and rolling grasslands near water.

Status: We believe the tiger salamander to be abundant in areas where there is some source of water in the spring of the year, and also abundant in permanent bodies of water.

Comments: Since this animal avoids desiccation during dry spells by using animal burrows or holes, almost every part of the project area could maintain a population, provided there were moist breeding sites in the vicinity.

ORDER: Salientia (Frogs and Toads)

FAMILY: Pelobatidae - Spadefoot toads have a vertical pupil when contracted, and an inner sole tubercle which is a sharp digging spur. No cranial crests, and parotoids are indistinct or absent.

Plains Spadefoot (*Scaphiopus bombifrons*) - The adult spadefoot is a toad, 5-8 cm. in length, light gray in color, and has a duck-like voice. It eats insects and can burrow into the soil with the aid of its spur. Adults are very secretive and come out on warm wet nights to breed and feed. Breeding occurs throughout the summer. Its range is west and south of the Missouri River and east of the Rocky Mountains.

Distribution in the project area: Collections or observation sites of the Plains Spadefoot occurred throughout the project area (Fig. 4). These observations as well as those of Wheeler and Wheeler (1966) indicate that distribution is continuous throughout the project area.

Habitat: The Plains Spadefoot was found in varying habitats, but always near water. The species was observed associated with natural wetlands, haylands, true river bottoms, seeded croplands, and ponderosa pines.

Status: Our study indicates that the Spadefoot is uncommon, but may be locally abundant throughout the project area.

Comments: Spadefoot tadpoles are very carnivorous and play an important predatory role in temporary aquatic habitats.

ORDER: Salientia

FAMILY: Bufonidae - True toads that are chunky, short-legged, and warty with parotoid glands (Stebbins, 1966). Four species are found in North Dakota, with identification based upon cranial crests and ventral spots. Young toads are difficult, if not impossible, to identify.

American Toad (*Bufo americanus*) - The adult is 6-9 cm. in length, variable in color, a prolific breeder and insectivorous. Its range is basically northeastern North America.

Distribution in the project area: Two specimens were found in Sioux and Grant Counties. The toad is considered an eastern North Dakota species, and the two findings were in the eastern part of the project area (Fig. 5).

Habitat: Both specimens were found in fallow fields near water. The species prefers moist grasslands, but any area where water occurs is a potential habitat.

Status: Rare in the project area.

Comments: To the best of our knowledge, this is the first report of the American Toad west of the Missouri River in North Dakota, and represents a 100 mile range extension.

ORDER: Salientia

FAMILY: Bufonidae

Great Plains Toad (*Bufo cognatus*) - Adults are about 11.5 cm. Breeding occurs after a rain in spring or summer. Its range is the semi-arid grasslands and deserts of North America.

Distribution in the project area: Collection sites were located throughout the project area (Fig. 6). Together with the Wheeler and Wheeler (1966) observations, it appears to be distributed throughout the project area.

Habitat: We found this toad in hardwood draws (trees and brush), grassland (moderately grazed), farmsteads and deciduous forest. The remainder of our observations were along roadsides at night.

Status: Although uncommon in the project area, the species may be locally abundant.

Comments: As with many of the toads, the Great Plains Toad prevents desiccation by avoidance of the sun. Therefore, most of our collections and observations were made at night. Daytime observations were in habitats favoring a high humidity such as timber, brush, etc.

Figure 3.

TIGER SALAMANDER

(*Ambystoma tigrinum*)

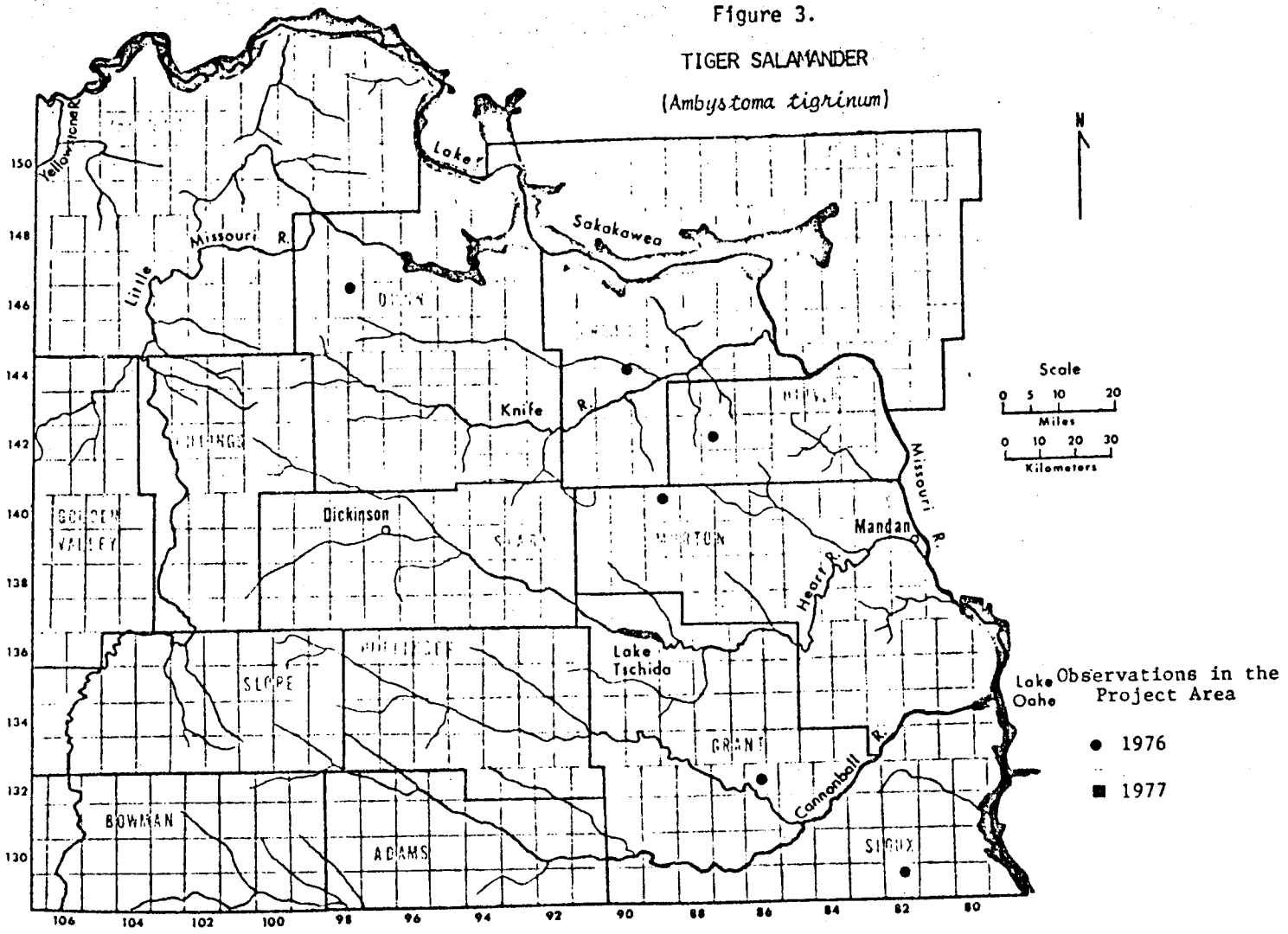


Figure 4.

PLAINS SPADEFOOT

(*Scaphiopus bombifrons*)

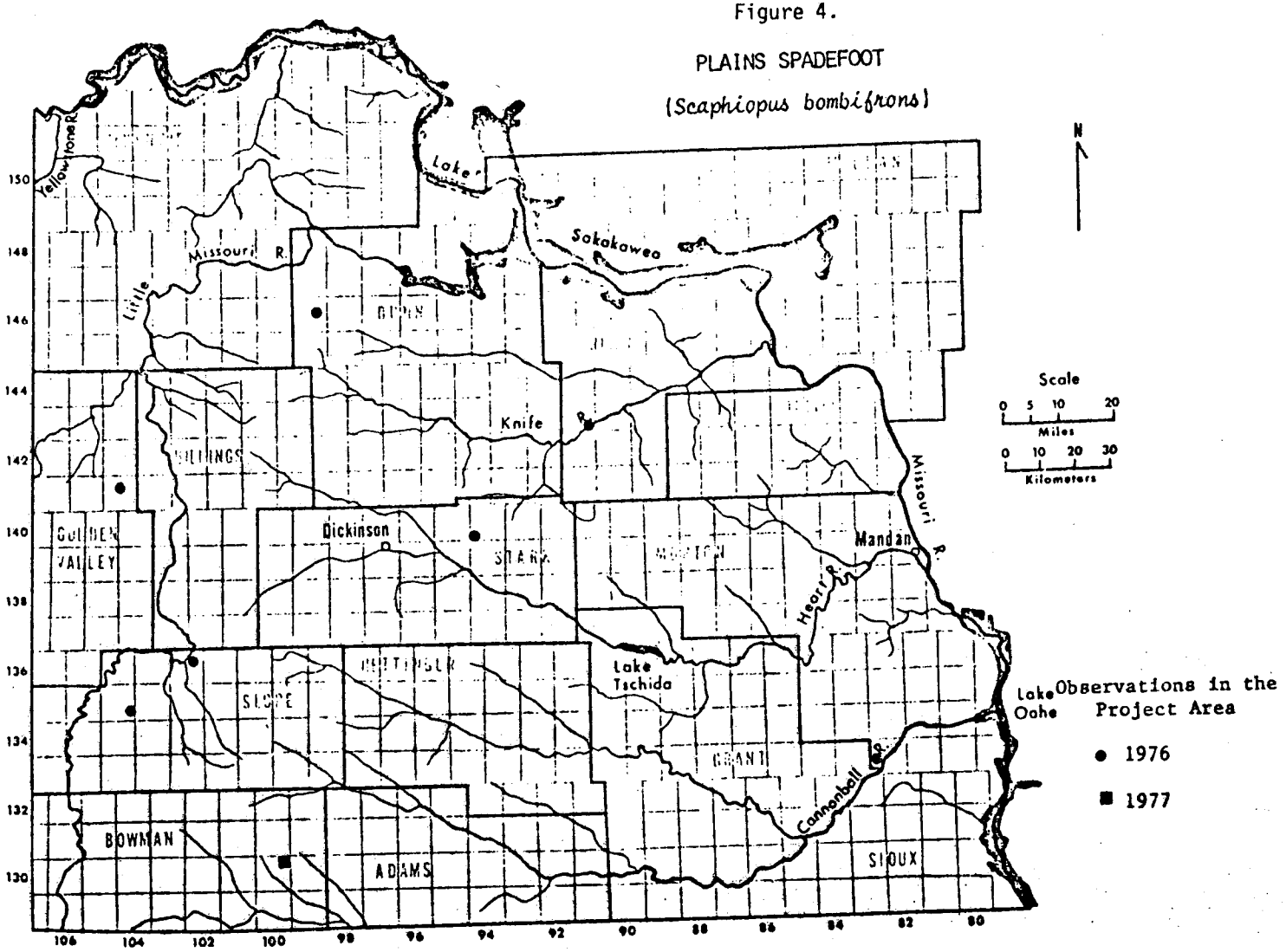


Figure 5.

AMERICAN TOAD

(*Bufo americanus*)

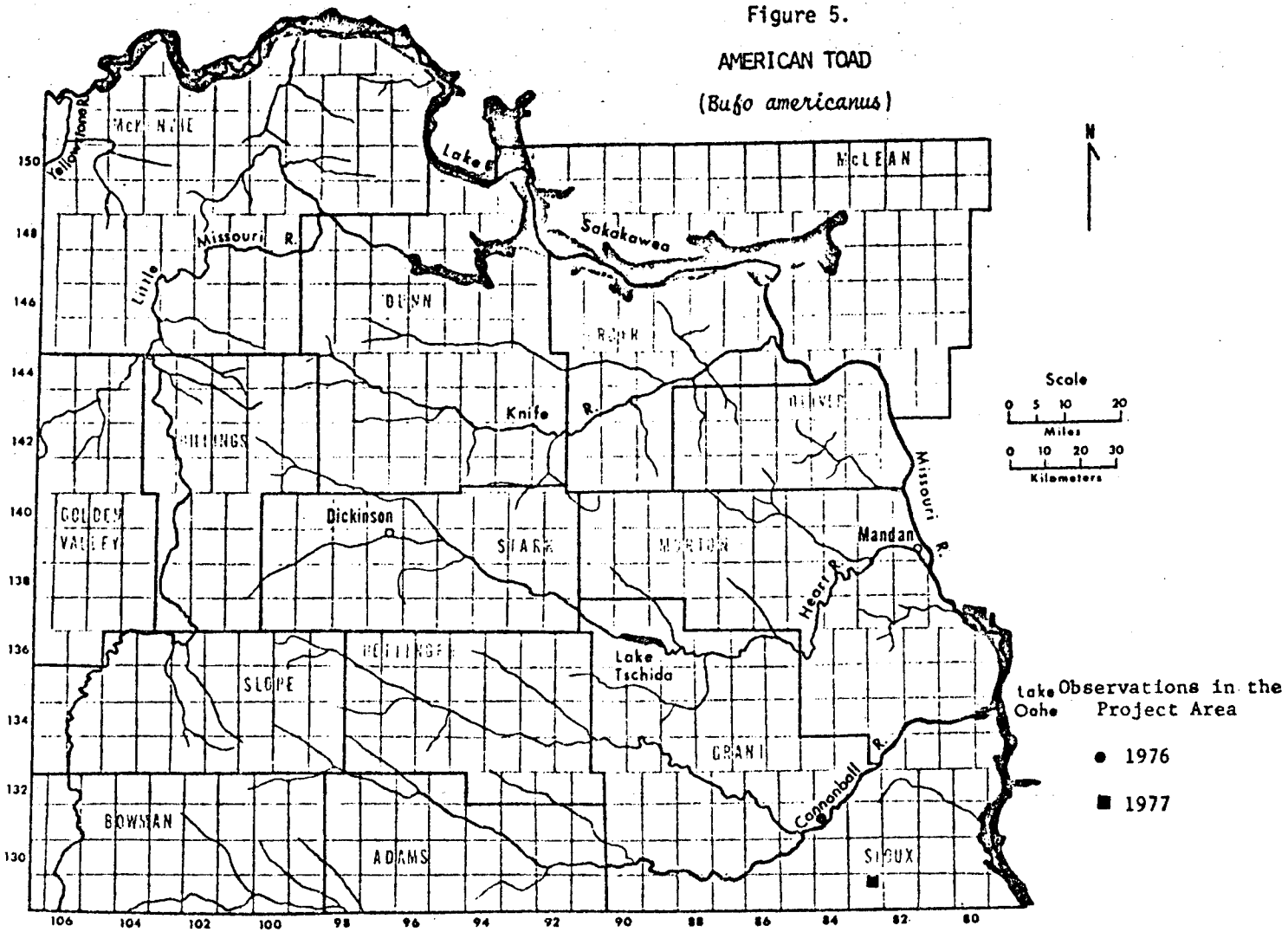
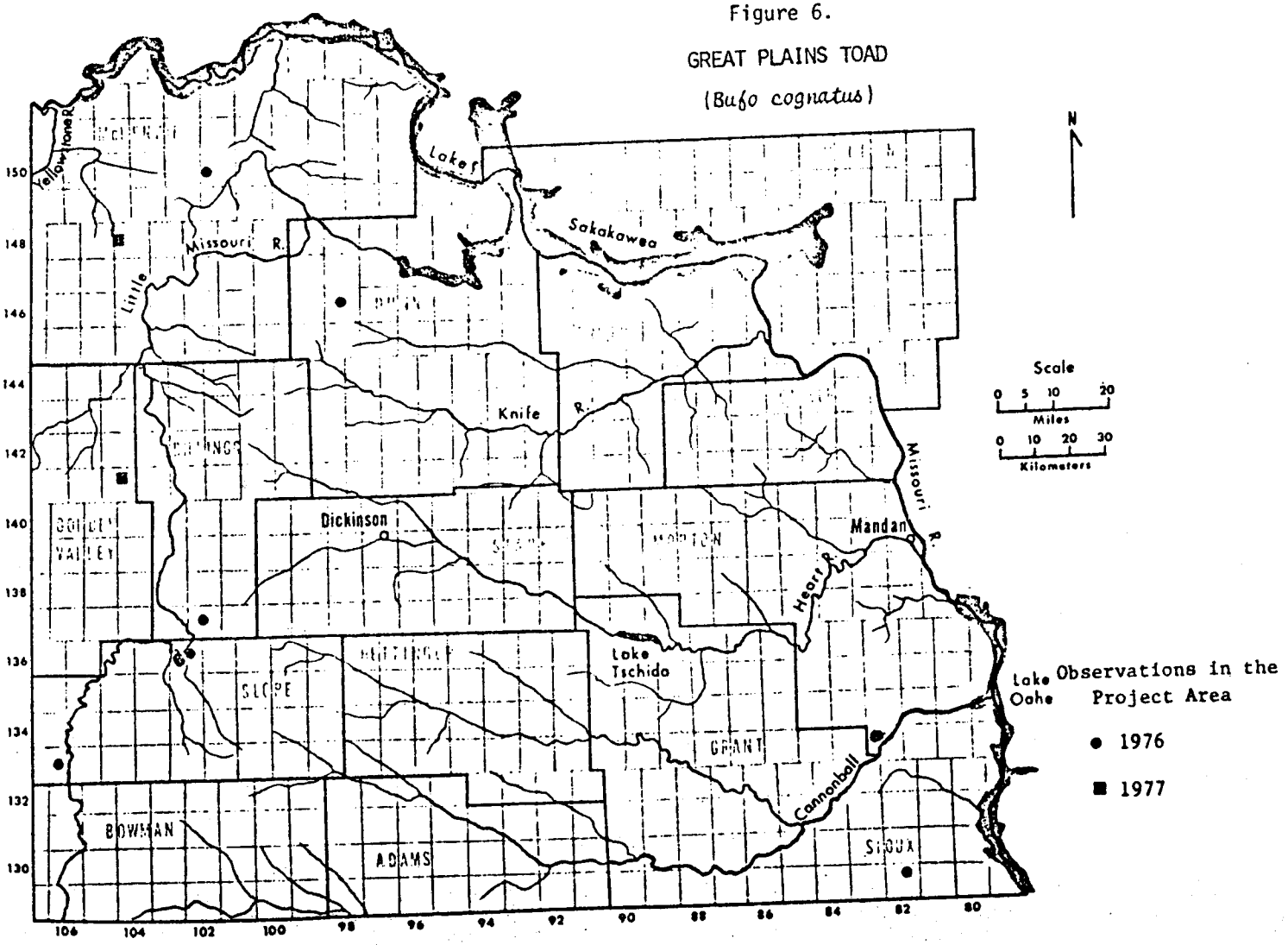


Figure 6.

GREAT PLAINS TOAD

(*Bufo cognatus*)



ORDER: Salientia

FAMILY: Bufonidae

Dakota Toad (*Bufo hemiophrys*) - This species is a small toad, 5-8- cm. in length, with habits similar to *B. americanus*. Its North American range includes eastern North Dakota to south-central Canada.

Distribution in the project area: Wheeler and Wheeler (1966) state that the species is found east of the Missouri River, but our two findings extend its range into western North Dakota (Fig. 7).

Habitat: The two observations of the Dakota Toad were in the ponderosa pines and in a true river bottom habitat along the Heart River.

Status: Rare in the project area. Our records indicate that a few individuals may follow tributaries of the Missouri River well into the southwest.

Comments: Our findings document a 175 mile range extension from that reported by Wheeler and Wheeler (1966).

ORDER: Salientia

FAMILY: Bufonidae

Rocky Mountain Toad (*Bufo woodhousei*) - Adults are large, up to 13 cm. in length. Distribution includes the southern United States east of the Rockies.

Distribution in the project area: Our observations together with those of Wheeler and Wheeler (1966) indicate that this species has a continuous distribution throughout the project area (Fig. 8).

Habitat: All locations were near water. True river bottoms, upland grassland (sagebrush flats and bottoms) and rolling grasslands (all conditions) were the most frequent habitats used.

Status: Uncommon to locally abundant in the project area.

ORDER: Salientia

FAMILY: Hylidae - A large family of slim-waisted, long-legged frogs of small size. This family is known as the tree frogs but the member we have in the project area does little climbing. Loud calling from shallow bodies of water in the spring is the best indication of their presence.

Chorus Frog (*Pseudacris nigrita*) - A slender, small (up to 3.8 cm.) frog with a very loud call for a small animal. Breeding occurs in late spring and early summer. Distirbution includes all of the United States and southern Canada east of the Rocky Mountains.

Distribution in the project area: This frog's distribution is dependent upon the availability of water. It was found throughout the project area whenever a source of water was in the vicinity (Fig. 9).

Habitat: Natural wetlands and dugouts were the primary habitat of the Chorus Frog.

Status: Uncommon throughout the project area, but locally abundant.

ORDER: Salientia

FAMILY: Ranidae - Frogs with no parotoid glands or cranial crests. The skin is smooth.

Leopard Frog (*Rana pipiens*) - A very common frog with the most extensive range of any amphibian in North America. It ranges over much of the United States and Canada east of the Rocky Mountains.

Distribution in the project area: Its range is continuous throughout the area (Fig. 10).

Habitat: Any body of water.

Status: Common and abundant throughout the project area where water is present.

CLASS: Reptilia - Reptiles have a body covering of scales, which are shed at intervals. Since there are no skin glands, the body is never slimy. They do not pass through an aquatic stage in their development, and the young resemble the parents at birth or hatching.

ORDER: Chelonia (Turtles)

FAMILY: Chelydridae - There are only two species in this family, one of which occurs in North Dakota. Members are freshwater turtles with hooked jaws, long tails, and a small plastron (less than half the width of the carapace).

Snapping Turtle (*Chelydra serpentina*) - A turtle that seems too large for its shell. The carapace is black or brown and usually covered with algae. A very aggressive turtle, it is carnivorous, and will hang on with a "bulldog-like" tendency with its powerful jaws. It ranges from the Rocky Mountains to the Atlantic Ocean.

Distribution in the project area: Our data (Fig. 11) combined with Wheeler and Wheeler (1966) indicate that distribution is continuous in the project area.

Habitat: Any permanent stream or lake.

Status: Although rarely observed, it is abundant in permanent bodies of water.

Figure 7.

DAKOTA TOAD

(*Bufo hemiophrys*)

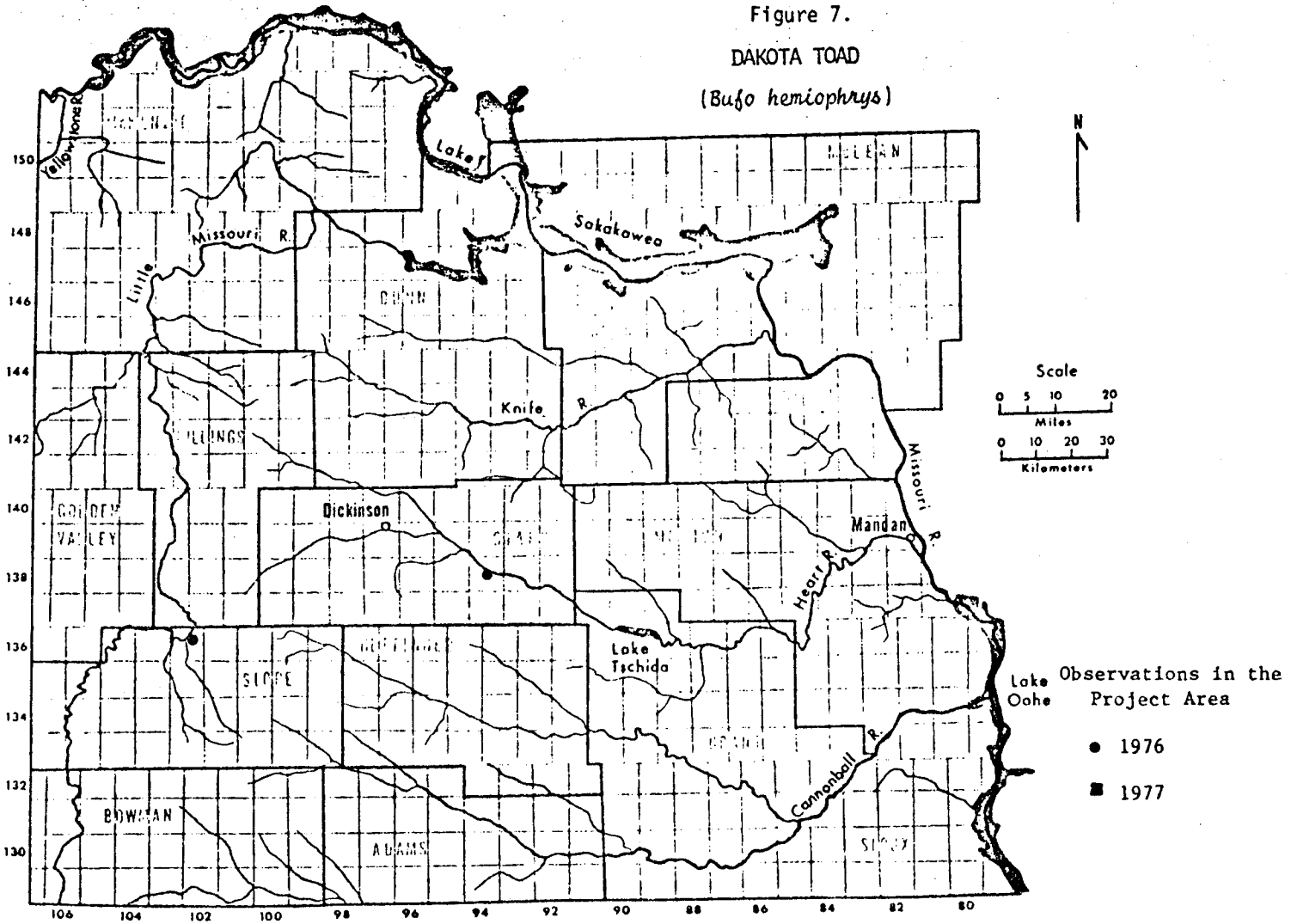


Figure 8.

ROCKY MOUNTAIN TOAD

(*Bufo woodhousei*)

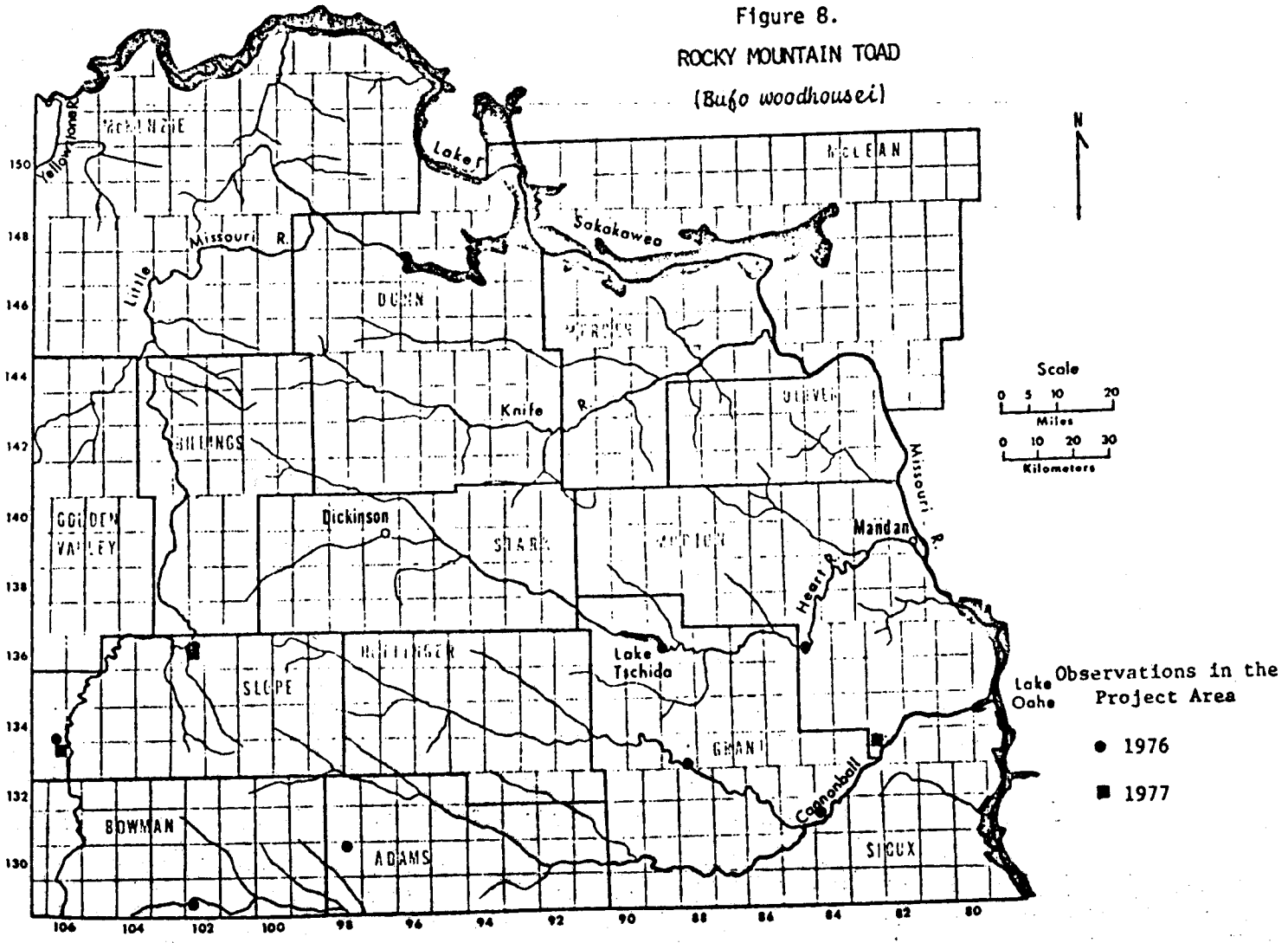


Figure 9.

CHORUS FROG

(Pseudacris nigrita)

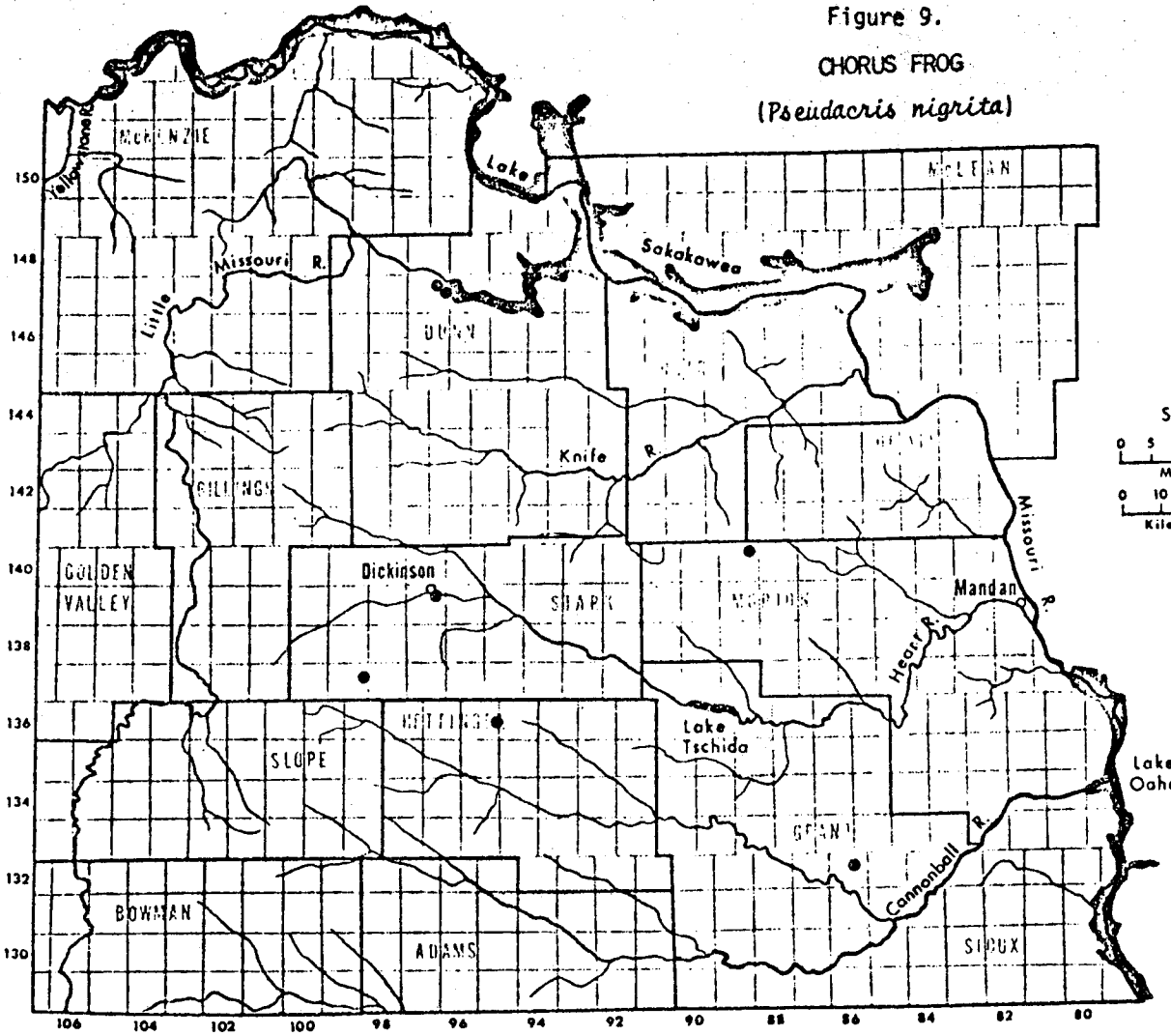


Figure 10.

LEOPARD FROG

(*Rana pipiens*)

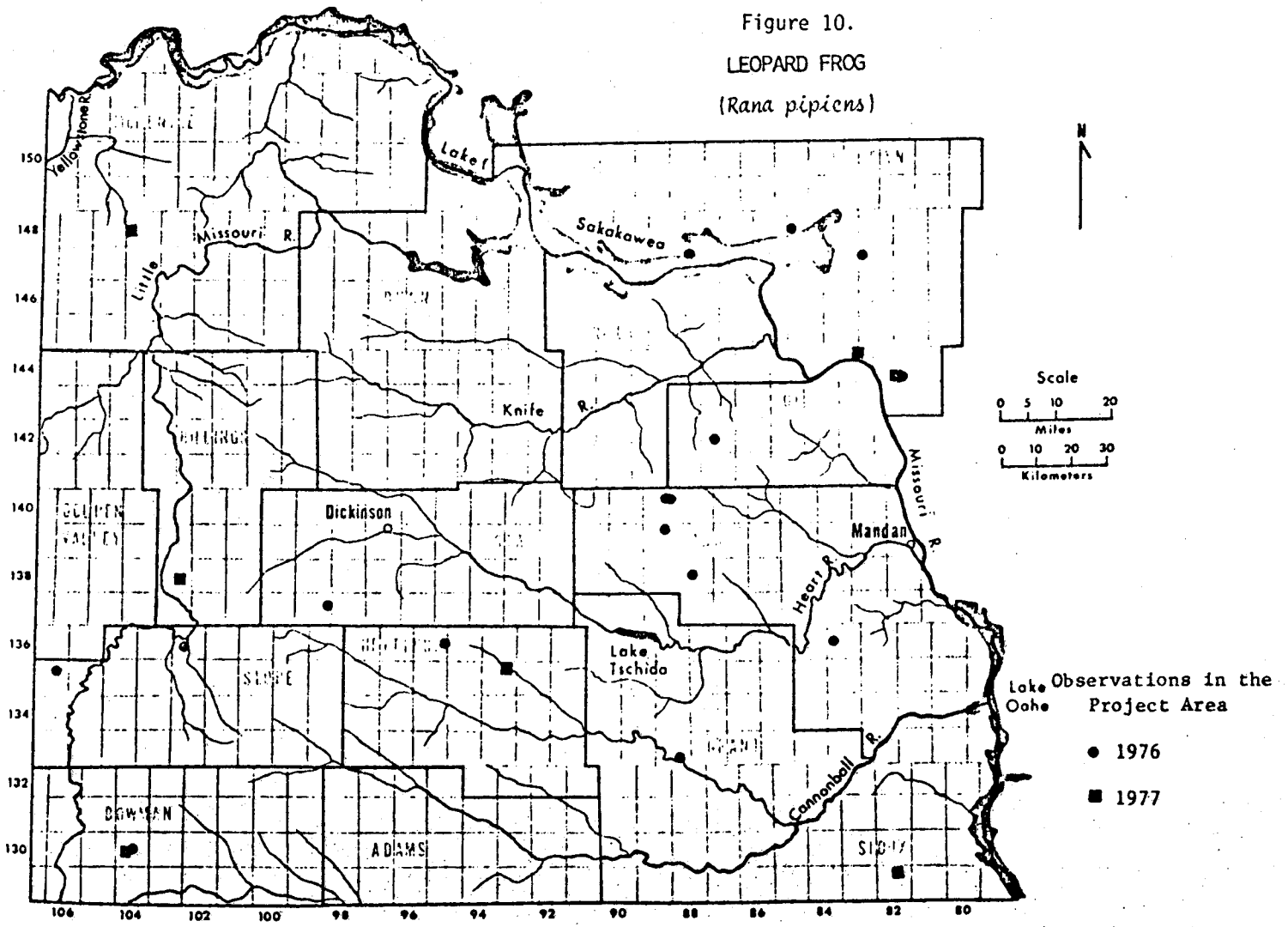
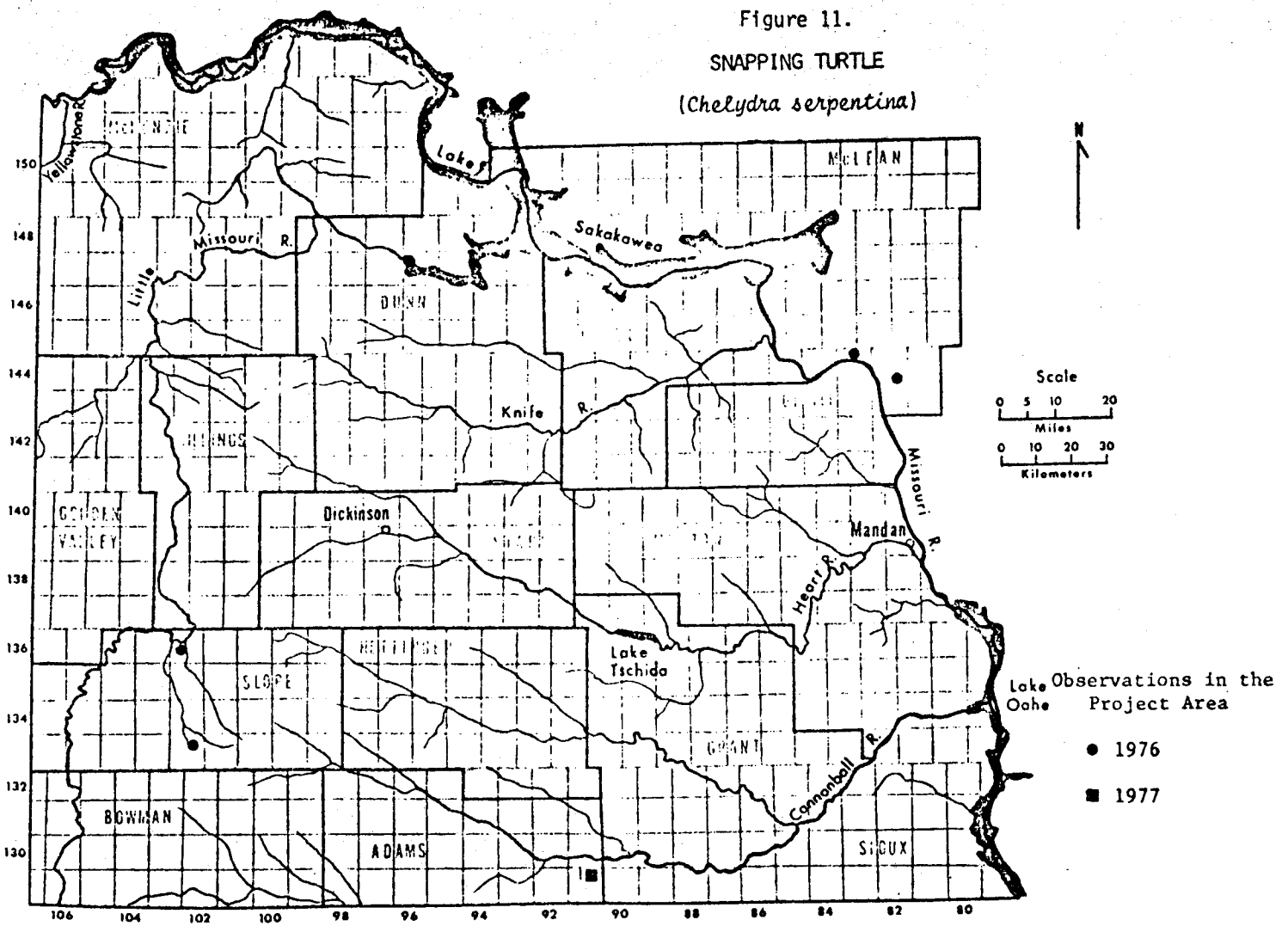


Figure 11.

SNAPPING TURTLE

(*Chelydra serpentina*)



ORDER: Chelonia

FAMILY: Emydidae - Turtles that are both aquatic and terrestrial. The carapace is covered with horny scutes.

Painted Turtle (*Chrysemys picta*) - An aquatic turtle that frequents quiet aquatic habitats; often seen sunning on banks, logs, or rocks. It is omnivorous. Mating occurs in the spring and fall. In early summer the female lays her eggs in a soil nest. Range is western Ontario and Missouri westward.

Distribution in the project area: It is found throughout the project area (Fig. 12).

Habitat: Quiet pools or streams.

Status: It is common and abundant in the project area.

ORDER: Chelonia

FAMILY: Trionychidae - Members of this family have a soft leathery carapace without scutes. These soft-shelled turtles are aquatic and are powerful swimmers.

Smooth Soft-shelled Turtle (*Trionyx muticus*) - The carapace is dark green and the belly white. Typically a river turtle, it never ventures far from water. Its shell is leathery and its range is the Midwest.

Distribution in the project area: The only observation was on the north branch of the Little Heart River. Wheeler and Wheeler (1966) report another siting farther south on the Missouri River. It is probably restricted to the Missouri River and the mouths of its tributaries (Fig. 13).

Habitat: Large rivers.

Status: Rare and sparse in the project area.

ORDER: Squamata (Lizards and Snakes)

FAMILY: Iguanidae - Lizards with a thick and non-protrusible tongue, small scales of unequal size and a usually visible parietal eye.

Sagebrush Lizard (*Sceloporus graciosus*) - This species is a ground dweller and when disturbed, retreats to bushes and crevices. Its length is 5-8 cm. from snout to anus, with a tail of 8-10 cm. Its range is limited to the Rocky Mountains and foothills.

Distribution in the project area: Wheeler (1954) reported one specimen collected in 1953 in the north unit of Theodore Roosevelt National Park. We observed it there, as well as farther south in Slope County (Fig. 14). This species probably occurs all along the Little Missouri breaks (badlands).

Habitat: It was found in the upland breaks.

Status: Rarely observed and sparse where found.

Comments: Our records are the first reported for the species in nearly 25 years. However, it is very secretive and probably more common than existing records would indicate. We believe that the species is distributed in upland breaks all along the Little Missouri River.

ORDER: Squamata

FAMILY: Iguanidae

Short-horned Lizard (*Phrynosoma douglassi*) - A light gray lizard, often mistakenly called a toad. Its color pattern resembles lichens and the ground where it is found, making it very difficult to detect this well-camouflaged species. Its range is about the same as that of the Sagebrush Lizard.

Distribution in the project area: Its distribution is along the Little Missouri River with an isolated pocket found in the Little Knife River breaks (Fig. 15). Wheeler and Wheeler (1966) show similar locations with some animals found along a few of the tributaries west of the Little Missouri.

Habitat: It was observed on upland breaks.

Status: Rarely observed, but locally abundant in the project area.

Comments: More common than the Sagebrush Lizard, but found in basically the same habitats.

ORDER: Serpentes (Snakes)

FAMILY: Colubridae - This family of snakes is worldwide in distribution. Head plates are large and the teeth may be solid or grooved toward the back of the jaw. Pupils are round.

Plains Garter Snake (*Thamnophis radix*) - A very common snake in North Dakota. Color is dark brown to black, with three longitudinal orange to yellow stripes. Size varies with age but 100 cm. is not uncommon. Food consists of frogs, insects, fish and tadpoles. It overwinters in ant mounds and occasionally with rattlesnakes.

Distribution in the project area: Garter snakes are prevalent throughout the project area (Fig. 16).

Habitat: Most of the observations were made close to aquatic habitats. Almost all habitats were found to have *T. radix* present.

Status: Frequently observed and locally abundant in the project area.

Comments: Frogs make up a large part of this animal's diet; therefore, it was found most commonly in or near aquatic habitats.

Figure 12.

PAINTED TURTLE

(*Chrysemys picta*)

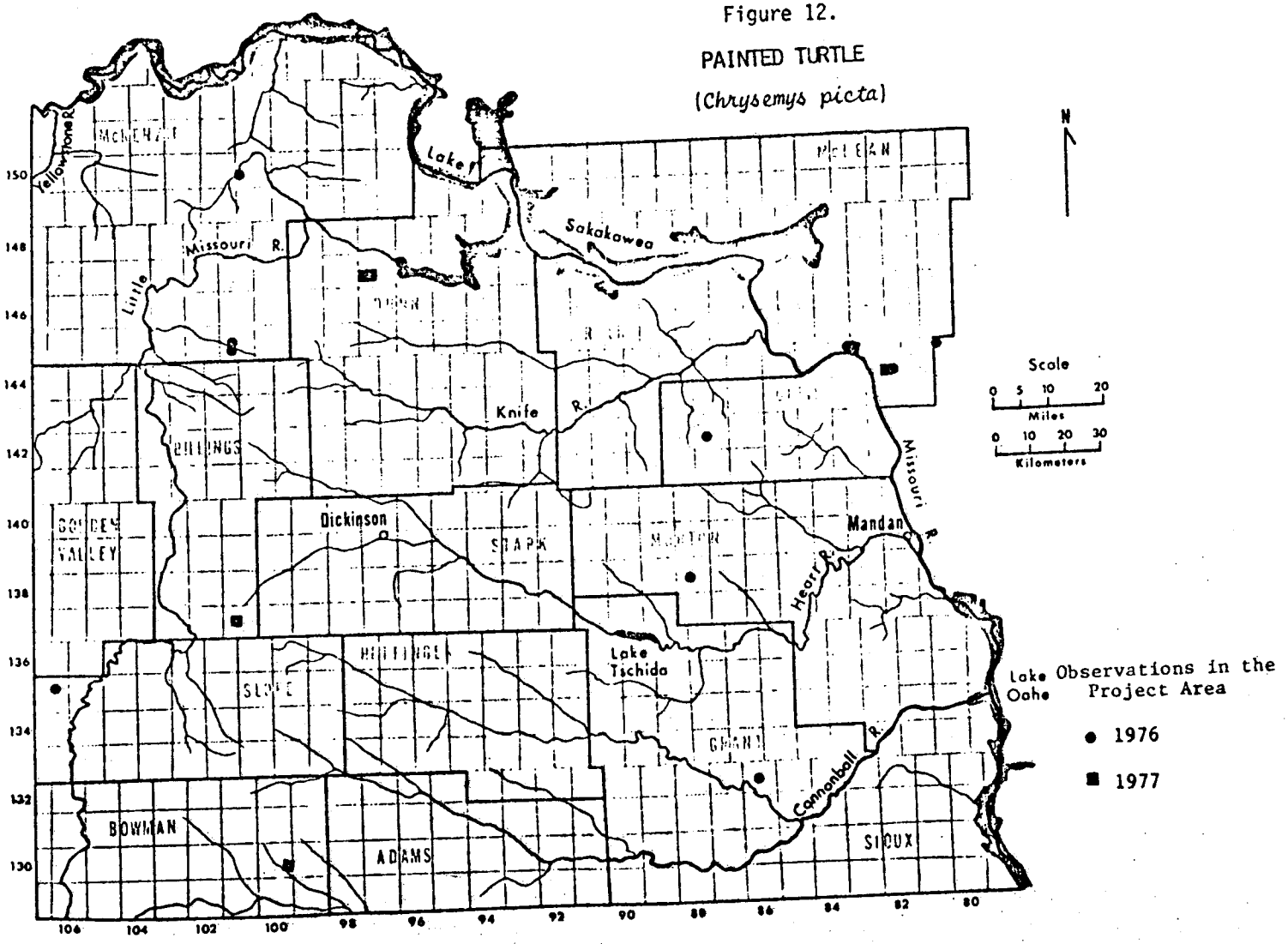


Figure 13.

SMOOTH SOFT-SHELLED TURTLE

(*Trionyx muticus*)

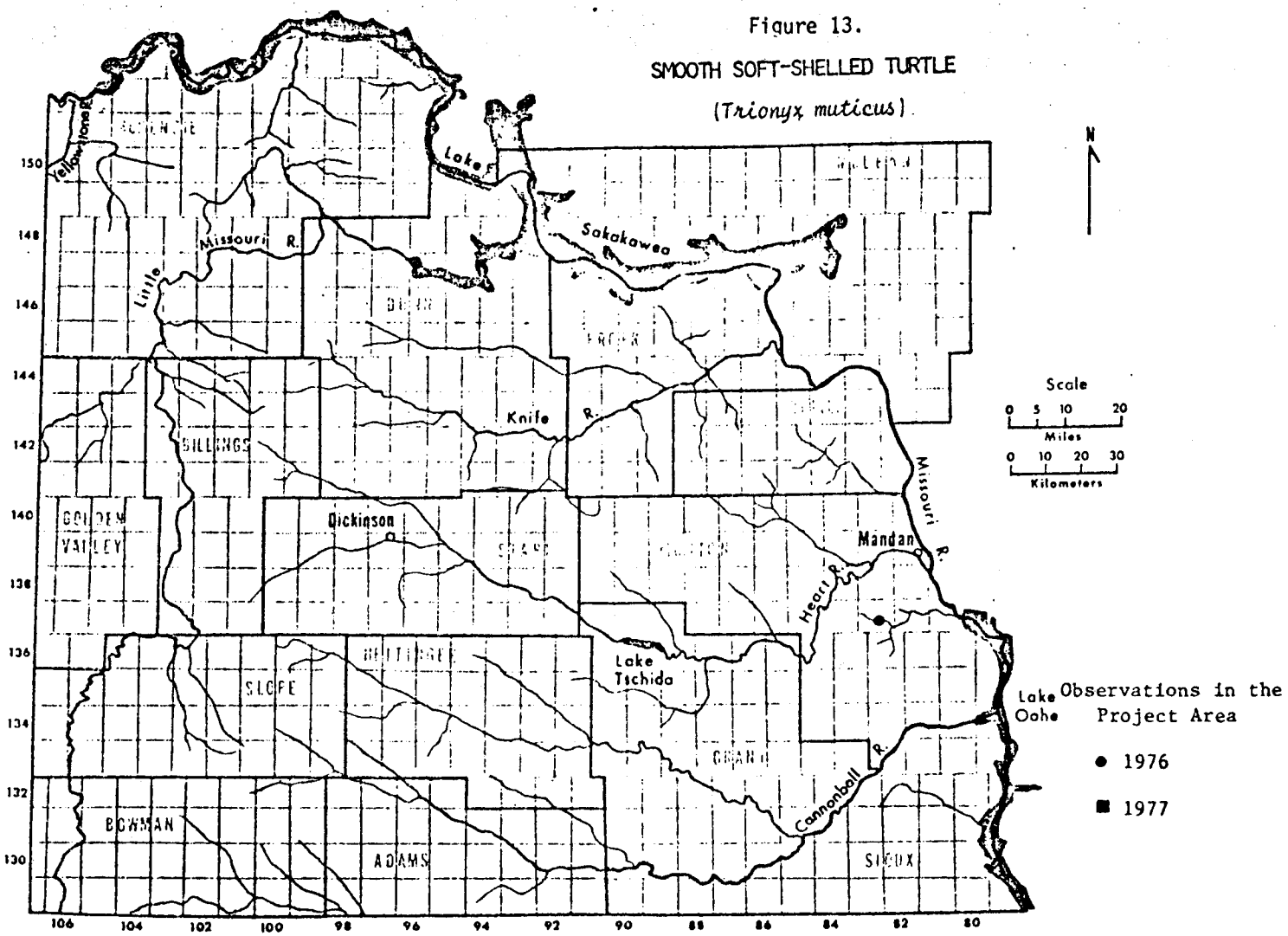


Figure 14.

SAGEBRUSH LIZARD

(*Sceloporus graciosus*)

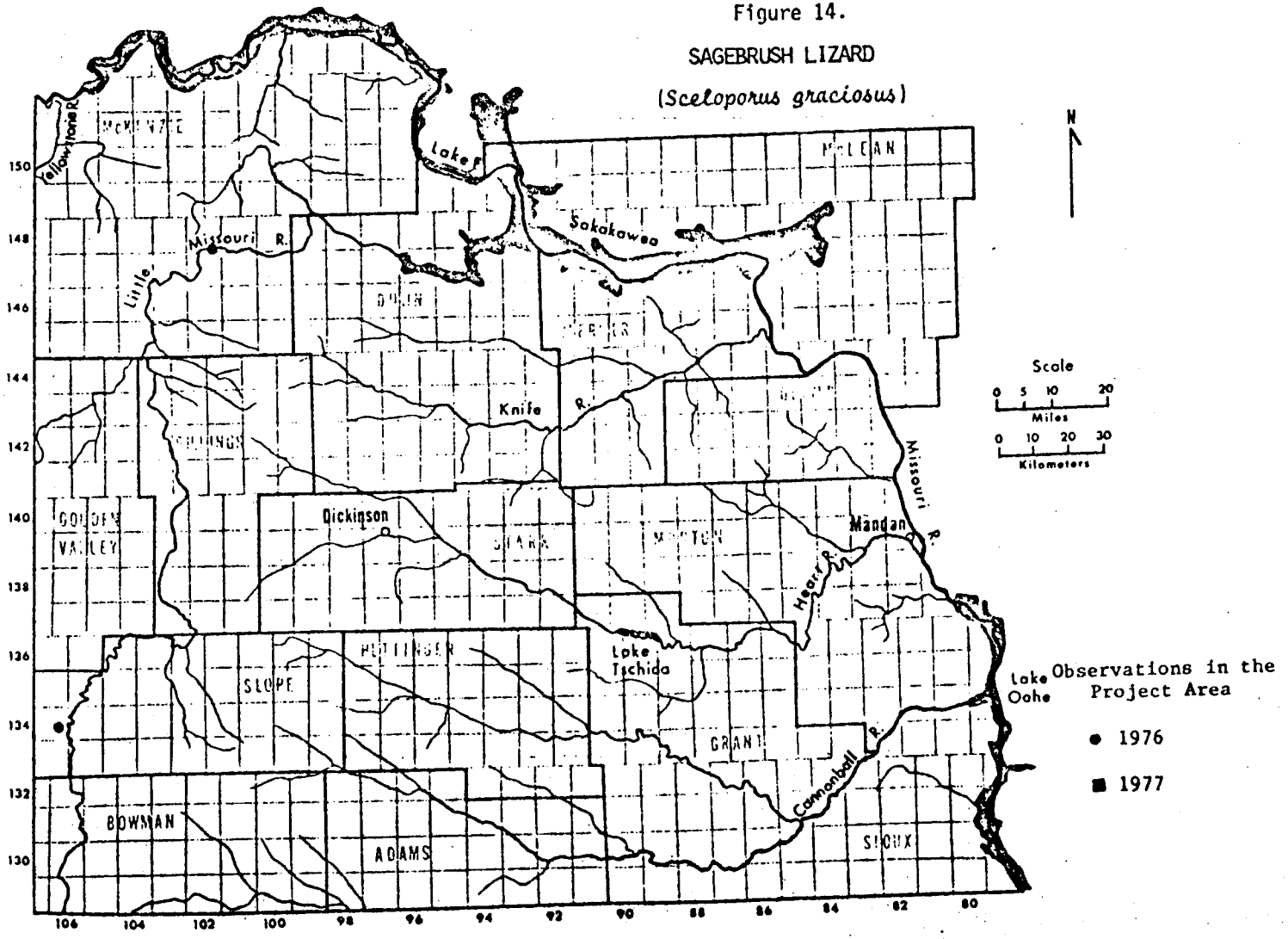
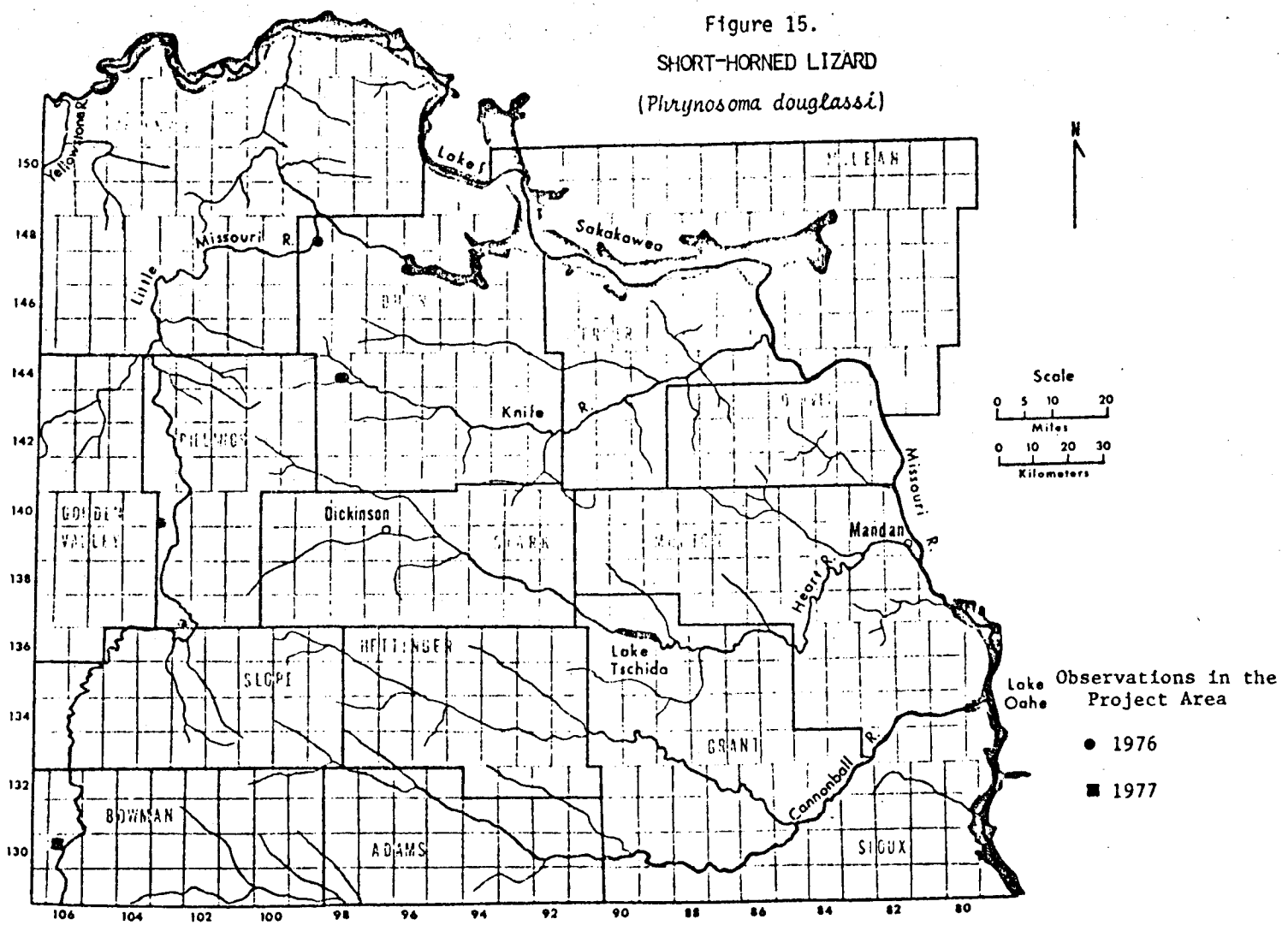


Figure 15.

SHORT-HORNED LIZARD

(*Phrynosoma douglassi*)



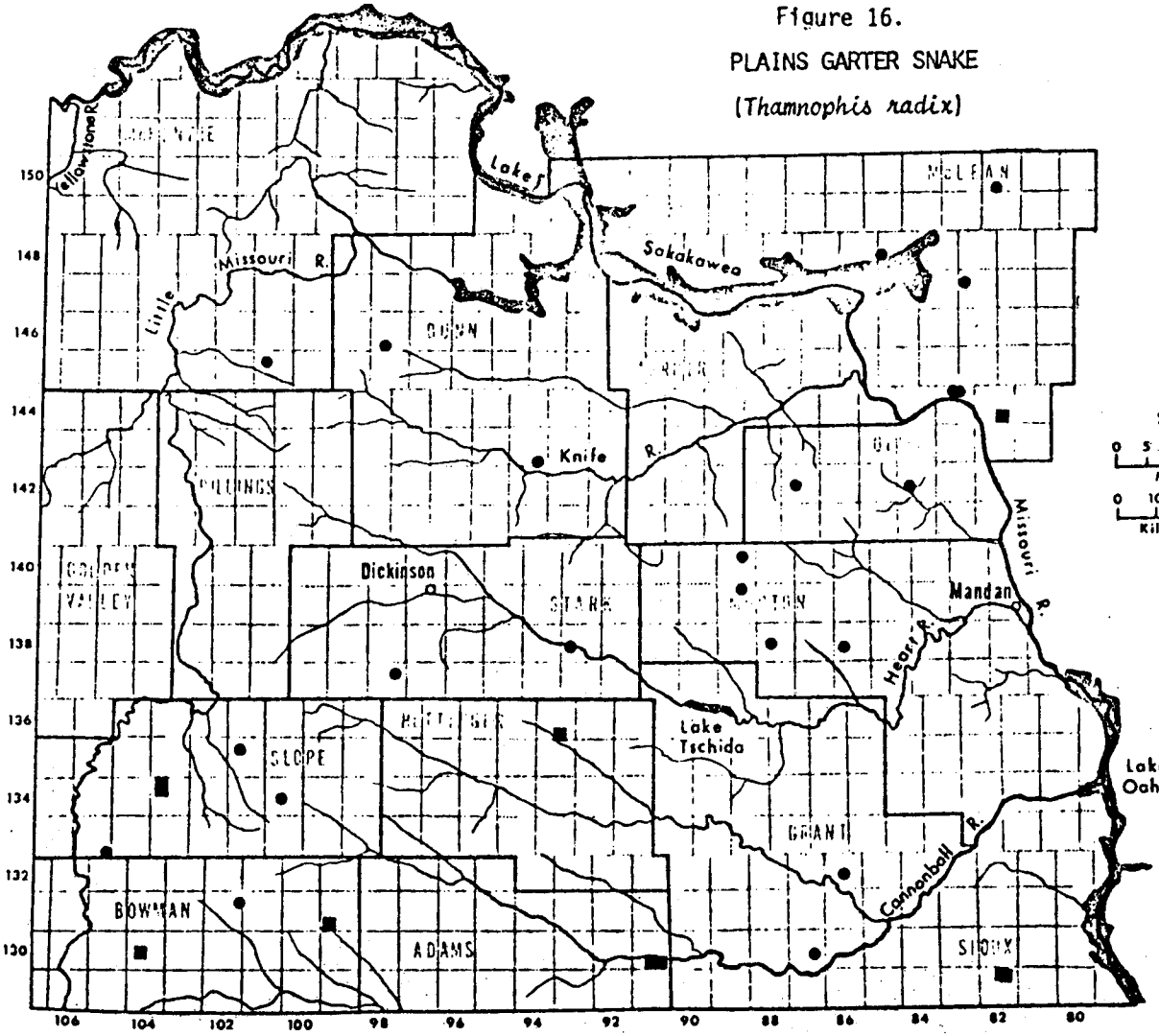
Observations in the Project Area

- ● 1976
- ■ 1977

Figure 16.

PLAINS GARTER SNAKE

(*Thamnophis radix*)



ORDER: Serpentes

FAMILY: Colubridae

Red-sided Garter Snake (*Thamnophis sirtalis*) - It is similar in appearance and habits to the Plains Garter Snake. Its range includes all of the United States and southern Canada.

Distribution in the project area: The Red-sided Garter Snake has been observed irregularly in the project area (Fig. 17).

Habitat: Any habitat near water.

Status: Rarely observed throughout the project area and probably sparse.

Comments: Our records indicate a significant range extension west of the Missouri River from that reported by Wheeler and Wheeler (1966). We feel that this species may be more prevalent than records indicate, but in the field it is easily confused with the Plains Garter Snake.

ORDER: Serpentes

FAMILY: Colubridae

Western Hog-nosed Snake (*Heterodon nasicus*) - This snake has many pseudonyms (generally some adjective followed by "adder"). It is often confused with the Prairie Rattlesnake but is different in many ways. The upturned snout is used for burrowing. Its food is frogs, insects, and other invertebrates. When threatened a hog-nosed snake will puff up, hiss, strike, and play dead. Its distribution is in the central United States.

Distribution in the project area: It was found throughout the project area (Fig. 18).

Habitat: Found mostly in cropland and rolling grassland, but also in other habitats.

Status: Uncommon throughout the project area and sparse where found.

ORDER: Serpentes

FAMILY: Colubridae

Racer (*Coluber constrictor*) - Racers, also called Blue Racers, are slender blue-green snakes with a yellow belly. Large adult snakes may reach 1.2 meters in length. Racers are fast crawlers, as their name would imply, and can climb bushes and small trees. They eat frogs, small mammals, eggs and probably insects. Distribution is throughout central United States.

Distribution in the project area: It was found throughout the area except portions of McLean County (Fig. 19).

Habitat: Found in all habitats throughout the project area.

Status: Especially common in the badlands and found throughout the area in abundance.

ORDER: Serpentes

FAMILY: Colubridae

Smooth Green Snake (*Opheodrys vernalis*) - A very slender, bright green snake. Adults rarely get longer than 61 cm. The smooth green snake feeds on insects and invertebrates. Its distribution is the northeastern United States including all of North Dakota.

Distribution in the project area: Our data indicate that its distribution is the eastern part of the project area (Fig. 20). Wheeler and Wheeler's (1966) records show the same pattern.

Habitat: Rolling grasslands and tree stands.

Status: Uncommon and sparse in the project area.

Comments: Extensive work by the authors in western North Dakota supports the contention that the species is indeed rare in the western portion of the project area.

ORDER: Serpentes

FAMILY: Colubridae

Bull Snake (*Pituophis melanoleucus*) - Bull Snakes are the largest snakes found in the United States, and may reach 2.1 meters in length. Food consists of small rodents which they kill by constriction and then swallow whole. Distribution is in the western United States with pockets in the east and southeast.

Distribution in the project area: It is distributed throughout the project area except in those areas of McLean County away from the Missouri River (Fig. 21). Distribution is basically along the river breaks, but populations also exist away from such areas.

Habitat: All habitats are utilized.

Status: Common and locally abundant in the project area.

ORDER: Serpentes

FAMILY: Crotalidae - The common name of this family, pit vipers, is derived from the family characteristic of two depressions of "pits" on each side of the head between the nostril and eye. The pits are heat sensitive and thus aid in locating prey. Members of this family have fangs and are poisonous.

Prairie Rattlesnake (*Crotalus viridis*) - In North Dakota the color of the Prairie Rattlesnake varies from light green to dark brown. Size varies with age, but 1.5 meter snakes are not uncommon. Prairie Rattlesnakes overwinter in dens in aggregates of varying numbers. Generally these dens are "traditional," i.e. they are used year after year. Distribution is in the western United States.

Distribution in the project area: Distribution is generally restricted to river breaks and upland breaks in the project area. However, other areas some distance from the breaks also contain populations (Fig. 22).

Habitat: Depending upon the time of year, various habitats are utilized. Grasslands (all types), hardwood and juniper draws, river bottoms and upland breaks are the most common habitats used in the summer.

Status: Locally common in fall through spring; sparse in the summer.

Comments: Since this animal dens up in the winter and disperses in the summer, population densities vary seasonally. Townships having known rattlesnake dens are generally in the vicinity of major river systems in the project area (Fig. 23). Den site availability seems to be the limiting factor in rattlesnake distribution. Generally speaking, dens are located in areas where exposed rock is found, and this area corresponds to the general distribution patterns shown in Fig 23 (McKenna, unpublished).

Figure 17.

RED-SIDED GARTER SNAKE

(*Thamnophis sirtalis*)

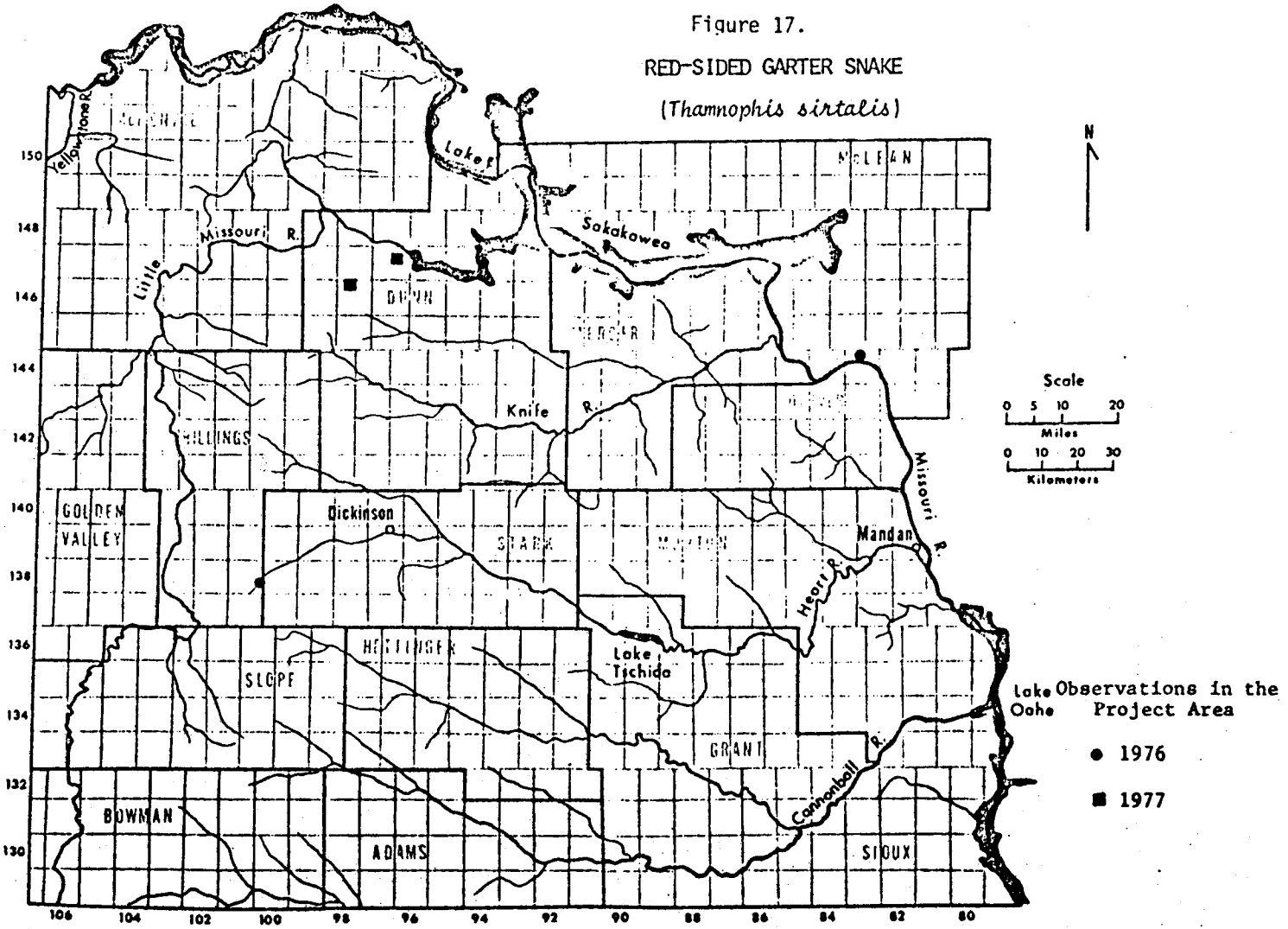


Figure 18.

WESTERN HOG-NOSED SNAKE

(*Heterodon nasicus*)

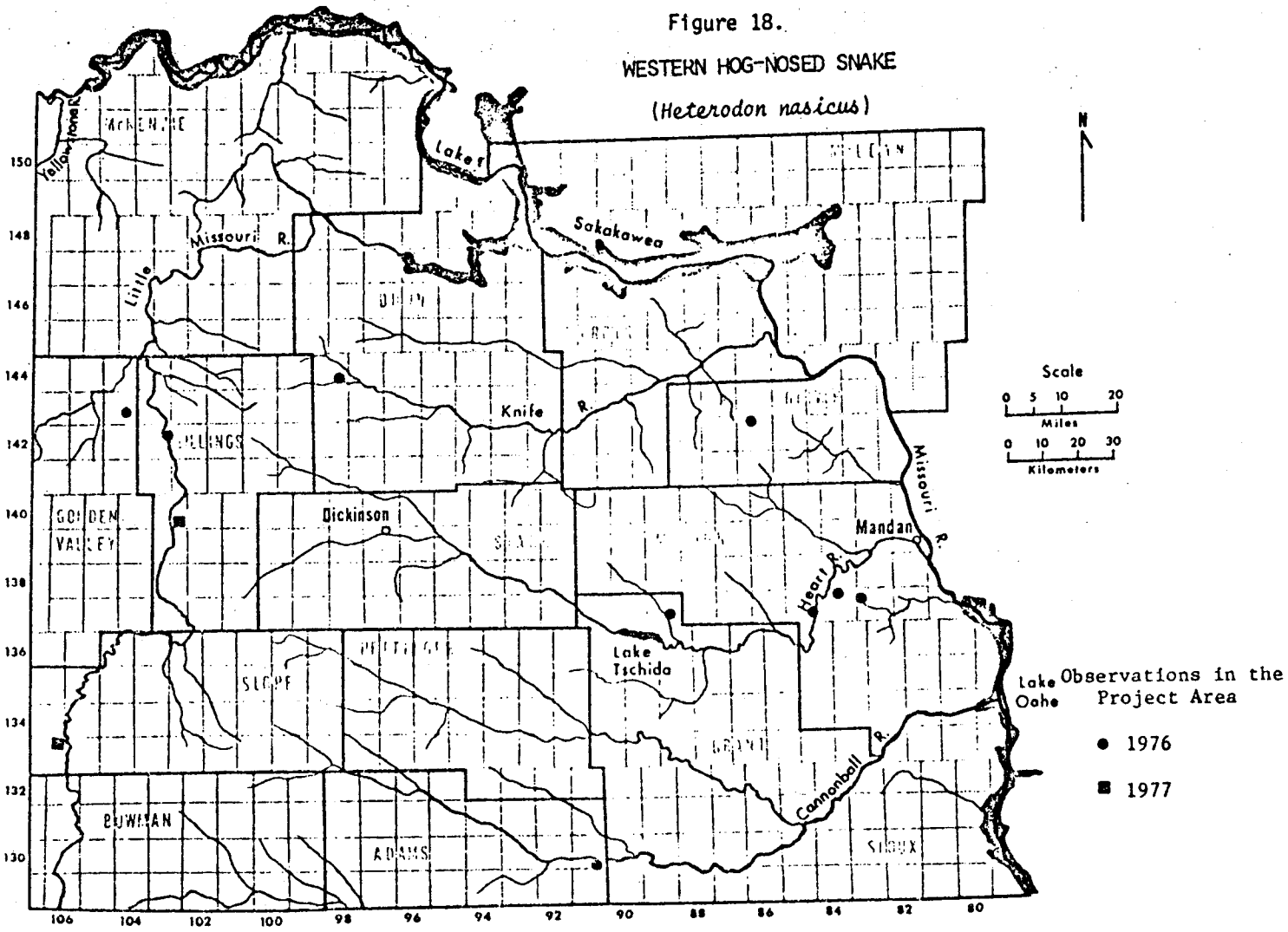


Figure 19.

BLUE RACER

(Coluber constrictor)

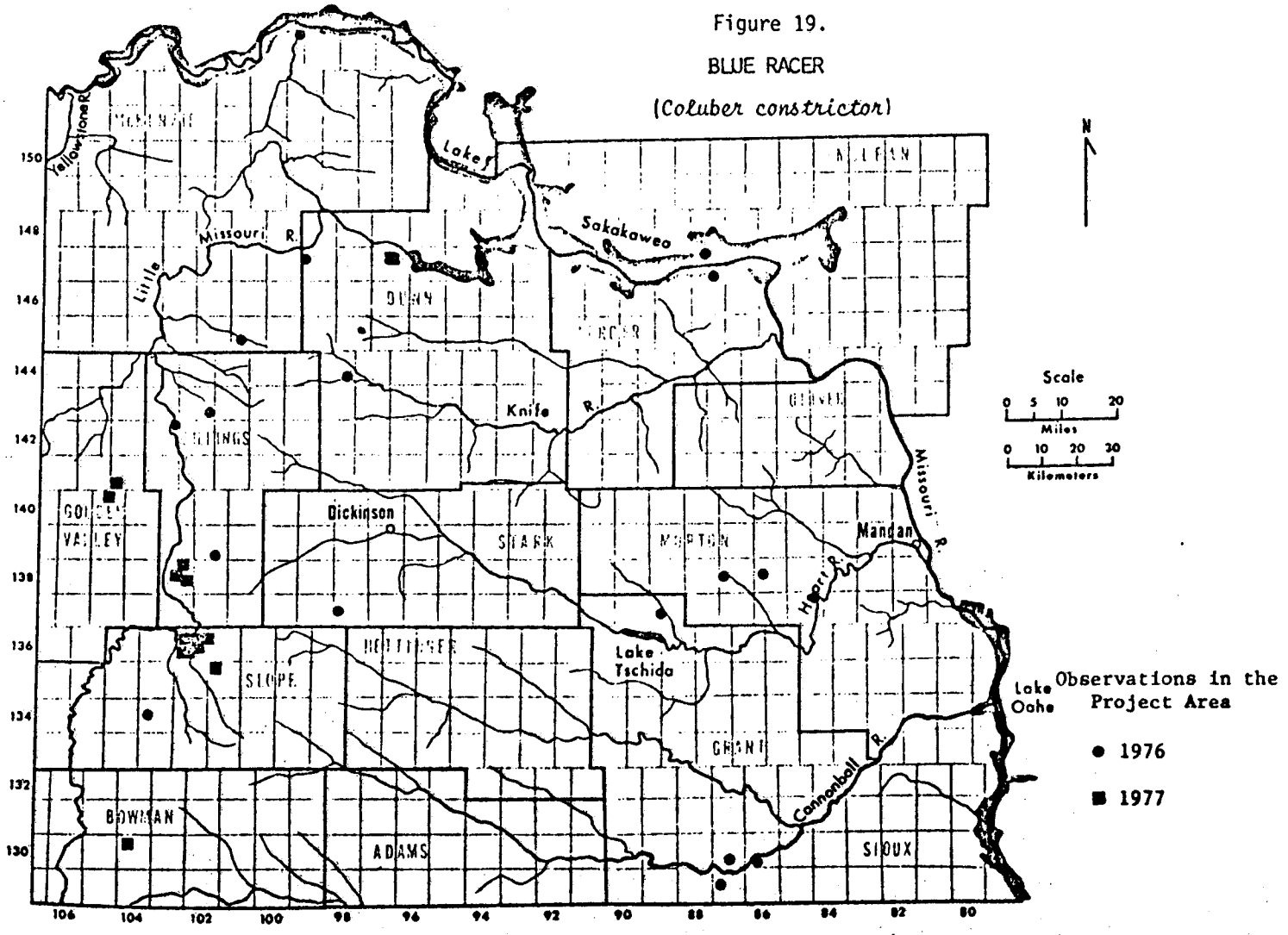


Figure 20.

SMOOTH GREEN SNAKE

(*Opheodrys vernalis*)

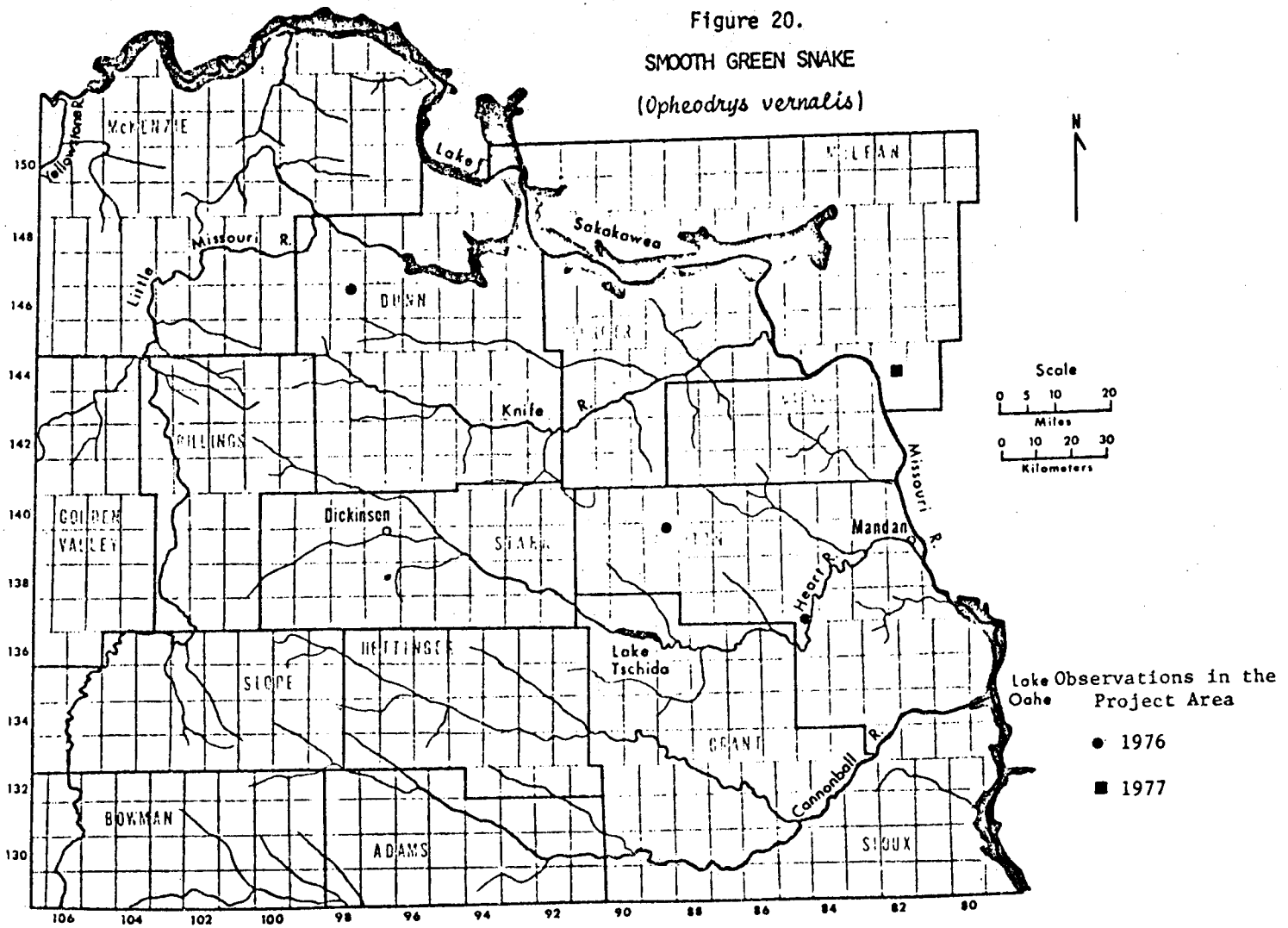


Figure 21.

BULL SNAKE

(*Pituophis melanoleucus*)

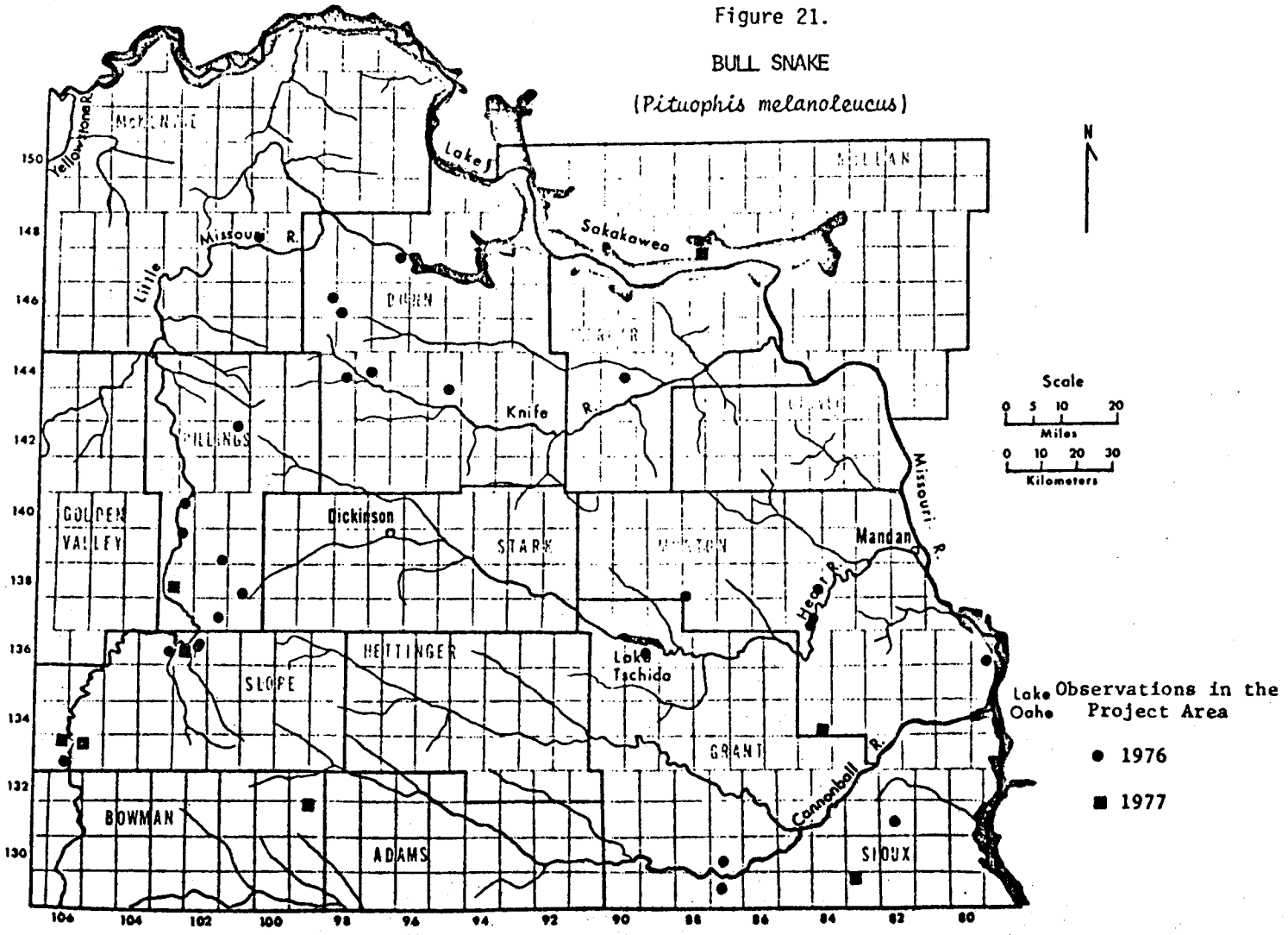


Figure 22.

PRAIRIE RATTLESNAKE

(*Crotalus viridis*)

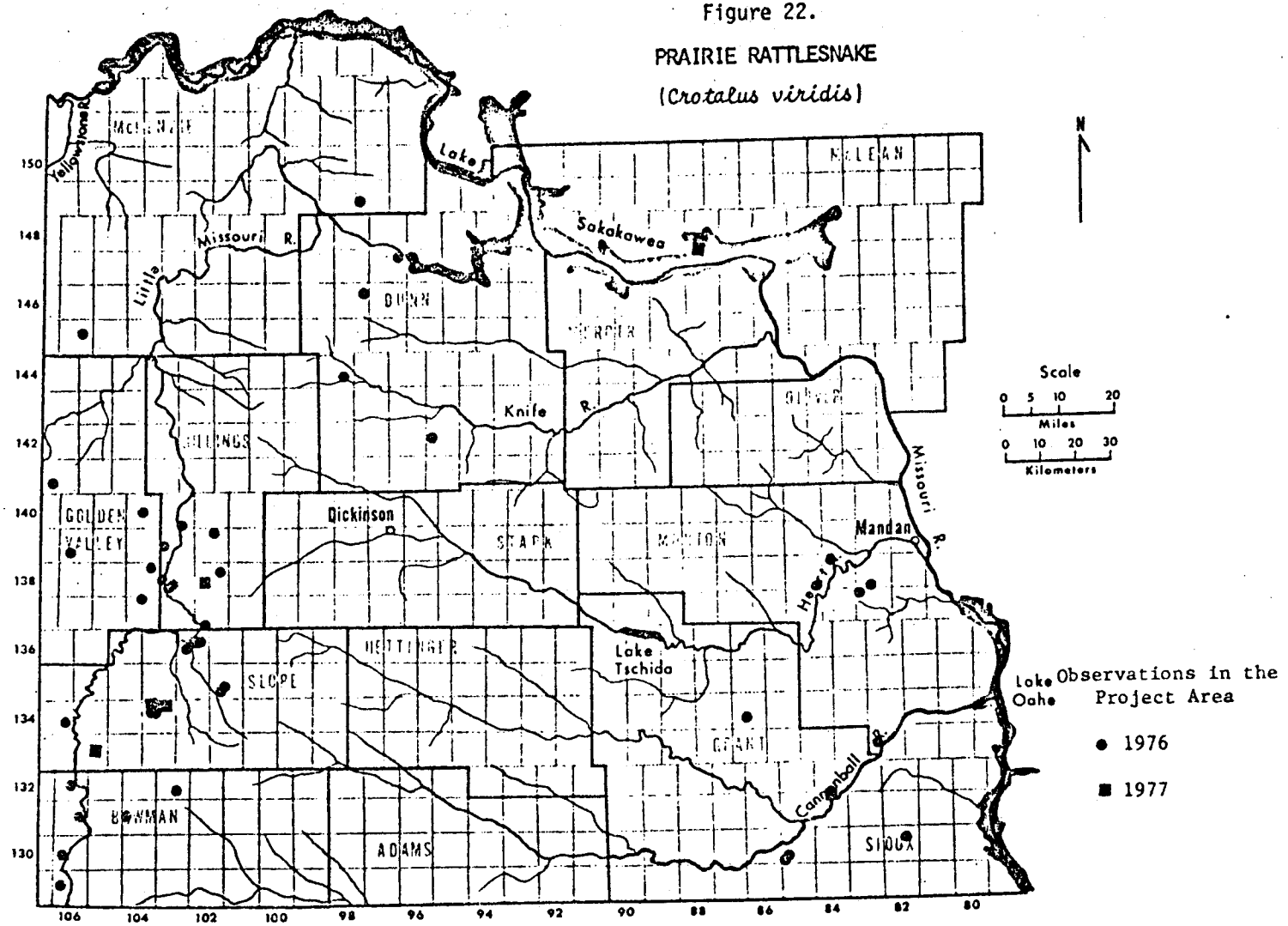
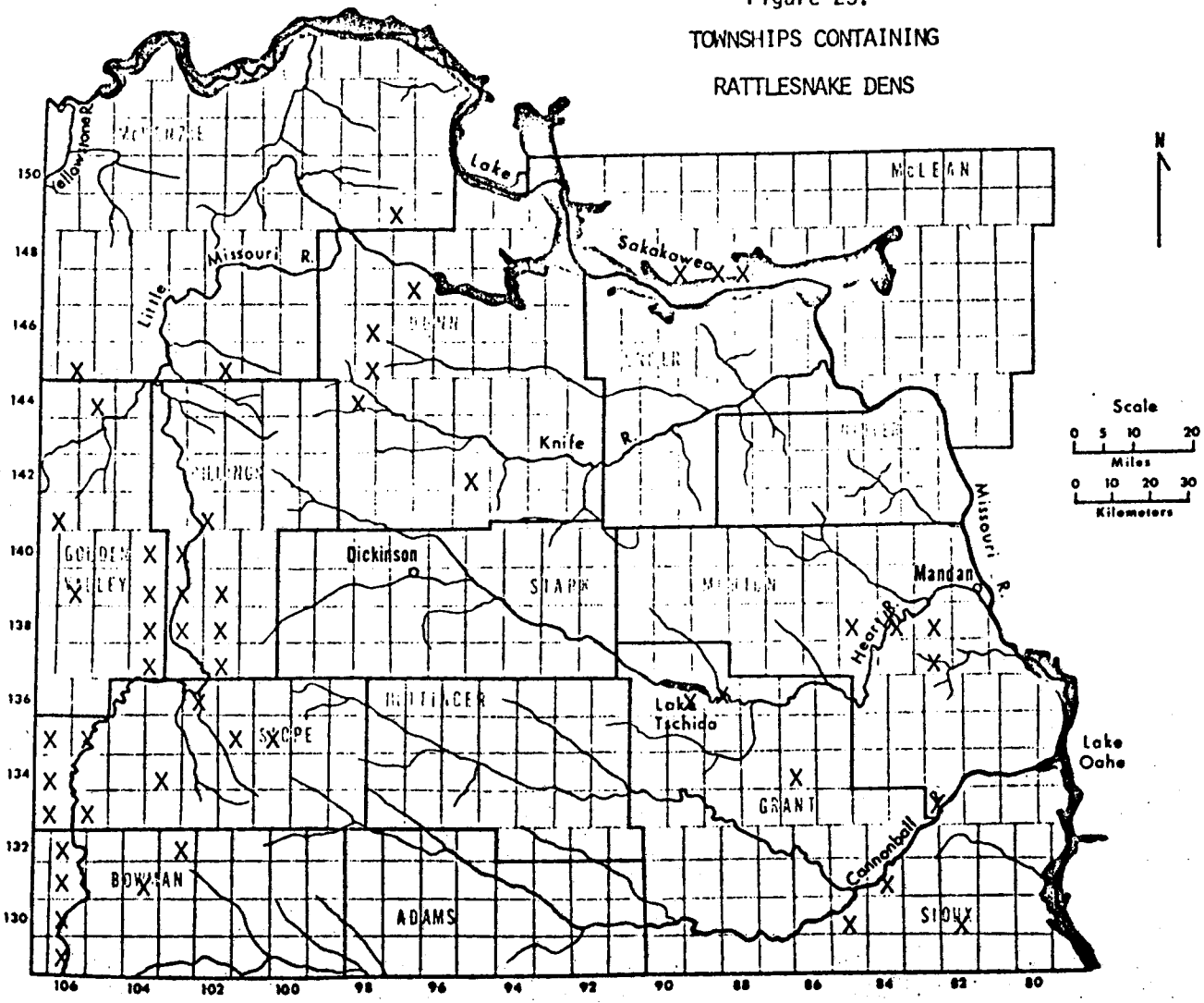


Figure 23.

TOWNSHIPS CONTAINING

RATTLESNAKE DENS



4.3 Birds

The breeding birds of North Dakota are composed of a mixture of four typical avifaunas: North-central, Northern, Eastern, and Western (Stewart, 1975). Unlike the typical prairie region of North Dakota, the project area has been largely free of disturbance from glaciation. The resulting blend of grassland, badland, coteau, sage, and other habitats has given southwestern North Dakota a rich and unusual association of bird species. Most birds in the project area are from the North-central avifauna, but many typical Western species are found here as well.

A total of 158 bird species was found on the quarter-section and raptor-section surveys. Many of these species are typical of the upland North-central grassland community. However, several species generally considered unique to badland, sage, and other habitat types are found here as well. In addition, several habitats of lesser geographic extent (e.g. ponderosa pines, limber pines, and wetlands) were found to contain a surprising variety of little-known and unusual species.

ORDER: Gaviiformes

FAMILY: Gaviidae (Loons) - This family contains four species, all of which breed only in the Northern Hemisphere. All are aquatic, mainly fish-eating species and are found on fresh and salt water (Palmer, 1962).

Common Loon (*Gavia immer*) - The Common Loon breeds farther south than the other 3 species, nesting primarily on aquatic areas from Washington east to New York and north to arctic Alaska and Greenland (Palmer, 1962). It winters mainly on the Atlantic and Pacific coasts from Maine and British Columbia south to the Gulf Coast, but many winter on the Great Lakes also (Bent, 1963). Stewart (1975) lists this species as a fairly common breeder in north-central North Dakota as well.

Distribution in the project area: An observation was made of one individual in the Killdeer Mountains during this study (Fig. 24).

Habitat: Larger aquatic areas where adequate food is available.

Status: Fairly common breeder in north-central North Dakota (Stewart, 1975). It evidently is a nonbreeding species in southwestern North Dakota.

ORDER: Podicipediformes

FAMILY: Podicipedidae (Grebes) - Six species of grebes are found in North America, five of which breed in North Dakota. All are aquatic, occurring on almost all water bodies where suitable food and nesting habitat are available (Palmer, 1962).

Western Grebe (*Aechmophorus occidentalis*) - The Western Grebe is the largest North American grebe. Like other grebes it nests primarily over water, often in large colonies (Palmer, 1962). It is primarily a western species, breeding from California and Colorado north to Washington and Alberta (Palmer, 1962). Stewart (1975) lists it as a locally common breeder, occurring primarily in the Turtle Mountains, Missouri Coteau, and a few of the larger permanent wetlands in the Drift Plains.

Distribution in the project area: We recorded this species on a dugout in McKenzie County and on a natural wetland in McLean County (Fig. 25).

Habitat: This species seems to prefer large wetlands with extensive open areas (Stewart, 1975). We found it on both man-made and natural wetlands.

Status: Stewart (1975) lists breeding records in McKenzie and Morton Counties. Based on two observation during 1976, we list it as a rare and probably local breeder in the project area.

ORDER: Podicipediformes

FAMILY: Podicipedidae

Eared Grebe (*Podiceps nigricollis*) - Like the Western Grebe, the Eared Grebe often nests in loose colonies. It is primarily a western species, breeding from California to Texas north to the Prairie Provinces (Palmer, 1962). Stewart (1975) lists it as a common breeding species in the Missouri Coteau region, Turtle Mountains, and parts of the Drift Plains.

Distribution in the project area: Three observations of Eared Grebes were made in the project area. We found it on a dugout in Golden Valley County and on natural wetlands in McLean and Morton Counties (Fig. 26, 27).

Habitat: Stewart (1975) considers the Eared Grebe to be a bird of slightly brackish to brackish and subsaline wetlands. We found it on both man-made and natural wetlands.

Status: It is a common or locally common breeding species throughout much of North Dakota, and breeding records are recorded for the project area (Stewart, 1975). Because we made only three observations in 1976, it is here considered to be a rare and probably local breeding species in the project area, occurring primarily on larger wetland areas.

Comments: Dry conditions during 1976 may have been responsible for the infrequent sightings of Eared Grebes.

ORDER: Podicipediformes

FAMILY: Podicipedidae

Pied-billed Grebe (*Podilymbus podiceps*) - The Pied-billed Grebe is an abundant and widespread grebe. It nests from the Prairie Provinces south through

Mexico in North America (Palmer, 1962). Stewart (1975) lists it as a common breeder on most wetlands in North Dakota, especially in the Drift Plains, Turtle Mountains, and Missouri Coteau. Stewart also recorded breeding in several areas in southwestern North Dakota.

Distribution in the project area: We recorded the Pied-billed Grebe on a dugout in McKenzie County and a natural wetland in McLean County (Fig. 28).

Habitat: Almost any wetland with adequate food and interspersion of emergent cover and open water.

Status: Based on two observations during 1976 we list it as a rare breeder in the project area.

Comments: Dry conditions in the project area during 1976 may have been responsible for the few observations made.

ORDER: Pelecaniformes

FAMILY: Pelecanidae (Pelican) - This family contains eight species worldwide, of which two occur in North America. They are large aquatic birds with a gular pouch (Palmer, 1962).

White Pelican (*Pelecanus erythrorhynchos*) - The White Pelican is the only pelican that breeds in North Dakota. It breeds from Nevada and California east to Minnesota and north through the Canadian provinces (Palmer, 1962). Stewart (1975) lists it as presently breeding only on Chase Lake in Stutsman County, North Dakota.

Distribution in the project area: Five general observations with 2-300 individuals each were made in the project area. Four of these observations were on reservoirs and one was on a natural wetland (Fig. 29).

Habitat: Palmer (1962) describes the habitat as being comprised primarily of large water areas. Islands with low, flat topography with loose dirt are often used for nest building. Stewart (1975) suggests that nesting is restricted to islands in North Dakota. The individuals we found were feeding in open areas of both man-made and natural wetlands.

Status: Stewart (1975) lists the White Pelican as presently breeding only on Chase Lake in Stutsman County. It is unknown whether the observations in our study represent breeding locations or merely wandering, non-breeding individuals. Anderson and Bartonek (1967) found a breeding colony on Lake Sakakawea, McLean County. During the present study about 300 individuals were found near the Little Missouri State Park in Dunn County, June 10, 1976. This large concentration might indicate that the Lake Sakakawea colony may still be active, or it may be that these birds are merely feeding flocks from nearby breeding colonies. Pending further study, the White Pelican is listed here as a non-breeding species in the project area, but certainly many wandering individuals utilize wetlands in the area.

Figure 24.

COMMON LOON

(*Gavia immer*)

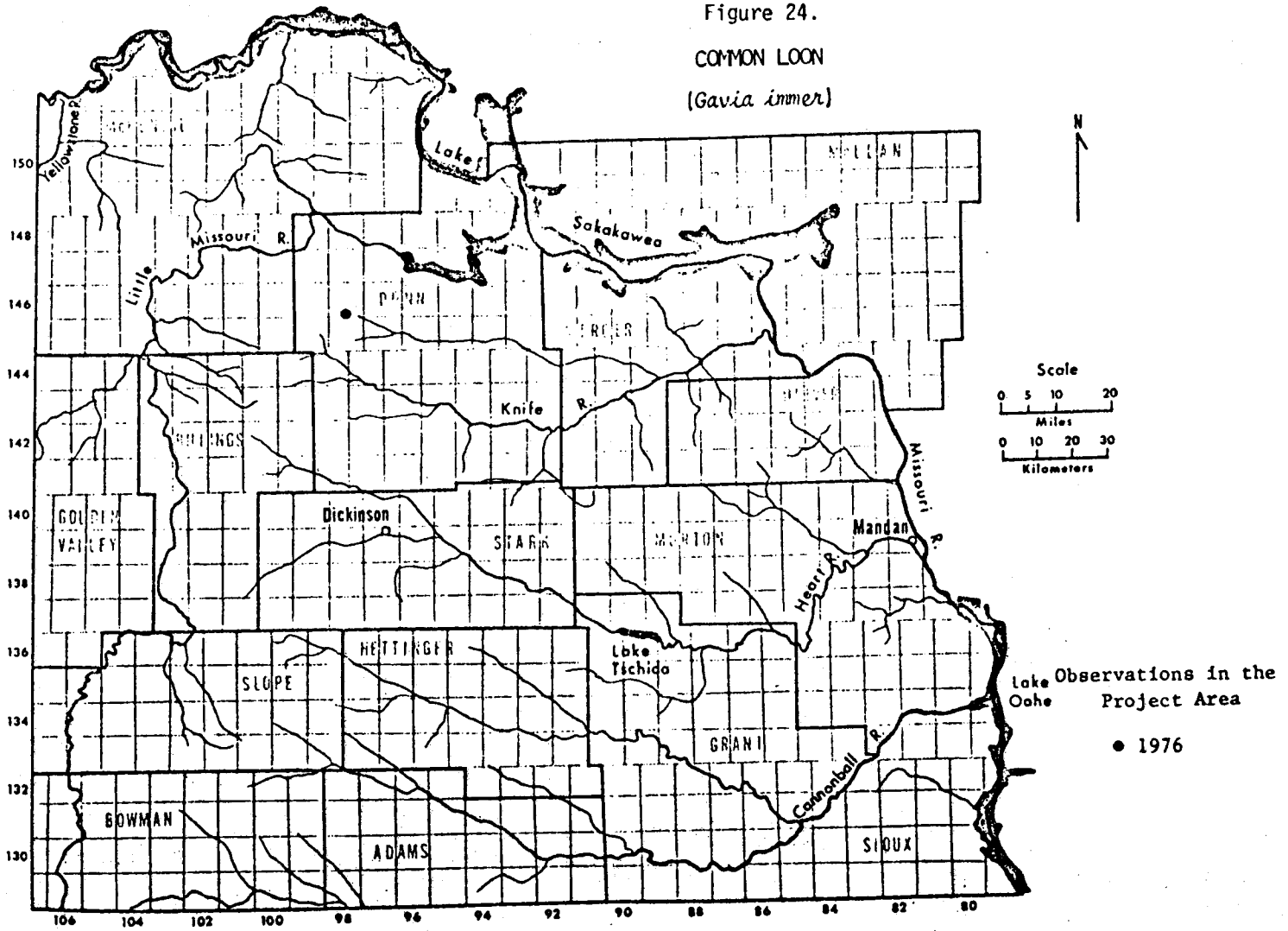
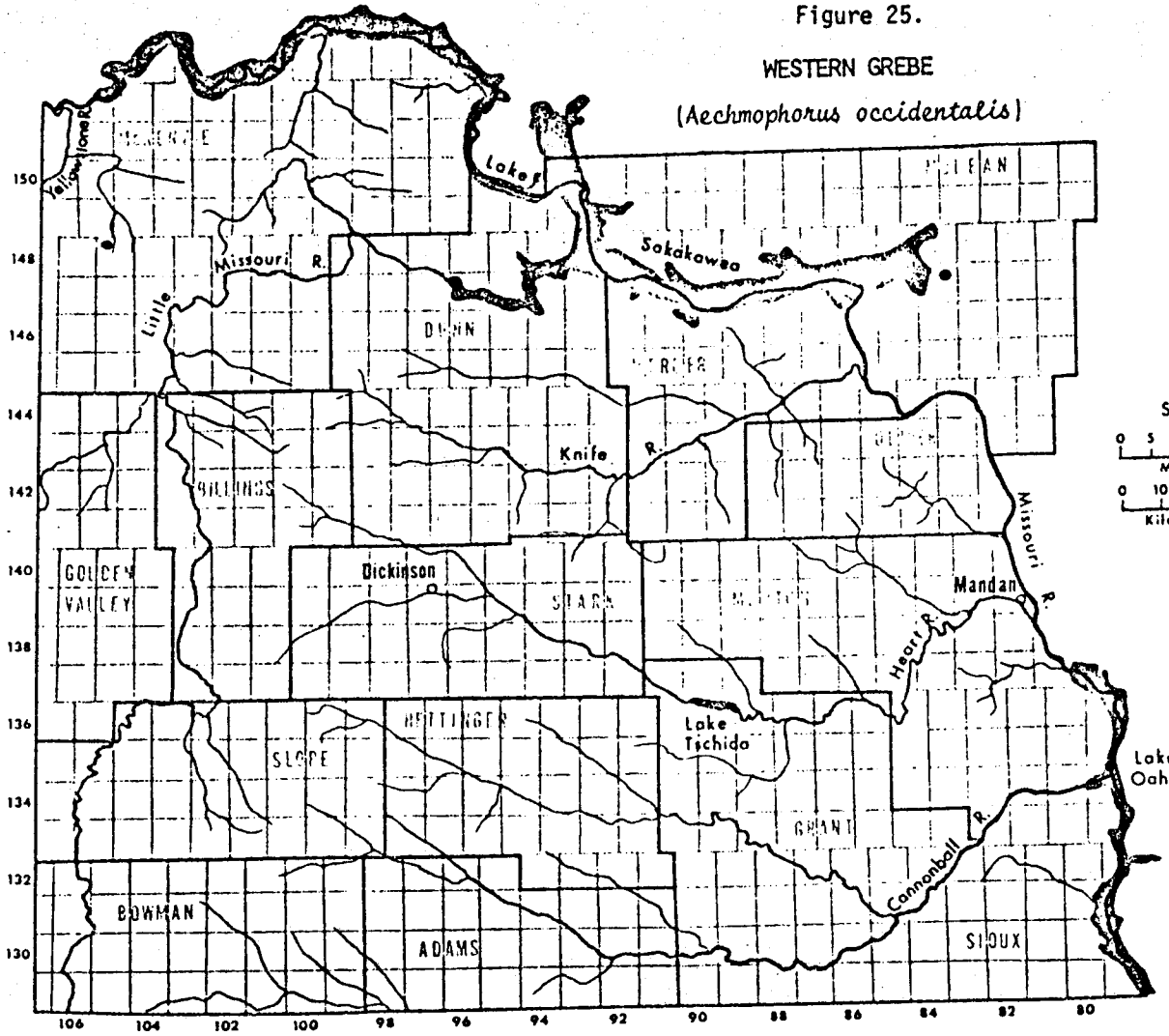


Figure 25.

WESTERN GREBE

(*Aechmophorus occidentalis*)



● Observations in the Project Area

● 1976

Figure 26.

EARED GREBE

(*Podiceps nigricollis*)

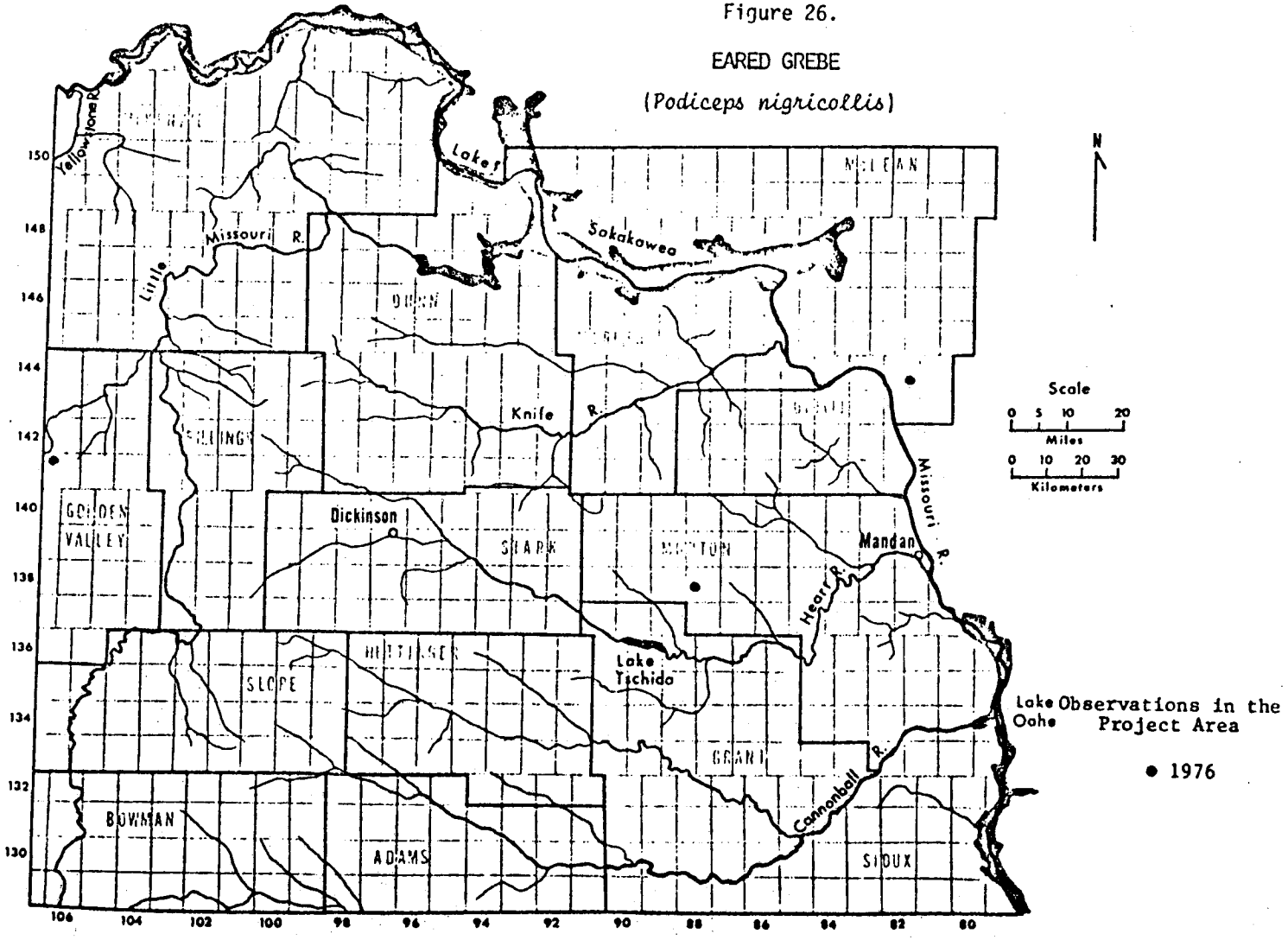


Figure 27.

EARED GREBE

(*Podiceps nigricollis*)

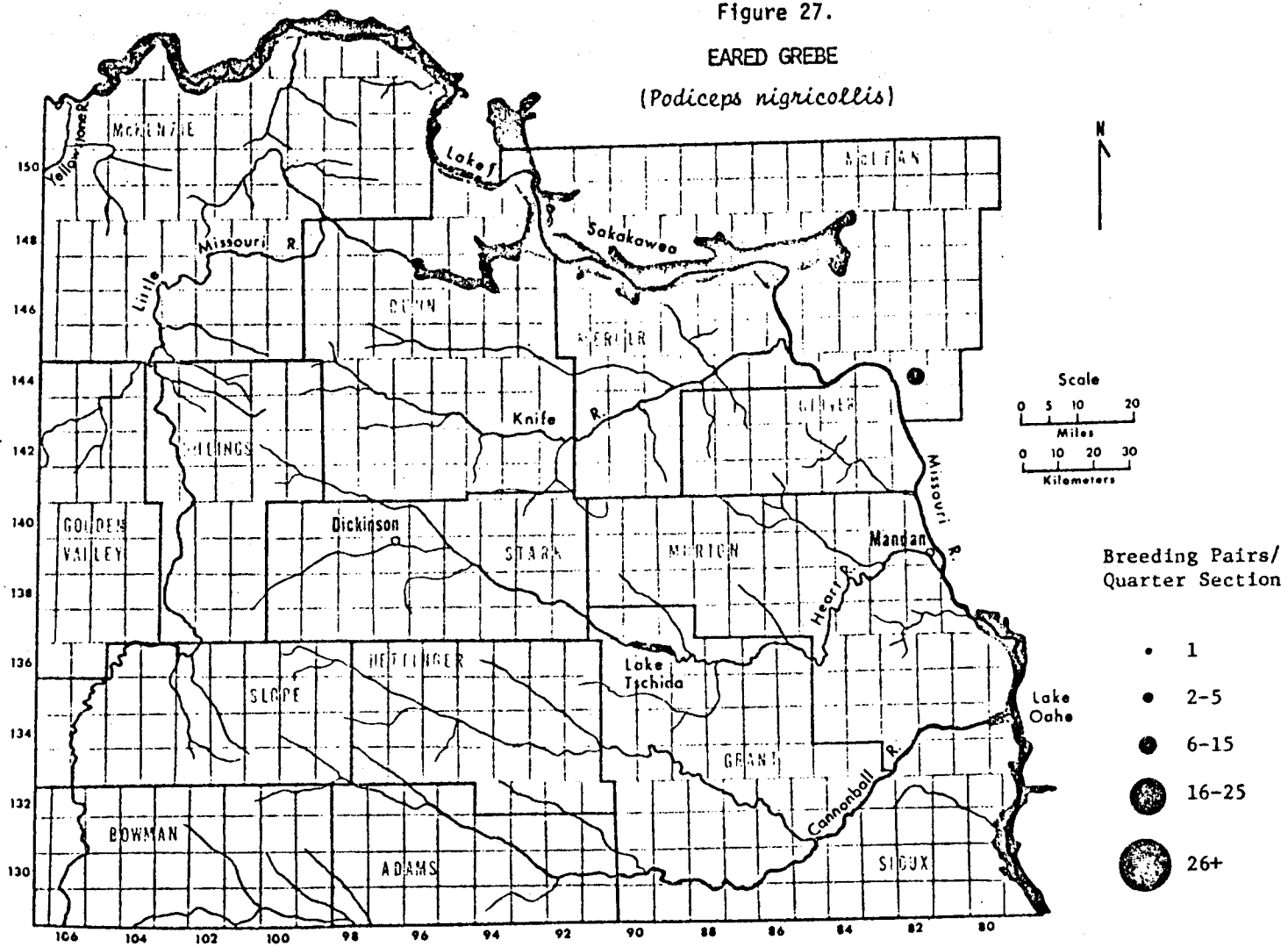
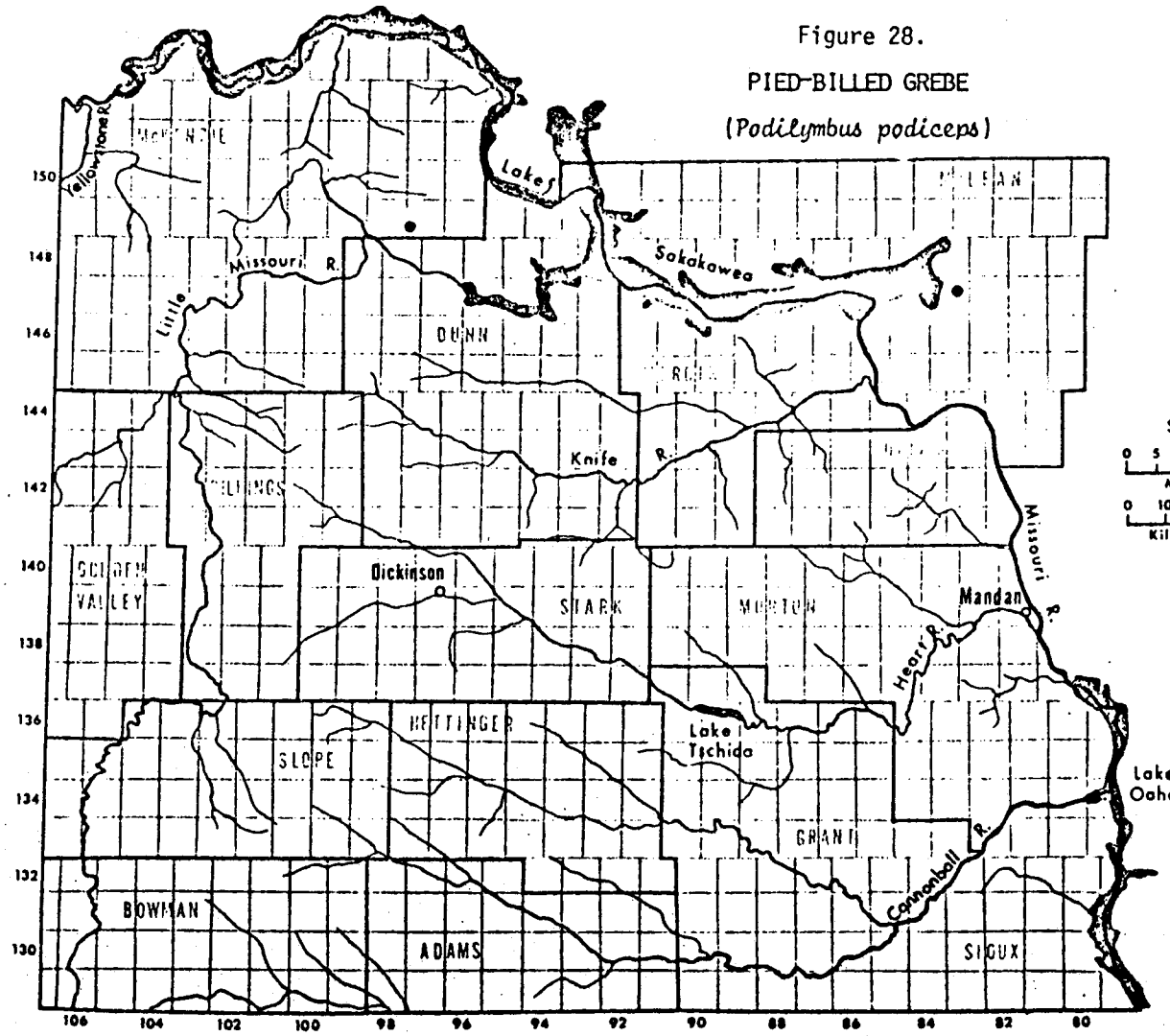


Figure 28.

PIED-BILLED GREBE

(Podilymbus podiceps)



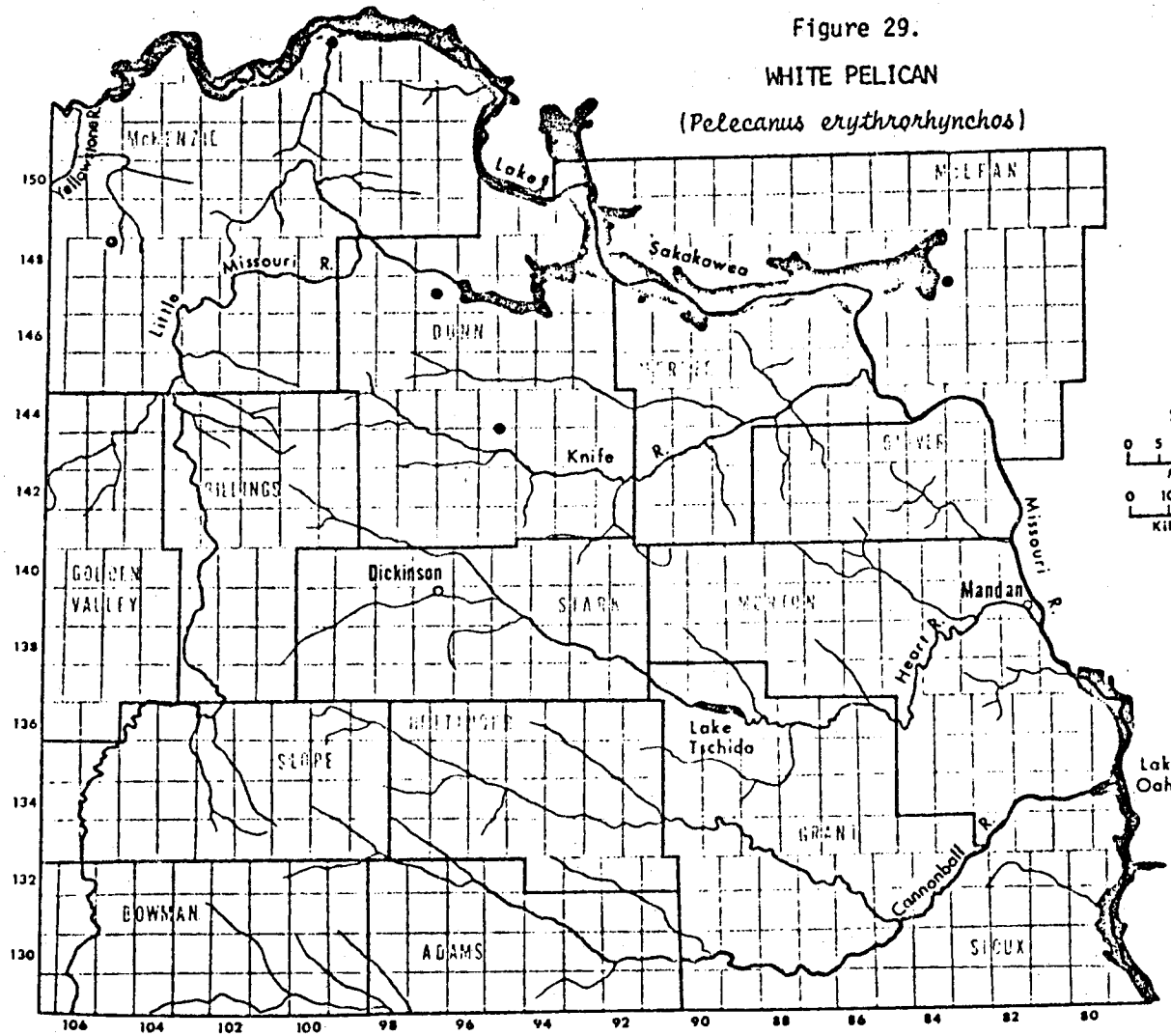
Observations in the Project Area

● 1976

Figure 29.

WHITE PELICAN

(*Pelecanus erythrorhynchos*)



Observations in the Project Area

● 1976

ORDER: Pelecaniformes

FAMILY: Phalacrocoracidae (Cormorants) - Six cormorant species occur in North America. Most are marine, only one of which nests commonly in interior regions. All are aquatic with a moderately large gular pouch (Palmer, 1962).

Double-crested Cormorant (*Phalacrocorax auritus*) - The Double-crested Cormorant breeds commonly in the Northern Great Plains and on both coasts of North America (Palmer, 1962). Stewart (1975) lists it as breeding in several scattered localities in North Dakota.

Distribution in the project area: Six general observations and four quarter-section observations were made in the project area. They were all recorded on dugouts and most were near the Yellowstone, Missouri, and Cannonball Rivers (Fig. 30, 31).

Habitat: For breeding, it usually selects undisturbed sites on islands, reefs, or steep sides of cliffs facing water (Palmer, 1962). Stewart (1975) lists tops of dead trees, islands, or on ground as nesting habitat in North Dakota. Our observations were of 1-10 individuals feeding on dugouts in the project area.

Status: Our observations were evidently of non-breeding individuals. Stewart (1975), however, lists several breeding locations in the project area. We list it as an uncommon and local breeder in the project area, but individuals may wander widely over the northern and eastern parts.

ORDER: Ardeiformes (Ciconiiformes)

FAMILY: Ardeidae (Herons and Bitterns) - This family contains several North American representatives of long-legged, long-necked birds. Most are aquatic, or at least require water for some stage of the life cycle. North Dakota has several breeding representatives (Palmer, 1962).

American Bittern (*Botaurus lentiginosus*) - The American Bittern breeds over most of the United States and southern Canadian provinces (Palmer, 1962). Stewart (1975) lists it as common or locally common in most of North Dakota and uncommon in the Agassiz Lake Plain and Southwestern Slope Region. Nests may be located over water or on land, and usually are found singly (Palmer, 1962).

Distribution in the project area: Four observations of American Bitterns were made in the project area, three of which were on natural wetlands and one on a dugout (Fig. 32, 33).

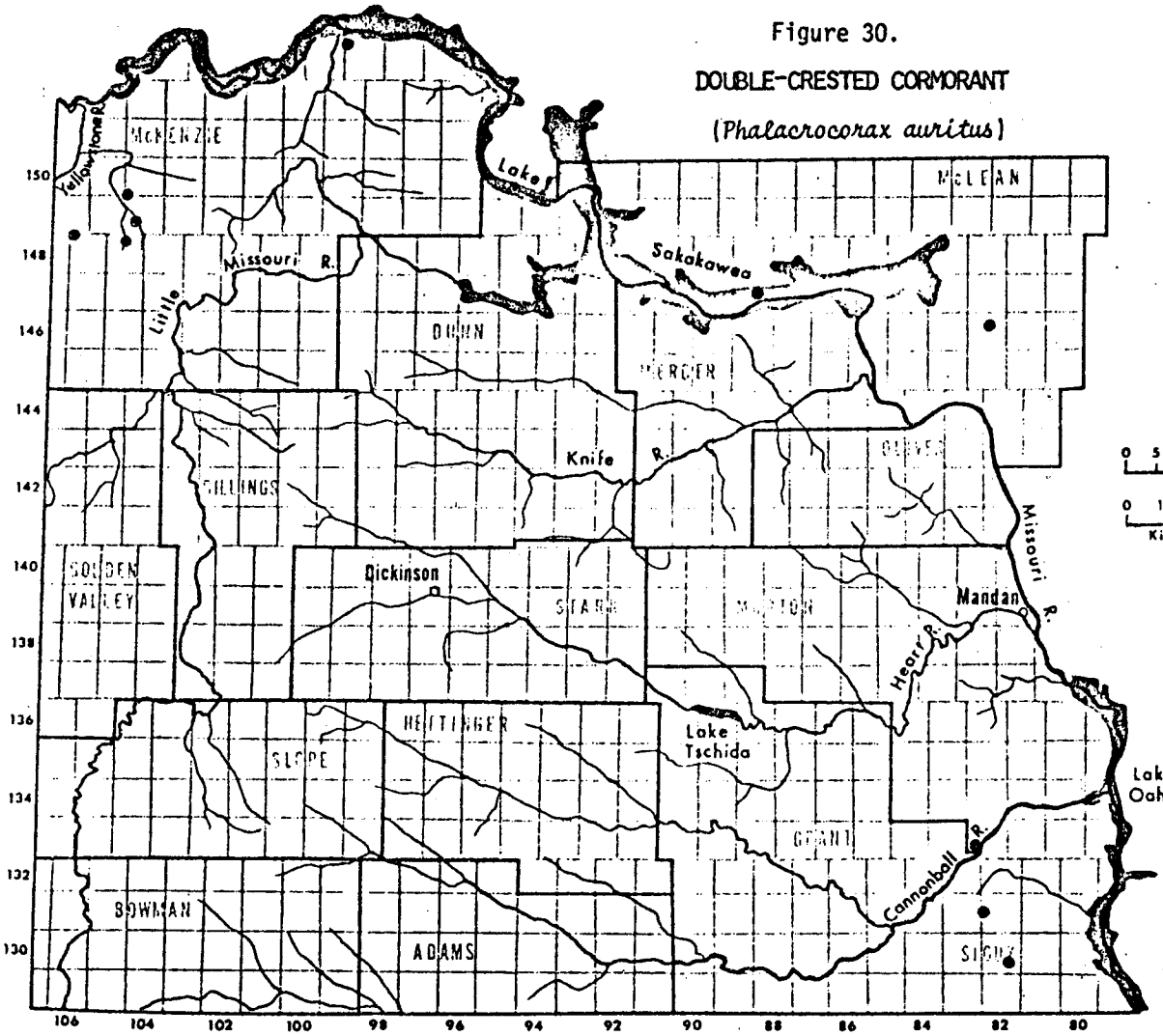
Habitat: Stewart (1975) lists the preferred habitat as emergent or shallow marsh wetland zones with occasional nests in upland fields.

Status: Evidently a rare breeder throughout the project area.

Figure 30.

DOUBLE-CRESTED CORMORANT

(*Phalacrocorax auritus*)



Observations in the Project Area

● 1976

Figure 31.

DOUBLE-CRESTED CORMORANT

(*Phalacrocorax auritus*)

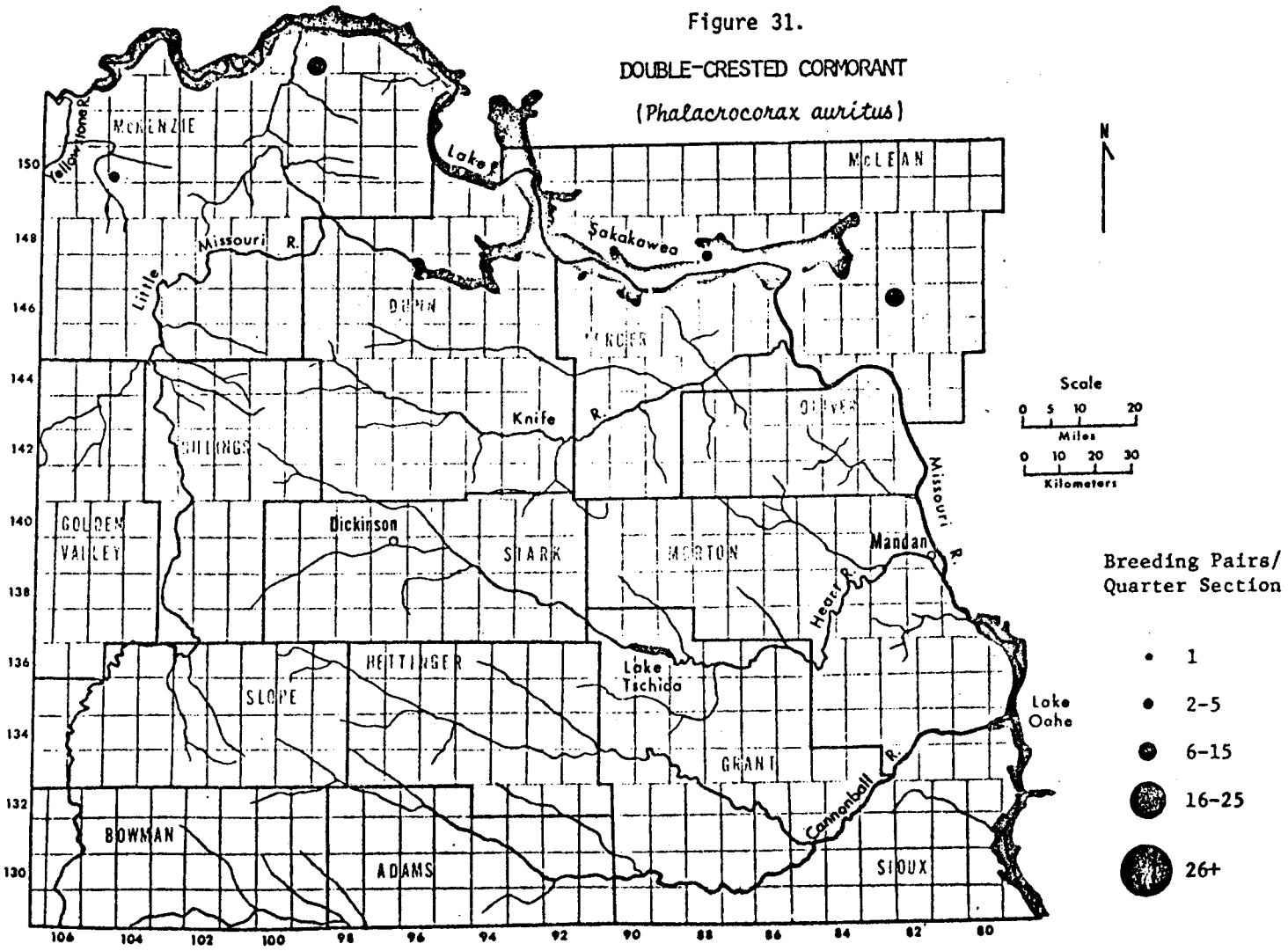
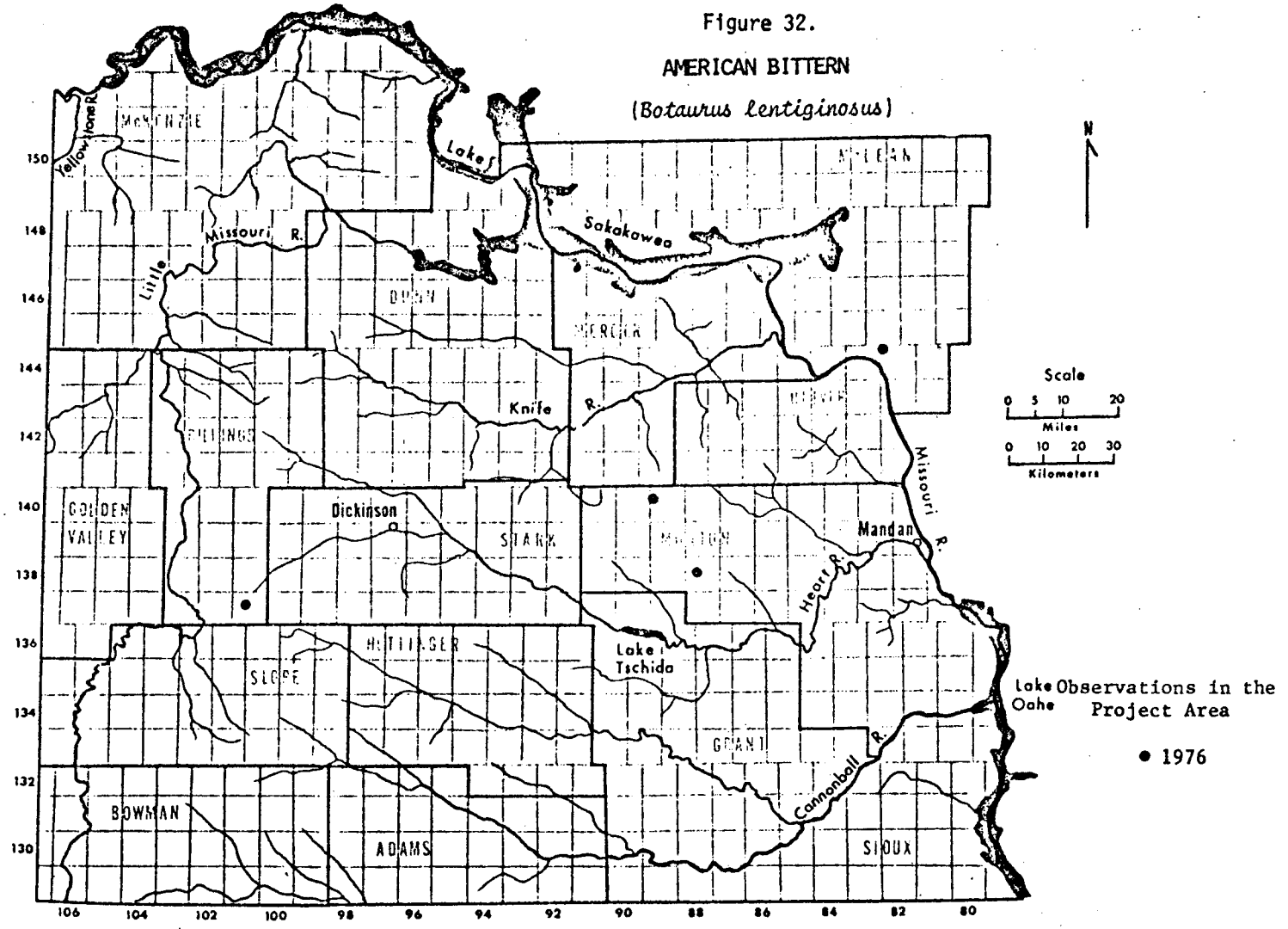


Figure 32.

AMERICAN BITTERN

(*Botaurus lentiginosus*)



Lake Oahe

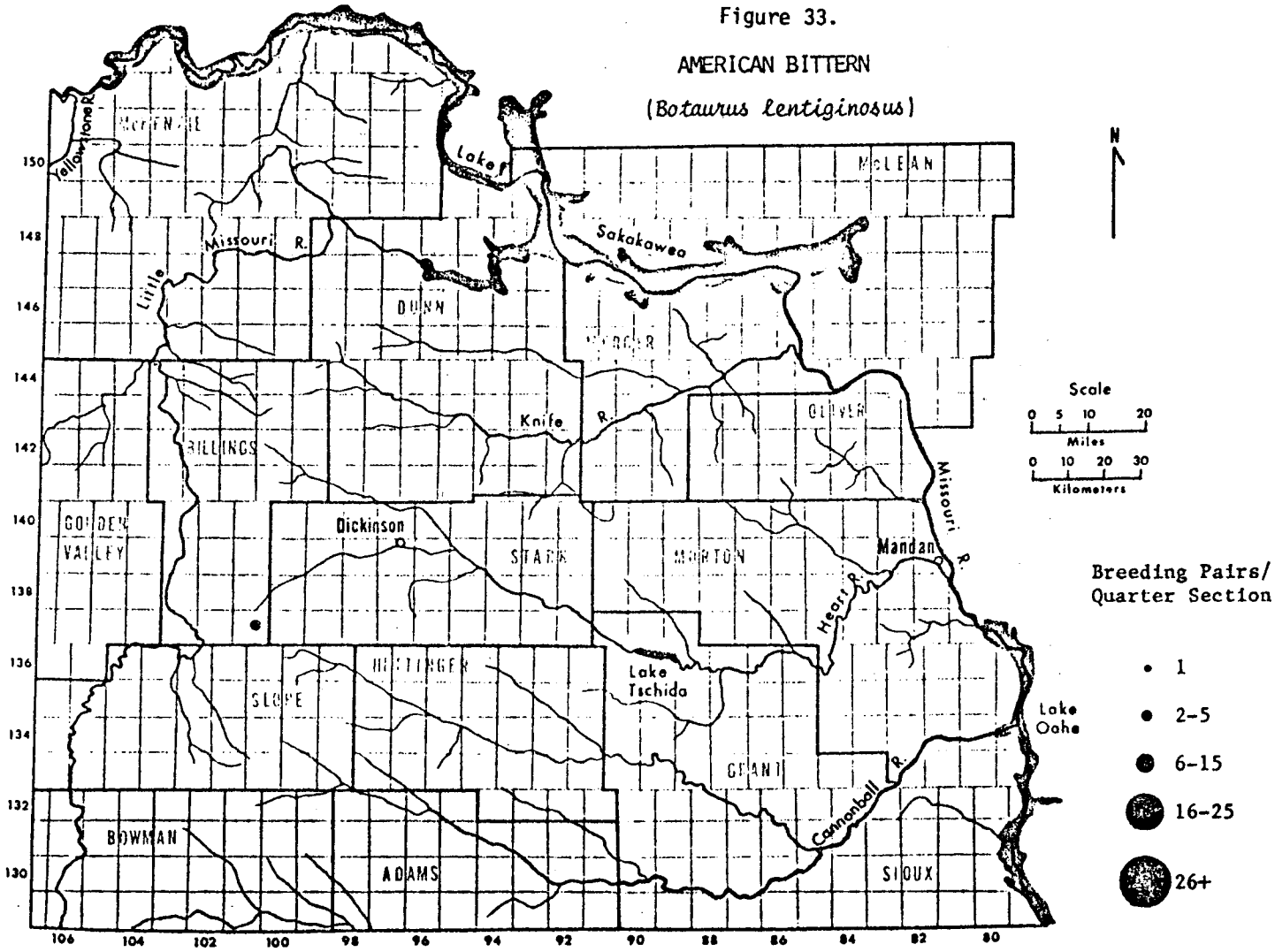
Observations in the Project Area

● 1976

Figure 33.

AMERICAN BITTERN

(*Botaurus lentiginosus*)



ORDER: Ardeiformes (Ciconiiformes)

FAMILY: Ardeidae

Great Blue Heron (*Ardea herodias*) - The Great Blue Heron breeds over most of the United States and southern parts of the Canadian provinces, except in the mountainous regions (Palmer, 1962). Stewart (1975) lists several scattered breeding colonies in North Dakota, many of which are along Lake Sakakawea. Nests may be either in trees, on ground, on cliffs, or on man-made structures (Palmer, 1962). In North Dakota most nests occur in trees (Stewart, 1975).

Distribution in the project area: Fourteen observations were made in the project area. Habitats where observed included true river bottom, riparian woodland, natural wetlands, dugouts, and reservoirs (Fig. 34, 35).

Habitat: Evidently the species prefers tall trees near water in North Dakota (Stewart, 1975).

Status: Apparently an uncommon to fairly common breeder in southwestern North Dakota, being found most commonly in the northern portions of the project area.

ORDER: Ardeiformes (Ciconiiformes)

FAMILY: Ardeidae

Green Heron (*Butorides virescens*) - The Green Heron breeds commonly in the eastern, midwestern, and far-western United States (Palmer, 1962). Few breeding records have been noted for North Dakota (Stewart, 1975). Nests may be found singly or in colonies (Palmer, 1962).

Distribution in the project area: One observation of a Green Heron was made on a dugout in Morton County during May 1976 (Fig. 36).

Habitat: The Green Heron seems to prefer trees along streams or shorelines for nesting (Palmer, 1962).

Status: Rare breeder in North Dakota (Stewart, 1975). Stewart lists no breeding records in the project area. No nest was found during our study. Pending further study it is here considered to be a non-breeding species in the project area, but some non-breeding or migratory individuals may use the area.

ORDER: Ardeiformes (Ciconiiformes)

FAMILY: Ardeidae

Black-crowned Night Heron (*Nycticorax nycticorax*) - The Black-crowned Night Heron breeds over wide areas in the United States and southern Saskatchewan and Manitoba, except in the mountainous regions (Palmer, 1962). Stewart (1975) lists it as a locally common breeder throughout the Missouri Coteau and Drift Plains, and uncommon elsewhere in North Dakota. It nests most often in colonies, frequently in association with Franklin's Gulls (Stewart, 1975).

Distribution in the project area: Two observations were recorded on natural wetlands near Lake Sakakawea, McLean County (Fig. 37).

Habitat: Stewart (1975) states that Black-crowned Night Herons nest either over water, in marshes, or in trees, and apparently they wander widely in search of food.

Status: Although previous breeding records for the project area were noted by Stewart (1975), we list it as a rare breeder, being found primarily near Lake Sakakawea.

ORDER: Ardeiformes (Ciconiiformes)

FAMILY: Ardeidae

Cattle Egret (*Bulbulus ibis*) - The Cattle Egret is an exotic species in North America, probably arriving first in Florida, and subsequently spreading its range northward. First North Dakota breeding attempts were recorded in June 1976 on J. Clark Sayler National Wildlife Refuge in the north-central part of the state (American Birds, 1976).

Distribution in the project area: No observations were made during 1976. In 1977, one observation was made in Golden Valley County during June (Fig. 38).

Habitat: Evidently the Cattle Egret prefers pastures for feeding; nests over water, often in association with other heron, gull, or tern species.

Status: At present it is a non-breeding species in the project area. Considering the adaptability of this species and the rate at which it has expanded its range, however, breeding may occur around the larger wetlands sometime in the future.

ORDER: Anseriformes

FAMILY: Anatidae (Ducks, Geese, and Swans) - This is a large family of some 144 living species. The anatids occur worldwide except in extreme polar regions (Austin, 1971). North American representatives are more or less aquatic.

Canada Goose (*Branta canadensis*) - Several races, at least some of which breed over most of Canada and Alaska, have been introduced into former range over much of the United States (Palmer, 1976a). Evidently the only true wild population of Canada Geese in North Dakota is located in Williams and McKenzie Counties, but it has been introduced elsewhere (Stewart, 1975).

Distribution in the project area: Recorded flying over three areas in McLean and Morton Counties (Fig. 39).

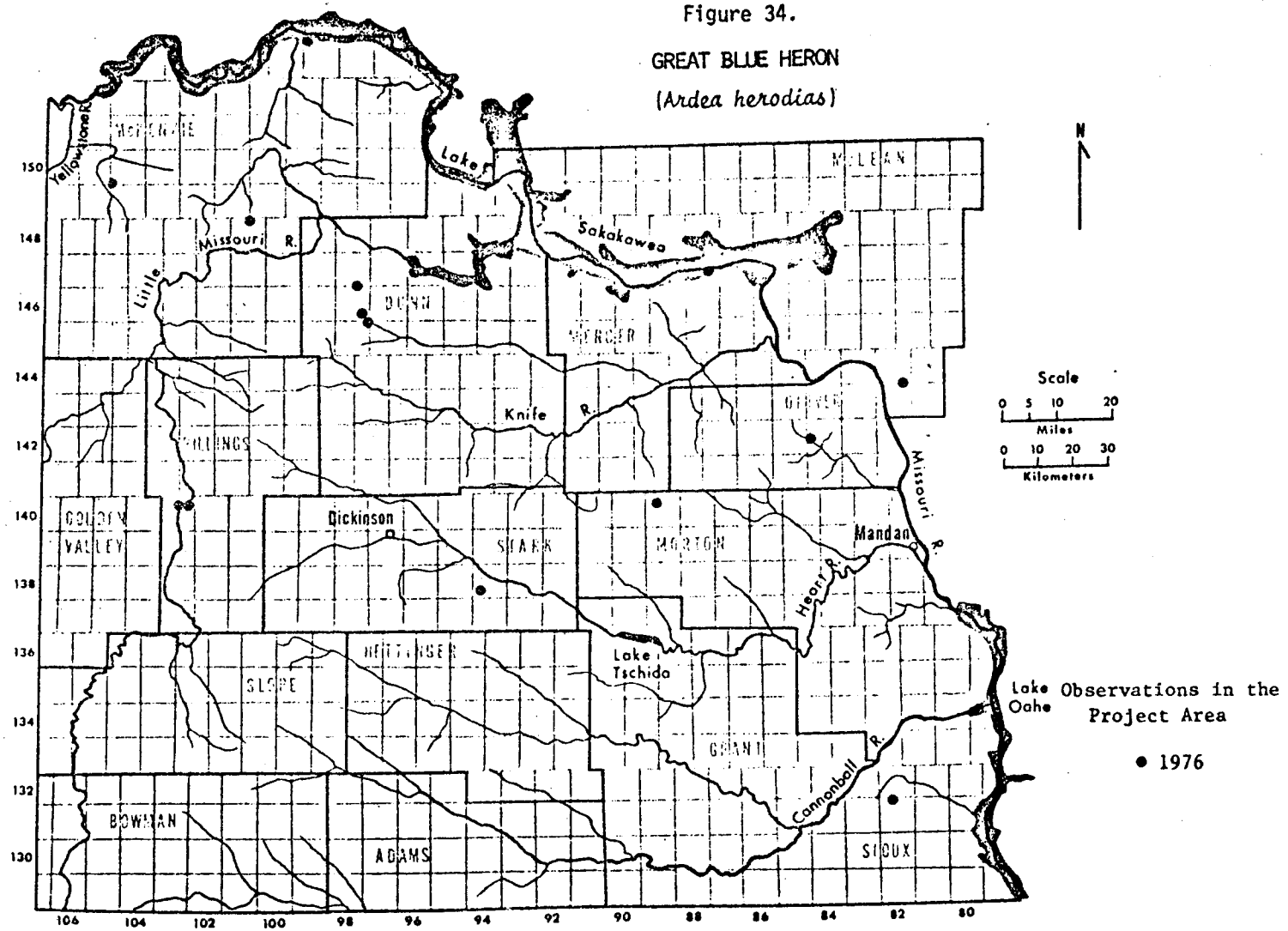
Habitat: Originally probably preferred large water areas where nesting occurred on shoreline or on muskrat houses (Stewart, 1975). Artificial nesting structures are now widely used (Bellrose, 1976).

Status: Rare breeding species in project area; probably uncommon or fairly common locally in some areas.

Figure 34.

GREAT BLUE HERON

(Ardea herodias)



Observations in the Project Area

● 1976

Figure 35.

GREAT BLUE HERON

(Ardea herodias)

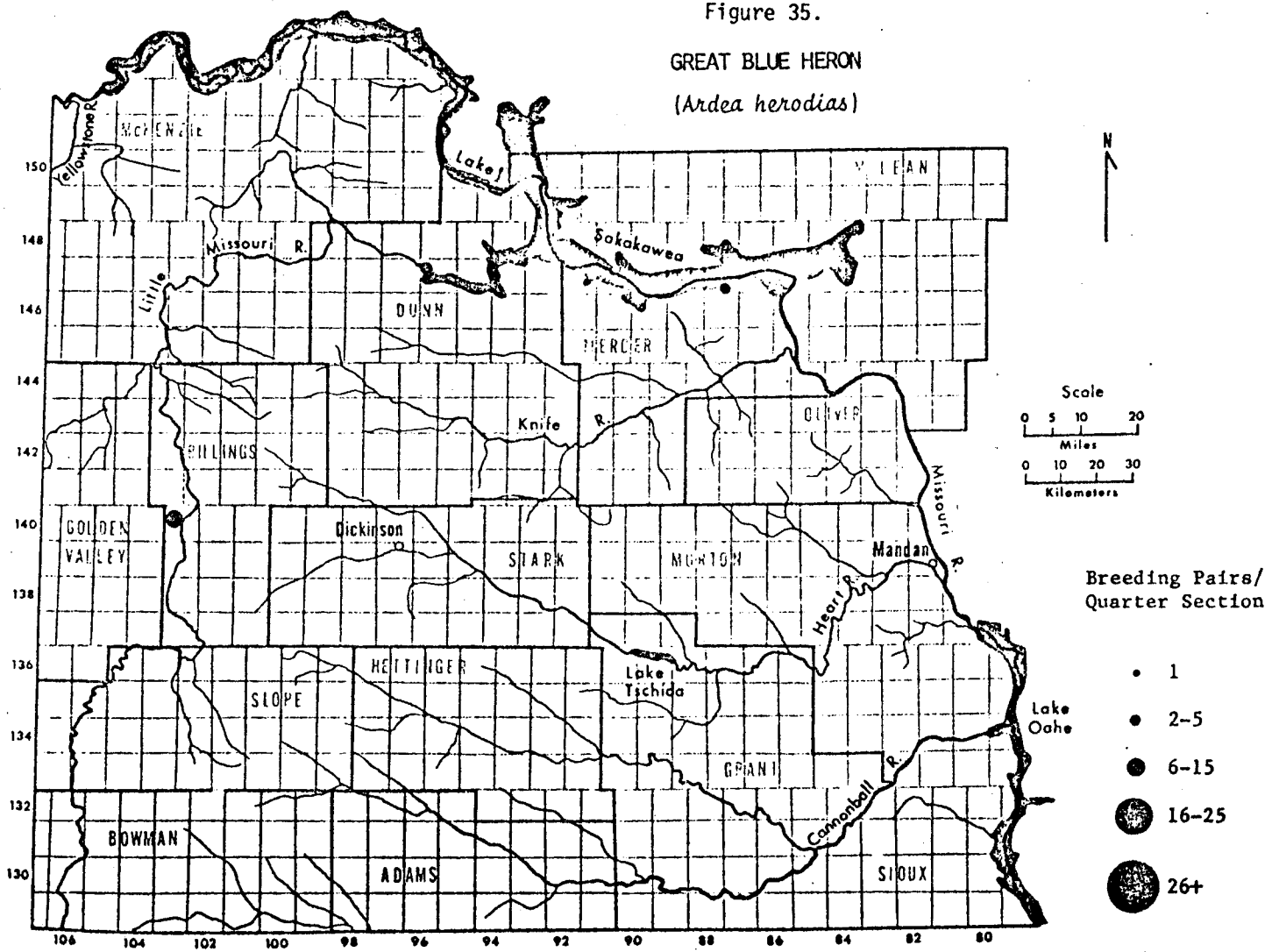
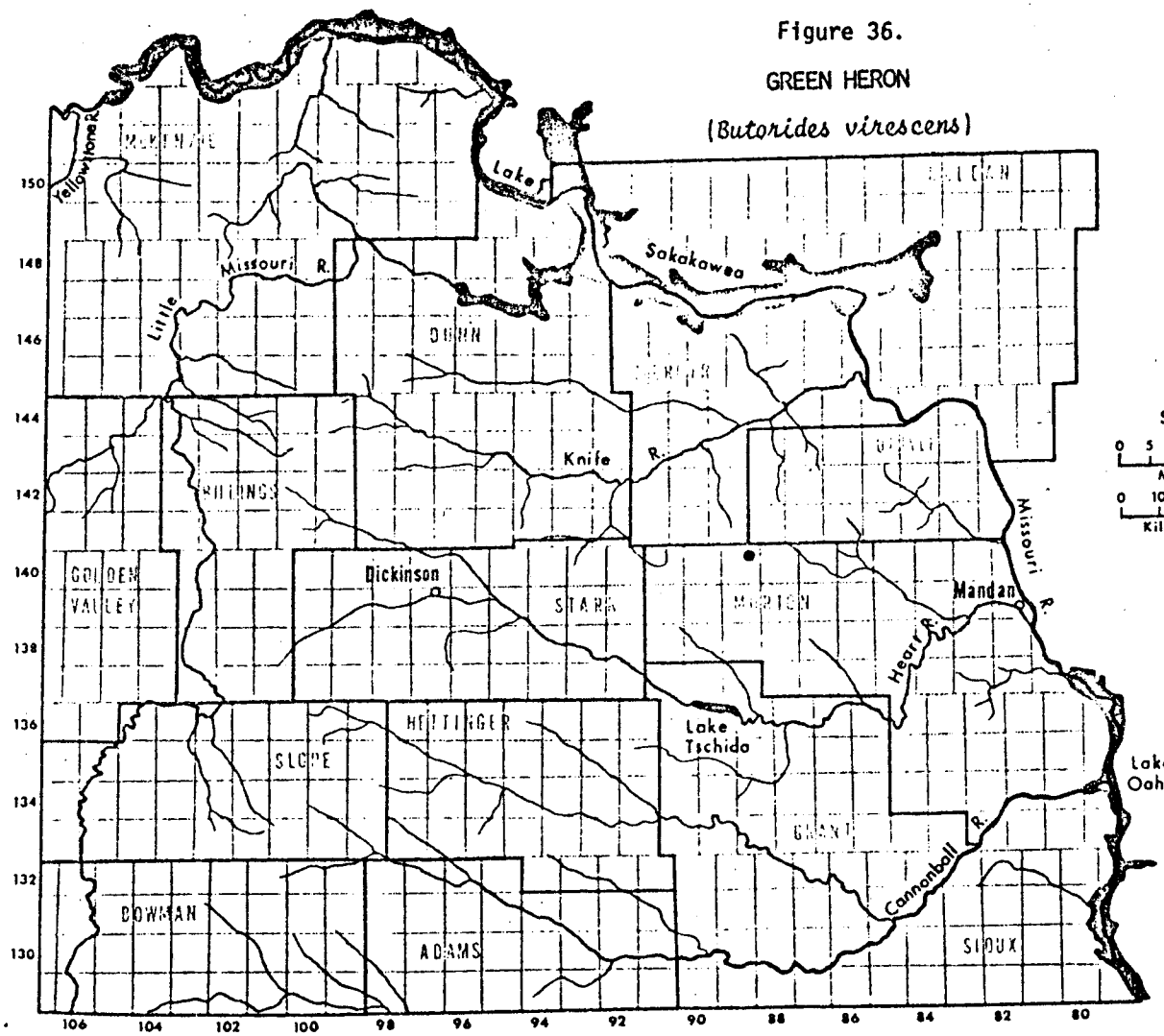


Figure 36.

GREEN HERON

(*Butorides virescens*)



Lake Oahe

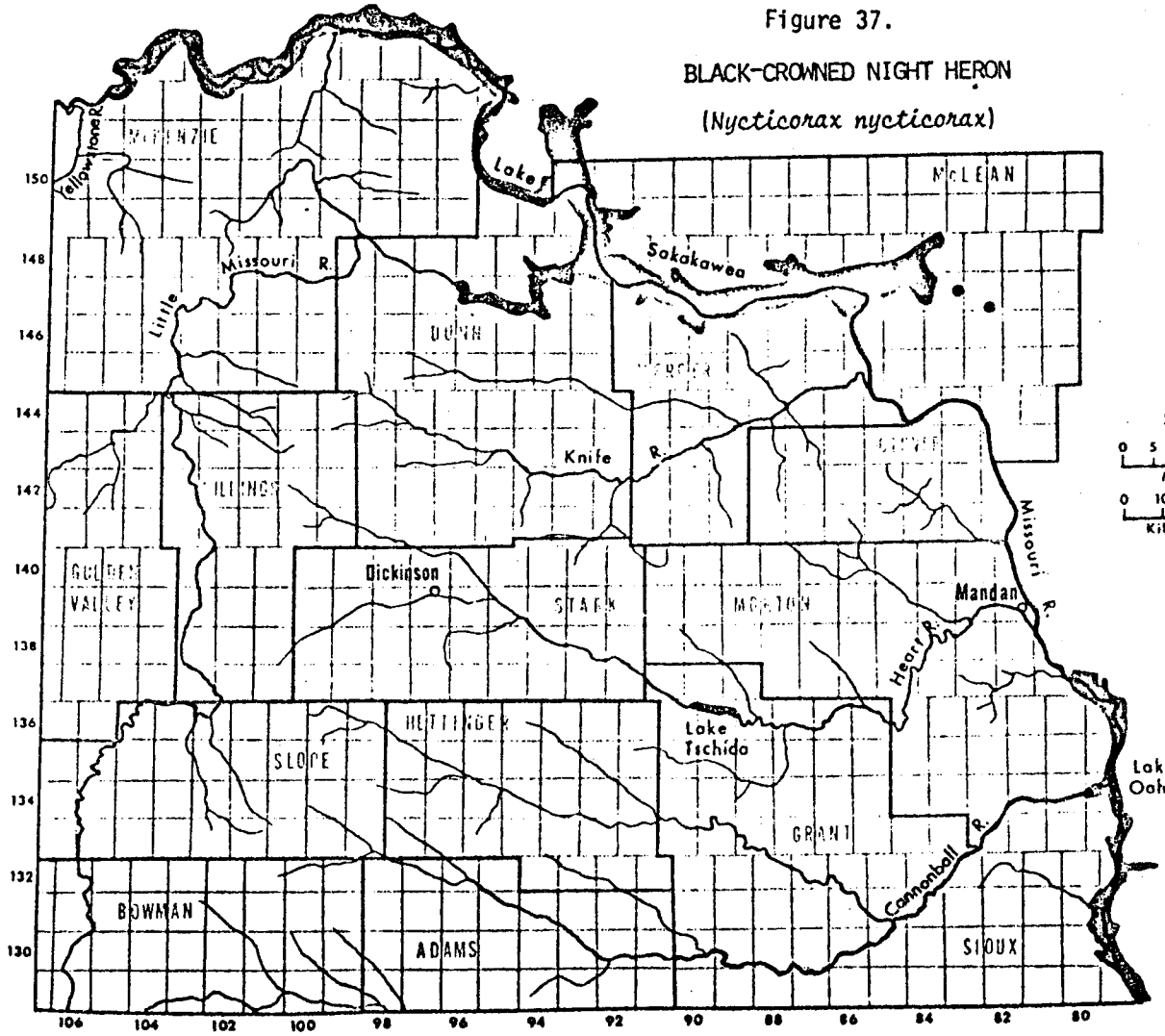
Observations in the Project Area

● 1976

Figure 37.

BLACK-CROWNED NIGHT HERON

(*Nycticorax nycticorax*)



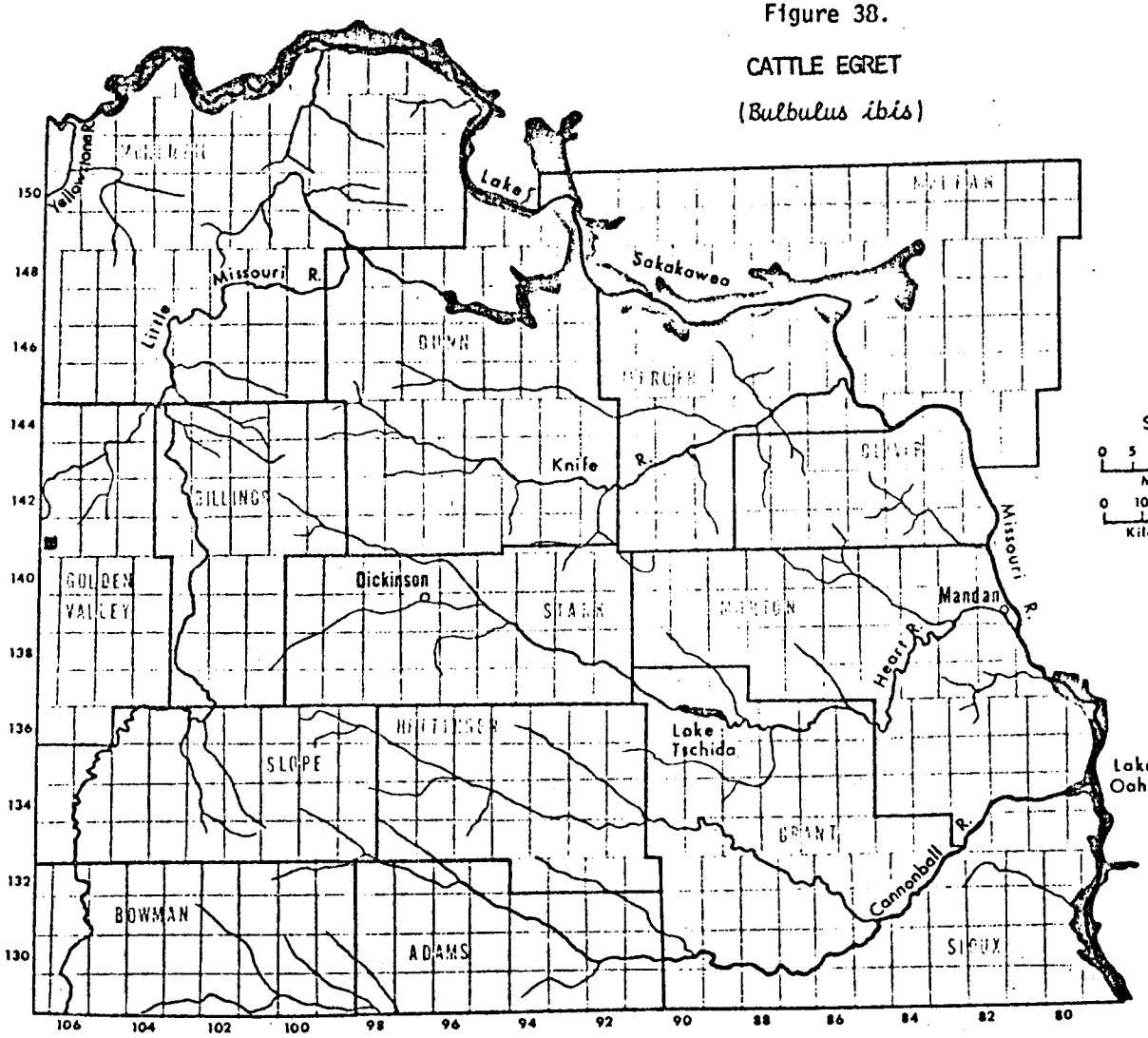
Observations in the Project Area

● 1976

Figure 38.

CATTLE EGRET

(*Bulbulus ibis*)



Observations in the Project Area

■ 1977

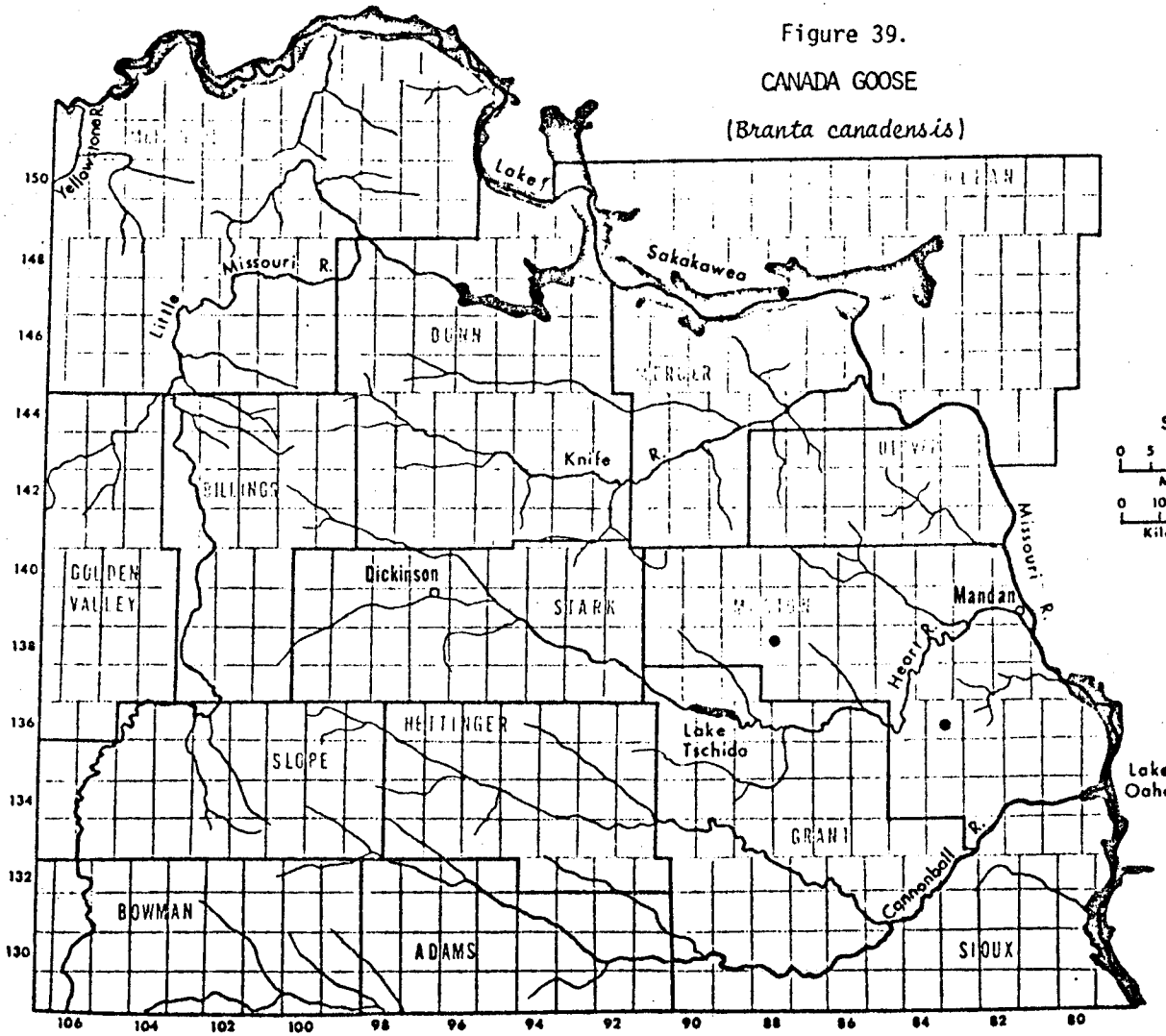
Published by UND Inst. for Ecol. Studies

Prepared by UND Geog./Cart. Lab.

Figure 39.

CANADA GOOSE

(*Branta canadensis*)



Observations in the Project Area

● 1976

ORDER: Anseriformes

FAMILY: Anatidae

Mallard (*Anas platyrhynchos*) - The Mallard is a common breeding species over much of North America (Palmer, 1976a). From 1955-1974, average North American populations were estimated by the U.S. Fish and Wildlife Service to be about nine to ten million during May (Bellrose, 1976). Stewart (1975) lists it as common or fairly common breeding species throughout most of North Dakota and uncommon in the Little Missouri Slope. Lokemoen (1973) found the Mallard to be the most common breeding duck on a study area located near Belfield, North Dakota.

Distribution in the project area: We made 38 observations of Mallards in the project area (Fig. 40, 41). They were found throughout the project area and occurred in true river bottom, dugouts, natural wetlands, retired croplands, seeded croplands, and fallow fields.

Habitat: The Mallard nests primarily on upland areas near water, less commonly over water. Upland nesting areas, wetlands, and upland feeding areas are all utilized for breeding purposes. Seasonal and temporary wetland complexes seem to be preferred (Stewart, 1975).

Status: Common over most of the project area; however, it evidently is a rare breeder in the Badlands. Population density in the project area probably is not as great as in the Prairie Pothole Region (Stewart, 1975).

ORDER: Anseriformes

FAMILY: Anatidae

Gadwall (*Anas strepera*) - A common breeding species in the Prairie Pothole Region and Pacific Intermountain Region; less common in eastern North America (Palmer, 1976a). Bellrose (1976) gives average May population estimates of up to two million. Stewart (1975) describes it as common or fairly common in the Missouri Coteau and most of the Drift Plains, uncommon on the Coteau Slope, and uncommon and local in the project area.

Distribution in the project area: We recorded six observations of Gadwalls in scattered locations in the project area. It was found on dugouts and natural wetlands (Fig 42, 43).

Habitat: Similar to the Mallard; wetlands are rarely or never used for nesting but are needed for brood-rearing.

Status: Uncommon breeder in the project area. Stewart (1975) did not record recent breeding records for Morton County, but we made two observations here.

ORDER: Anseriformes

FAMILY: Anatidae

American Wigeon (*Anas americana*) - Palmer (1976a) lists the breeding range of the American Wigeon as primarily from Colorado north to Alaska and east to Ontario; less common in other scattered areas. Breeding North American populations average about three million, but seem to fluctuate widely from year to year (Bellrose, 1976). Stewart (1975) lists it as uncommon throughout most of North Dakota. Lokemoen (1973) found the American Wigeon to comprise about 15% of the breeding duck population on a study area near Belfield, North Dakota.

Distribution in the project area: We recorded eight observations of American Wigeons scattered in the project area (Fig. 44, 45). It was found on both dugouts and natural wetlands.

Habitat: Similar to the Gadwall. Lokemoen (1973) found properly maintained stock ponds to be good breeding areas in southwestern North Dakota. Apparently most wigeons prefer to nest in aspen parkland areas of Canada.

Status: Uncommon breeding species in the project area.

ORDER: Anseriformes

FAMILY: Anatidae

American Green-winged Teal (*Anas crecca carolinensis*) - The American Green-winged Teal nests from northern California and Colorado east to northern Minnesota and north to Alaska to include all the Canadian provinces (Palmer, 1976a). North American breeding populations average about three million birds (Moisan et al., 1967; Bellrose, 1976). Stewart (1975) describes the American Green-winged Teal in North Dakota as an uncommon breeder throughout the Prairie Pothole Region, and rare in the Agassiz Lake Plain and Southwestern Slope Region.

Distribution in the project area: Three observations were made in Dunn, Golden Valley, and Mercer Counties (Fig. 46). They were found on both dugouts and natural wetlands.

Habitat: Similar to the American Wigeon.

Status: Rare breeding species in the project area.

ORDER: Anseriformes

FAMILY: Anatidae

Blue-winged Teal (*Anas discors*) - The Blue-winged Teal is a widely distributed species, breeding from California to Texas and Virginia north to southern Alaska to include most Canadian province area (Palmer, 1976a). North Amerian spring breeding populations averaged about five million from 1955-1974 (Bellrose, 1976). Stewart (1975) lists it as common or fairly common over much of North Dakota, and uncommon in the Agassiz Lake Plain and Southwestern Slope Region.

Distribution in the project area: 19 observations were made on the project area, primarily in the northeastern portions (Fig. 47, 48). They were found in true river bottom, dugout, natural wetland, and retired cropland habitat.

Habitat: Similar to the Gadwall.

Status: Stewart (1975) listed the Blue-winged Teal as an uncommon breeder in the Southwestern Slope Region. Based on 19 observations we list it as a fairly common breeding species in the project area.

ORDER: Anseriformes

FAMILY: Anatidae

Northern Shoveler (*Anas clypeata*) - The Northern Shoveler breeds primarily from Oregon east to Iowa and north to Alaska (Palmer, 1976a). North American populations average about two million birds during May (Bellrose, 1976). Stewart (1975) lists the Northern Shoveler as being fairly common or uncommon over most of North Dakota, and uncommon and rare in the Agassiz Lake Plain and Southwestern Slope Regions.

Distribution in the project area: We recorded five observations during 1976. They were found on dugouts, natural wetlands, and spoil piles (Fig. 49, 50).

Habitat: Similar to the Gadwall.

Status: Uncommon and possibly local, being concentrated primarily in the northern portion of the project area.

ORDER: Anseriformes

FAMILY: Anatidae

Pintail (*Anas acuta*) - Palmer (1976a) describes the North American distribution as from California to Maine and north to Alaska. It is the most widely distributed duck worldwide (Bellrose, 1976). Bellrose (1976) describes the Pintail as the second- or third-most abundant North American duck with annual May populations averaging six to seven million. Stewart (1975) describes the North Dakota distribution of this species as common or fairly common in most areas, and uncommon in the Turtle Mountains, Agassiz Lake Plain and Southwestern Slope Region.

Distribution in the project area: Twenty-three observations were recorded in this study. It was recorded on dugouts, natural wetlands, retired cropland, and fallow land (Fig. 51, 52).

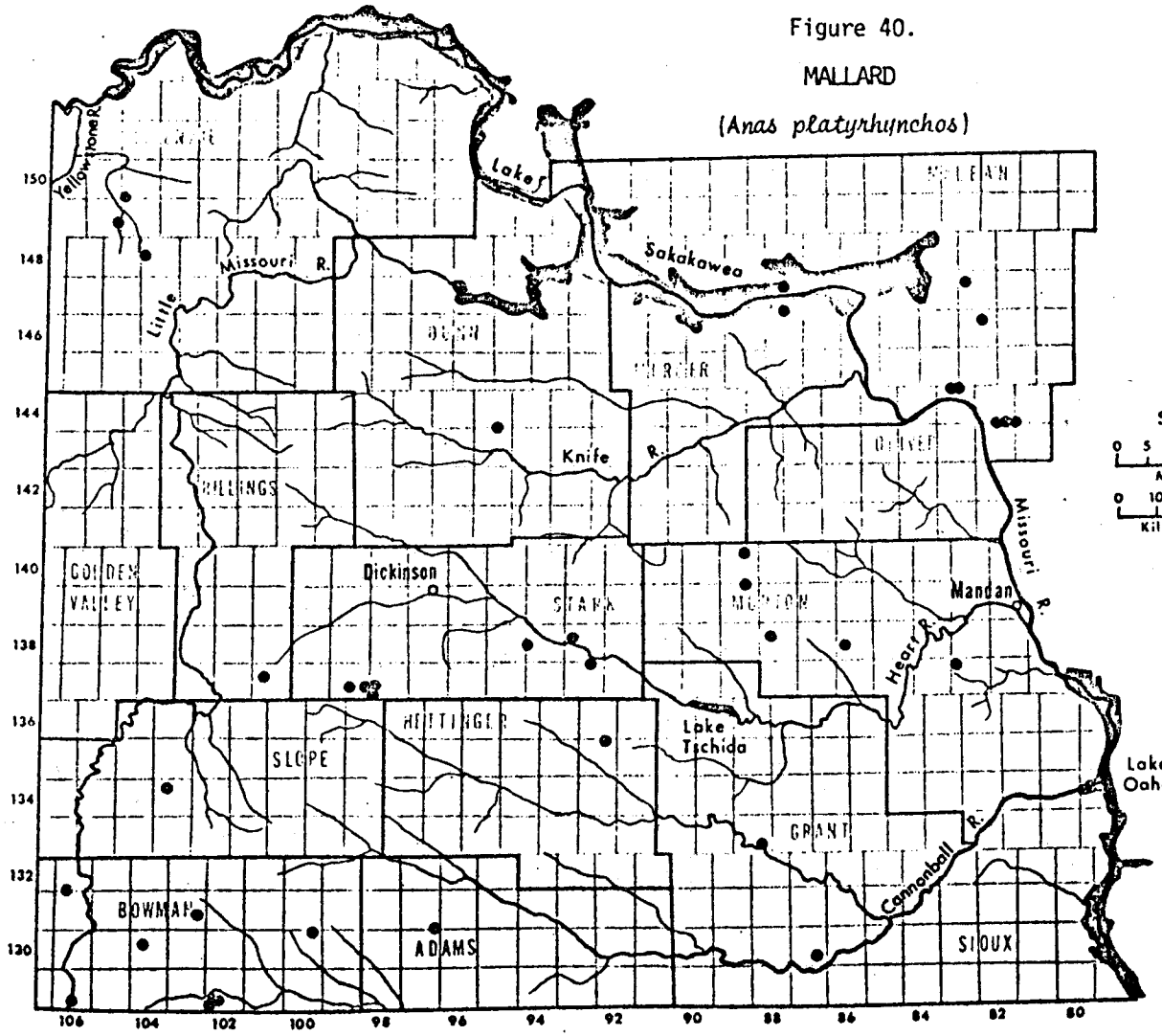
Habitat: Probably similar to the Gadwall, but pintails use shallow temporary and ephemeral wetlands more extensively and their nests tend to be more widely dispersed.

Status: Stewart (1975) listed it as uncommon in the project area. Based on 23 observations, we list it as a fairly common breeder, but it apparently is uncommon in the southeastern portions of the project area.

Figure 40.

MALLARD

(*Anas platyrhynchos*)



● Observations in the Project Area

● 1976

Figure 41.

MALLARD

(*Anas platyrhynchos*)

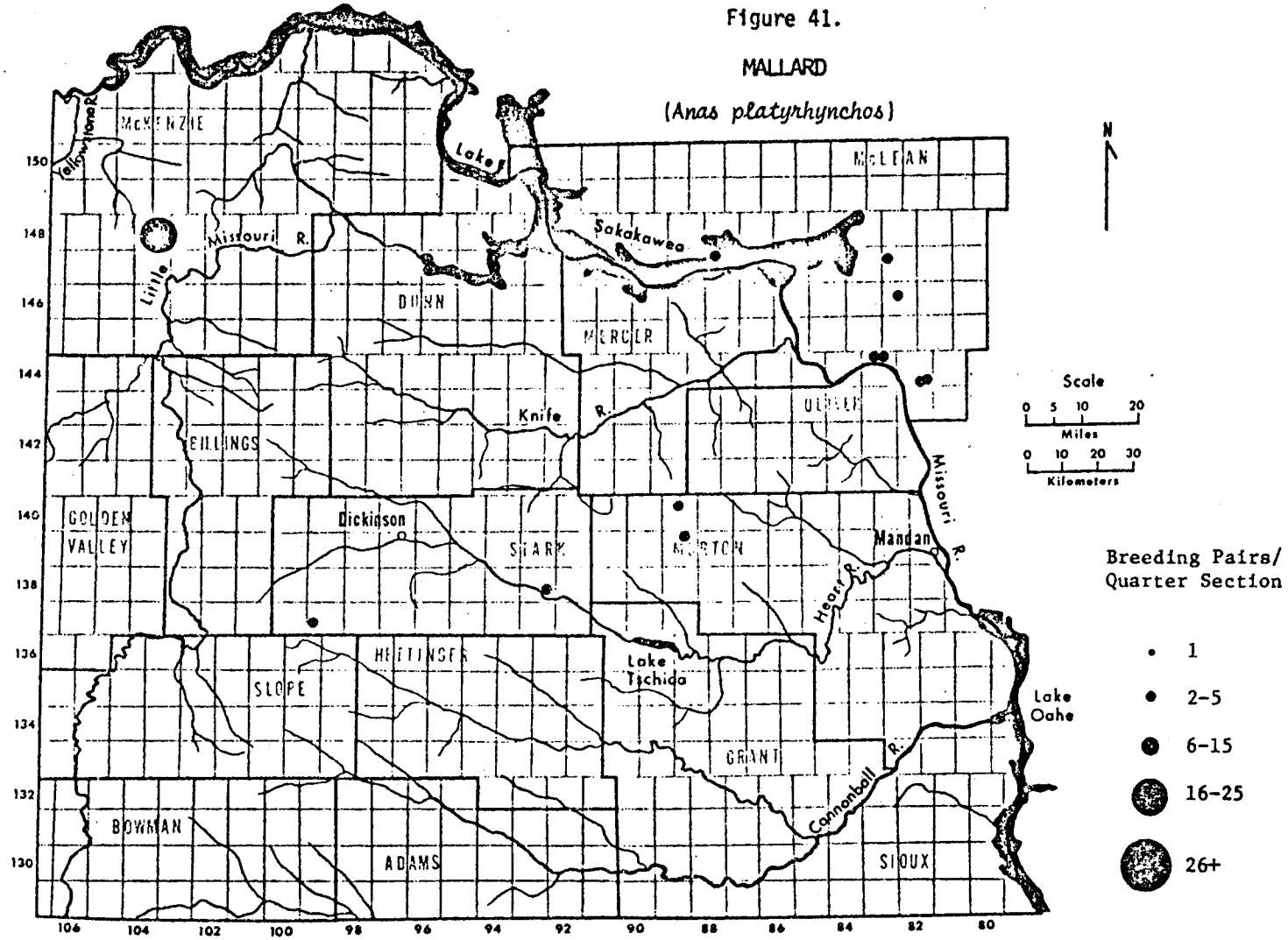
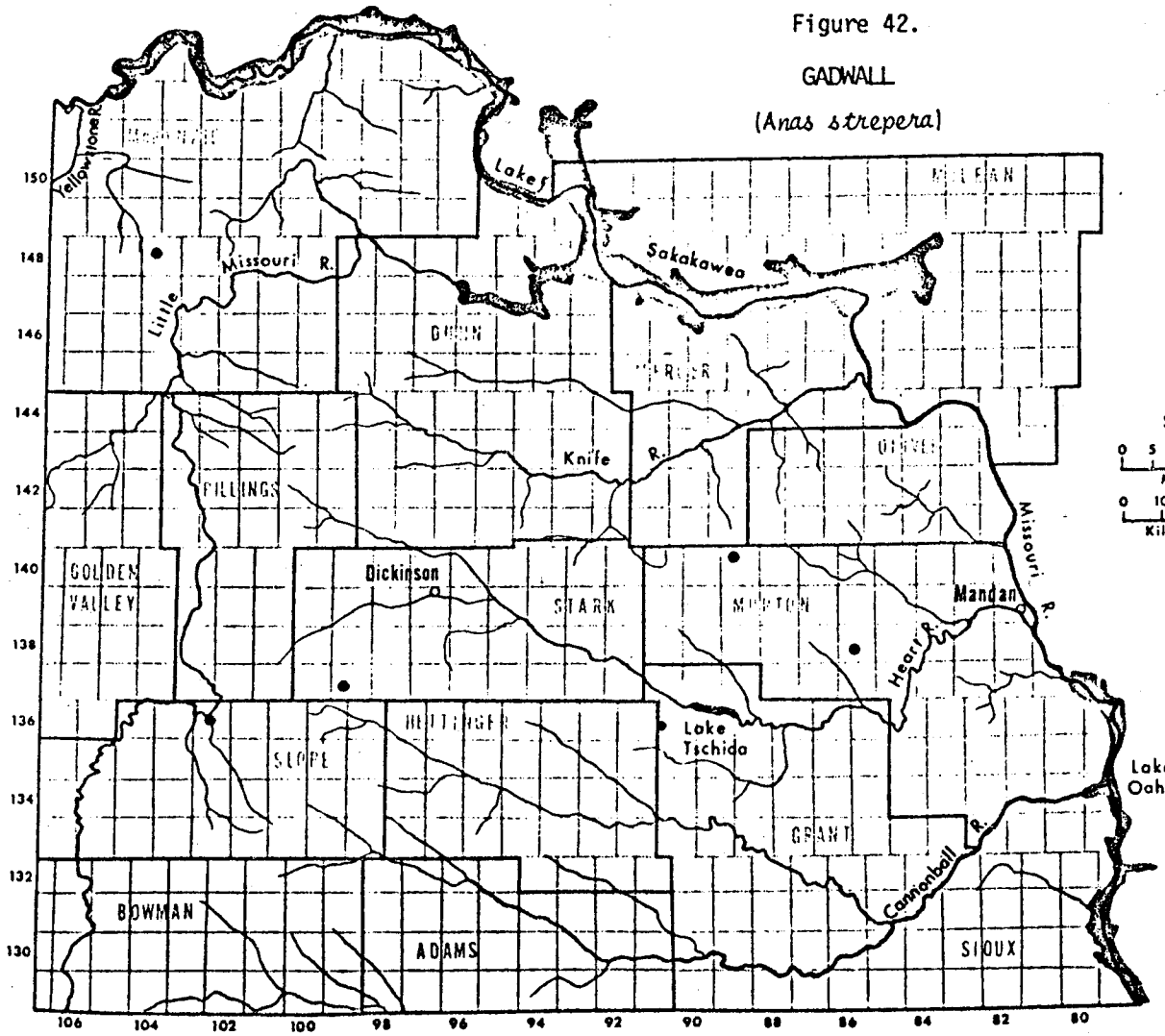


Figure 42.

GADWALL

(*Anas strepera*)



Observations in the Project Area

● 1976

Figure 43.

GADWALL

(*Anas strepera*)

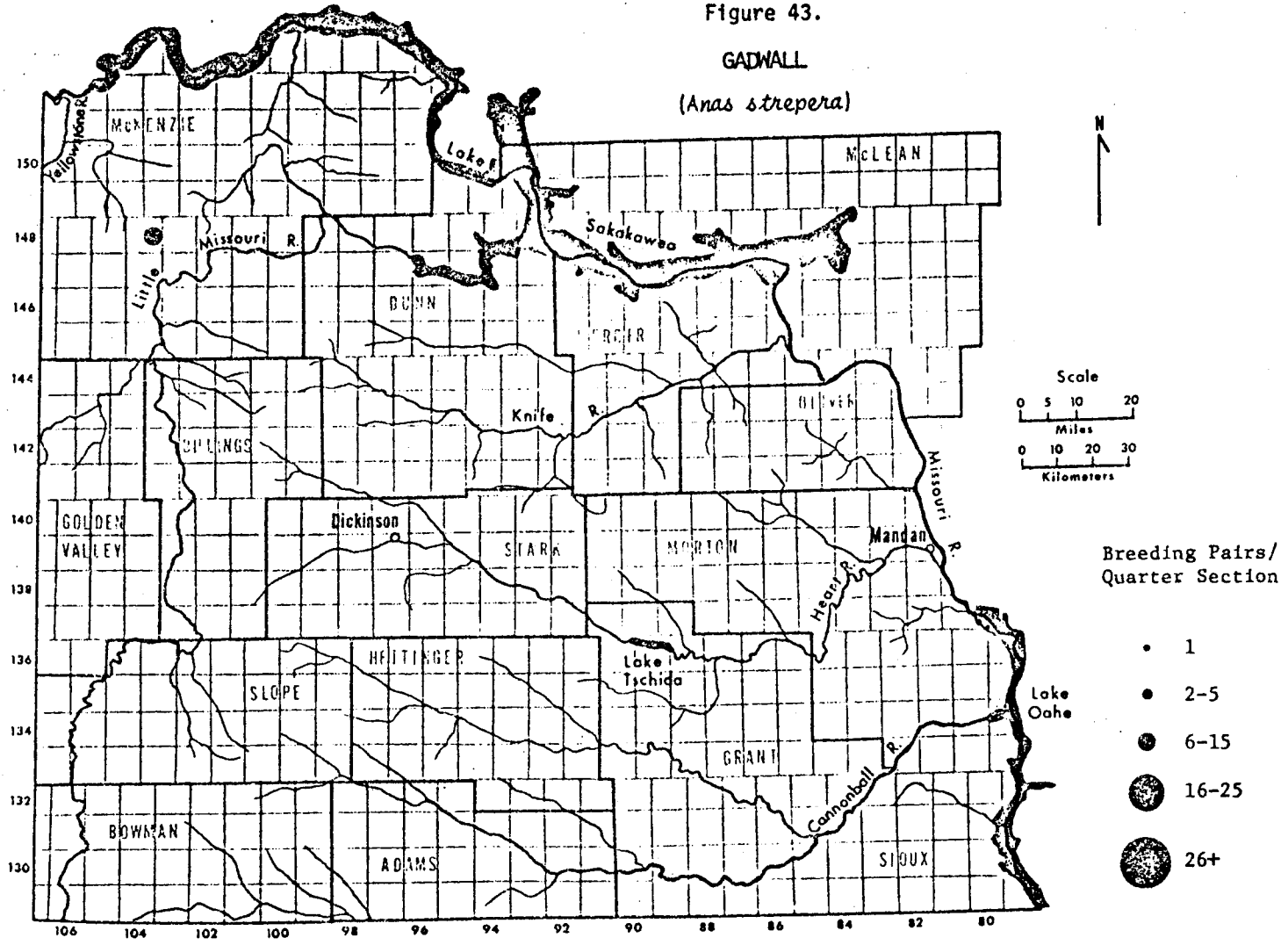


Figure 44.

AMERICAN WIGEON

(*Anas americana*)

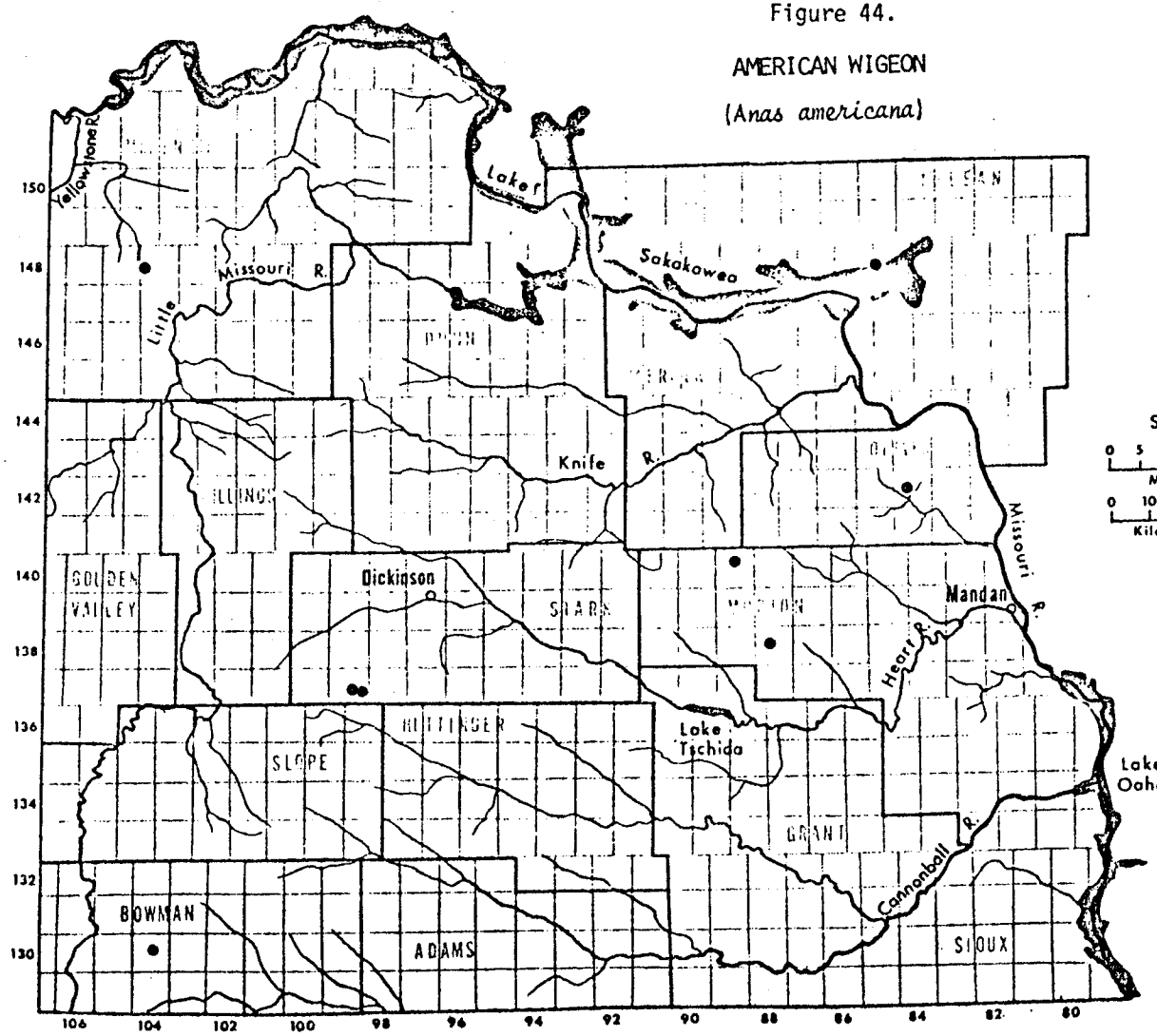


Figure 45.

AMERICAN WIGEON

(Anas americana)

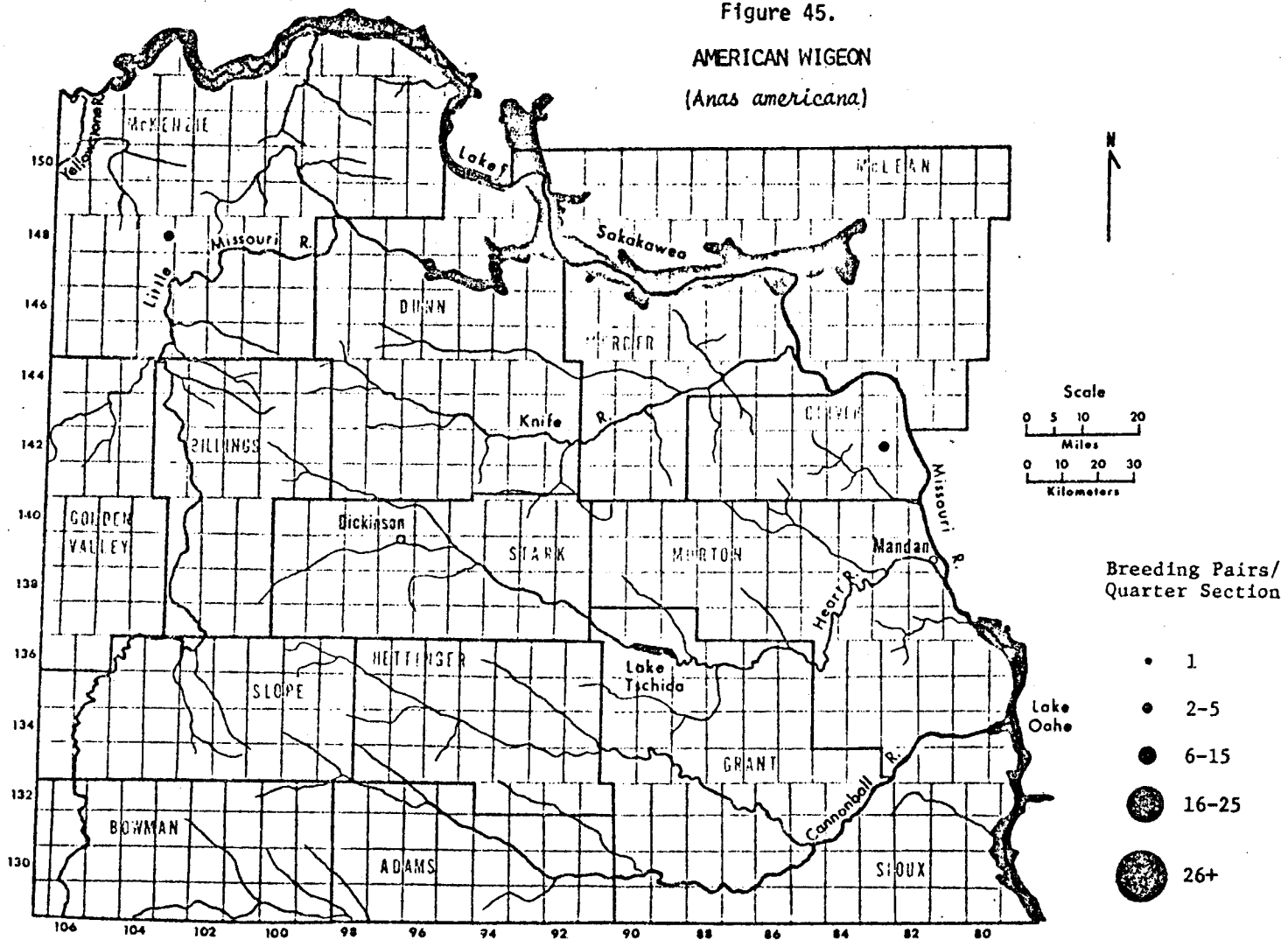
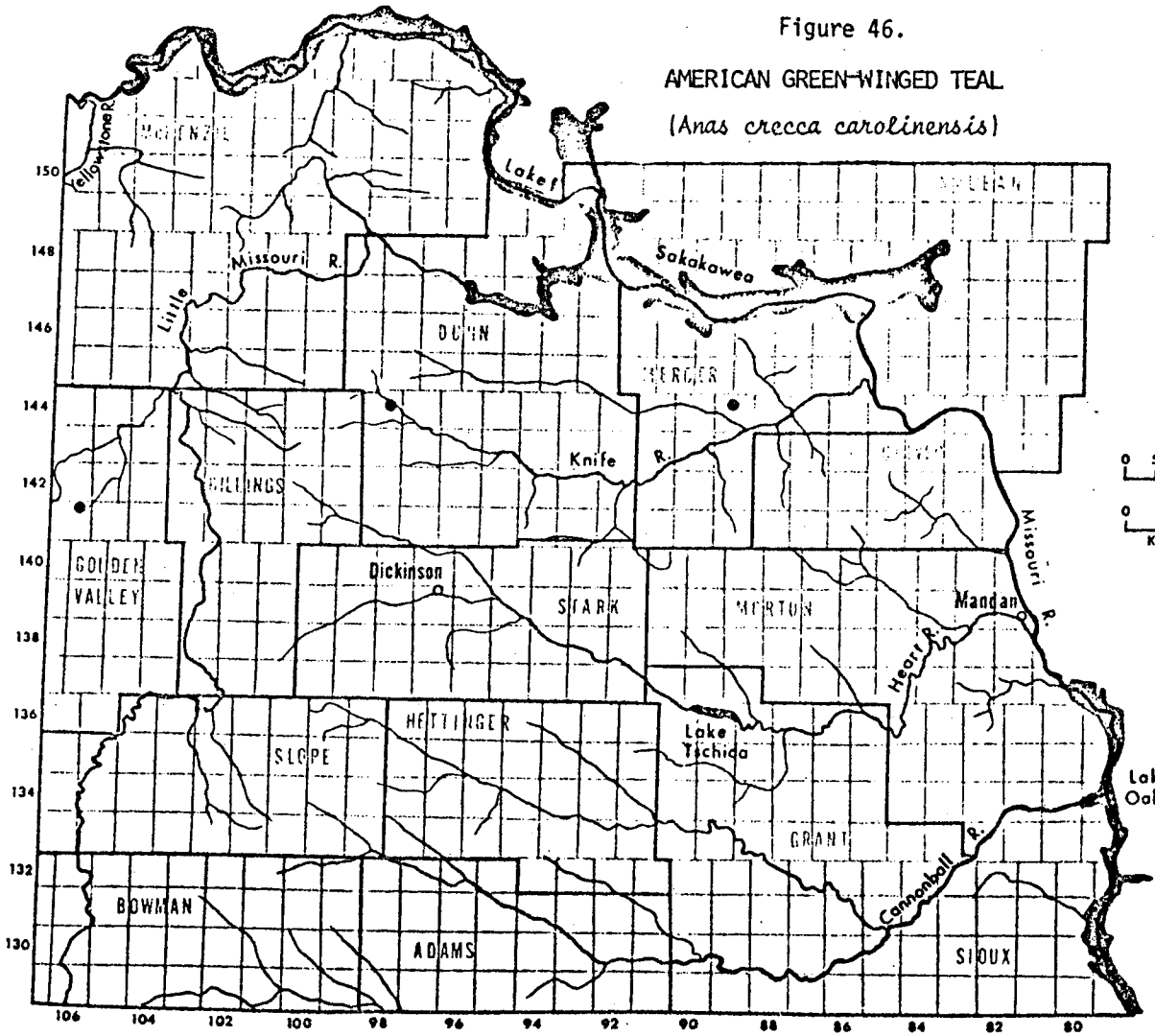


Figure 46.

AMERICAN GREEN-WINGED TEAL

(*Anas crecca carolinensis*)



N

Scale

0 5 10 20
Miles

0 10 20 30
Kilometers

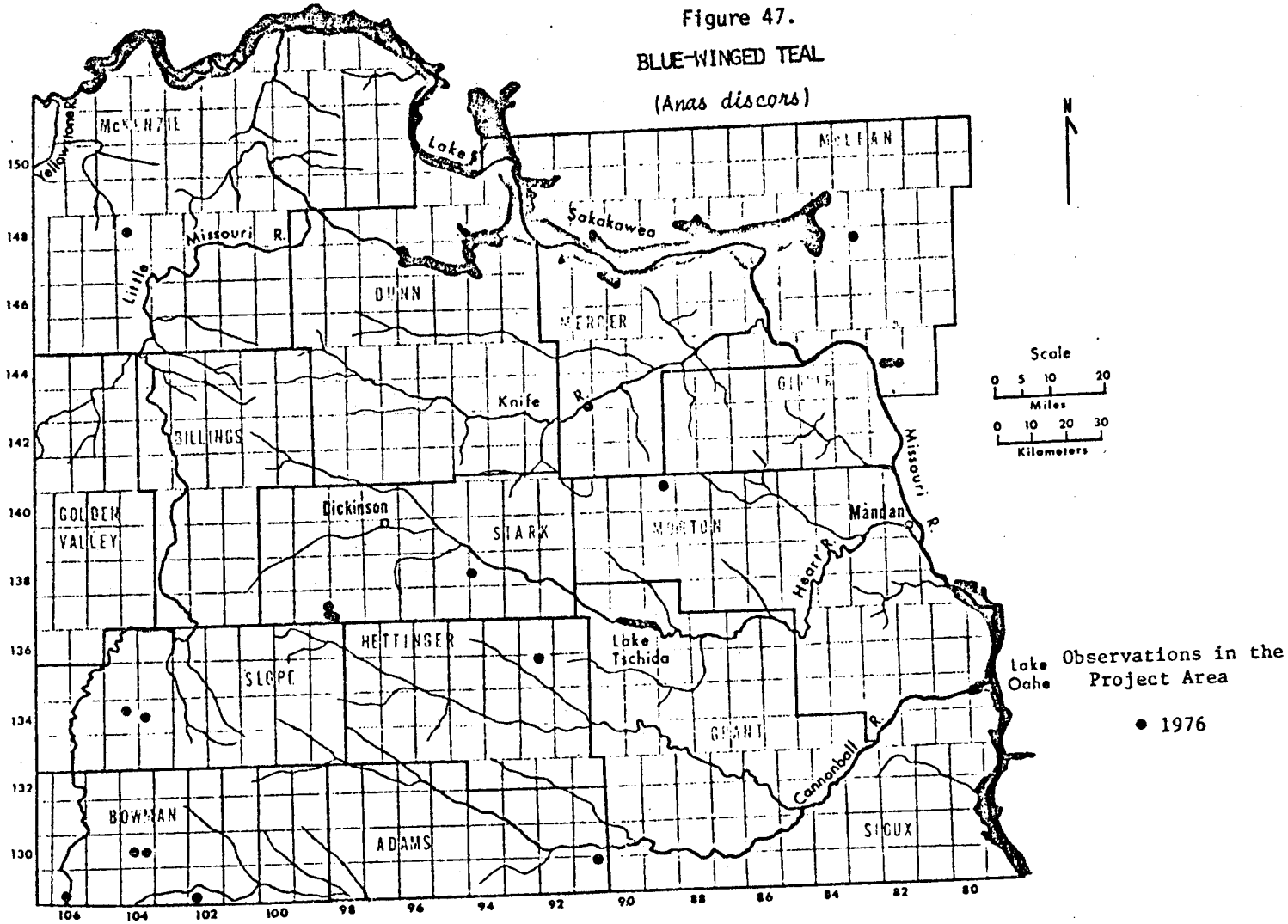
Observations in the Project Area

● 1976

Figure 47.

BLUE-WINGED TEAL

(*Anas discors*)



Observations in the Project Area

● 1976

Figure 48.

BLUE-WINGED TEAL

(*Anas discors*)

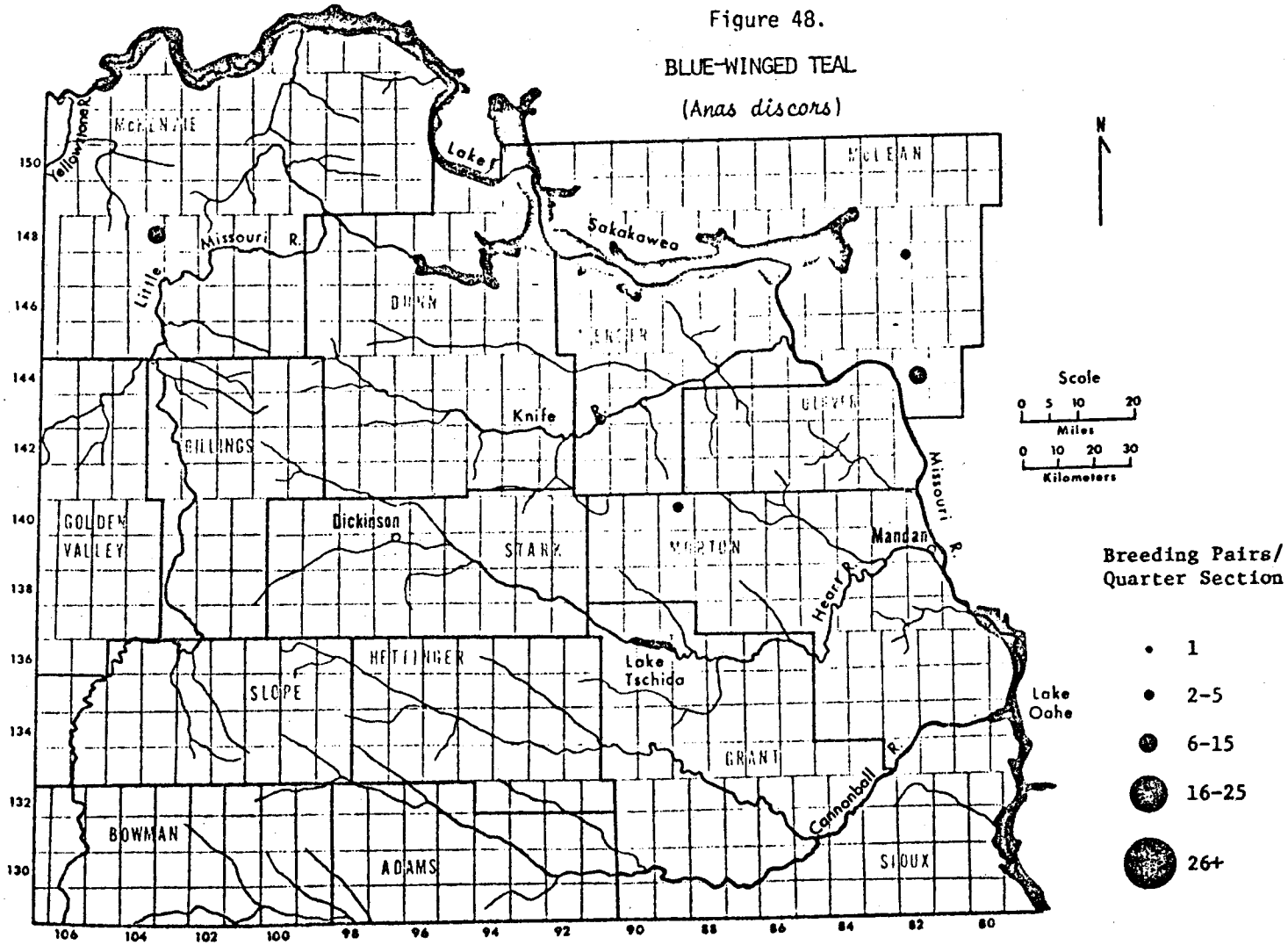
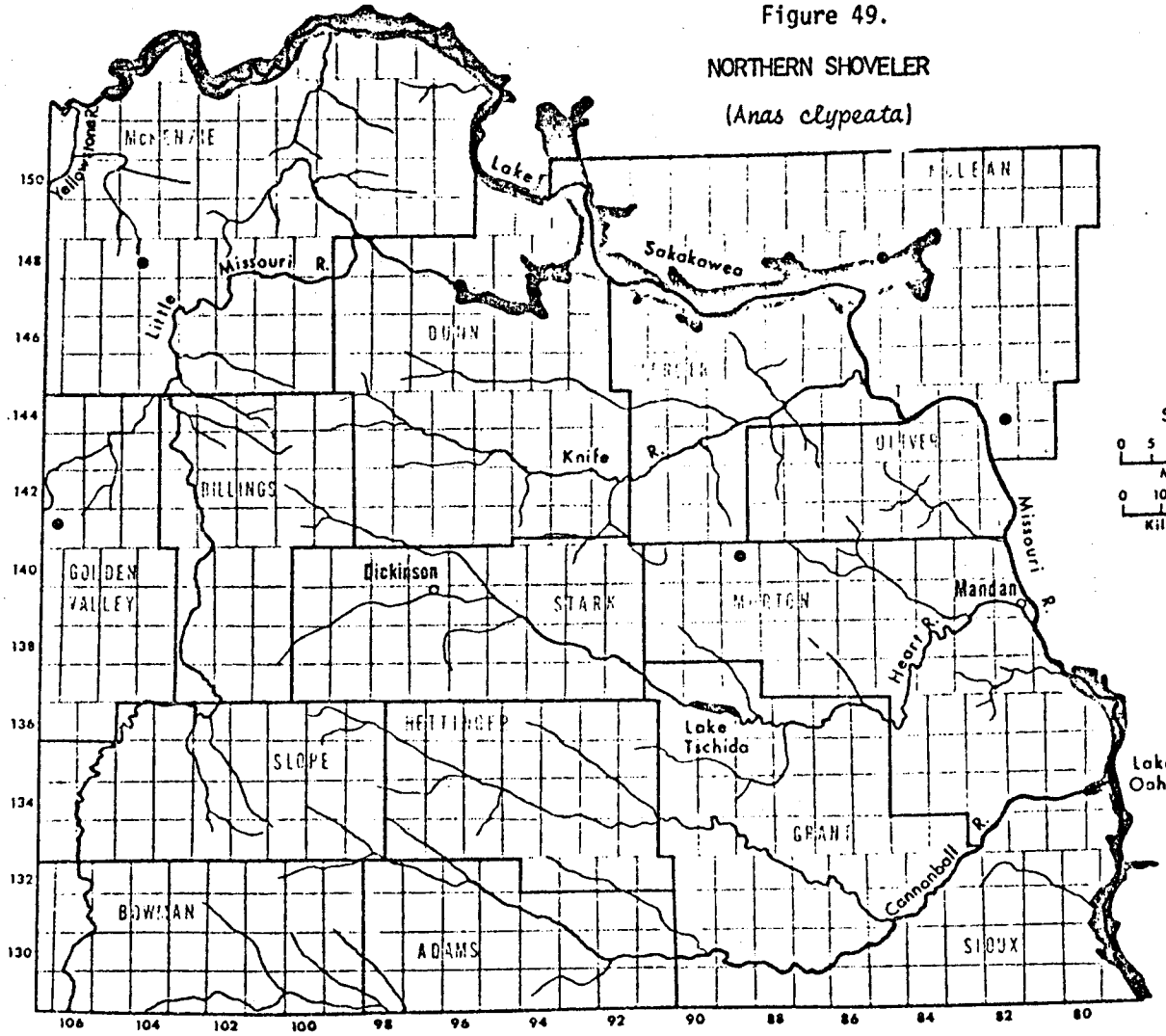


Figure 49.

NORTHERN SHOVELER

(*Anas clypeata*)



Observations in the Project Area

• 1976

Figure 50.

NORTHERN SHOVELER

(*Anas clypeata*)

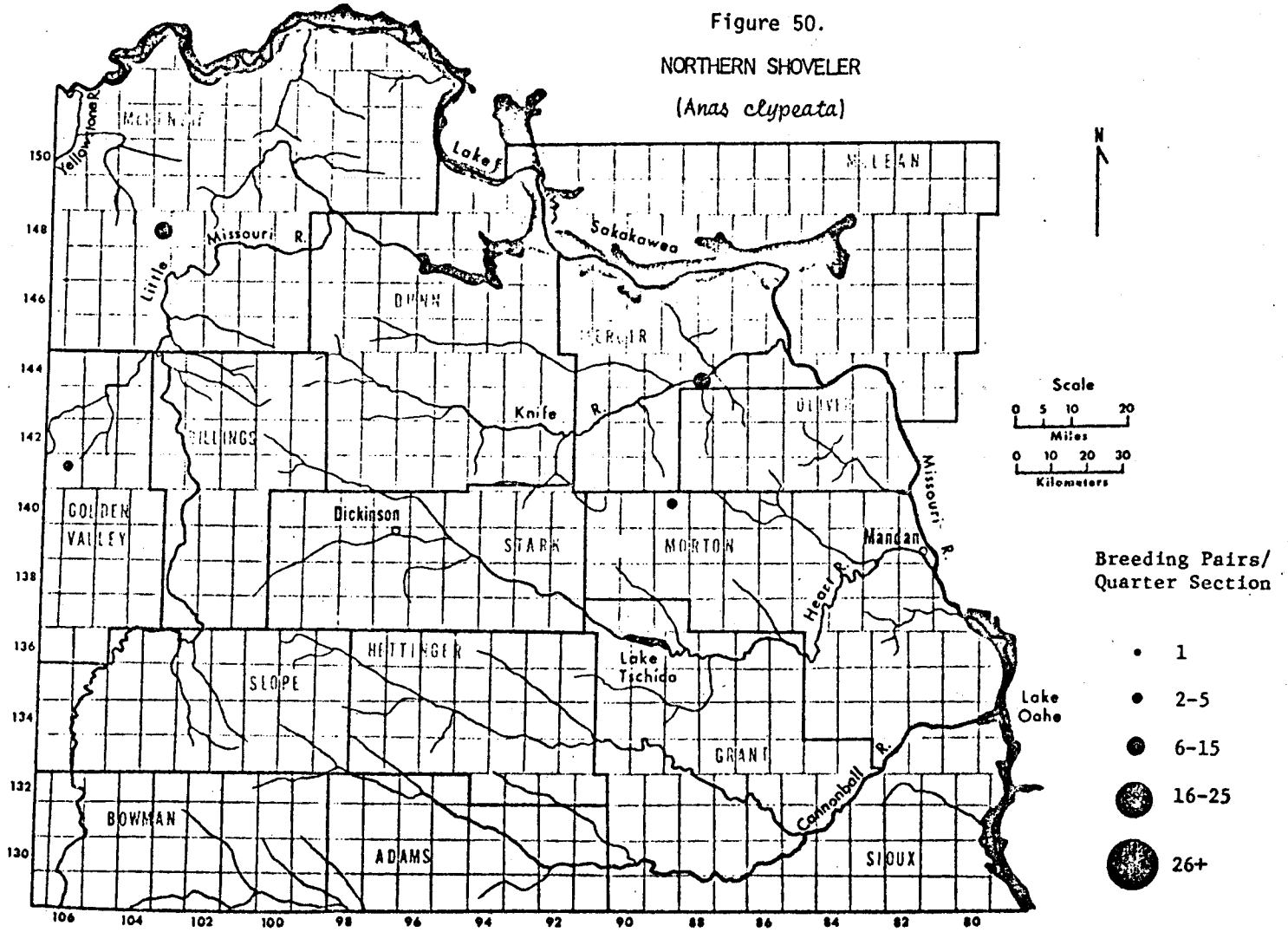


Figure 51.

PINTAIL

(*Anas acuta*)

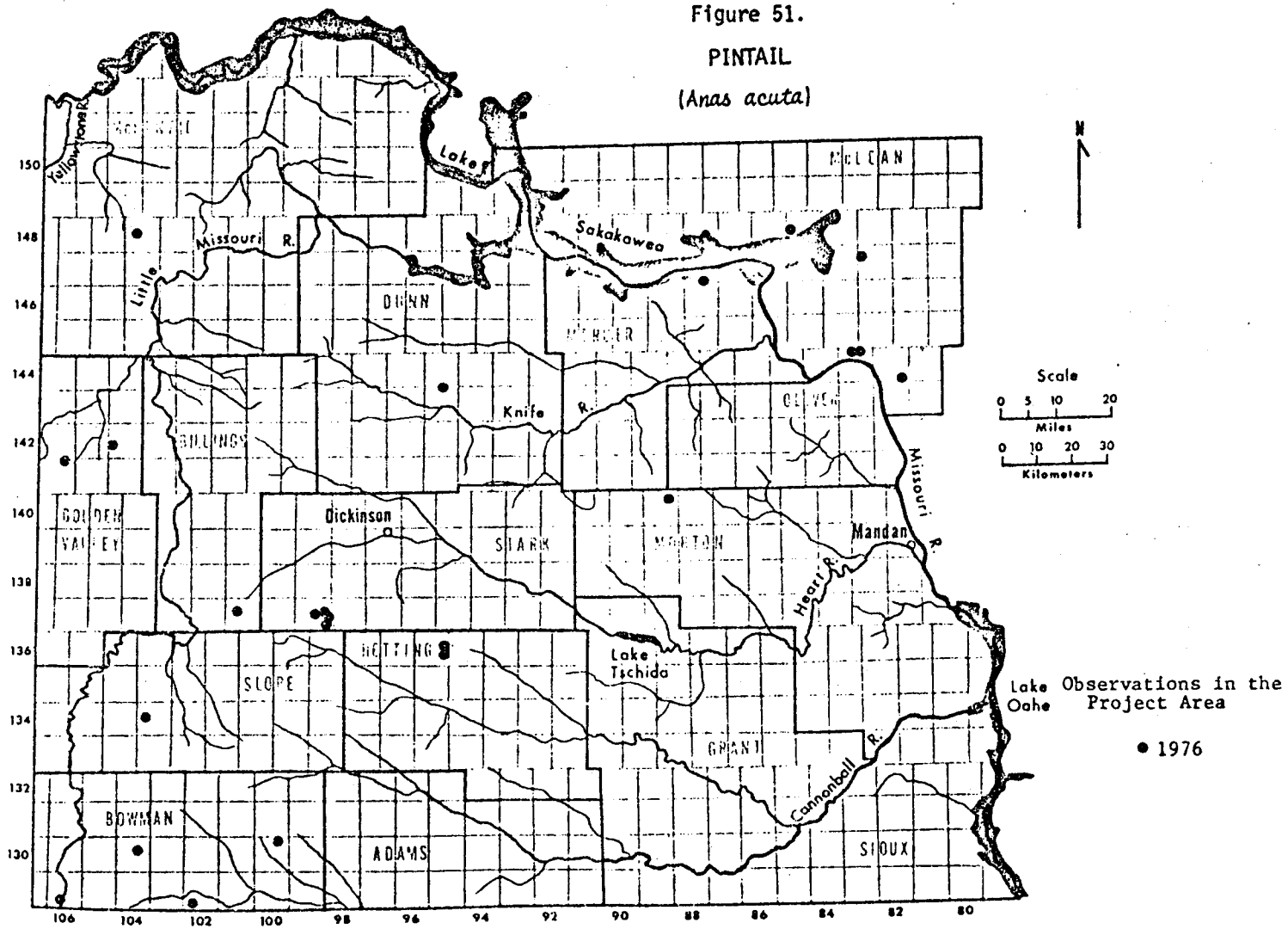
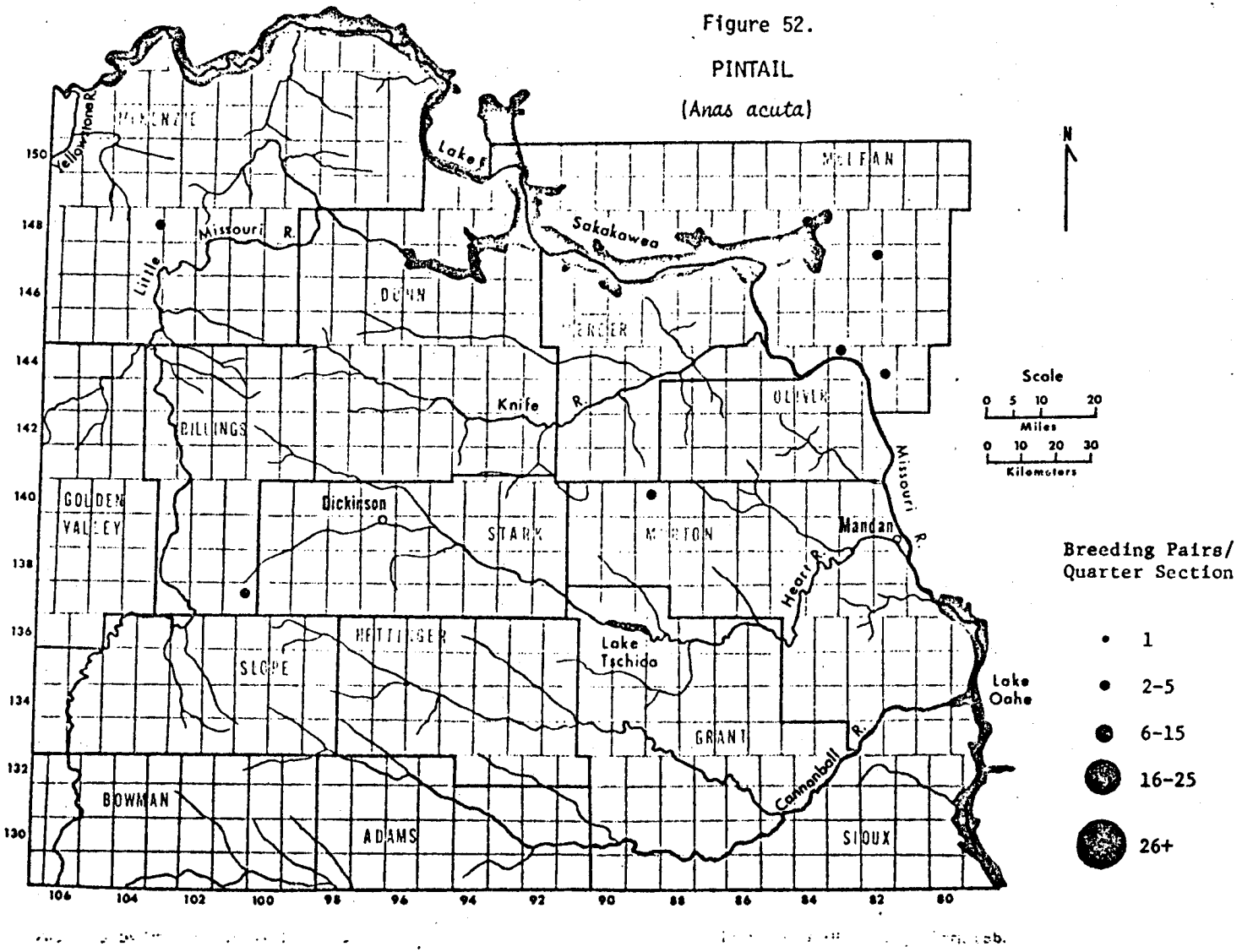


Figure 52.

PINTAIL

(*Anas acuta*)



ORDER: Anseriformes

FAMILY: Anatidae

Redhead (*Aythya americana*) - Palmer (1976a) lists the North American distribution as primarily from southern California east to Minnesota and north to northern Alberta, but scattered breeding does occur elsewhere, especially in Alaska. Bellrose (1976) records North American breeding populations as being less than one million. In North Dakota it appears to be common in the Missouri Coteau, fairly common and at times local over the remaining portion of the state, except in the Southwestern Slope Region where it is rare and local (Stewart, 1975).

Distribution in the project area: One observation was noted in McLean County on a natural wetland (Fig. 53).

Habitat: The Redhead is a true inland diving duck and nests primarily over water in North Dakota. Stewart (1975) describes the preferred habitat as semipermanent and deep seasonal ponds and lakes.

Status: Rare breeder, being recorded only in McLean County in this study. Evidently rare or absent over the remaining portions of the project area.

ORDER: Anseriformes

FAMILY: Anatidae

Lesser Scaup (*Aythya affinis*) - Breeds primarily from the Prairie Pothole Region northwest into Alaska (Palmer, 1976b). Stewart (1975) lists it as uncommon in the Turtle Mountains and Missouri Coteau, uncommon and local on the Northwestern Drift Plains, and rare in other areas including the project area.

Distribution in the project area: One observation was made on Lake Sakakawea and one in Golden Valley County (Fig. 54).

Habitat: Upland, island or marsh-edge nester which prefers semipermanent and permanent ponds and lakes (Stewart, 1975).

Status: Rare in the project area.

ORDER: Anseriformes

FAMILY: Anatidae

Ruddy Duck (*Oxyura jamaicensis*) - Breeding range extends from California east to Texas and north through Alberta and British Columbia, exclusive of mountainous areas in the United States (Palmer, 1976b). About 0.5 million are recorded annually on U.S. Fish and Wildlife Service surveys. Stewart (1975) lists it as fairly common or uncommon over most of North Dakota and rare in the Northeastern Drift Plain, Agassiz Lake Plain, and Southwestern Slope Region.

Distribution in the project area: One observation was recorded in McLean County on a natural wetland (Fig. 55).

Habitat: Semipermanent ponds and lakes are preferred (Stewart, 1975).

Status: Rare breeder, being found only in McLean County. Evidently extremely rare or absent over the remaining portions of the project area.

ORDER: Falconiformes

FAMILY: Cathartidae (Vultures) - This family contains three species in North America, including the endangered California Condor. Most species are large, broad-winged birds with an unfeathered head and usually are scavengers (Bent, 1961).

Turkey Vulture (*Cathartes aura*) - The Turkey Vulture is the northern-most breeding vulture in North America, nesting over most of the continental United States (Robbins, et al., 1966). Stewart (1975) lists it as fairly common in the Badlands and adjacent plains and uncommon elsewhere in North Dakota.

Distribution in the project area: 16 observations were made in the project area. Birds were observed in or flying over riparian woodland, moderately grazed rolling grassland, deciduous forest, upland breaks, river breaks, and seeded cropland (Fig. 56).

Habitat: Like most raptors the Turkey Vulture requires large expanses of useable habitat for survival. Stewart (1975) states that it is a "species that is characteristic of habitat complexes that include brushy woodlands intermingled with or adjoining open expanses of prairie or cropland."

Status: Fairly common species in the project area, occurring primarily along the Missouri and Little Missouri Rivers.

ORDER: Falconiformes

FAMILY: Accipitridae (Kites, Hawks, and Eagles) - A diverse family ranging widely in size and habits. Most take live prey ranging from insects to mammals (Bent, 1961). Several species in this family are classified as endangered, rare, threatened or unique (U.S. Fish and Wildlife Service, 1976; Seabloom and McKenna, 1976).

Marsh Hawk (*Circus cyaneus*) - A widely distributed species, the Marsh Hawk breeds over most of the northern United States, Canada, and Alaska (Bent, 1961). Stewart (1975) lists the North Dakota breeding range as fairly common locally everywhere west of the Agassiz Lake Plain where it is uncommon.

Distribution in the project area: We made 174 observations of Marsh Hawks in the project area. It utilized many habitats, but was found primarily in moderately grazed rolling grasslands, upland breaks, and seeded croplands (Fig. 57, 58).

Habitat: The Marsh Hawk is a wide-ranging species that prefers open areas, including grasslands and prairie wetlands (Stewart, 1975).

Status: Stewart (1975) lists it as fairly common in southwestern North Dakota. Because of 174 observations in 1976, we classify it as a common breeding species in the project area.

ORDER: Falconiformes

FAMILY: Accipitridae

Sharp-shinned Hawk (*Accipiter striatus*) - The Sharp-shinned Hawk is the smallest of the three North American Accipiters. It breeds over most of North America, exclusive of true arctic regions. The prey is primarily small birds (Bent, 1961). Stewart (1975) lists it as being uncommon or rare in several areas of North Dakota including the project area.

Distribution in the project area: Seven observations of Sharp-shinned Hawks were made in the project area. They were found primarily in hardwood draws in Billings, Dunn, Golden Valley, McKenzie, and Slope Counties (Fig. 59, 60).

Habitat: Primarily a bird of open woodland and wood margins (Bent, 1961).

Status: Uncommon breeder, being found most commonly along the Little Missouri River and in the Killdeer Mountains.

ORDER: Falconiformes

FAMILY: Accipitridae

Cooper's Hawk (*Accipiter cooperii*) - The Cooper's Hawk is about intermediate in size between the Sharp-shinned Hawk and Goshawk. Its breeding range is about the same as that of the Sharp-shinned Hawk, but it does not breed in northern Canada and Alaska. Prey is primarily birds, but some mammals are taken as well (Bent, 1961). Stewart (1975) lists it as being fairly common in parts of the Turtle Mountains, Pembina Hills, and wooded valleys of several streams in North Dakota and uncommon, rare, or absent elsewhere. He lists several observations for southwestern North Dakota.

Distribution in the project area: Two observations were made in the project area in hardwood draws in Billings and McKenzie Counties (Fig. 61, 62).

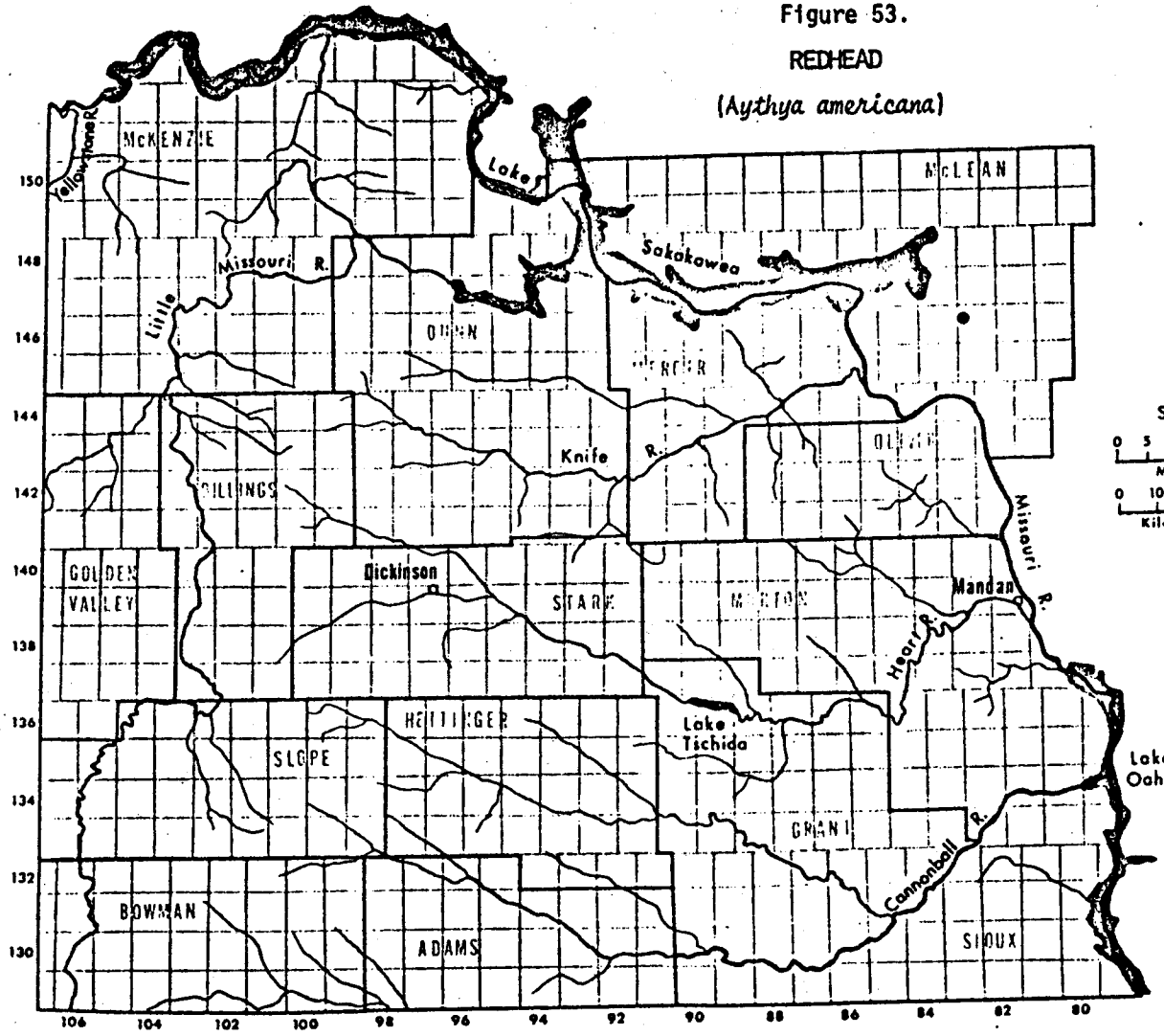
Habitat: Similar to the Sharp-shinned Hawk.

Status: Rare breeder, evidently concentrated along the Little Missouri River. Stewart (1975), however, lists several records along the Missouri River.

Figure 53.

REDHEAD

(Aythya americana)



Lake Oahe

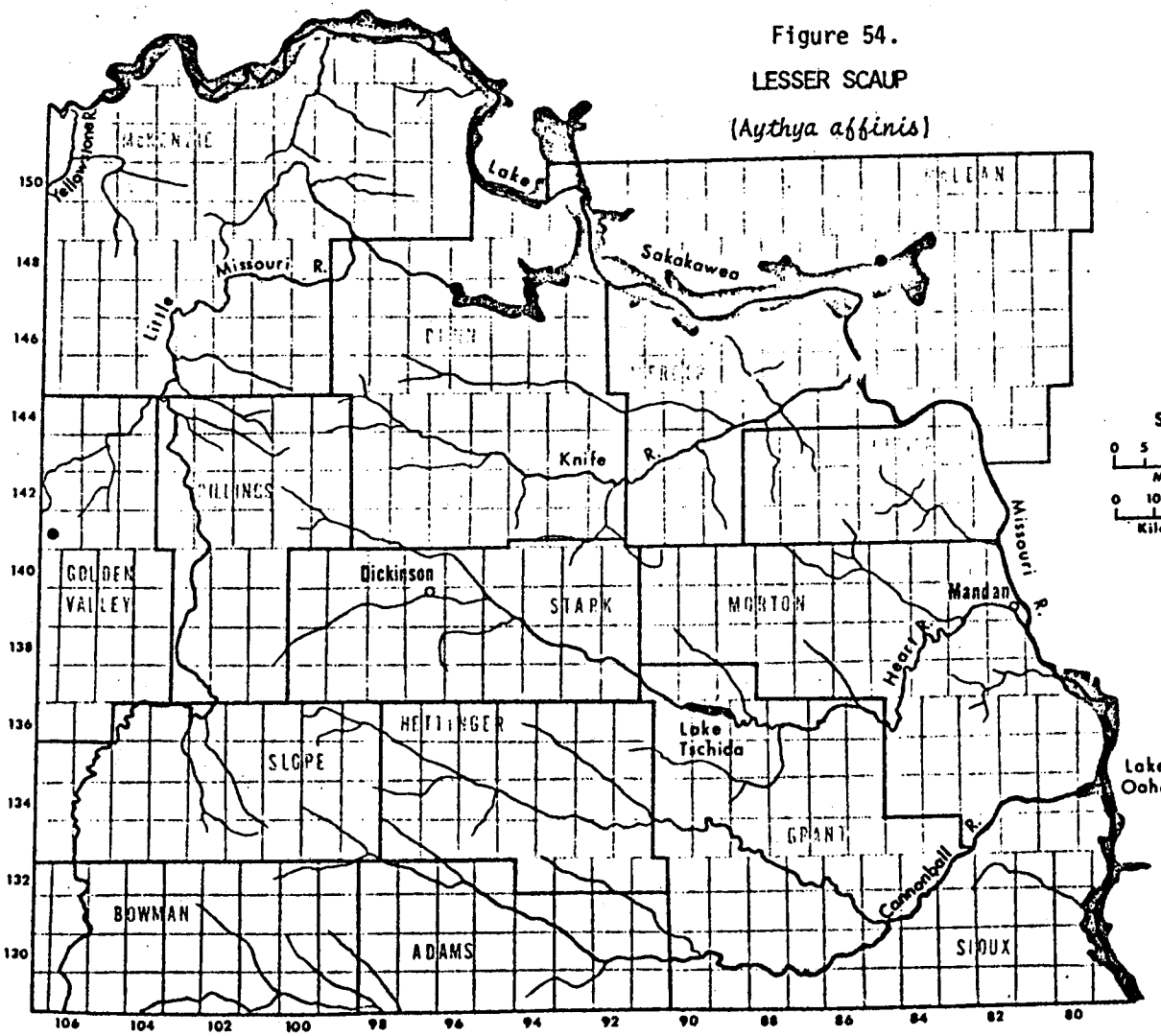
Observations in the Project Area

● 1976

Figure 54.

LESSER SCAUP

(*Aythya affinis*)



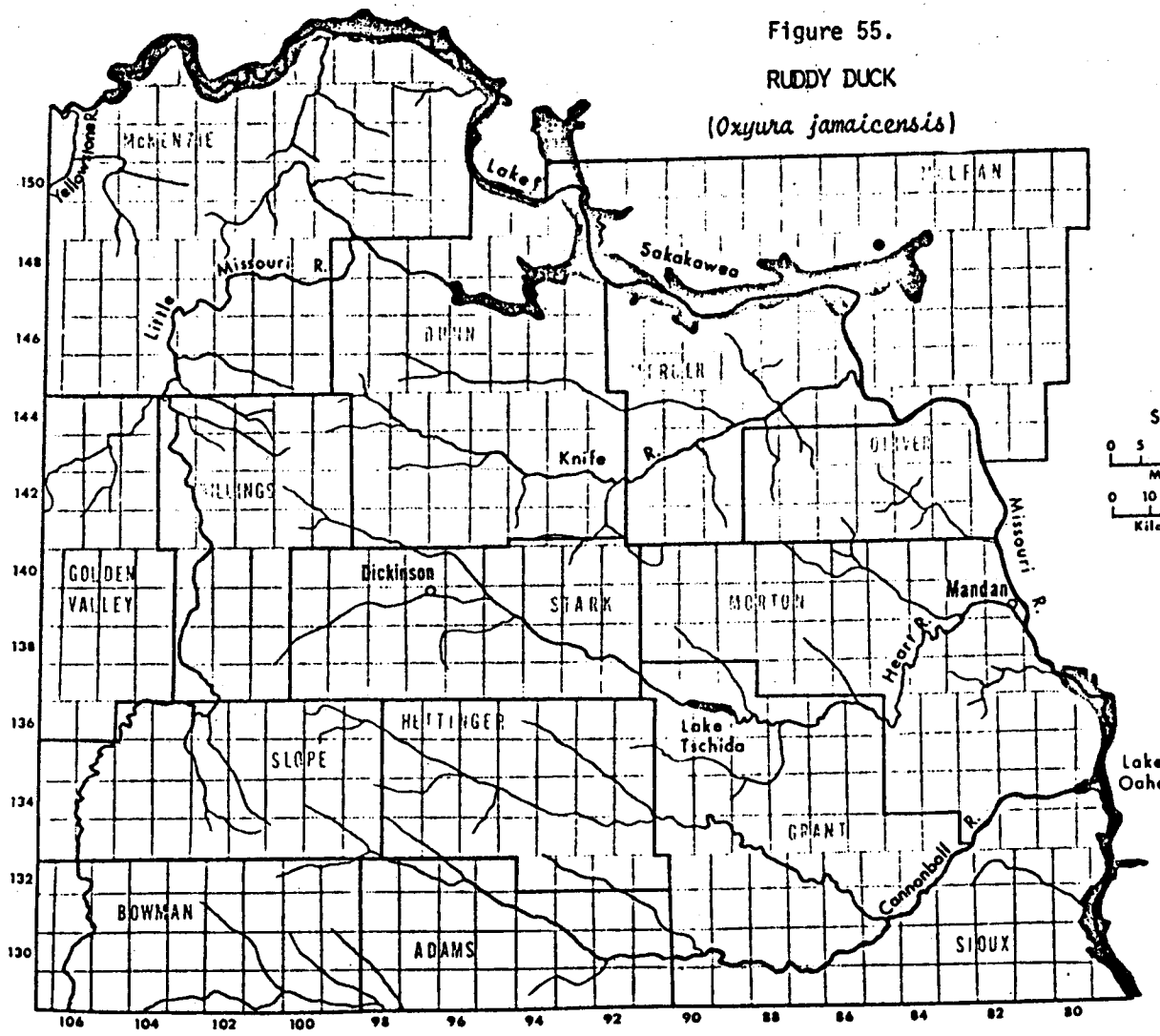
Observations in the Project Area

● 1976

Figure 55.

RUDDY DUCK

(*Oxyura jamaicensis*)



Observations in the Project Area

● 1976

Figure 56.

TURKEY VULTURE

(*Cathartes aura*)

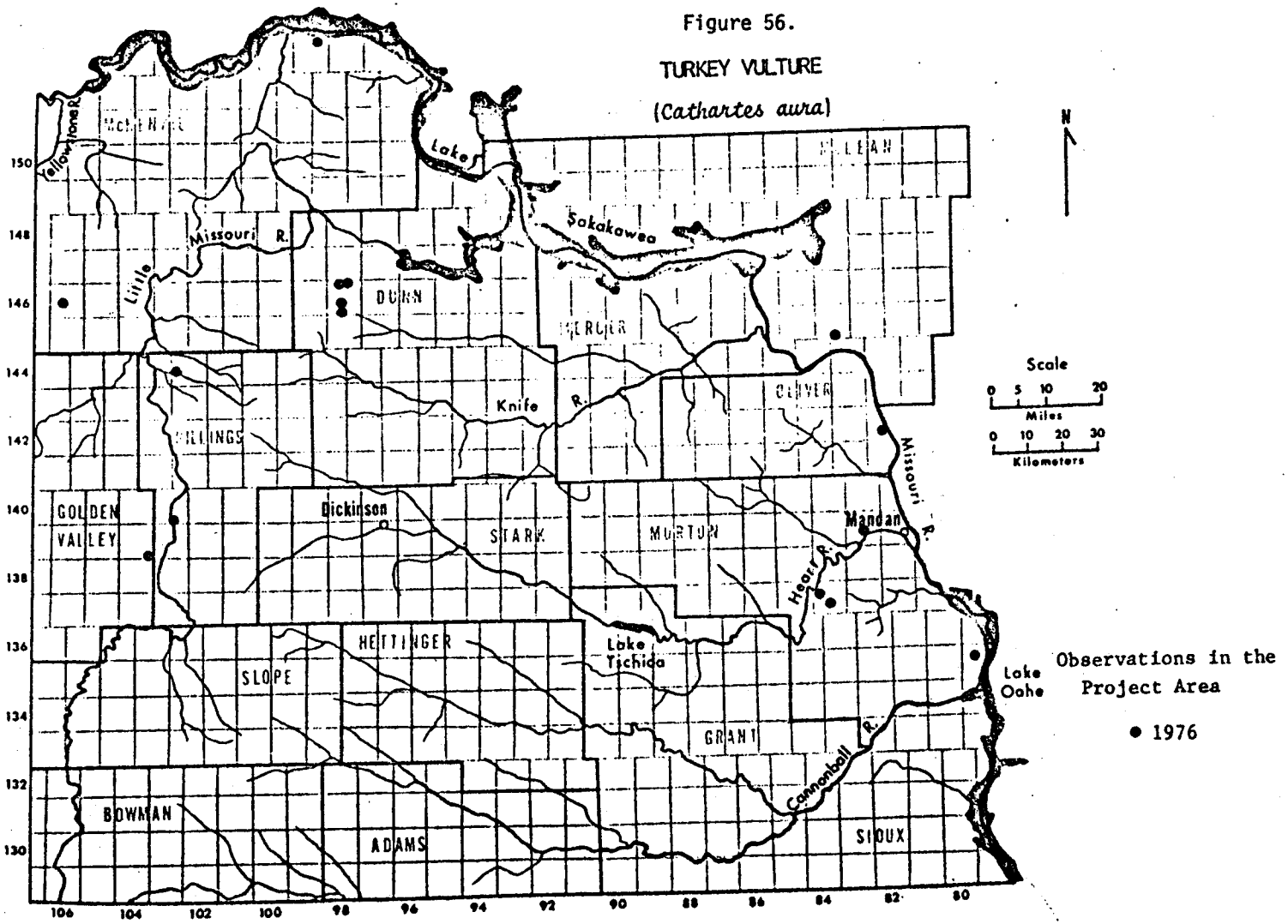
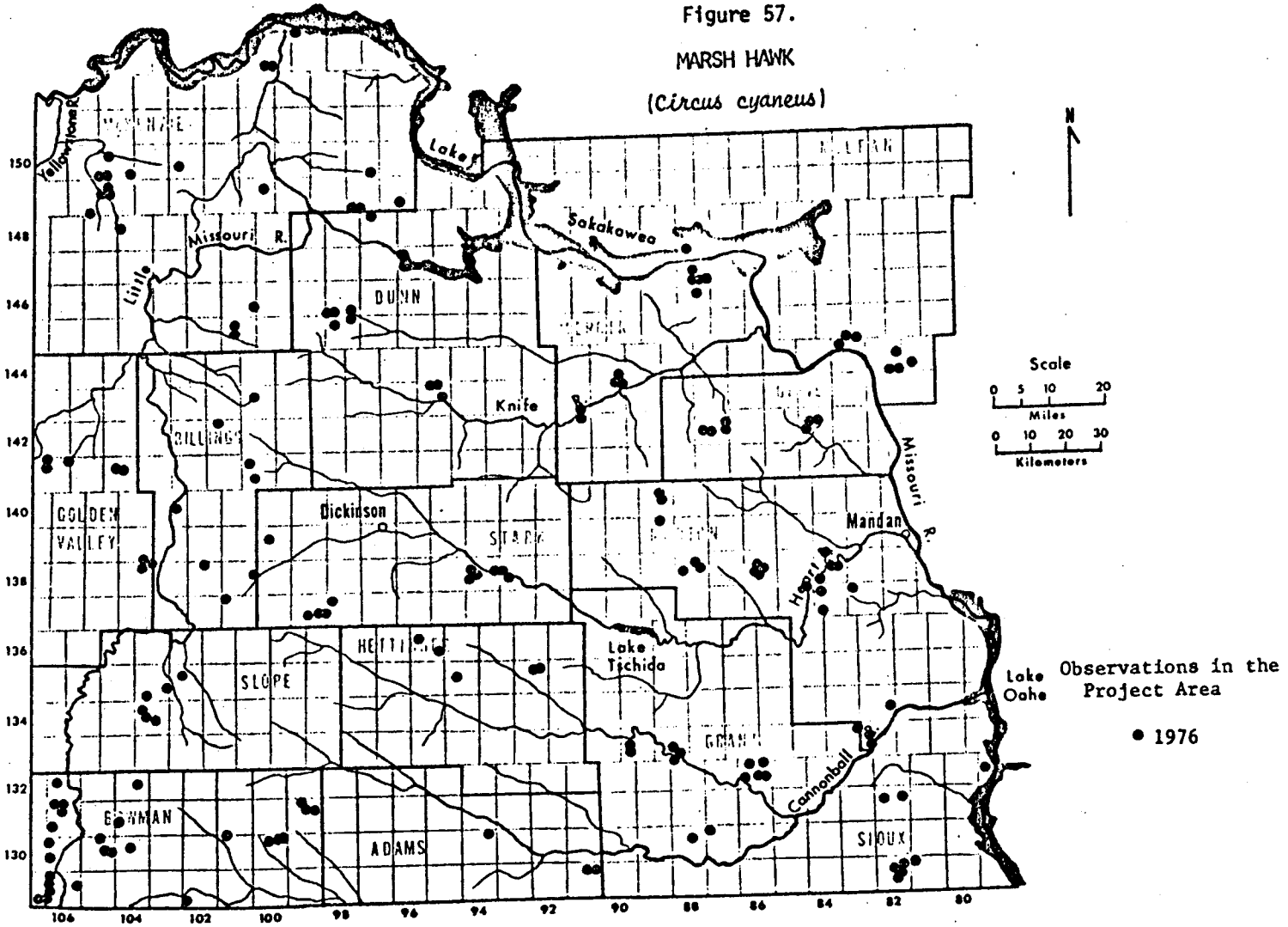


Figure 57.

MARSH HAWK

(*Circus cyaneus*)



Observations in the Project Area

● 1976

Figure 58.

MARSH HAWK

(*Circus cyaneus*)

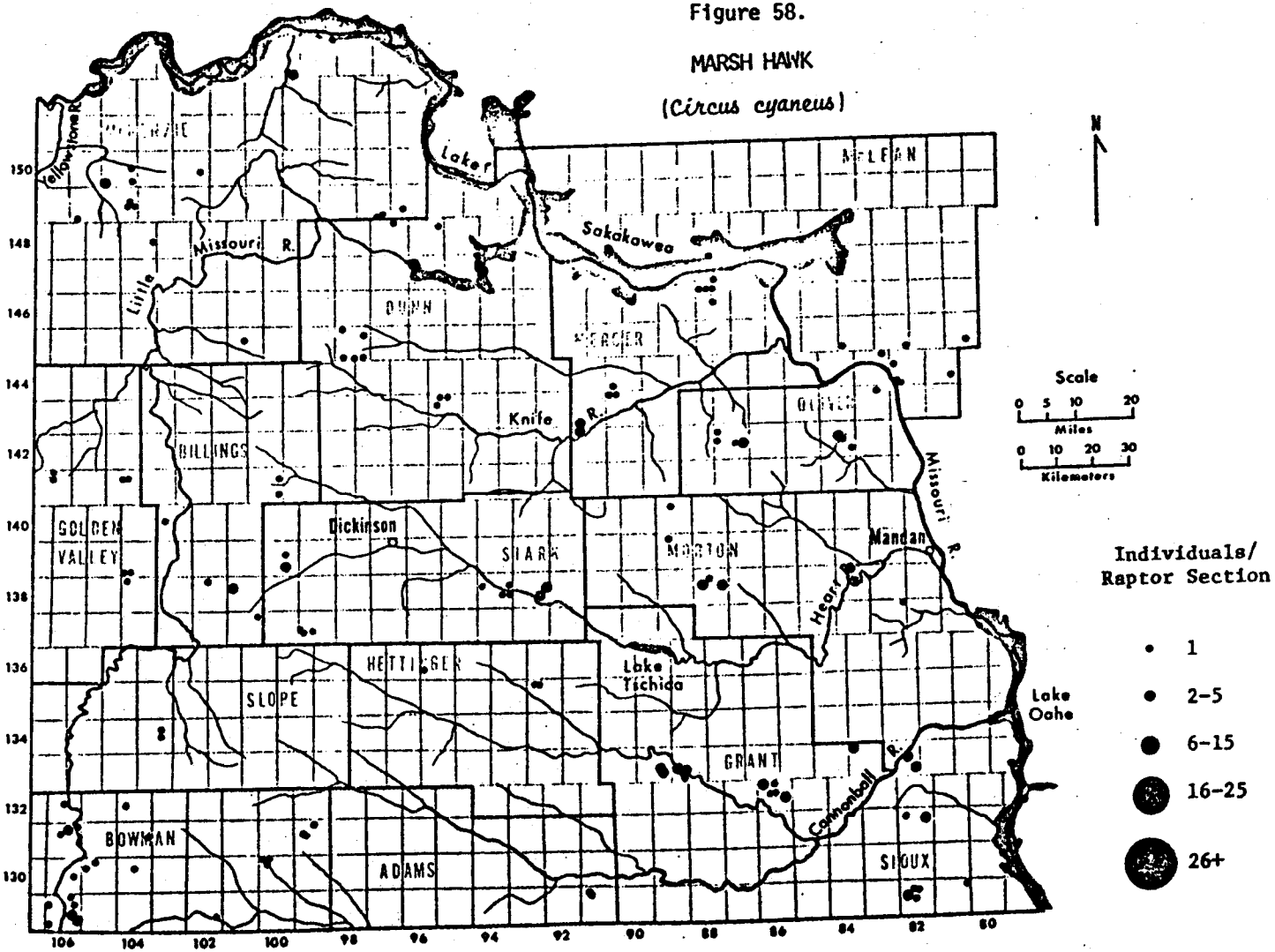
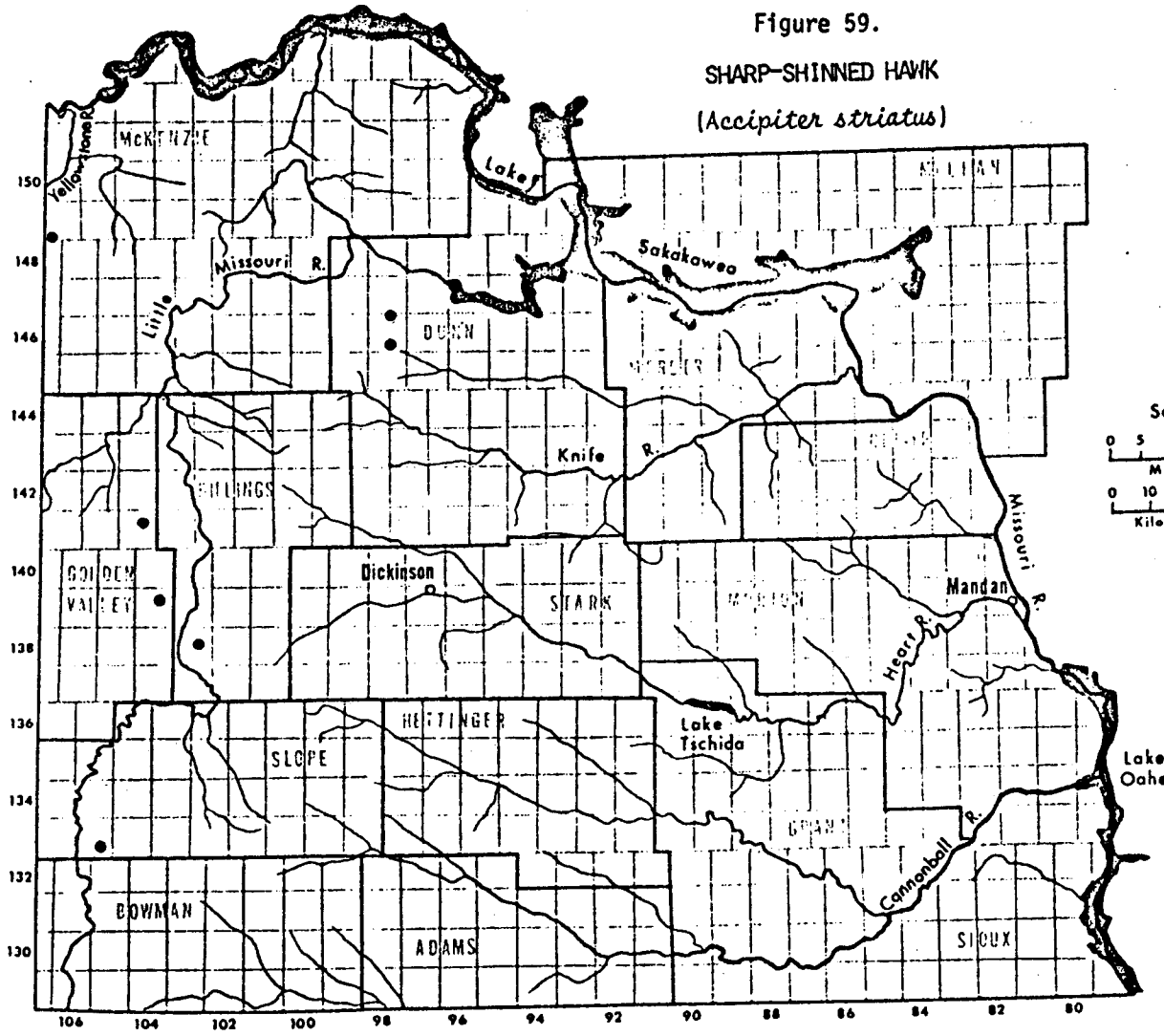


Figure 59.

SHARP-SHINNED HAWK

(*Accipiter striatus*)



Observations in the Project Area

● 1976

Figure 60.

SHARP-SHINNED HAWK

(*Accipiter striatus*)

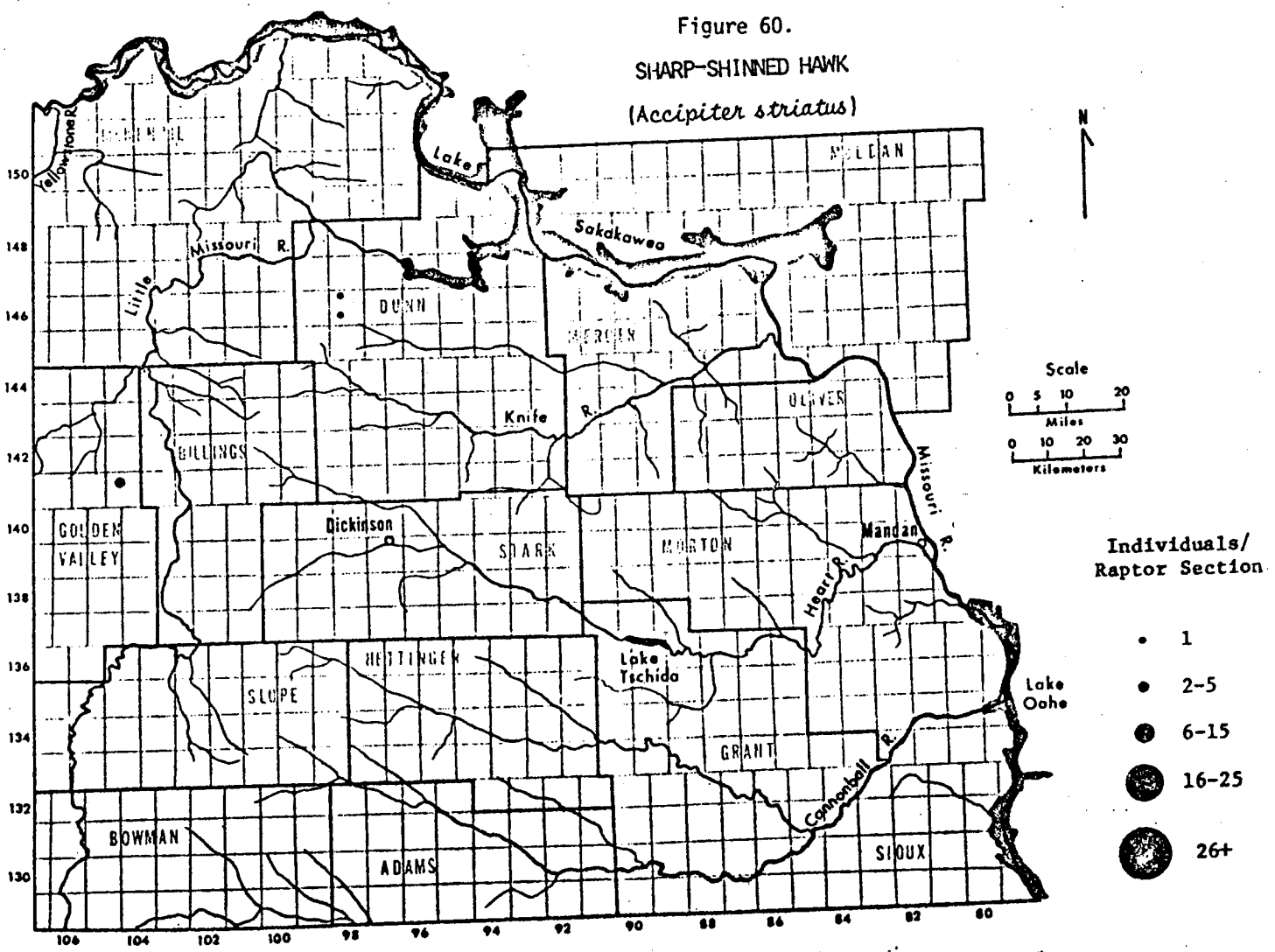
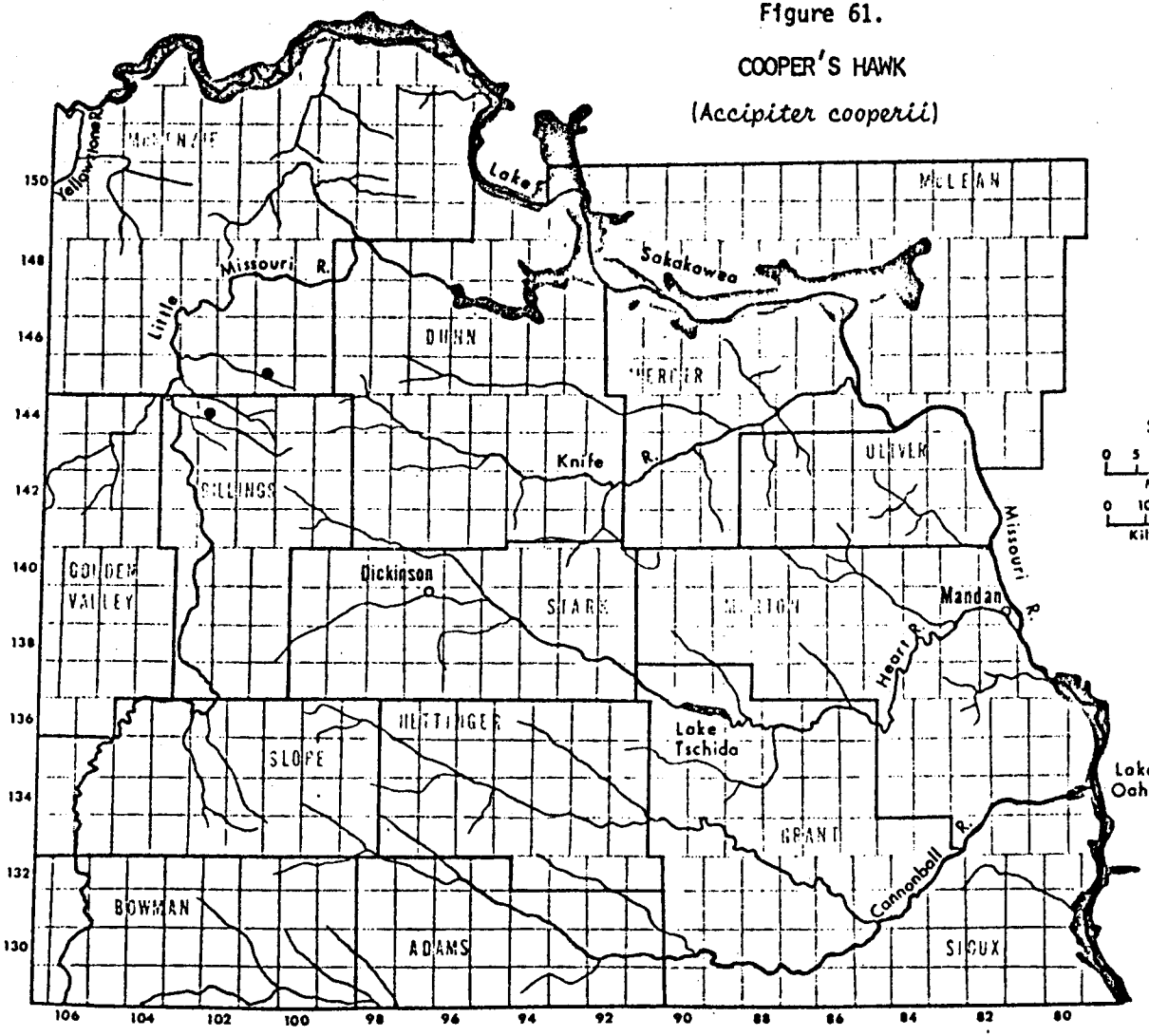


Figure 61.

COOPER'S HAWK

(*Accipiter cooperii*)



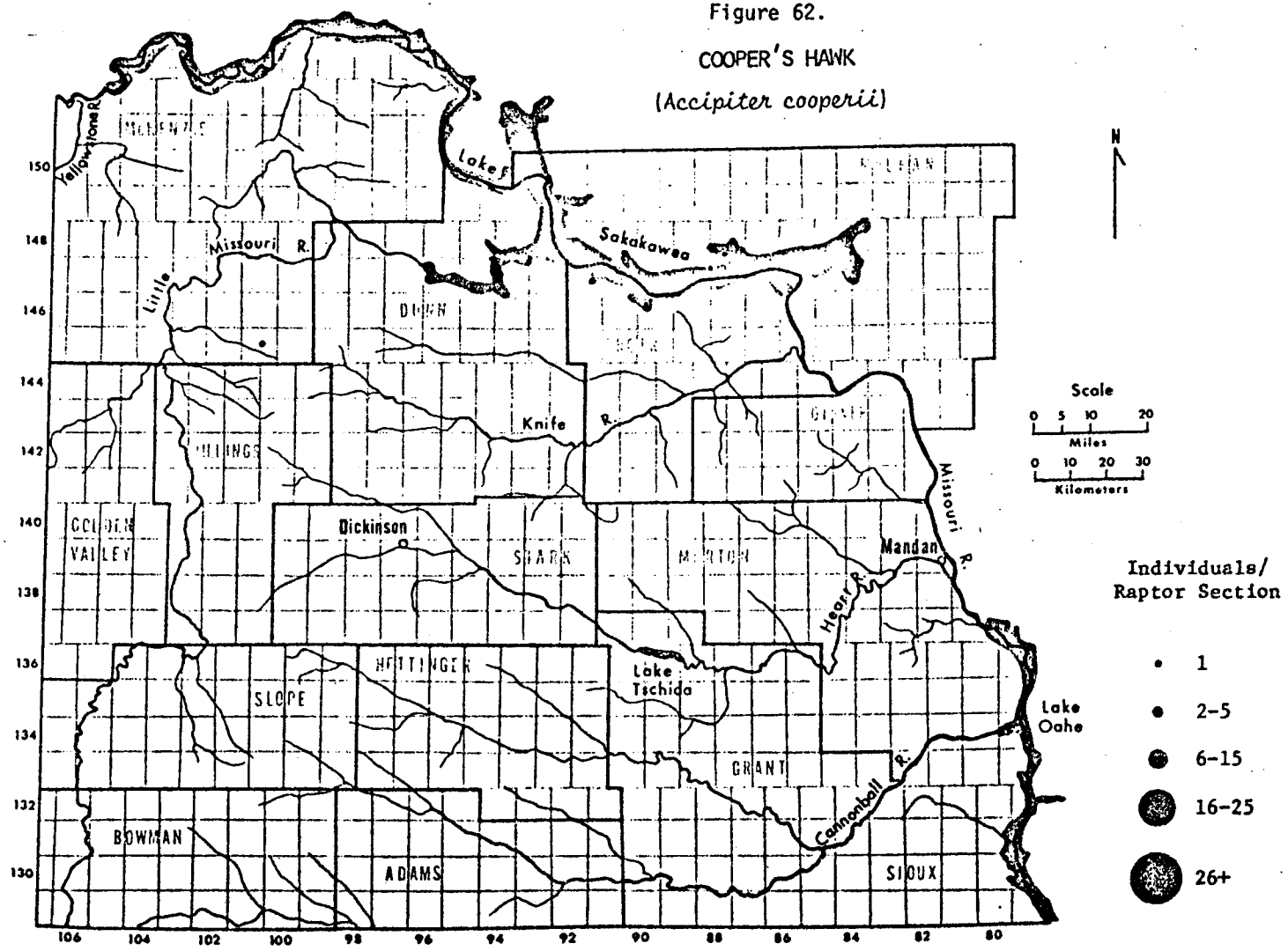
Observations in the Project Area

● 1976

Figure 62.

COOPER'S HAWK

(*Accipiter cooperii*)



ORDER: Falconiformes

FAMILY: Accipitridae

Red-tailed Hawk (*Buteo jamaicensis*) - The Red-tailed Hawk is a common buteo nesting throughout most of North America, exclusive of true arctic regions (Bent, 1961). Stewart (1975) lists it as being common in the Turtle Mountains and Pembina Hills, uncommon or fairly common and local in the project area, and fairly common to uncommon over the rest of North Dakota.

Distribution in the project area: We made 22 observations in the project area. Predomiant habitats were hardwood draws, moderately grazed rolling grasslands, and upland breaks (Fig. 63, 64).

Habitat: The Red-tailed Hawk is primarily an edge species nesting in woodlands and feeding in nearby open areas (Bent, 1961).

Status: Based on our observations it is considered a fairly common species in the project area, but appears to be concentrated toward the northwestern portion of the study area.

ORDER: Falconiformes

FAMILY: Accipitridae

Swainson's Hawk (*Buteo swainsoni*) - The Swainson's Hawk breeds over most of western North America from Mexico north to Alaska (Bent, 1961). Stewart (1975) lists it as rare and local in the Agassiz Lake Plain and fairly common elsewhere in North Dakota.

Distribution in the project area: We made 62 observations of Swainson's Hawks in the project area. Predominant habitats included riparian woodlands, moderately grazed rolling grasslands, upland breaks, and seeded croplands (Fig. 65, 66).

Habitat: The preferred habitat seems to be open prairie with small woodland blocks interspersed (Stewart, 1975; this study).

Status: Stewart (1975) lists it as fairly common in southwestern North Dakota; because of 62 observations in 1976 we list it as being a common breeder in the project area.

ORDER: Falconiformes

FAMILY: Accipitridae

Broad-winged Hawk (*Buteo platypterus*) - The Broad-winged Hawk is primarily a woodland species breeding over most of the eastern United States and Canada (Robbins, et al., 1966). Stewart (1975) lists it as being common in the Turtle Mountains and uncommon, rare and local, or absent over the rest of North Dakota.

Distribution in the project area: One observation was made in Billings County on 15 July 1976 while the bird was flying over moderately grazed rolling grassland (Fig. 67).

Habitat: Primarily a woodland species (Stewart, 1975).

Status: Rare breeder in the project area. Stewart (1975) lists one observation in McKenzie County.

ORDER: Falconiformes

FAMILY: Accipitridae

Rough-legged Hawk (*Buteo lagopus*) - This open-country hawk nests in northern Canada and Alaska from the Atlantic to Pacific coasts (Robbins, et al., 1966). No North Dakota breeding records were reported by Stewart (1975).

Distribution in the project area: Three observations were made in Morton County during late May and early June 1976; in each case, the birds were flying over rolling grasslands (Fig. 68, 69).

Habitat: Primarily a northern hawk which frequents open country during migration (Bent, 1961).

Status: Non-breeding species in the project area.

ORDER: Falconiformes

FAMILY: Accipitridae

Ferruginous Hawk (*Buteo regalis*) - An open-country bird, the Ferruginous Hawk breeds primarily in the northwestern United States and southwestern Canada (Bent, 1961). Stewart (1975) lists it as being fairly common to uncommon in most of North Dakota.

Distribution in the project area: We made 18 observations of Ferruginous Hawks in the project area. Predominant habitats included moderately grazed rolling grassland and upland breaks (Fig. 70, 71).

Habitat: The Ferruginous Hawk is a species found primarily in grassland communities of the Great Plains (Bent, 1961; Stewart, 1975).

Status: Fairly common breeding species in the project area, being concentrated in rolling grassland areas.

ORDER: Falconiformes

FAMILY: Accipitridae

Golden Eagle (*Aquila chrysaetos*) - The Golden Eagle breeds primarily in western North America (Robbins, et al., 1966). Stewart (1975) lists it as being fairly common in the badlands and rare or absent elsewhere.

Distribution in the project area: 32 observations were made in the project area, most of which were in the Badlands (Fig. 72, 73).

Habitat: Nests primarily on buttes, mountain sides, and in trees, and ranges over wide expanses of open country and brushland for food (Bent, 1961).

Status: Stewart (1975) lists it as fairly common in the Badlands; based on our observations we classify it as common in the Badlands and nearby areas; rare elsewhere in the project area.

ORDER: Falconiformes

FAMILY: Falconidae (Falcons) - Falcons are swift flying raptors with pointed wings. Six species occur in North America of which four are present or recent breeders in North Dakota.

Prairie Falcon (*Falco mexicanus*) - The Prairie Falcon is primarily a bird of the mountainous regions of the western United States (Bent, 1961). Stewart (1975) considered it to be uncommon and local in parts of southwestern North Dakota.

Distribution in the project area: 27 observations were made in the project area; in most cases, the birds were seen flying over or near moderately grazed rolling grasslands and upland breaks (Fig. 74, 75).

Habitat: The Prairie Falcon is primarily a bird of low mountainous terrain near grasslands (Bent, 1961).

Status: Listed as threatened by the U.S. Fish and Wildlife Service (1976) and McKenna and Seabloom (1976). Stewart (1975) considered it to be uncommon and local in parts of southwestern North Dakota. Based on our observations, we consider it to be locally common in the Badlands areas; rare elsewhere in the project area.

ORDER: Falconiformes

FAMILY: Falconidae

Merlin (*Falco columbarius*) - The Merlin is a medium-sized falcon that breeds over much of northern Canada and the mountainous regions of the northwestern United States and southwestern Canada (Robbins, et al., 1966). Stewart (1975) lists it as rare in North Dakota.

Distribution in the project area: Three observations were made in Billings, McKenzie, and Slope Counties on 15 May, 16 June, and 9 July 1976, respectively. Habitats included hardwood draws, ponderosa pines and upland breaks (Fig. 76).

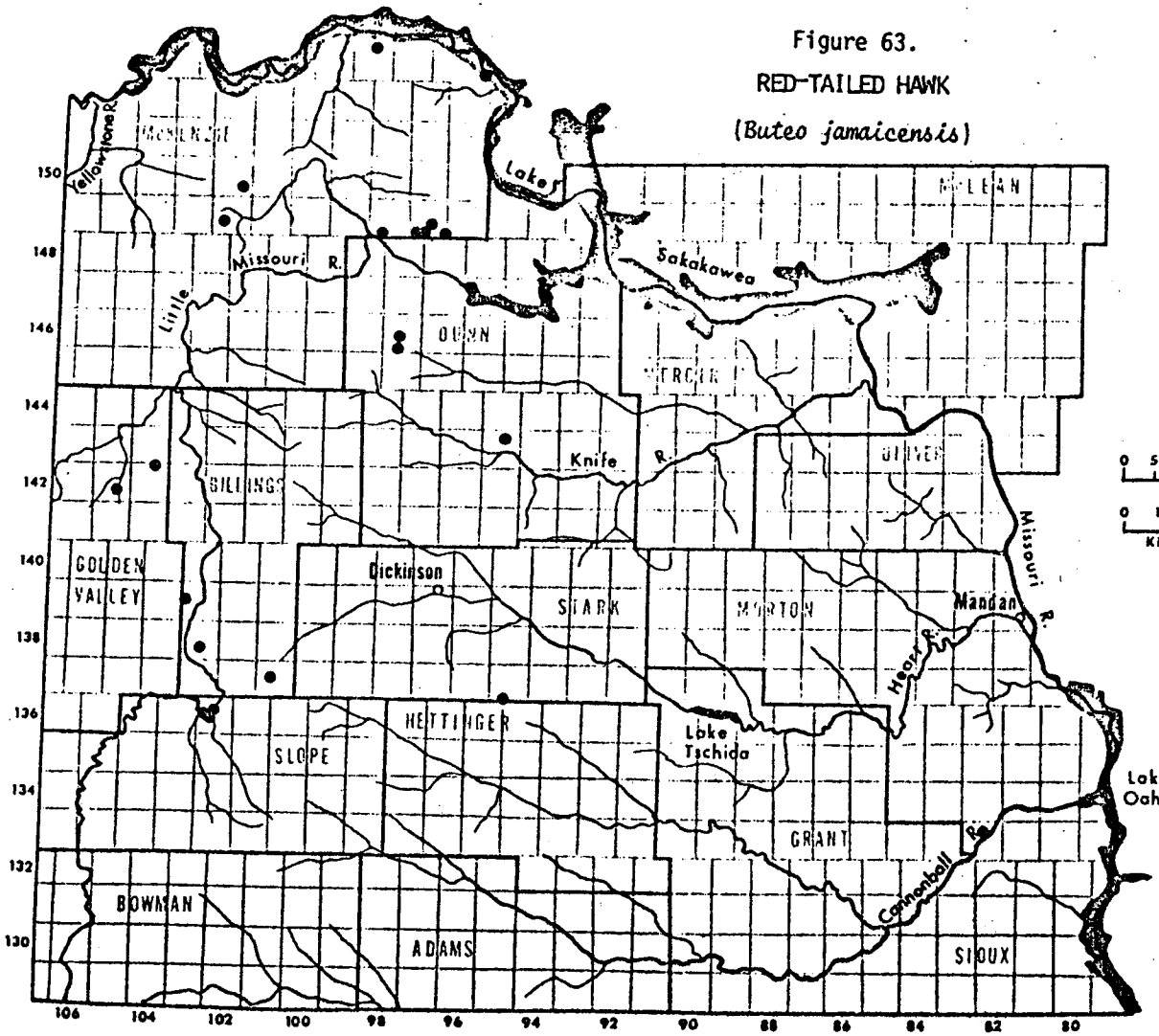
Habitat: Primarily found in areas with mixtures of small groves of trees and open areas (Stewart, 1975).

Status: Rare breeder in the project area, being found mainly in the Badlands.

Figure 63.

RED-TAILED HAWK

(Buteo jamaicensis)



Observations in the Project Area

● 1976

Figure 64.

RED-TAILED HAWK

(*Buteo jamaicensis*)

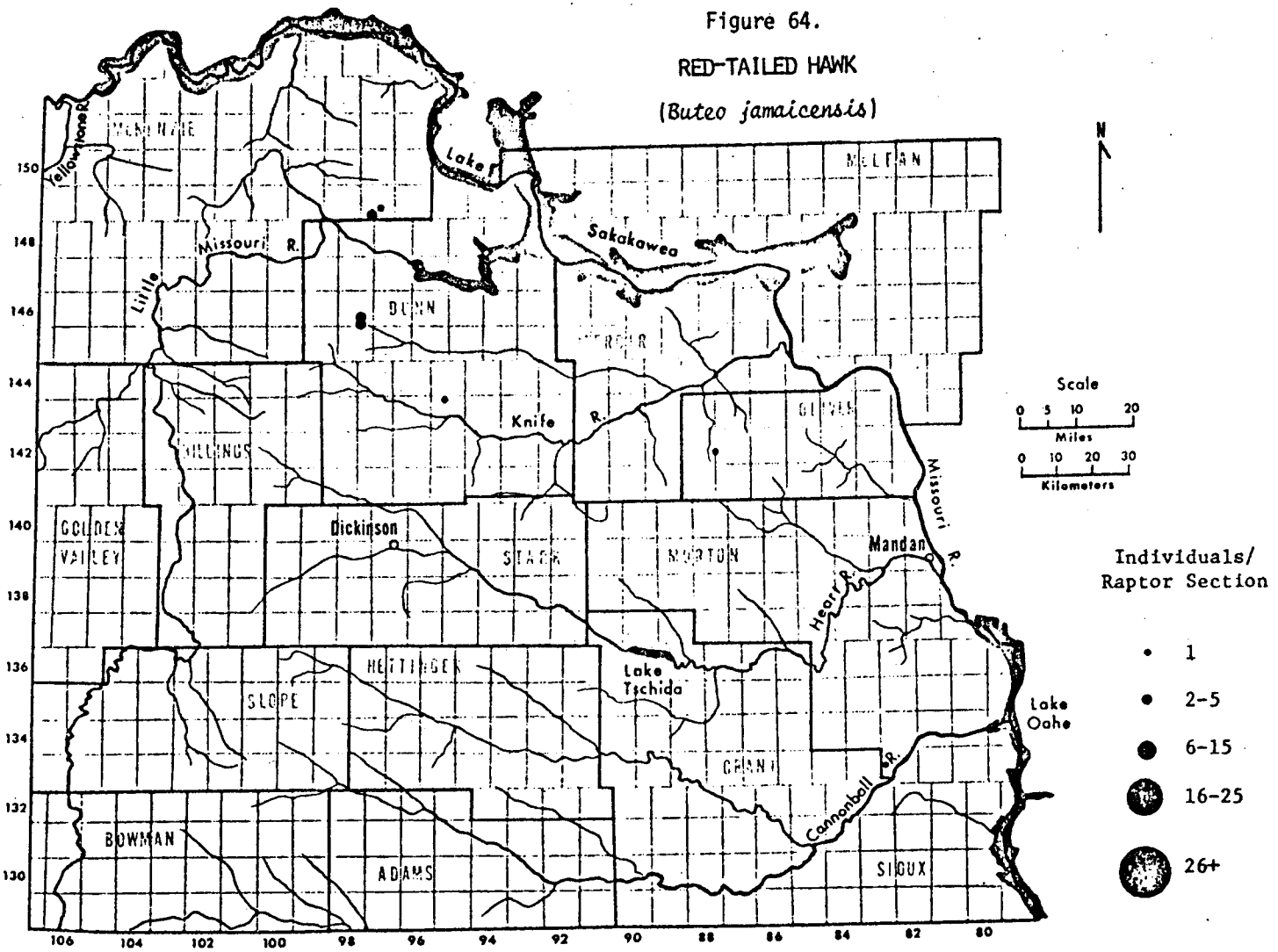
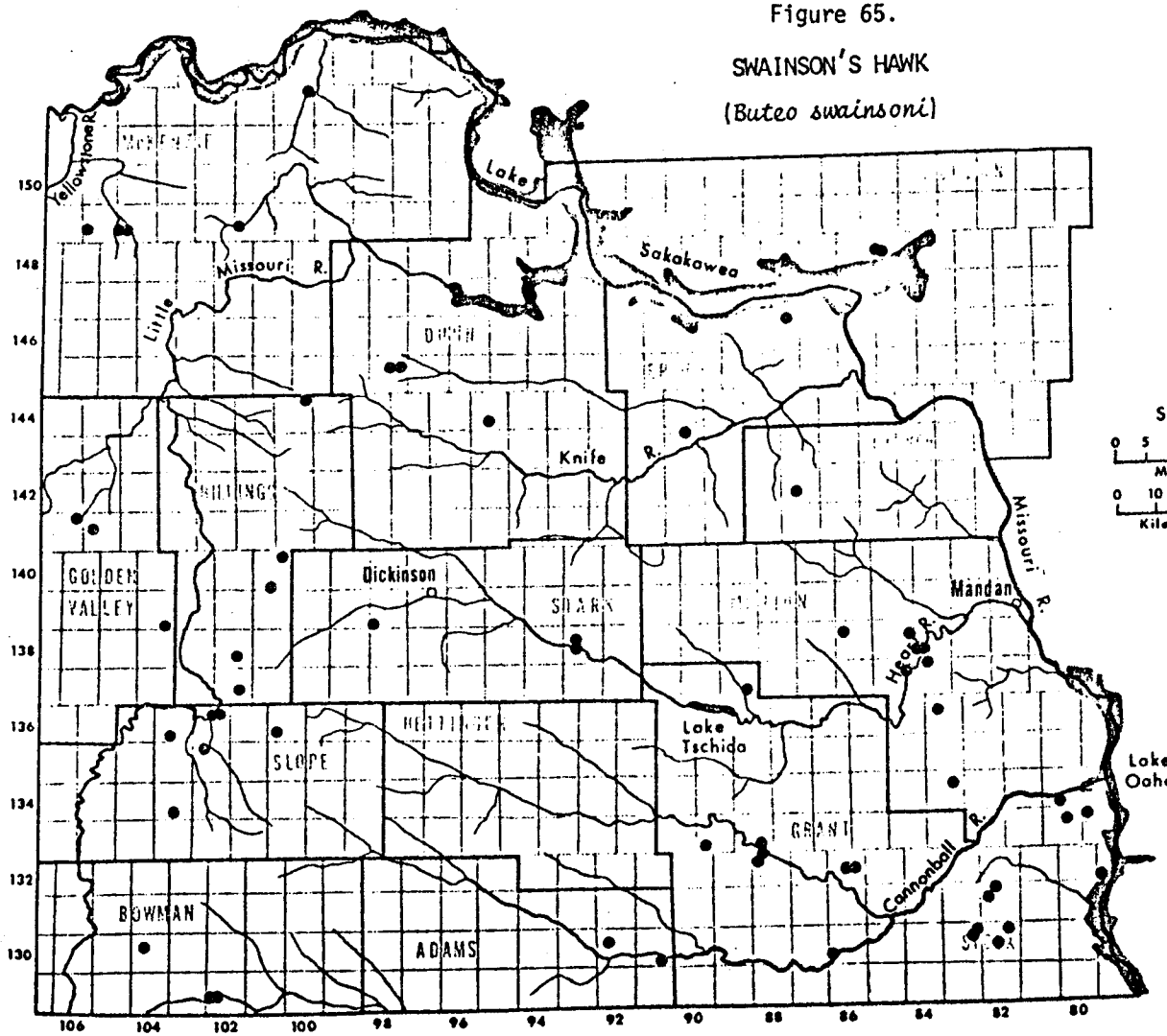


Figure 65.

SWAINSON'S HAWK

(*Buteo swainsoni*)



Observations in the Project Area

● 1976

Figure 66.

SWAINSON'S HAWK

(*Buteo swainsoni*)

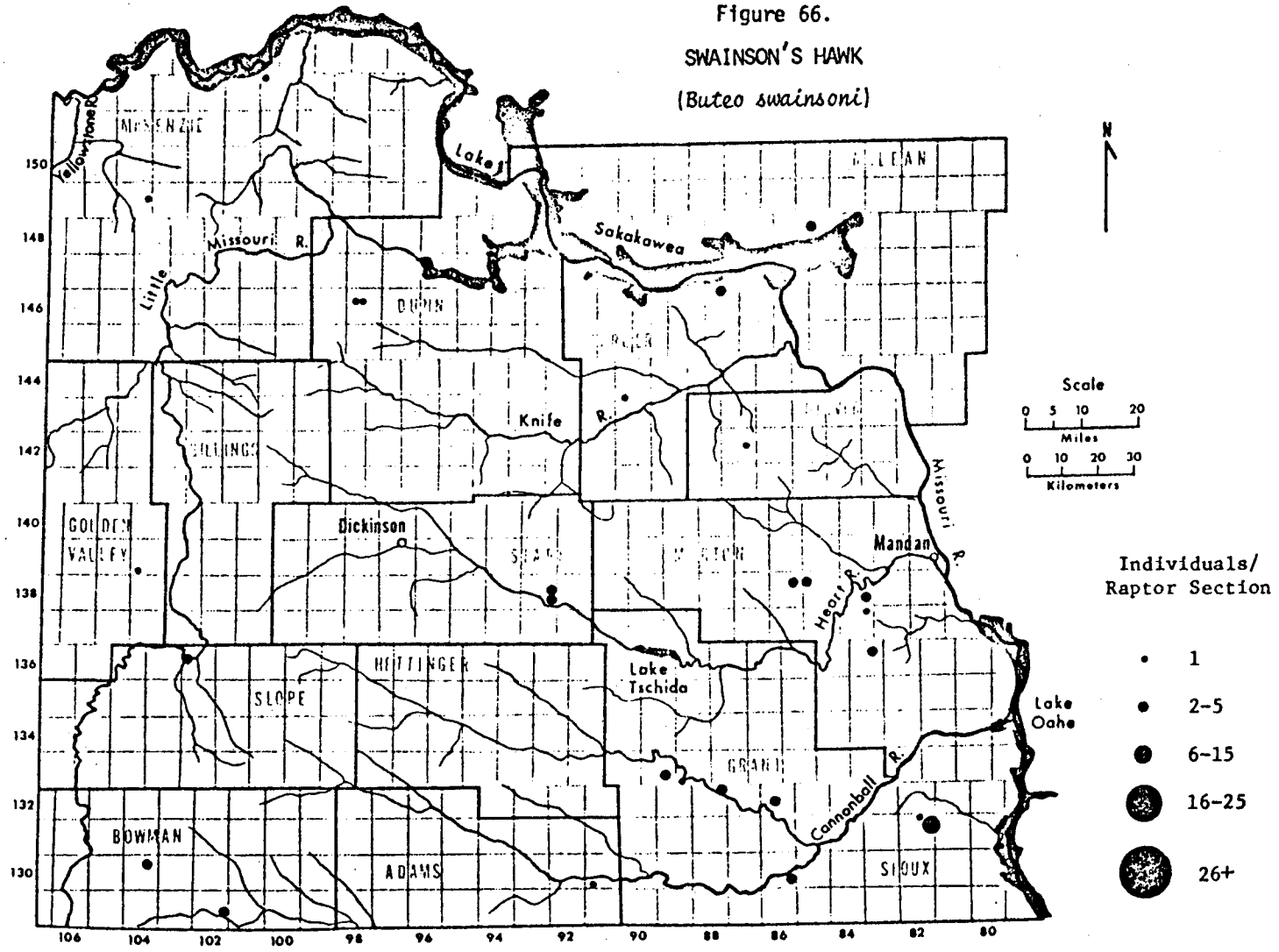
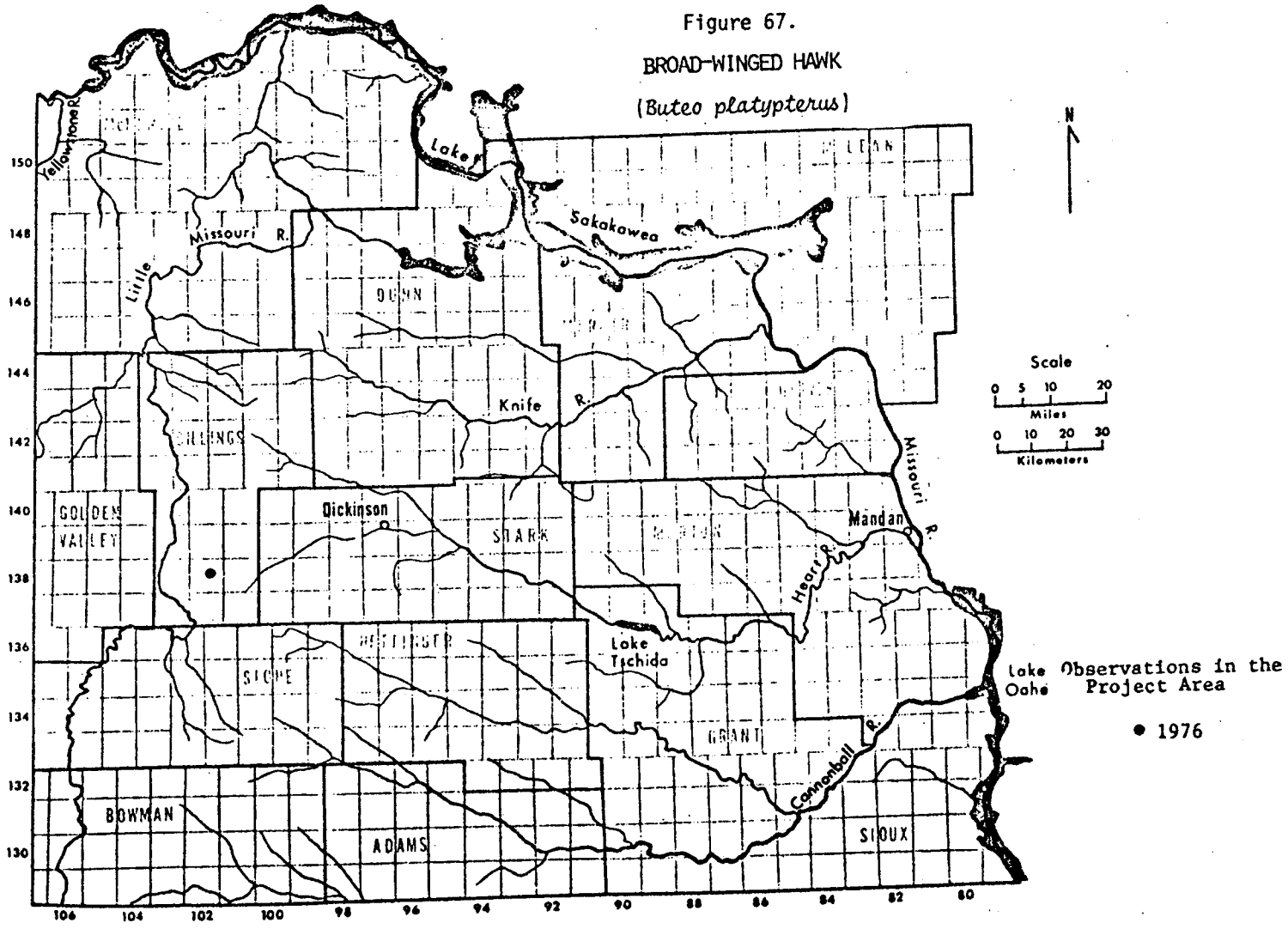


Figure 67.

BROAD-WINGED HAWK

(*Buteo platypterus*)



● Observations in the Project Area

● 1976

Figure 68.

ROUGH-LEGGED HAWK

(*Buteo lagopus*)

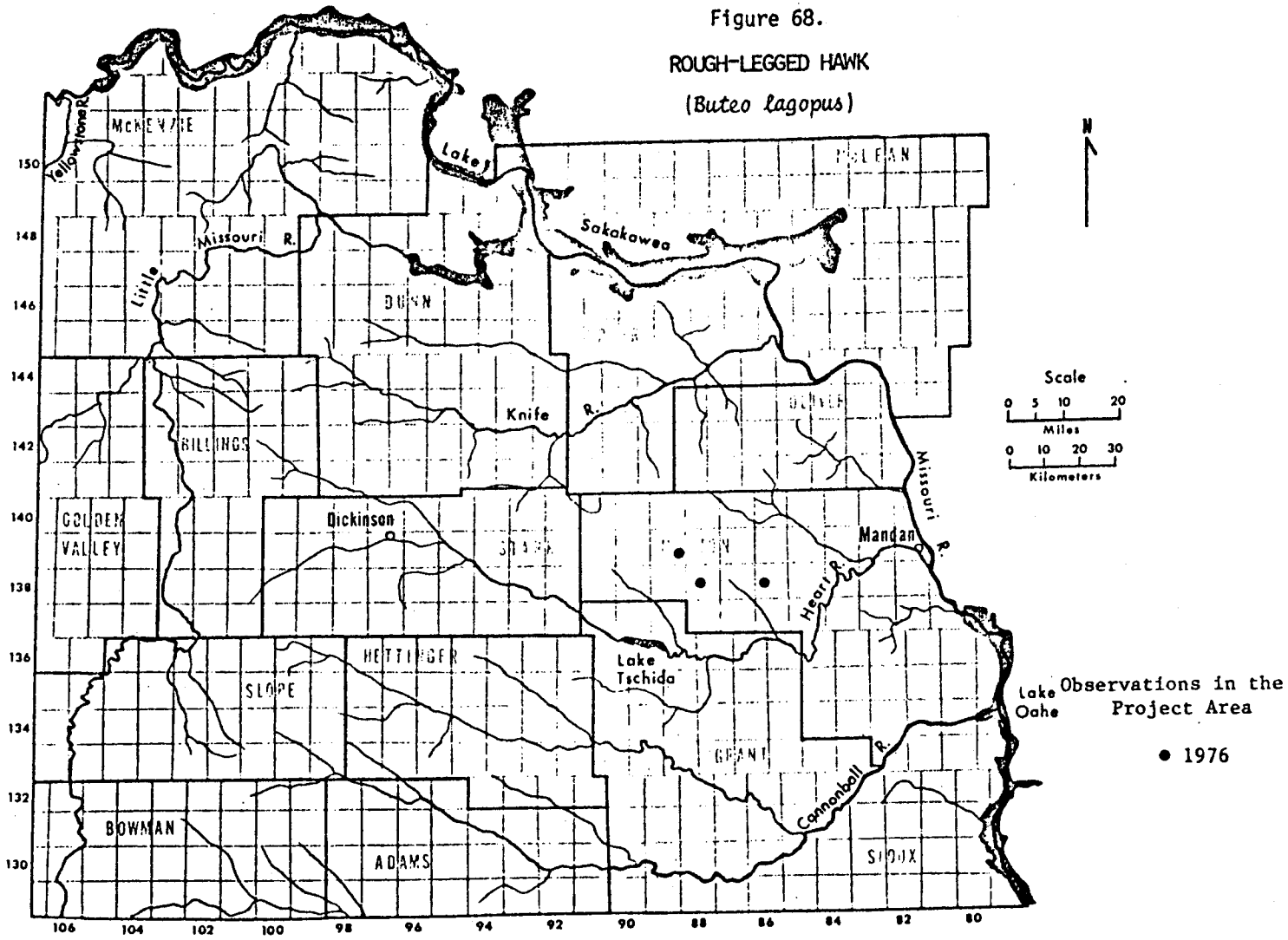


Figure 69.

ROUGH-LEGGED HAWK

(*Buteo lagopus*)

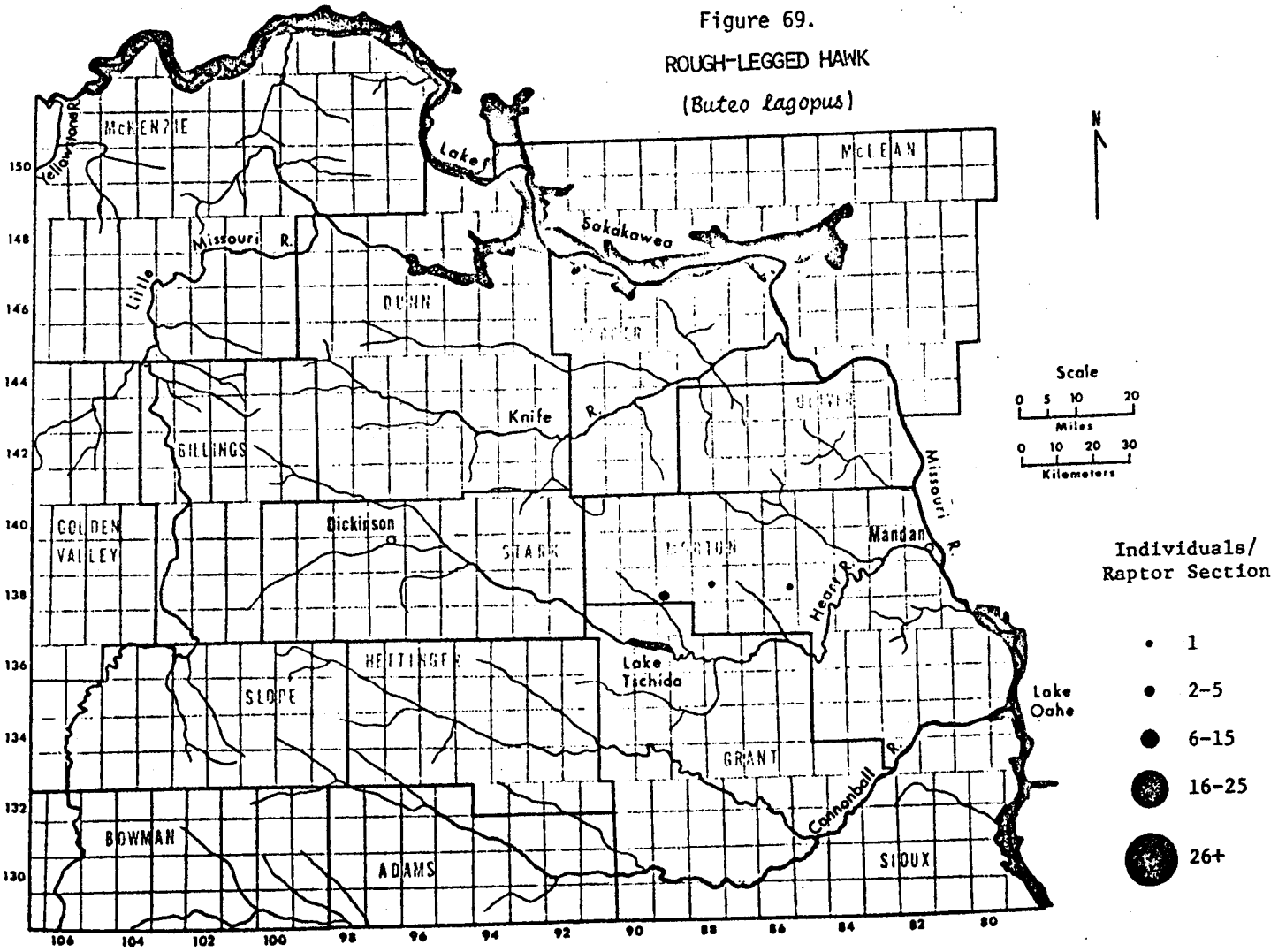
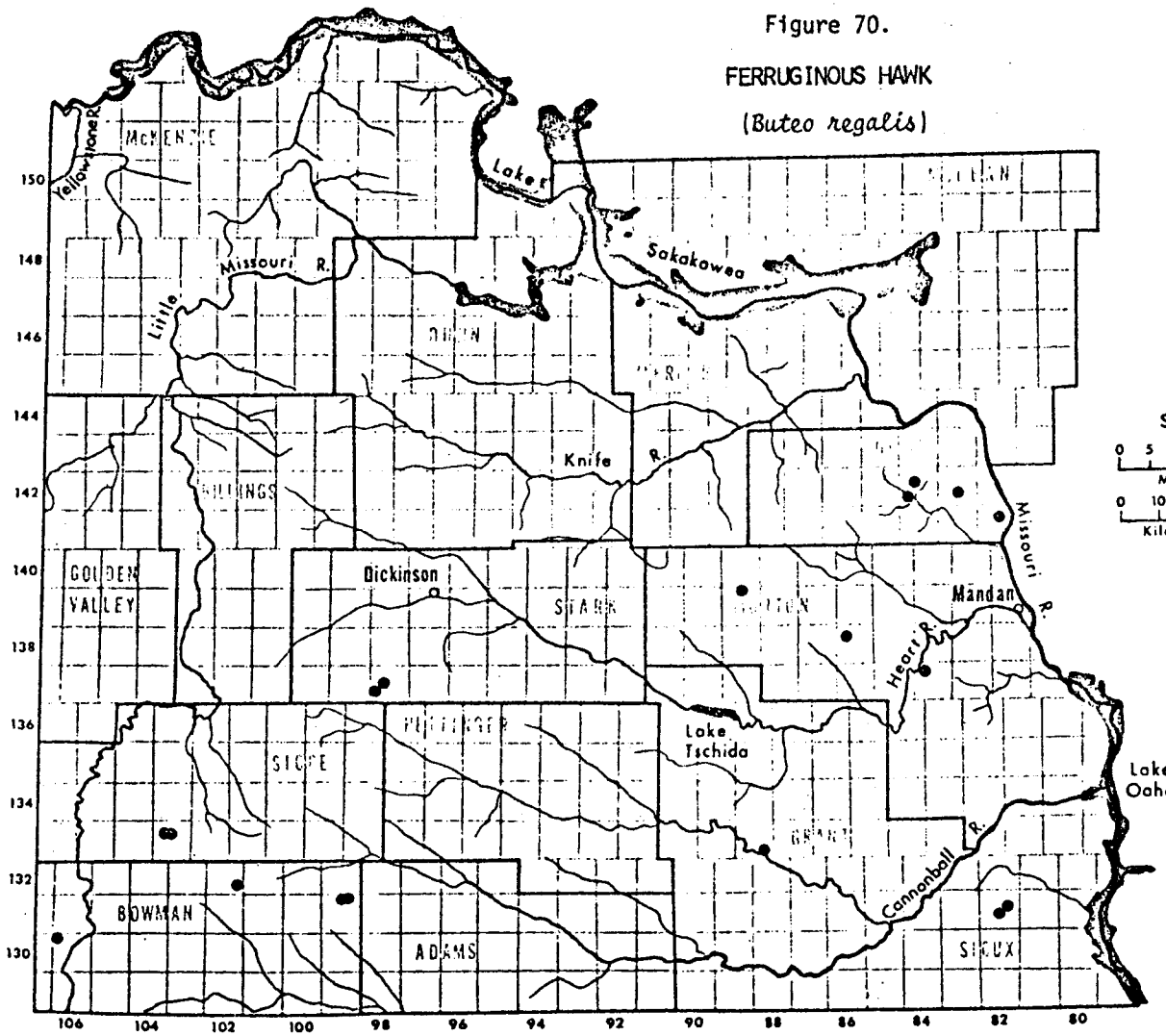


Figure 70.

FERRUGINOUS HAWK

(*Buteo regalis*)



Observations in the Project Area

● 1976

Figure 71.

FERRUGINOUS HAWK

(*Buteo regalis*)

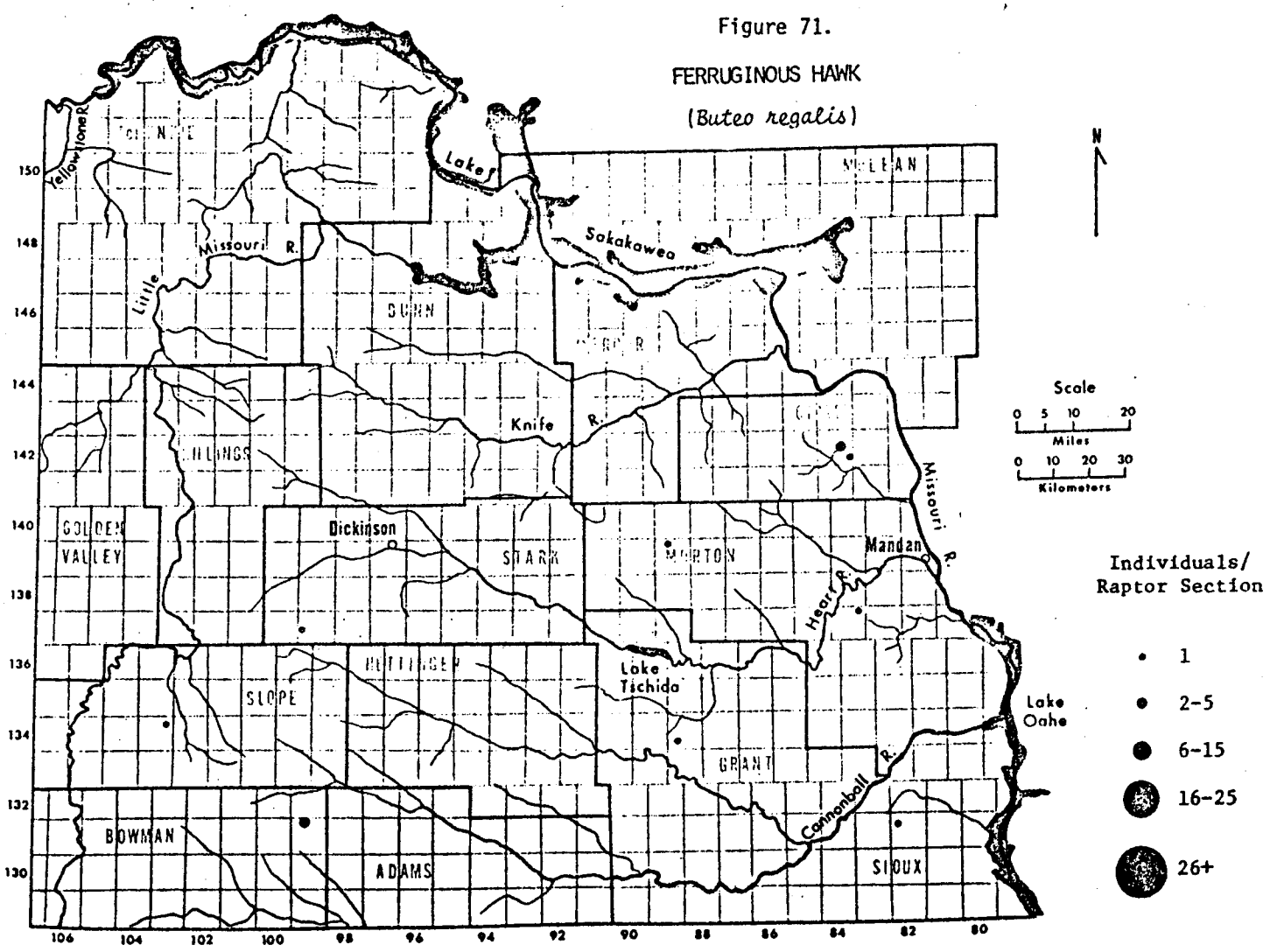


Figure 72.

GOLDEN EAGLE

(*Aquila chrysaetos*)

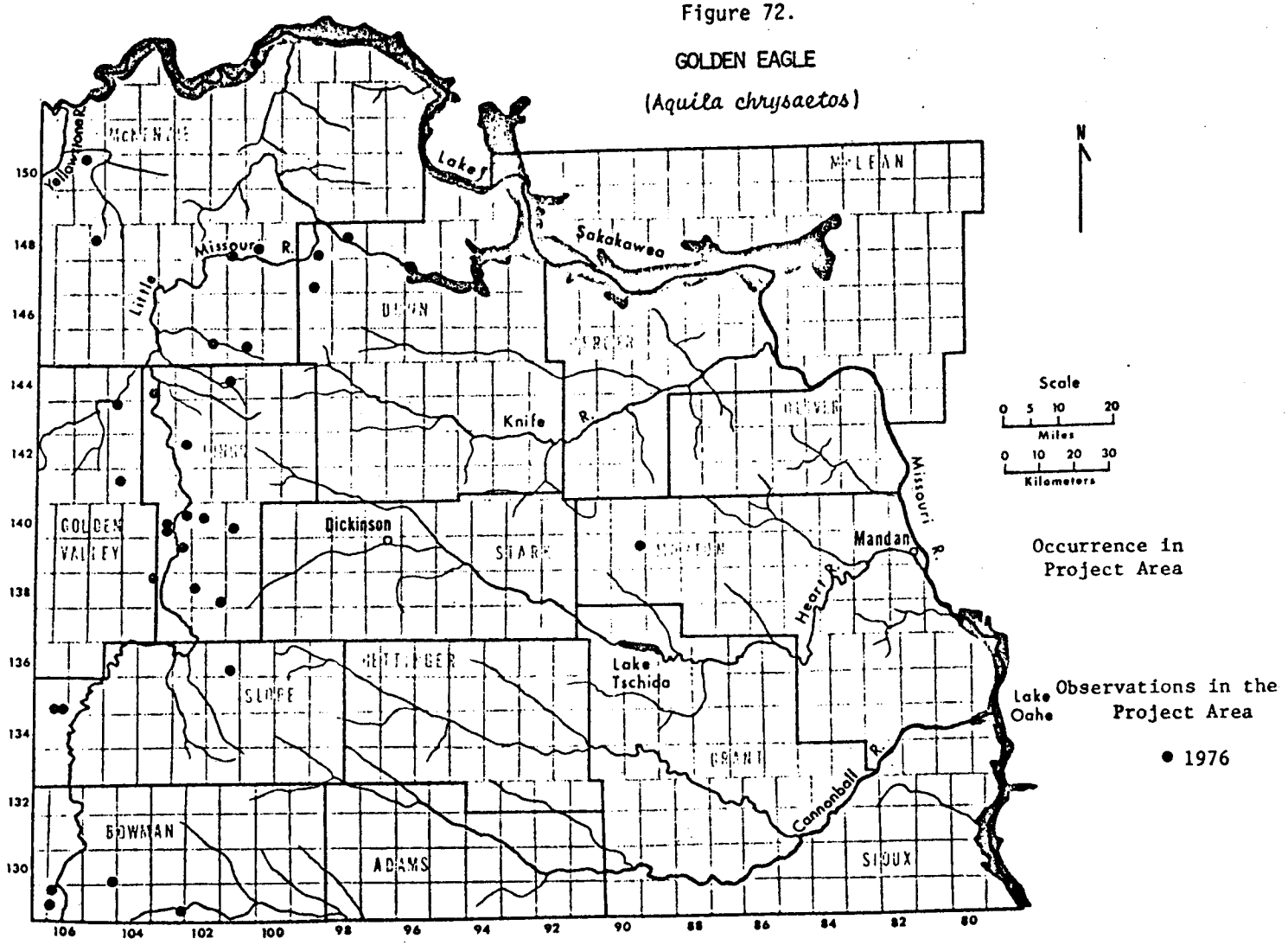


Figure 73.

GOLDEN EAGLE

(*Aquila chrysaetos*)

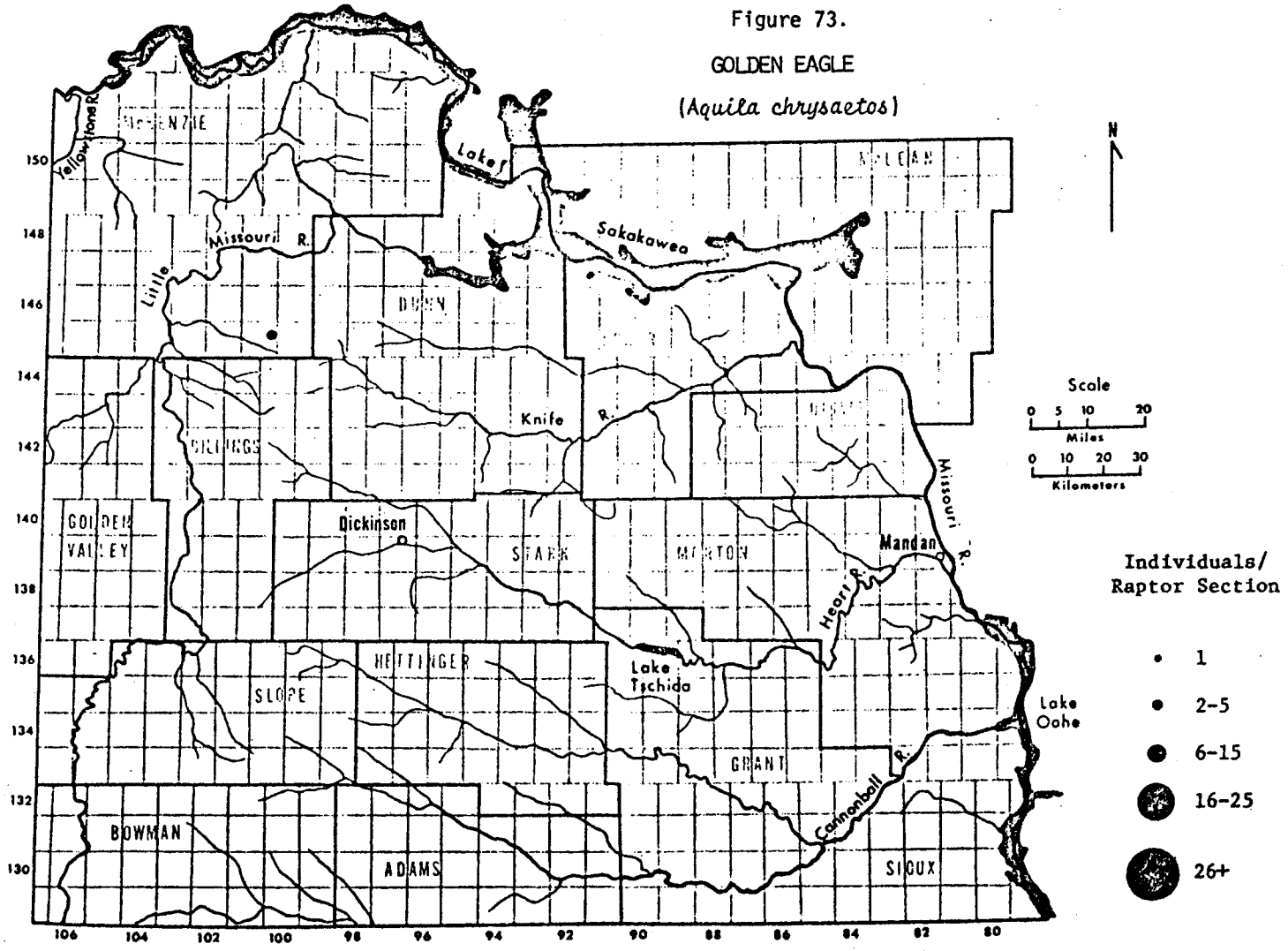
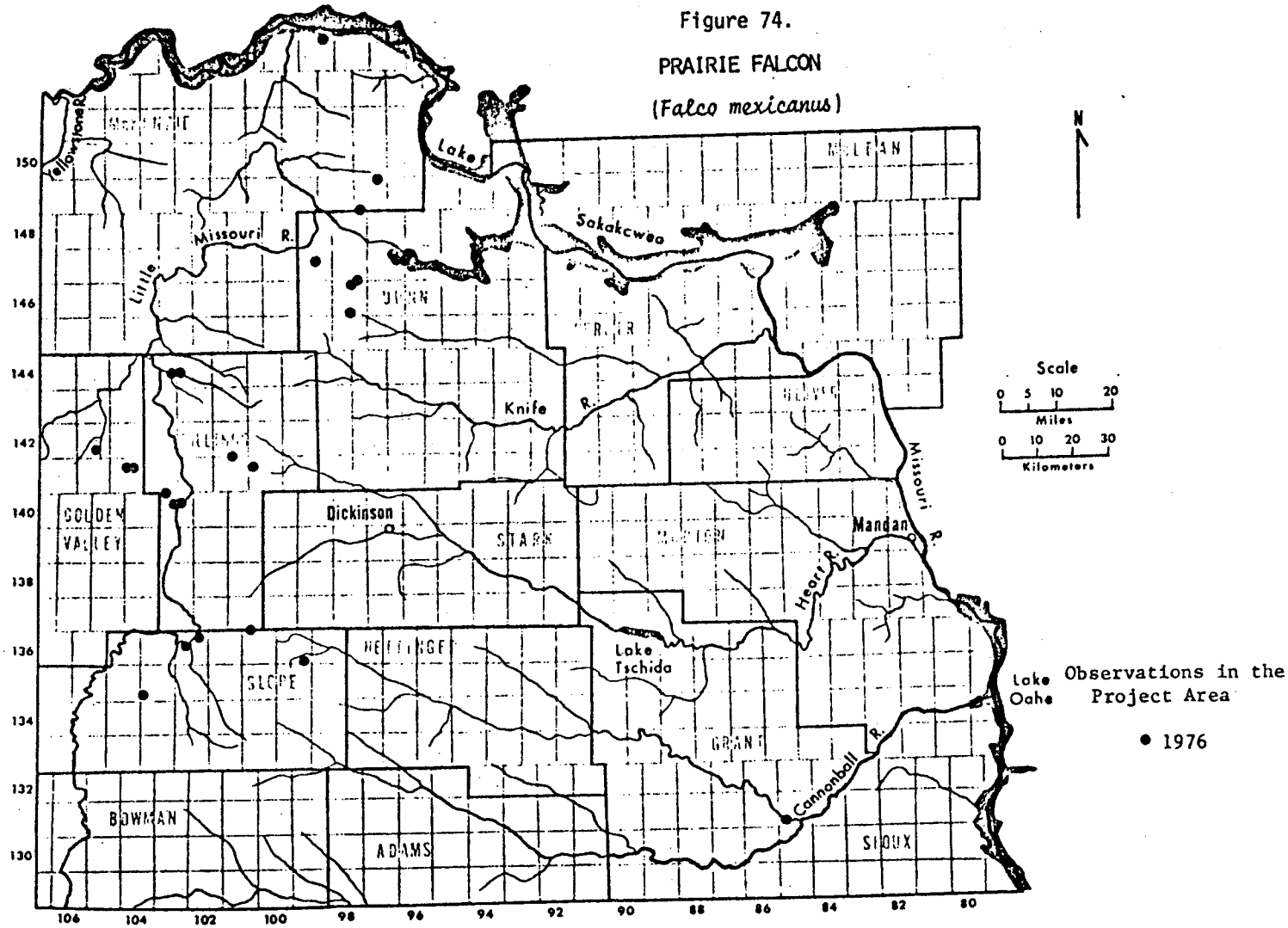


Figure 74.

PRAIRIE FALCON

(*Falco mexicanus*)



Observations in the Project Area

• 1976

Figure 75.

PRAIRIE FALCON

(*Falco mexicanus*)

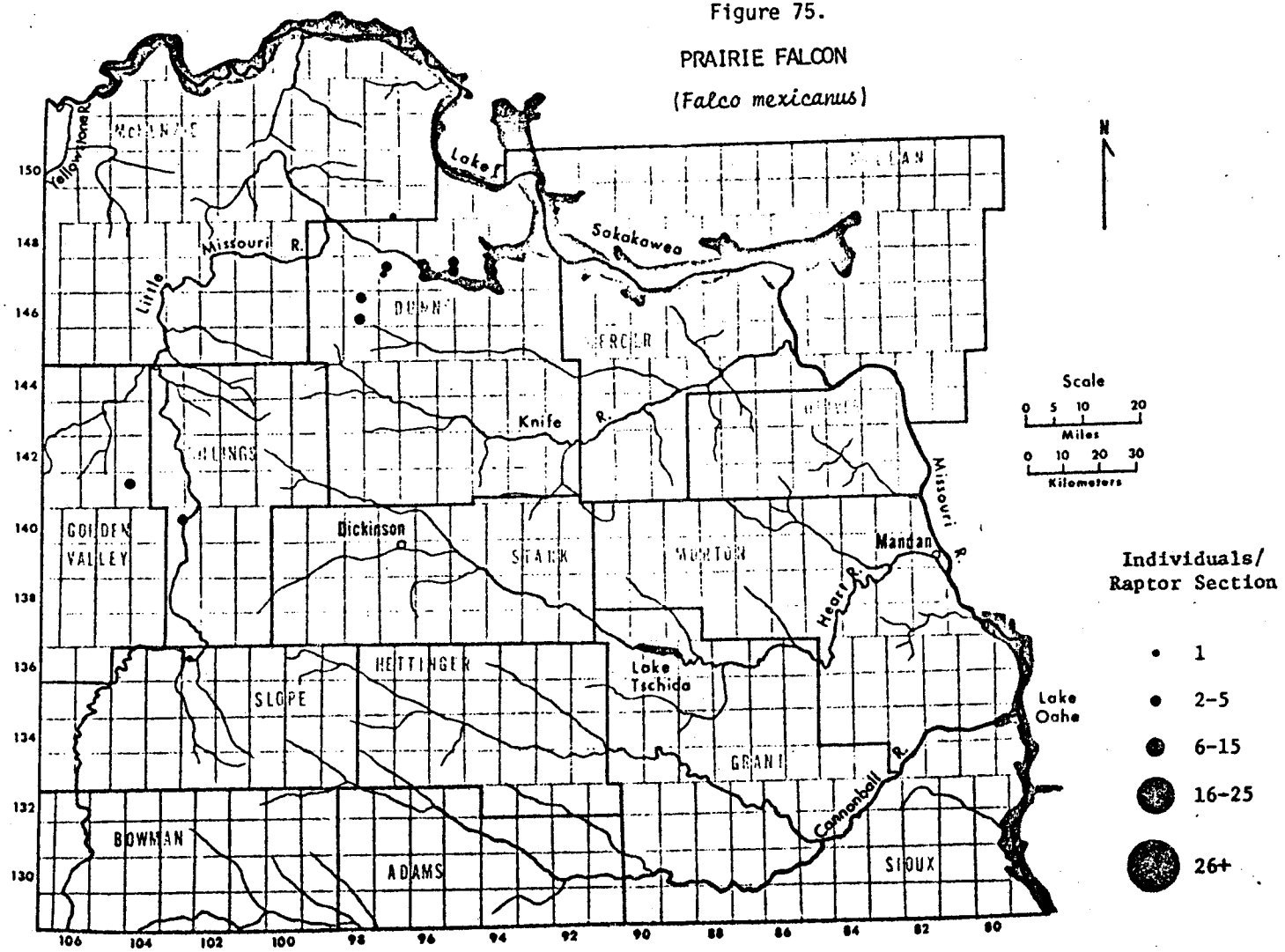
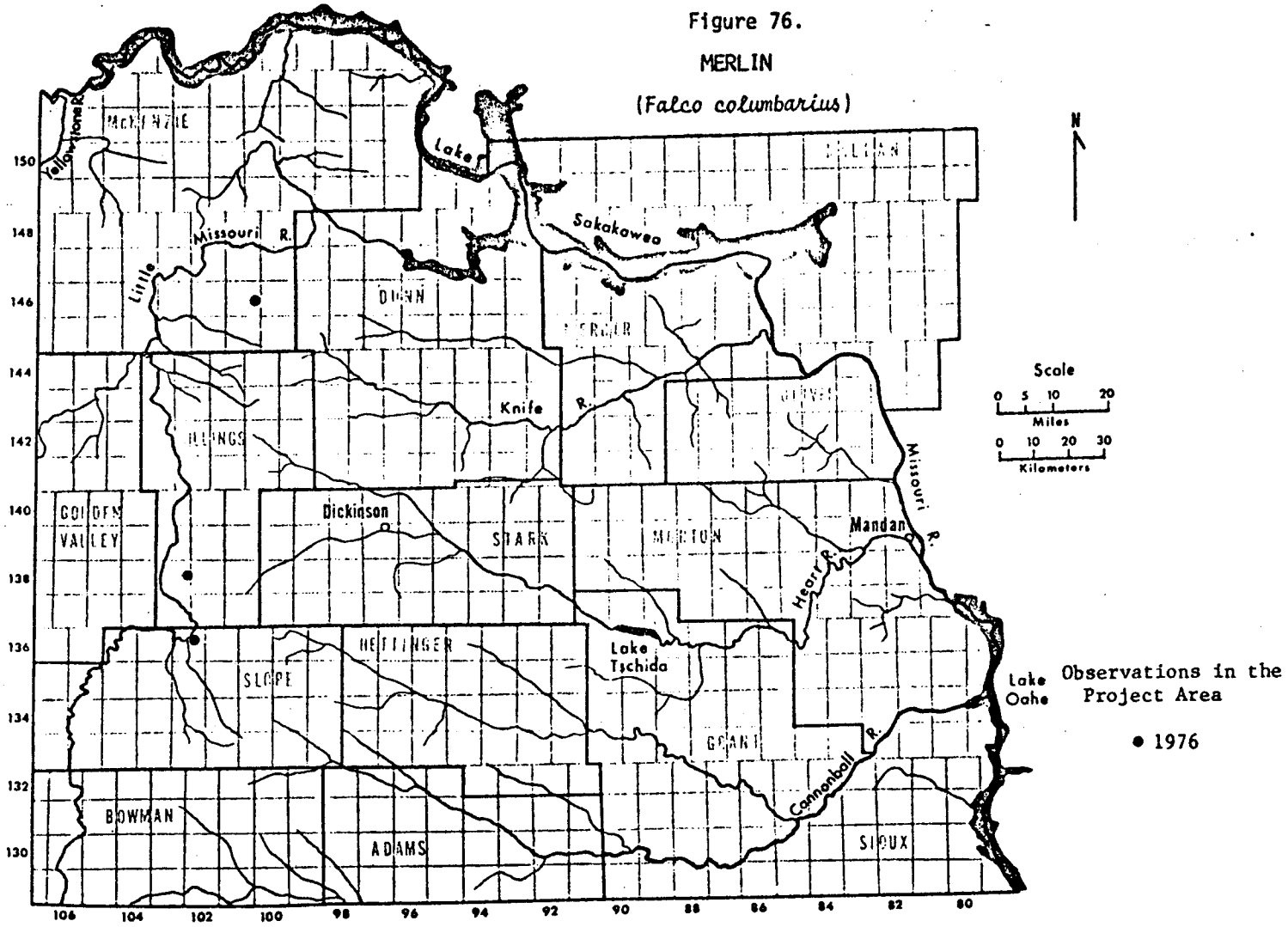


Figure 76.

MERLIN

(*Falco columbarius*)



ORDER: Falconiformes

FAMILY: Falconidae

American Kestrel (*Falco sparverius*) - The American Kestrel is the smallest North American falcon and breeds over most of the continent (Robbins, et al., 1966). Stewart (1975) lists it as being from common to rare in North Dakota.

Distribution in the project area: We made 47 observations of American Kestrels in the project area. Primary habitats included riparian woodland, moderately grazed rolling grassland, upland breaks, and various agricultural lands (Fig. 77, 78).

Habitat: Primarily a nester in brushy or wooded areas and forages over wide expanses of open country (Stewart, 1975).

Status: Common breeder in the project area, being concentrated primarily along the major rivers and tributaries.

ORDER: Galliformes

FAMILY: Tetraonidae (Grouse) - This family contains 18 living species and is circumpolar in temperate and subarctic regions of the Northern Hemisphere. Most are non-migratory, but there is some seasonal wandering (Austin, 1971).

Sharp-tailed Grouse (*Pedioecetes phasianellus*) - The Sharp-tailed Grouse occurs year round in a range covering the north-central United States, south-central Canada north to central Alaska, and around Hudson's Bay (Robbins, et al., 1966). Stewart (1975) lists it as common on the Little Missouri Slope; locally common on the Missouri and Coteau Slopes; fairly common locally on the Northwestern and Northeastern Drift Plains and Turtle Mountains; and uncommon or rare in the Agassiz Lake Plain Region. The plains Sharp-tailed Grouse, with its extensive range from northern Alberta to North Dakota has suffered the least of the United States races and still supports legally hunted populations in three provinces and six states (Johnsgard, 1973).

Distribution in the project area: 64 observations were made throughout the project area except in Adams, Hettinger, Oliver, and Stark Counties (Fig. 79, 80). It was found mainly in rolling and upland grasslands and disturbed agricultural areas.

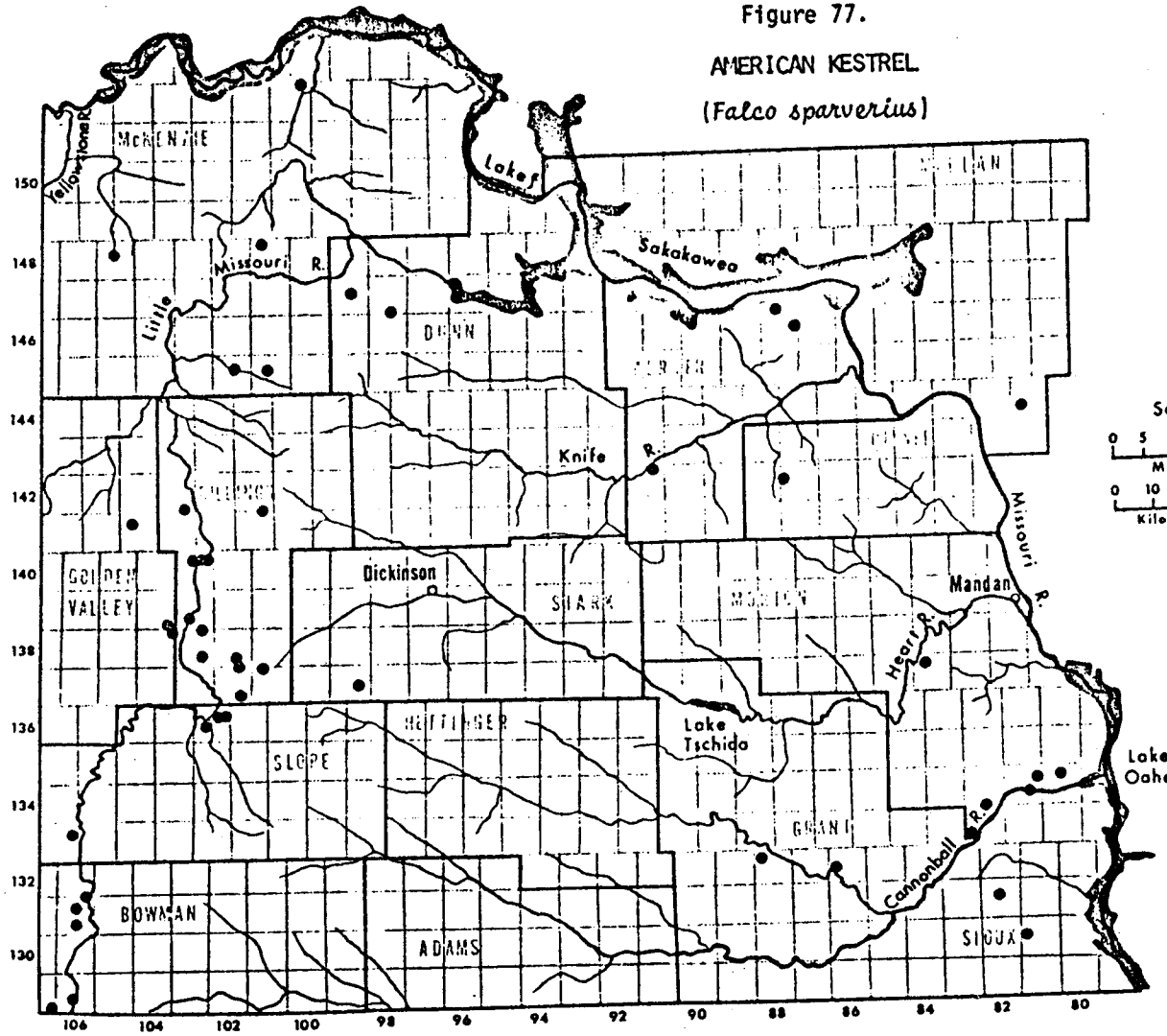
Habitat: Sharp-tailed Grouse are characteristic of mixed-grass prairie that contain scattered patches of small trees and shrubs. Nests are situated in native prairie often within or at margins of thickets or small trees. Communal dancing grounds are located on sites of sparse vegetation with good visibility, allowing for good footing and unrestricted movement (Johnsgard, 1973; Stewart, 1975).

Status: Common breeding species in the project area.

Figure 77.

AMERICAN KESTREL

(*Falco sparverius*)



Observations in the Project Area

● 1976

Figure 78.

AMERICAN KESTREL

(*Falco sparverius*)

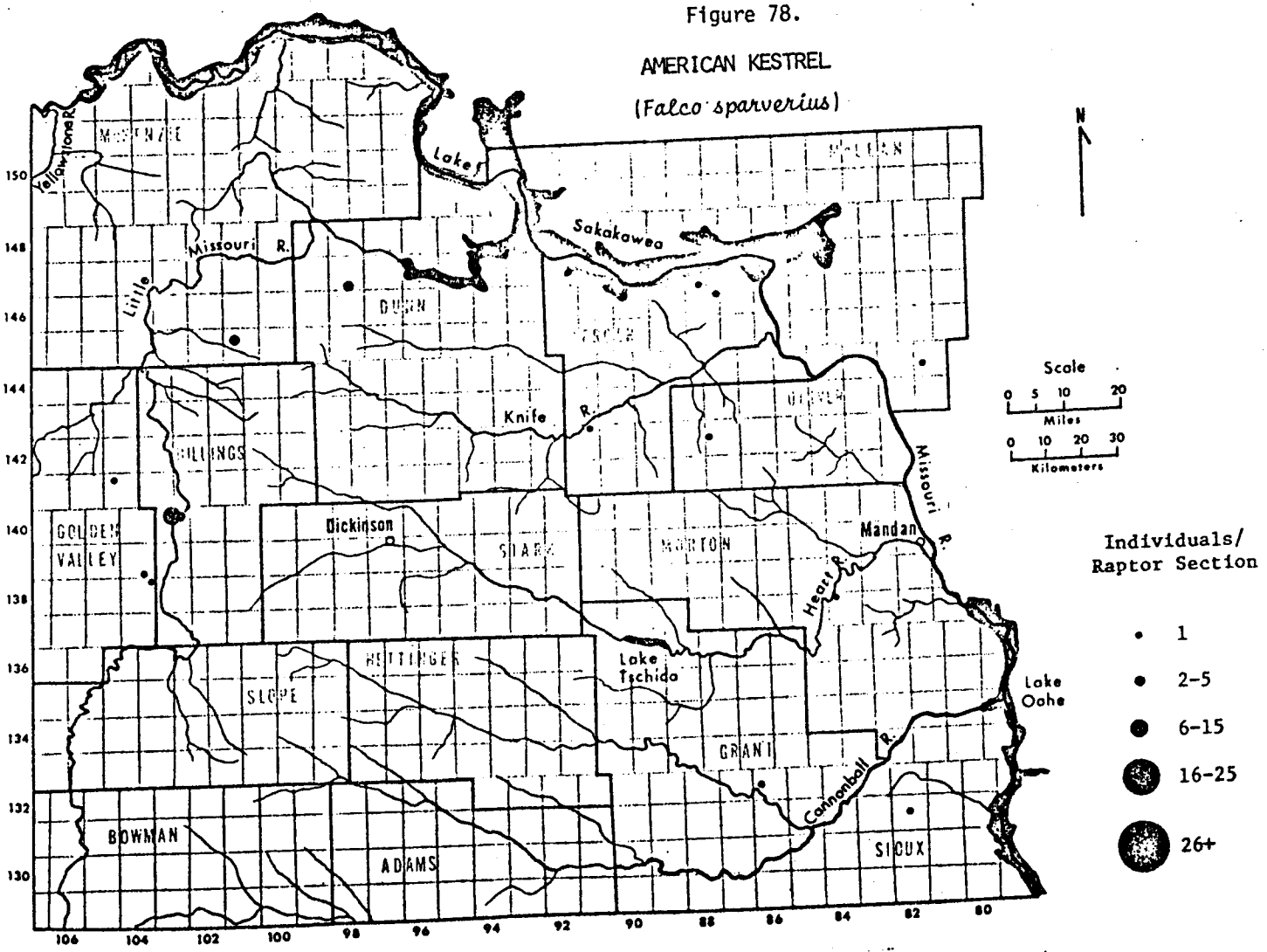


Figure 79.

SHARP-TAILED GROUSE

(*Pedioecetes phasianellus*)

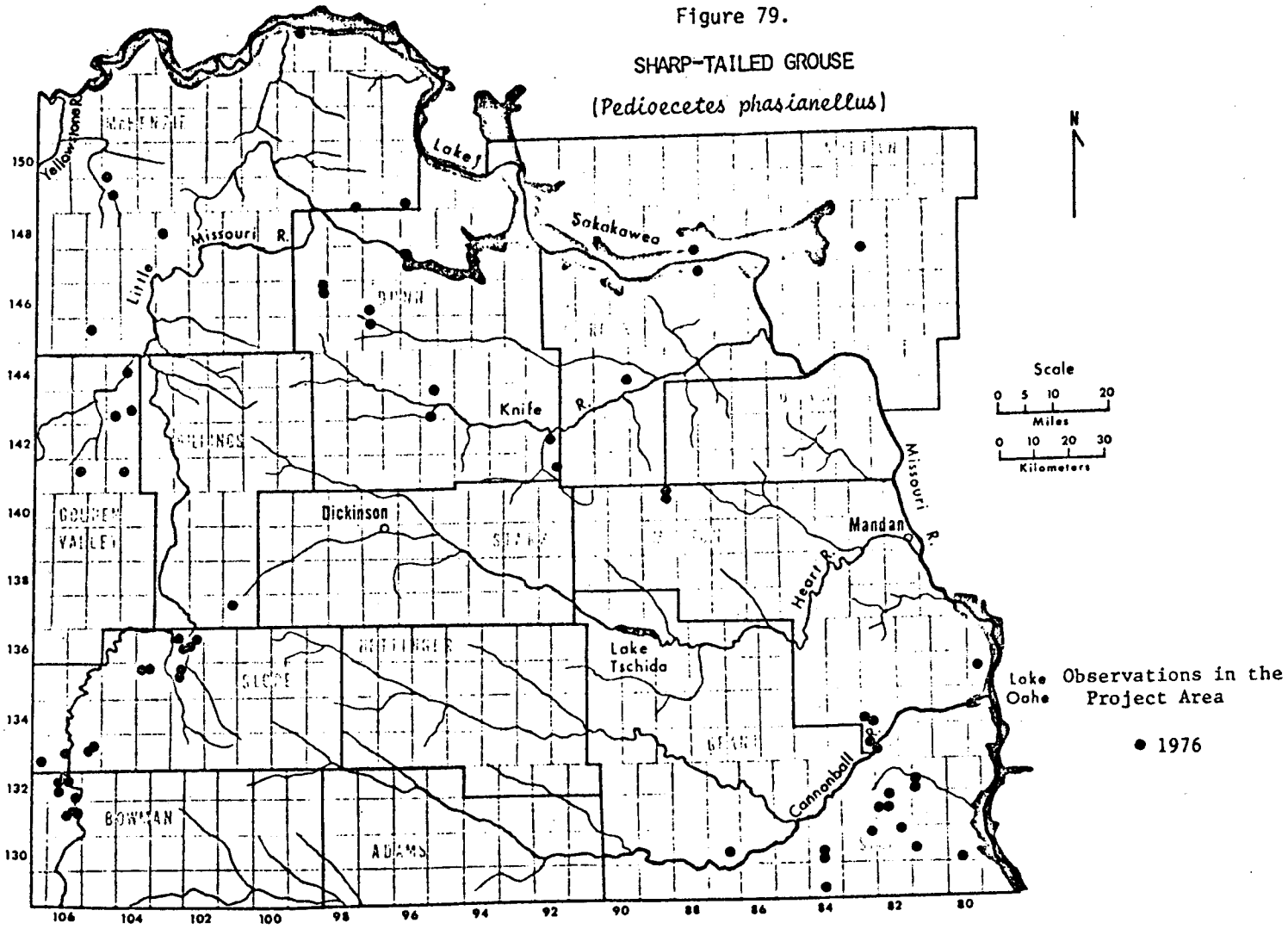
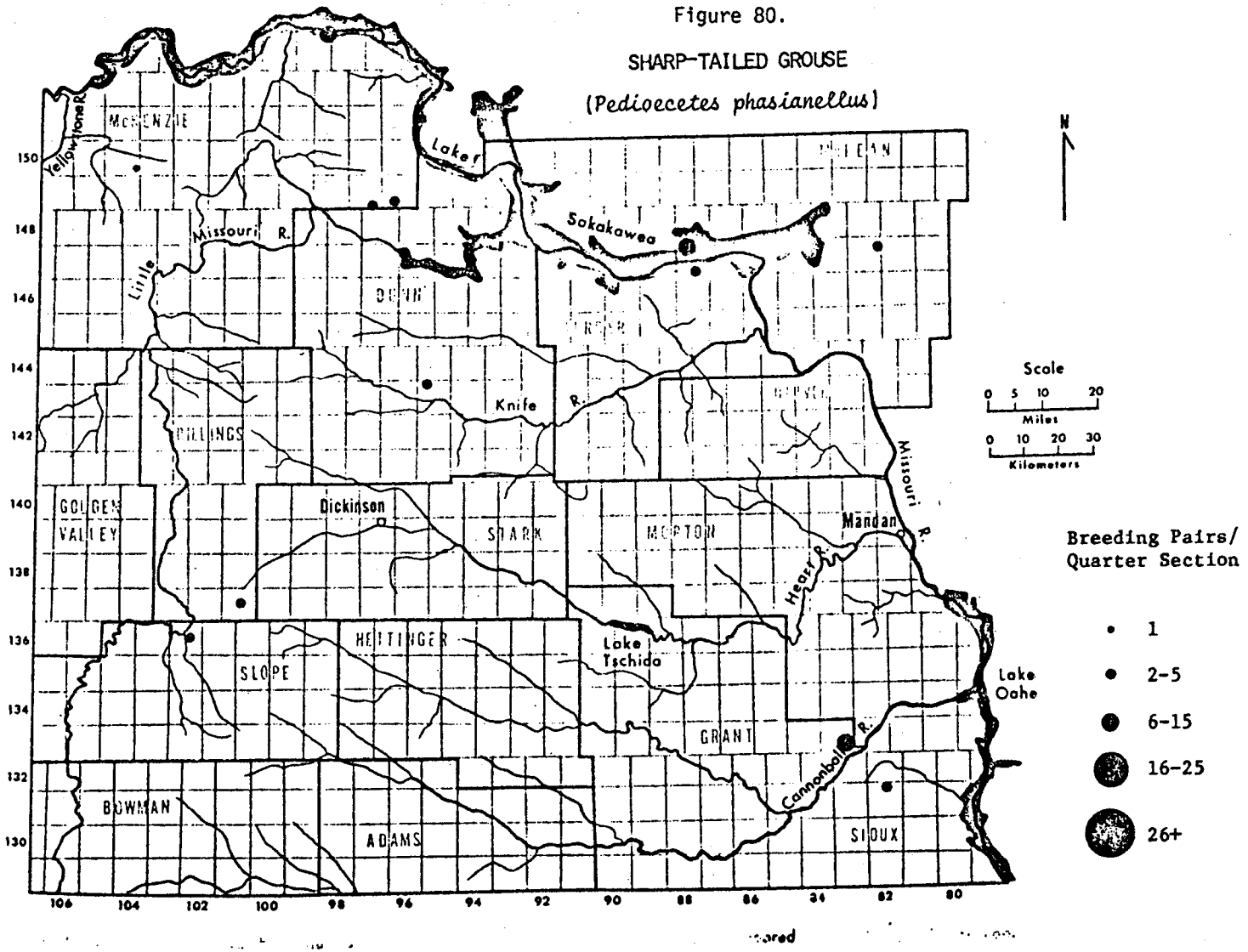


Figure 80.

SHARP-TAILED GROUSE

(*Pedioecetes phasianellus*)



ORDER: Galliformes

FAMILY: Tetraonidae

Sage Grouse (*Centrocercus urophasianus*) - This grouse has a somewhat restricted range, covering the northwestern edge of the Great Plains and the northern Rocky Mountain area. It occurs in this area year round (Robbins, et al., 1966). Stewart (1975) lists it as common in the western half of Bowman County; locally common in western Slope County; and uncommon and local or rare and local in Billings and Golden Valley Counties. Johnsgard (1973) states that the Sage Grouse is at least maintaining its population sufficiently to be a major game species in five states and of secondary importance in six other states and one province.

Distribution in the project area: Five observations were made in rolling and upland grasslands and along roadsides in Bowman and Slope Counties (Fig. 81).

Habitat: Scrub prairie dominated by a semiopen growth of black sage represents primary breeding habitat (Stewart, 1975).

Status: Rare breeding species in the total project area, but locally common populations occur in the southwestern portion of the project area.

ORDER: Galliformes

FAMILY: Phasianidae (Partridges and Pheasants) - This family contains 177 living species which are found almost worldwide in temperate and tropical regions except South America. Most are gregarious (Austin, 1971).

Gray (Hungarian) Partridge (*Perdix perdix*) - This introduced bird has a range covering the north-central United States and south-central Canada, the Pacific Northwest states, and has a spotty distribution around the Great Lakes (Johnsgard, 1975). Stewart (1975) lists it as fairly common throughout the state except in the Agassiz Lake Plain Region and in the southern part of the Southern Drift Plain where it is uncommon and local.

Distribution in the project area: We made 22 observations in riparian woodland, hardwood draws, upland and rolling grasslands, and agriculturally disturbed areas in all but Golden Valley, Grant, Dunn, Oliver, and Slope Counties (Fig. 82, 83).

Habitat: It is essentially a bird of agricultural croplands and adjoining edge habitats, and seems to require less cover than other members of this family (Johnsgard, 1975; Stewart, 1975).

Status: Fairly common breeding species in the project area.

ORDER: Galliformes

FAMILY: Phasianidae

Ring-necked Pheasant (*Phasianus colchicus*) - This bird has a range covering much of the northern United States and south-central Canada, It is present year round in these areas (Robbins, et al., 1966). Stewart (1975) lists it as common in the southern portion of the Southern Drift Plain; locally common on the Little Missouri, Missouri, and Coteau Slopes, and Northwestern Drift Plain; and generally uncommon elsewhere in the state.

Distribution in the project area: 38 observations were made in riparian woodlands, hardwood draws, upland and rolling grasslands, ponderosa pines, and agriculturally disturbed areas in all but Sioux County (Fig. 84, 85).

Habitat: The pheasant is essentially a bird of agricultural croplands and adjoining edge habitats where adequate cover and food are found (Johnsgard, 1975; Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Galliformes

FAMILY: Meleagrididae (Turkeys) - A small family of only two living species, the turkeys are found only in the New World and are fast-running, tree-roosting birds (Austin, 1971).

Turkey (*Meleagris gallopavo*) - Three subspecies have been introduced into North Dakota (Johnson, 1964) and are found primarily in the Missouri and Little Missouri River valleys (Stewart, 1975).

Distribution in the project area: Three observations were made in 1976, two of which were in the ponderosa pine area in Slope County, and one in a hardwood draw in Dunn County (Fig. 86, 87).

Habitat: The Turkey is primarily a bird of the mature forest, both deciduous and coniferous (Stewart, 1975).

Status: Based on three observations, we list it as a rare and local breeder in the project area.

ORDER: Gruiformes

FAMILY: Rallidae (Rails, Gallinules, and Coots) - A large and diverse group, the family Rallidae contains some 120 living species. Most are aquatic to some extent, but a few species are totally terrestrial (Austin, 1971).

Sora (*Porzana carolina*) - The Sora is one of the most common of all the rails, but is highly secretive and seldom seen. It breeds over most of the northern United States and southern Canada (Bent, 1963). Stewart (1975) lists it as common or fairly common locally throughout most of the state; uncommon and local in southwestern North Dakota.

Distribution in the project area: Four observations were made in the project area. They were found in dugouts and natural wetlands in four counties (Fig. 88).

Habitat: The Sora is primarily a bird of shallow, vegetated wetland edges.

Status: Based on four observations, we consider it to be a rare breeding species in the project area.

ORDER: Gruiformes

FAMILY: Rallidae

American Coot (*Fulica americana*) - The American Coot is the most aquatic of the North American rails and breeds from Mexico to Maine and California north into northern Canada. Stewart (1975) lists it as abundant to fairly common throughout most of North Dakota; uncommon in the Agassiz Lake Plain and Southwestern Slope Region.

Distribution in the project area: Three observations of American Coots were made in McLean, Morton, and Stark Counties. All observations were made on natural wetlands (Fig. 89, 90).

Habitat: The American Coot nests on large or small wetlands where suitable nesting cover and food resources are found. It nests over water and seems to prefer wetlands with about one-half open water and one-half vegetation coverage.

Status: Based on our scheme it is listed as a rare breeder in the project area, even though it is common in the nearby pothole region.

ORDER: Charadriiformes

FAMILY: Charadriidae (Plovers) - A family of some 63 living species worldwide, the plovers are one of the most terrestrial shorebird families. They are found worldwide except Antarctica (Austin, 1971).

Black-bellied Plover (*Pluvialis squatarola*) - The Black-bellied Plover is an arctic breeding species, but often passes through North Dakota during migration (Robbins, et al., 1966).

Distribution in the project area: One individual was seen foraging in a moderately grazed rolling grassland in Morton County (Fig. 91).

Habitat: Arctic tundra for nesting; feeds primarily in the uplands during migration (Bent, 1962).

Status: Non-breeding species in the project area, but evidently uses the area during migration.

ORDER: Charadriiformes

FAMILY: Charadriidae

Killdeer (*Charadrius vociferous*) - The Killdeer is one of the most common plovers breeding over most of the United States and southern Canada (Bent, 1962). Stewart (1975) lists it as fairly common throughout North Dakota.

Distribution in the project area: We made 49 observations of Killdeers in the project area. It appears to be nearly uniformly scattered throughout the area. Dominant habitats where they were observed included rolling grasslands, dugouts, natural wetlands, and agricultural lands (Fig. 92, 93).

Habitat: The Killdeer nests in a wide variety of upland areas, including prairies, roadsides, and agricultural lands. It usually is found near wetlands in North Dakota (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Charadriidae

Piping Plover (*Charadrius melodus*) - Uncommon throughout its range, the Piping Plover breeds primarily in north-central United States and south-central Canada and migrates through the central portions of the United States (Robbins, et al., 1966). Stewart (1975) lists it as fairly common locally or uncommon and local in parts of the Prairie Pothole Region and Coteau Slope in North Dakota.

Distribution in the project area: One observation of a Piping Plover was made on a natural wetland in McLean County (Fig. 94).

Habitat: It nests primarily on sandy beaches and forages along the shoreline of larger water areas (Bent, 1962; Stewart, 1975).

Status: Rare and local breeder in the project area; evidently absent except in the northeastern portions.

ORDER: Charadriiformes

FAMILY: Scolopacidae (Sandpipers, Snipes, and Curlews) - The Scolopacids comprise about 82 living species and are found worldwide except Antarctica. As a group, they are more aquatic than the plovers (Austin, 1971).

Common Snipe (*Capella gallinago*) - Primarily an inland sandpiper, the Common Snipe breeds over almost all of North America and winters wherever open water is found (Robbins, et al., 1966). Stewart (1975) lists it as locally common to uncommon and local over most of North Dakota; rare on the Missouri Slope.

Distribution in the project area: Two observations were made on natural wetlands in McLean and Morton Counties (Fig. 95, 96).

Habitat: Stewart and Kantrud (1968) state that Common Snipes in North Dakota are limited almost entirely to fens during the breeding season; other habitats such as rivers, bogs and other wetlands evidently are used elsewhere (Robbins, et al., 1966).

Status: Rare and local breeder in the project area. We found snipes in McLean and Morton Counties and Stewart (1975) lists recent breeding records in Billings and Bowman Counties.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Pectoral Sandpiper (*Calidris melanotos*) - The Pectoral Sandpiper breeds in arctic regions, and can be found over most of North America during migration (Robbins, et al., 1966). No North Dakota breeding records are known.

Distribution in the project area: One observation was made in McLean County on a natural wetland during July 1977 (Fig 97). No observations were made during 1976.

Habitat: Nest in tundra area; prefers moist fields, wetlands, or mudflats during migration (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Baird's Sandpiper (*Calidris bairdii*) - This species breeds most commonly in high arctic regions near coastlines and on islands (Bent, 1962). Stewart (1975) does not list breeding records for the project area.

Distribution in the project area: One observation was recorded on a dugout in Stark County (Fig. 98).

Habitat: Found on short grassy marshes or sometimes on shores and mudflats (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Least Sandpiper (*Calidris minutilla*) - The Least Sandpiper is found over the entire North American continent except most of Alaska and the arctic islands (Bent, 1962). Stewart (1975) lists no breeding records in the project area.

Distribution in the project area: Two observations were made in Morton and McLean Counties on natural wetlands (Fig. 99).

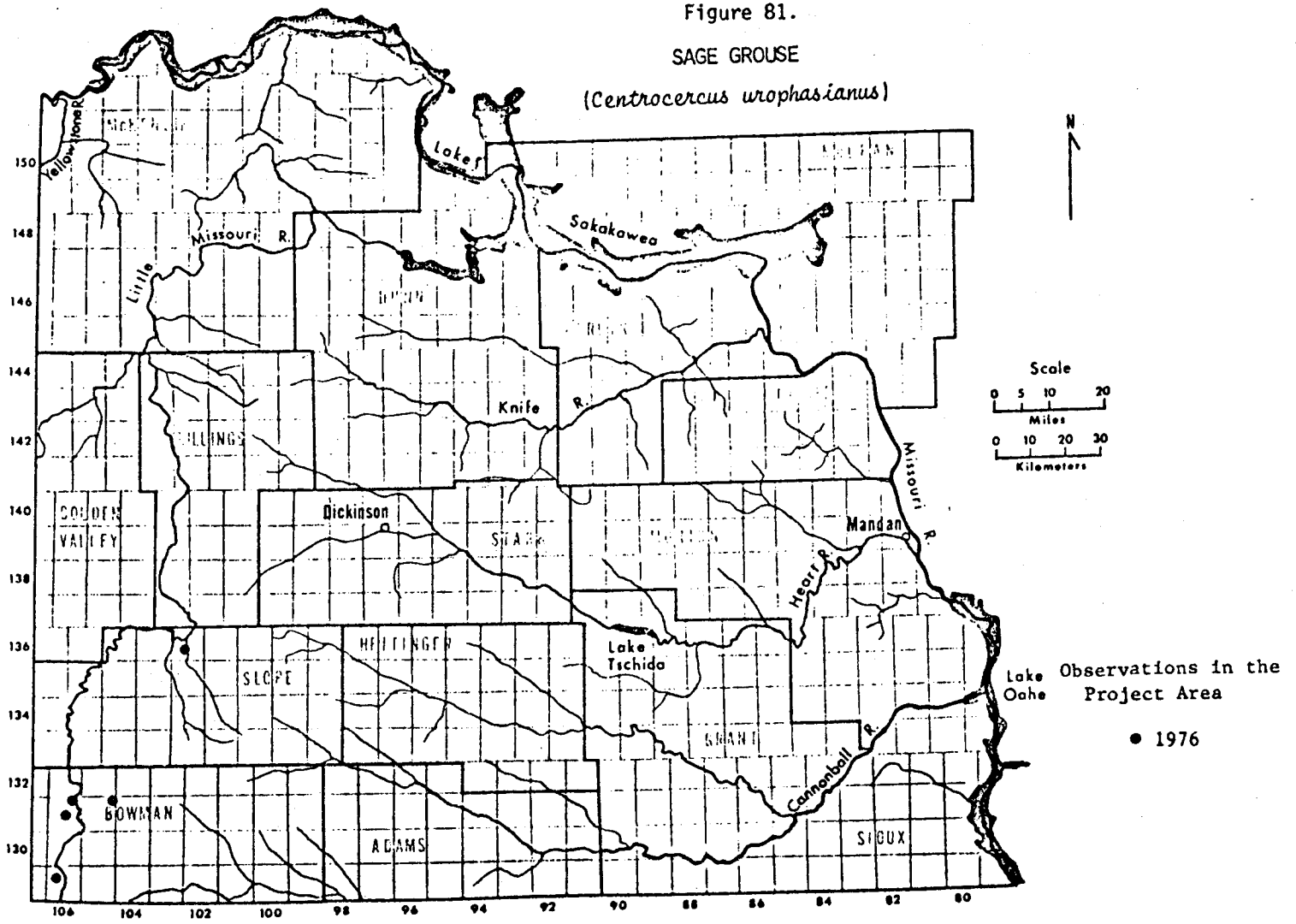
Habitat: Found on salt marshes and muddy shores of rivers and estuaries (Robbins, et al., 1966).

Status: Non-breeding species in the prcject area.

Figure 81.

SAGE GROUSE

(Centrocercus urophasianus)



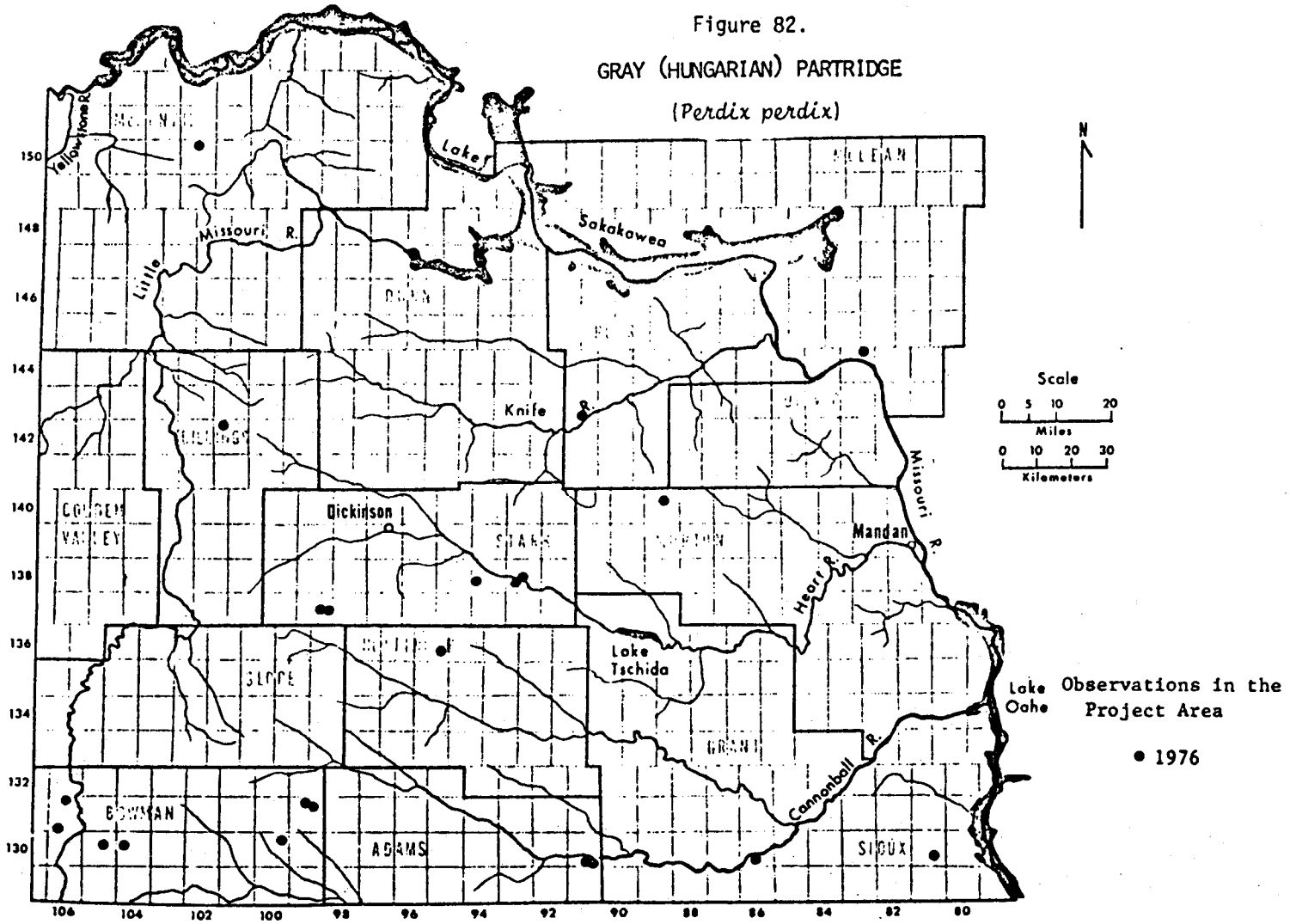
Observations in the Project Area

● 1976

Figure 82.

GRAY (HUNGARIAN) PARTRIDGE

(*Perdix perdix*)



Observations in the Project Area

● 1976

Figure 83.

GRAY (HUNGARIAN) PARTRIDGE

(*Perdix perdix*)

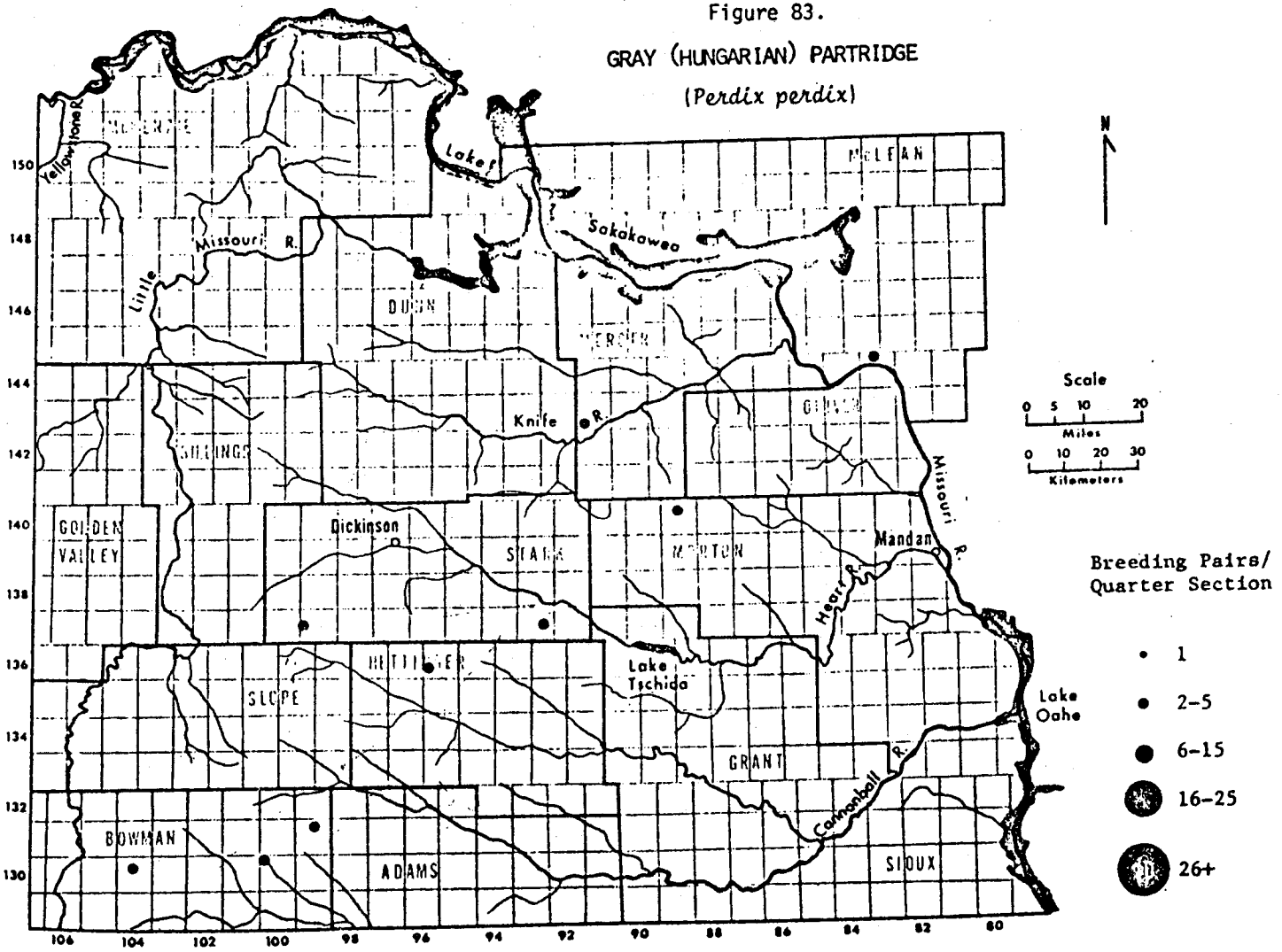
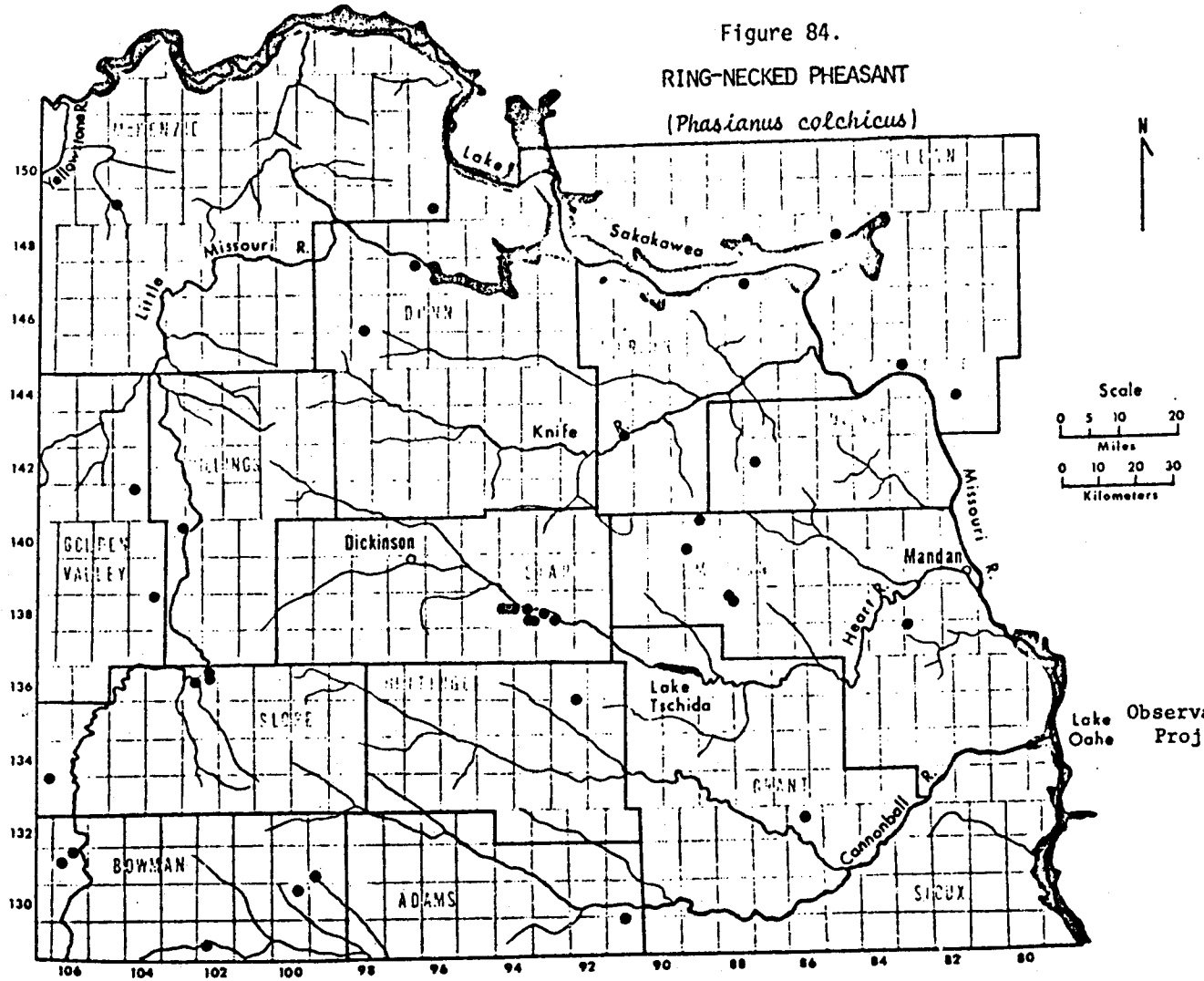


Figure 84.

RING-NECKED PHEASANT

(*Phasianus colchicus*)



Observations in the Project Area

● 1976

Figure 85.

RING-NECKED PHEASANT

(*Phasianus colchicus*)

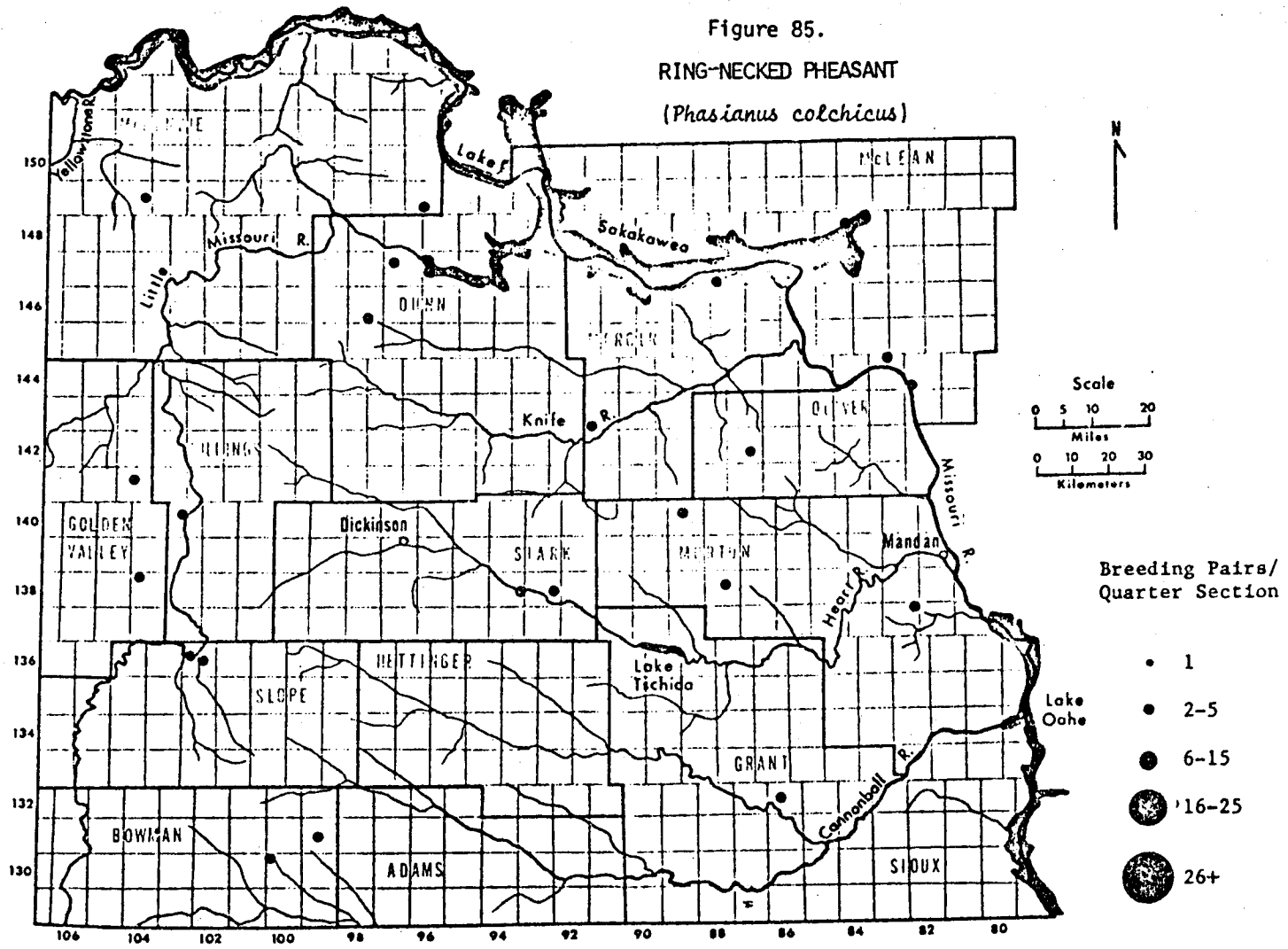
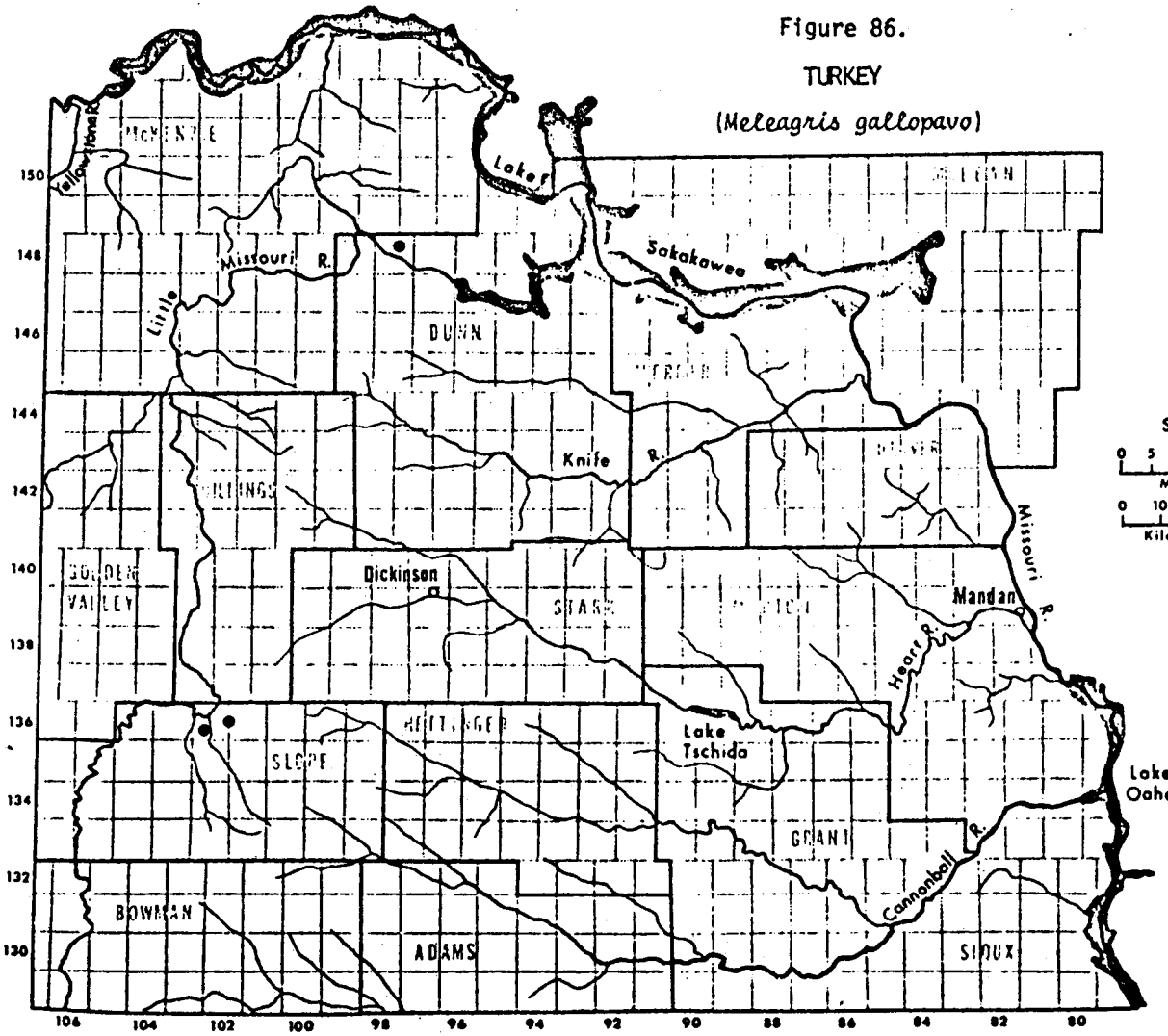


Figure 86.

TURKEY

(*Meleagris gallopavo*)



Observations in the Project Area

● 1976

Figure 87.

TURKEY

(Meleagris gallopavo)

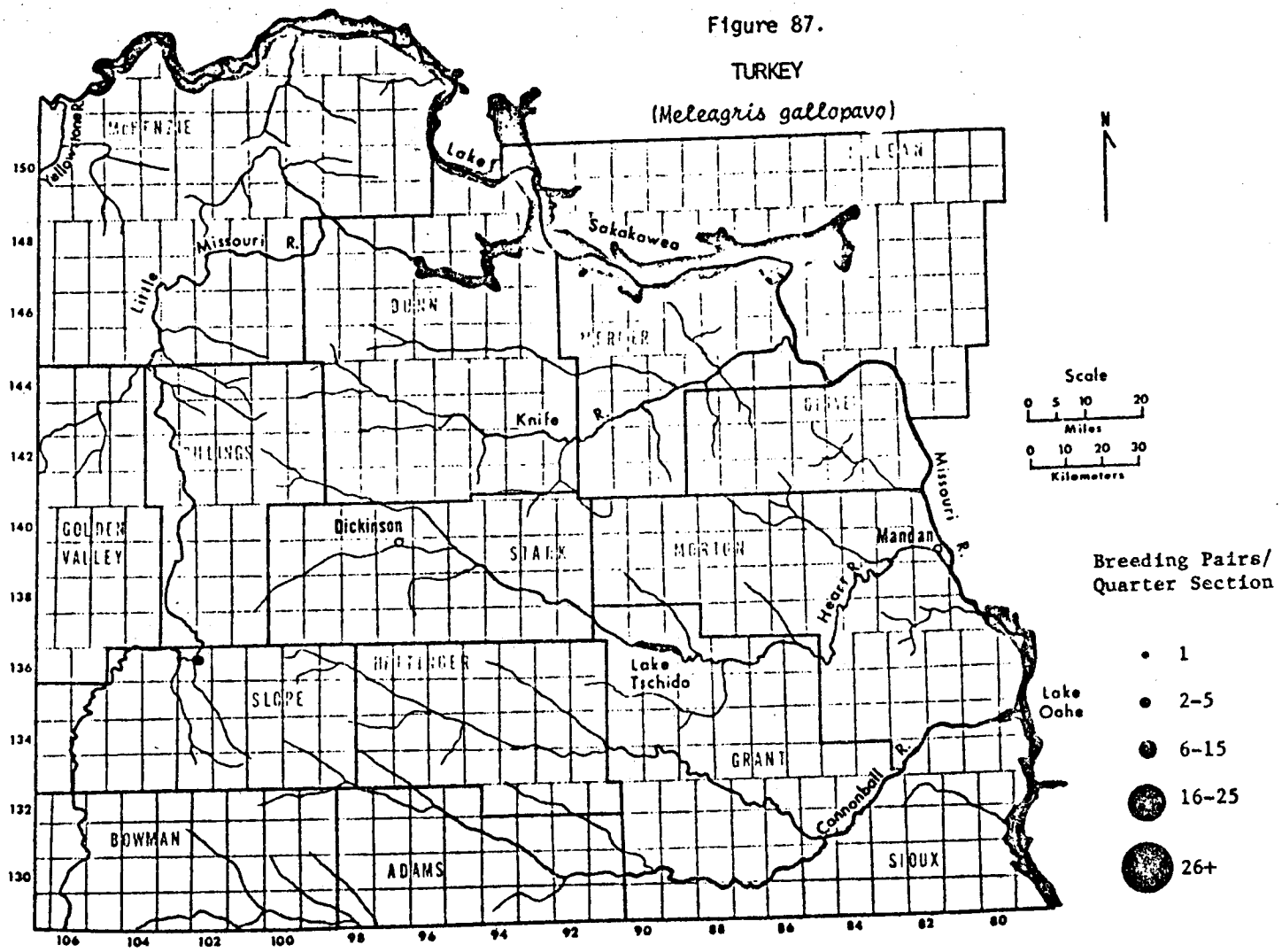
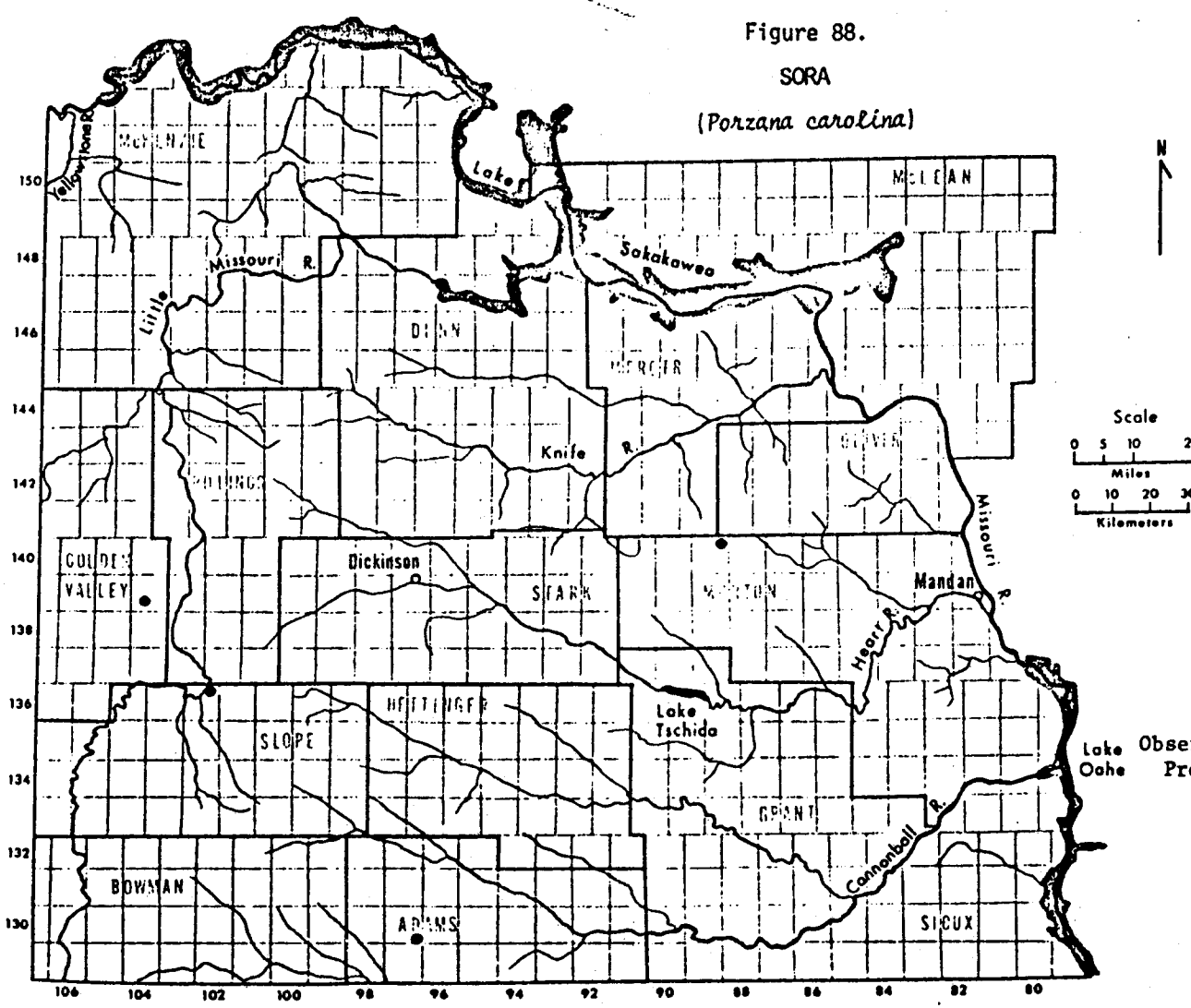


Figure 88.

SORA

(*Porzana carolina*)



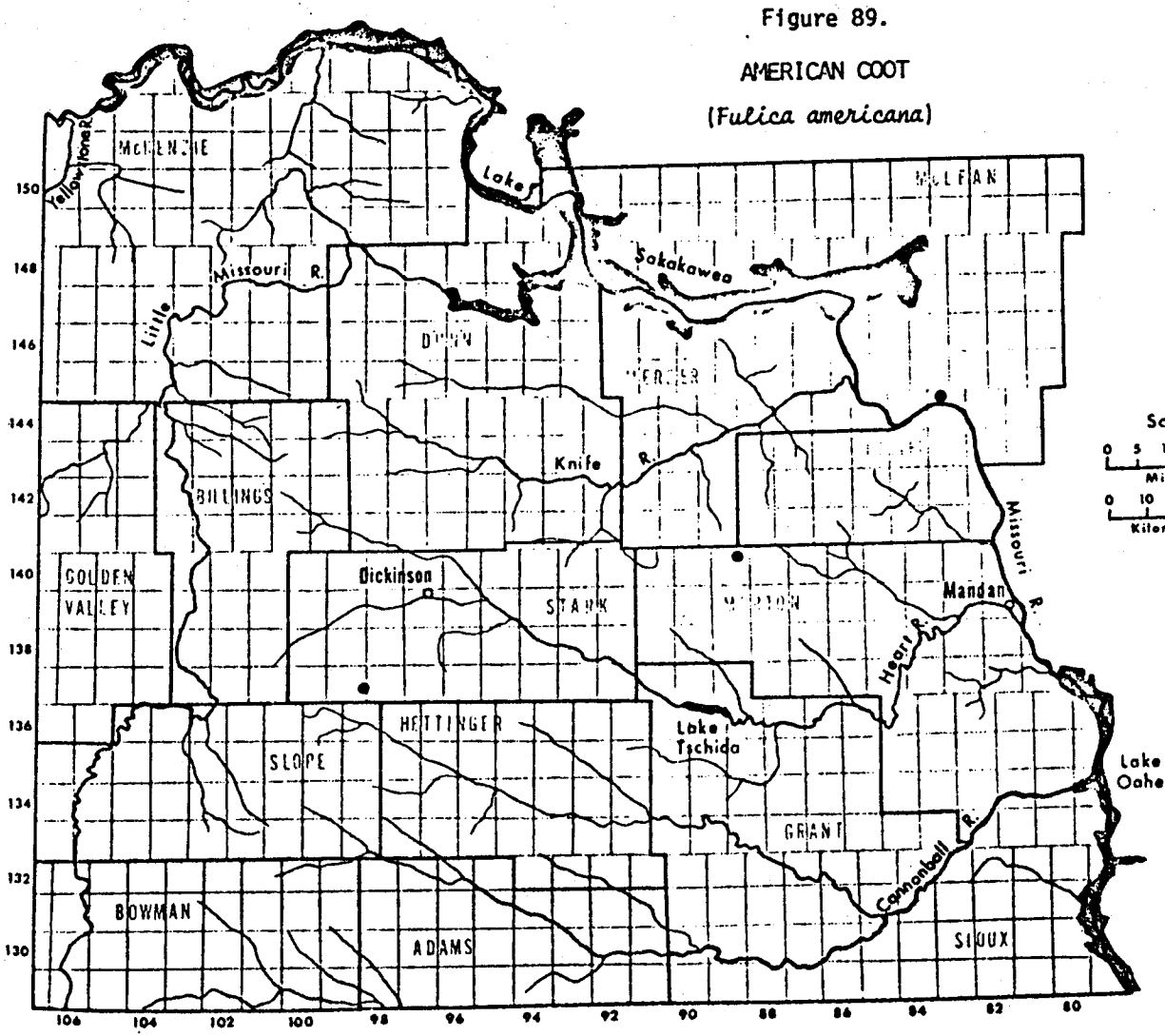
Observations in the Project Area

● 1976

Figure 89.

AMERICAN COOT

(*Fulica americana*)



Observations in the Project Area

• 1976

Figure 90.

AMERICAN COOT

(*Fulica americana*)

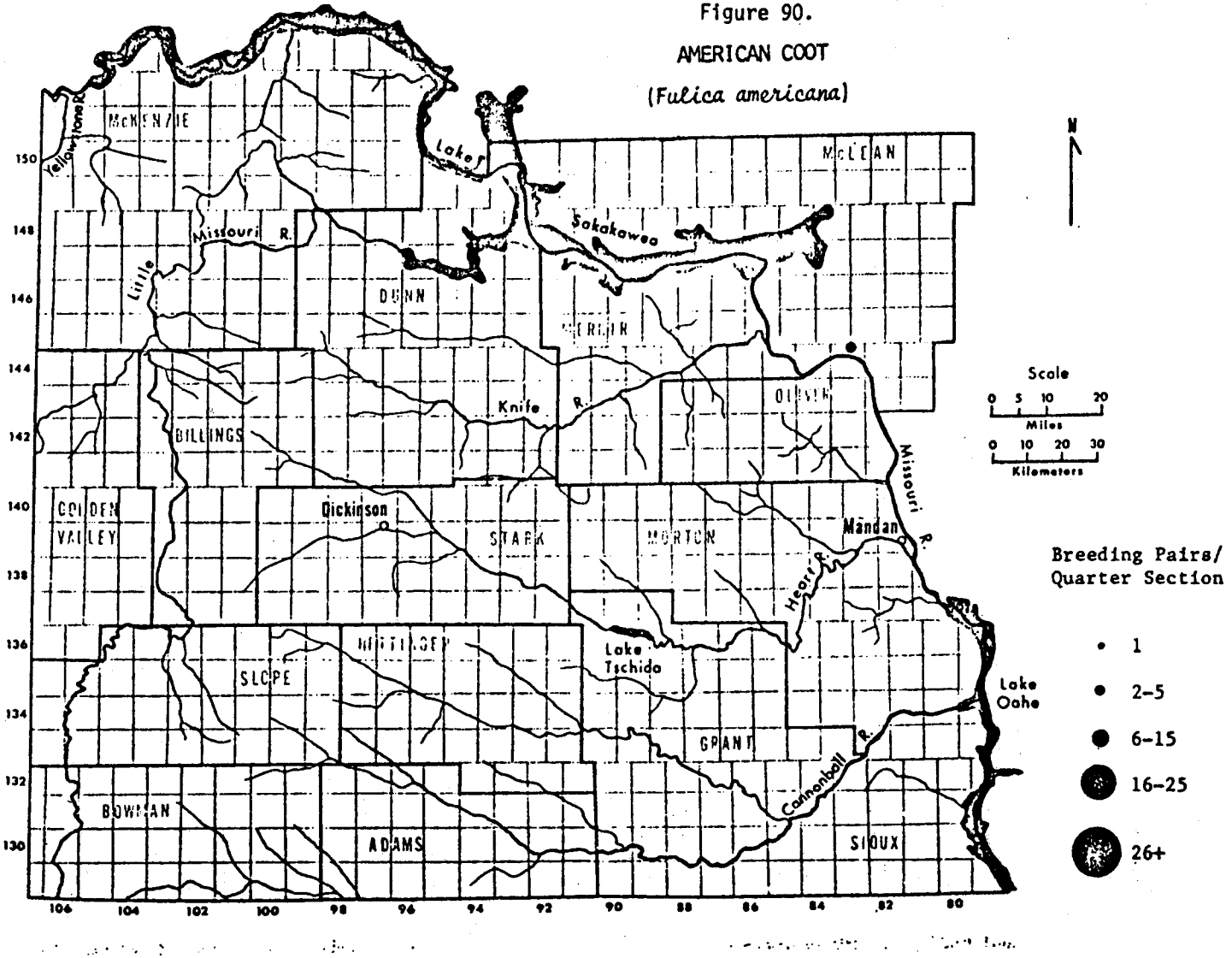
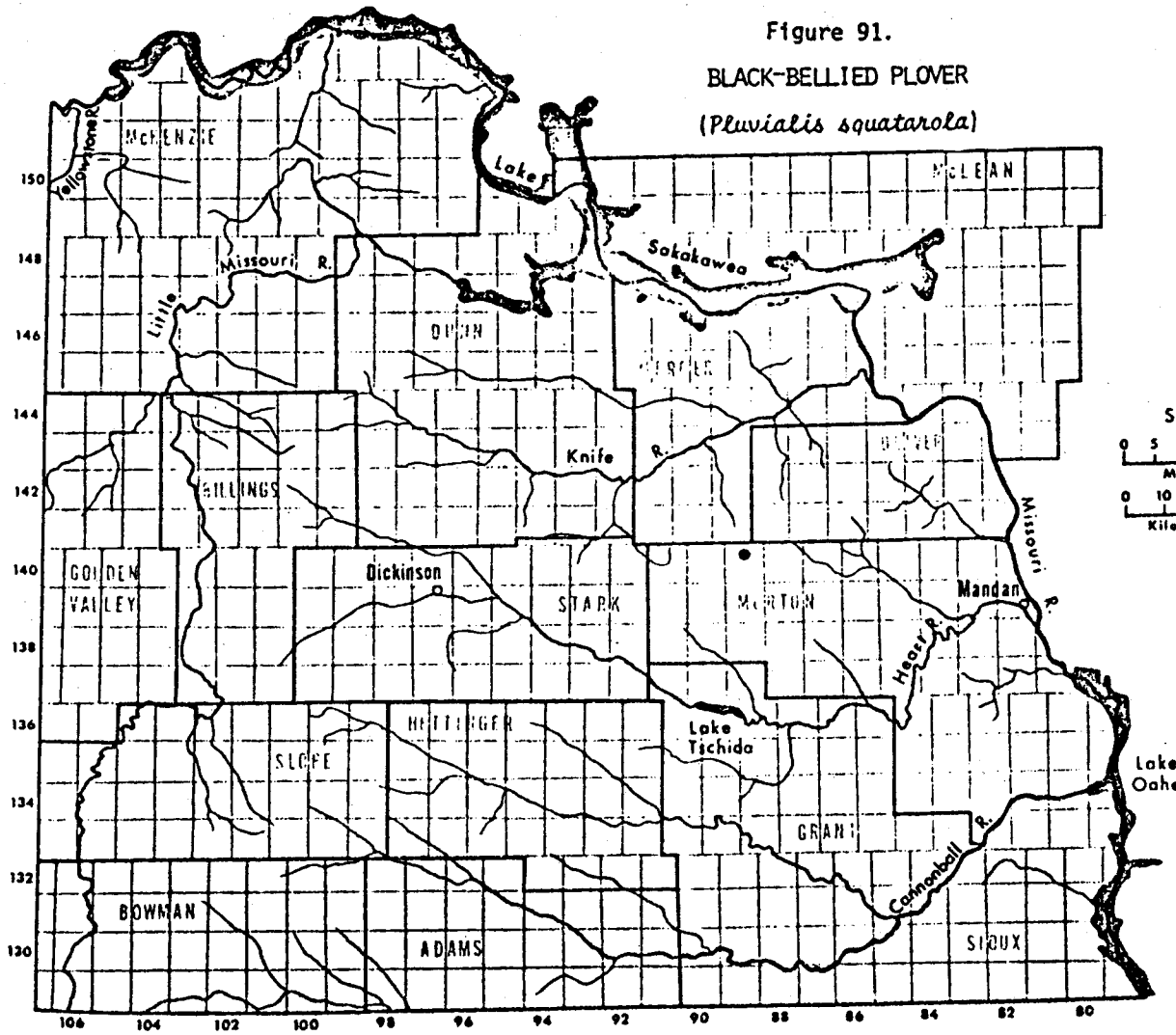


Figure 91.

BLACK-BELLIED PLOVER

(*Pluvialis squatarola*)



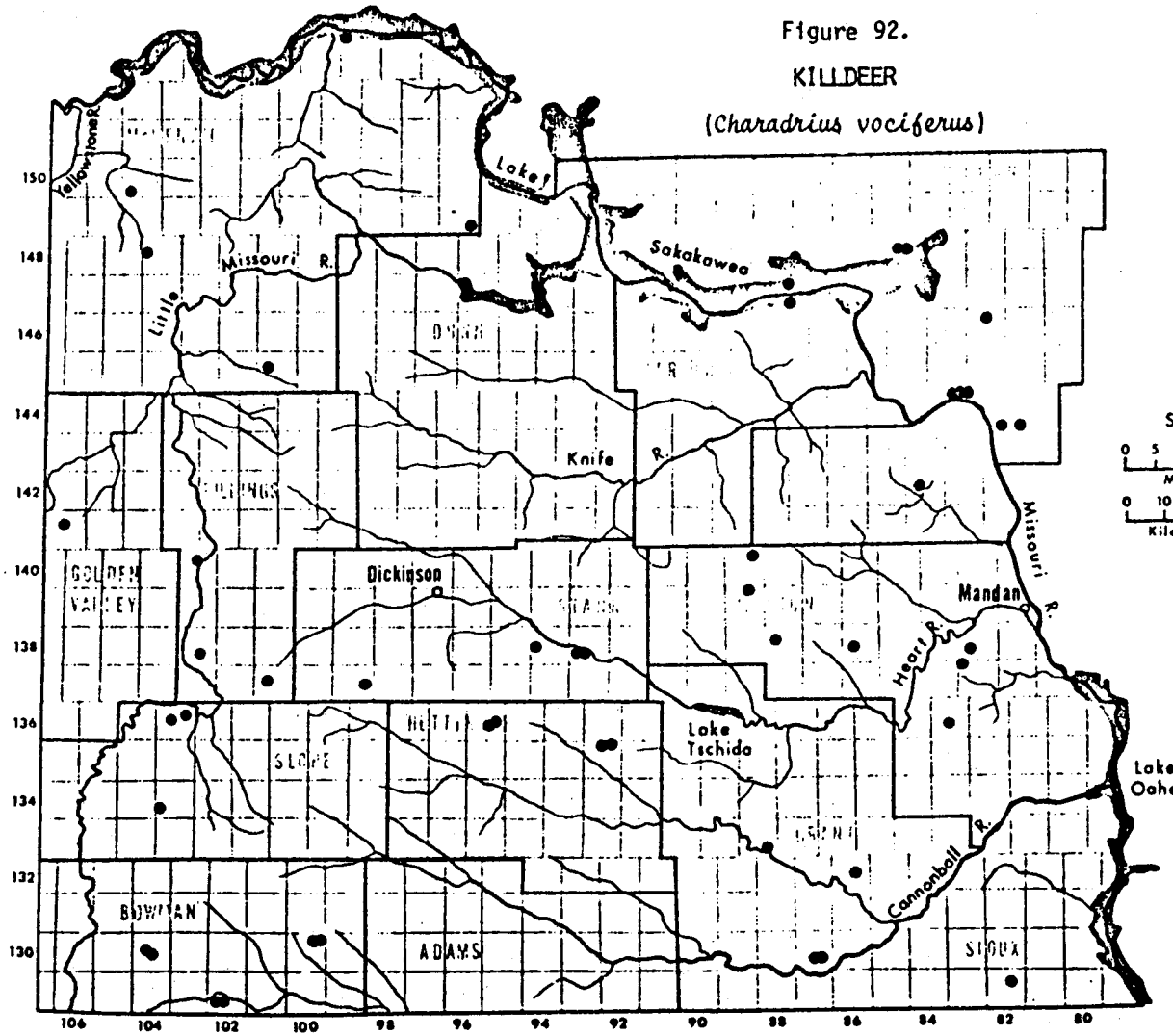
Observations in the Project Area

● 1976

Figure 92.

KILLDEER

(*Charadrius vociferus*)



Lake Oahe

Observations in the Project Area

● 1976

Figure 93.

KILLDEER

(*Charadrius vociferus*)

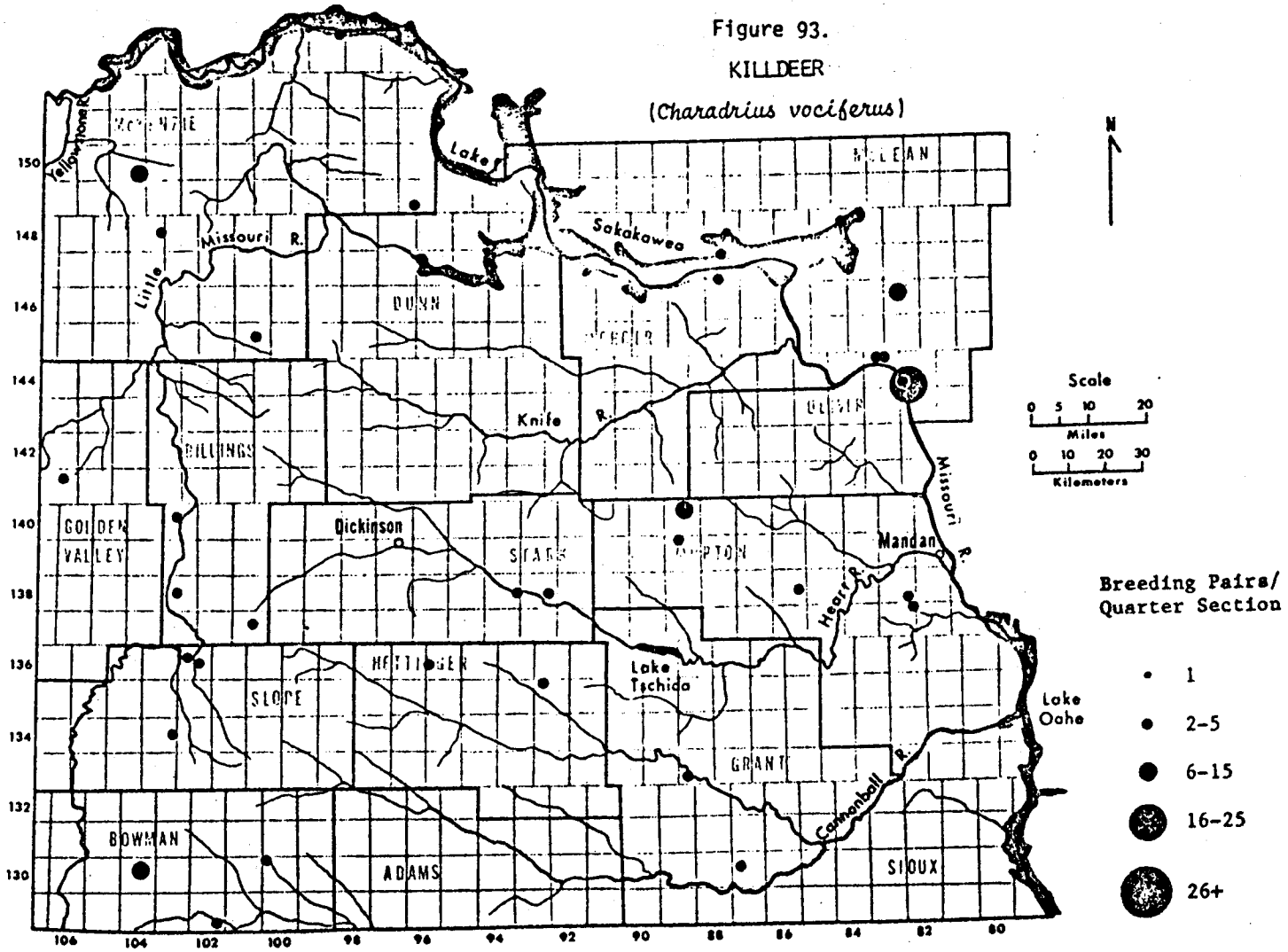
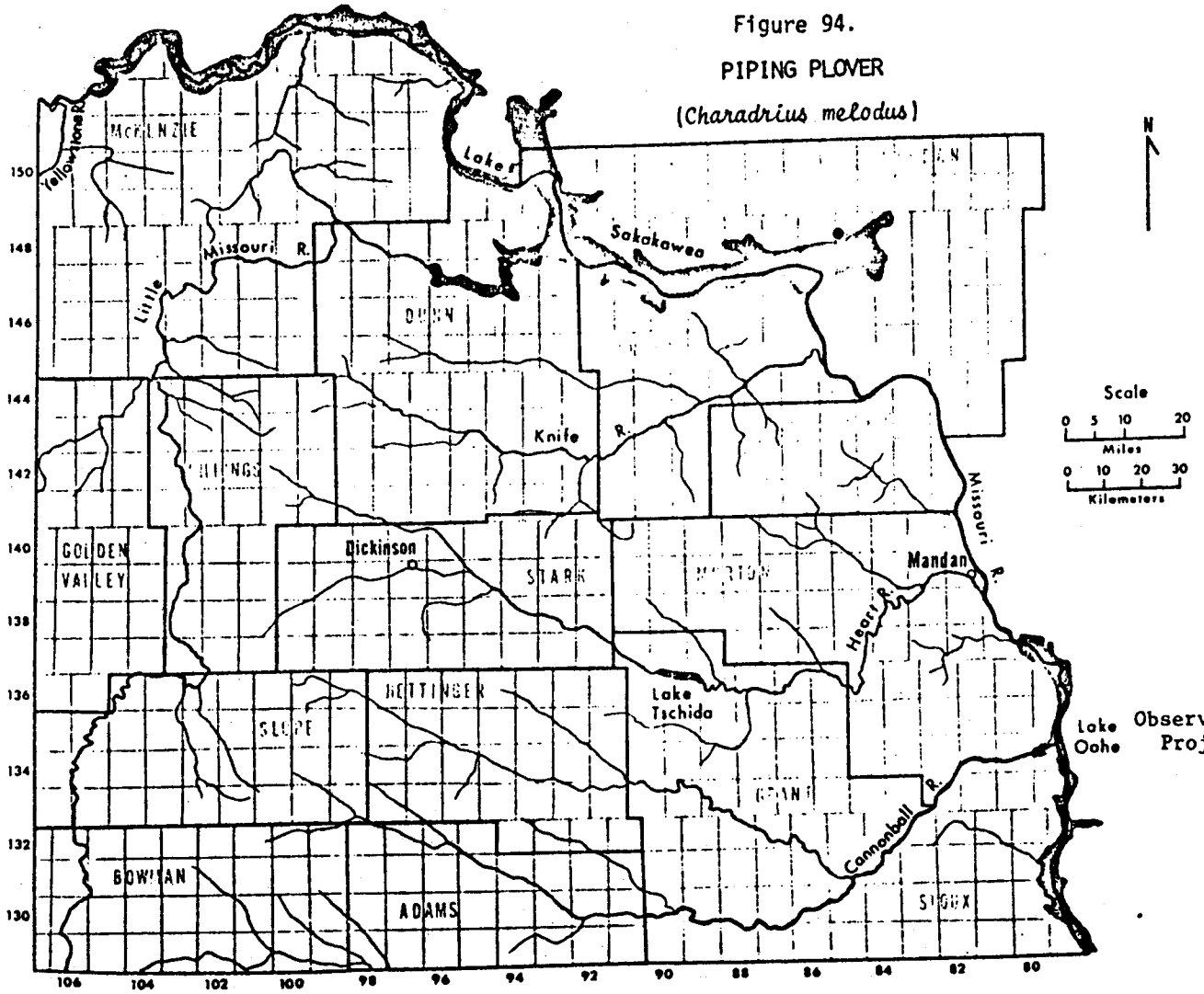


Figure 94.

PIPING PLOVER

(*Charadrius melodus*)



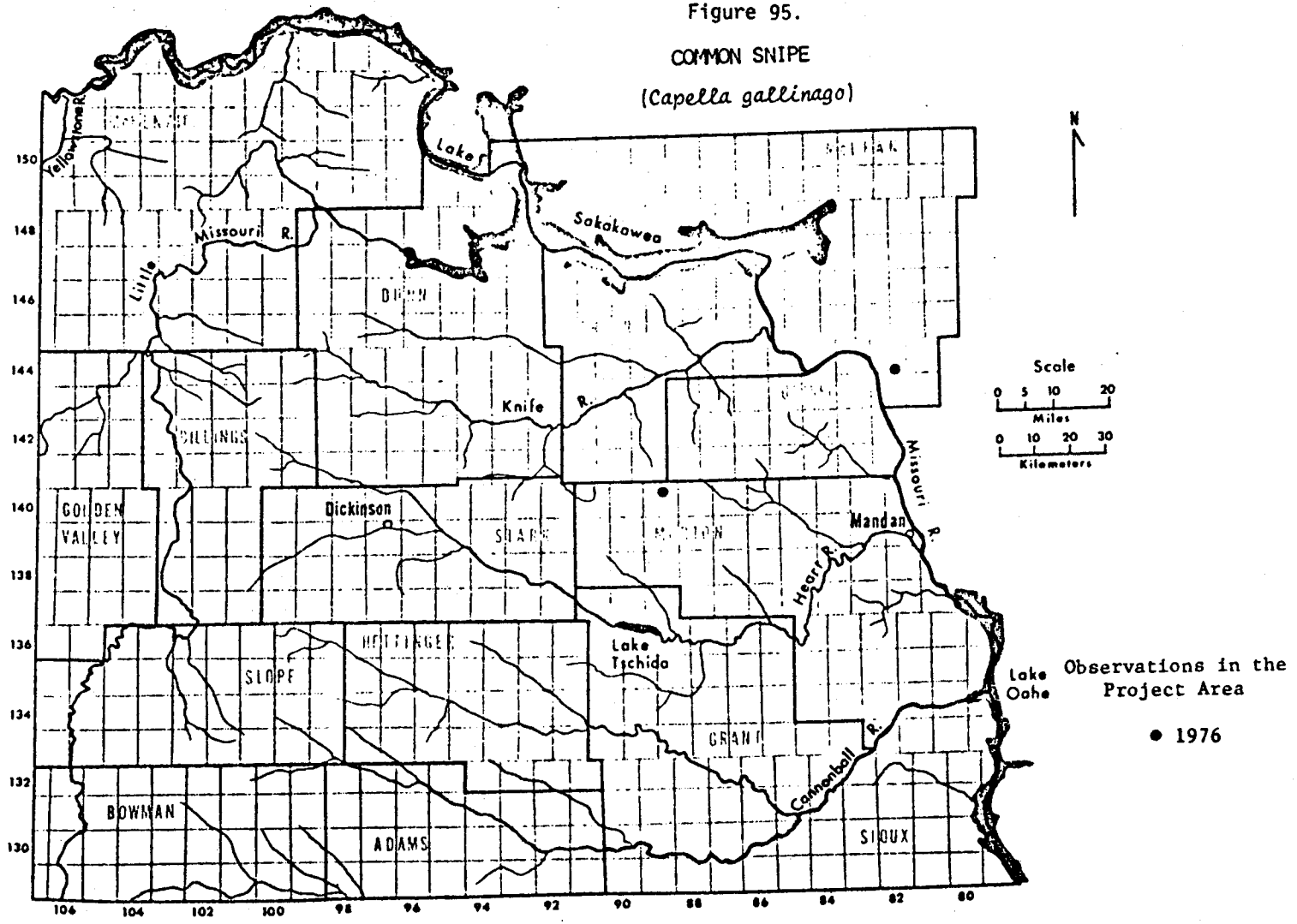
Observations in the Project Area

• 1976

Figure 95.

COMMON SNIPE

(Capella gallinago)



Observations in the Project Area

● 1976

Figure 96.

COMMON SNIPE

(*Capella gallinago*)

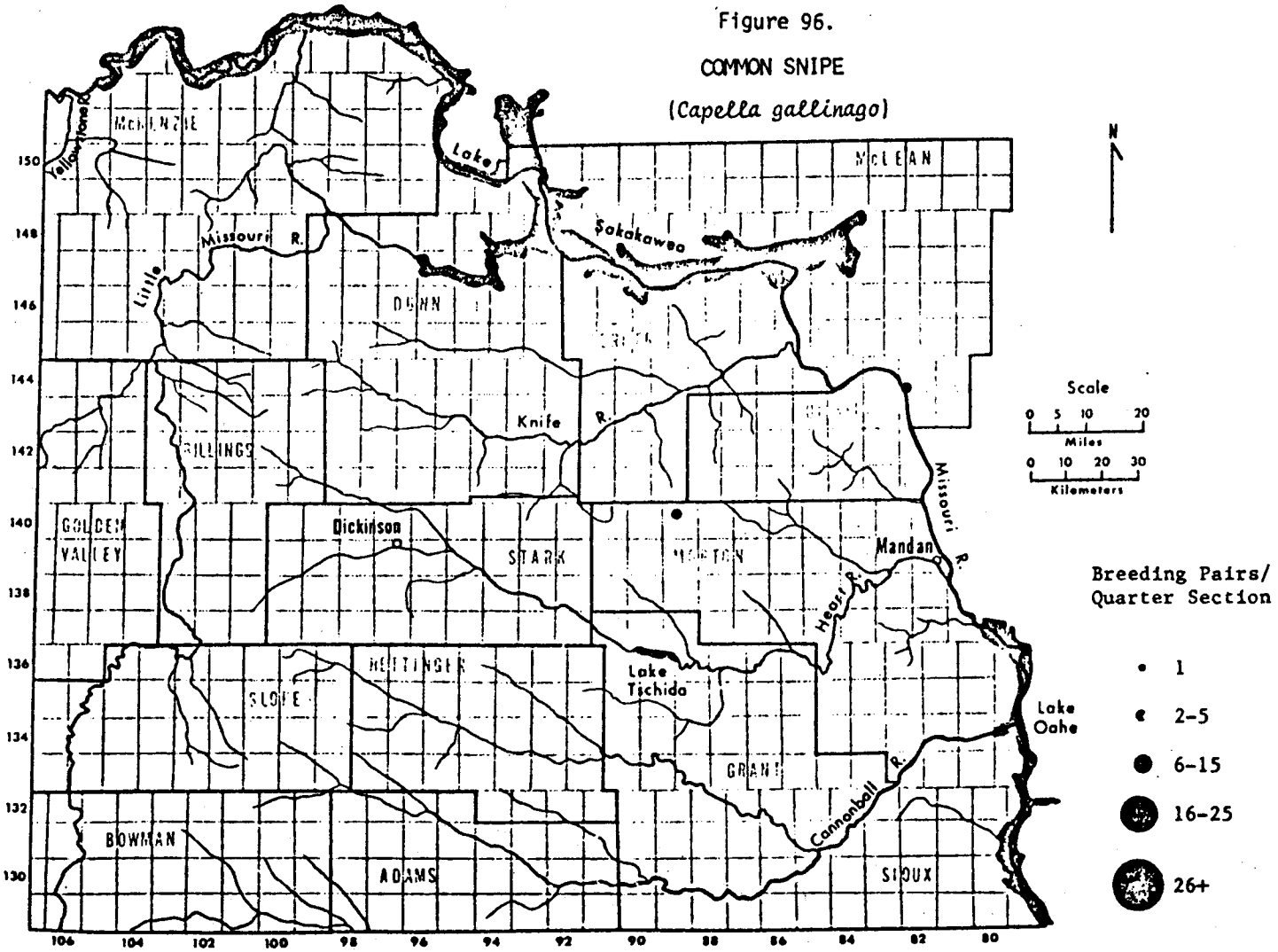
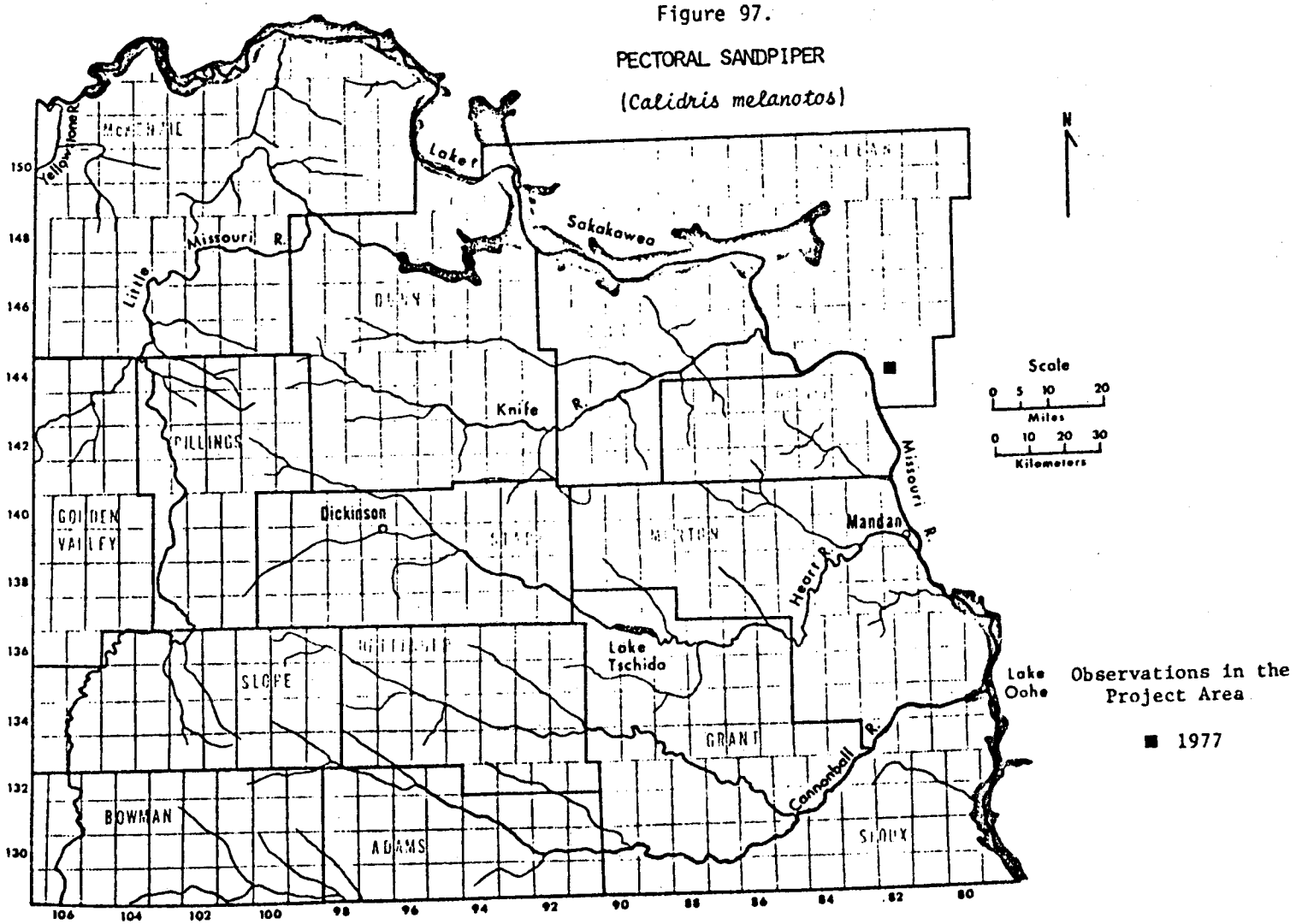


Figure 97.

PECTORAL SANDPIPER

(*Calidris melanotos*)



Observations in the Project Area

■ 1977

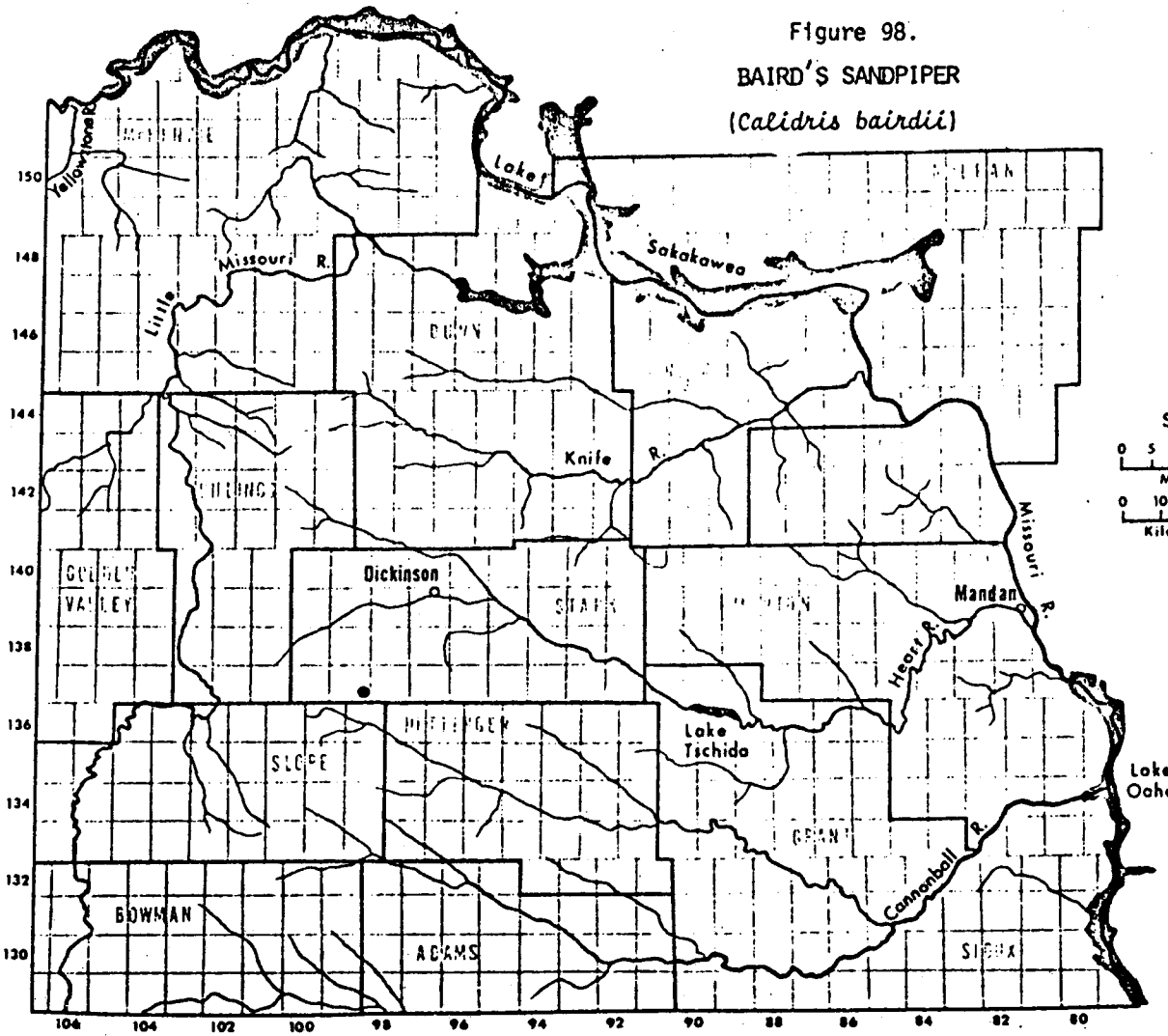
Published by UND Inst. for Ecol. Studies

Prepared by UND Geog./ Cart. Lab.

Figure 98.

BAIRD'S SANDPIPER

(*Calidris bairdii*)



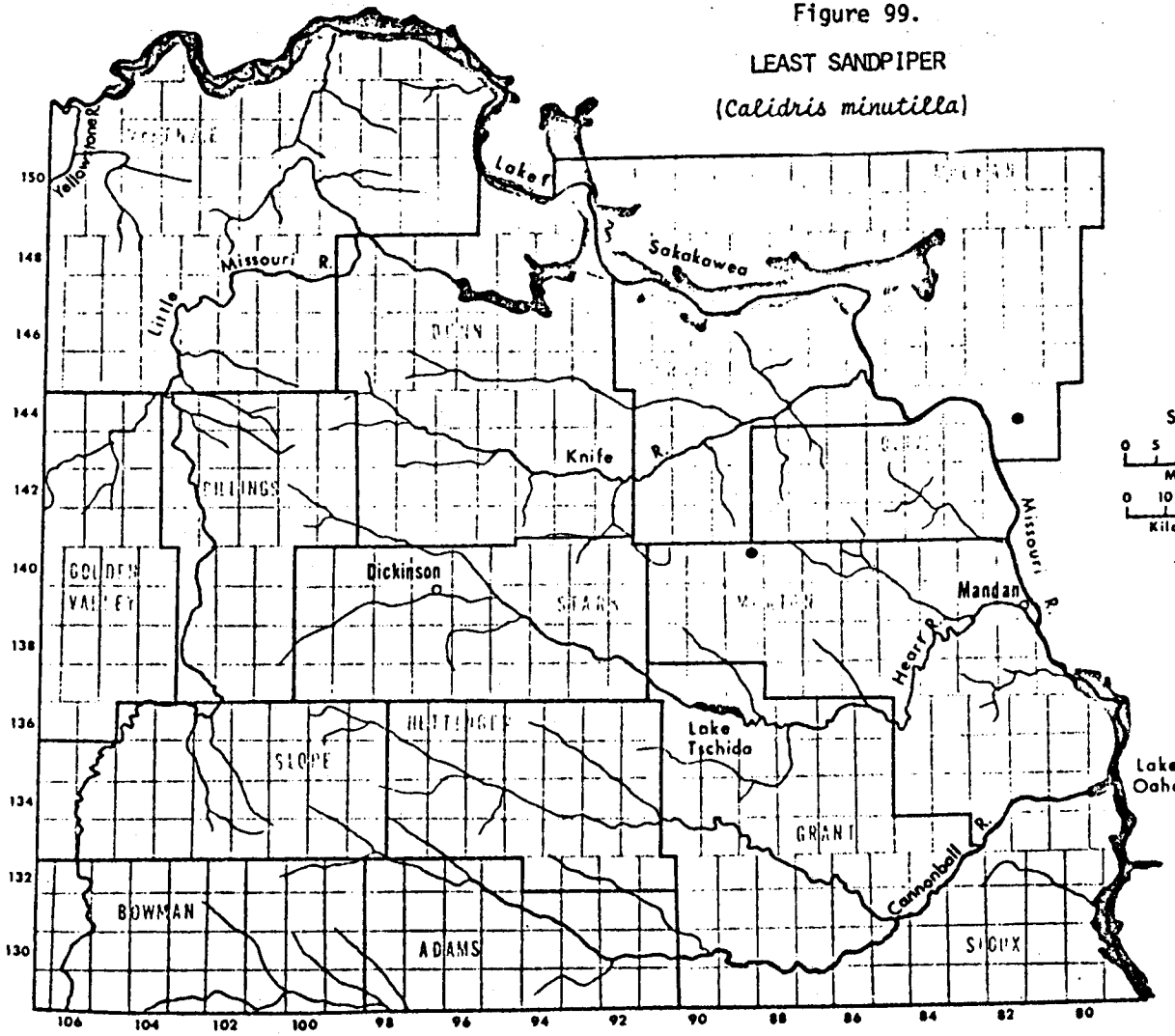
Observations in the Project Area

• 1976

Figure 99.

LEAST SANDPIPER

(*Calidris minutilla*)



Observations in the Project Area

● 1976

ORDER: Charadriiformes

FAMILY: Scolopacidae

Semipalmated Sandpiper (*Calidris pusilla*) - The Semipalmated Sandpiper breeds along the northern coast of Alaska and northeast section of the Northwest Territories near Hudson's Bay (Bent, 1962). No breeding records are known for the project area (Stewart, 1975).

Distribution in the project area: One observation was made on a natural wetland in McLean County (Fig. 100).

Habitat: Found on both salt and fresh water and often with Least and Western Sandpipers (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Western Sandpiper (*Calidris mauri*) - The Western Sandpiper breeds along the northwestern coast of Alaska and winters along the west coast of the United States and Mexico, the Gulf coast of the United States and Mexico, and the southern half of the east coast of the United States (Robbins, et al., 1966).

Distribution in the project area: One observation was made on a natural wetland in Morton County (Fig. 101).

Habitat: Found on sandbars and mudflats during migration (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Marbled Godwit (*Limosa fedoa*) - The Marbled Godwit is found from the Pacific coast of Mexico to the Canadian border and along the Atlantic coast of the United States. Its breeding range is along the Canadian border from southern Manitoba and northern North Dakota west to southern Alberta and northern Idaho. The bird winters along the west coast of California and Mexico and along the entire Gulf coast and lower east coast of the United States (Robbins, et al, 1966). Stewart (1975) lists its North Dakota breeding range as fairly common on the Missouri Coteau and uncommon or rare over the rest of the state.

Distribution in the project area: Five observations were made on natural wetlands of Bowman, Morton, and McLean Counties, and on haylands and moderately grazed rolling grasslands in Sioux County (Fig. 102, 103).

Habitat: Prairies, meadows, and pastures for breeding (Robbins, et al., 1966). Wetlands used in North Dakota include intermittent streams and various types of ponds and lakes that range in salinity from fresh to strongly saline. Nests often are situated on native prairie, sometimes a considerable distance from water (Stewart, 1975).

Status: Uncommon breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Lesser Yellowlegs (*Tringa flavipes*) - The Lesser Yellowlegs is found over the entire North American continent except northern Canada and Alaska. The breeding range covers most of central Canada and extends into southern Alaska. They winter along the Gulf coast of the United States and Mexico (Robbins, et al., 1966).

Distribution in the project area: One observation was made on a natural wetland of Morton County (Fig. 104).

Habitat: Found in muskeg and tundra in summer and marshes in the winter (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Solitary Sandpiper (*Tringa solitaria*) - This bird is found over the entire North American continent except northern Canada and Alaska. Its breeding range extends from the southeastern edge of Hudson's Bay northwesterly to the west-central coast of Alaska. Wintering areas are found along the eastern coast of Mexico and southward (Robbins, et al., 1966).

Distribution in the project area: One observation was made on a natural wetland in McLean County (Fig. 105).

Habitat: On streams, lakes, and swamps and often seen with the Spotted Sandpiper (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Willet (*Catoptrophorus semipalmatus*) - The Willet is found in the western half of the United States except the extreme northwest, along the southern and

eastern coasts of the United States, and all of Mexico. The breeding range covers the northwest half of the above areas, while the wintering area is along the west coasts of the United States and Mexico. The bird is found year round along the entire Gulf coast and southeast coast of the United States (Bent, 1962). The breeding range in North Dakota is listed as fairly common on the Missouri Coteau and Northwestern Drift Plain and uncommon or rare over the rest of the state (Stewart, 1975).

Distribution in the project area: Three observations were made on a dugout in Grant County and on natural wetlands in McLean and Sioux Counties (Fig. 106).

Habitat: Found along coasts and lakes during the breeding season; winters in salt marshes (Robbins, et al., 1966). They are found in a considerable number of wetland types in North Dakota, and their nests usually are situated on native prairie, often a considerable distance from water (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Upland Sandpiper (*Bartramia longicauda*) - The Upland Sandpiper is found in the eastern half of the United States and Mexico north to the Rocky Mountains, and through central Canada north to central Alaska. The breeding range covers the northern half of the United States, through central Canada, and north to central Alaska (Robbins, et al., 1966). Stewart (1975) indicates that it breeds commonly throughout the Prairie Pothole Region in North Dakota, and is fairly common throughout the rest of the state.

Distribution in the project area: 28 observations were made on upland grasslands, rolling grasslands, haylands, and stubble fields scattered over the project area (Fig. 107, 108).

Habitat: In North Dakota it is found on mixed-grass prairie and extensive tracts of wet-meadow; also occurs regularly on grazed tall-grass prairie, tame haylands, retired croplands, and mowed or burned railway and highway rights-of-way. Most nests are situated in grassland, and most of these are in native prairie (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Spotted Sandpiper (*Actitis macularia*) - This bird is found over the entire North American continent except northern Canada and northern Alaska. The breeding range includes all but the southern edge of the United States and all of Mexico, while it winters along the west coast of the United States, both coasts of Mexico, and the coast of Florida (Bent, 1962). In North Dakota, Stewart (1975) lists it as fairly common in the Turtle Mountains, and uncommon and local elsewhere.

Distribution in the project area: Seven observations were made on river bottoms, dugouts, and natural wetlands in Hettinger, McLean, Morton, Slope, and Stark Counties (Fig. 109, 110).

Habitat: In North Dakota, the Spotted Sandpiper is restricted to rivers and other permanent streams, and ponds and lakes with exposed, sparsely vegetated islands or shorelines. Nests are situated on the ground in areas of short or sparse vegetation and near open water (Stewart, 1975).

Status: Uncommon breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Long-billed Curlew (*Numenius americanus*) - This bird is found in the western United States and Mexico except coasts of Washington and Oregon. The breeding range extends from Texas to the Canadian border. Winter range is along the southern coast of California and all of Mexico except the extreme northwestern portion (Robbins, et al.,1966). During recent years these birds have been considered uncommon and local in southwestern North Dakota (Stewart, 1975).

Distribution in the project area: Eight observations were made on rolling grasslands, retired croplands, and stubble fields in Bowman, Golden Valley, Sioux, Slope, and Stark Counties (Fig. 111, 112).

Habitat: Nests in meadows and pastures and also found in marshes, mudflats, and beaches (Robbins, et al., 1966). In North Dakota, preferred habitats include short-grass prairie, grazed mixed-grass prairie, and scrub prairie (Stewart, 1975).

Status: Uncommon breeding species in the project area. It appears to be localized in the southwestern portions of the study area, except for the Sioux County record.

ORDER: Charadriiformes

FAMILY: Scolopacidae

Whimbrel (*Numenius phaeopus*) - The Whimbrel is found along the west coast of North America north to the northern coast of Alaska and the Yukon, and along the east coast of the United States where it migrates to the shoreline of Hudson's Bay. The breeding range consists of a narrow area along the northern coast of Alaska and the Yukon, and on the southwestern and western shores of Hudson's Bay. It winters along the coast of California, south along the western coast of Mexico, and along the entire Gulf coast and eastern coast of Florida (Robbins, et al., 1966).

Distribution in the project area: One observation was made on a stubble field in Bowman County (Fig. 113).

Habitat: On marshes, mudflats, shores, and prairies (Robbins, et al., 1966).

Status: Pending further study we consider it to be a non-breeding species of the project area.

ORDER: Charadriiformes

FAMILY: Recurvirostridae (Avocets and Stilts) - This family contains seven living species in the temperate and tropical regions of most of the world. Preferred habitat includes open marshes or wet grasslands near fresh, brackish, or salt water. The northern populations migrate and all are gregarious (Austin, 1971).

American Avocet (*Recurvirostra americana*) - This bird is found in the United States from the Mississippi Valley to the coastal range extending slightly into south-central Canada and northern Mexico. Breeding range includes this whole area except the Mississippi Valley and a portion of the southwestern United States, while winter range begins in southern California and extends south along the North American coast, along the Mexican and Texas Gulf coasts, and on the extreme southeast tip of Florida (Bent, 1962). In North Dakota, it is fairly common on the Missouri Coteau, uncommon on the Northeastern, Southern and Northwestern Drift Plains, rare in the Turtle Mountains, and rare and local on the Agassiz Lake Plain (Stewart, 1975).

Distribution in the project area: Two observations were made on a natural wetland and dugout in McKenzie and McLean Counties (Fig. 114).

Habitat: American Avocets breed on shores of marshes and lakes and on ponds and lakes with exposed, sparsely vegetated shorelines or mudflats that are adjacent to expanses of shallow water (Robbins, et al., 1966). Nests are situated on mudflats or sandbars occurring as small islands, spits or shore zones. Sites often are on areas barely exposed above the water surface (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Phalaropodidae (Phalaropes) - This family contains three living species, all in the northern parts of the Northern Hemisphere. They breed near fresh pools in the tundra and winter at sea in the northern temperate and tropical latitudes. All are migratory and gregarious (Austin, 1971).

Northern Phalarope (*Lobipes lobatus*) - The Northern Phalarope is found over most of the west half of the United States and Canada, the northern coast of Canada, southern coast of Greenland, and both oceans. The breeding range extends from the entire coast of Alaska, along the Canadian coast in the north, a few arctic islands, and the southern coast of Greenland (Robbins, et al., 1966).

Distribution in the project area: One observation was made on a dugout in Stark County (Fig. 115).

Habitat: Breeds near freshwater wetlands in arctic regions, and winters at sea (Bent, 1962).

Status: Non-breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Phalaropodidae

Wilson's Phalarope (*Steganopus tricolor*) - The Wilson's Phalarope is found in all of Mexico, western United States (from the Mississippi Valley), and southwestern Canada. The breeding range extends from southwestern Canada through the northern half of the Untied States (Robbins, et al., 1966). Stewart (1975) lists it as common on the Missouri Coteau, fairly common on the Northeastern, Southern, and Northwestern Drift Plains, and southwestern North Dakota, and uncommon and local over the remainder of the state.

Distribution in the project area: Eight observations were made on wetlands and haylands in Golden Valley, McKenzie, McLean, Morton, and Stark Counties (Fig. 116, 117).

Habitat: Primarily found on prairie sloughs and ponds (Bent, 1962). In North Dakota, wetlands inhabited include swales along intermittent streams, and various types of ponds and lakes that contain expanses of shallow water that are interspersed with or adjacent to wet-meadow vegetaion. Most nests are located in wet-meadow zones of ponds and lakes (Stewart, 1975).

Status: Uncommon breeding species in the project area.

ORDER: Charadriiformes

FAMILY: Laridae (Gulls and Terns) - The Larids comprise a large family of about 82 living species (43 gulls and 39 terns). They may be found on either coastal or inland waters and breed worldwide except continental Antarctica (Austin, 1971).

Ring-billed Gull (*Larus delawarensis*) - A large, common and inland gull, the Ring-billed Gull breeds primarily in the northwestern United States, south-central Canada, and around the Great Lakes (Bent, 1963). Stewart (1975) records several breeding colonies in North Dakota, two of which are in McLean County.

Distribution in the project area: We made four observations along Lake Sakakawea in three counties (Fig. 118).

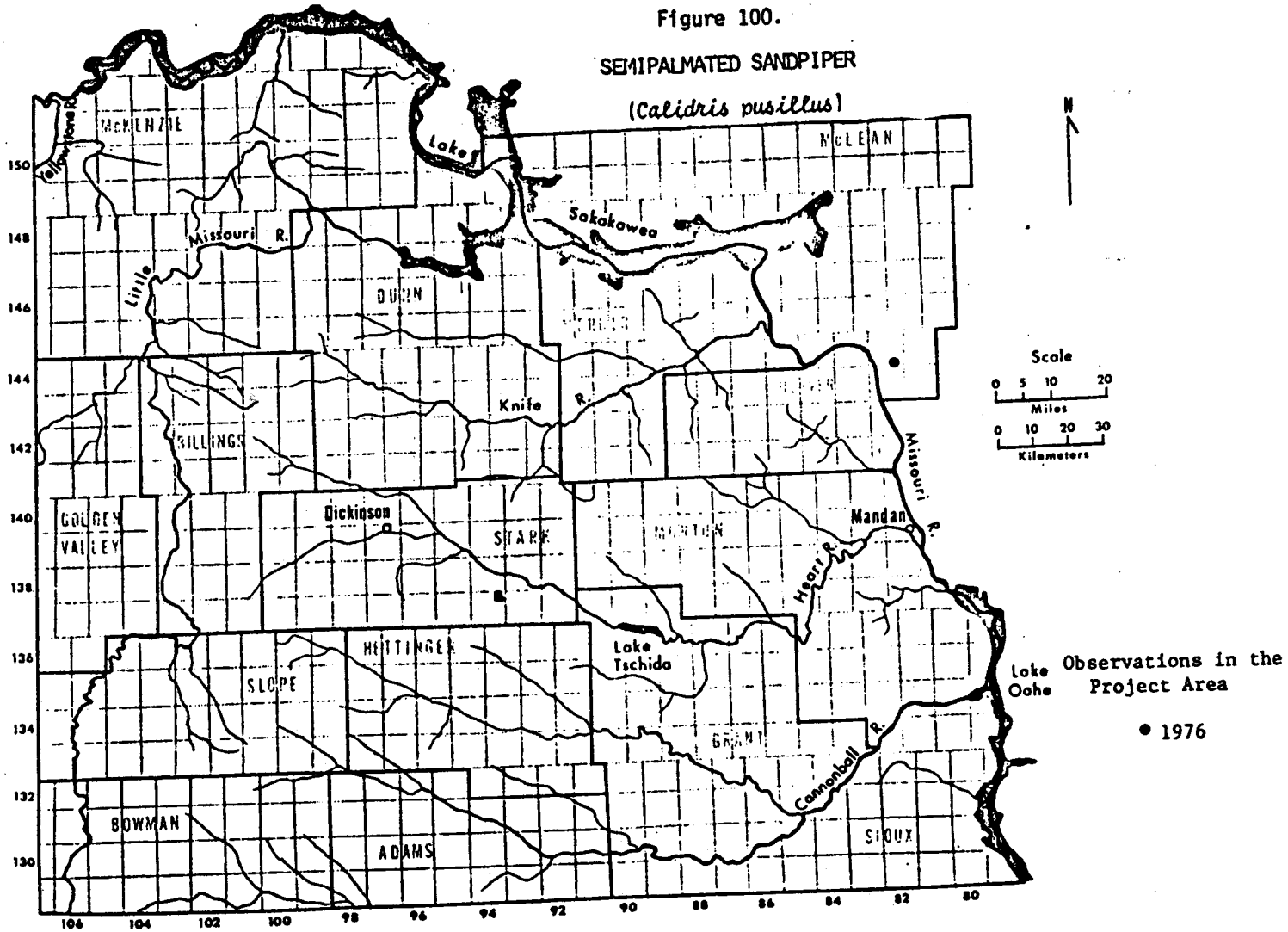
Habitat: Primarily a bird of isolated islands in large water areas (Stewart, 1975).

Status: Rare breeding species in the project area; probably should be considered locally common in the Lake Sakakawea area and parts of McLean County.

Figure 100.

SEMIPALMATED SANDPIPER

(*Calidris pusillus*)



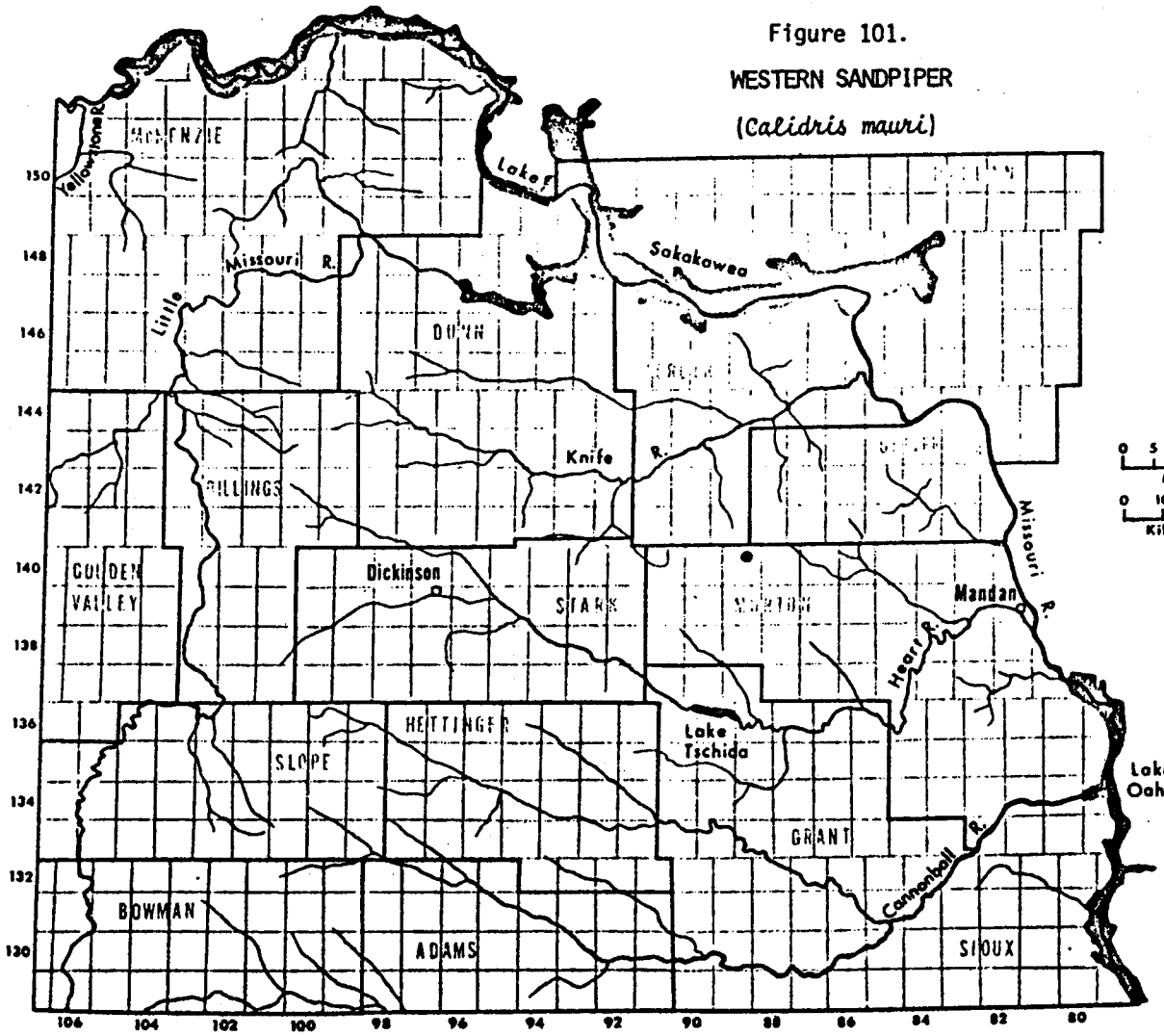
Observations in the Project Area

● 1976

Figure 101.

WESTERN SANDPIPER

(*Calidris mauri*)



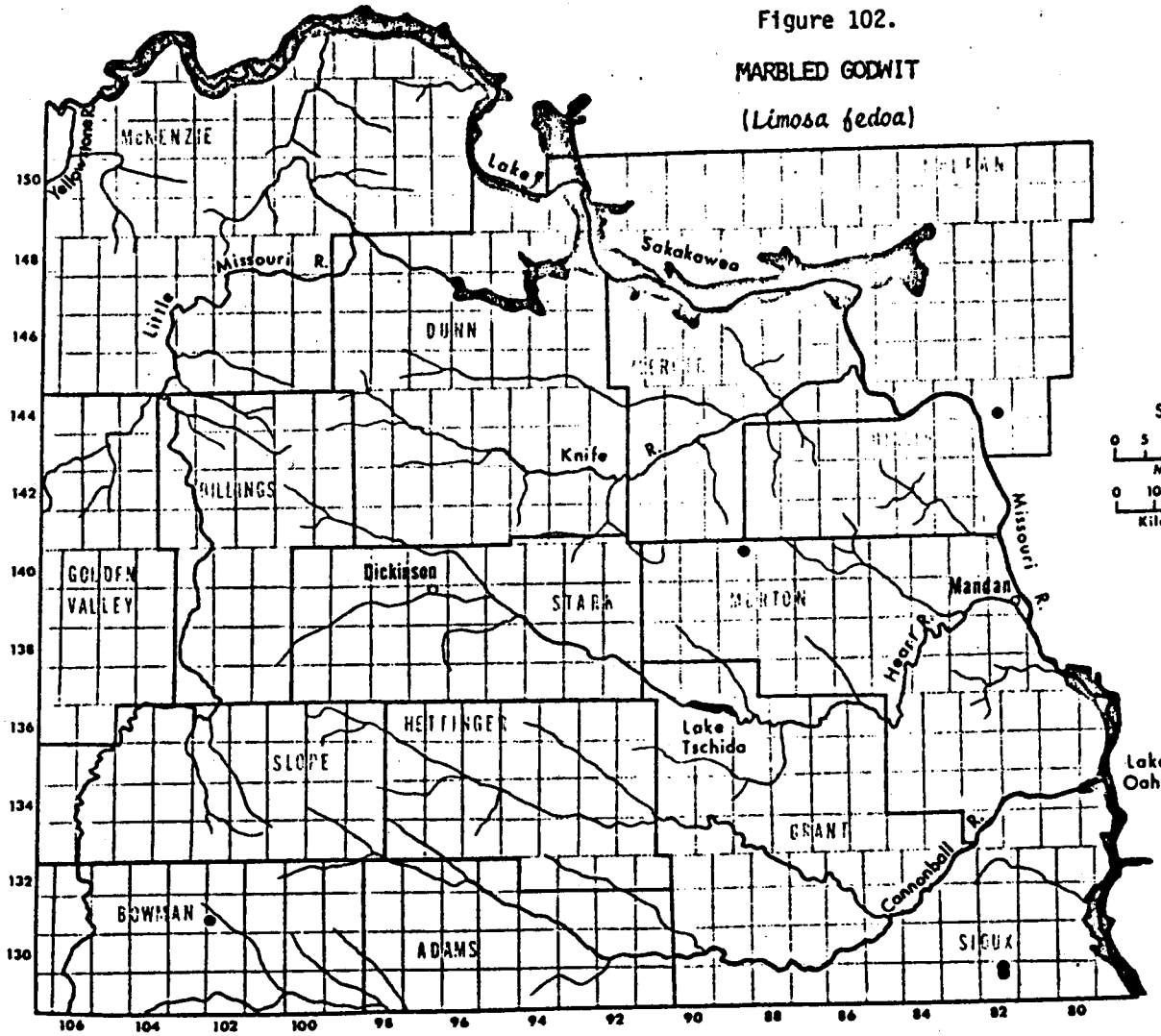
Observations in the Project Area

● 1976

Figure 102.

MARBLED GODWIT

(*Limosa fedoa*)



Observations in the Project Area

● 1976

Figure 103.

MARBLED GODWIT

(*Limosa fedoa*)

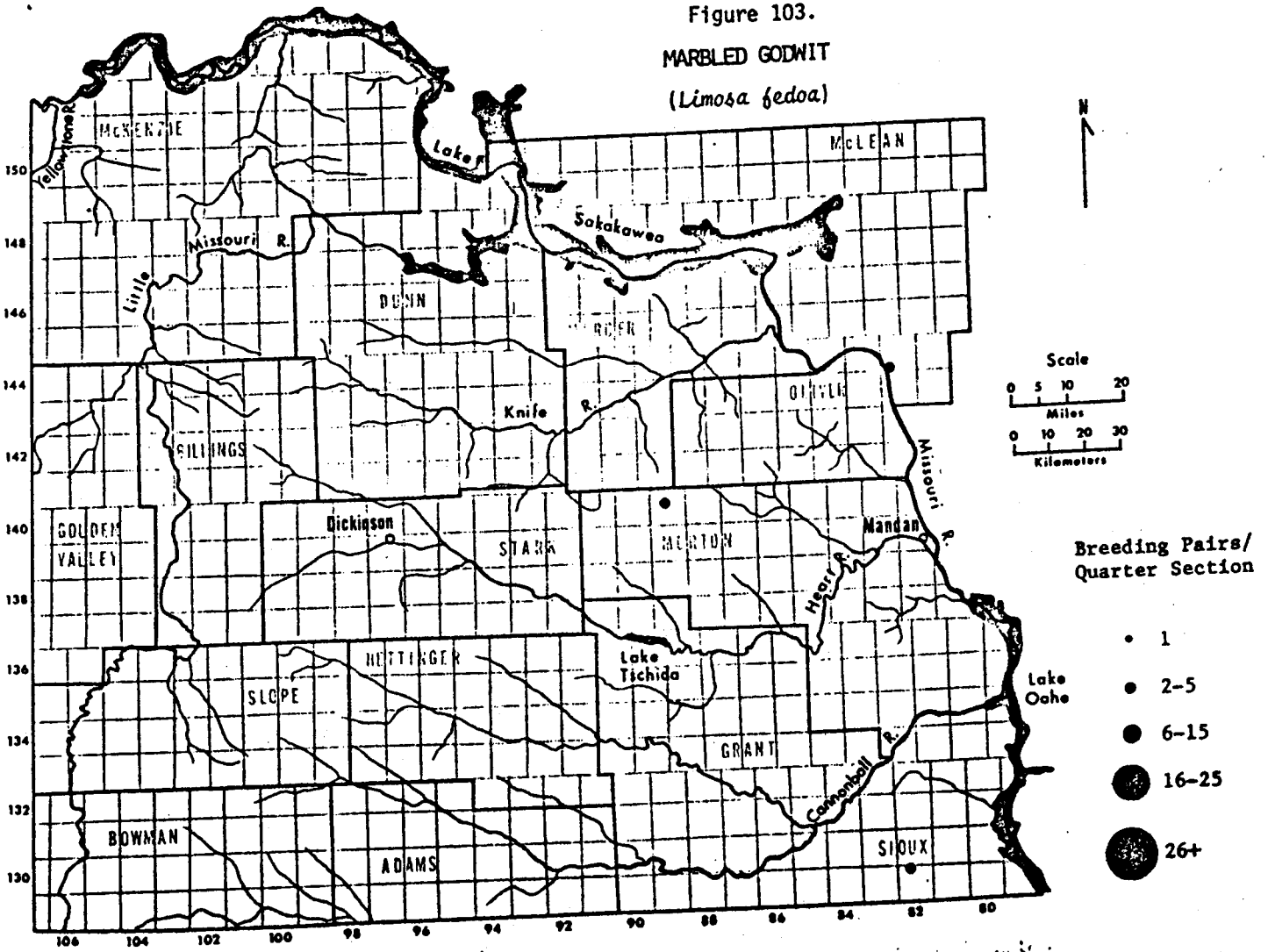
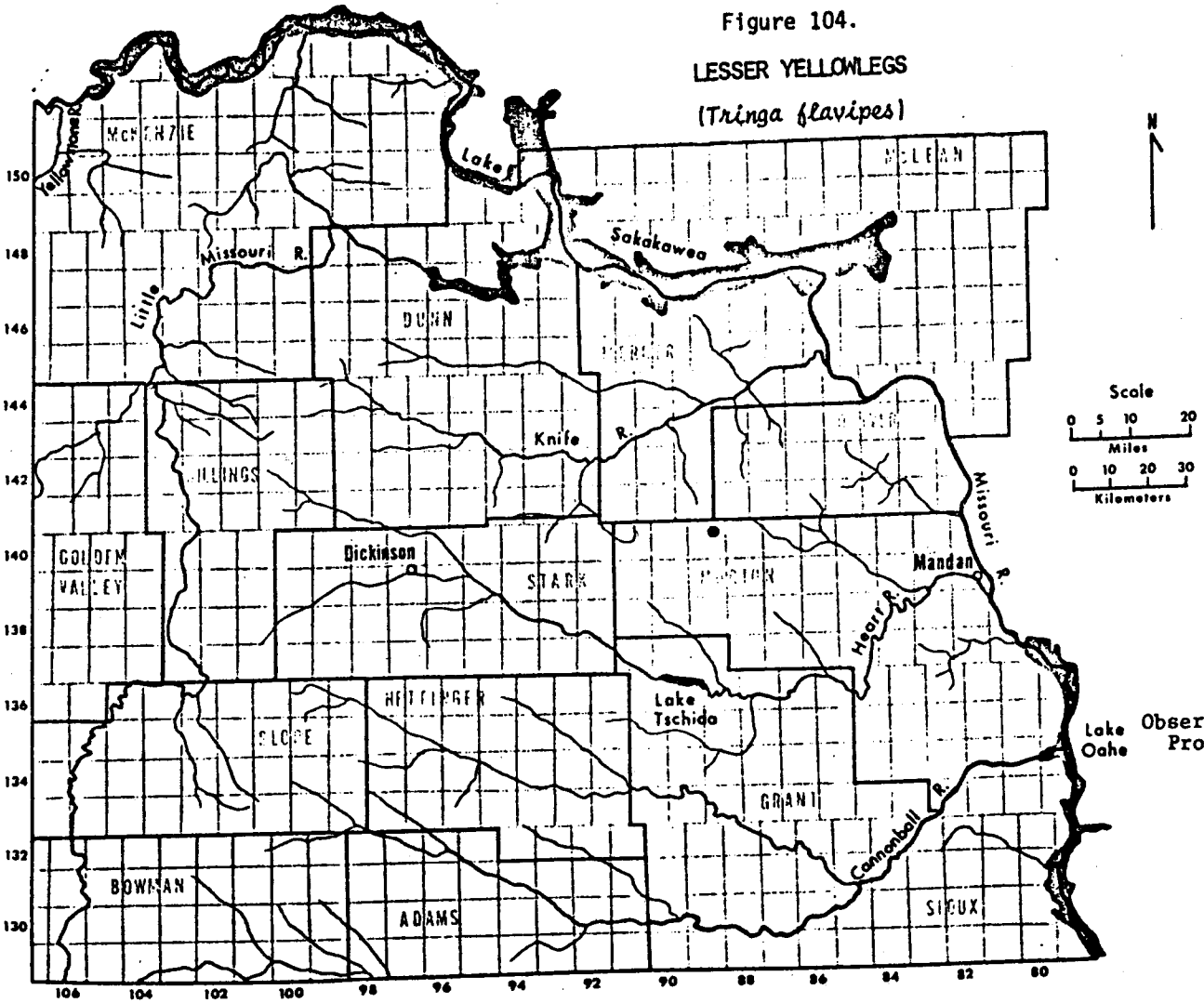


Figure 104.

LESSER YELLOWLEGS

(*Tringa flavipes*)



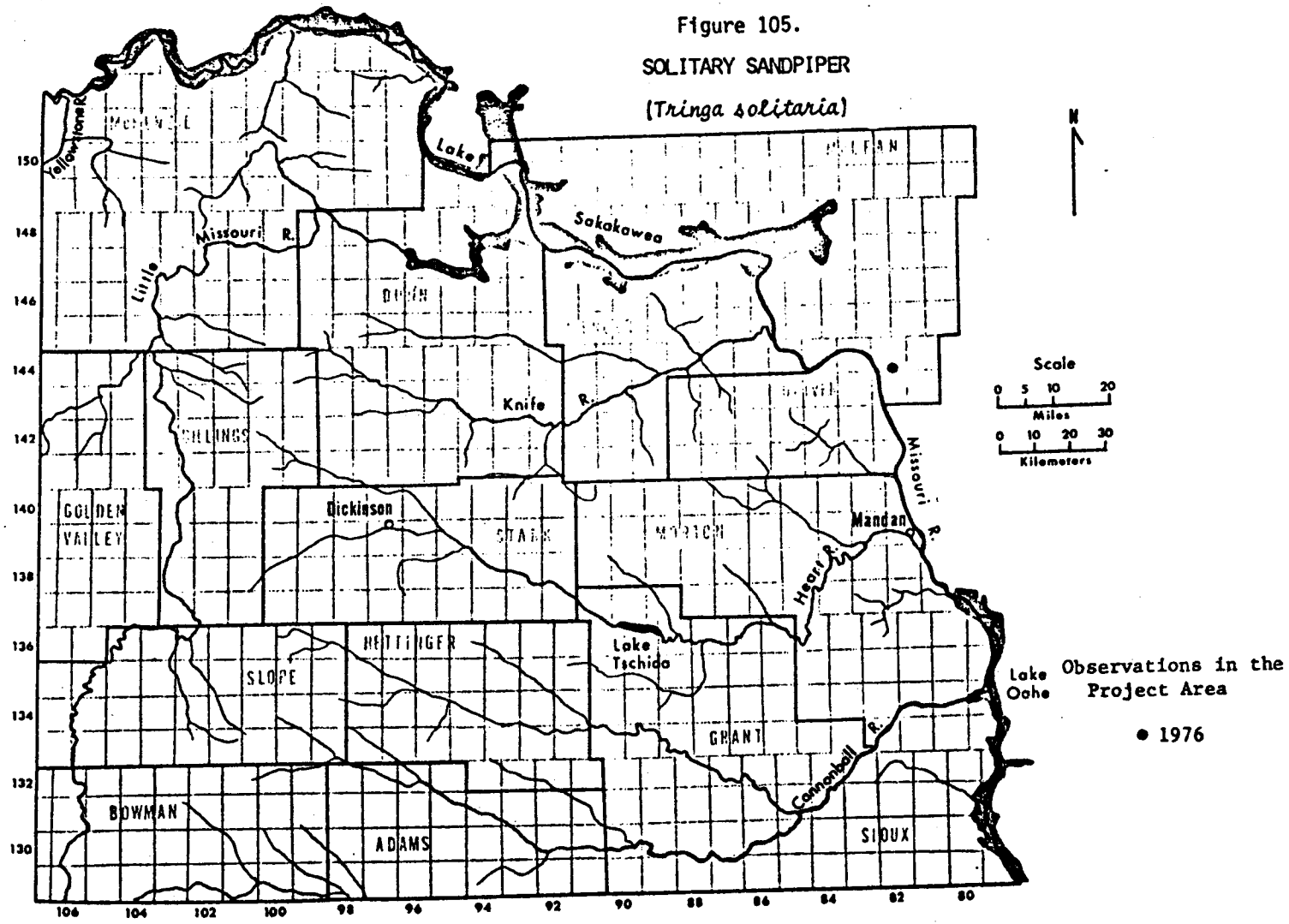
Observations in the Project Area

● 1976

Figure 105.

SOLITARY SANDPIPER

(*Tringa solitaria*)



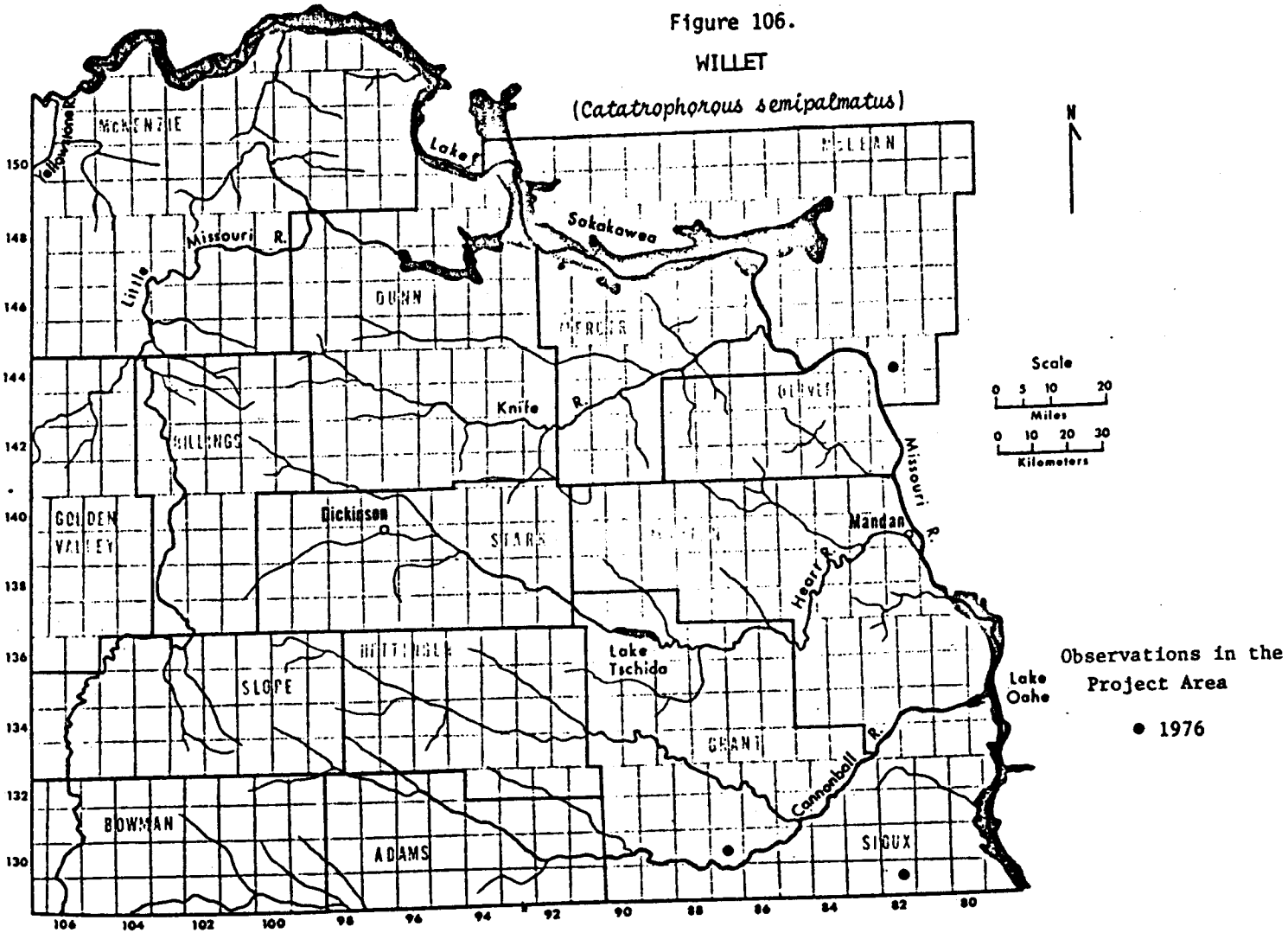
Observations in the Project Area

● 1976

Figure 106.

WILLET

(*Catatrophorous semipalmatus*)



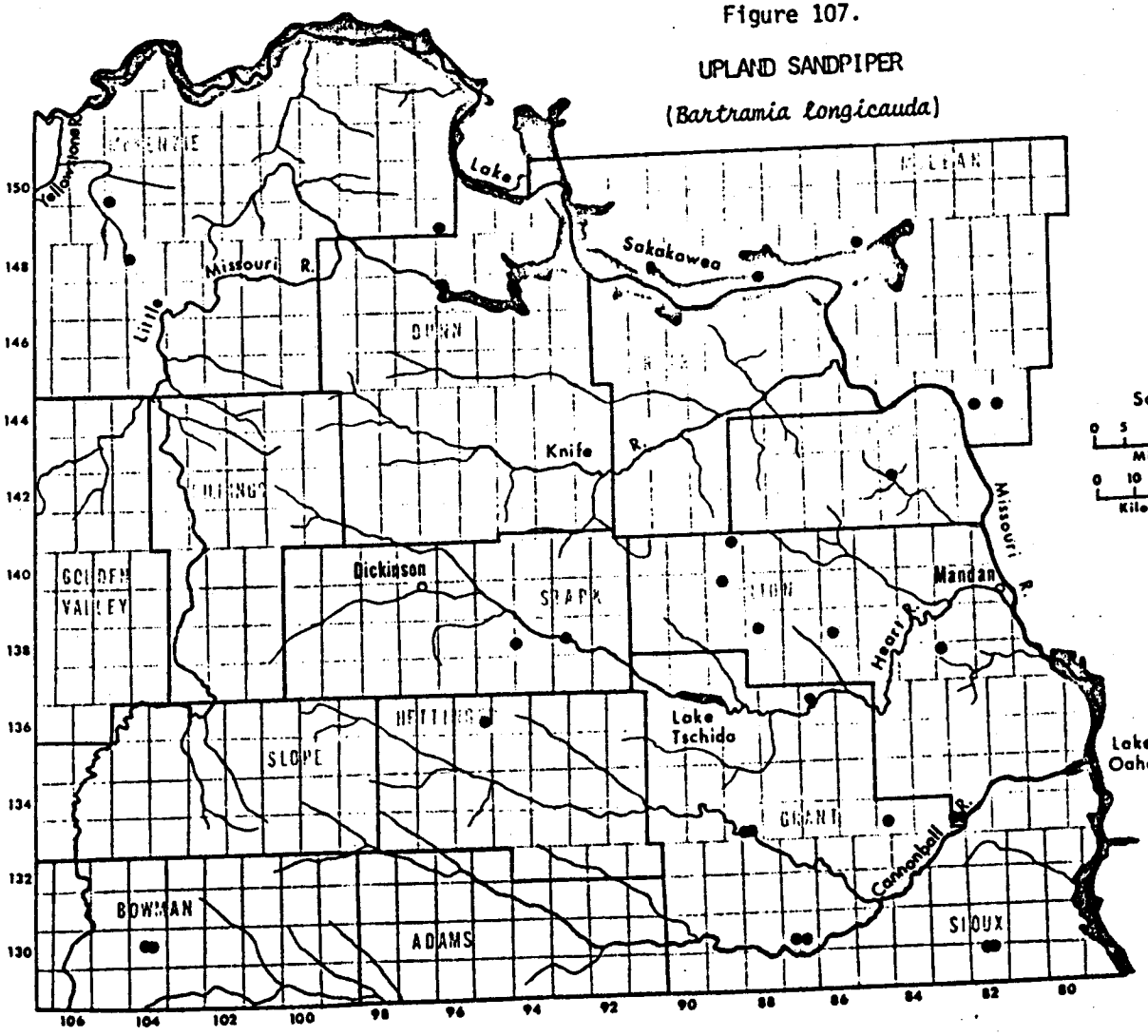
Observations in the Project Area

● 1976

Figure 107.

UPLAND SANDPIPER

(*Bartramia longicauda*)



Observations in the Project Area

● 1976

Figure 108.

UPLAND SANDPIPER

(*Bartramia longicauda*)

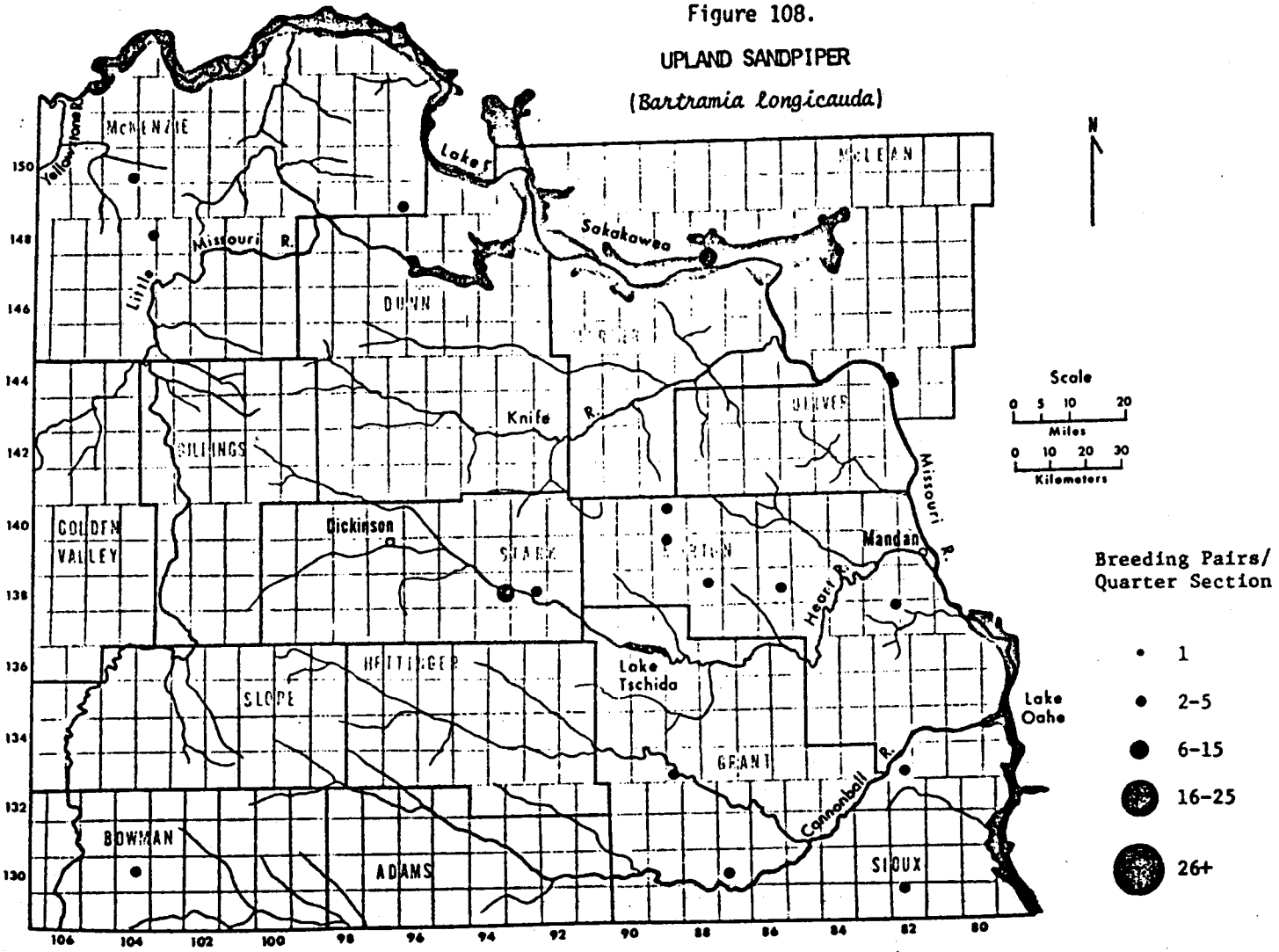
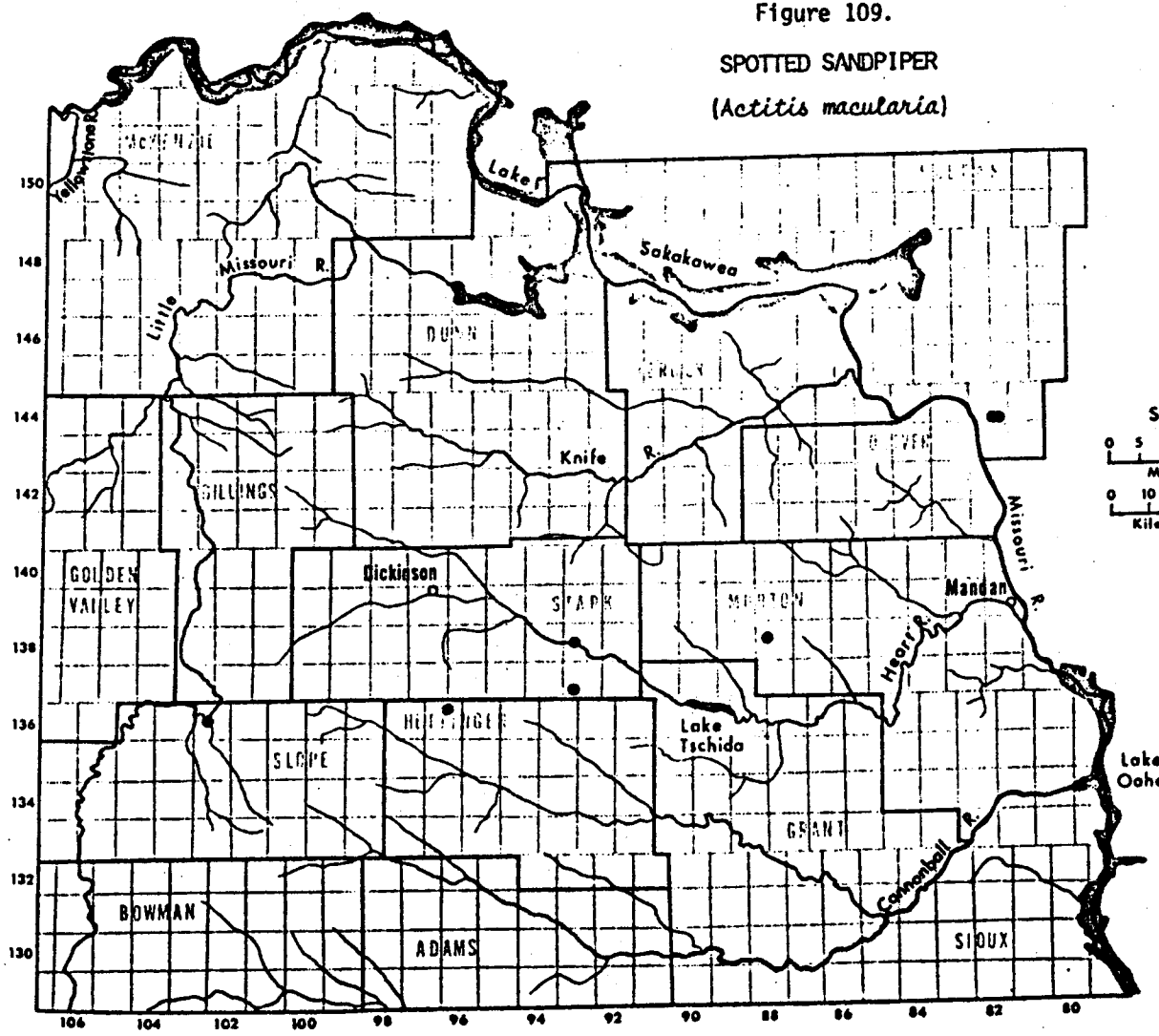


Figure 109.

SPOTTED SANDPIPER

(*Actitis macularia*)



Observations in the Project Area

● 1976

Figure 110.

SPOTTED SANDPIPER

(*Actitis macularia*)

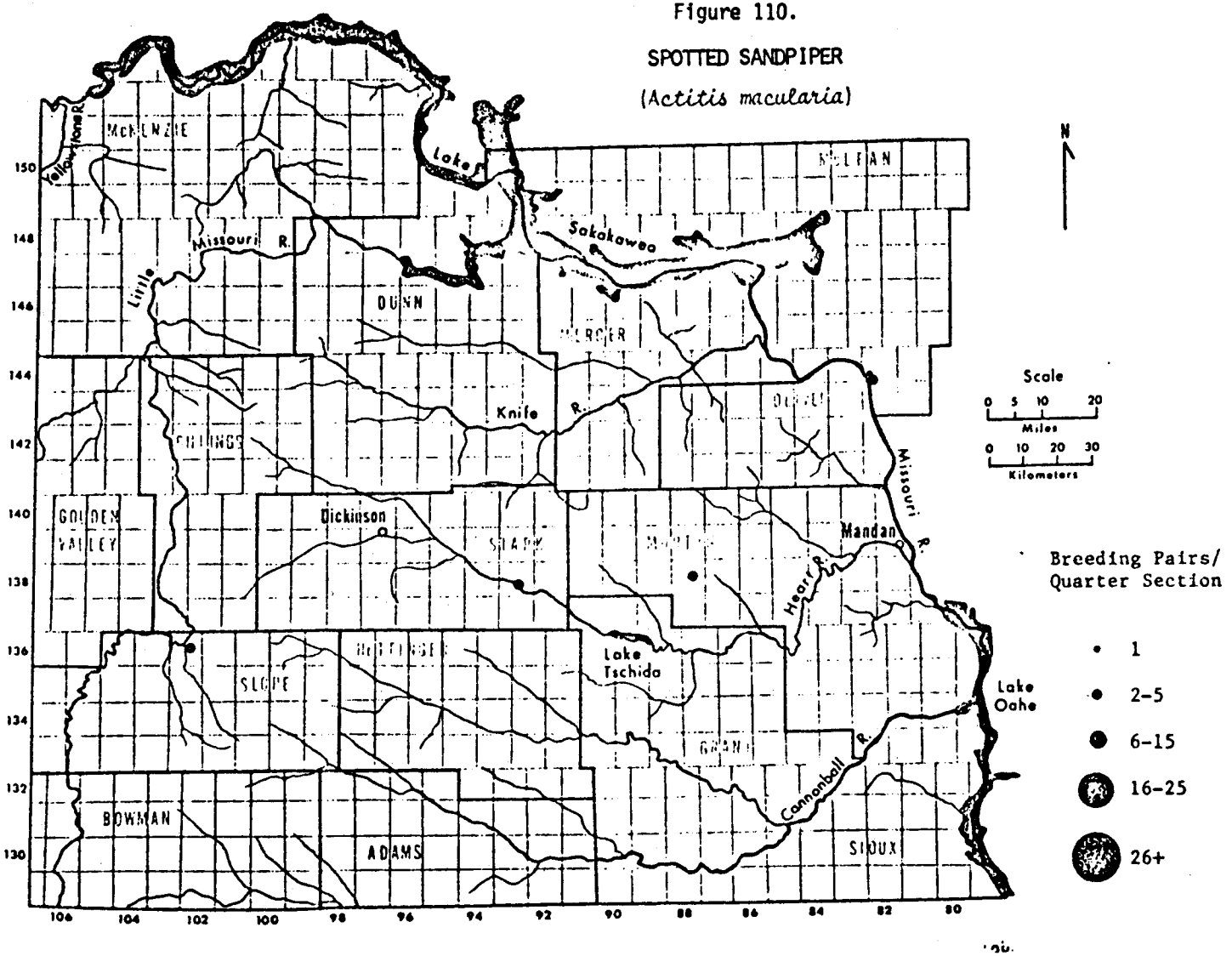
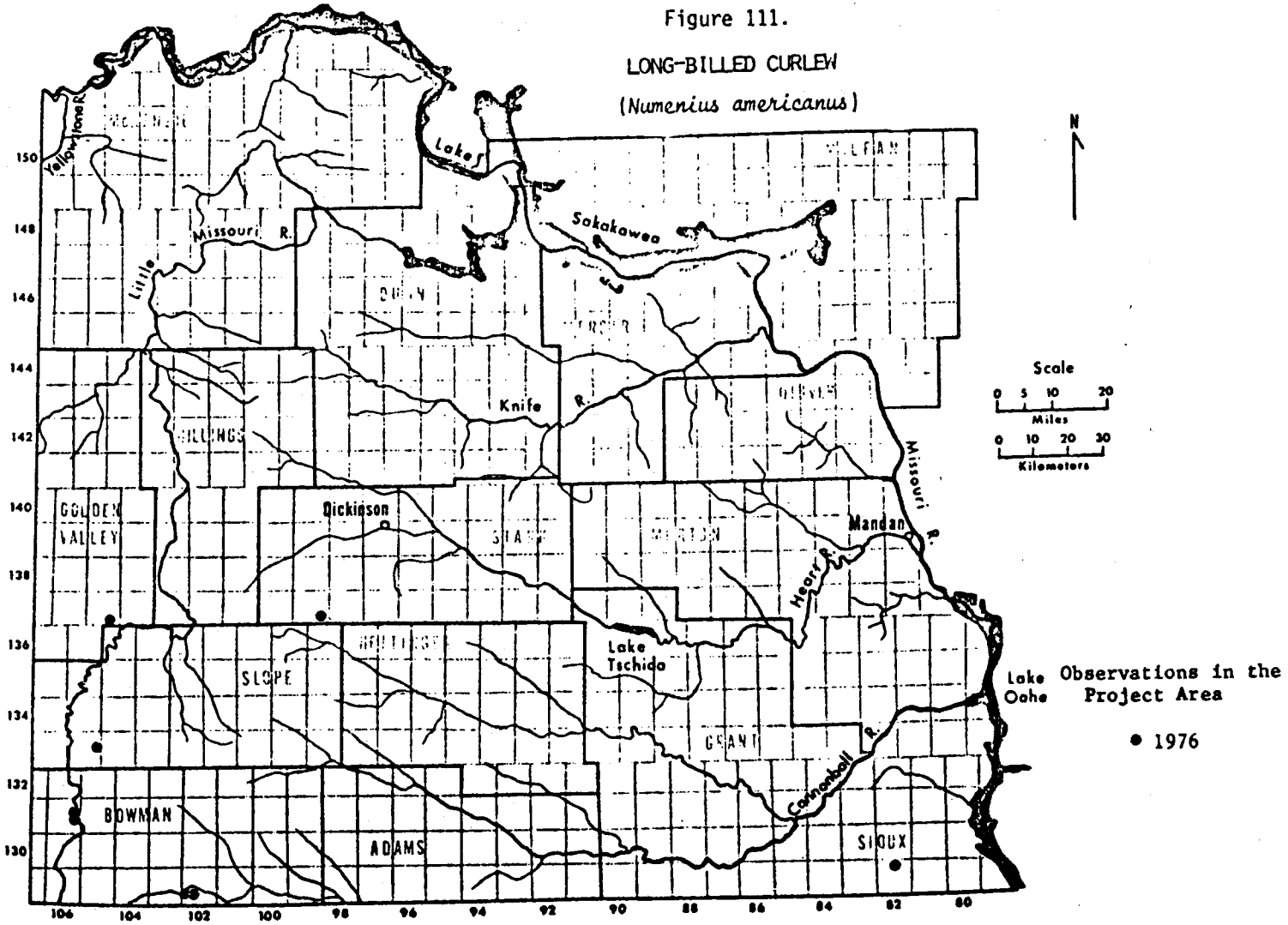


Figure 111.

LONG-BILLED CURLEW

(*Numenius americanus*)



Observations in the Project Area

● 1976

Figure 112.

LONG-BILLED CURLEW

(*Numenius americanus*)

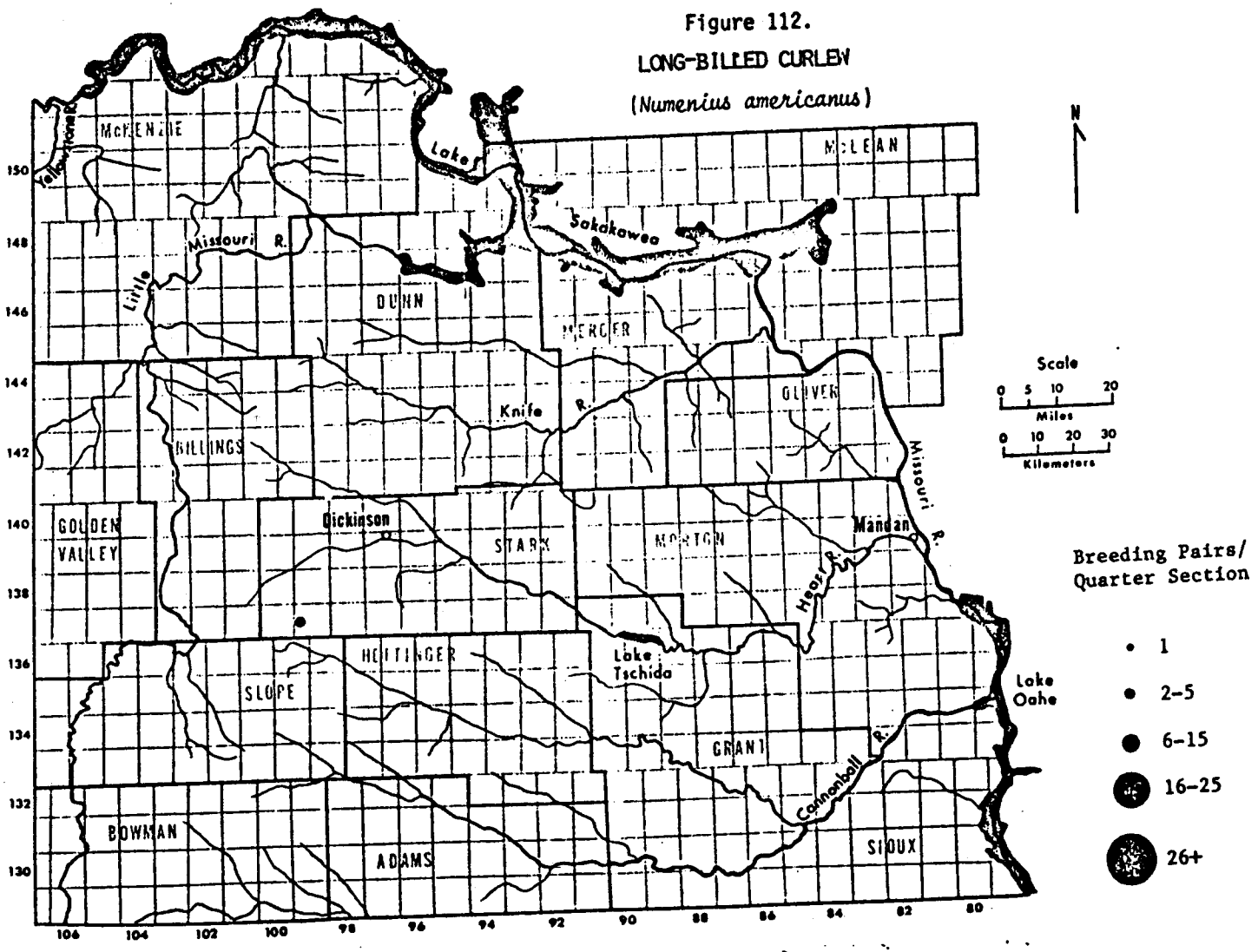
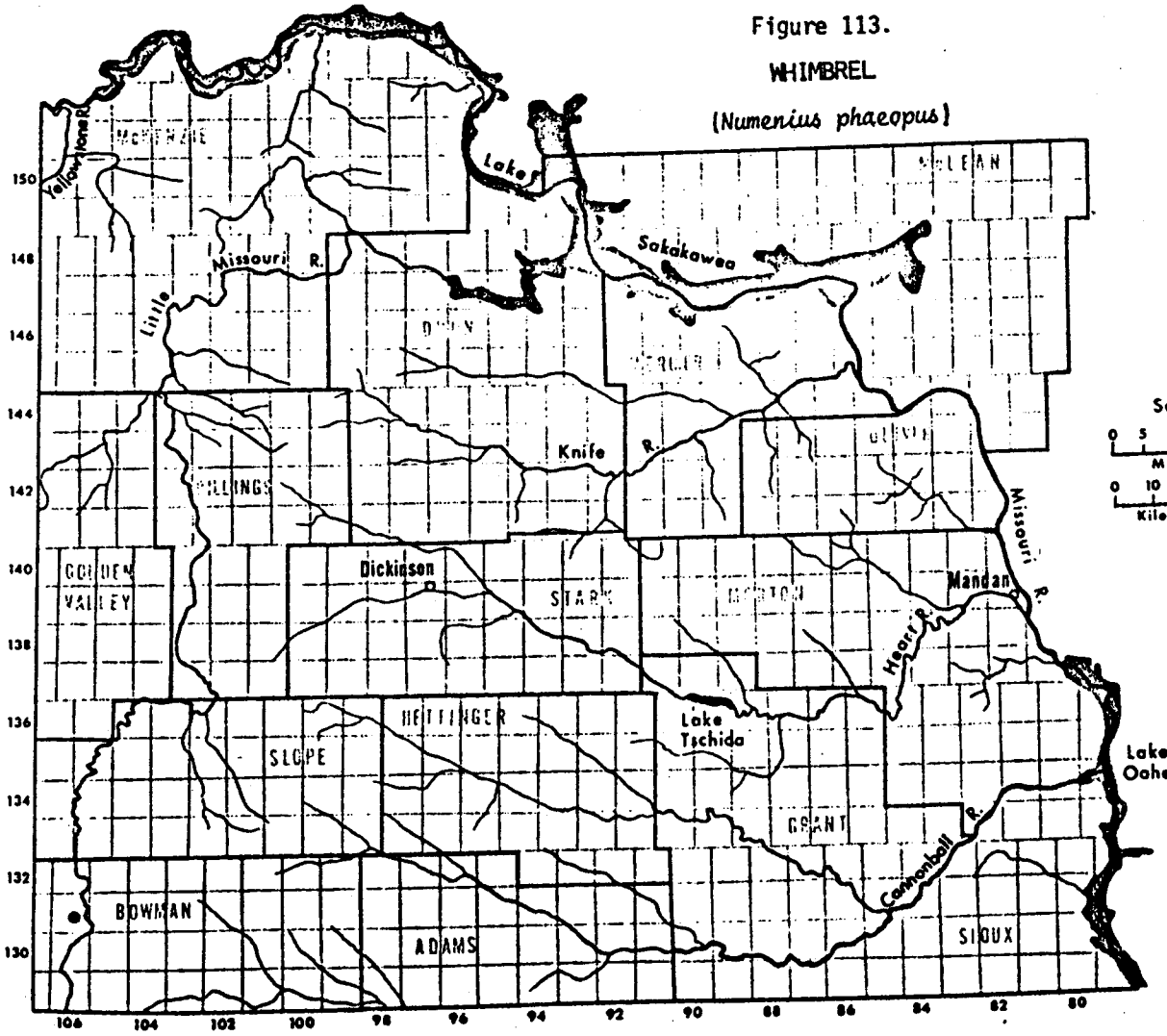


Figure 113.

WHIMBREL

(Numenius phaeopus)



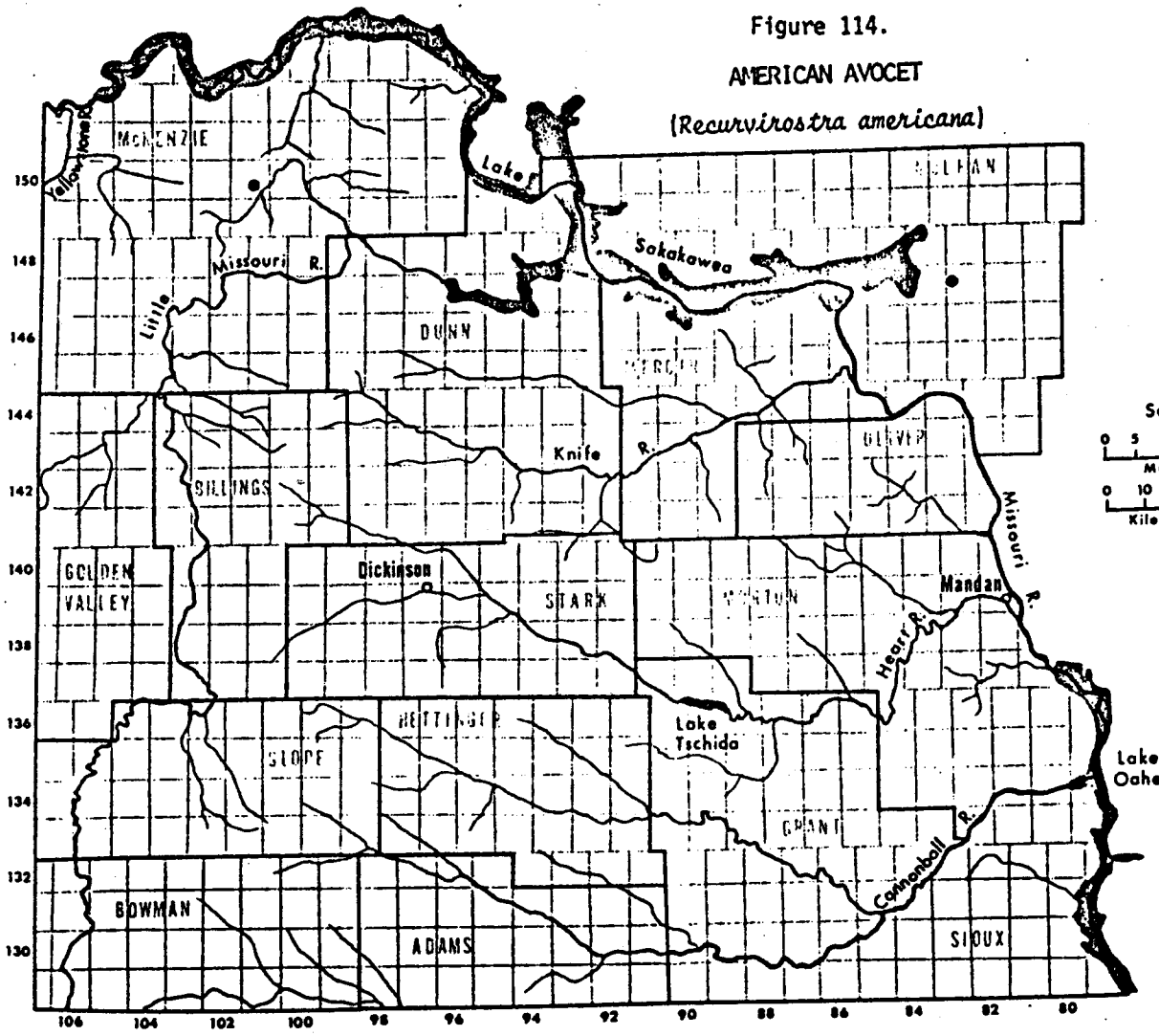
● Observations in the Project Area

● 1976

Figure 114.

AMERICAN AVOCET

(*Recurvirostra americana*)



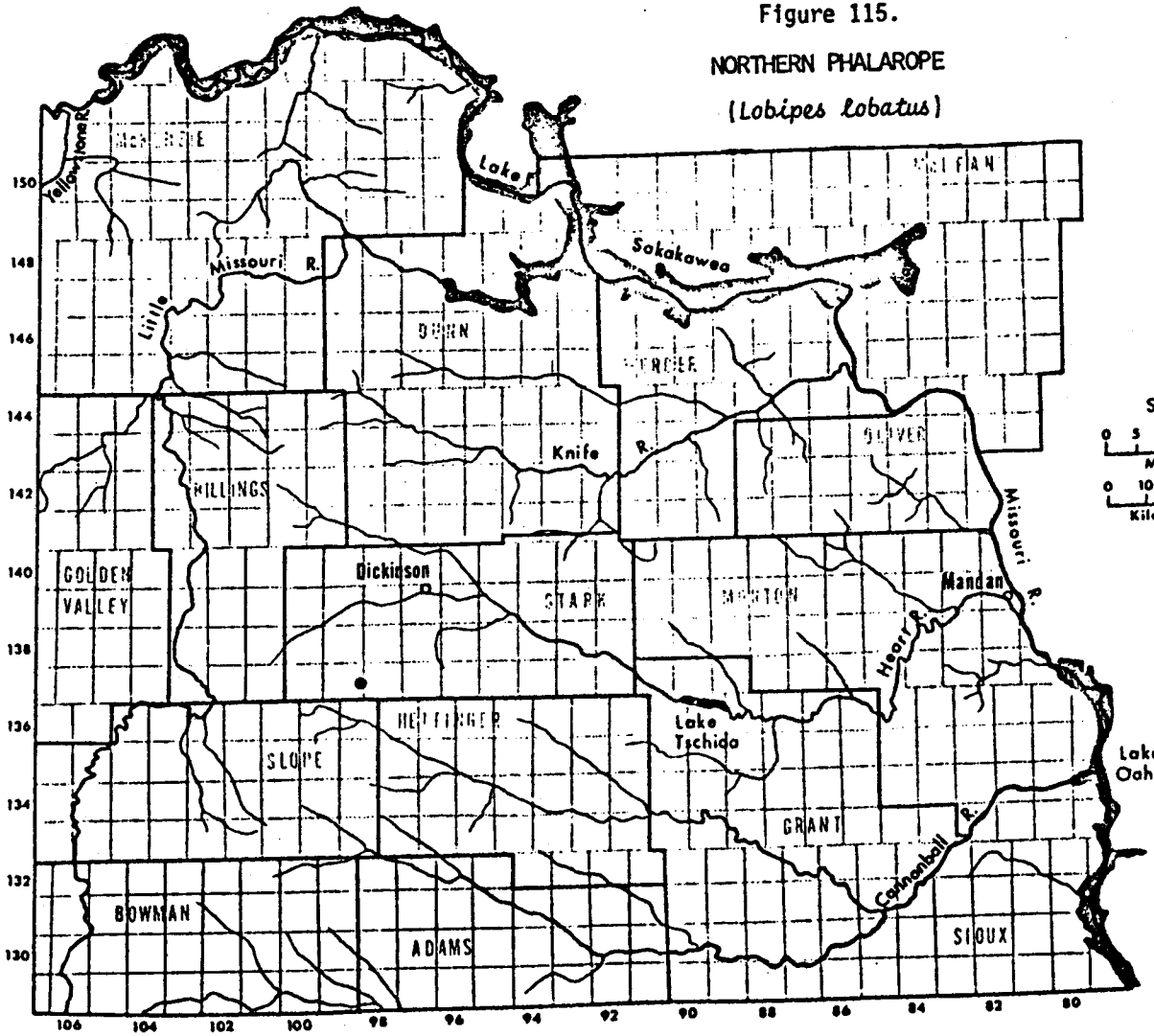
Observations in the Project Area

• 1976

Figure 115.

NORTHERN PHALAROPE

(*Lobipes lobatus*)



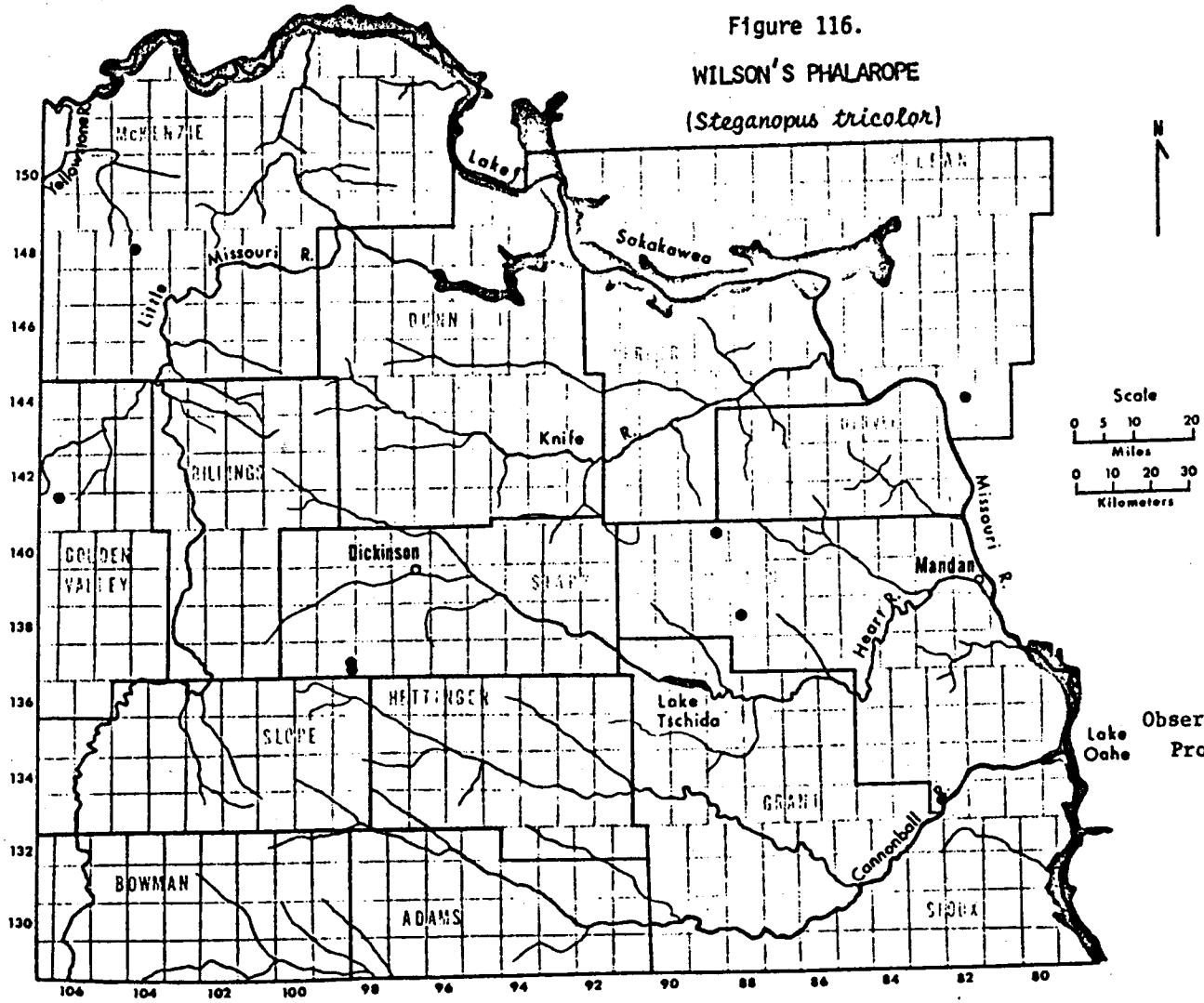
Observations in the Project Area

● 1976

Figure 116.

WILSON'S PHALAROPE

(*Steganopus tricolor*)



Observations in the Project Area

• 1976

Figure 117.

WILSON'S PHALAROPE

(*Steganopus tricolor*)

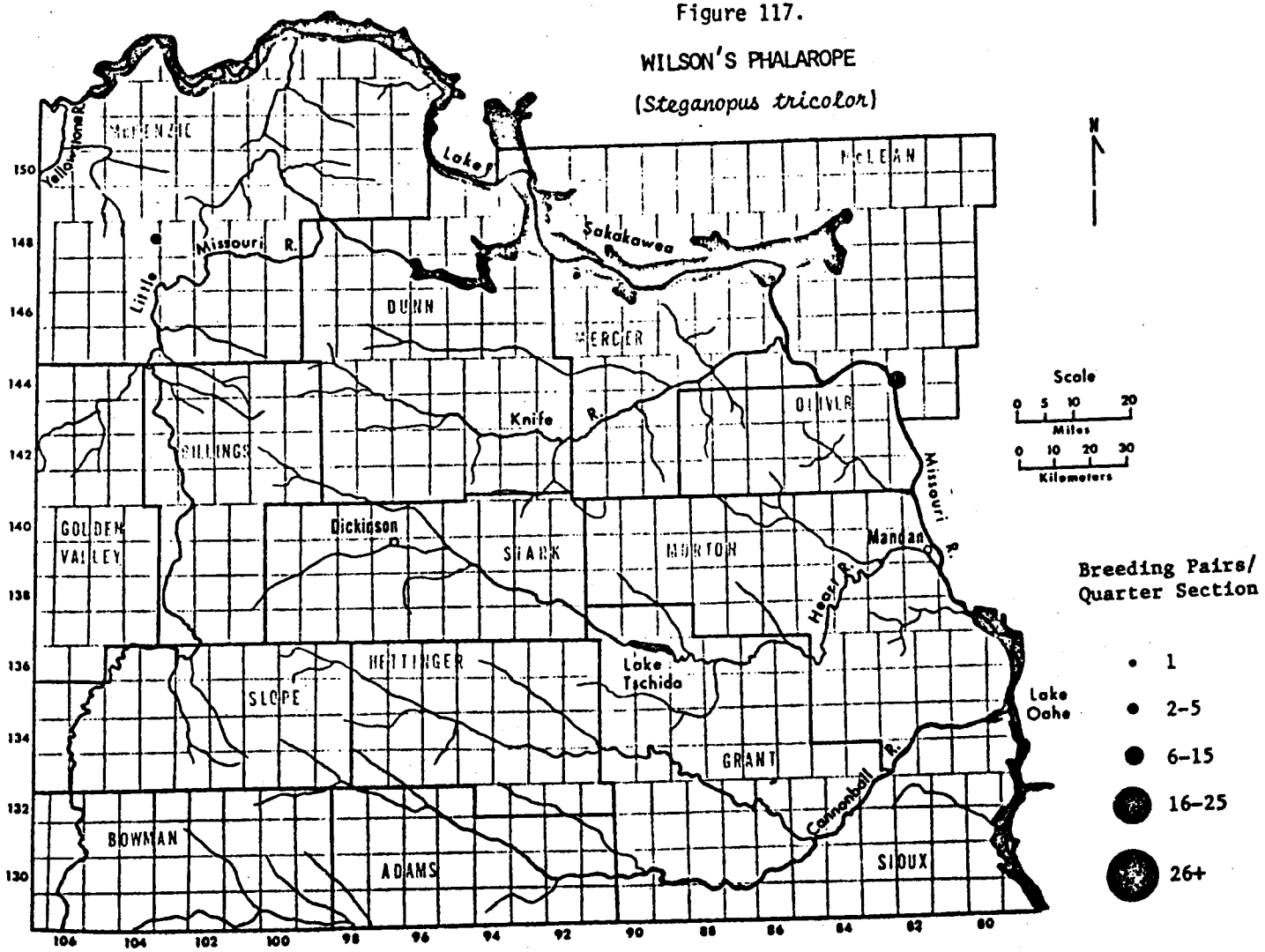
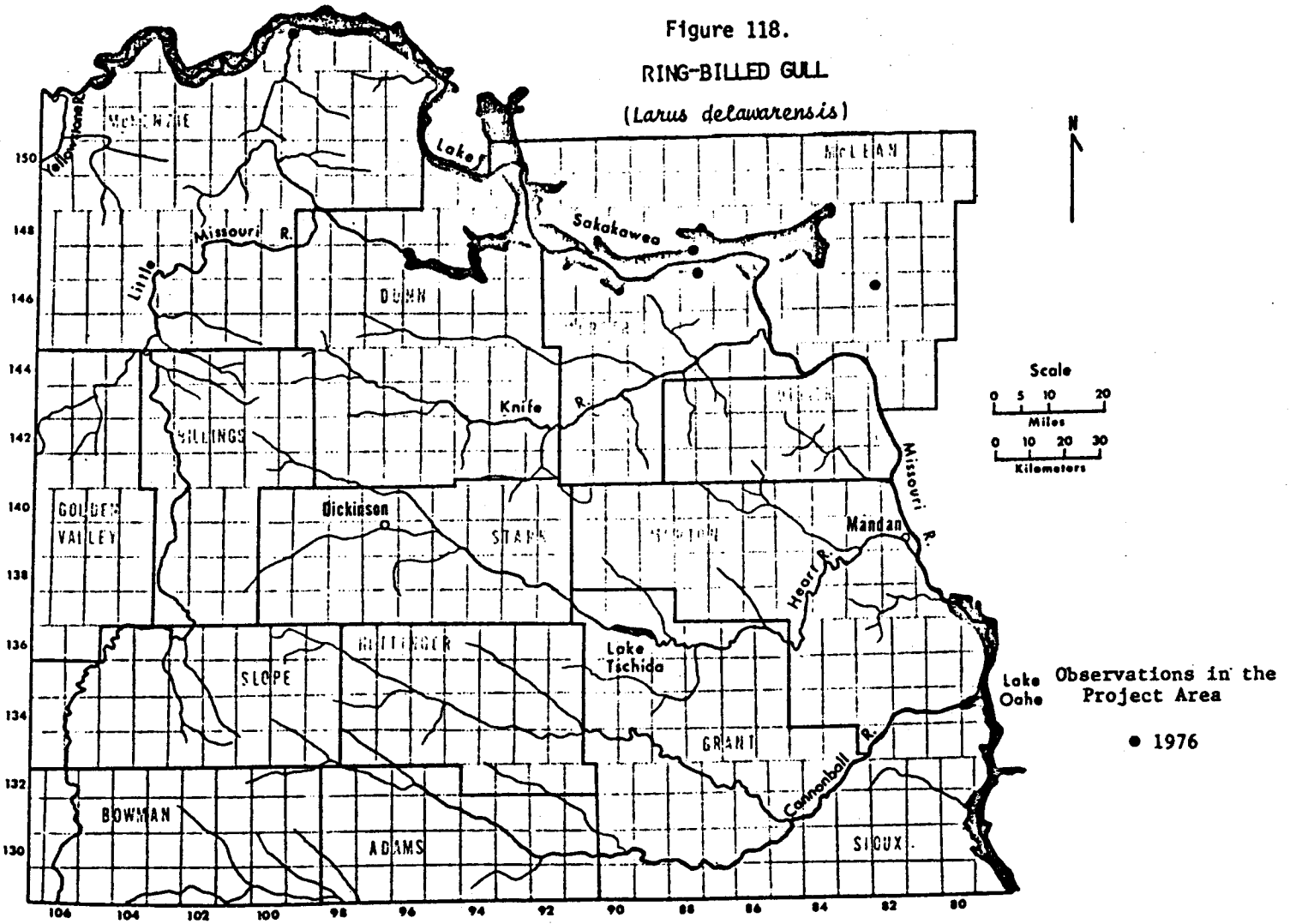


Figure 118.

RING-BILLED GULL

(*Larus delawarensis*)



Observations in the Project Area

● 1976

ORDER: Charadriiformes

FAMILY: Laridae

Franklin's Gull (*Larus pipixcan*) - A common inland gull of the prairies, the Franklin's Gull breeds primarily in the Northern Great Plains and winters along most North American coastlines and a few large interior lakes (Bent, 1963). Stewart (1975) lists several recent breeding colonies, two of which are in the project area.

Distribution in the project area: Two observations were made, one of which was feeding on a stubble field in McLean County and one was recorded flying over a study area in Stark County (Fig. 119).

Habitat: Primarily a over-water nester, the Franklin's Gull prefers larger marshes and often nests in association with Black-crowned Night Herons (Stewart, 1975).

Status: Evidently a rare and local breeder on the project area.

ORDER: Charadriiformes

FAMILY: Laridae

Common Tern (*Sterna hirundo*) - The Common Tern is found both on marine and inland water areas. It breeds primarily in the north-central United States and south-central Canada (Robbin, et al., 1966). Stewart (1975) lists several recent breeding colonies in North Dakota, four of which are in McLean County.

Distribution in the project area: Two observations were made in the project area; one on Lake Sakakawea in McKenzie County and one on a natural wetland in McLean County (Fig. 120). No breeding colonies were found.

Habitat: Nests primarily on isolated islands in large water areas (Stewart, 1975).

Status: Evidently a rare breeder in the project area; possibly should be considered locally common or fairly common in parts of McLean County.

ORDER: Charadriiformes

FAMILY: Laridae

Black Tern (*Chlidonias niger*) - The Black Tern is a locally common breeder over much of the northern United States and southern Canada (Robbins, et al., 1966). Stewart (1975) lists it as common throughout the Prairie Pothole Region and Turtle Mountains; uncommon and local elsewhere, except for rare and local status on the Missouri Slope and part of the Little Missouri Slope.

Distribution in the project area: Five observations were recorded in scattered areas in the project area (Fig. 121). They were found on true river bottoms, dugouts, and natural wetlands.

Habitat: The Black Tern typically chooses partially vegetated wetlands for nesting (Stewart, 1975).

Status: Rare breeder in the project area.

ORDER: Columbiformes

FAMILY: Columbidae (Pigeons and Doves) - This family contains 284 living species which range worldwide in temperate and tropical regions. They are mostly arboreal forest dwellers; some are terrestrial in open lands. Many species are migratory, especially the northern ones. The birds can be either gregarious or solitary (Austin, 1971).

Mourning Dove (*Zenaida macroura*) - Mourning Doves are found over all of Mexico and the United States, southern Canada, and west coast of Canada. The breeding range is in the northern United States, southern Canada, and Canadian west coast, while the birds winter in the rest of the United States and all of Mexico (Robbins, et al., 1966). Stewart (1975) reports the species to be common throughout North Dakota.

Distribution in the project area: 38 observations were made in river bottoms, hardwood draws, upland and rolling grasslands, juniper and ponderosa pine, and disturbed areas throughout the project area, except in Adams and Oliver Counties (Fig. 122, 123).

Habitat: Primarily an edge species, Mourning Doves will nest in prairies, wood margins, brushy thickets, shelterbelts, and agricultural fields. They also inhabit landscaped residential areas of towns and suburbs. Ground nests are predominant in southwestern North Dakota, while tree nests are predominant in many other areas of the state (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Cuculiformes

FAMILY: Cuculidae (Cuckoos, Anis, and Roadrunners) - This family contains 125 living species which are cosmopolitan in the tropic and temperate zones except remote oceanic islands and high continental latitudes. They live in forests or open brush country. Most are arboreal, but a few are ground-dwelling (Austin, 1971).

Black-billed Cuckoo (*Coccyzus erythropthalmus*) - These birds are found in the eastern half of the United States, southern Canada to the Rockies, and along the east coast of Mexico. The breeding range consists of the northern half of this area in the United States and that portion of southern Canada mentioned above (Robbins, et al., 1966). Stewart (1975) lists them as fairly common on wooded deltaic sand areas of the Pembina Hills, in the Turtle Mountains, the wooded hills along Devils Lake, the Agassiz Lake Plain, Sheyenne, James, Mouse Rivers, and one sector of the Missouri River. It is uncommon elsewhere throughout the state.

Distribution in the project area: 12 observations were made on river bottoms, hardwood draws, and disturbed agricultural areas scattered over the project area (Fig. 124, 125).

Habitat: In brushy margins or openings of woodlands, and in thickets of small trees and shrubs on the prairie. They also occur in shelterbelts. Nests usually are situated in tree saplings (Stewart, 1975).

Status: Uncommon breeding species in the project area.

ORDER: Strigiformes

FAMILY: Strigidae (Typical Owls) - This family contains 121 living species with a worldwide distribution except in Antarctica and some oceanic islands. They live in almost all types of habitat, most are sedentary, and most are nocturnal (Austin, 1971).

Long-eared Owl (*Asio otus*) - This owl is found in central and southern Canada, all of the United States except the southeast, and in southern Canada, while the winter range includes the southern half of the United States and northwestern Mexico (Robbins, et al., 1966). Stewart (1975) lists it as uncommon and local on the Northwestern Drift Plain of North Dakota, and rare elsewhere in the state.

Distribution in the project area: Two observations were made during 1976; one in a deciduous forest in Dunn County and one in a juniper draw in Slope County (Fig. 126).

Habitat: Found in deciduous or coniferous woods near open country (Robbins, et al., 1966). It is also found in fairly dense thickets or groves of small trees or brushy margins of more extensive forested tracts. Nests are usually situated in old abandoned tree nests of crows, magpies, and hawks (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Strigiformes

FAMILY: Strigidae

Short-eared Owl (*Asio flammeus*) - This owl is found over the entire North American continent. The breeding range covers all of Canada, Alaska, and most northern states; it winters in the southern and eastern portions of the United States and Mexico. It is present year round in the northern states (Robbins, et al., 1966). Stewart (1975) lists it as fairly common locally on the Northwestern Drift Plain and Missouri Coteau of North Dakota and uncommon and local elsewhere in the state.

Distribution in the project area: 20 observations were made in river bottoms, rolling grasslands, and agriculturall/disturbed areas over most of the project area (Fig. 127, 128).

Habitat: Found in open country over plains, sloughs, and marshes (Robbins, et al., 1966). These areas also include native prairie, wet-meadow zones of wetlands, hayfields, retired croplands, and fallow stubble fields in North Dakota. Nests are situated on the ground within habitats of fairly dense herbaceous cover (Stewart, 1975).

Status: Fairly common breeding species in the project area.

ORDER: Strigiformes

FAMILY: Strigidae

Screech Owl (*Otus asio*) - The Screech Owl is found in all of the United States and Mexico, and in southern and western Canada. The bird occurs in the entire area year round (Robbins, et al., 1966). It is uncommon and local in the Agassiz Lake Plain Region, Turtle Mountains, and on the Northeastern, Southern, and Northwestern Drift Plains; rare and local on the Missouri Coteau and in the Southwestern Slope Region (Stewart, 1975).

Distribution in the project area: Three observations were made in hardwood draws with trees and brush and upland breaks of Billings and McLean Counties (Fig. 129, 130).

Habitat: Found in towns, orchards, and small woodlots (Robbins, et al., 1966), and in groves or semiopen stands of trees and margins of extensive tracts of woodland. Nests are situated in tree cavities or in bird boxes with suitable entrances that are located in woods (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Strigiformes

FAMILY: Strigidae

Great Horned Owl (*Bubo virginianus*) - This owl is found over the entire North American continent except northern Canada and Alaska. It is present in this area year round (Robbins, et al., 1966). In North Dakota, it is common or fairly common in the central and western portions of the state, and uncommon and local in the Agassiz Lake Plain Region and Northeastern Drift Plain (Stewart, 1975).

Distribution in the project area: 14 observations were made in river bottoms, hardwood draws, ponderosa pines, and agriculturally disturbed lands throughout the project area except in Bowman, Adams, Sioux, Oliver, and Mercer Counties (Fig. 131, 132).

Habitat: In groves or thickets of trees as well as more extensive tracts of forests. They often range over expanses of prairie, marsh, and cropland. Nests usually are situated in old abandoned hawk or crow nests in trees (Stewart, 1975).

Status: Uncommon breeding species in the project area.

Figure 119.

FRANKLIN'S GULL

(*Larus pipixcan*)

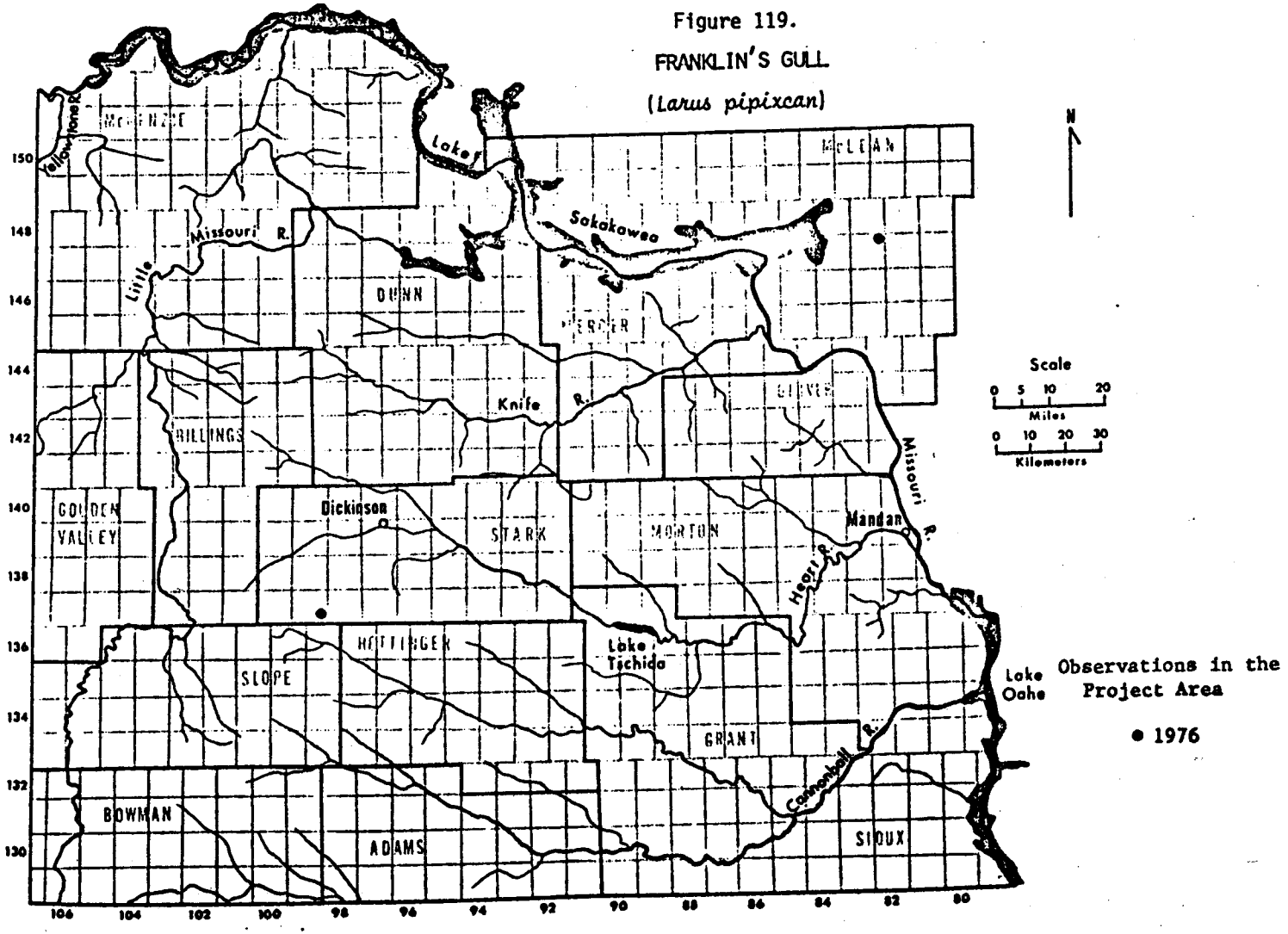
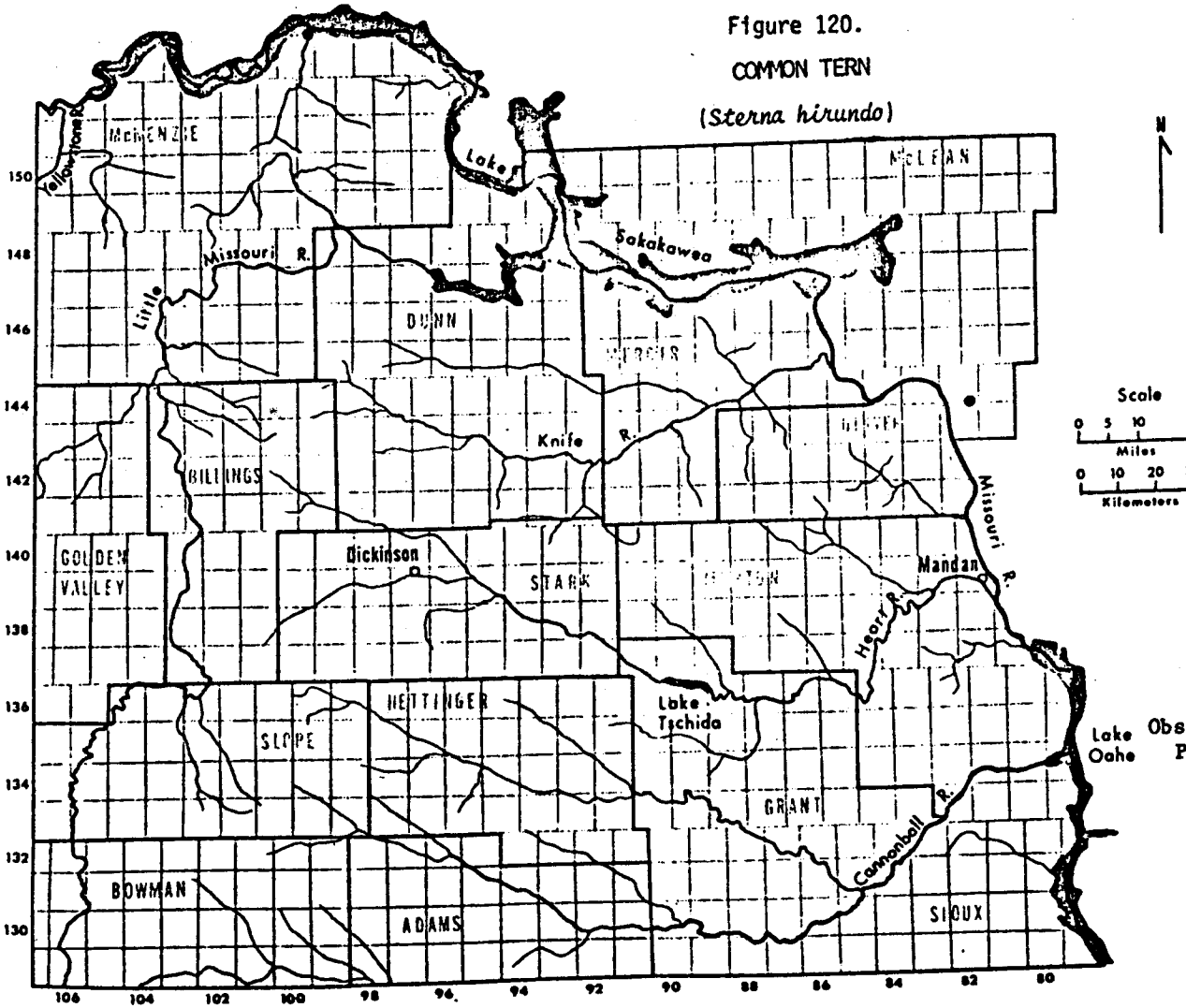


Figure 120.

COMMON TERN

(Sterna hirundo)



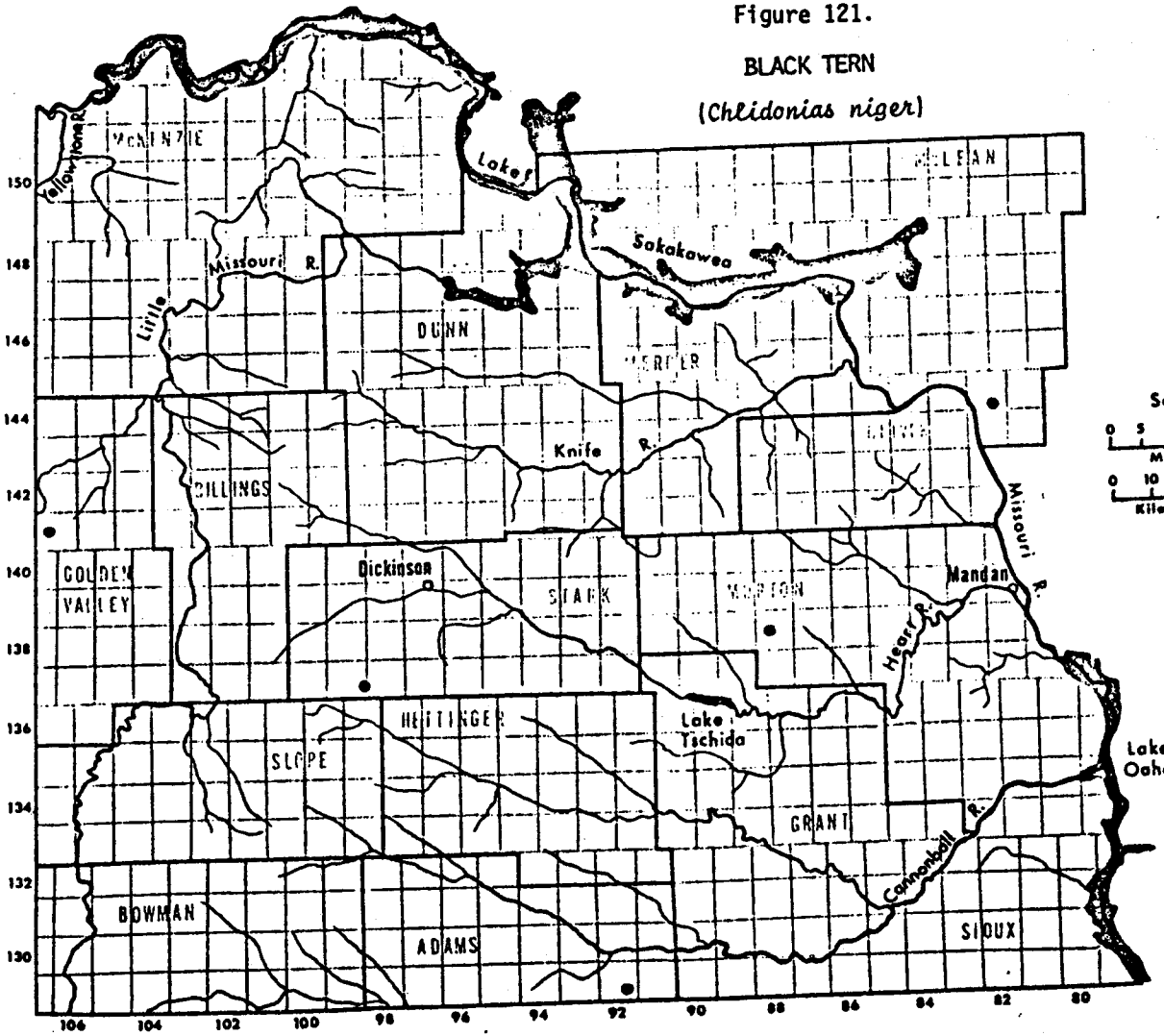
Observations in the Project Area

• 1976

Figure 121.

BLACK TERN

(*Chlidonias niger*)



Lake Oahe

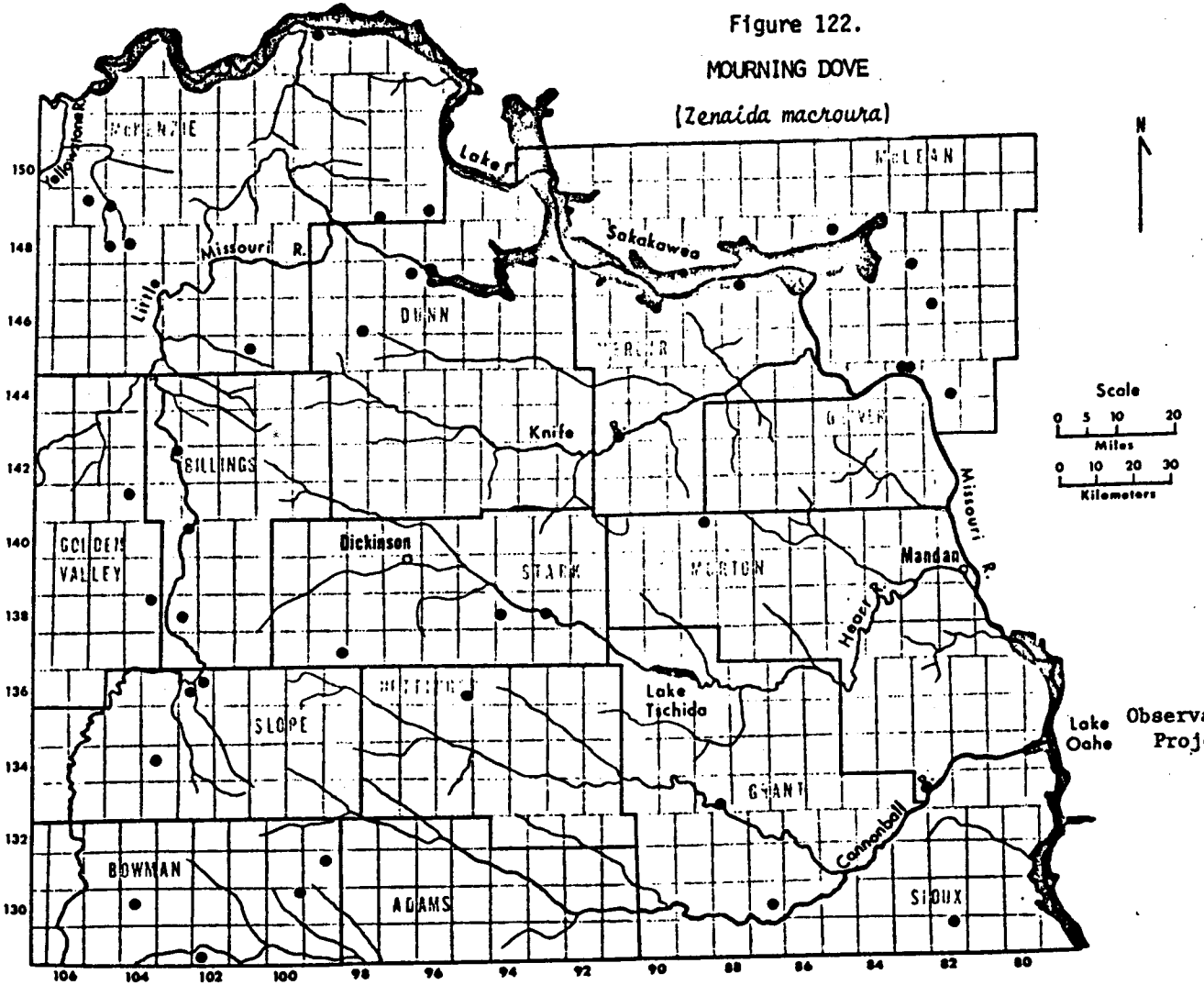
Observations in the Project Area

● 1976

Figure 122.

MOURNING DOVE

(*Zenaida macroura*)



Observations in the Project Area

● 1976

Figure 123.

MOURNING DOVE

(*Zenaida macroura*)

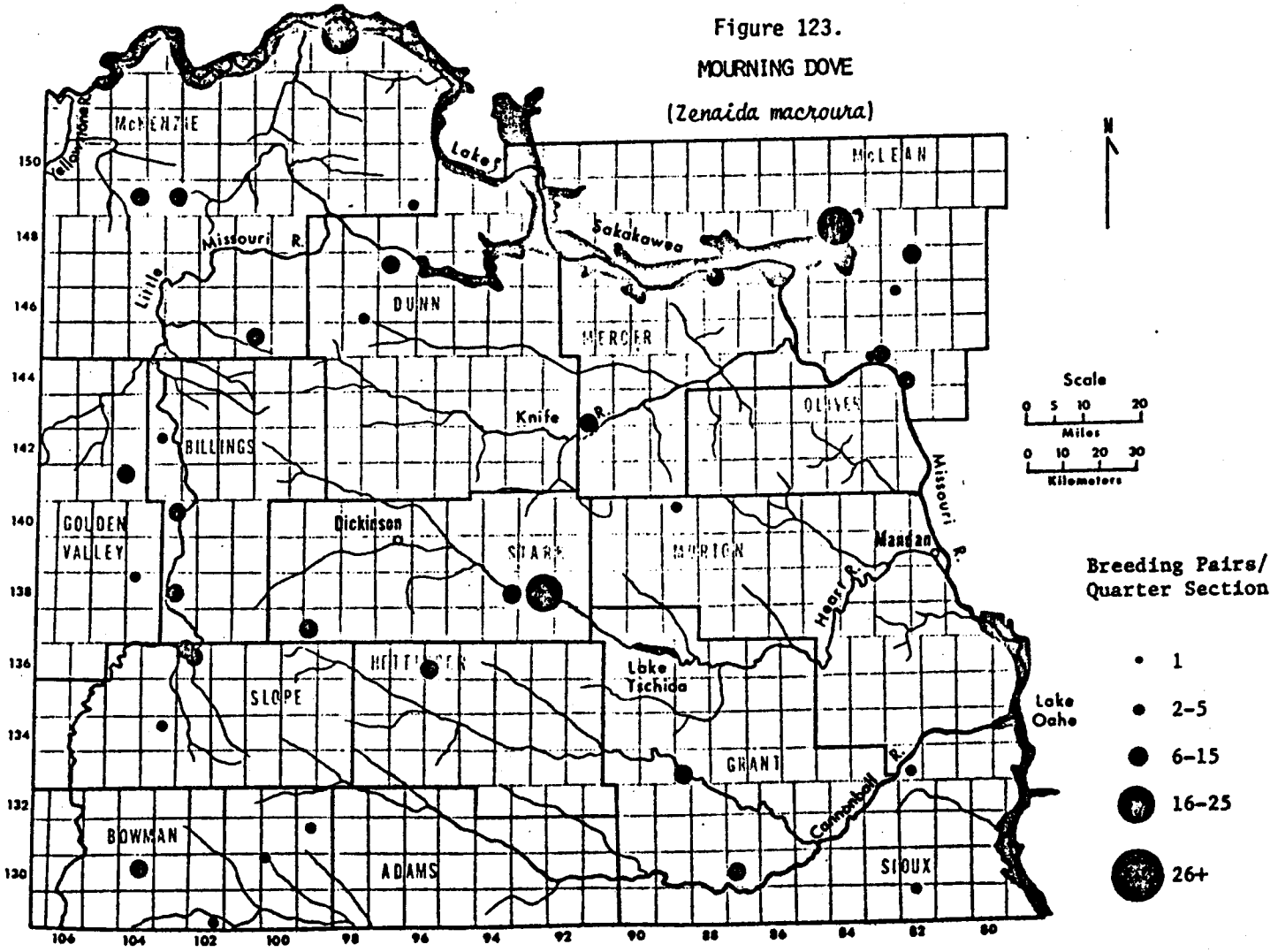
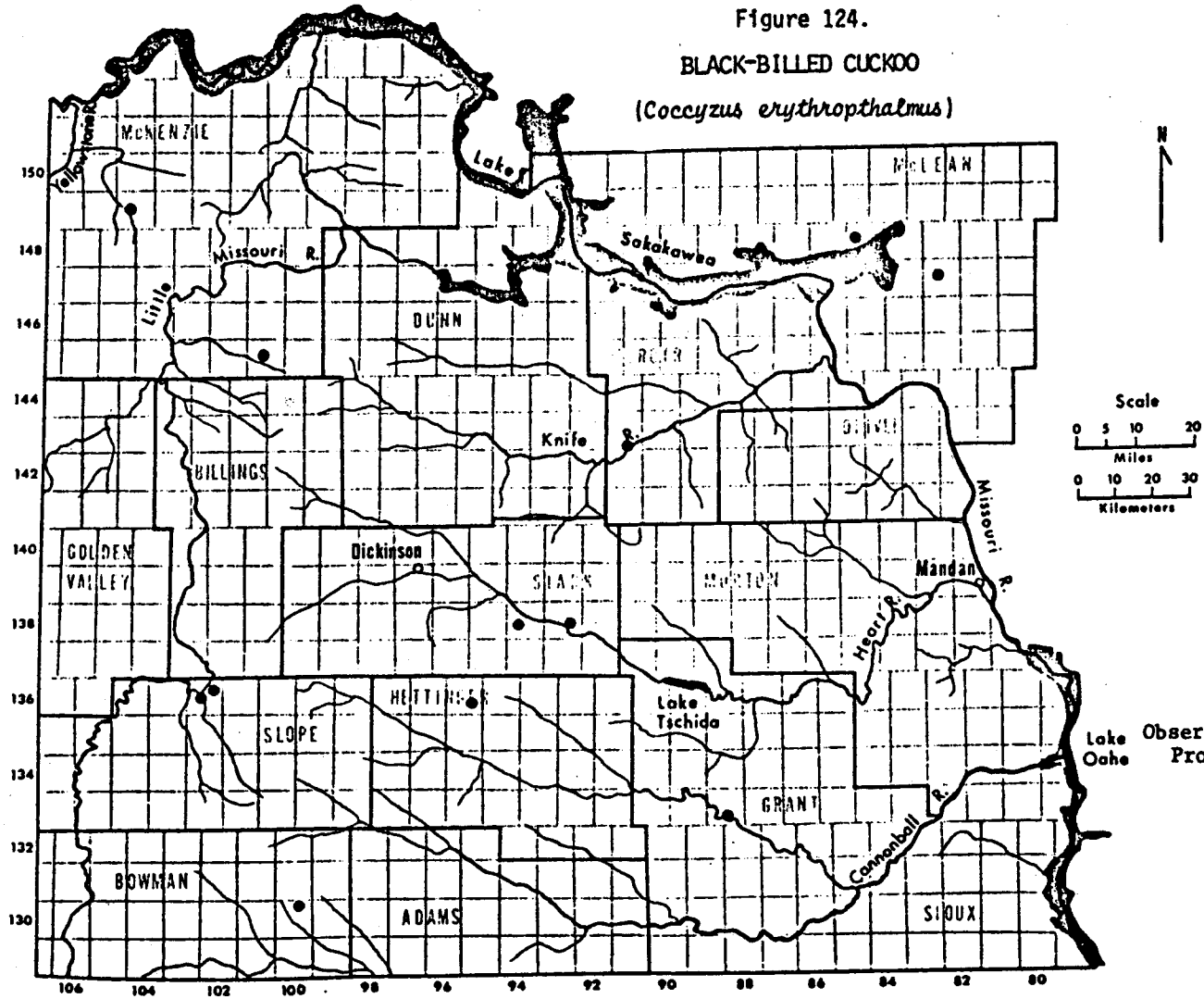


Figure 124.

BLACK-BILLED CUCKOO

(*Coccyzus erythropthalmus*)



Observations in the Project Area

● 1976

Figure 125.

BLACK-BILLED CUCKOO

(*Coccyzus erythropthalmus*)

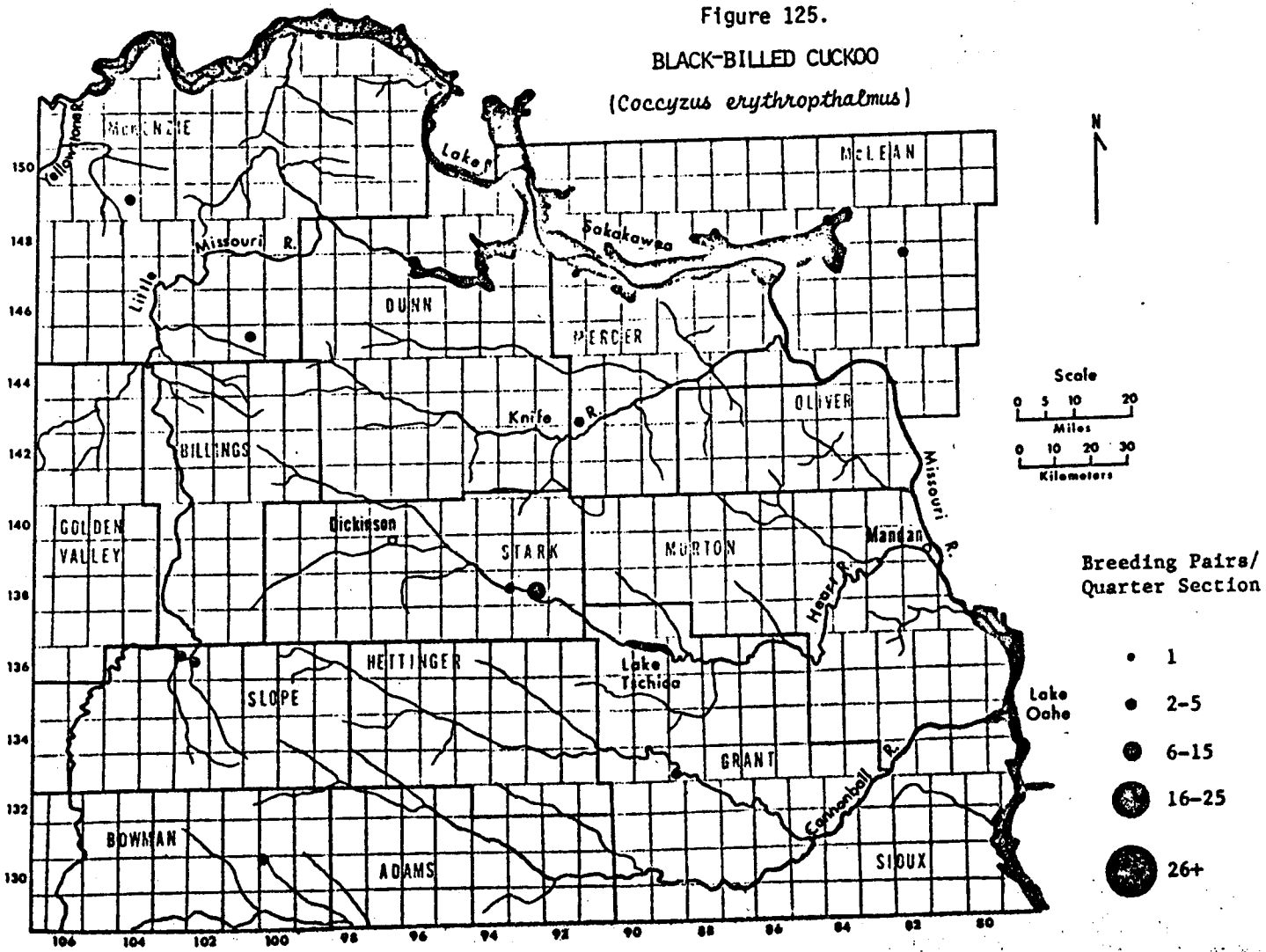
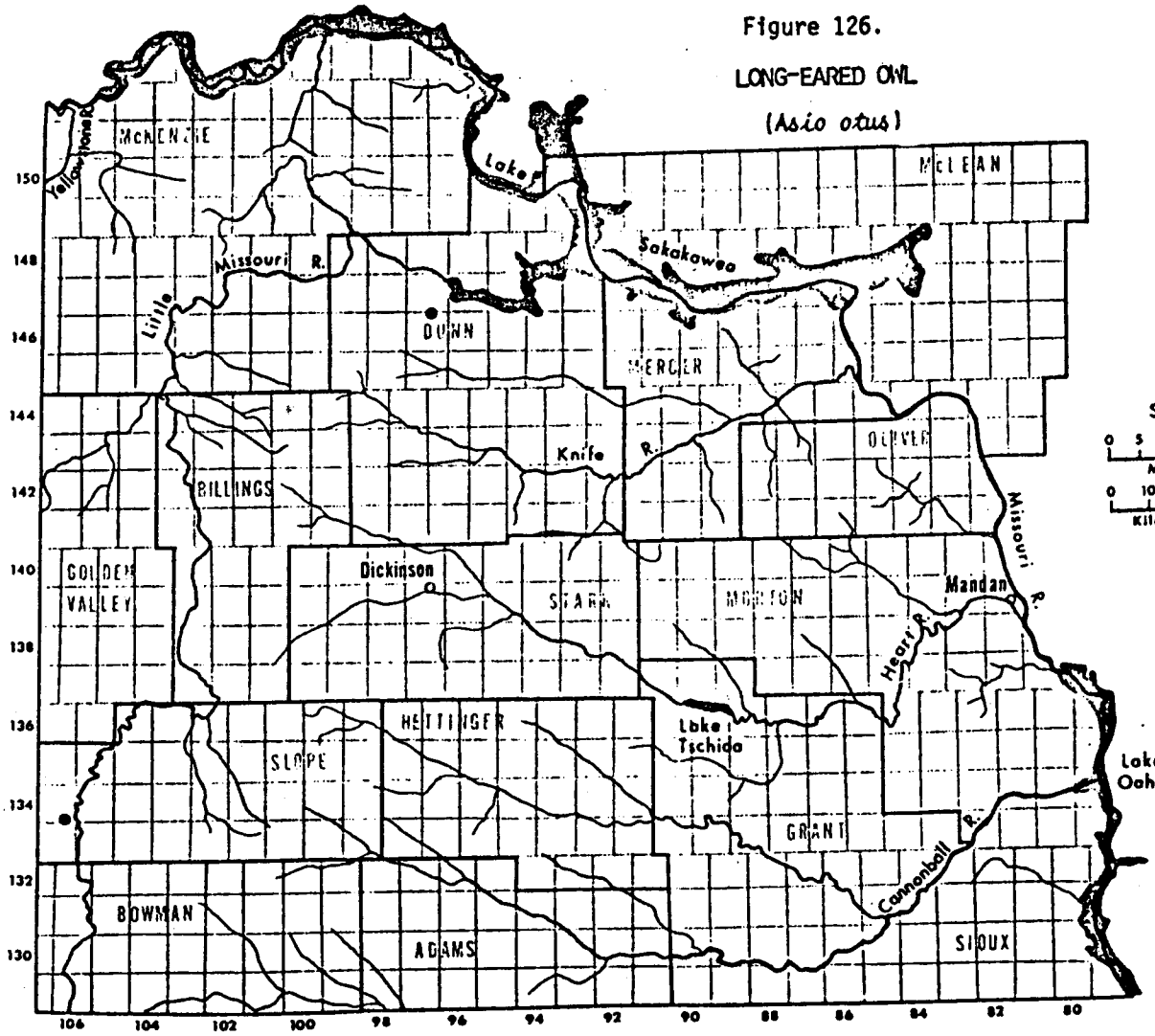


Figure 126.

LONG-EARED OWL

(*Asio otus*)



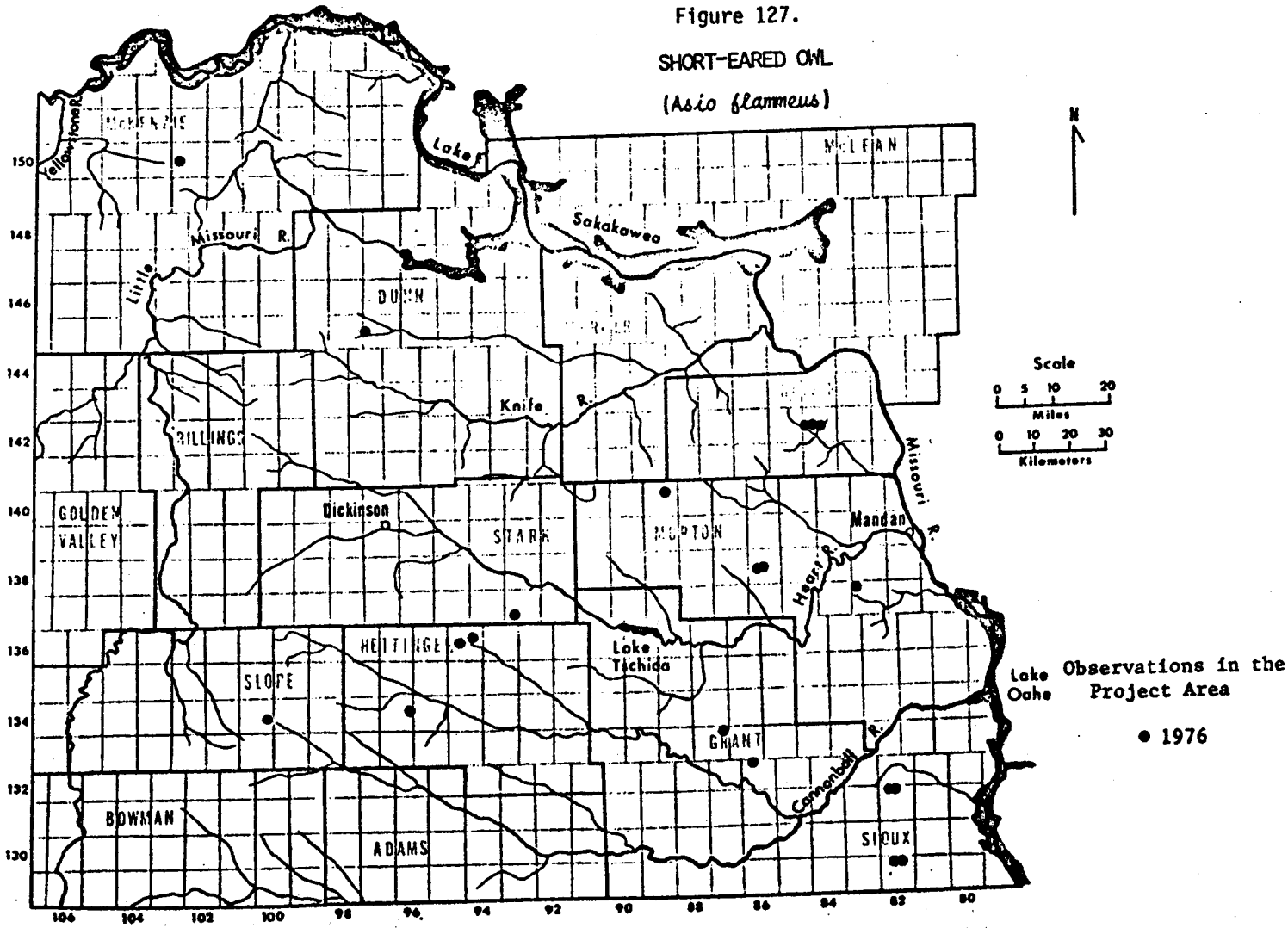
Observations in the Project Area

● 1976

Figure 127.

SHORT-EARED OWL

(*Asio flammeus*)



Observations in the Project Area

● 1976

Figure 128.

SHORT-EARED OWL

(Asio flammeus)

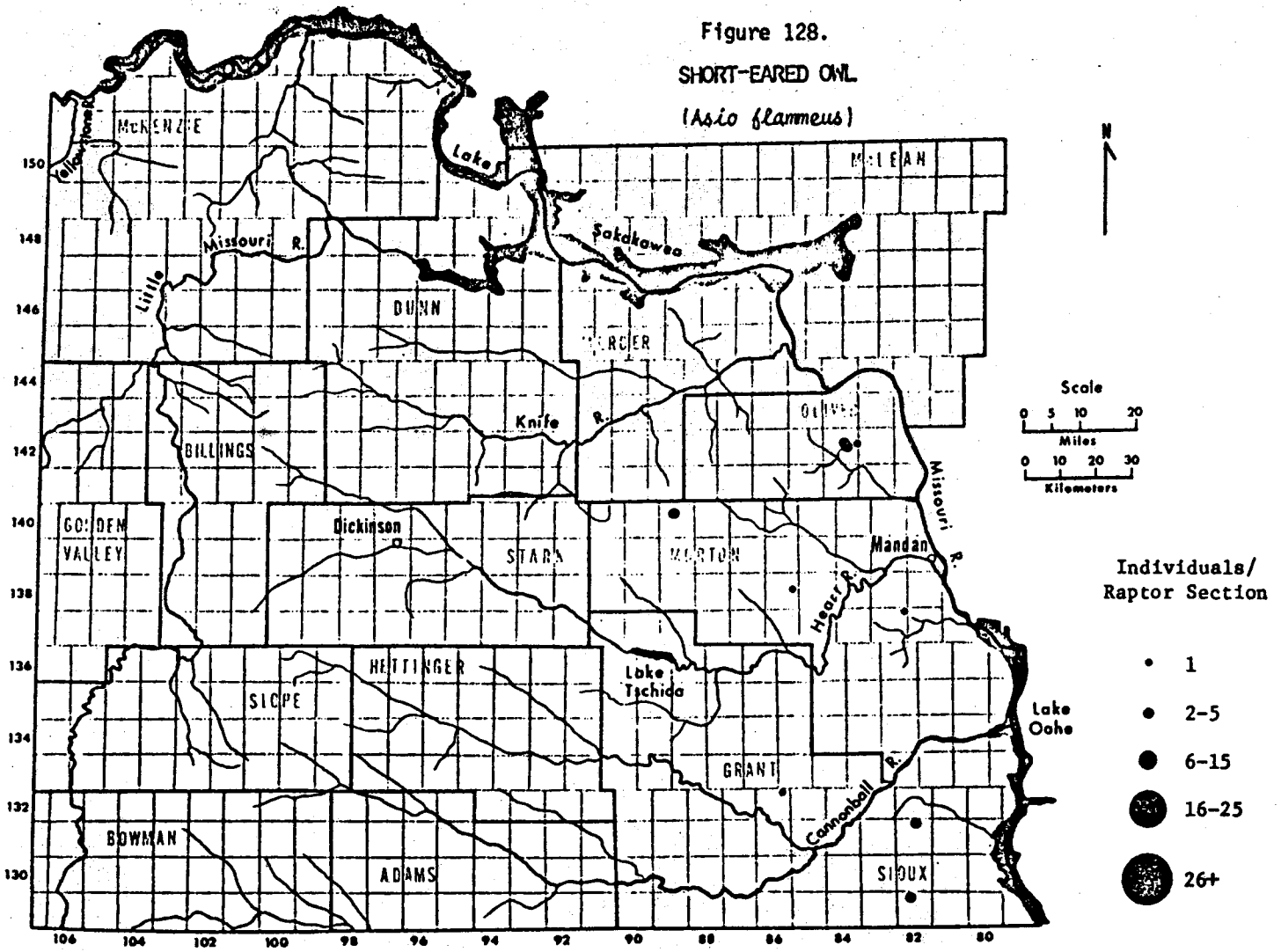


Figure 129.

SCREECH OWL

(Otus asio)

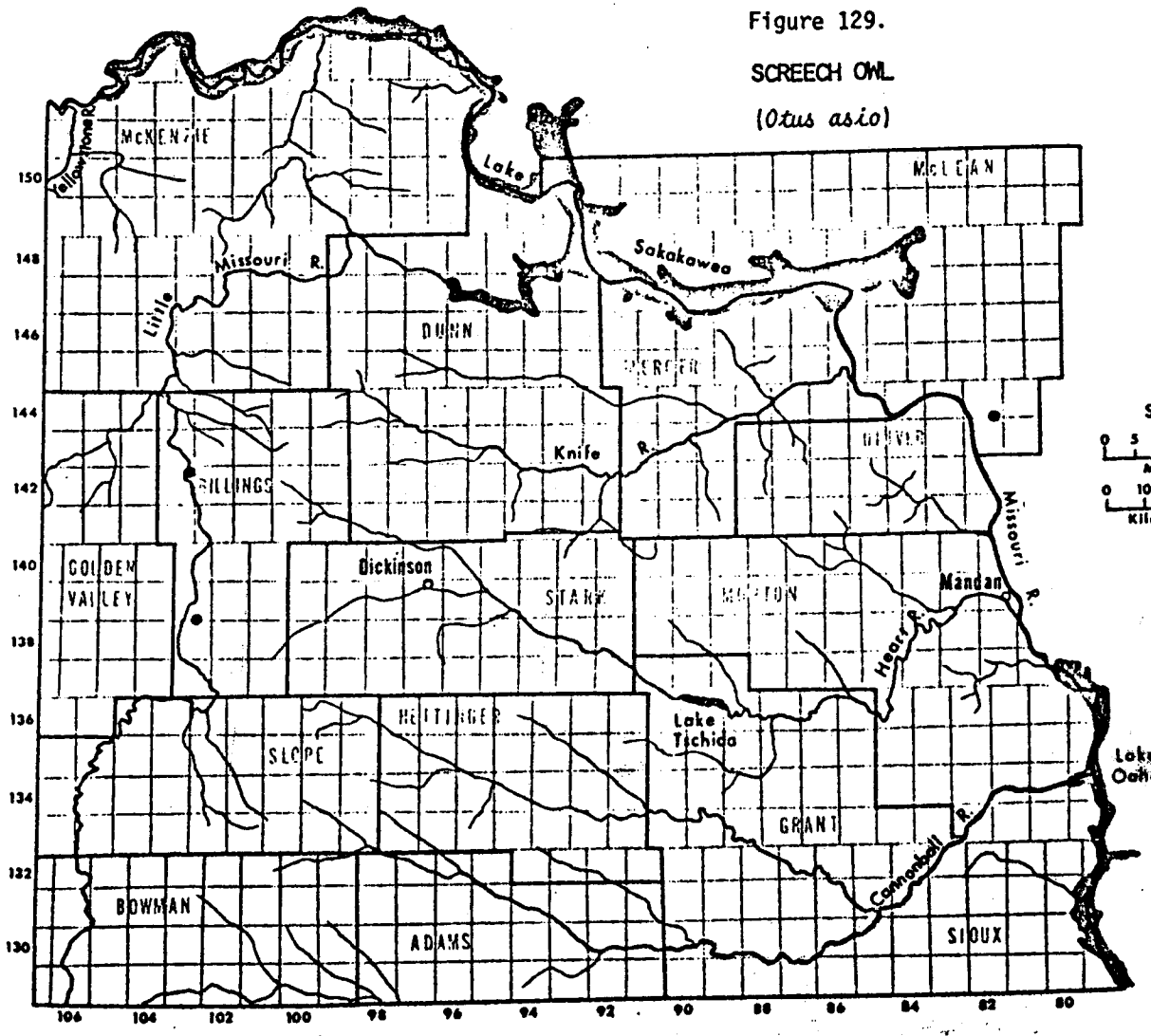


Figure 130.

SCREECH OWL

(Otus asio)

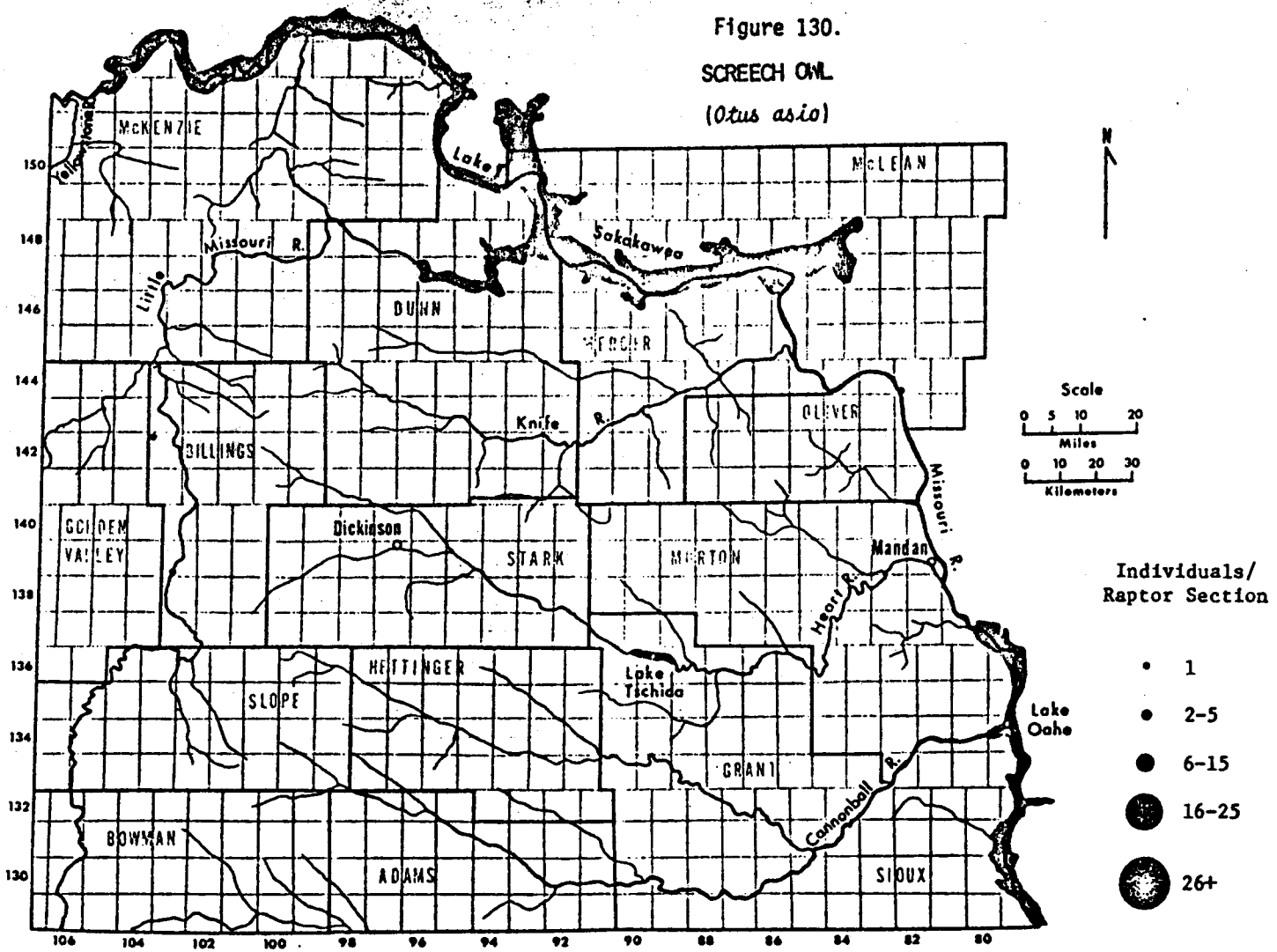


Figure 131.

GREAT HORNED OWL

(*Bubo virginianus*)

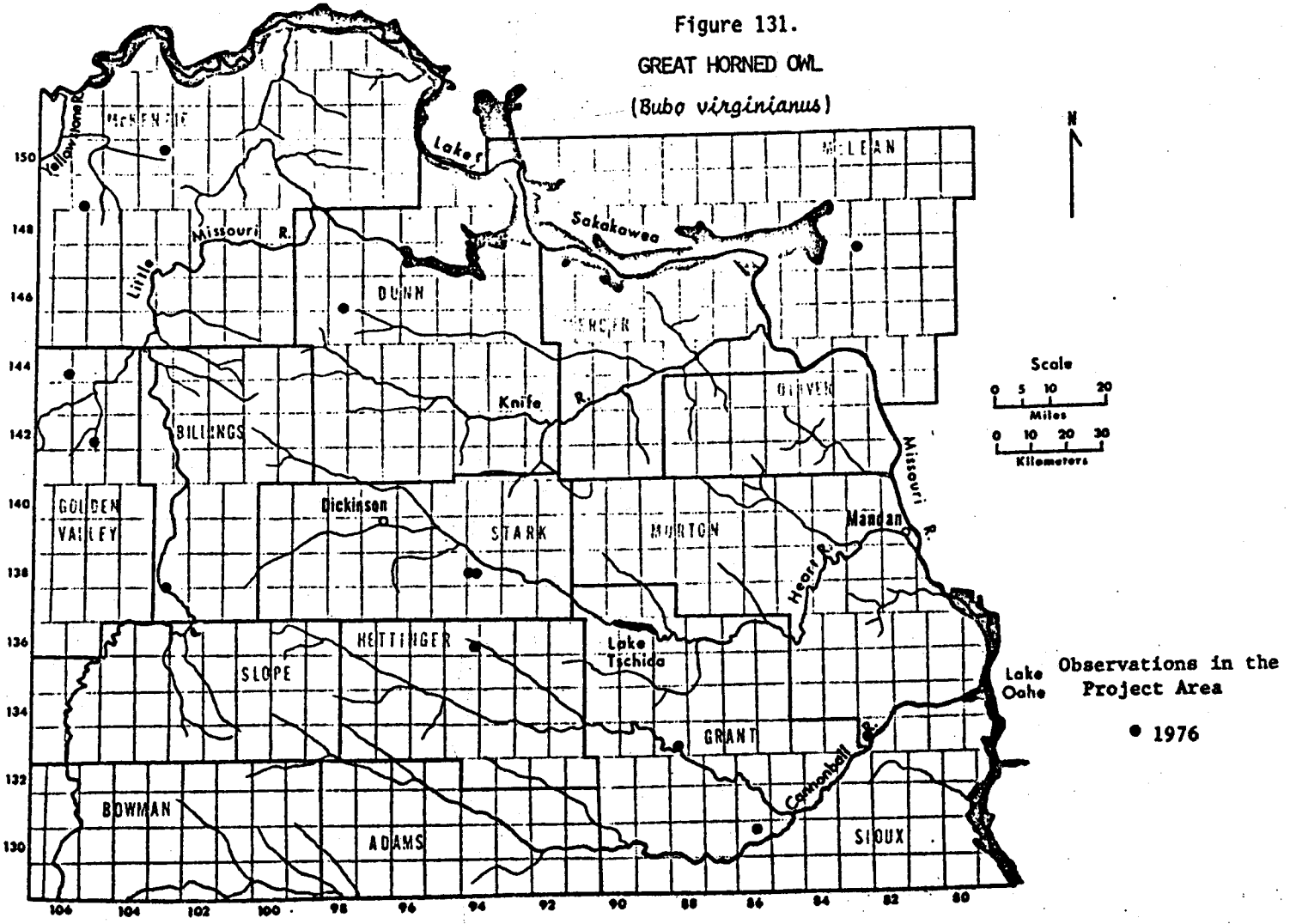
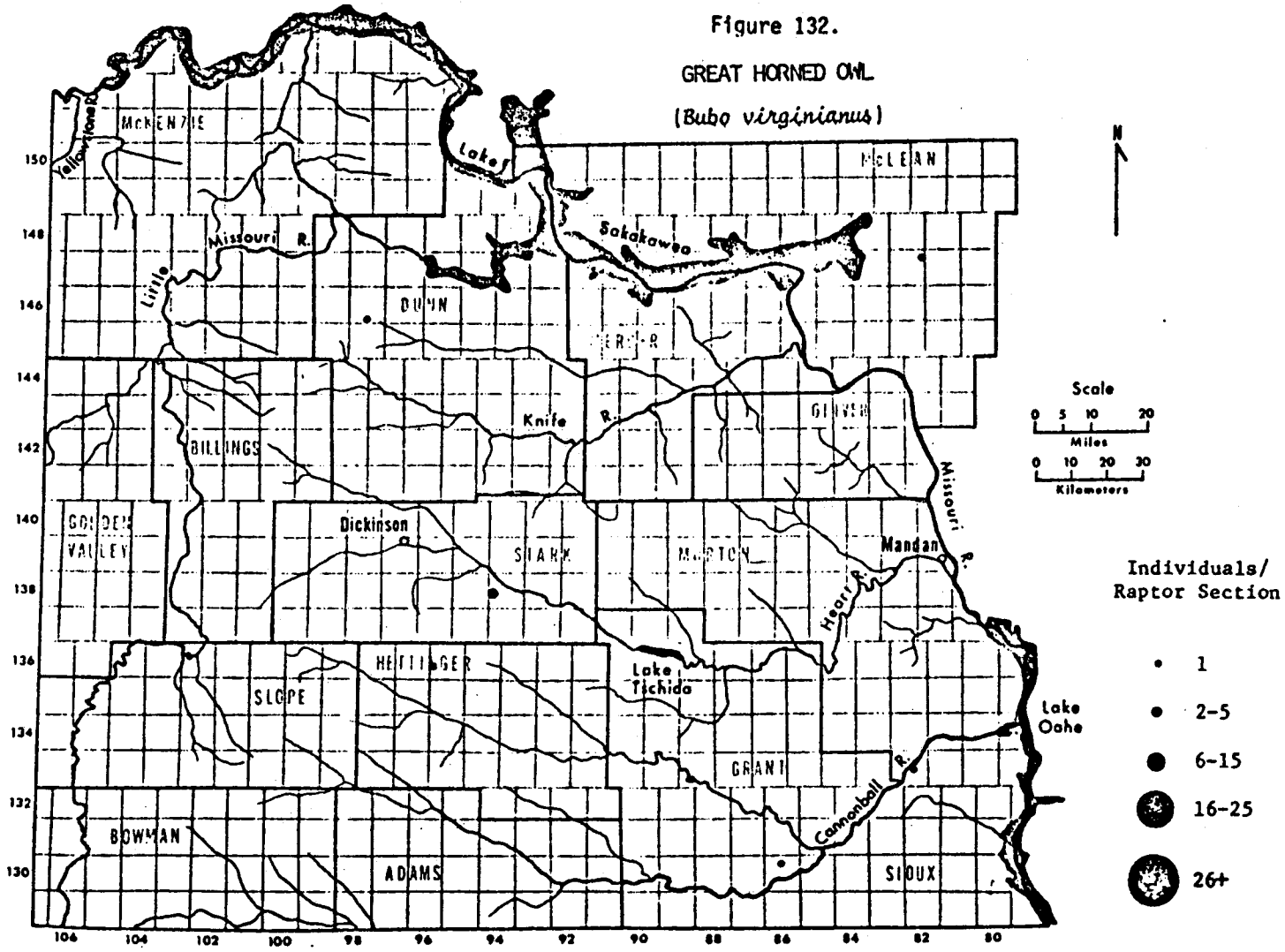


Figure 132.

GREAT HORNED OWL

(*Bubo virginianus*)



ORDER: Strigiformes

FAMILY: Strigidae

Burrowing Owl (*Athene cunicularia*) - The Burrowing Owl is found in the western half of the United States and slightly into the southern Mississippi Valley and throughout all of Mexico. It also is found in a single area on the west-central coast of Florida. The breeding range covers most of the western half of the United States, and wintering grounds are in the southern Mississippi Valley and Baja California. Throughout the southern U.S. and Mexico the bird is present year round (Robbins, et al., 1966). It is fairly common on the North Dakota Northwestern Drift Plain, uncommon on the Missouri Coteau, Southwestern Slope Region, and Southern Drift Plain, and rare in the Agassiz Lake Region and Northeastern Drift Plain (Stewart, 1975).

Distribution in the project area: 48 observations were made on rolling grasslands and agriculturally disturbed areas throughout the project area, except in Bowman and Hettinger Counties (Fig. 133, 134).

Habitat: Heavily grazed tracts of mixed-grass prairie and especially in colonies of large rodents, particularly prairie dogs. Nesting is in the abandoned dens of prairie dogs, badgers, and other mammals (Stewart, 1975).

Status: Common breeding species of the project area; major concentrations seemingly occur in two areas in the project area.

ORDER: Caprimulgiformes

FAMILY: Caprimulgidae (Nightjars) - This family contains 67 species which are cosmopolitan south of the Arctic Circle and north of 40° S. latitude. They are absent from New Zealand and most oceanic islands. Their habitats are varied and they are usually solitary (Austin, 1971).

Poor-will (*Phalaenoptilus nuttalli*) - Poor-wills are found in the western half of the United States, all of Mexico, and the extreme southwest corner of Canada. The breeding range covers the west half of the United States, while winter range is on the east coast of Mexico and more southerly areas. They are year round residents of the southwestern United States and all of Mexico (Robbins, et al., 1966). In North Dakota, the species breeds regularly in the Badlands along the Little Missouri River within Slope County (Stewart, 1975).

Distribution in the project area: Two observations were made in the ponderosa pines of Slope County (Fig. 135, 136).

Habitat: On the slopes and ravines of the Badlands which contain thickets of trees. During the day it shows a preference for thickets composed of evergreen trees, particularly ponderosa pine and Rocky Mountain cedar. At night, when foraging, it ranges over more open habitats (Stewart, 1975).

Status: Rare breeding species in the total project area; seemingly fairly common locally in north-central Slope County.

Figure 133.

BURROWING OWL

(*Athene cunicularia*)

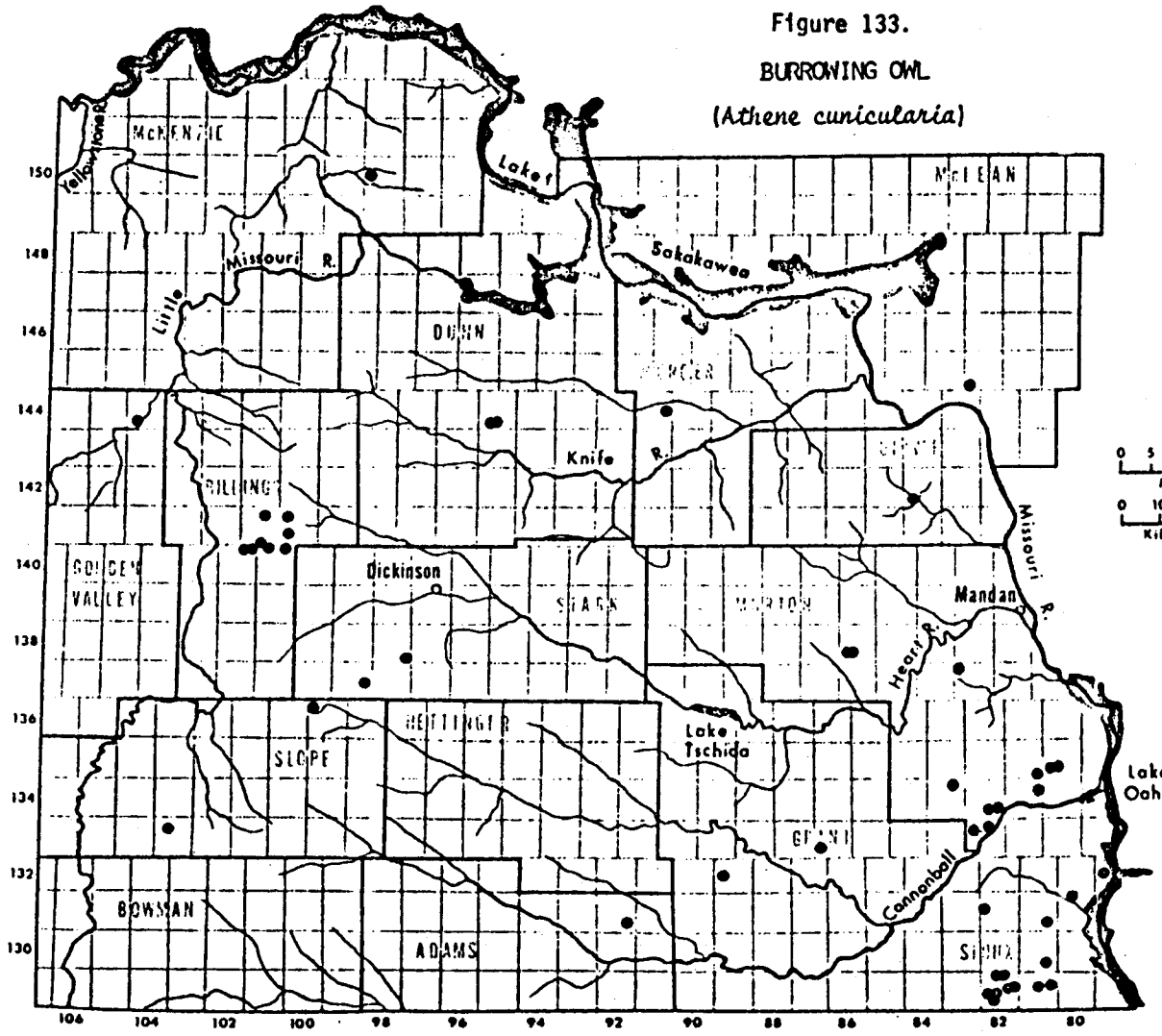


Figure 134.

BURROWING OWL

(*Athene cunicularia*)

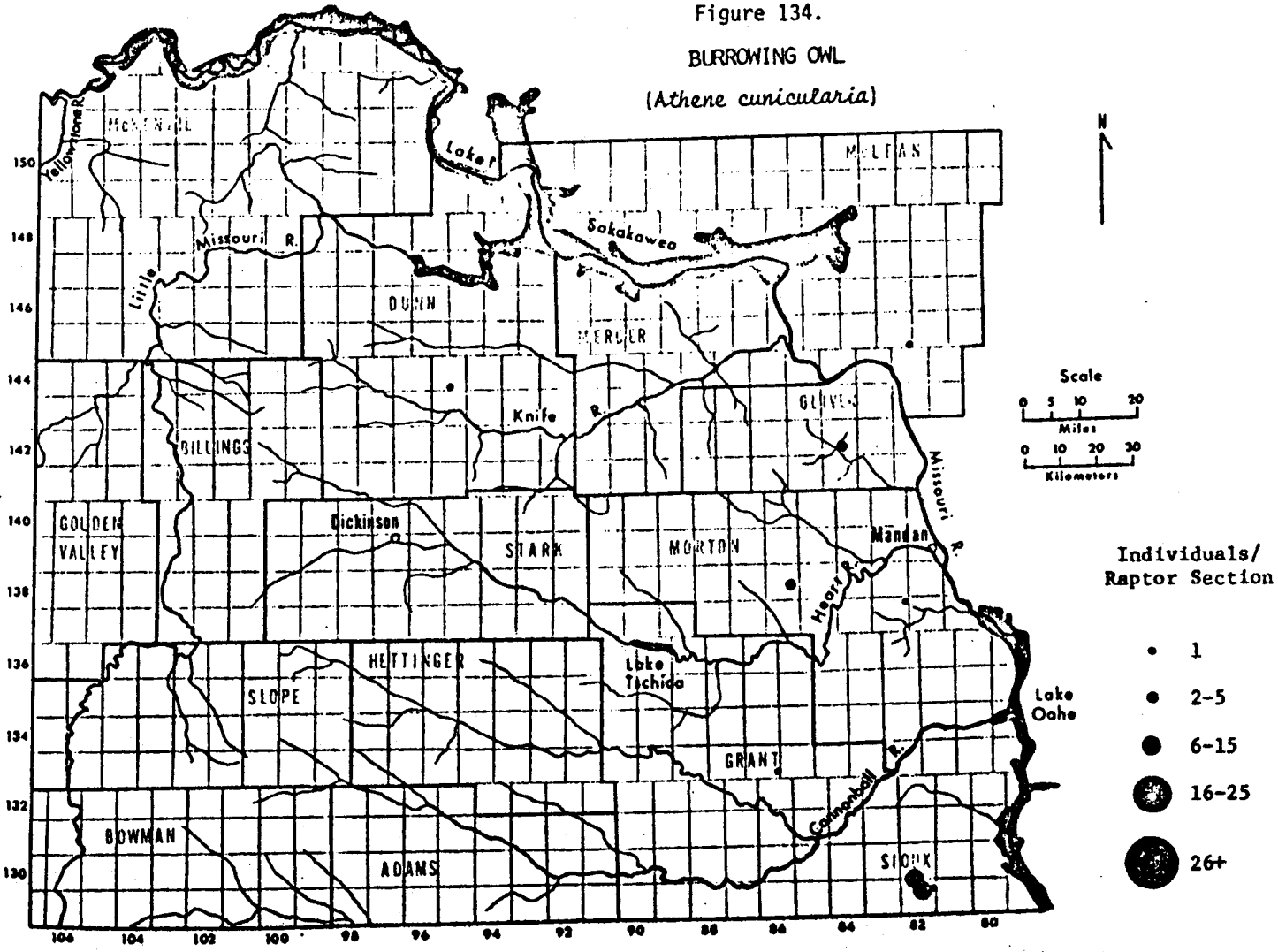
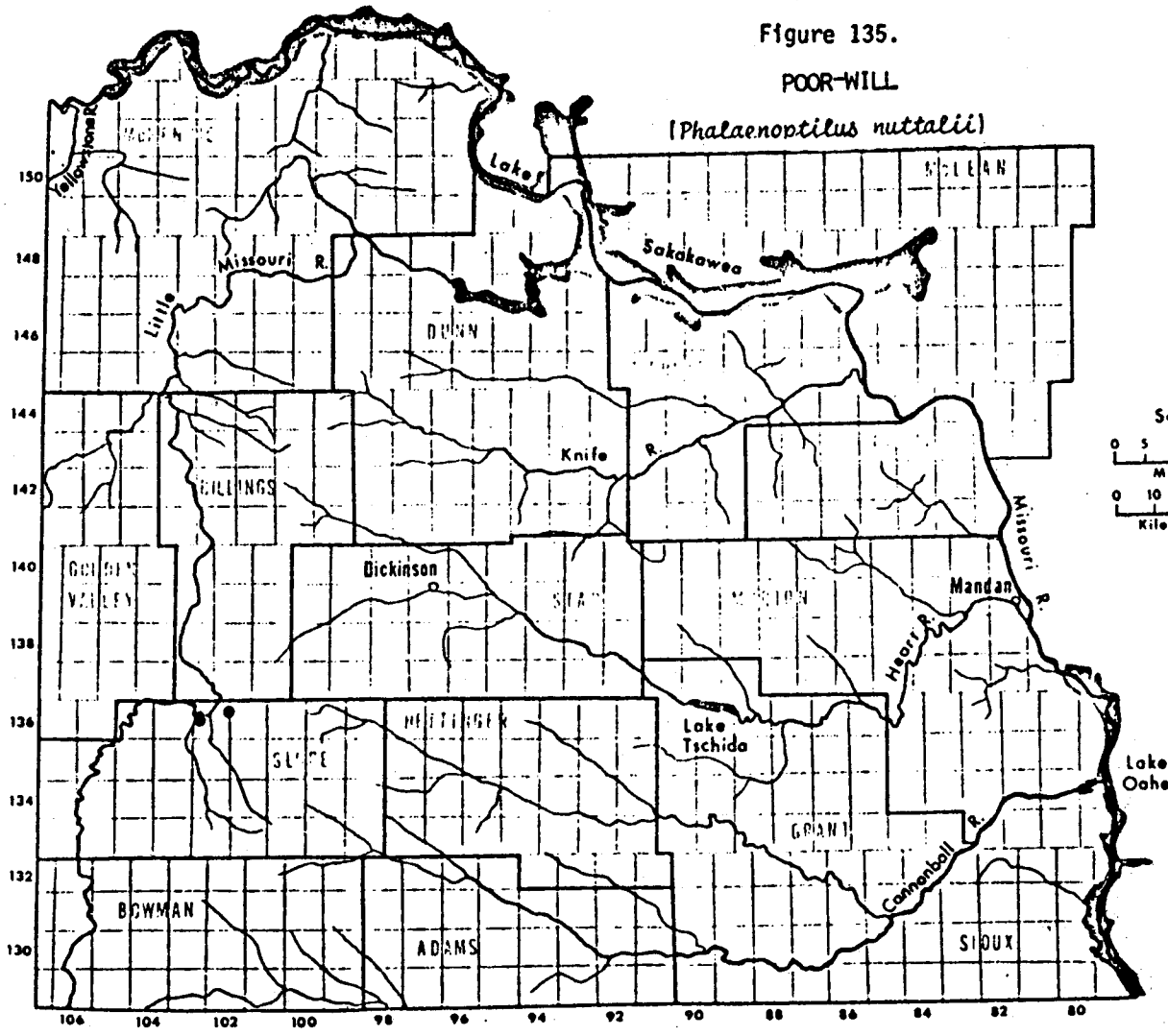


Figure 135.

POOR-WILL

(*Phalaenoptilus nuttalii*)



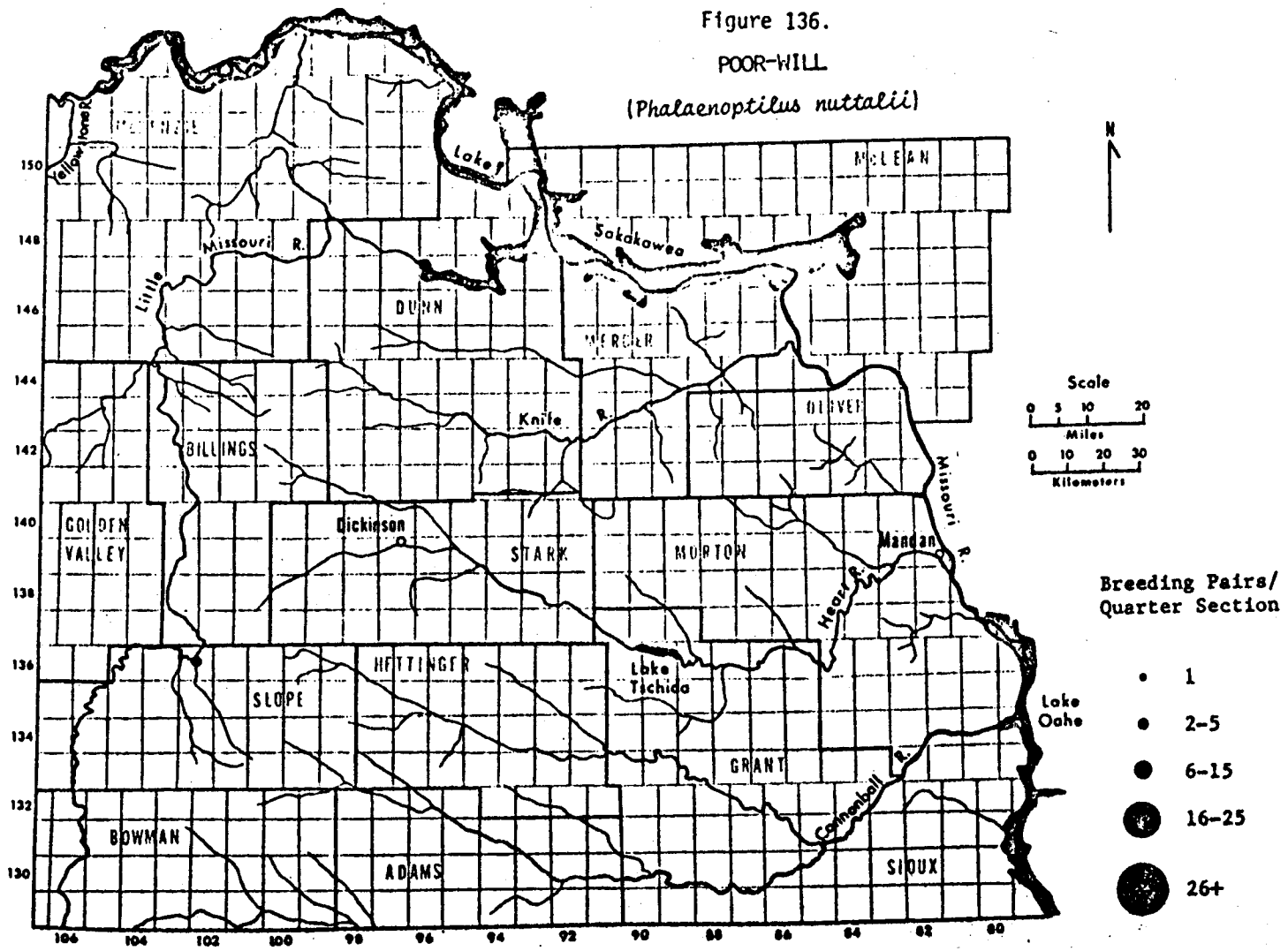
Observations in the Project Area

● 1976

Figure 136.

POOR-WILL

(*Phalaenoptilus nuttalii*)



ORDER: Caprimulgiformes

FAMILY: Caprimulgidae

Common Nighthawk (*Chordeiles minor*) - This bird is found over the entire North American continent except northern Canada and Alaska. The breeding range extends over the whole of this area except southern Mexico (Robbins, et al., 1966). Stewart (1975) lists it as fairly common in the Turtle Mountains and Southwestern Slope Region of North Dakota, and uncommon and local in the Agassiz Lake Plain and Prairie Pothole Region.

Distribution in the project area: 13 observations were made in riparian woodlands, hardwood draws with trees and brush, upland grasslands, juniper draws, ponderosa pines, and shelterbelts over most of the project area (Fig. 137, 138).

Habitat: The Common Nighthawk is a wide-ranging aerial forager occurring regularly over native prairie, cropland, woodland, wetlands, and residential and business districts of towns and cities. Most nests are situated on the ground in barren, sparsely vegetated areas, particularly on exposed gravelly soil with numerous surface pebbles (Stewart, 1975).

Status: Uncommon breeding species in the project area; possibly fairly common locally in the Badlands.

ORDER: Coraciiformes

FAMILY: Alcedinidae (Kingfishers) - This family contains 86 living species which are distributed worldwide except polar regions and some oceanic islands. They live in forested or savannah country, usually near water. Most are solitary (Austin, 1971).

Belted Kingfisher (*Megaceryle alcyon*) - The Belted Kingfisher is found over the entire North American continent except northern Canada and northern and western Alaska. The breeding range covers the western half and southeastern portion of Canada, central Alaska, and the northern half of the United States. The bird is present year round along the Pacific coast and southeastern United States (Robbins, et al., 1966). Stewart (1975) lists it as fairly common in the Turtle Mountains, uncommon along the Red River, and rare elsewhere in the vicinity of permanent lakes and stream impoundments.

Distribution in the project area: Seven observations were made in riparian woodlands of Billings, McLean, Mercer, Slope, and Stark Counties, and on a reservoir in McKenzie County (Fig. 139, 140).

Habitat: Found along permanent streams and lakes that contain fish populations. Nests are situated at the end of tunnels dug in steep banks that border streams, lakes, or gravel pits (Stewart, 1975).

Status: Uncommon breeding species in the project area.

Figure 137.

COMMON NIGHTHAWK

(Chordeiles minor)

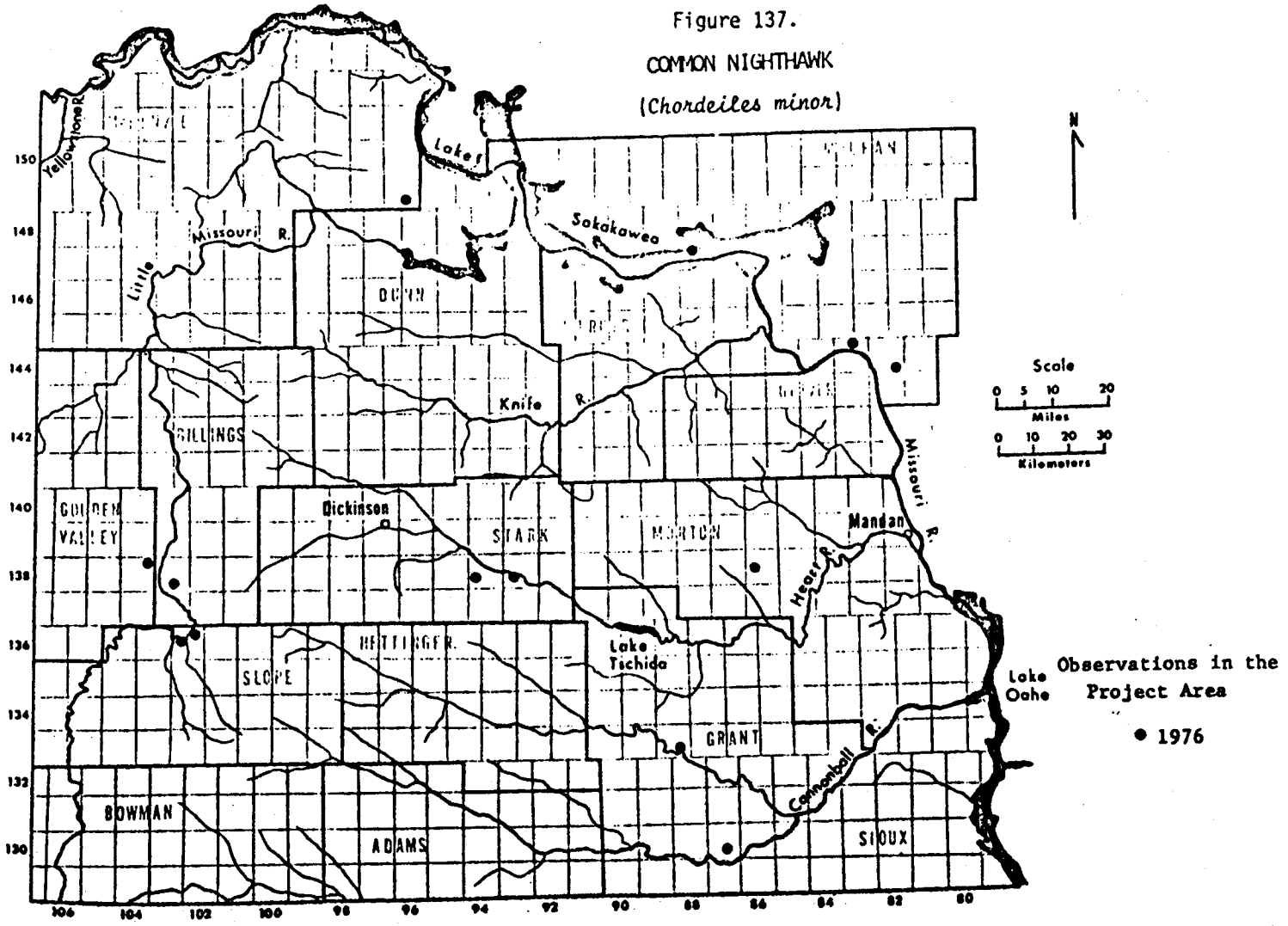


Figure 138.

COMMON NIGHTHAWK

(Chordeiles minor)

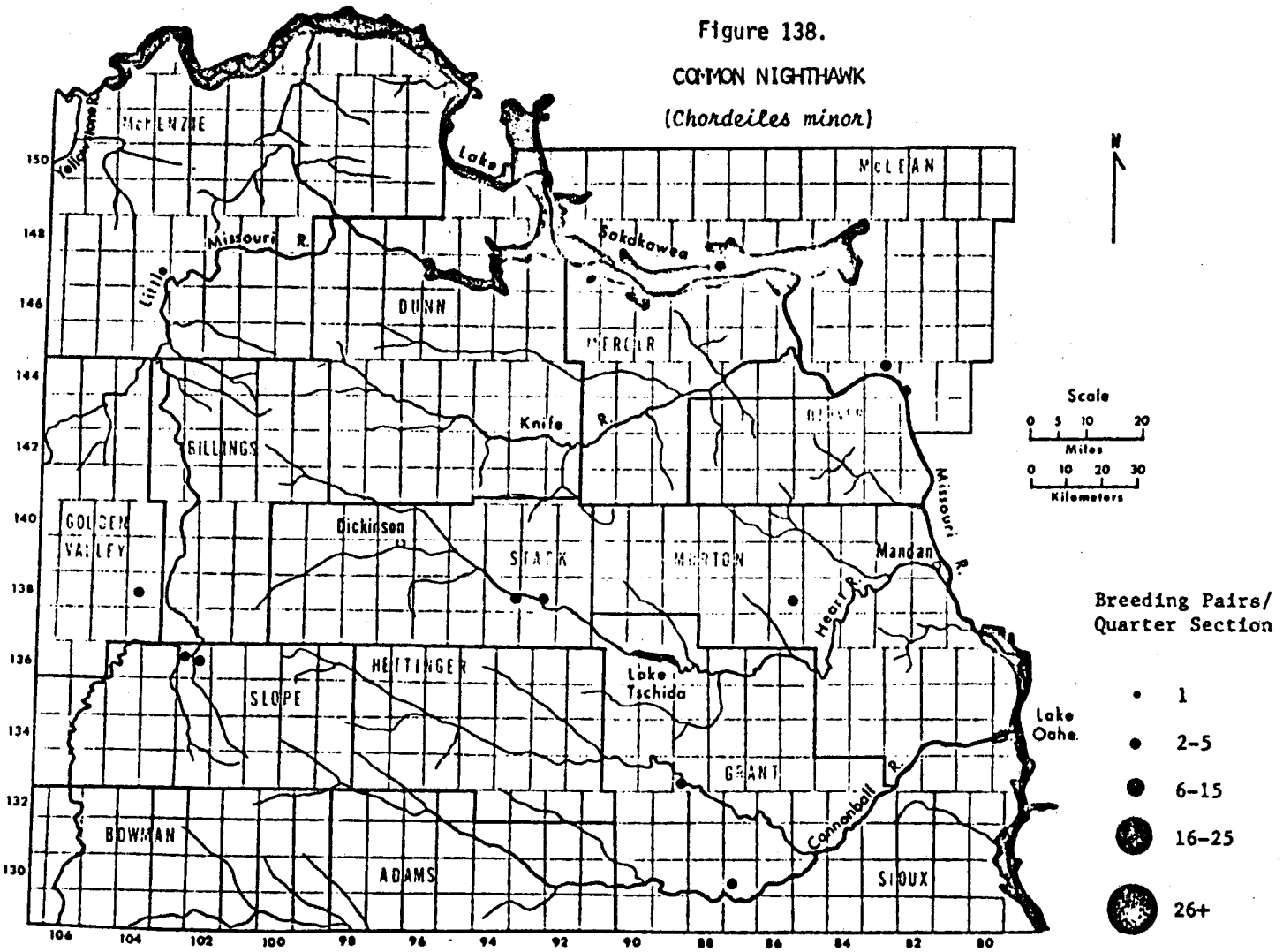
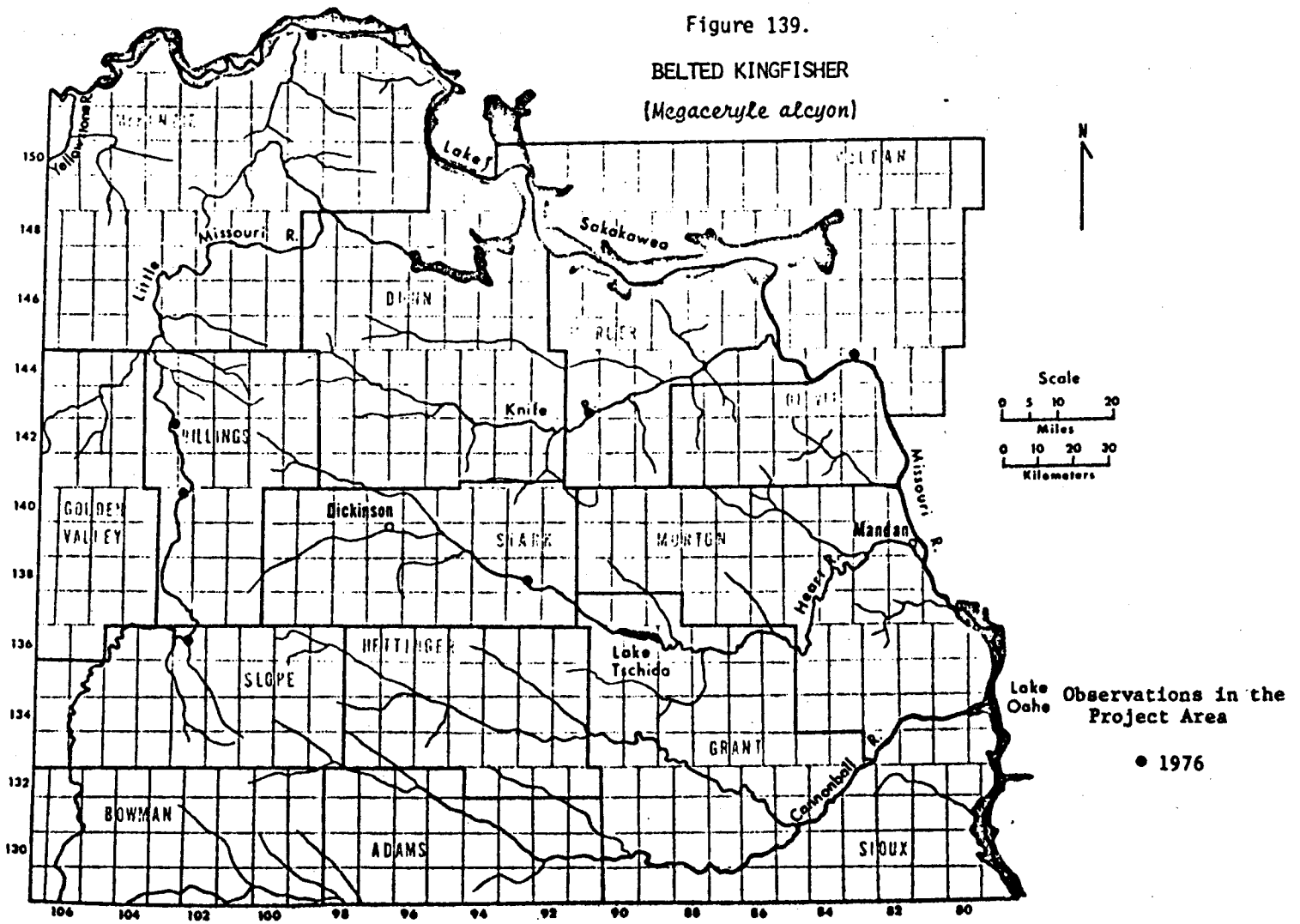


Figure 139.

BELTED KINGFISHER

(*Megaceryle alcyon*)



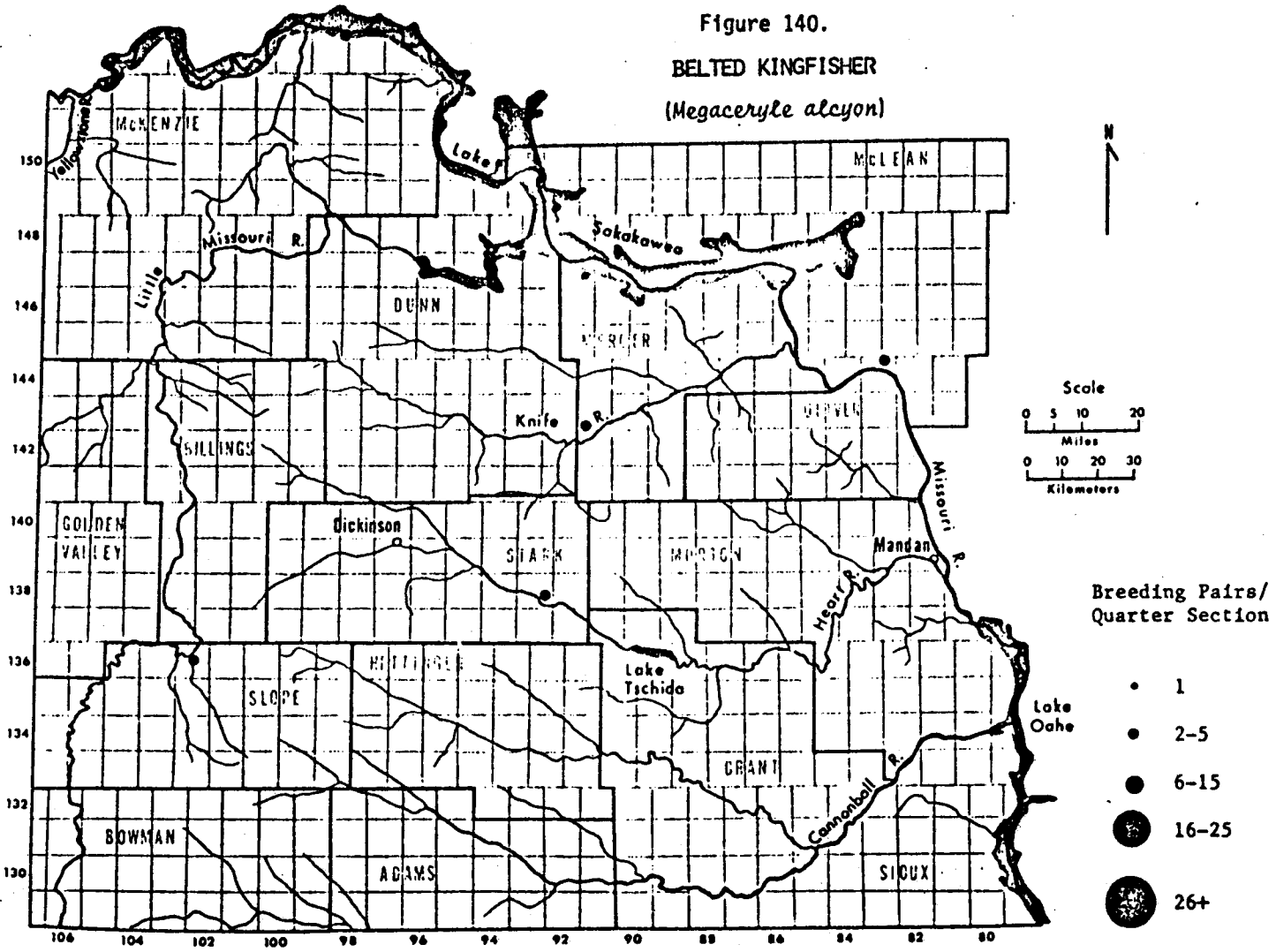
Observations in the Project Area

• 1976

Figure 140.

BELTED KINGFISHER

(*Megaceryle alcyon*)



ORDER: Piciformes

FAMILY: Picidae (Woodpeckers) - A large family of 209 living species, the woodpeckers occur worldwide except for polar regions, Australia, New Zealand, Madagascar, and most oceanic islands. They live in forests of all types, a few in open savannahs. They are solitary birds which climb tree trunks and peck bark and wood for insects and grubs (Austin, 1971).

Hairy Woodpecker (*Picoides villosus*) - These birds are found over the entire North American continent, except northern Canada and Alaska and Baja California. The birds are present in this area year round (Robbins, et al., 1966). Stewart (1975) lists them as common in wooded valleys along the Sheyenne River; fairly common locally in wooded areas of the Agassiz Lake Plain Region, Turtle Mountains, Prairie Pothole Region, Coteau Slope and Little Missouri Slope; and rare elsewhere in the state.

Distribution in the project area: Four observations were made in riparian woodlands, brushy hardwood draws, and juniper draws in Billings, McKenzie, and Mercer Counties (Fig. 141, 142).

Habitat: Found in extensive tracts of bottomland and upland deciduous forest. Nests usually are situated in tree holes several feet above the ground (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Piciformes

FAMILY: Picidae

Red-headed Woodpecker (*Melanerpes erythrocephalus*) - This bird is found in the United States from the Rockies to the east coast, excluding Texas and the Southwestern United States (Bent, 1964). In North Dakota, they are fairly common in the southern portion of the Agassiz Lake Plain, lower Missouri River Valley, and upper portion of the Little Missouri River; uncommon in central and northern Agassiz Lake Plain, lower portion of the Sheyenne River Valley, lower Little Missouri River, and upper Missouri River Valley; rare elsewhere in the state (Stewart, 1975).

Distribution in the project area: Four observations were made in a riparian woodland, roadside, and shelterbelts of Dunn, Golden Valley, and Morton Counties (Fig. 143).

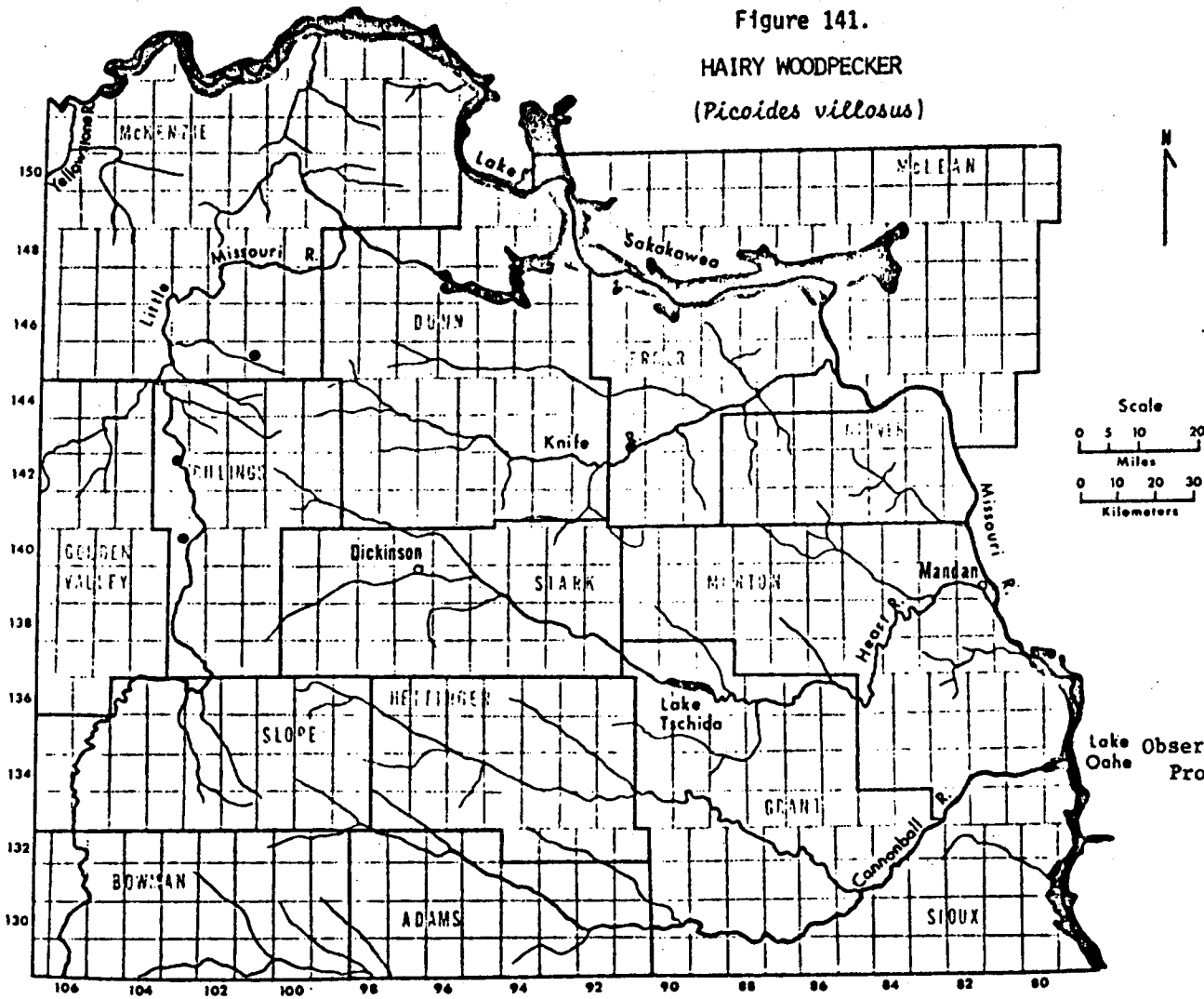
Habitat: Found in open woodlands or forest margins, upland and bottomland forests, shelterbelts, and in partially wooded residential areas. Within natural timber stands an affinity is shown for tracts containing numerous dead trees. Nesting holes usually are excavated in dead tree snags or telephone poles (Stewart, 1975).

Status: Rare breeding species in the project area.

Figure 141.

HAIRY WOODPECKER

(Picoides villosus)



Observations in the Project Area

● 1976

Figure 142.

HAIRY WOODPECKER

(*Picoides villosus*)

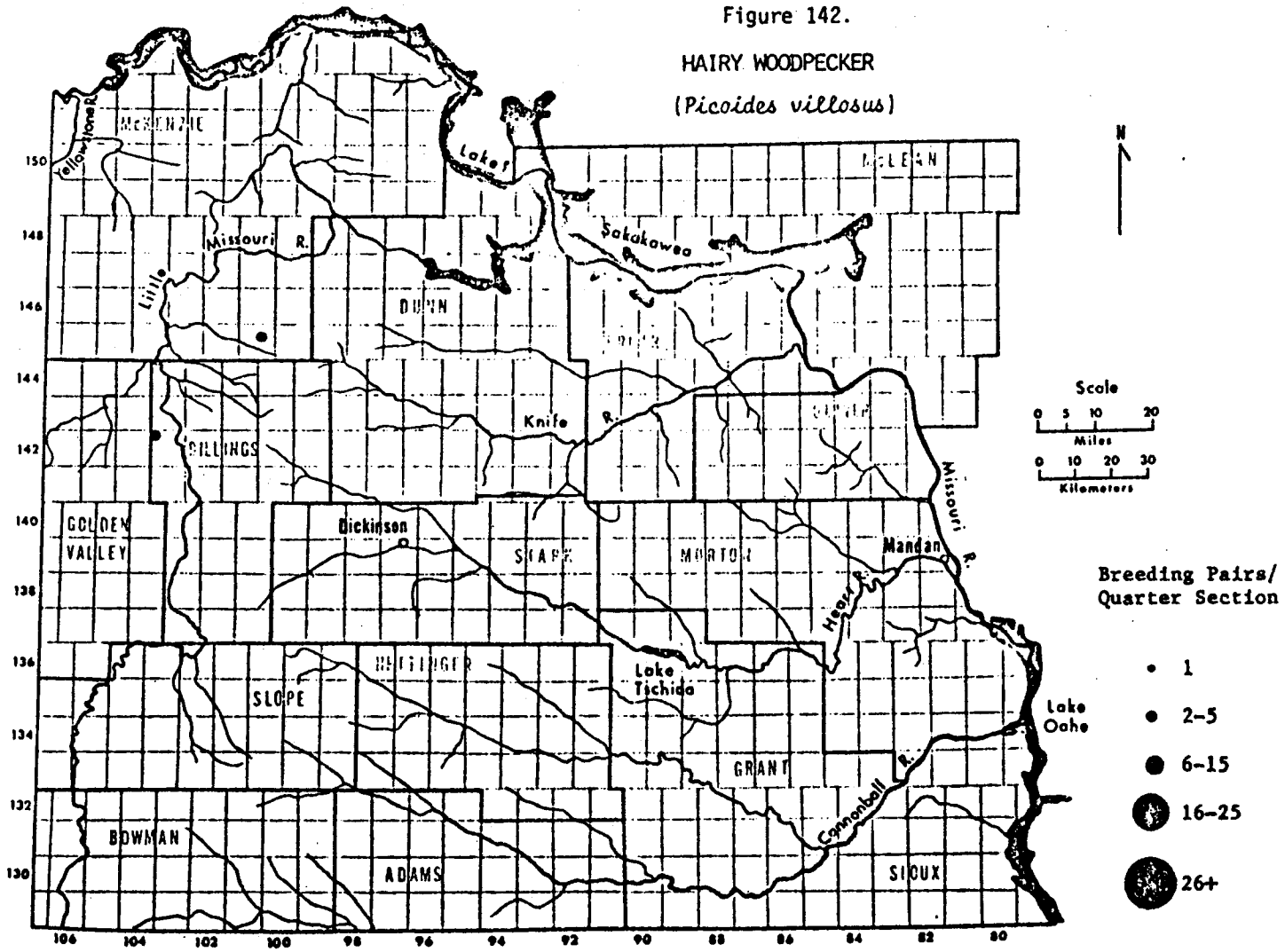
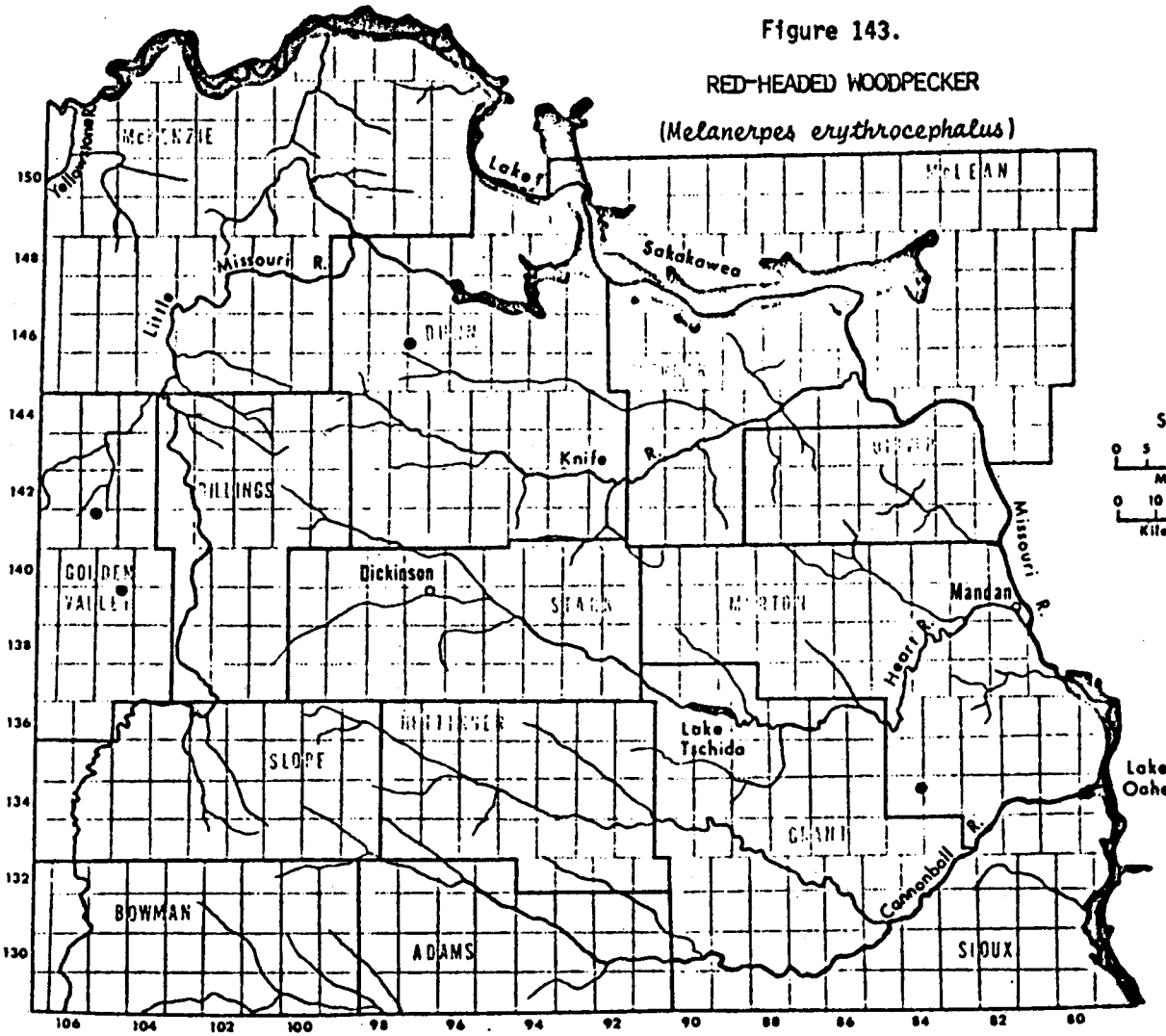


Figure 143.

RED-HEADED WOODPECKER

(*Melanerpes erythrocephalus*)



Observations in the Project Area

● 1976

ORDER: Piciformes

FAMILY: Picidae

Common (Red-shafted and Yellow-shafted) Flicker (*Colaptes auratus*) - Common Flickers are found over the entire North American continent except northern Canada, northern and western Alaska, and Baja California. Breeding range covers all of Canada, northern midwest states, and New England, while winter range covers the Mississippi Valley and central Great Plains. It is present year round over the rest of the area (Robbins, et al., 1966). The Yellow-shafted subspecies is listed as fairly common over most of North Dakota, while the Red-shafted subspecies is limited mainly to the Badlands (Stewart, 1975).

Distribution in the project area: 20 observations were made in riparian woodland, hardwood draws, rolling grasslands, ponderosa pines, spoil piles, roadsides, and shelterbelts in Billings, Bowman, McKenzie, McLean, Mercer, Morton, Slope, and Stark Counties (Fig. 144, 145).

Habitat: Found in open woodlands or forest margins, natural upland and bottomland tracts of trees, shelterbelts and partially wooded areas of residential districts. It ranges widely over open habitat. Nests are situated in excavated holes or cavities of dead tree snags, telephone poles, fence posts, and bird boxes with large openings (Stewart, 1975).

Status: Fairly common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Tyrannidae (Flycatchers) - A family containing 367 living species, the Tyrannidae occur throughout the temperate and tropical western hemisphere, from Canada's treeline to Patagonia's forests and plains. They are typically solitary and arboreal, catching insects on the wing (Austin, 1971).

Eastern Kingbird (*Tyrannus tyrannus*) - These birds are found over most of the United States, southern Canada, and along the Mexican Gulf coast. Breeding range covers all but the southwestern portion of this area (Robbins, et al., 1966). Stewart (1975) lists the bird to be common throughout the Prairie Pothole Region, Turtle Mountains, and Coteau and Missouri Slopes; fairly common in the Agassiz Lake Plain Region and on the Little Missouri Slope.

Distribution in the project area: 37 observations were made in riparian woodlands, rolling grasslands, hardwood draws, and agriculturally disturbed areas scattered over the study area (Fig. 146, 147).

Habitat: Areas with open-canopy woodlands or scattered thickets or groves of small trees and tall shrubs, including edge habitats created by man. Natural edge habitats also are extensively utilized. Nests are situated in a variety of woody plants (Stewart, 1975).

Status: Common breeding species in the project area.

Figure 144.

COMMON FLICKER

(*Colaptes auratus*)

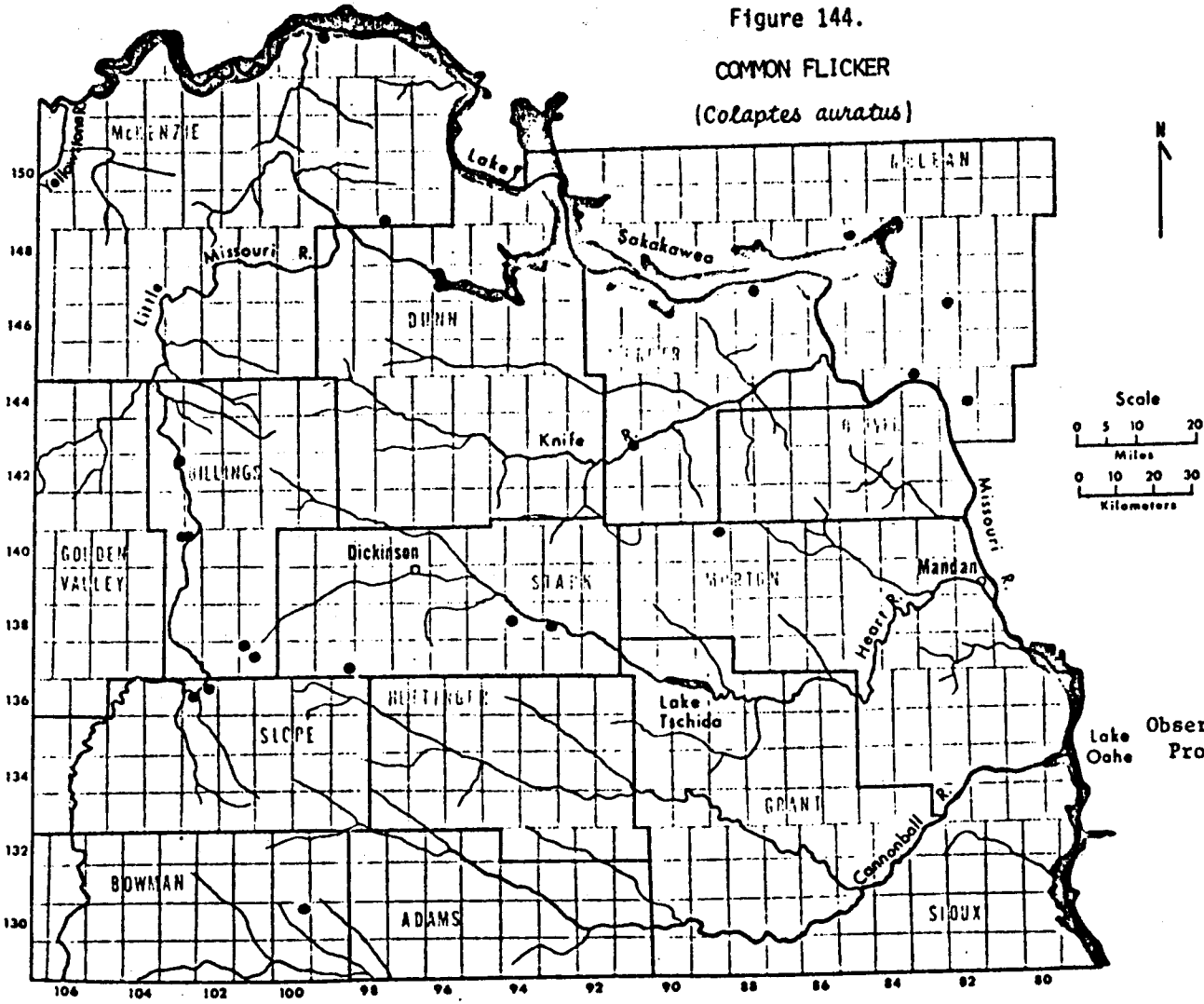


Figure 145.

COMMON FLICKER

(*Colaptes auratus*)

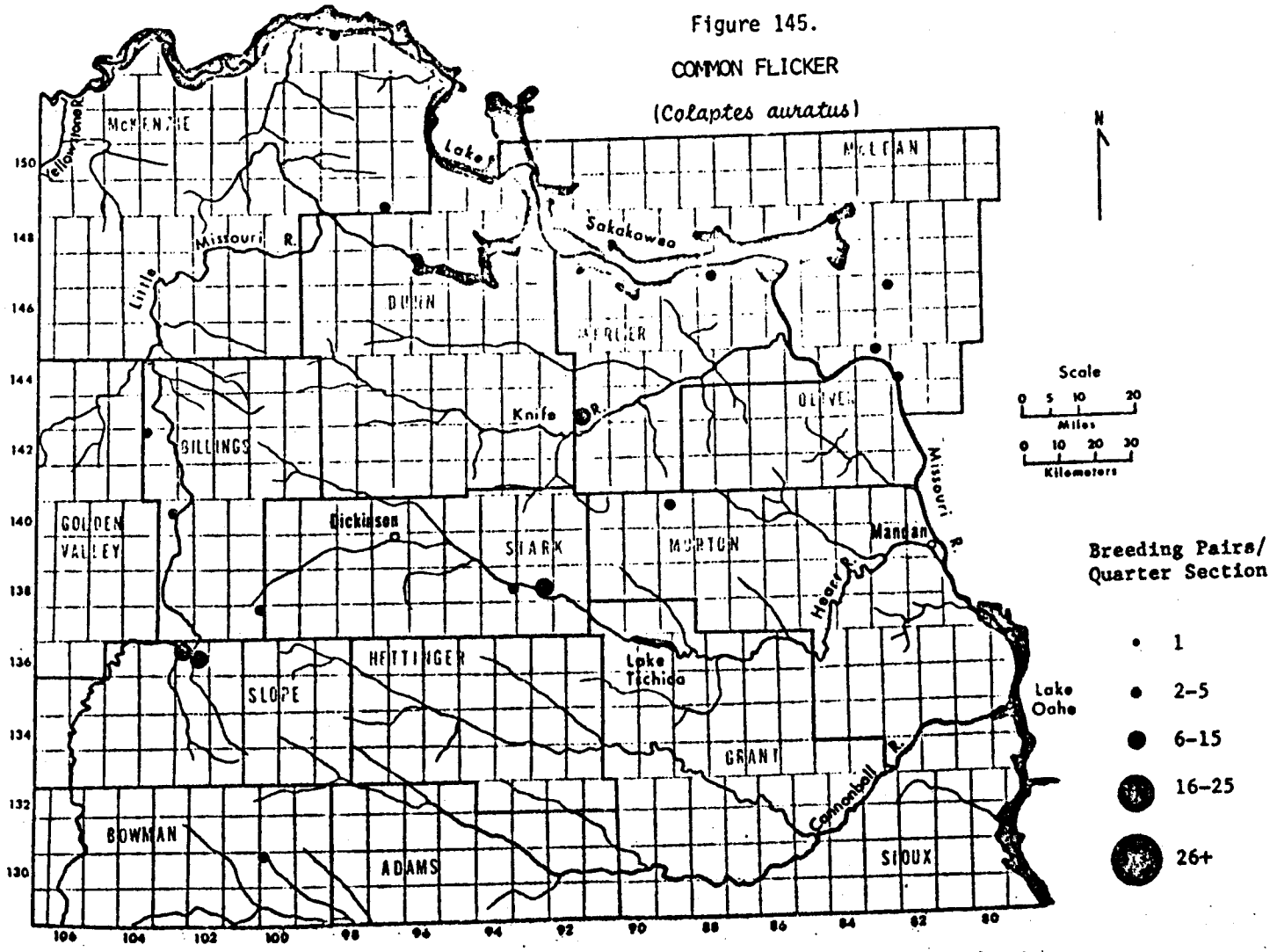


Figure 146.

EASTERN KINGBIRD

(*Tyrannus tyrannus*)

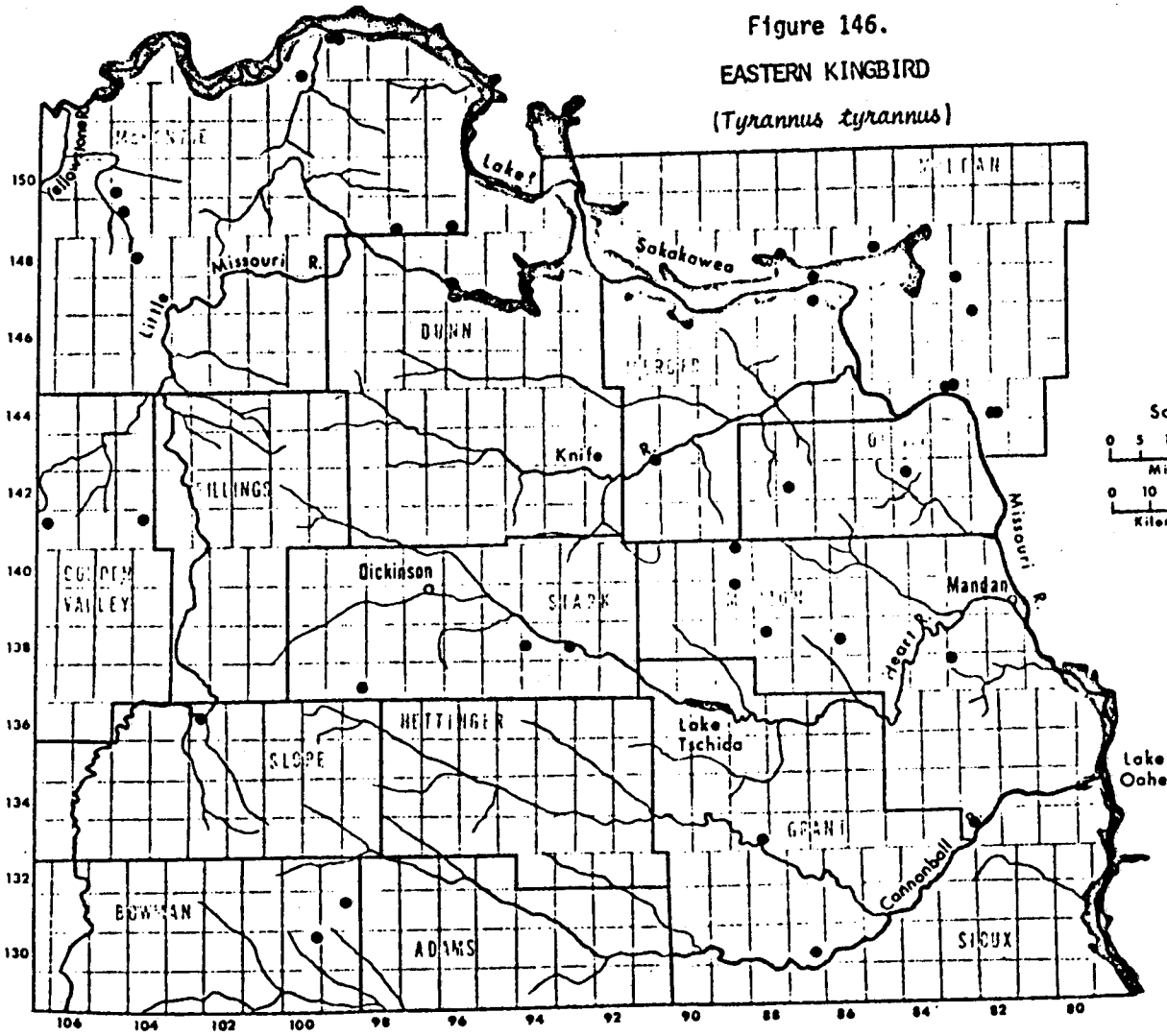
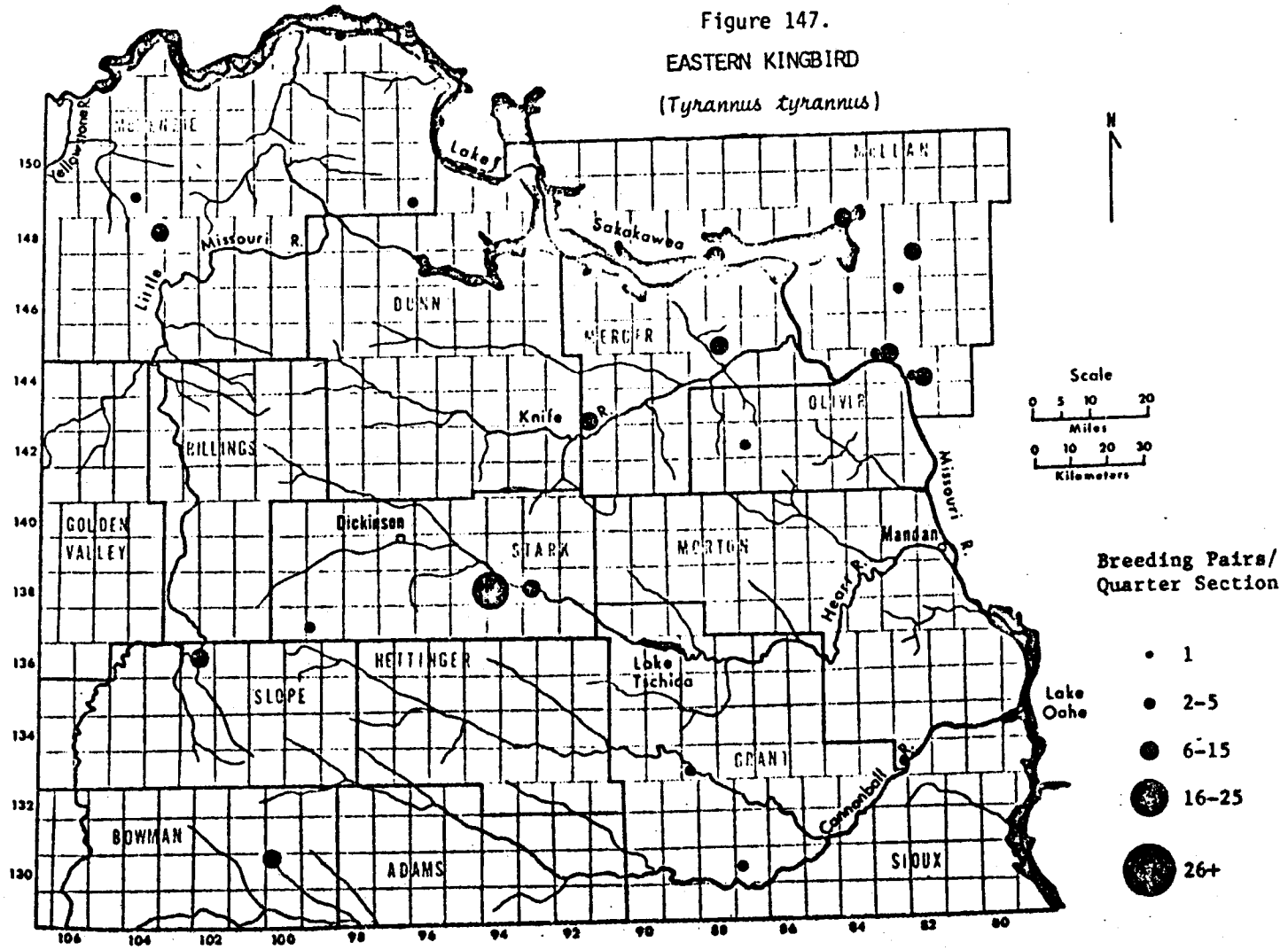


Figure 147.

EASTERN KINGBIRD

(*Tyrannus tyrannus*)



ORDER: Passiformes

FAMILY: Tyrannidae

Western Kingbird (*Tyrannus verticalis*) - The Western Kingbird is found in the western half of the United States, southwestern Canada, Mexico, the southern tip of Florida, and along both the Gulf and Atlantic coastlines of the United States. Breeding range covers the whole western area in the United States and Canada (Robbins, et al., 1966). The bird is common on the Northeastern, Southern and Northwestern Drift Plains, and Coteau Slope; fairly common in the Agassiz Lake Plain Region, Turtle Mountains, Missouri Coteau, and Little Missouri Slope; and uncommon on the Missouri Slope (Stewart, 1975).

Distribution in the project area: 14 observations were made in hardwood draws with trees and brush, grazed and ungrazed rolling grassland, spoil piles, and shelterbelts in Bowman, Hettinger, McKenzie, McLean, Morton, Sioux, and Stark Counties (Fig. 148, 149).

Habitat: Found in edge habitats created by man including margins of shelterbelts, orchards, hedgerows and partially wooded residential areas. Natural habitats include margins of woodlands and thickets of small trees and tall shrubs. Nests are situated in a variety of trees (Stewart, 1975).

Status: Uncommon breeding species in the project area.

ORDER: Passeriformes

FAMILY: Tyrannidae

Say's Phoebe (*Sayornis saya*) - Say's Phoebe is found over most of western North America. Breeding range covers an area from Mexico to Alaska, and winter range is found in southern California south through Mexico (Robbins, et al., 1966). In North Dakota it is fairly common throughout the Little Missouri Slope and southeastern portion of the Missouri Slope; uncommon elsewhere on the Missouri Slope, Coteau Slope, Missouri Coteau, and Northwestern Drift Plain; and rare on the Northeastern and Southern Drift Plains (Stewart, 1975).

Distribution in the project area: 12 observations were made in the project area in upland grasslands with sagebrush and erosion, upland breaks, shelterbelts, and farmsteads of Billings, Bowman, Dunn, Golden Valley, McKenzie, Morton, Sioux, and Stark Counties (Fig. 150, 151).

Habitat: Common on the plains in the vicinity of ranch buildings, bluffs, and cliffs, seemingly; they prefer dry sunny locations more than other phoebes (Robbins, et al., 1966). In North Dakota, they also inhabit rough, severely eroded badlands and steep dissected slopes of buttes in southwestern North Dakota. Nests are found in rocky crevices and fissures in the badlands, while elsewhere most are placed on ledges inside abandoned buildings (Stewart, 1975).

Status: Uncommon breeding species of the project area.

Figure 148.

WESTERN KINGBIRD

(Tyrannus verticalis)

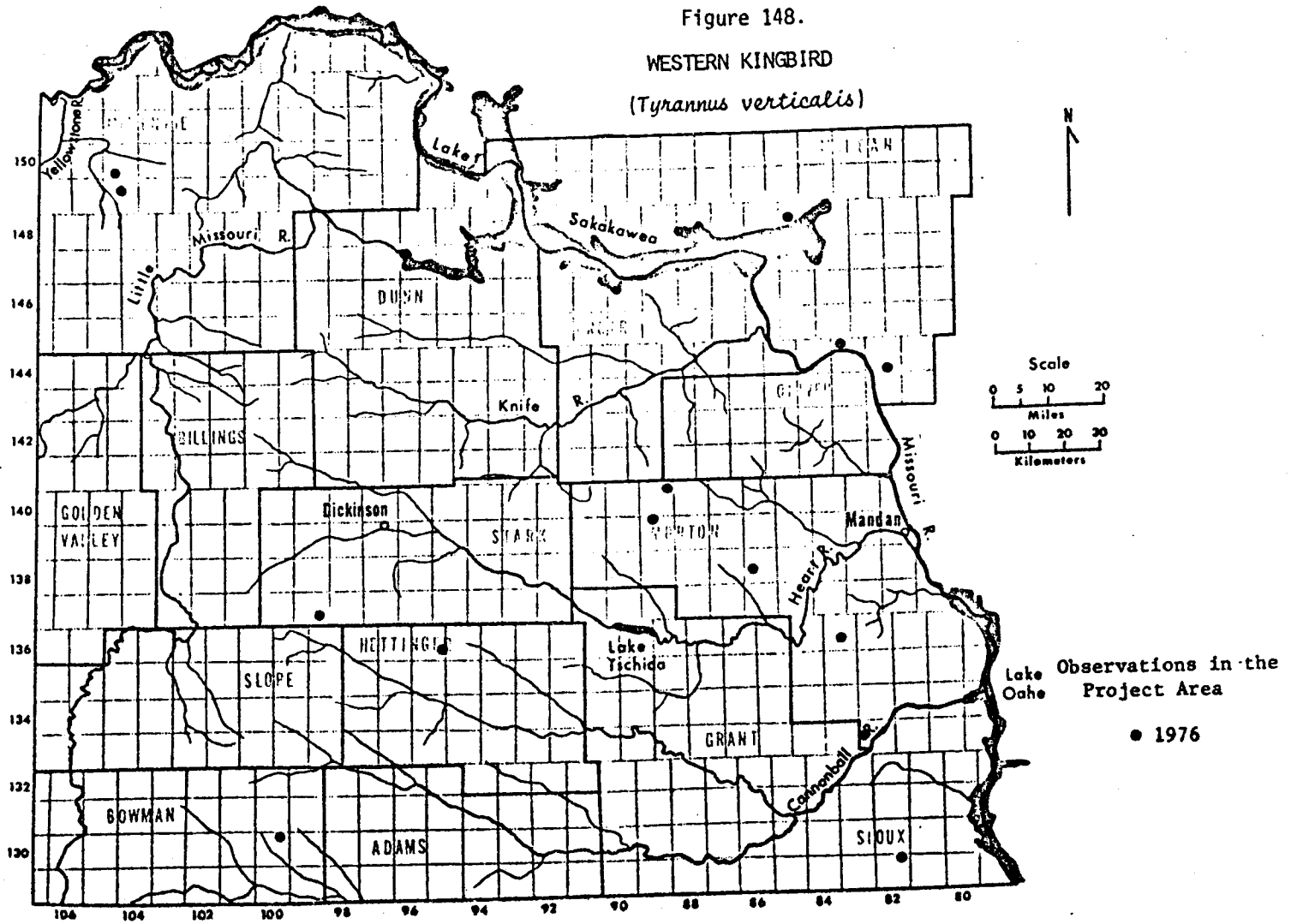


Figure 149.

WESTERN KINGBIRD

(*Tyrannus verticalis*)

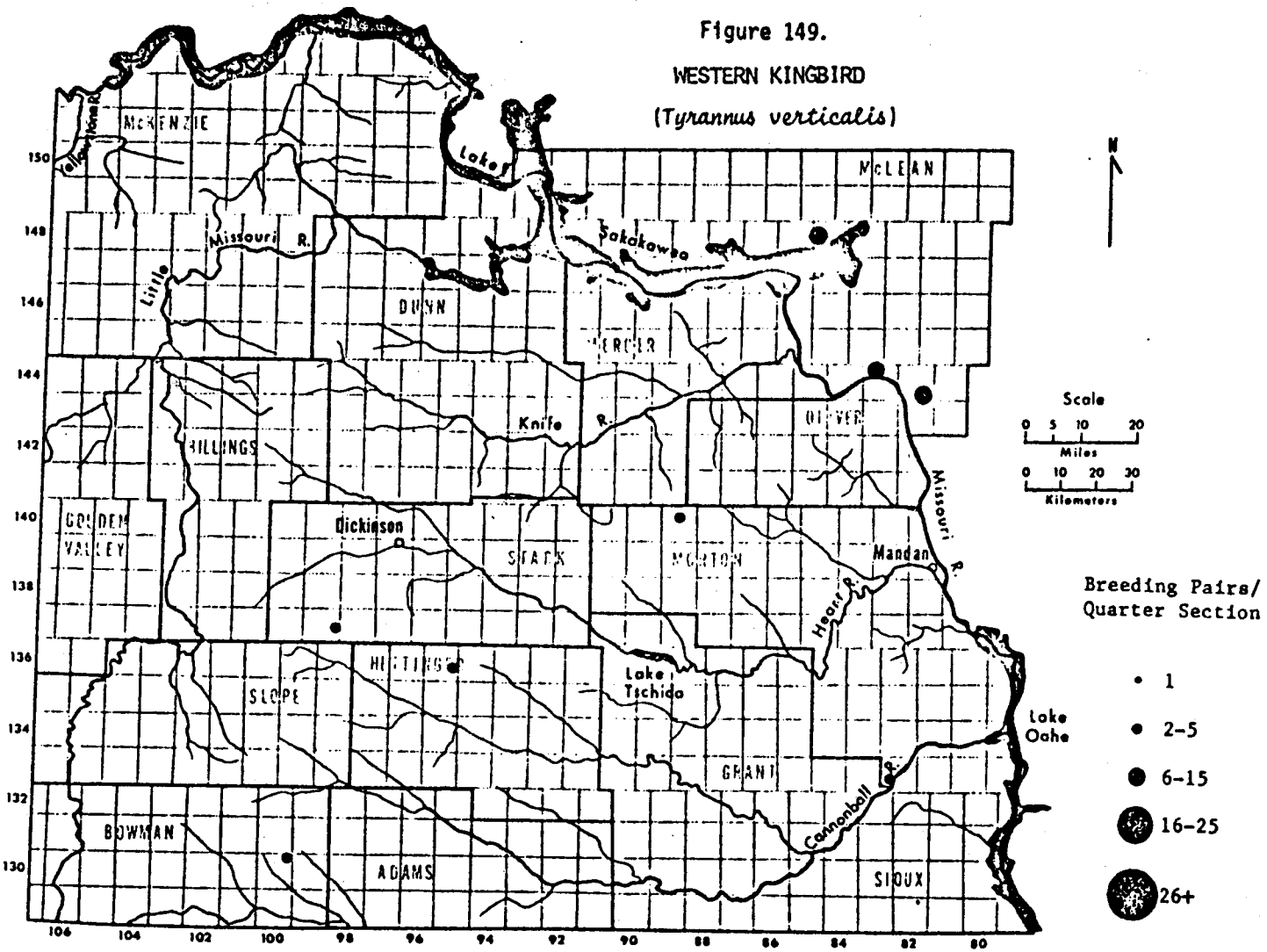
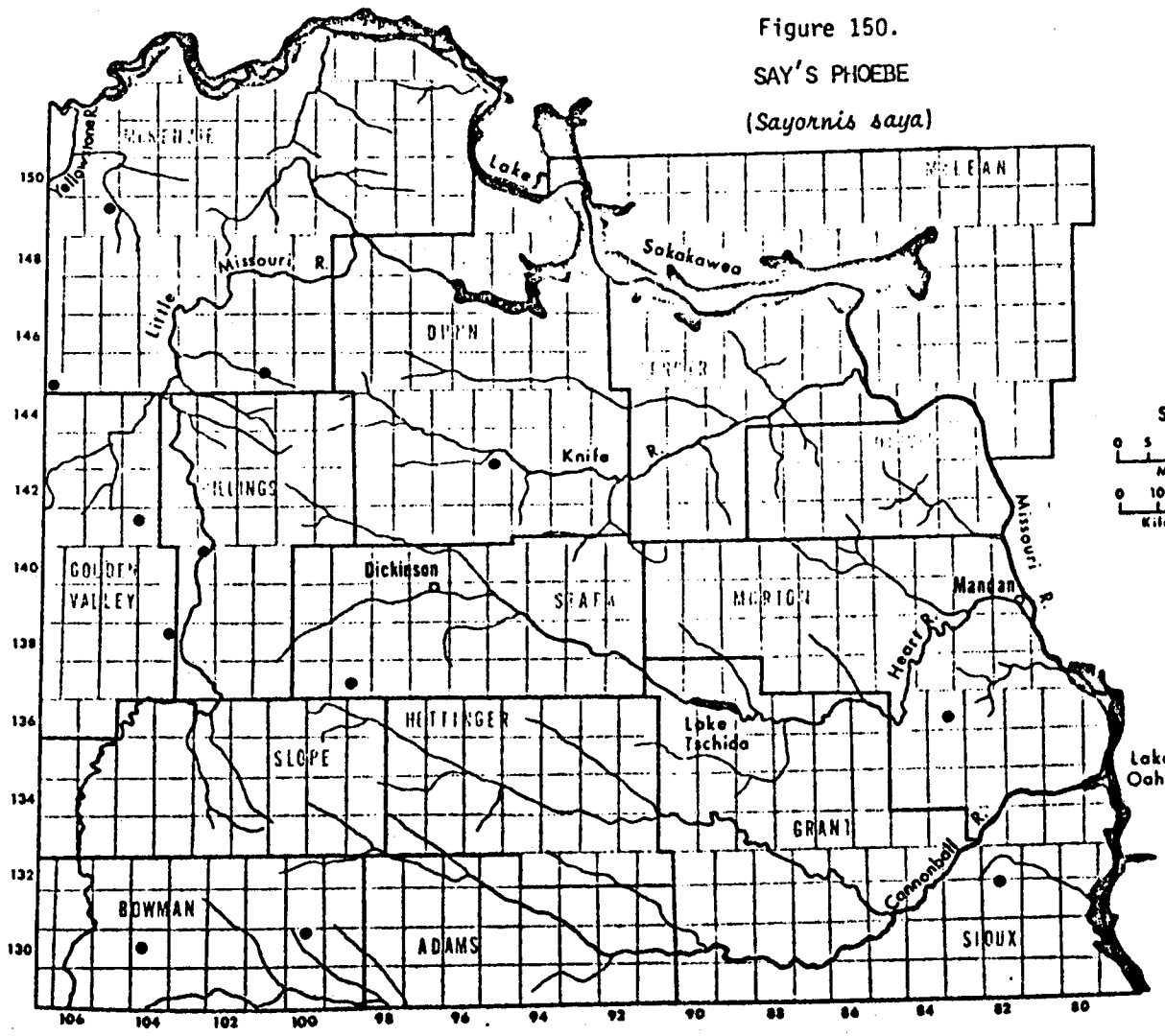


Figure 150.

SAY'S PHOEBE

(Sayornis saya)



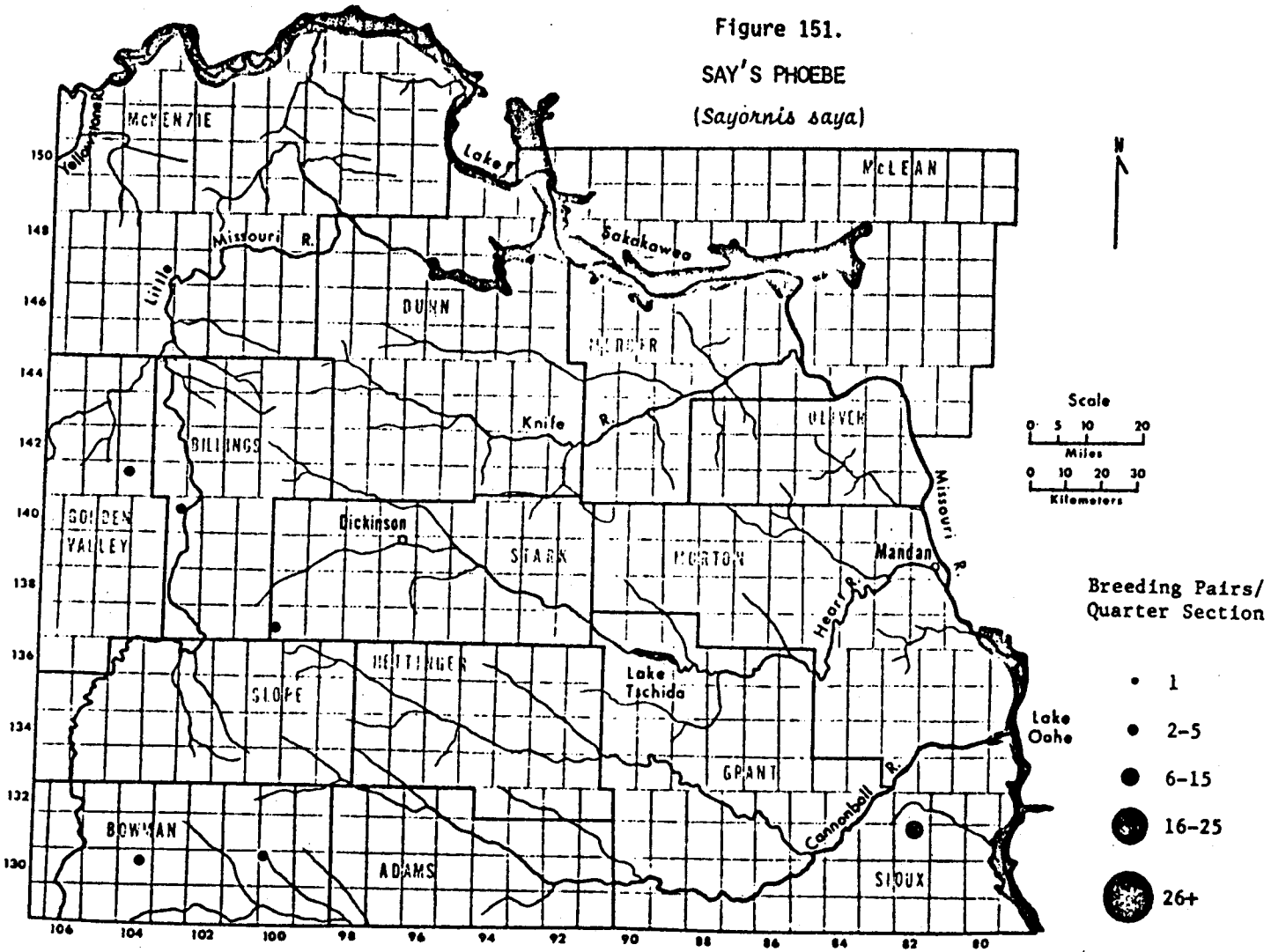
Observations in the Project Area

● 1976

Figure 151.

SAY'S PHOEBE

(Sayornis saya)



ORDER: Passeriformes

FAMILY: Tyrannidae

Eastern Wood Pewee (*Contopus virens*) - These birds are found in the eastern half of the United States, southeastern edge of Canada, and the Gulf coast of Mexico (Robbins, et al.,1966). Stewart (1975) lists the bird to be common in the wooded areas along the Red and James Rivers and their tributaries; uncommon or rare elsewhere in the Agassiz Lake Plain Region, Prairie Pothole Region, and Coteau Slope.

Distribution in the project area: One observation was made in a riparian woodland in Stark County (Fig. 152, 153).

Habitat: Deciduous forests, including floodplain and river bluff forests along major streams, and extensive tracts of upland forest. Also inhabits mature tree claims including groves of cottonwood. Nests are situated in trees high above the ground (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Tyrannidae

Western Wood Pewee (*Contopus sordidulus*) - This bird is found in the western half of the United States, western Canada and Mexico (Robbins, et al., 1966). In North Dakota, this species probably breeds in the wooded bottomland along the Little Missouri River and in the wooded residential area of Marmarth, North Dakota (Stewart, 1975).

Distribution in the project area: One observation was made in riparian woodland in Slope County (Fig. 154).

Habitat: Found in deciduous and coniferous woods and in tall trees along streams (Robbins, et al., 1966). In North Dakota, in the summer they are restricted to stands of cottonwood with a partially open canopy occurring on the floodplain of the Little Missouri River (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Tyrannidae

Least Flycatcher (*Empidonax minimus*) - This species is found in the United States east of the Rockies, south-central Canada east of the Rockies, and in southern Mexico. Breeding range covers the northern United States and south-central Canada (Robbins, et al., 1966). In North Dakota, it is common in the wooded areas of the Agassiz Lake Plain Region and in the Turtle Mountains; fairly common elsewhere in the Agassiz Region; and uncommon and local elsewhere in the Prairie Pothole and Southwestern Slope Regions (Stewart, 1975).

Distribution in the project area: 12 observations were made in riparian woodland, hardwood draws with trees and brush, spoil piles, and shelterbelts over most of the project area (Fig. 155, 156).

Habitat: Scrub growth, wood margins, and various types of deciduous forest, including floodplains, forests along major streams and upland forests (Robbins, et al., 1966).

Status: Uncommon breeding species of the project area.

ORDER: Passeriformes

FAMILY: Tyrannidae

Traill's Flycatcher (*Empidonax traillii*) - The breeding range of the Traill's Flycatcher covers all but the southern portion of the North American continent (Robbins, et al., 1966). Stewart (1975) lists it as common in the Turtle Mountains and Pembina Hills; locally common in the Agassiz Lake Plain Region, Northeastern Drift Plain, and Coteau Slope; fairly common on the Southern and Northwestern Drift Plains, and Missouri Coteau; and uncommon on the Missouri Slope and Little Missouri Slope.

Distribution in the project area: Eight observations were made in the project area in riparian woodland, hardwood draws, spoil piles, and shelterbelts of Bowman, Golden Valley, McLean, Mercer, and Stark Counties (Fig. 157, 158).

Habitat: In thickets or open groves of small trees and tall shrubs; natural habitats occur as scattered patches on the prairie, lowland swales, or margins of woodlands. Other habitats are man-made such as shelterbelts and wind breaks (Stewart, 1975).

Status: Uncommon breeding species in the project area.

ORDER: Passeriformes

FAMILY: Alaudidae (Larks) - This family contains about 75 living species in Eurasia, Africa, Australia, North America to southern Mexico, and northwest South America. They are found on open grassy plains, moors, fields, beaches, and are usually gregarious (Austin, 1971).

Horned Lark (*Eremophila alpestris*) - Horned Larks are found over most of the North American continent (Robbins, et al., 1966). In North Dakota, it is abundant on the Missouri Slope, common throughout the Prairie Pothole Region, Coteau Slope and Little Missouri Slope, and fairly common in the Agassiz Lake Plain Region and Turtle Mountains (Stewart, 1975).

Distribution in the project area: A total of 39 observations were made on upland grasslands, rolling grasslands, and agriculturally disturbed areas of every county in the project area (Fig. 159, 160).

Habitat: Found on short-grass prairie, mixed-grass prairie that has been grazed intensively or mowed, and on domestic haylands and croplands. Nests usually are nestled within small, well-concealed depressions in grassy areas (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Hirundinidae (Swallows) - This family contains 79 living species found worldwide, except in polar regions, New Zealand, and some oceanic islands. They are migratory and gregarious (Austin, 1971).

Purple Martin (*Progne subis*) - The Purple Martin is found over most of the United States, south-central Canada, and Mexico, except the Rocky Mountain regions. Breeding range covers this entire area except the Mexican coasts (Robbins, et al., 1966). Stewart (1975) lists this species as common over the eastern portion of the state, and rare and local over the western portion.

Distribution in the project area: One observation was made in McKenzie County (Fig. 161).

Habitat: Major preference in recent times is for bird houses constructed for their use (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Hirundinidae

Cliff Swallow (*Petrochelidon pyrrhonota*) - This bird is found over most of the North American continent (Robbins, et al., 1966). In North Dakota, it is locally common throughout the Southwestern Slope Region and on the Northwestern and Southern Drift Plains, and fairly common locally on the Missouri Coteau, Northeastern Drift Plain, Agassiz Lake Plain Region, and Turtle Mountains (Stewart, 1975).

Distribution in the project area: Eight observations were made in river bottoms, hardwood draws with trees and brush, upland grassland, and natural wetlands in Grant, McKenzie, McLean, Mercer, and Sioux Counties (Fig. 162, 163).

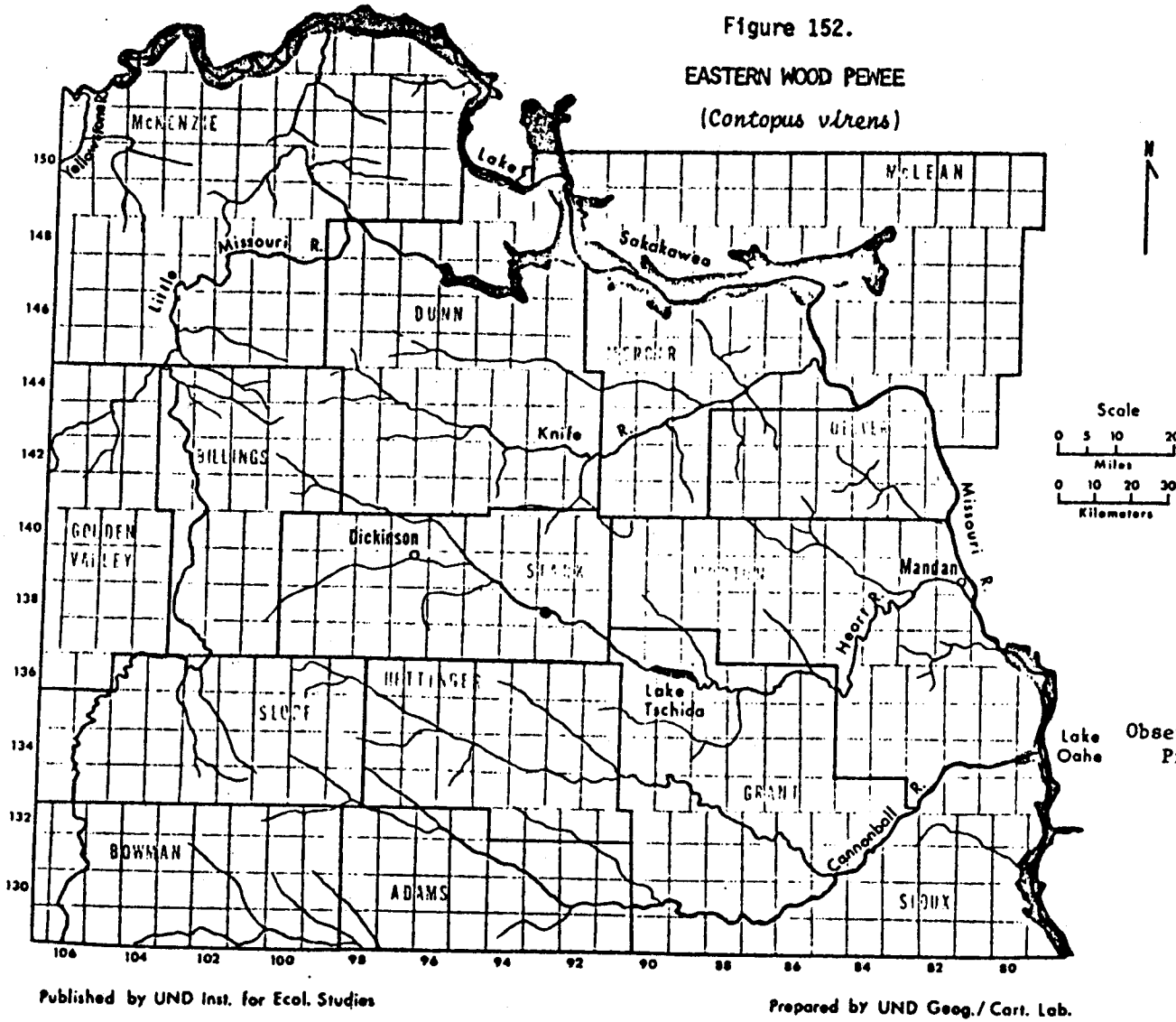
Habitat: In North Dakota, it is found along streams in the vicinity of bridges or large culverts, highway overpasses, near faces of cliffs and steep escarpments of buttes, or steep, eroded slopes of the Badlands (Stewart, 1975).

Status: Uncommon breeding species of the project area.

Figure 152.

EASTERN WOOD PEWEE

(*Contopus virens*)



Observations in the Project Area

● 1976

Published by UND Inst. for Ecol. Studies

Prepared by UND Geog./Cart. Lab.

Figure 153.

EASTERN WOOD PEWEE

(Contopus virens)

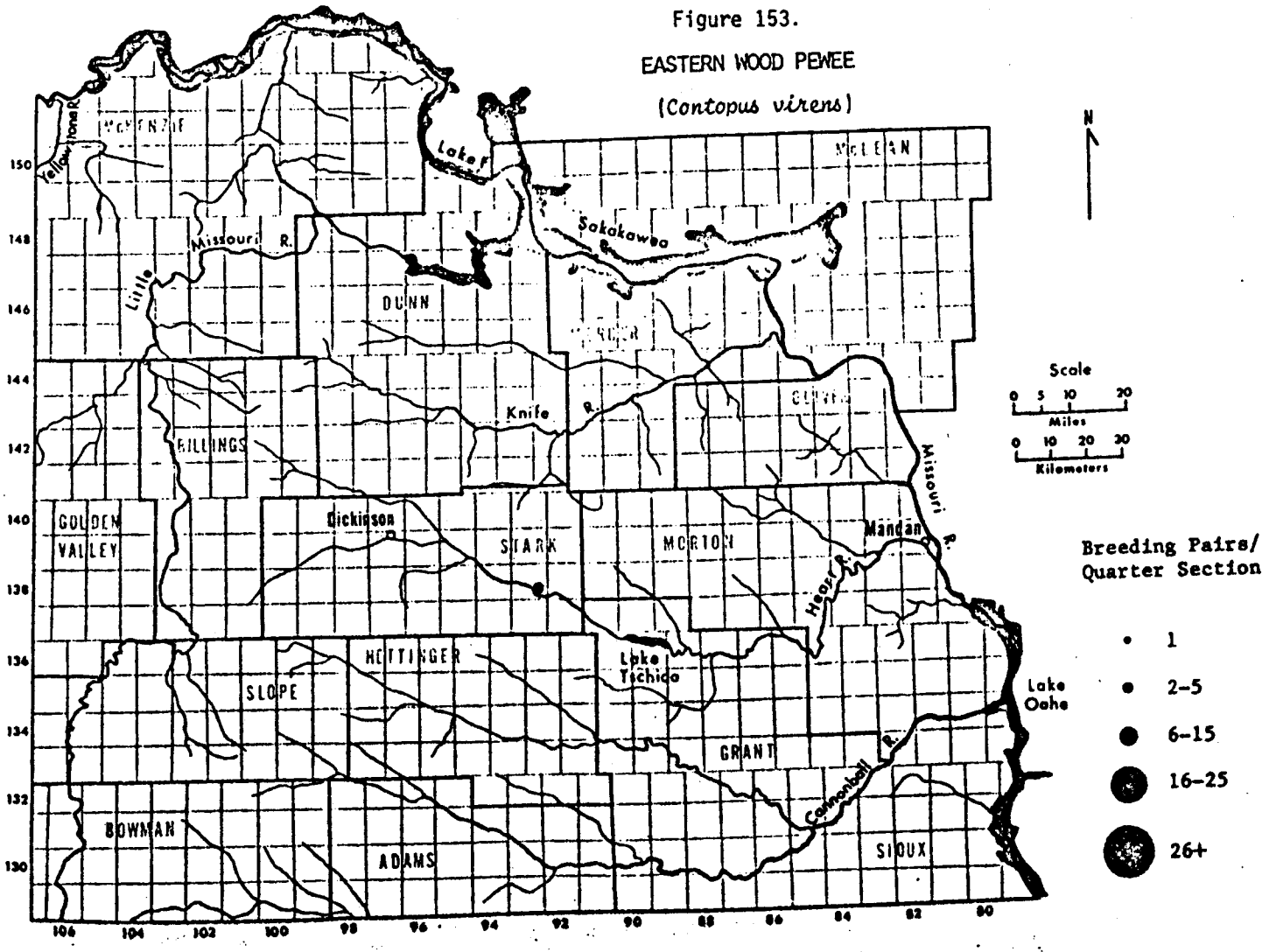
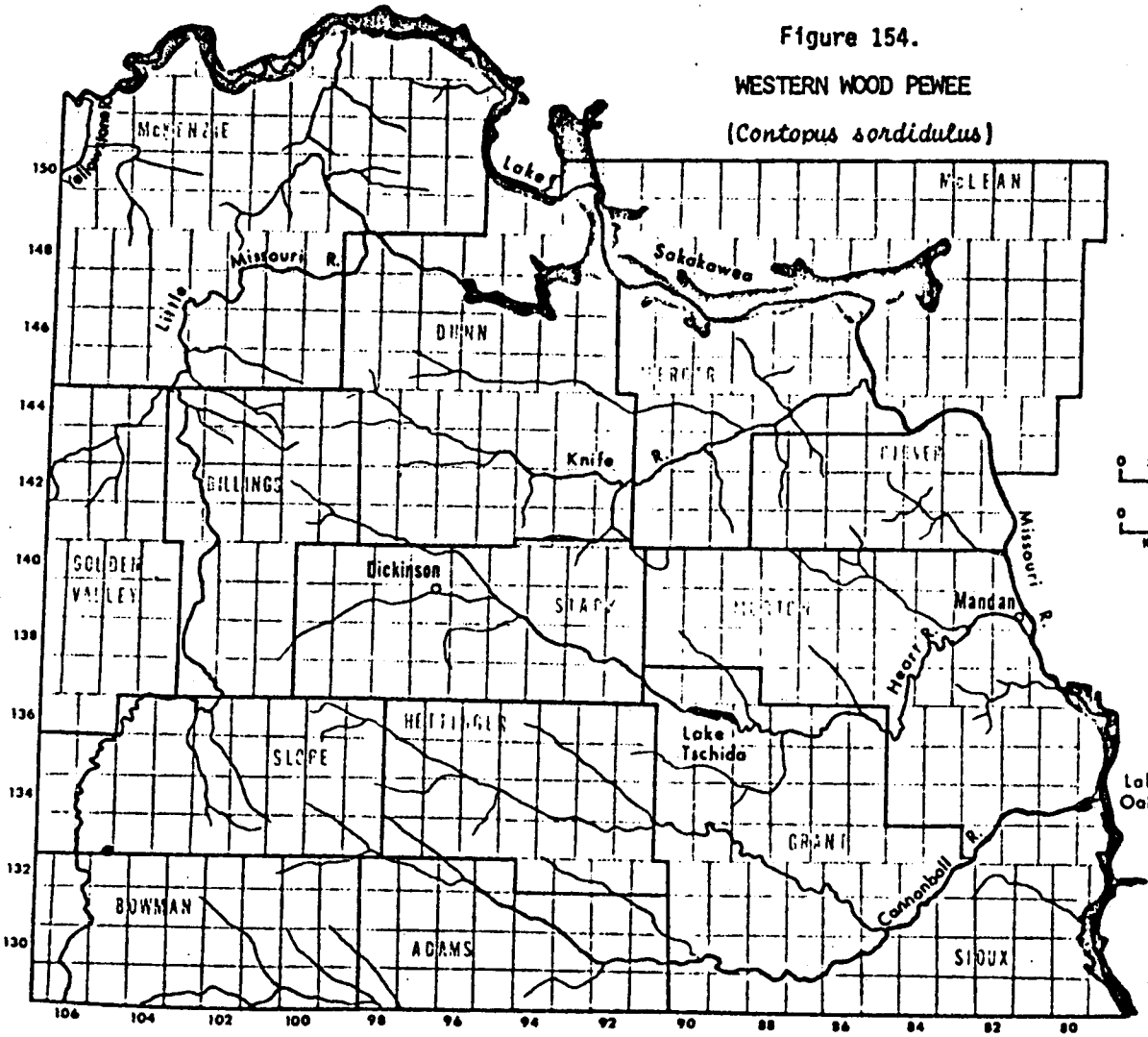


Figure 154.

WESTERN WOOD PEWEE

(*Contopus sordidulus*)



Observations in the Project Area

● 1976

Figure 155.

LEAST FLYCATCHER

(*Empidonax minimus*)

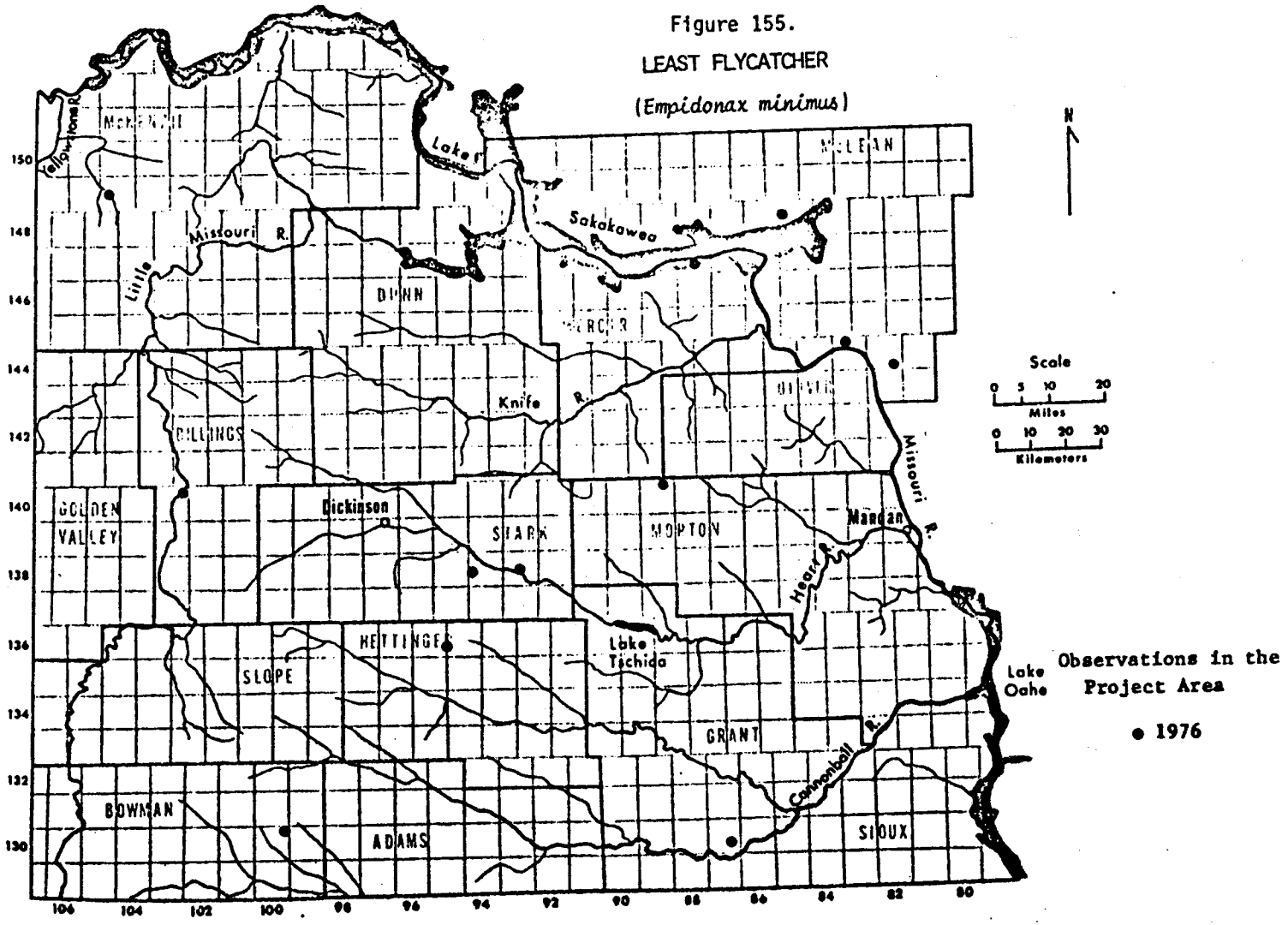


Figure 156.

LEAST FLYCATCHER

(*Empidonax minimus*)

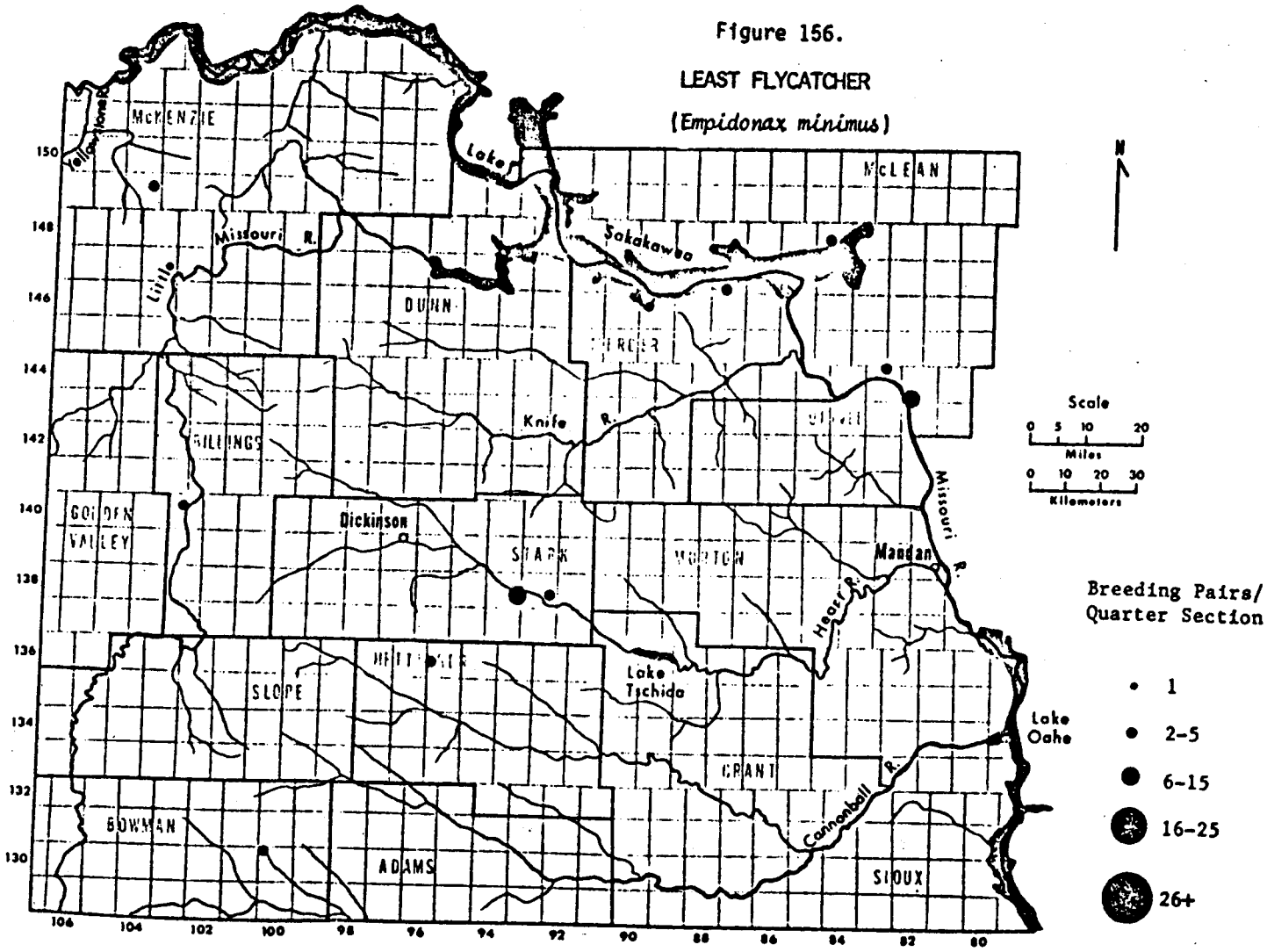


Figure 157.

TRAILL'S FLYCATCHER

(*Empidonax traillii*)

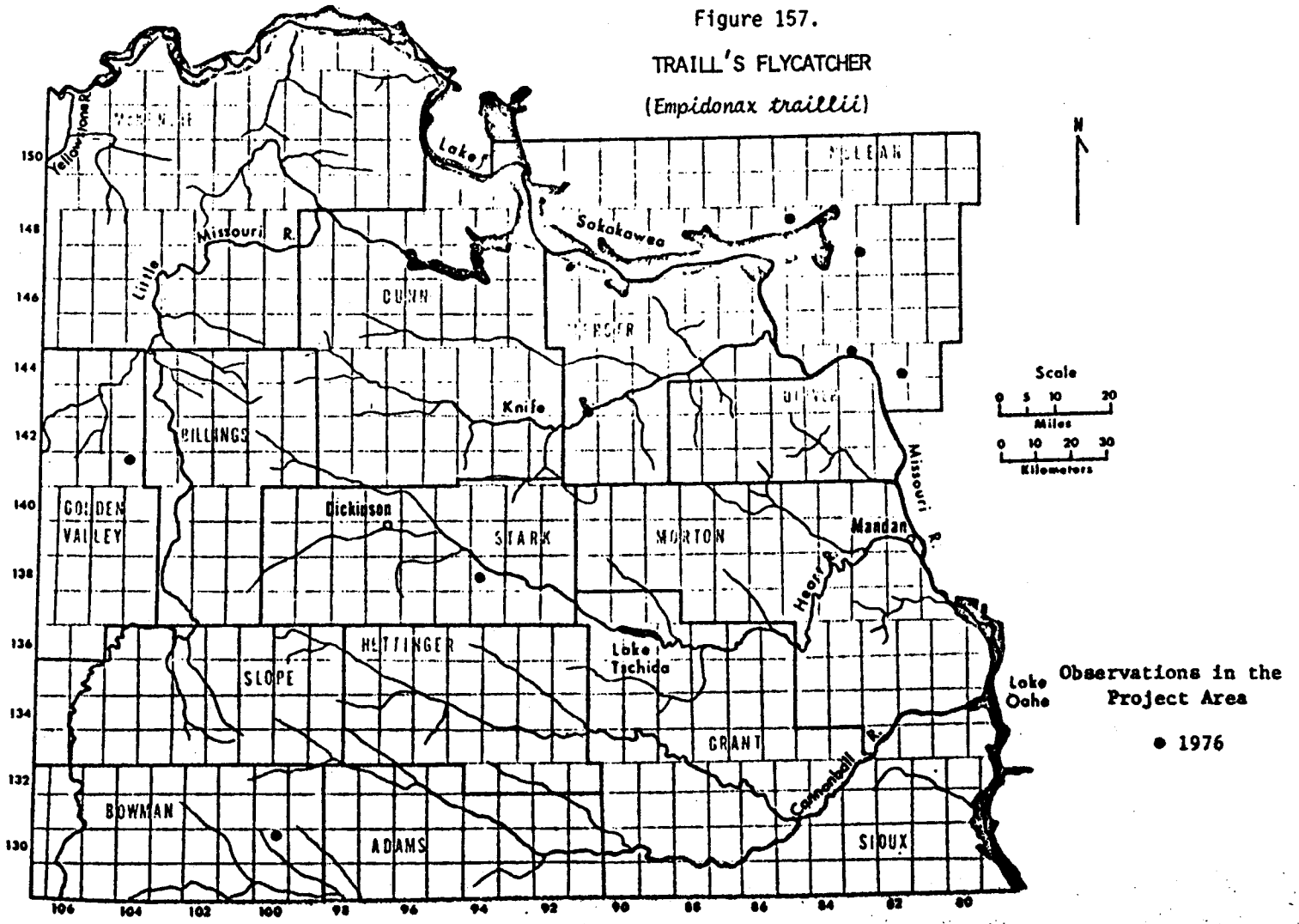


Figure 158.

TRAILL'S FLYCATCHER

(*Empidonax traillii*)

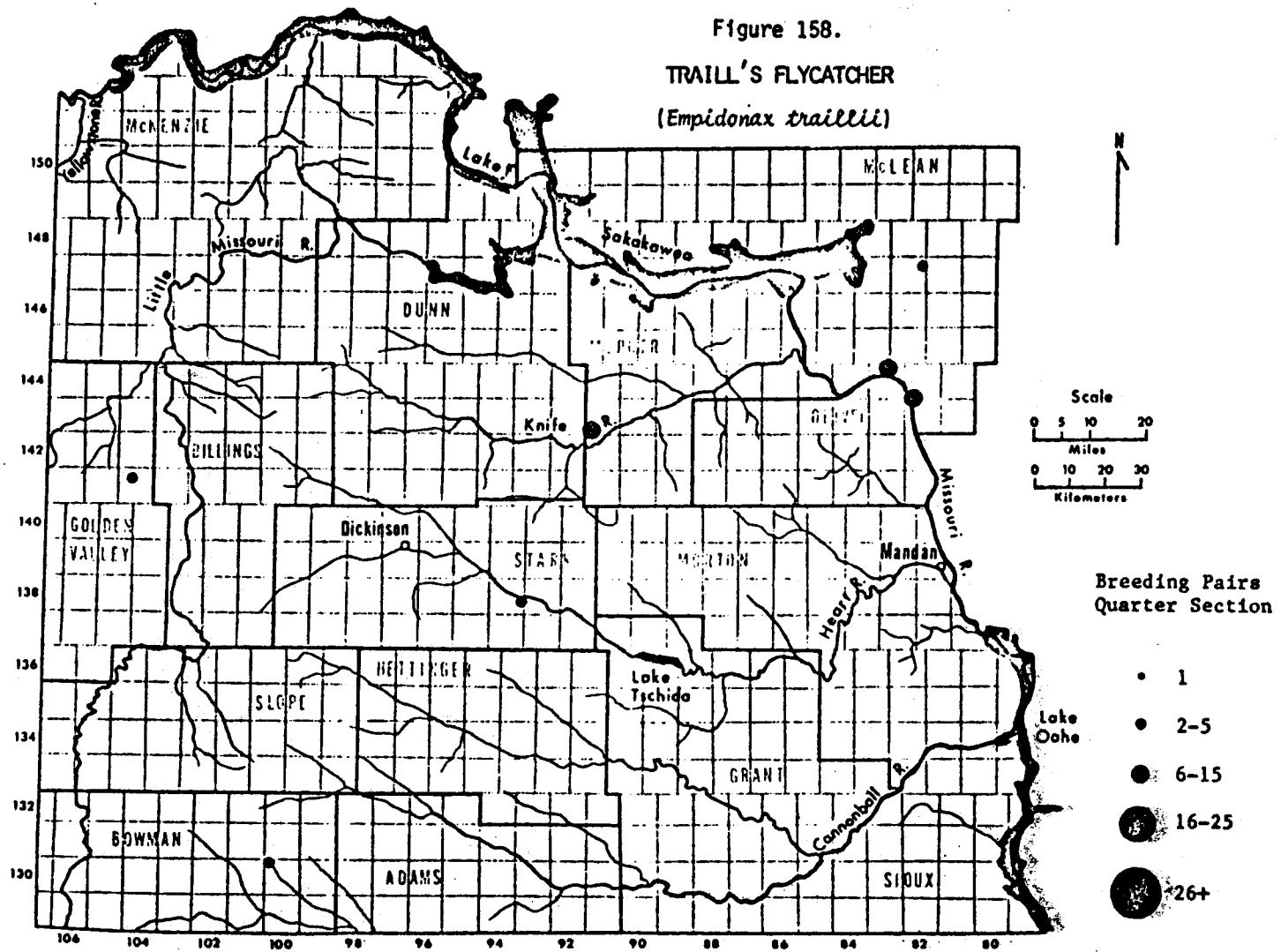
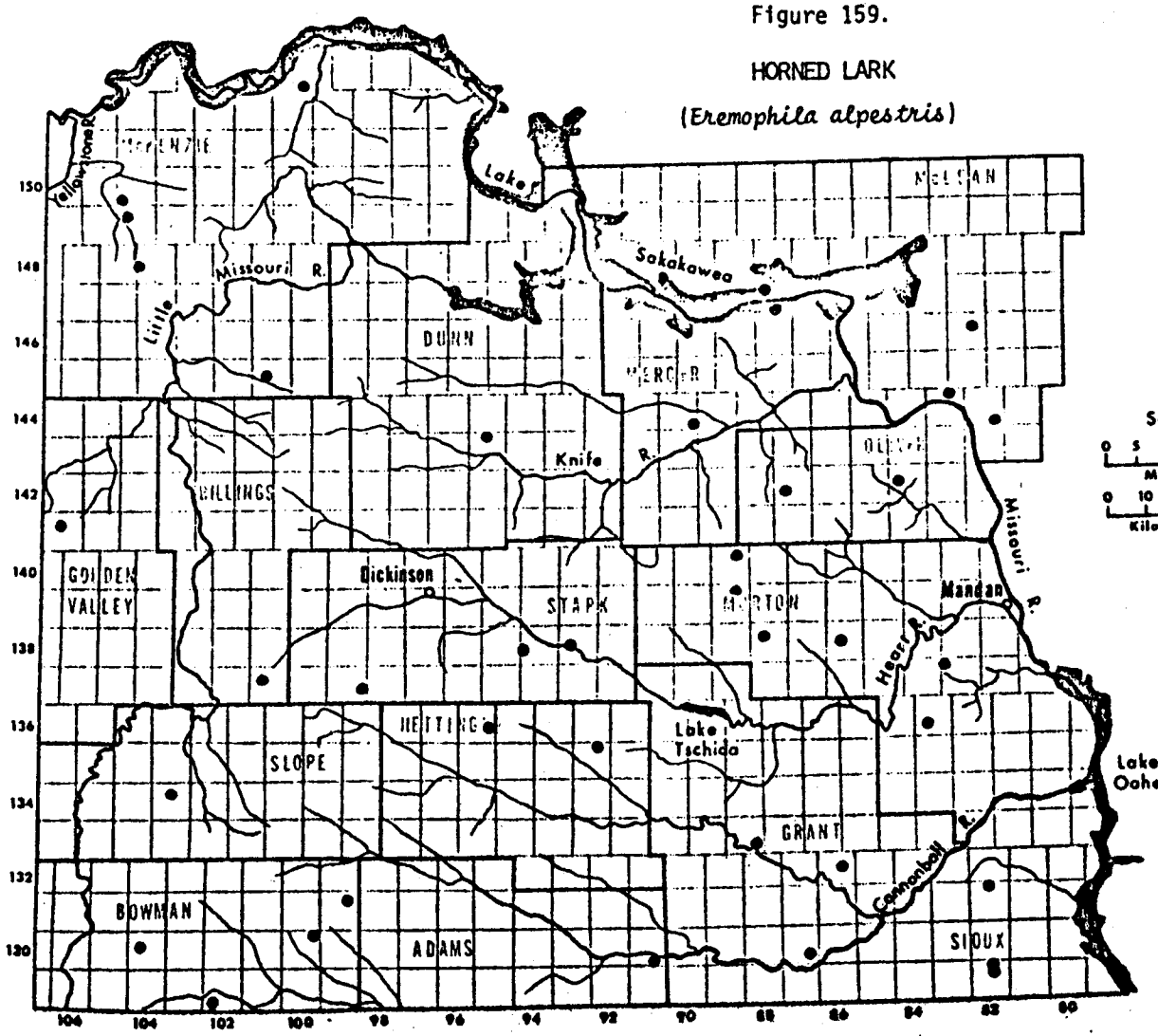


Figure 159.

HORNED LARK

(Eremophila alpestris)



Observations in the Project Area

● 1976

Figure 160.

HORNED LARK

(Eremophila alpestris)

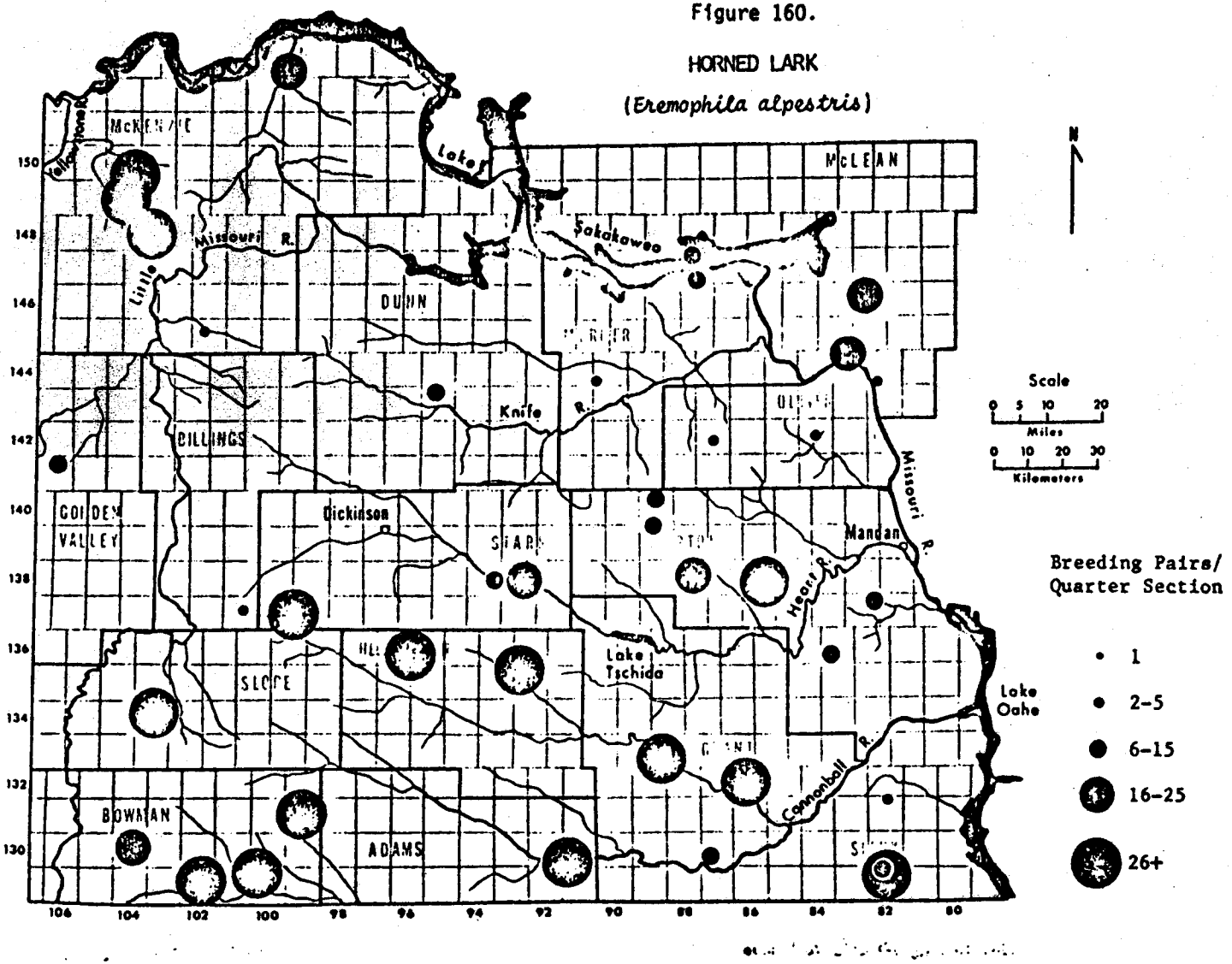
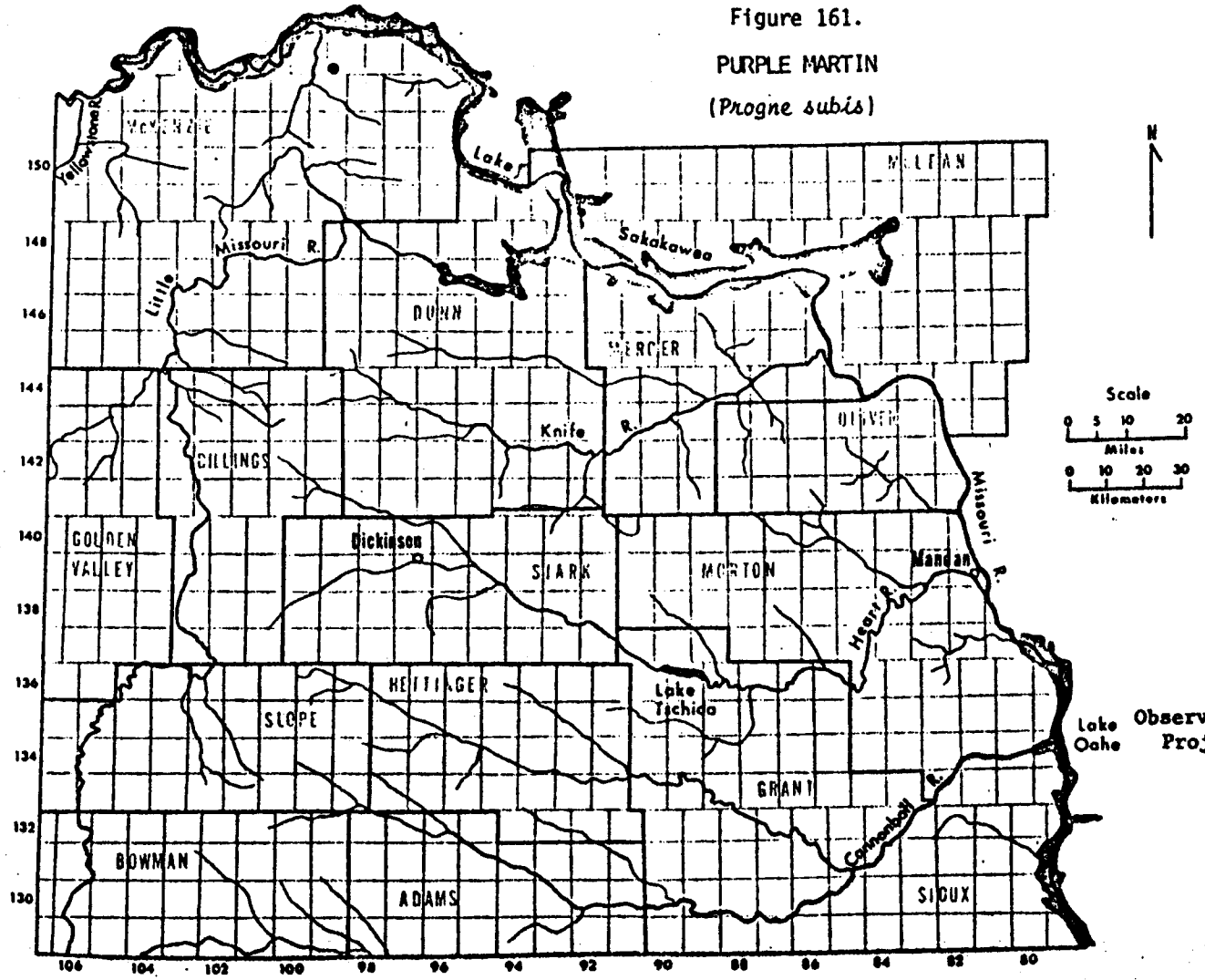


Figure 161.

PURPLE MARTIN

(Progne subis)



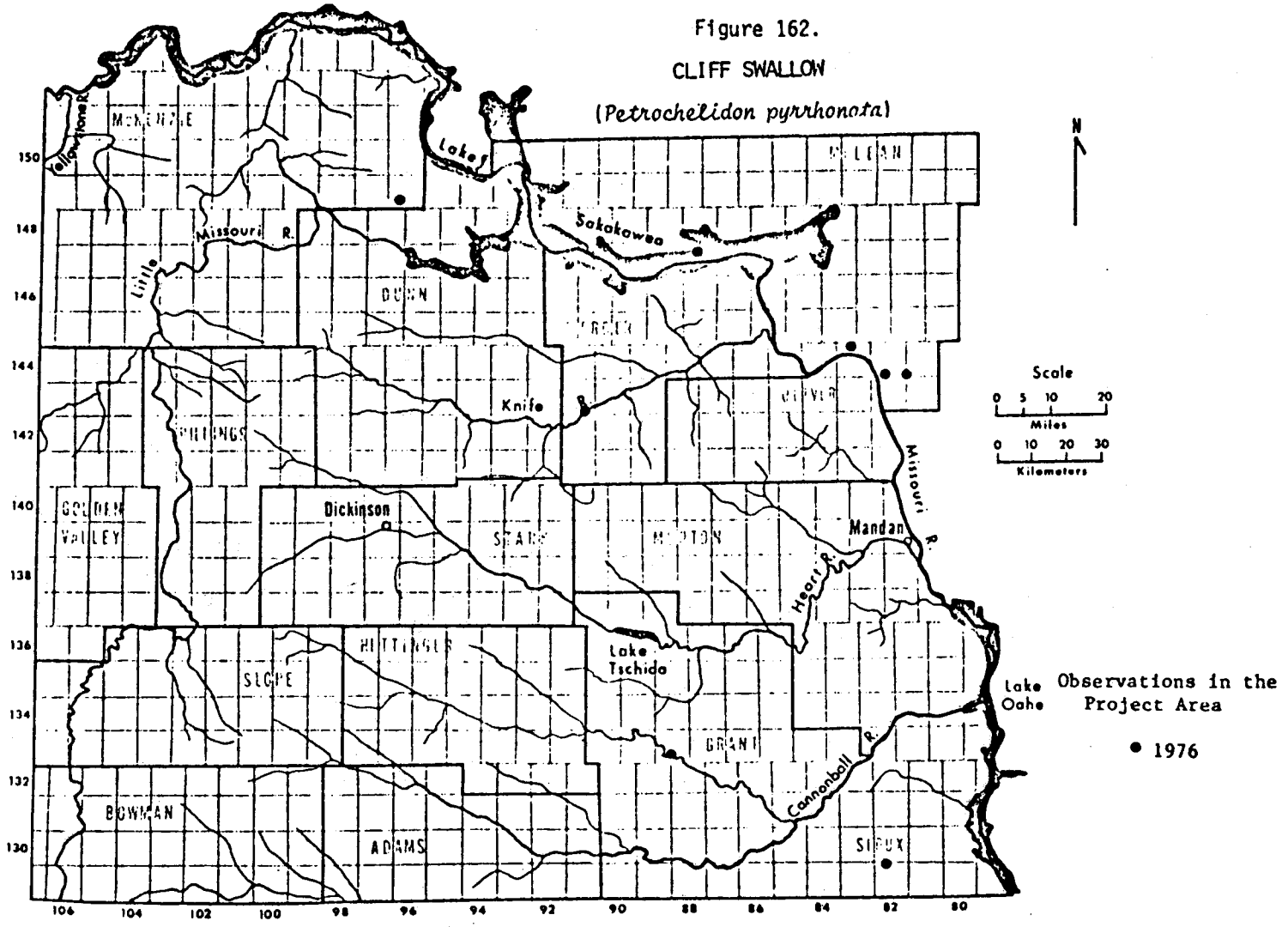
Observations in the Project Area

● 1976

Figure 162.

CLIFF SWALLOW

(*Petrochelidon pyrrhonota*)



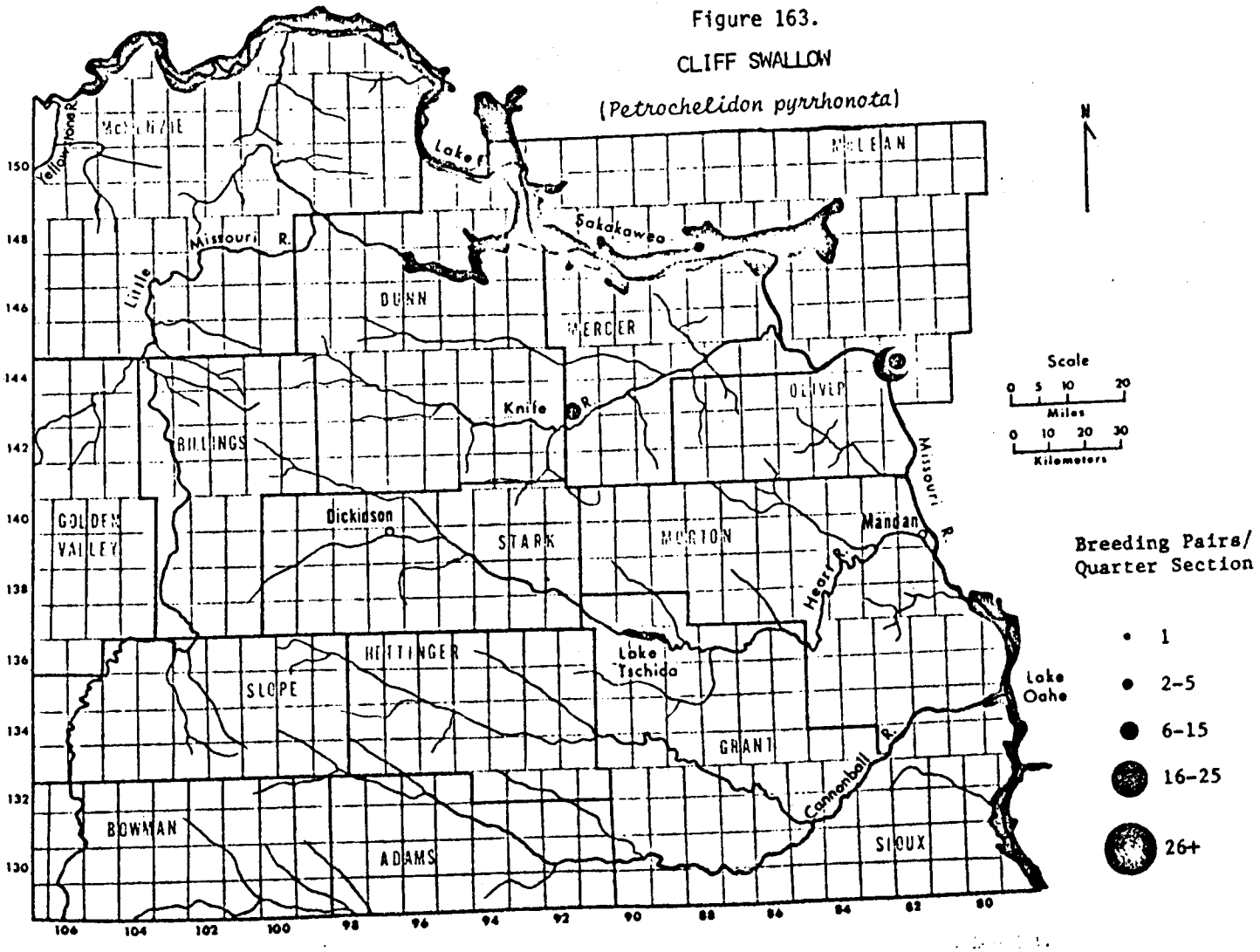
Observations in the Project Area

• 1976

Figure 163.

CLIFF SWALLOW

(Petrochelidon pyrrhonota)



ORDER: Passeriformes

FAMILY: Hirundinidae

Barn Swallow (*Hirundo rustica*) - Barn Swallows are found over all but the northern border of the North American continent. The breeding range covers this entire area except along the Gulf coast (Robbins, et al., 1966). Stewart (1975) lists it as fairly common throughout the state of North Dakota.

Distribution in the project area: 31 observations were made in rolling grasslands and farmsteads of all the counties in the project area except Adams, Dunn, Billings, and Mercer (Fig. 164, 165).

Habitat: Found in the vicinity of barns, sheds, abandoned farm dwellings, bridges, highway overpasses, and large culverts. Nests usually are on supporting rafters inside of buildings or on girders and other supporting structures of bridges (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Hirundinidae

Bank Swallow (*Riparia riparia*) - These birds are found over most of the North American continent. Breeding range excludes the southwestern and southeastern United States and most of Mexico (Robbins, et al., 1966). Stewart (1975) lists the bird as common or fairly common in most of North Dakota, but uncommon on the Little Missouri Slope.

Distribution in the project area: 16 observations were made in river bottoms, moderately grazed rolling grassland, a reservoir, and natural wetlands in Bowman, Hettinger, McKenzie, McLean, Mercer, Morton, Slope, and Stark Counties (Fig. 166, 167).

Habitat: Nest in vertical banks along streams, ponds, lakes, sides of road cuts, gravel pits, and building construction ground pits, and ranges over adjoining open-country habitats (Stewart, 1975).

Status: Fairly common breeding species of the project area.

ORDER: Passeriformes

FAMILY: Hirundinidae

Rough-winged Swallow (*Stelgidopteryx ruficollis*) - This bird is found over the United States, Mexico, and southern Canada. The breeding range covers the entire United States and southern Canada, while the birds are present yearlong in Mexico (Robbins, et al., 1966). It is fairly common along the eastern rivers of North Dakota; uncommon in the Turtle Mountains and Badlands; and uncommon and local on the Northeastern and Southern Drift Plains (Stewart, 1975).

Distribution in the project area: Three observations were made in Golden Valley County (Fig. 168).

Habitat: Found in the vicinity of vertical banks along wood-bordered permanent streams or at margins of large wood-bordered permanent ponds and lakes. Also occurs near steep escarpments of eroded badlands. Nesting burrows are constructed in vertical banks along streams, ponds, and lakes and in steep, eroded bluffs of badlands (Stewart, 1975).

Status: Rare and local breeding species in the project area; possibly locally common in the Badlands.

ORDER: Passeriformes

FAMILY: Corvidae (Crows and Jays) - The crow family contains about 102 living species which are almost cosmopolitan. They are found in varied habitats, but most prefer woodlands and open brushlands (Austin, 1971).

Black-billed Magpie (*Pica pica*) - This bird is found from the Midwestern United States to the Pacific Northwest and north along the Canadian west coast and southern coast of Alaska. The bird winters in the easternmost portion of this area in the United States, and is present year round in the remaining area (Robbins, et al., 1966). It is common or fairly common in most of North Dakota, except the eastern and southeastern portions where it is rare and local (Stewart, 1975).

Distribution in the project area: 12 observations were made in hardwood draws with trees and brush, upland grassland, juniper draws, and ponderosa pines of Billings, Dunn, Golden Valley, McKenzie, McLean, Slope, and Stark Counties (Fig. 169, 170).

Habitat: Found in the forest edge or thickets of small trees and tall shrubs. It ranges out over adjacent areas of brushland, grassland, and cropland. Nests are in heavy brush or small trees (Stewart, 1975).

Status: Uncommon breeding species in the project area; probably locally common in the Badlands.

ORDER: Passeriformes

FAMILY: Corvidae

Blue Jay (*Cyanocitta cristata*) - Blue Jays are found in the eastern half of the United States and southern Canada. They breed in northern New England and winter in eastern Texas and Oklahoma and are present year round in the remaining area (Robbins, et al., 1966). Stewart (1975) lists them as fairly common in the eastern half of the state, Turtle Mountains, and along the lower Missouri River, and uncommon and local elsewhere.

Distribution in the project area: Six observations were made in hardwood draws with trees and brush, riparian woodland, ponderosa pines, and shelterbelts of McKenzie, McLean, Mercer, Slope, and Stark Counties (Fig. 171, 172).

Habitat: Found in semiopen deciduous woodland including floodplain forest, wooded lake shores, and upland woods. Nests are located in trees several feet above the ground (Stewart, 1975).

Status: Uncommon breeding species in the project area.

ORDER: Passeriformes

FAMILY: Corvidae

Common Crow (*Corvus brachyrhynchos*) - Common Crows are found over all but the northern portion of North America (Robbins, et al., 1966). The bird is common throughout most of North Dakota, except the southwestern portion where it is uncommon and local (Stewart, 1975).

Distribution in the project area: Seven observations were made in hardwood draws with trees and brush, moderately grazed rolling grassland, juniper draws, and ponderosa pines of Billings, Dunn, Golden Valley, Mercer, and Slope Counties (Fig. 173, 174).

Habitat: Found in woodland habitat of various kinds as well as large adjoining areas of open country. Nests are situated in large trees several feet above the ground (Stewart, 1975).

Status: Uncommon breeding species in the project area.

ORDER: Passeriformes

FAMILY: Paridae (Titmice) - This family contains about 64 living species from North America south to Guatemala, Eurasia, and Africa. They live in forests and brushland, and most are gregarious (Austin, 1971).

Black-capped Chickadee (*Parus atricapillus*) - This species is found over the northern United States, through central and western Canada, and north to west-central Alaska. Wintering grounds are in the extreme southern portion of this area in the United States, while the species is present year round in the remaining area (Robbins, et al., 1966). It is fairly common in the eastern two-thirds of North Dakota and uncommon or rare in the western one-third (Stewart, 1975).

Distribution in the project area: 18 observations were made in riparian woodlands, hardwood draws, upland grasslands, juniper draws, ponderosa pines, and shelterbelts scattered over the project area (Fig. 175, 176).

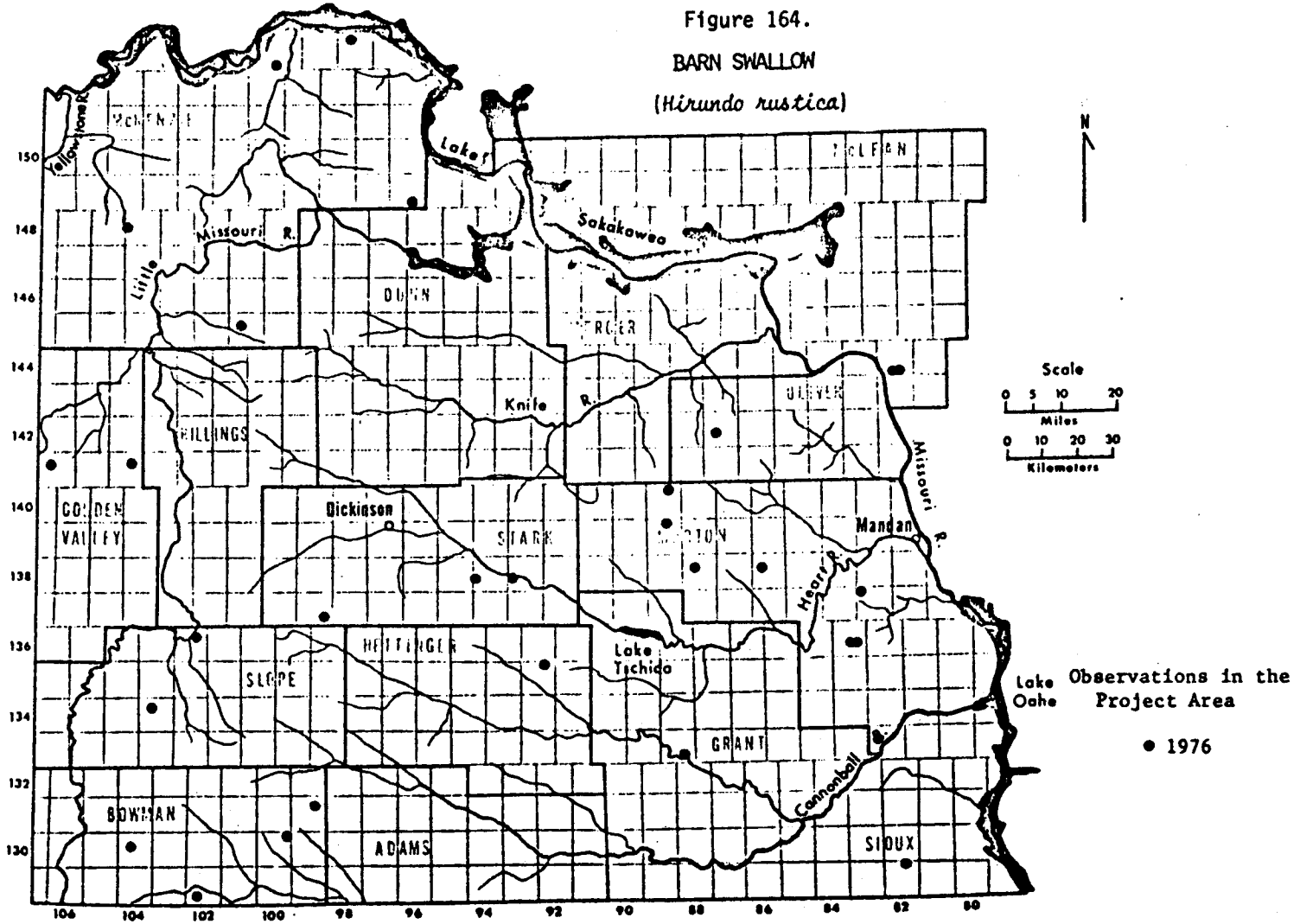
Habitat: Prefers natural deciduous woodland, including lowland floodplain forests, woodland around permanent lakes, and upland forests (Stewart, 1975).

Status: Fairly common breeding species in the project area.

Figure 164.

BARN SWALLOW

(*Hirundo rustica*)



● Observations in the Project Area

● 1976

Figure 165.

BARN SWALLOW

(Hirundo rustica)

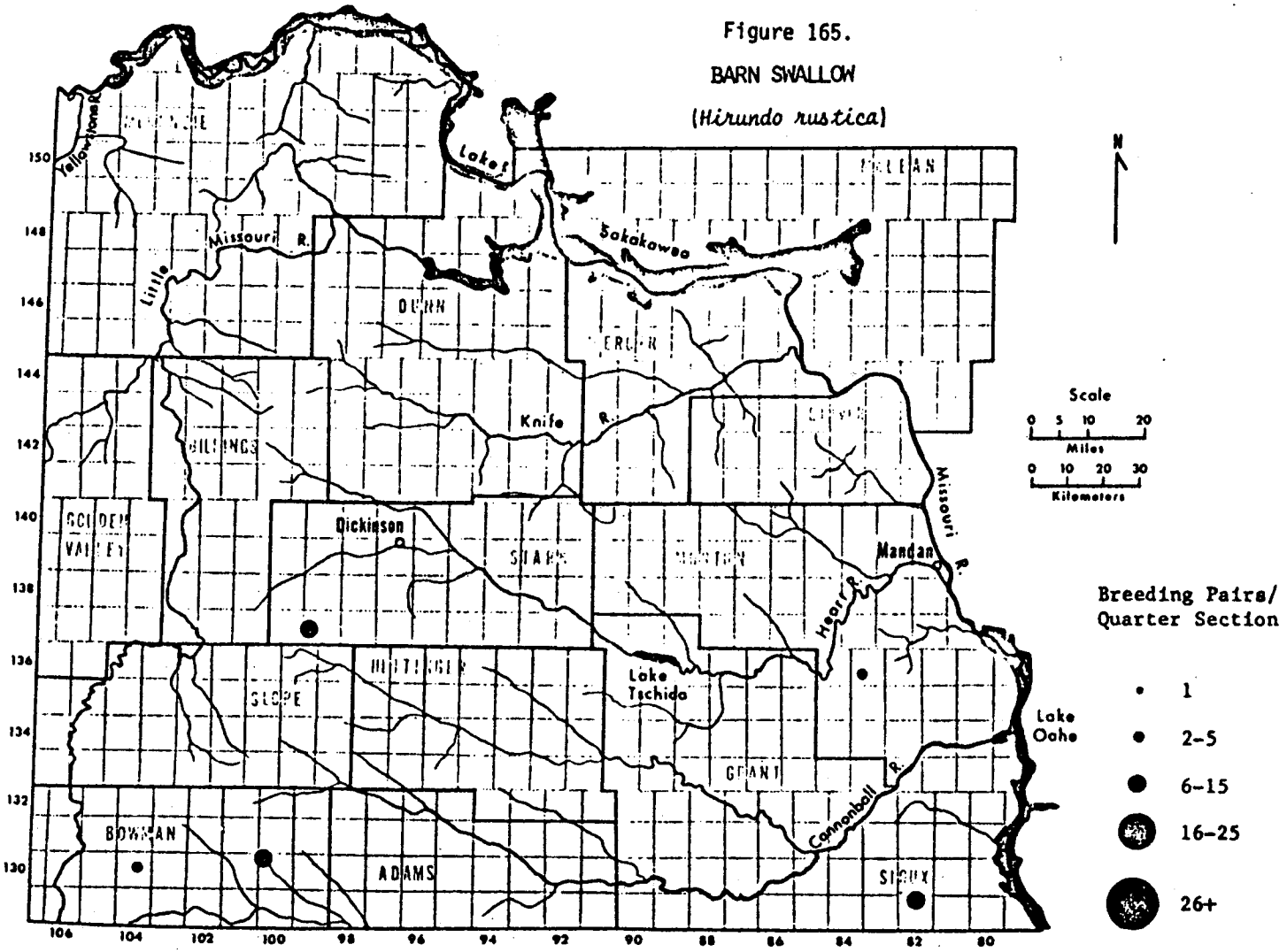
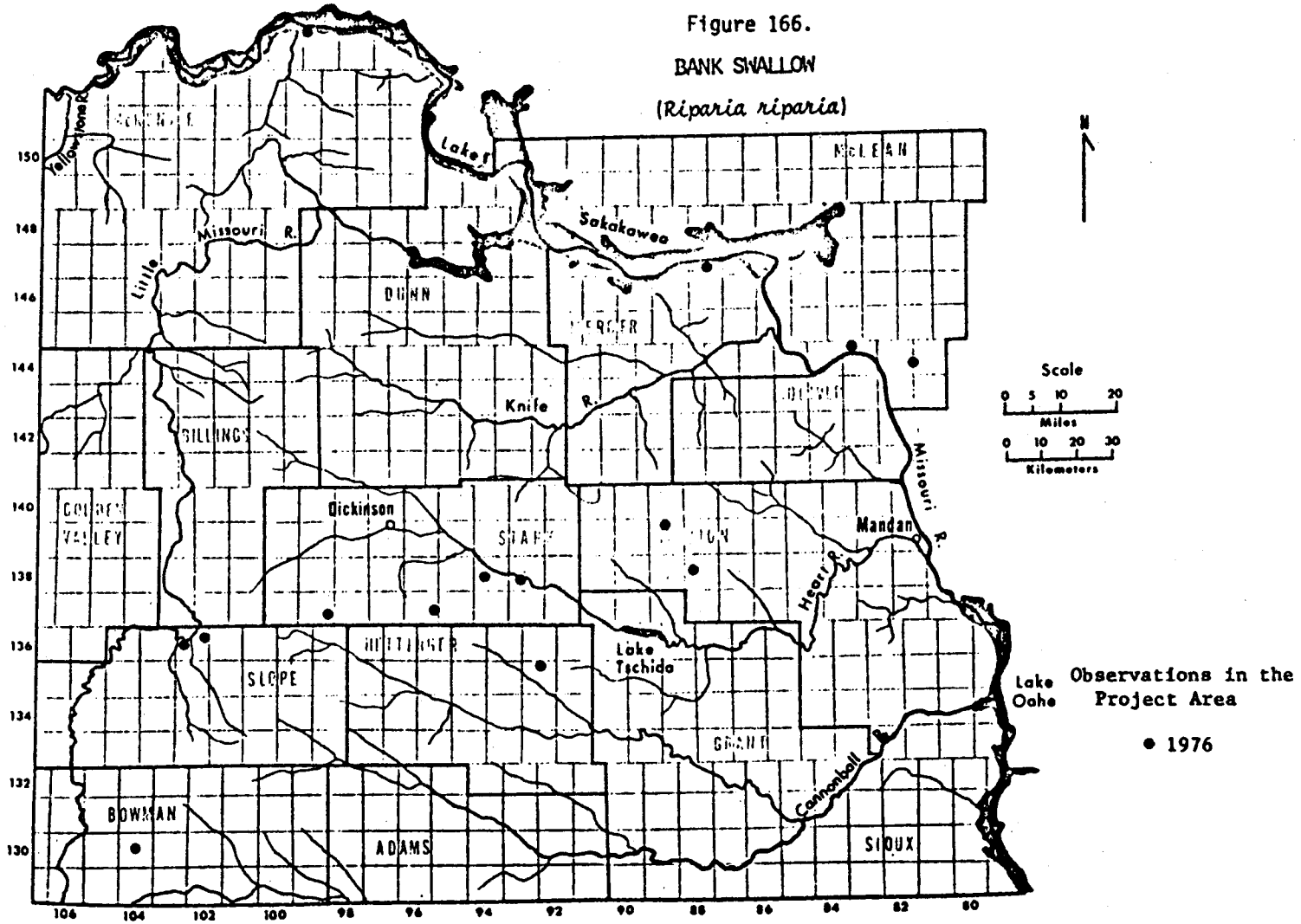


Figure 166.

BANK SWALLOW

(Riparia riparia)



Observations in the Project Area

● 1976

Figure 167.

BANK SWALLOW

(*Riparia riparia*)

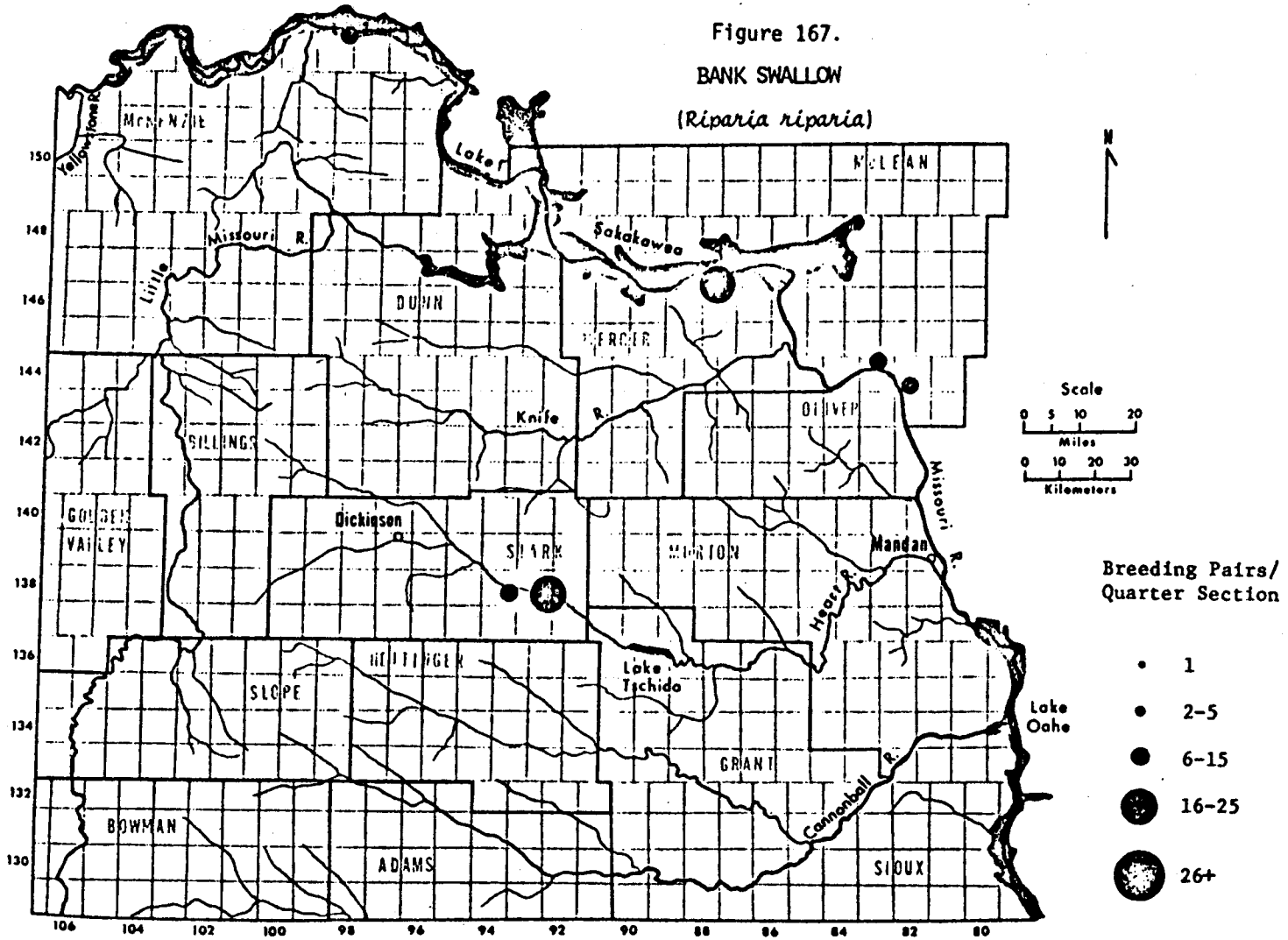
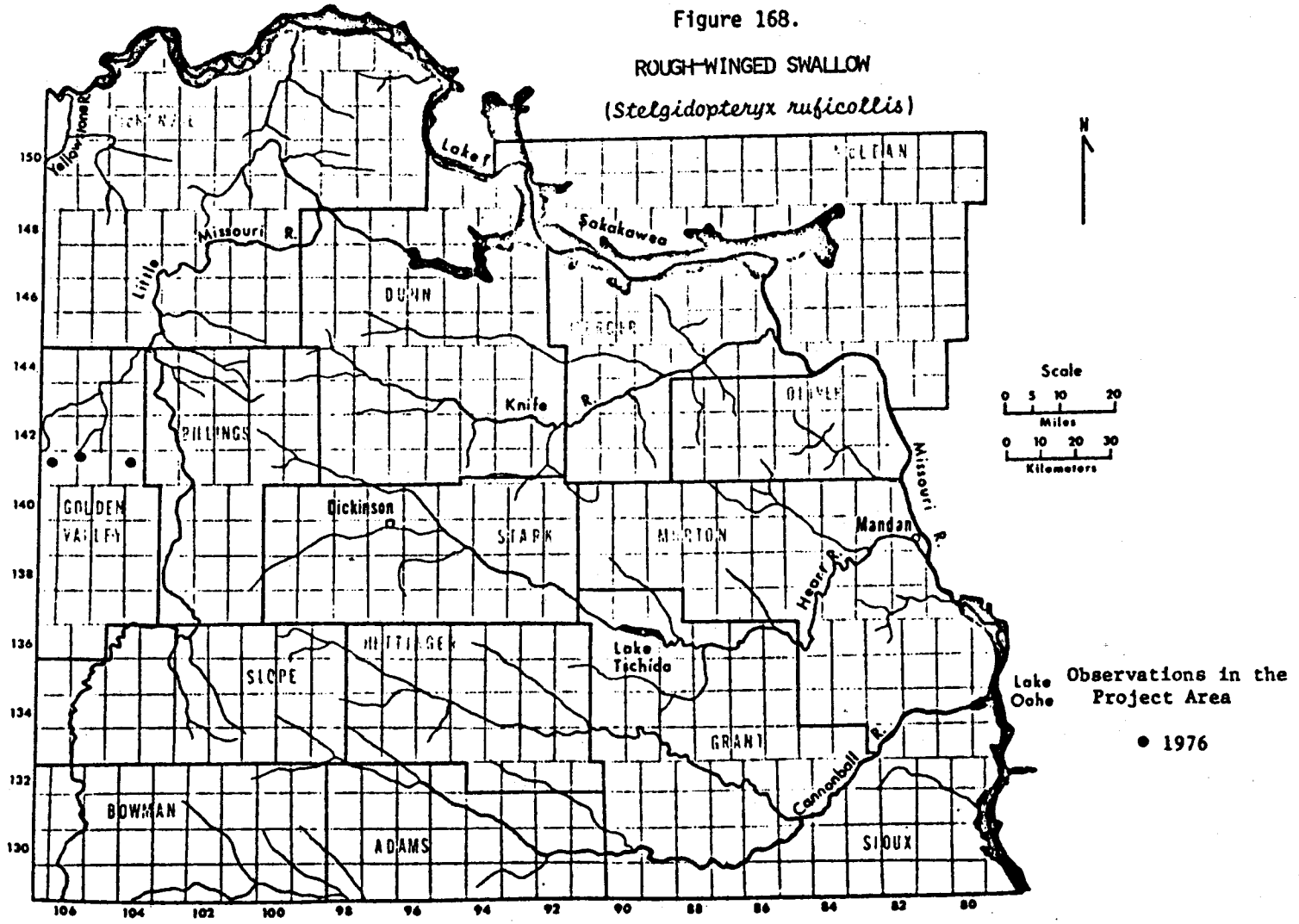


Figure 168.

ROUGH-WINGED SWALLOW

(*Stelgidopteryx ruficollis*)



Observations in the Project Area

● 1976

Figure 169.

BLACK-BILLED MAGPIE

(*Pica pica*)

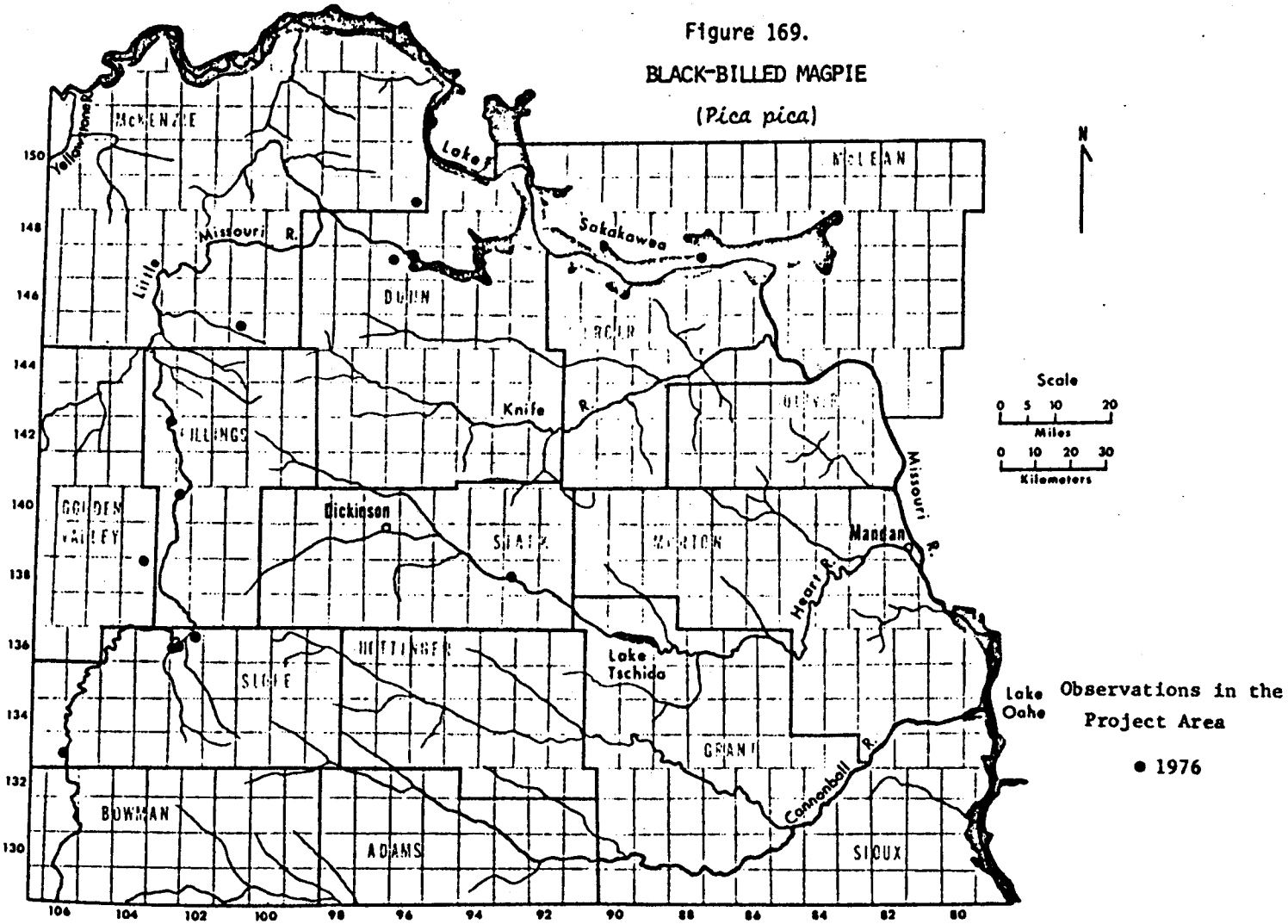


Figure 170.

BLACK-BILLED MAGPIE

(*Pica pica*)

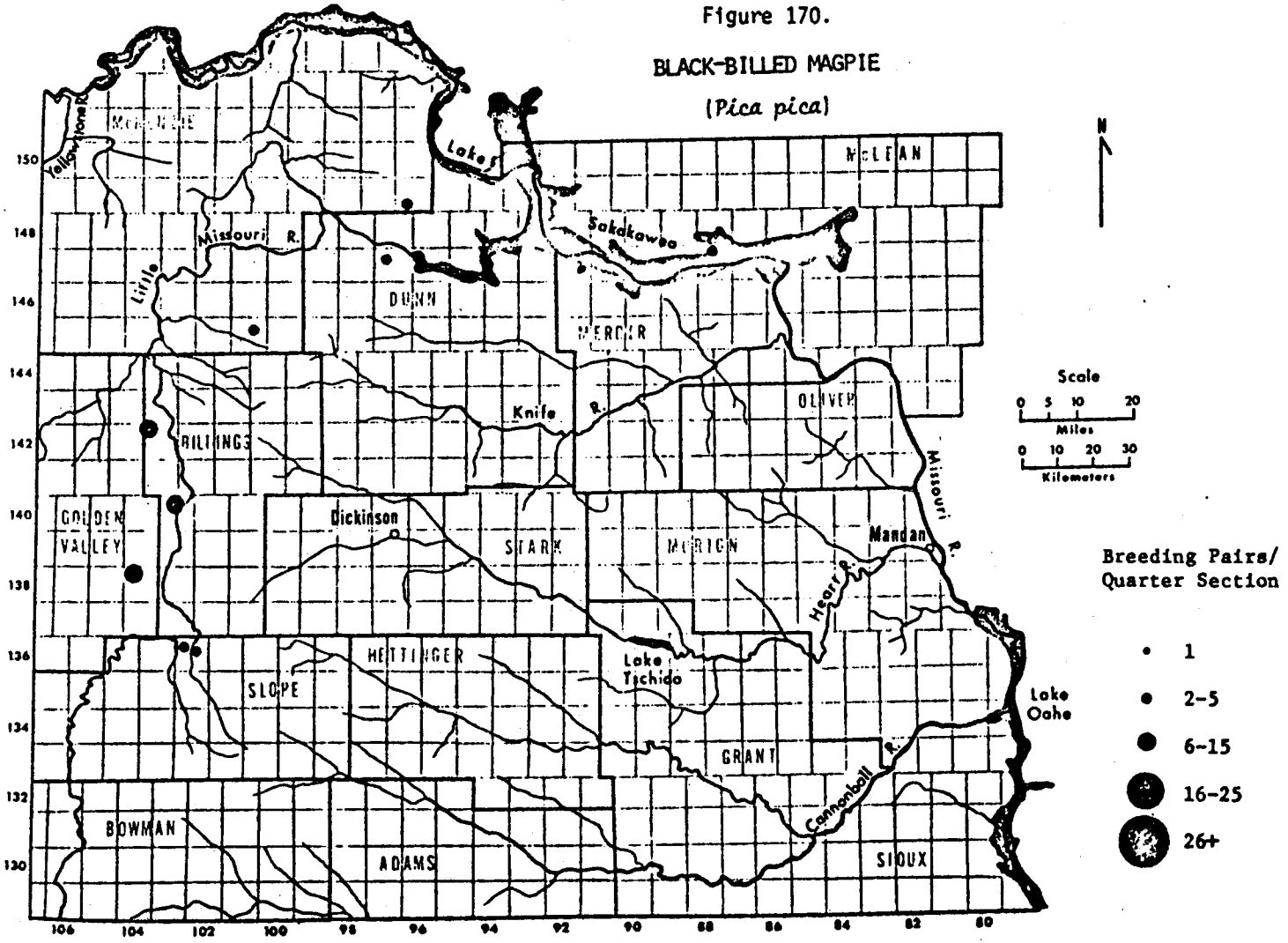
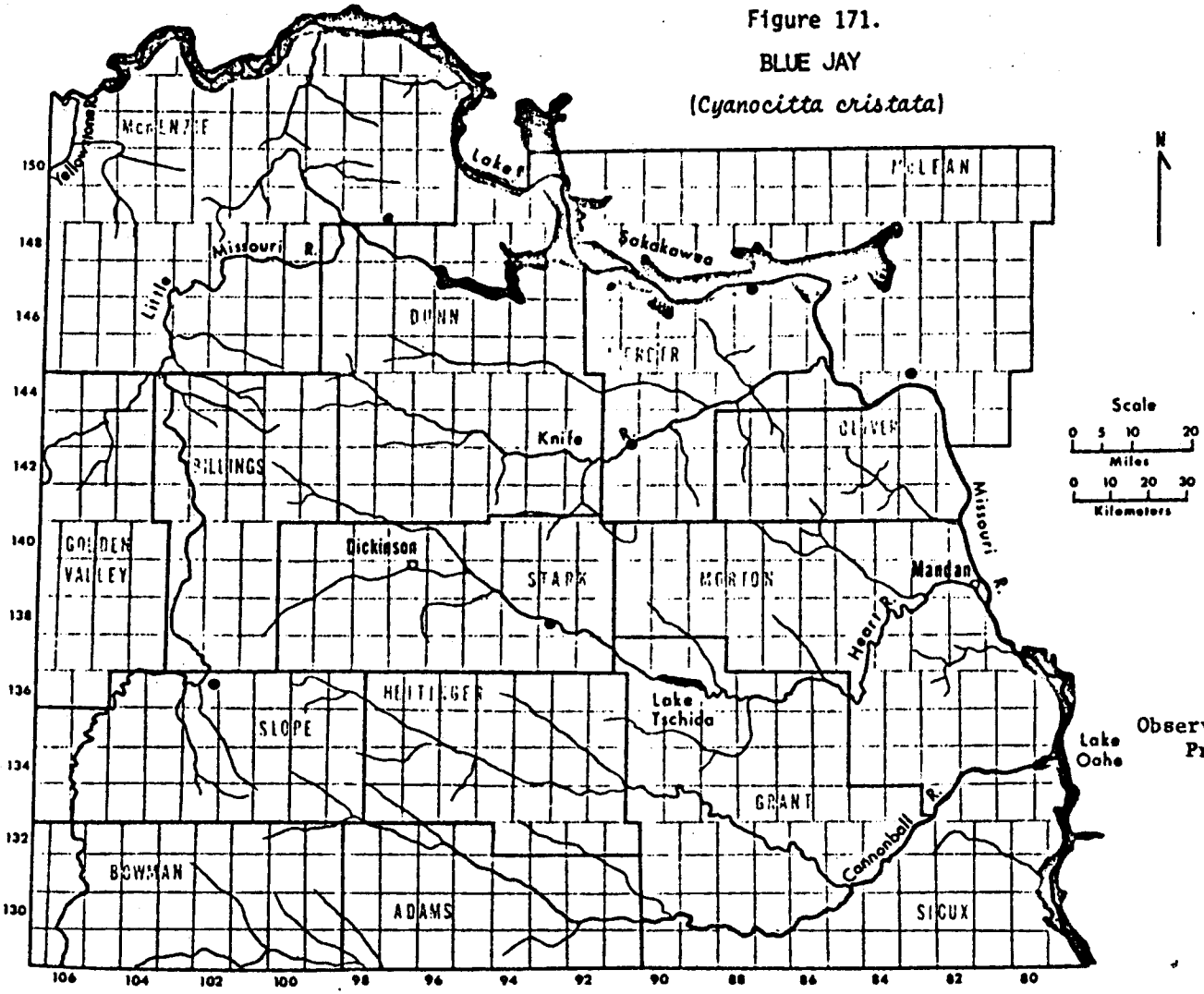


Figure 171.

BLUE JAY

(*Cyanocitta cristata*)



Observations in the Project Area

● 1976

Figure 172.

BLUE JAY

(*Cyanocitta cristata*)

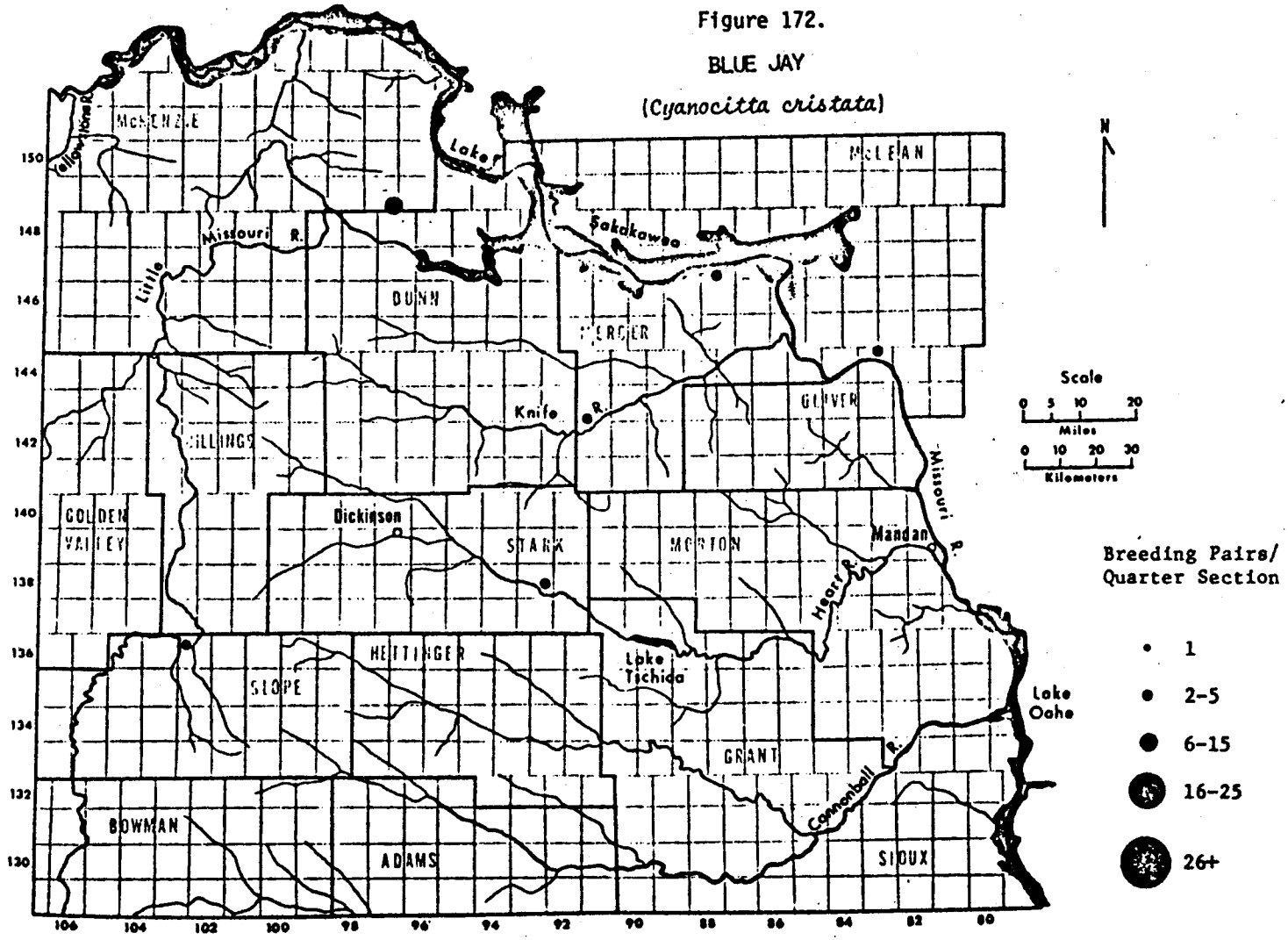
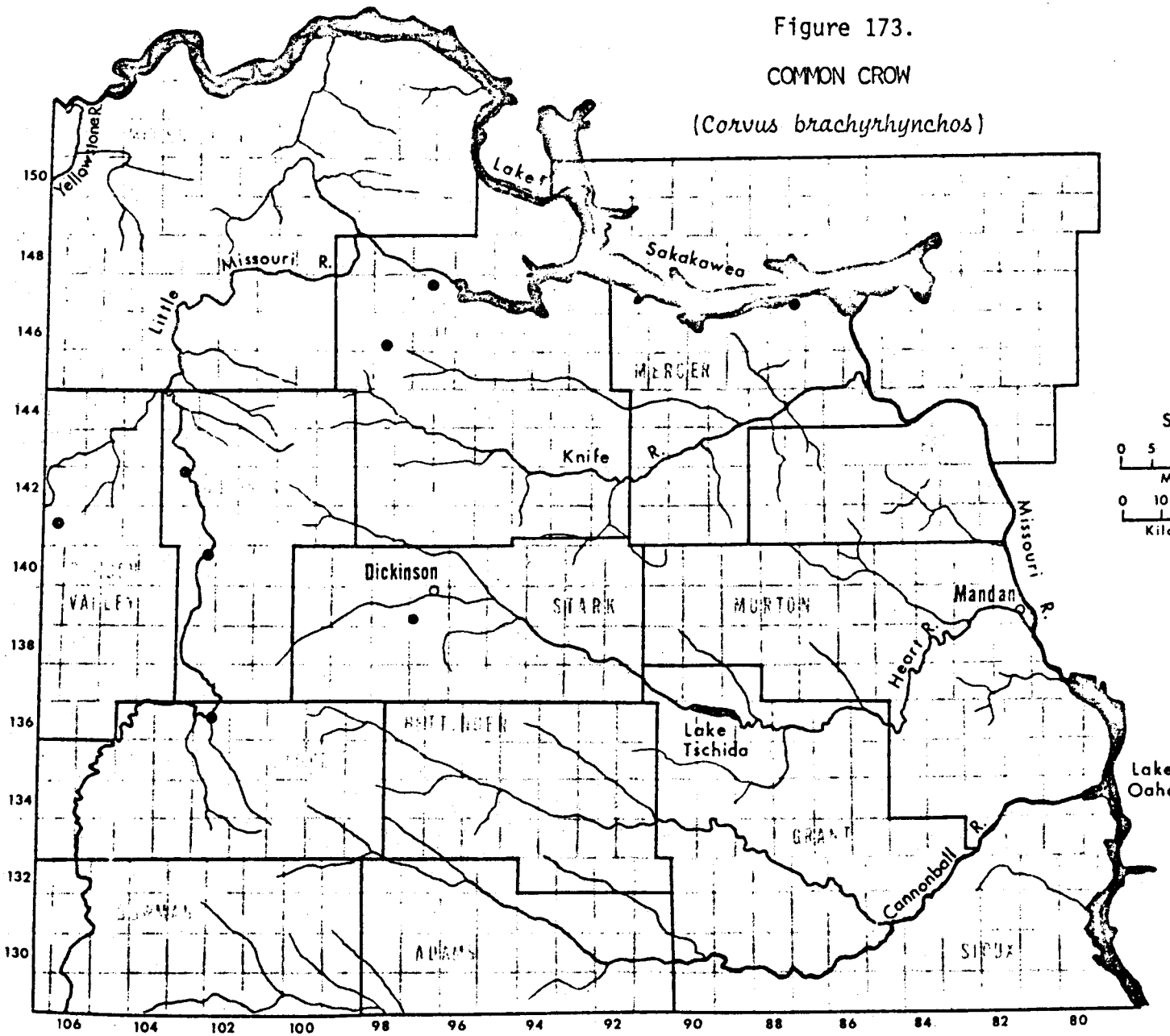


Figure 173.

COMMON CROW

(*Corvus brachyrhynchos*)



Observations in the Project Area

● 1976

Figure 174.

COMMON CROW

(Corvus brachyrhynchos)

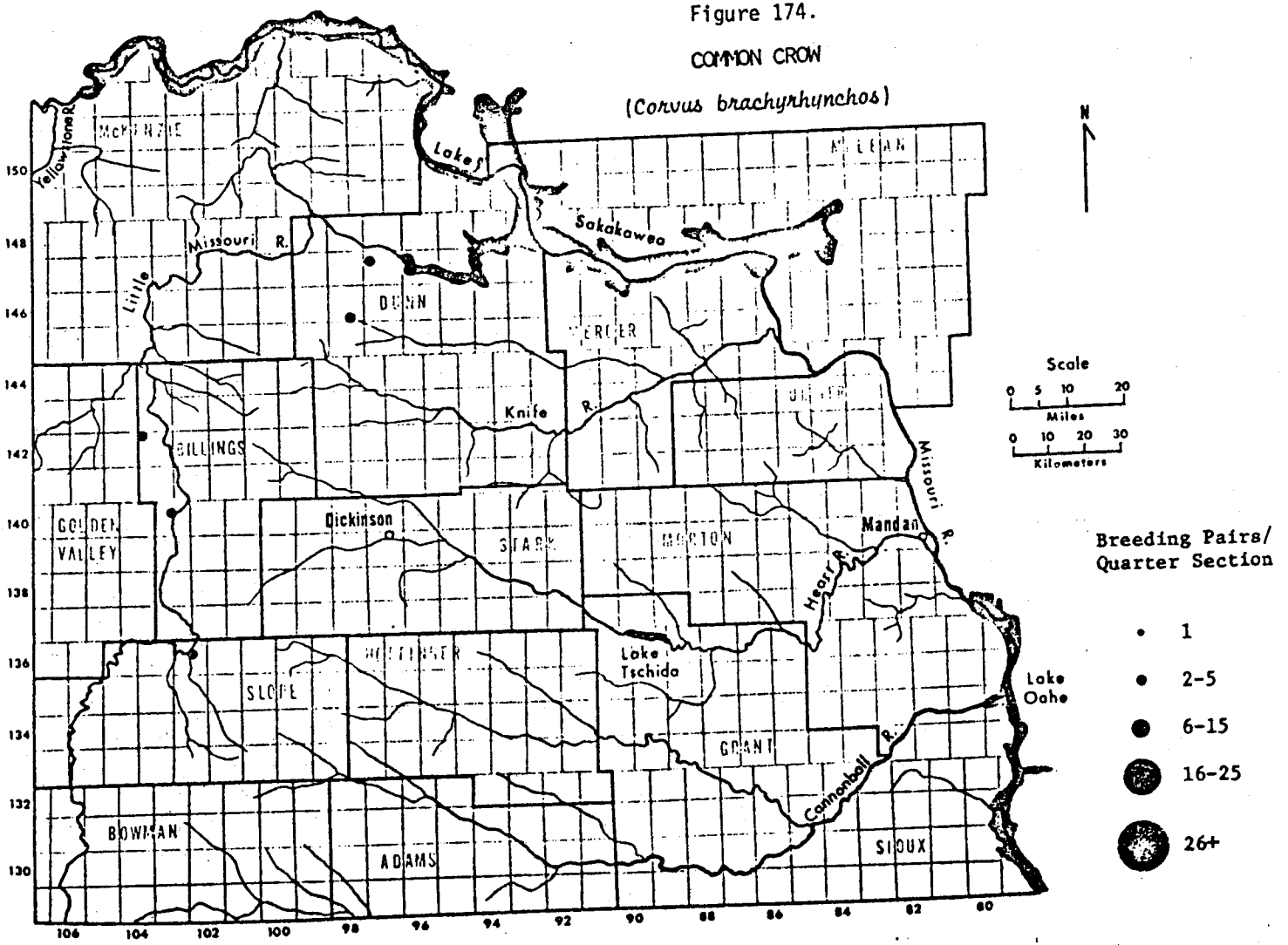


Figure 175.

BLACK-CAPPED CHICKADEE

(*Parus atricapillus*)

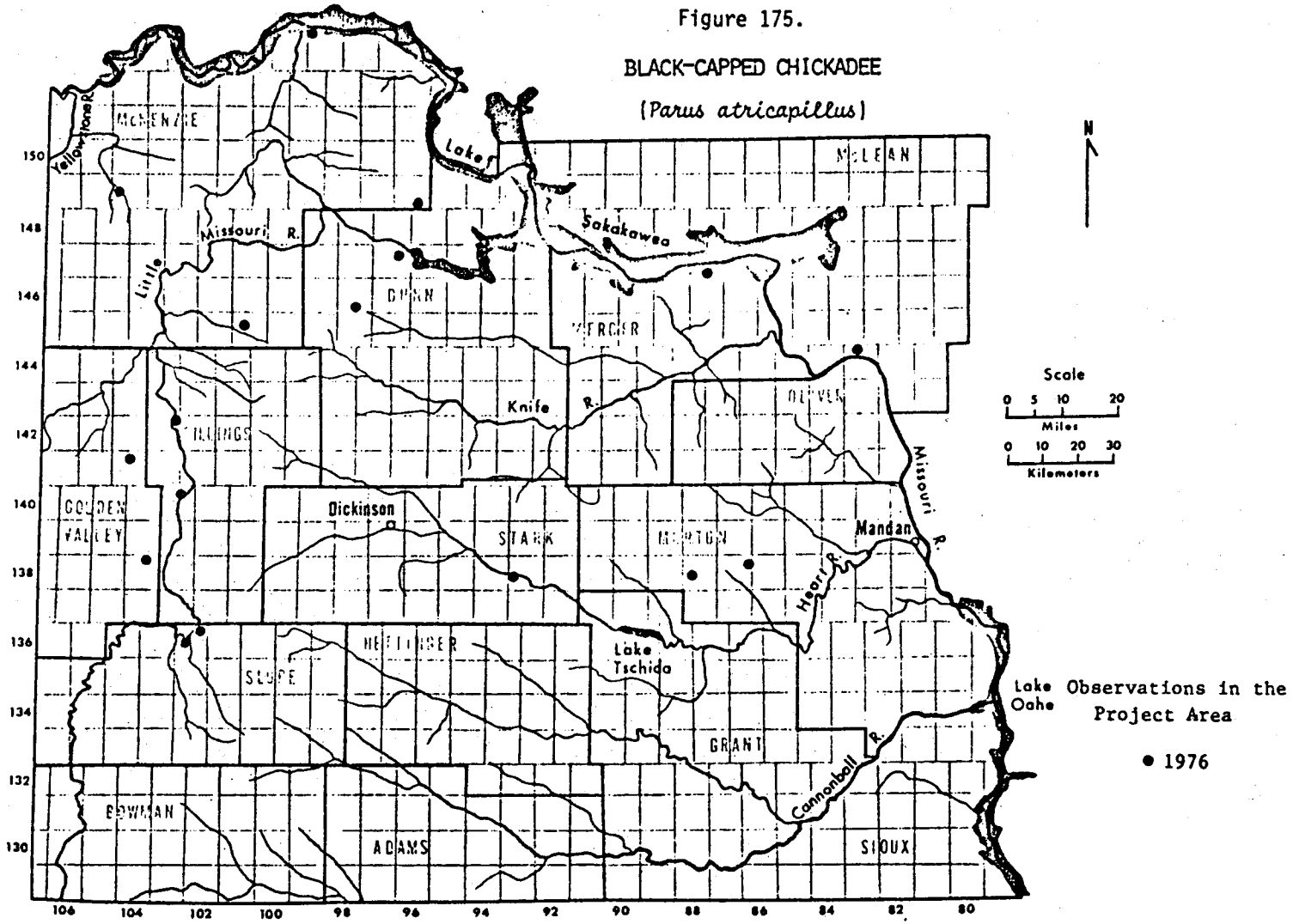
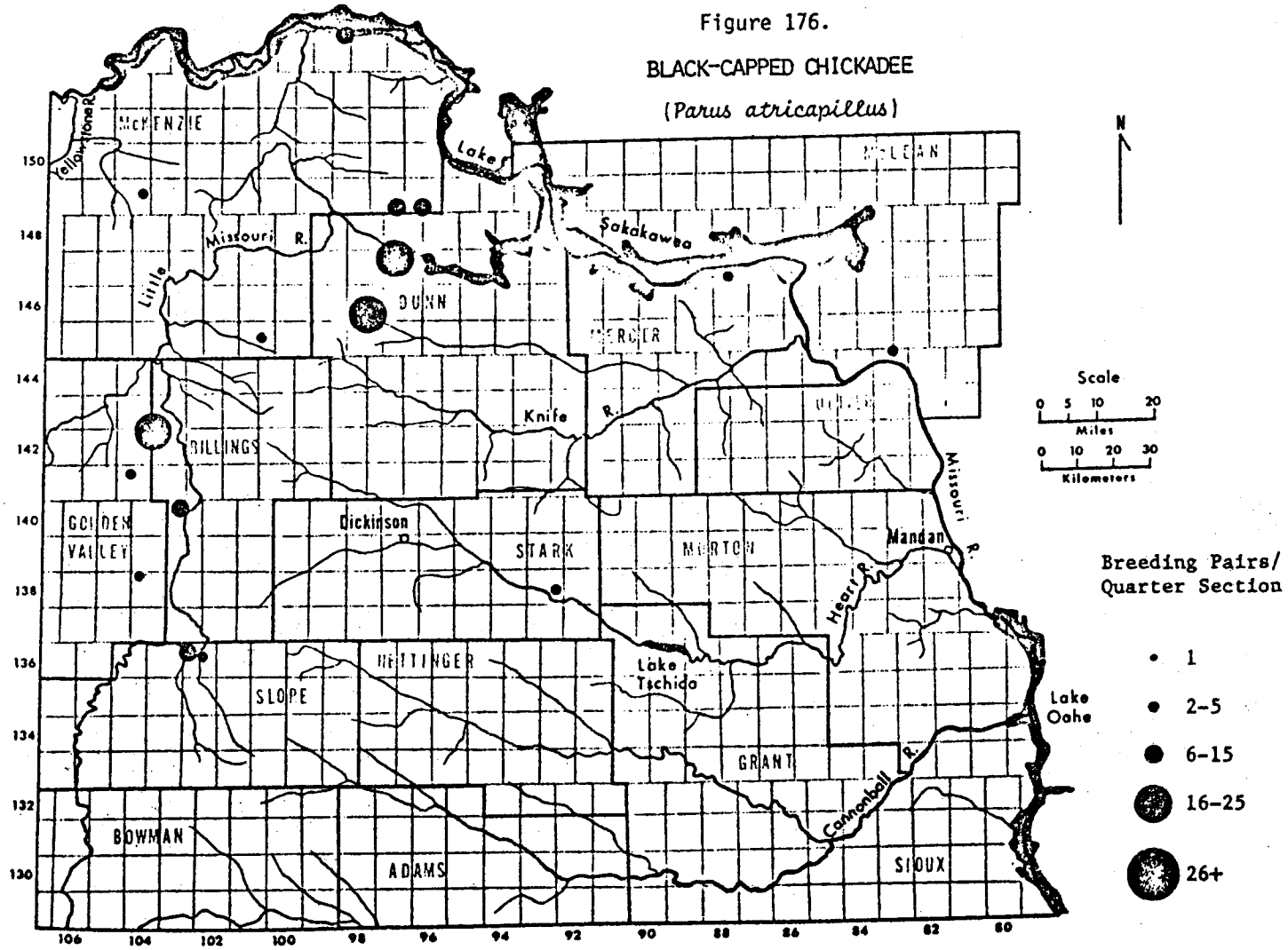


Figure 176.

BLACK-CAPPED CHICKADEE

(*Parus atricapillus*)



ORDER: Passeriformes

FAMILY: Sittidae (Nuthatches) - The Nuthatch family contains 27 living species that are typically Northern Hemisphere birds. They usually are solitary and are arboreal (Austin, 1971).

White-breasted Nuthatch (*Sitta carolinensis*) - This species is found in both the eastern and western halves of the United States, but not in a narrow strip running north-south through the middle Great Plains. It is also found in extreme southern Canada and along the Mexican coast. The bird is present in these areas all year long (Robbins, et al., 1966). In North Dakota, Stewart (1975) lists them as fairly common in the Turtle Mountains, along the eastern rivers and the lower Missouri and Yellowstone Rivers; rare or uncommon elsewhere in the state.

Distribution in the project area: Three observations were made in riparian woodland and hardwood draws in McKenzie and Stark Counties (Fig. 177, 178).

Habitat: Found in natural deciduous woodlands including lowland floodplain forests, lakeshore woodland, and upland forests (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Troglodytidae (Wrens) - This family contains about 59 living species found in North Africa, Eurasia, North America except the extreme north, and South America. Their habitat is varied and they are normally solitary (Austin, 1971).

Rock Wren (*Salpinctes obsoletus*) - Rock Wrens are found in the west half of the United States and all of Mexico. The breeding range extends over the northern half of this area, while winter range is on the Mexican Gulf coast. The bird is present year round in the southwestern United States and most of Mexico (Robbins, et al., 1966). In North Dakota, Stewart (1975) lists it as locally common in the southern part of the Little Missouri Slope; fairly common locally in the northern portion of the Little Missouri Slope and on the Missouri Slope; and rare and local on the Northwestern Drift Plain.

Distribution in the project area: 14 observations were made in upland grasslands, rolling grasslands, ponderosa pines, upland breaks, and river breaks of Billings, Golden Valley, Grant, McKenzie, Morton, Sioux, and Slope Counties (Fig. 179, 180).

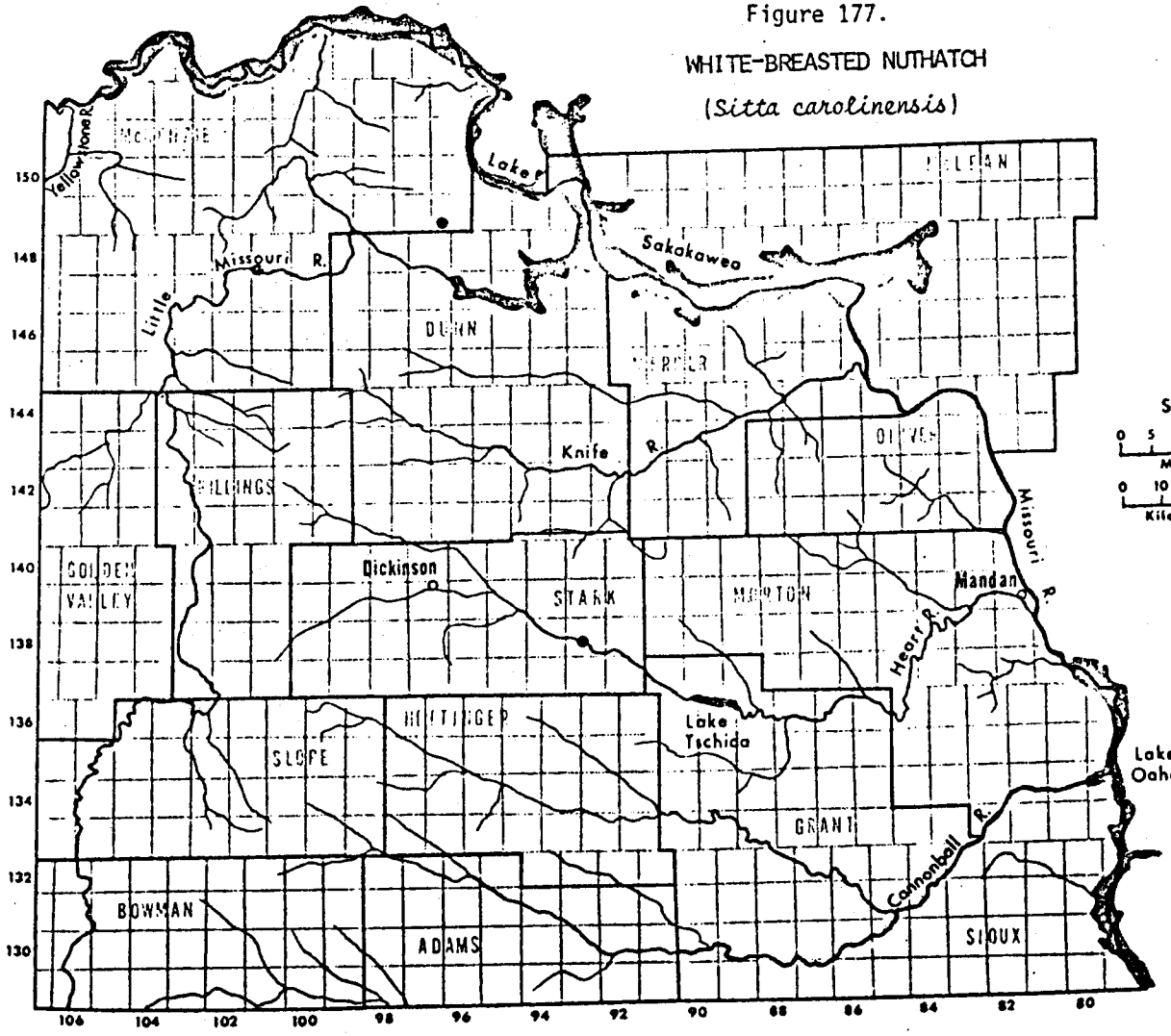
Habitat: Found in badly eroded, sparsely vegetated slopes, and arroyos of the badlands. Nests are constructed in crevices of steep rock or clay slopes (Stewart, 1975).

Status: Uncommon breeding species in the total project area; probably fairly common locally in the Badlands.

Figure 177.

WHITE-BREASTED NUTHATCH

(*Sitta carolinensis*)



Observations in the Project Area

● 1976

Figure 178.

WHITE-BREASTED NUTHATCH

(*Sitta carolinensis*)

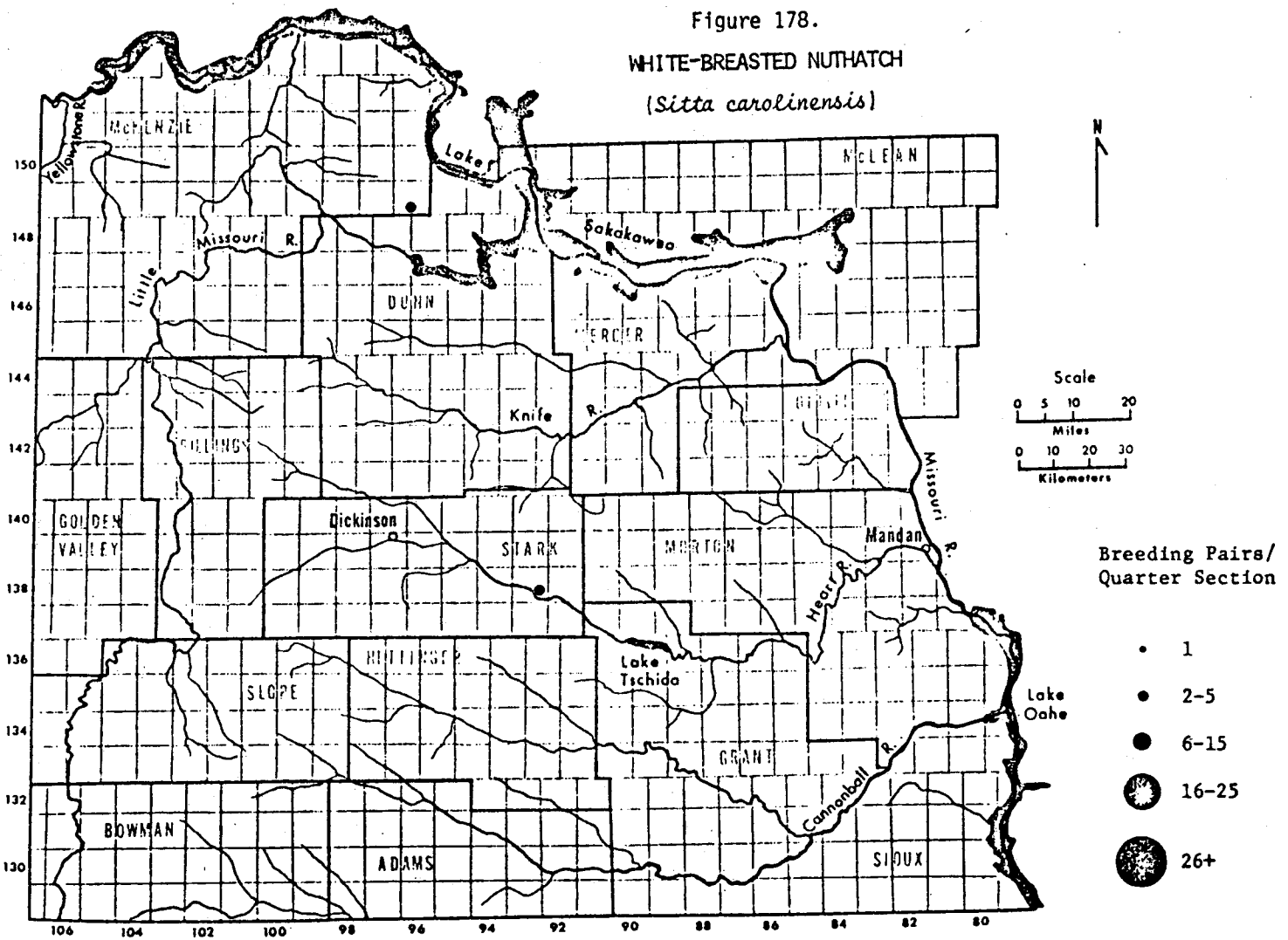


Figure 179.

ROCK WREN

(*Salpinctes obsoletus*)

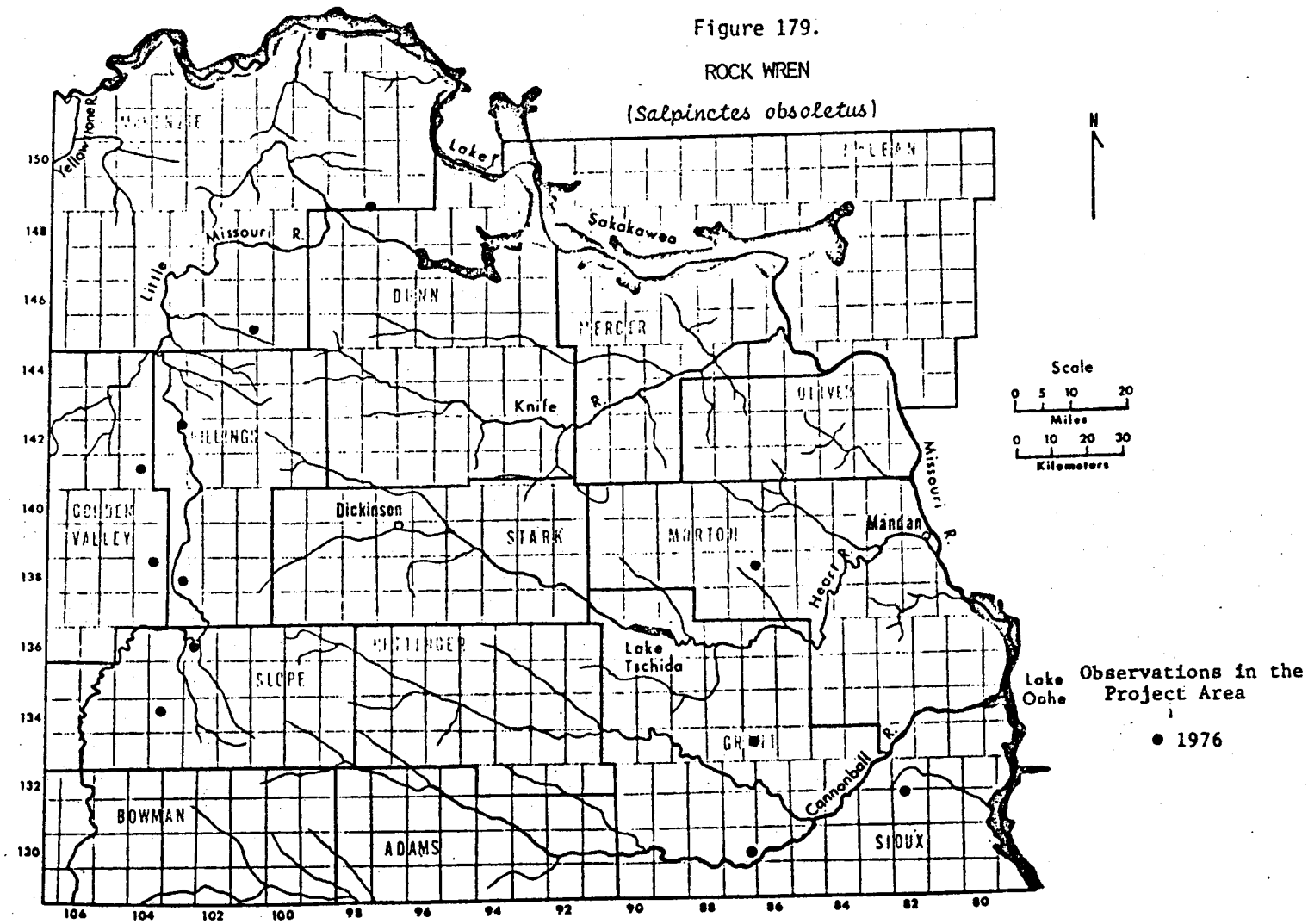
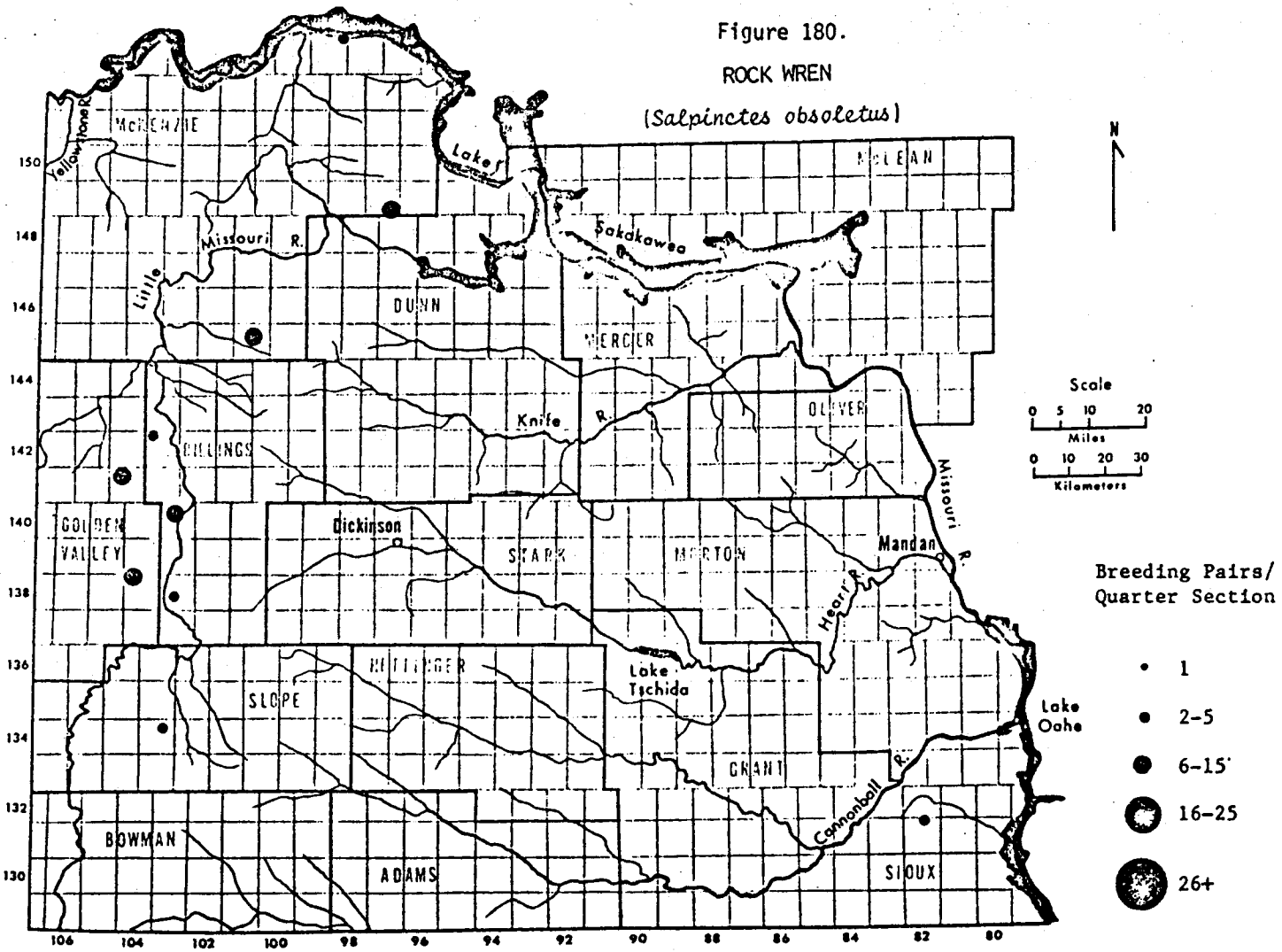


Figure 180.

ROCK WREN

(*Salpinctes obsoletus*)



ORDER: Passeriformes

FAMILY: Troglodytidae

House Wren (*Troglodytes aedon*) - House Wrens are found over the entire United States and Mexico, and extreme southern portion of Canada. Breeding range covers all the United States except the southeastern portion, while the birds winter along the Mexican west coast and the entire Gulf coast (Robbins, et al., 1966). The species is common or fairly common throughout most of North Dakota (Stewart, 1975).

Distribution in the project area: 18 observations were made in riparian woodlands, hardwood draws, juniper draws, ponderosa pines and shelterbelts of most of the counties in the project area (Fig. 181, 182).

Habitat: Found in the forest edge or semiopen woodland. It is also found in residential wooded areas, shelterbelts, and tree claims. Most nests are built in holes of stumps, dead trees, and dead snags or in small bird boxes (Stewart, 1975).

Status: Fairly common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Mimidae (Mockingbirds, Catbirds, Thrashers) - A family of 31 living species that are exclusively American, the Mimidae live in forest edges, brushland, hedgerows, and shrubbery. They are solitary or in pairs and many are excellent mimics (Austin, 1971).

Mockingbird (*Mimus polyglottos*) - Mockingbirds are found in the southern half of the North American continent where they are present year round (Robbins, et al., 1966). The breeding range in this state is entirely hypothetical (Stewart, 1975).

Distribution in the project area: Two observations were made in sagebrush flats of Bowman County and on seeded croplands in Stark County (Fig. 183).

Habitat: Found in forest edges, brushland, hedgerows, and shrubbery (Austin, 1971).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Mimidae

Gray Catbird (*Dumetella carolinensis*) - This species is found over all the United States except the extreme west. The breeding range covers most of this area, while it winters along the northern Gulf Coast, Florida, and up the east coast (Robbins, et al., 1966). It is common or fairly common throughout North Dakota (Stewart, 1975).

Distribution in the project area: 18 observations were made in riparian woodlands, hardwood draws, upland grasslands, rolling grasslands, and spoil piles scattered over the project area (Fig. 184, 185).

Habitat: Found in dense thickets of small trees and shrubs that occur in moist situations. Also in man-made habitats of multi-row shelterbelts or wooded residential areas. Nests are situated in a variety of woody plants a few feet off the ground (Stewart, 1975).

Status: Fairly common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Mimidae

Brown Thrasher (*Toxostoma rufum*) - Brown Thrashers are found in the eastern United States and southern Canada. Breeding range covers the northern United States and southern Canada, while winter range is found in Texas and central Florida. The birds are permanent residents in the southeastern states. This is the only thrasher east of the Rockies and central Texas (Robbins, et al., 1966). Stewart (1975) lists it as fairly common locally throughout North Dakota.

Distribution in the project area: 25 observations were made in riparian woodland, hardwood draws, rolling grassland, juniper draws, spoil piles, and shelterbelts in all counties of the project area except Adams, Hettinger, and Oliver (Fig. 186, 187).

Habitat: Found in open brushy woods and tracts or patches of brush composed of small trees and tall shrubs. Nests are located in dense thickets of a variety of woody plants (Stewart, 1975).

Status: Fairly common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Turdidae (Thrushes) - This family contains 303 living species that are almost cosmopolitan, but are absent from New Zealand and some oceanic islands, the antarctic, and parts of the arctic. Their habitat is varied and they are solitary except during migration (Austin, 1971).

Veery (*Catharus fuscescens*) - The Veery is found over most of the United States, except the far west and southwest and in southern Canada. The breeding range covers the northern United States and southern Canada (Robbins, et al., 1966). Stewart (1975) lists it as abundant in the Turtle Mountains and Pembina Hills, fairly common along the eastern rivers and portions of the Missouri River and its tributaries, and rare or uncommon and local elsewhere in the state.

Distribution in the project area: Four observations were made in hardwood draws with trees and brush in Golden Valley and McLean Counties and in a shelterbelt in Mercer County (Fig. 188, 189).

Habitat: Found in moist deciduous forests that occur in sheltered ravines or lowland deciduous forests occuring in swamps or on poorly drained river floodplains. Nests are situated on the ground, on stumps, or in low bushes (Stewart, 1975).

Status: Rare breeding species in the project area; probably fairly common along the lower Missouri River.

ORDER: Passeriformes

FAMILY: Turdidae

Gray-cheeked Thrush (*Catharus minima*) - This bird is found over the eastern half of the United States, all but the southwestern corner and extreme northern edge of Canada, and all of Alaska. The breeding range extends from around Hudson's Bay through north-central Canada over all of Alaska (Robbins, et al., 1966). No breeding records are known for North Dakota.

Distribution in the project area: Two observations were made in a riparian woodland of Billings County and a hardwood draw with brush and trees in Mercer County (Fig. 190, 191).

Habitat: Found in northern woodlands in the forest understory (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Passeriformes

FAMILY: Turdidae

Swainson's Thrush (*Catharus ustulatus*) - This species is found over the entire North American continent except northern Canada and northern Alaska. The breeding range covers the area in Canada and Alaska plus the Pacific Northwest of the United States (Robbins, et al., 1966). In North Dakota the breeding range is hypothetical; possibly breeding occasionally in the Turtle Mountains (Stewart, 1975).

Distribution in the project area: Two observations were made in a shelterbelt in Morton County and in upland breaks in Stark County (Fig. 192, 193). The breeding status of these individuals is unknown.

Habitat: Found primarily in the forest understory (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Passeriformes

FAMILY: Turdidae

Robin (*Turdus migratorius*) - The Robin is found over the entire North American continent except northern Canada and northern Alaska. The breeding range is found over Canada, Alaska, and the northern United States, and the winter range is located in Mexico and the southern United States. The species is present year round throughout the rest of the United States (Robbins, et al., 1966). This species is common or fairly common over most of North Dakota (Stewart, 1975).

Distribution in the project area: 25 observations were made in riparian woodland, hardwood draws, rolling grasslands, a wetland dugout, and shelterbelts of all the counties in the project area except Adams and Oliver Counties (Fig. 194, 195).

Habitat: Found in tracts of woodland with partially open tree canopy. Residential areas and parks are regularly used. Nests usually are situated in tree crotches or on limbs of trees and tall shrubs (Stewart, 1975).

Status: Fairly common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Turdidae

Eastern Bluebird (*Sialia sialis*) - This bluebird is found in the eastern half of the United States and southern Canada, with the breeding range being in the northern United States. Winter range covers central Texas south along the Mexican Gulf coast and along the United States Gulf coast and east coast. The birds are permanent residents in the east-central and southeastern United States (Robbins, et al., 1966). Stewart (1975) lists them as fairly common in the Turtle Mountains and along the eastern rivers and lower Missouri River, and rare elsewhere in the state.

Distribution in the project area: Two observations were made in riparian woodlands of Mercer and Morton Counties (Fig. 196).

Habitat: Found in the forest edge in areas where open woodland is interspersed with or adjacent to grazed or mowed grasslands. Nests are commonly situated in bird boxes and in abandoned woodpecker holes or other cavities of dead trees or dead limbs, telephone poles, or fence posts (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Turdidae

Mountain Bluebird (*Sialia currucoides*) - This bluebird is found in the western half of North America except Alaska. The breeding range extends from the northern United States north to the Alaskan border, while winter range covers the southern part of the continent. The Pacific Northwest and northern Rocky Mountains in the United States have year round populations (Robbins, et al., 1966). Stewart (1975) lists them as fairly common on the Little Missouri Slope; uncommon and local on the northwest Coteau Slope, Turtle Mountains, and Souris Lake Plain; and rare and local in northwestern Ward County.

Distribution in the project area: Ten observations were made in hardwood draws, juniper draws, upland breaks, and roadsides in Billings, Dunn, Golden Valley, McKenzie, Slope, and Stark Counties (Fig. 197, 198).

Habitat: Found in severely eroded and sparsely vegetated slopes of buttes and arroyos, patches of tall shrubs, clumps of trees, and scattered tracts of prairie and sagebrush. It also occurs in wooded margins of forested areas (Stewart, 1975).

Status: Uncommon breeding species in the project area; probably common or fairly common locally in the Badlands and Killdeer Mountains.

ORDER: Passeriformes

FAMILY: Motacillidae (Pipits and Wagtails) - This family contains about 53 living species found worldwide except the polar regions and oceanic islands. They live in open prairies, deserts, cultivated fields, and open shores (Austin, 1971).

Water Pipit (*Anthus spinoletta*) - The Water Pipit is found over the entire North American continent, the breeding range covering the Pacific Northwest north to Alaska and along the northern Canadian border. Wintering range is found in the southern half of the continent (Robbins, et al., 1966). No breeding records are known for North Dakota.

Distribution in the project area: One observation was made on a natural wetland in Morton County (Fig. 199). The breeding status of this individual is unknown.

Habitat: Found along muddy shores, and plowed fields, and nests in tundra and alpine meadows (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Passeriformes

FAMILY: Motacillidae

Sprague's Pipit (*Anthus spragueii*) - This species is found in a narrow band running from eastern Mexico north to south-central Canada. Breeding range is in south-central Canada and the northern United States, while winter range is found along the Gulf coast of Mexico to the mouth of the Mississippi River (Robbins, et al., 1966). Stewart (1975) lists them as fairly common in the northwestern portion of North Dakota, and uncommon or rare elsewhere in the state.

Distribution in the project area: 11 observations were made on rolling grasslands in Billings, Bowman, Golden Valley, McKenzie, McLean, Slope, and Stark Counties and on a natural wetland in Morton County (Fig. 200, 201).

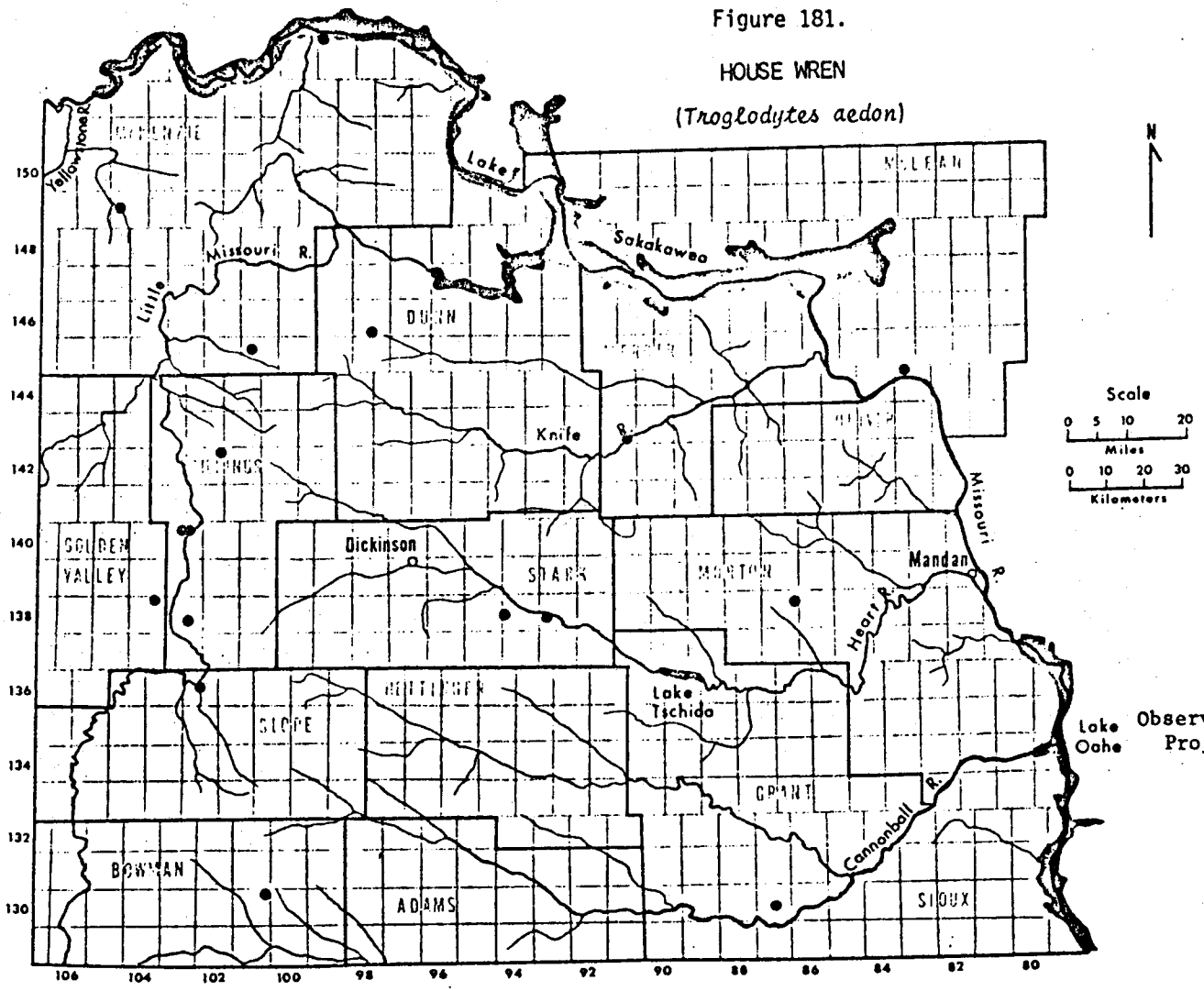
Habitat: Found on extensive tracts of grassland dominated by grasses or grass-like plants of mid-height. Nests are situated on the ground within clumps of grass, rush, or sedge (Stewart, 1975).

Status: Uncommon breeding species in the project area.

Figure 181.

HOUSE WREN

(*Troglodytes aedon*)



Observations in the Project Area

● 1976

Figure 182.

HOUSE WREN

(*Troglodytes aedon*)

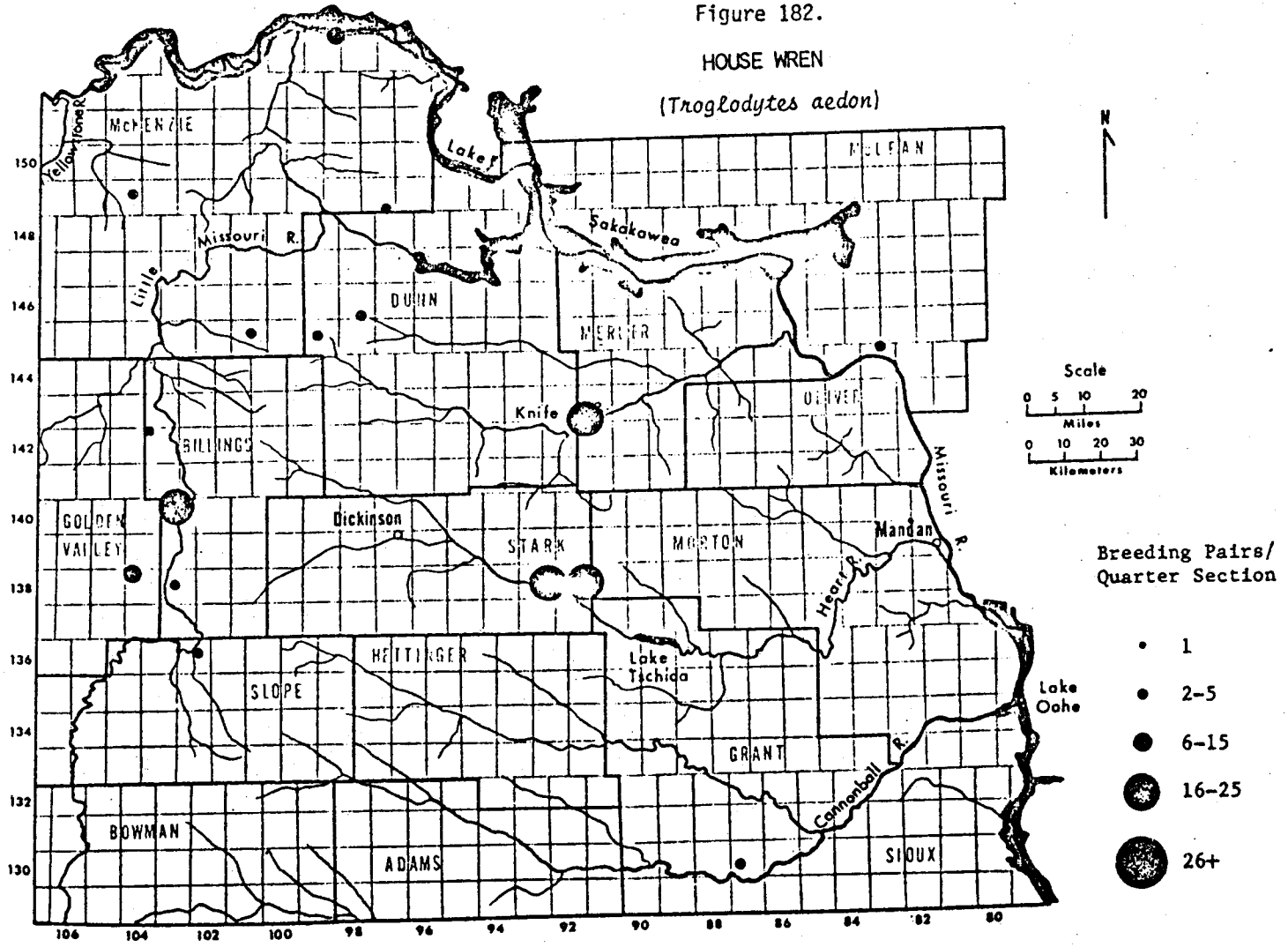
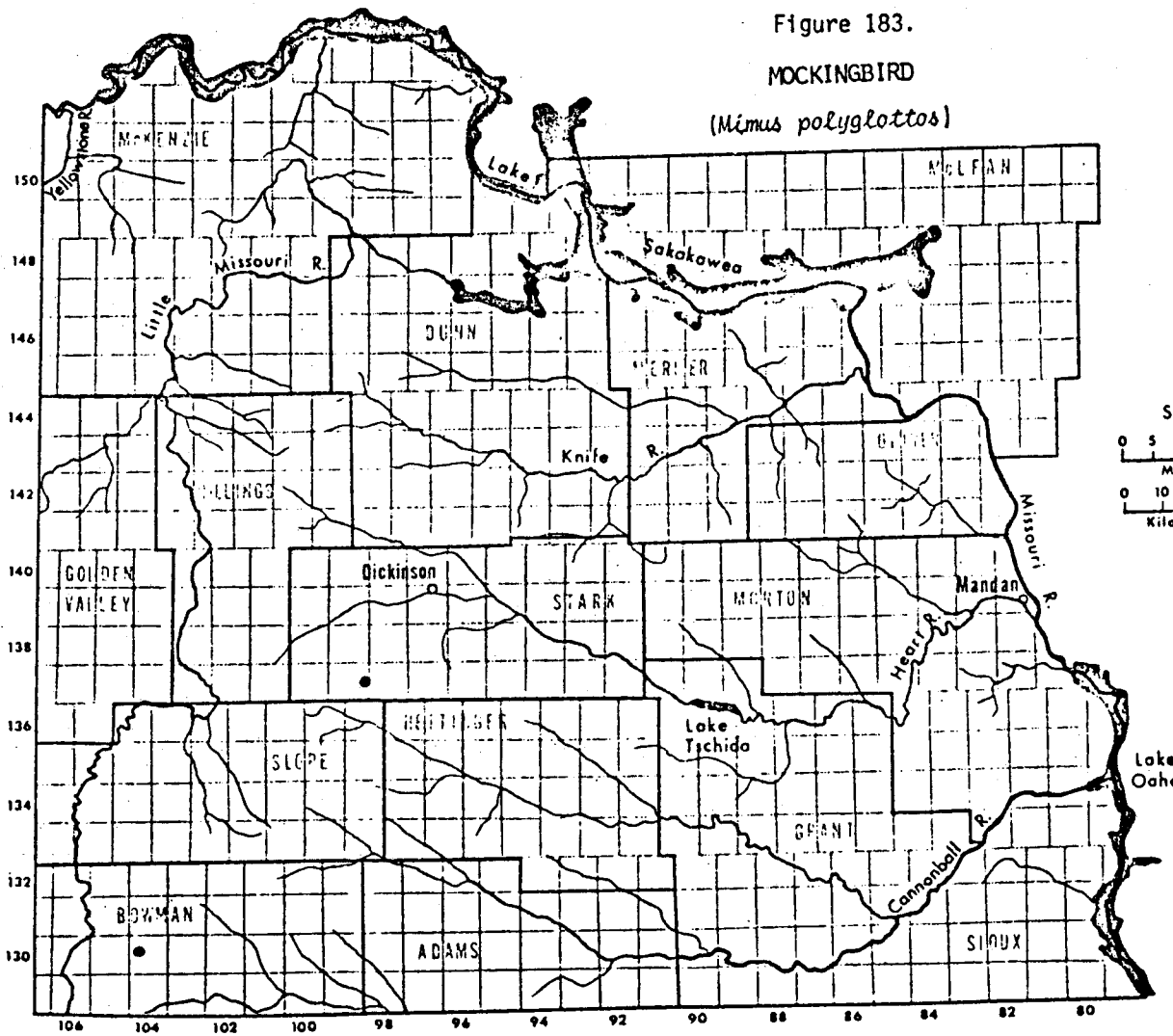


Figure 183.

MOCKINGBIRD

(*Mimus polyglottos*)



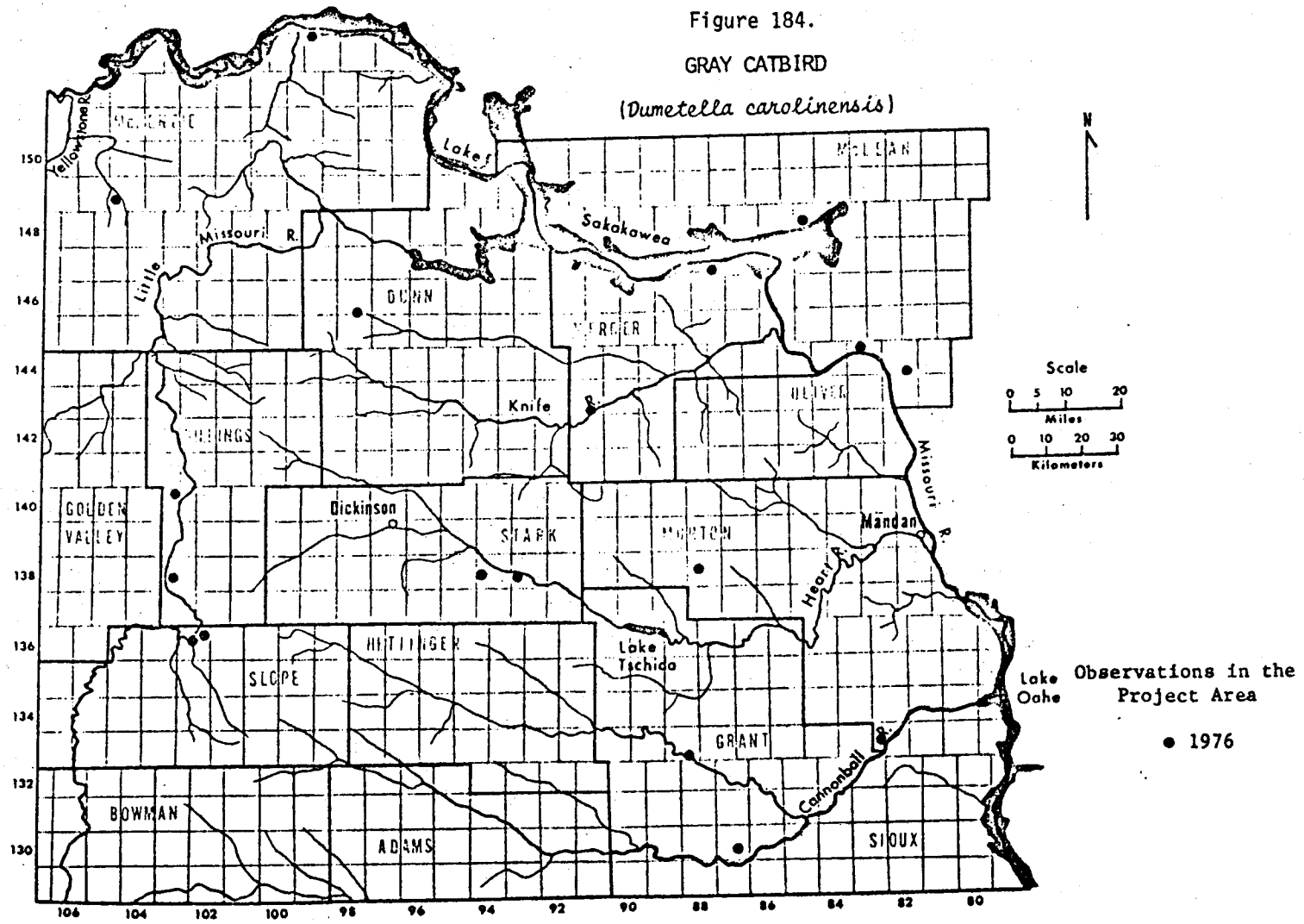
Observations in the Project Area

● 1976

Figure 184.

GRAY CATBIRD

(Dumetella carolinensis)



Observations in the Project Area

● 1976

Figure 185.

GRAY CATBIRD

(Dumetella carolinensis)

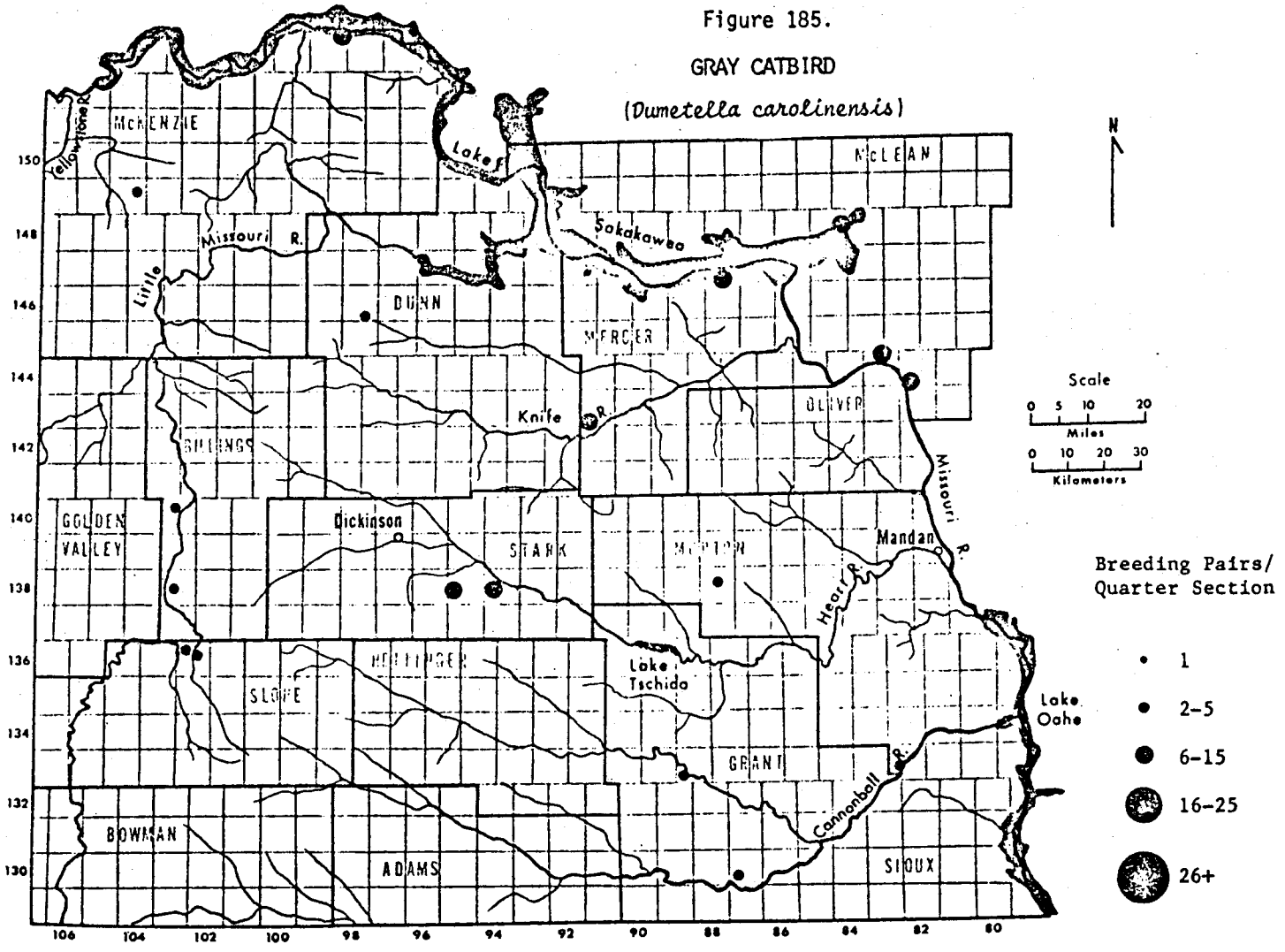
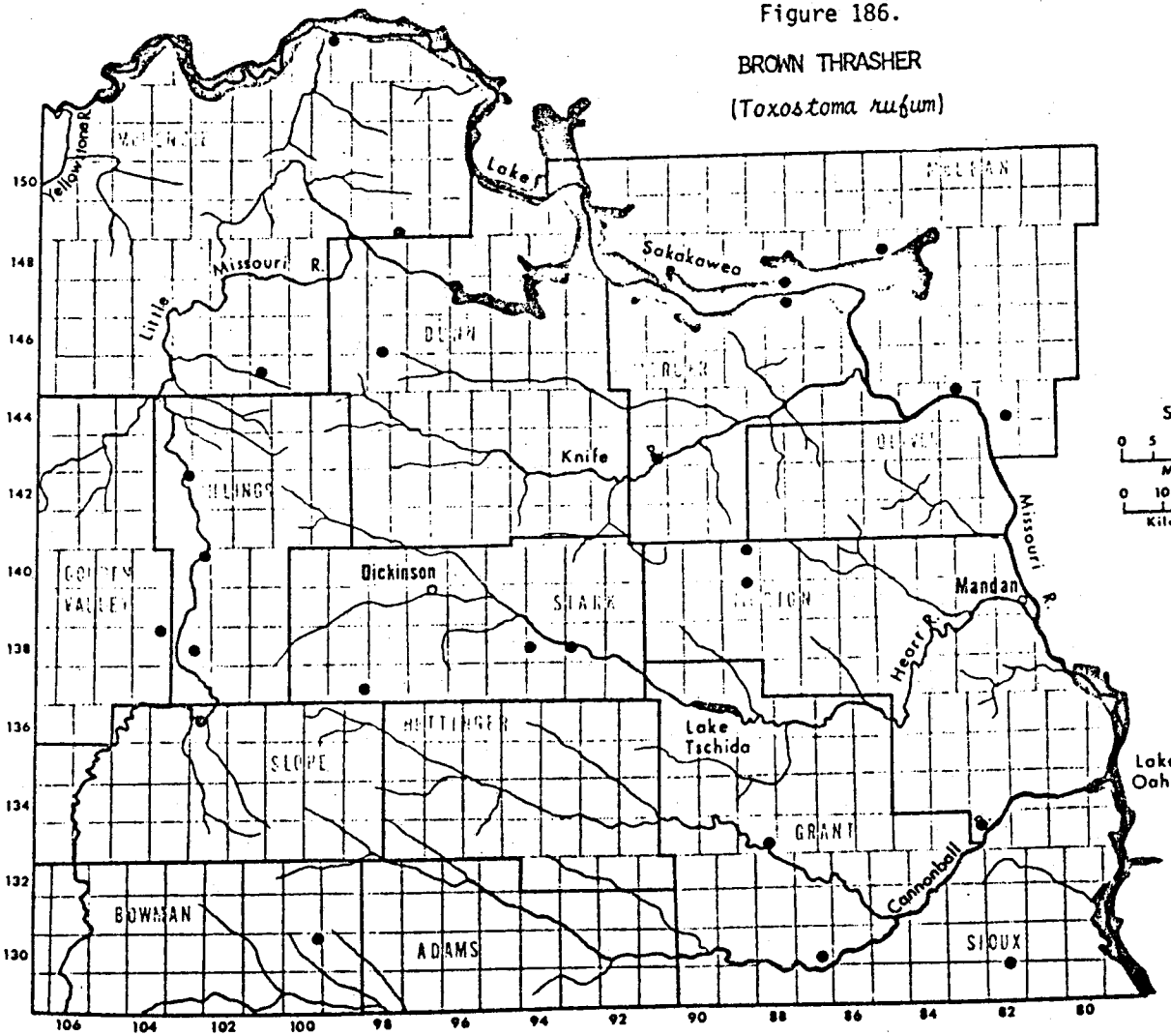


Figure 186.

BROWN THRASHER

(*Toxostoma rufum*)



Observations in the Project Area

● 1976

Figure 187.

BROWN THRASHER

(*Toxostoma rufum*)

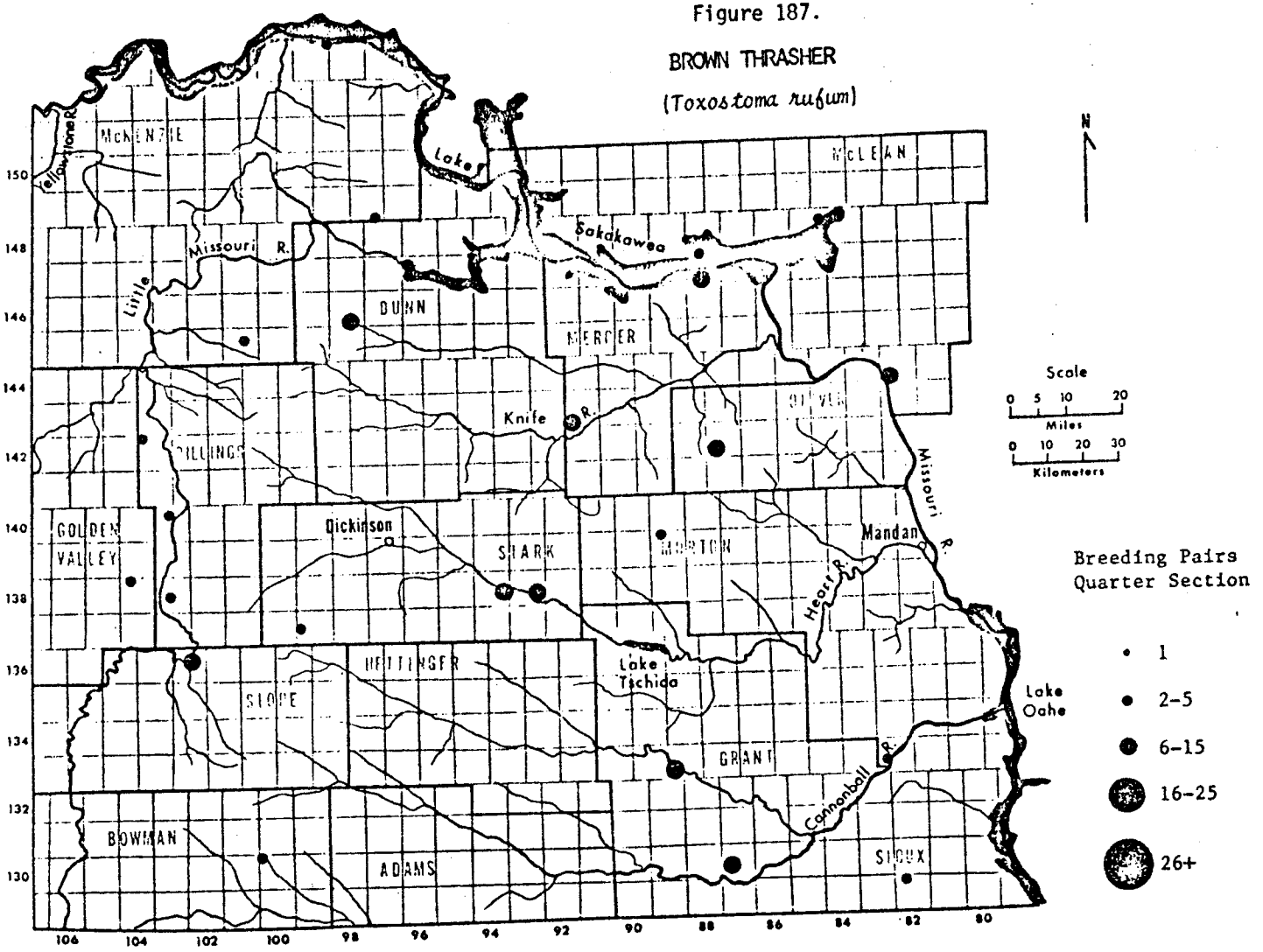
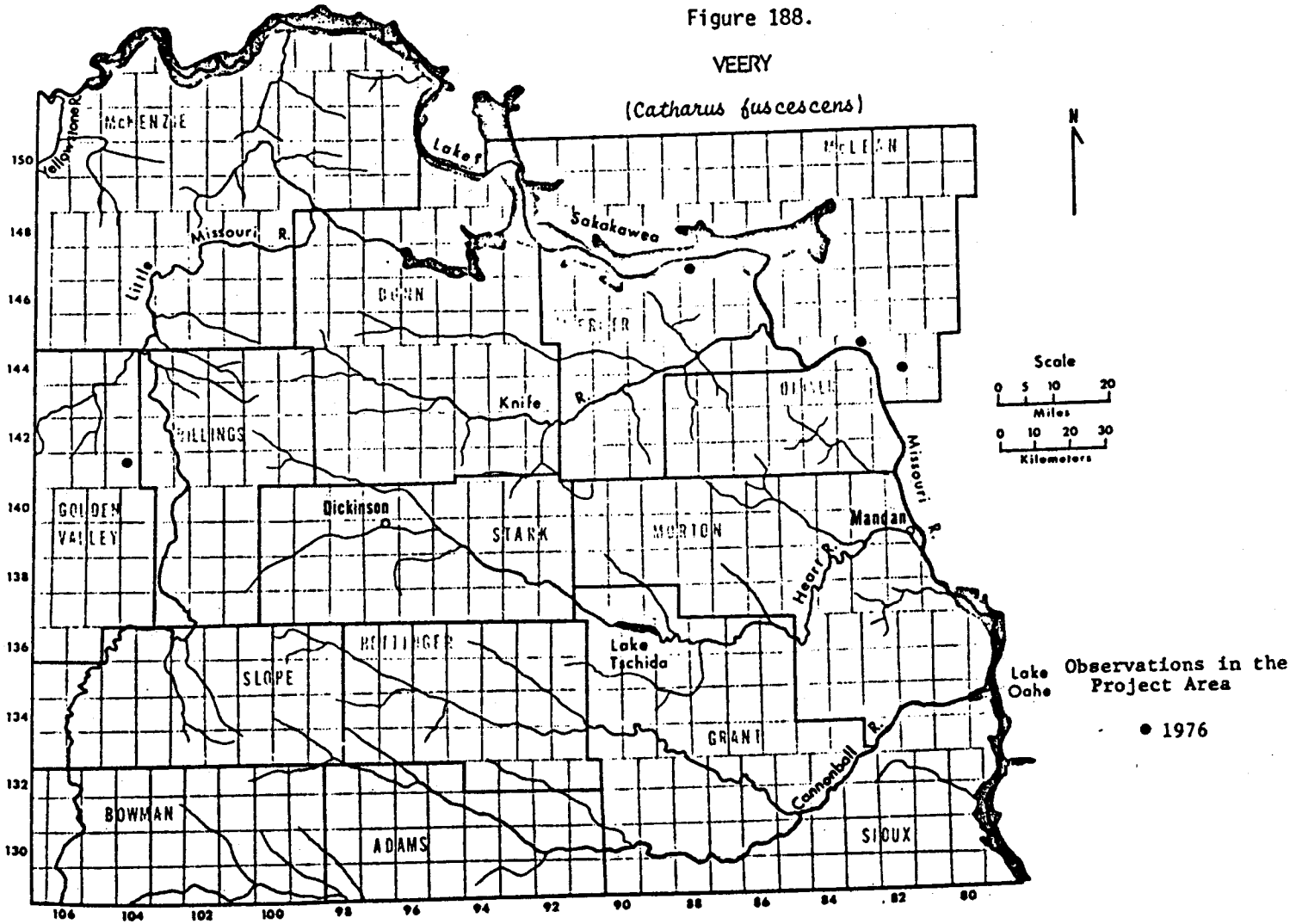


Figure 188.

VEERY

(*Catharus fuscescens*)



Observations in the Project Area

● 1976

Figure 189.

VEERY

(Catharus fuscescens)

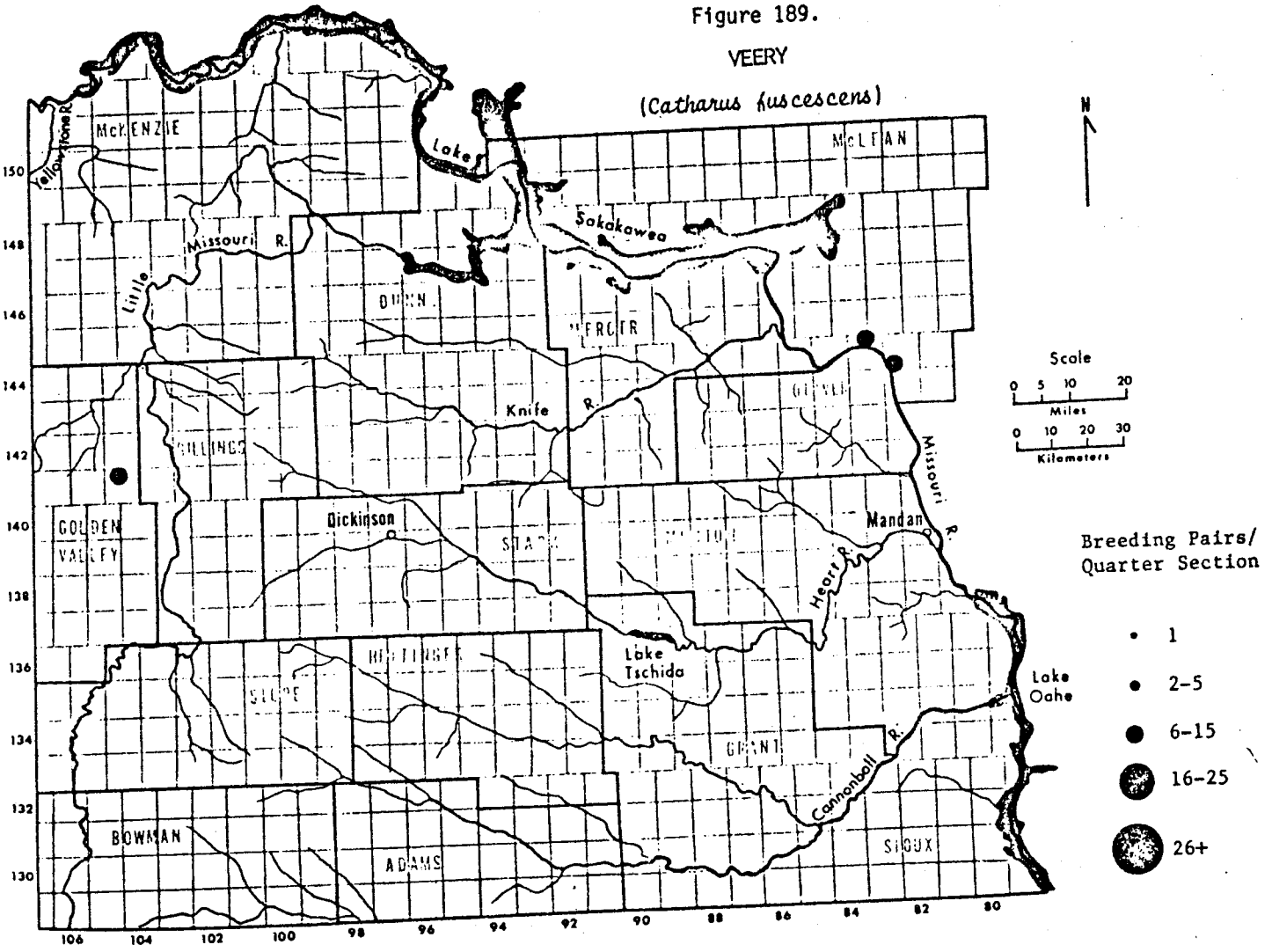
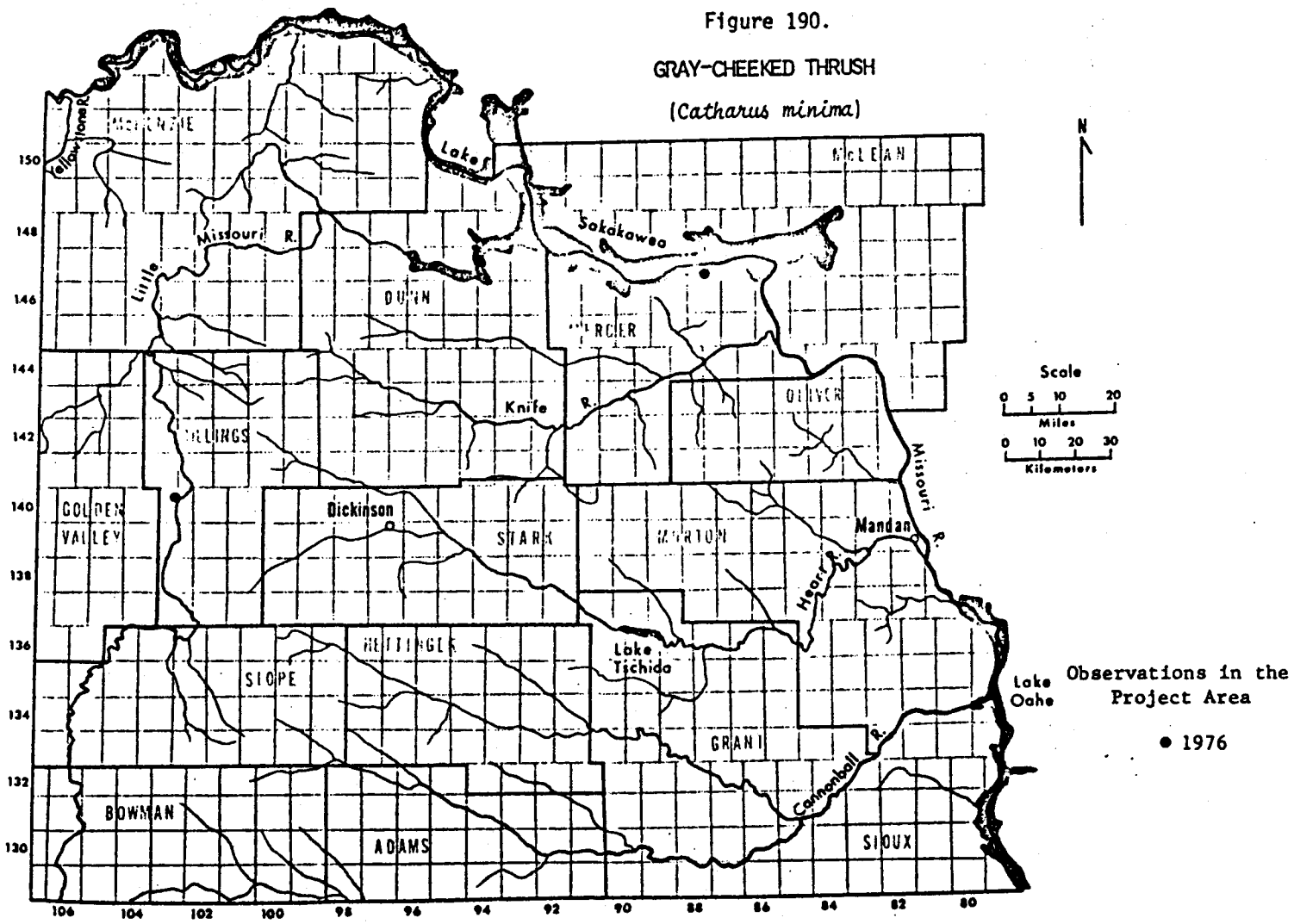


Figure 190.

GRAY-CHEEKED THRUSH

(*Catharus minima*)



Observations in the Project Area

● 1976

Figure 191.

GRAY-CHEEKED THRUSH

(*Catharus minima*)

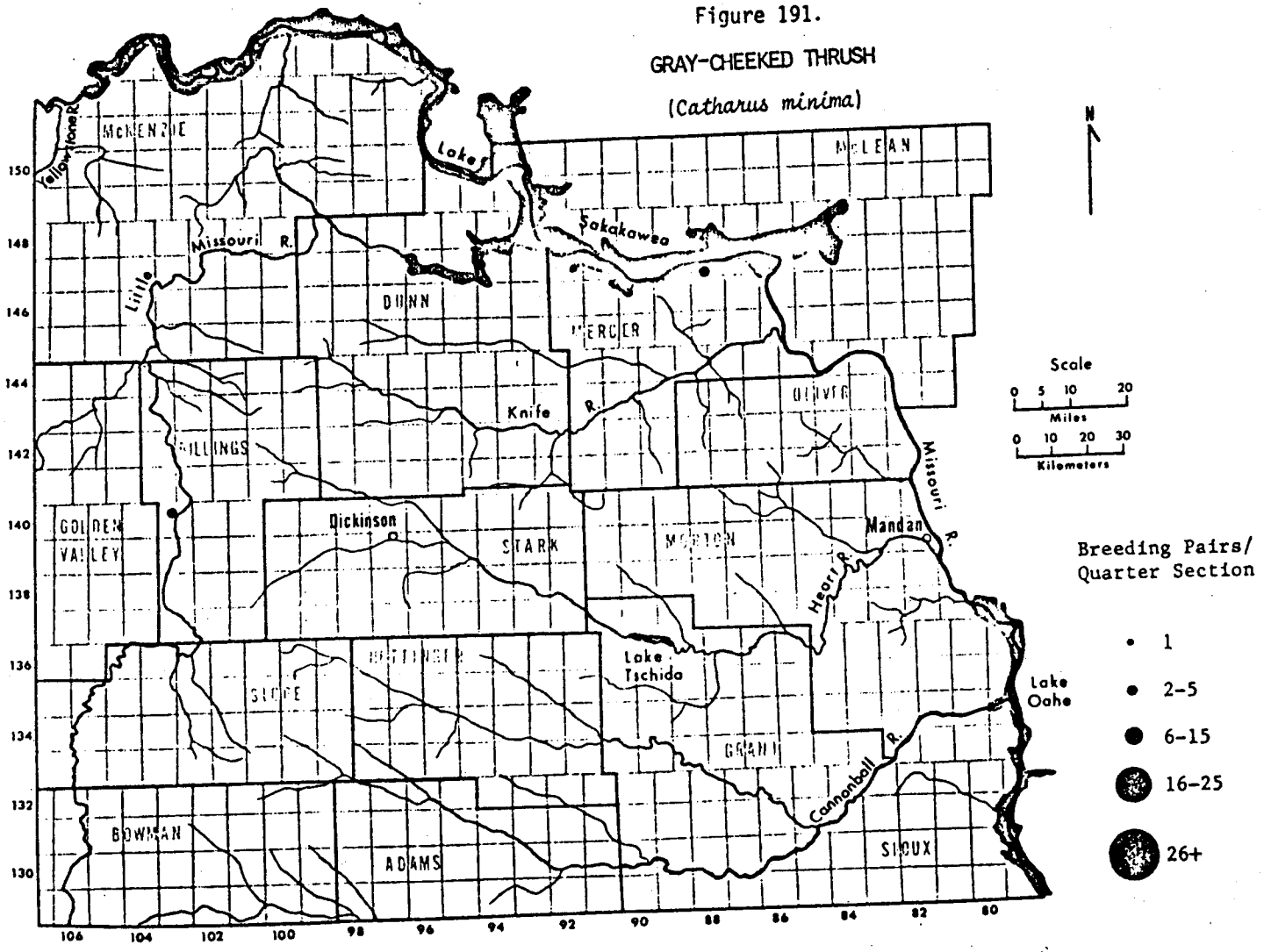


Figure 192.

SWAINSON'S THRUSH

(*Catharus ustulatus*)

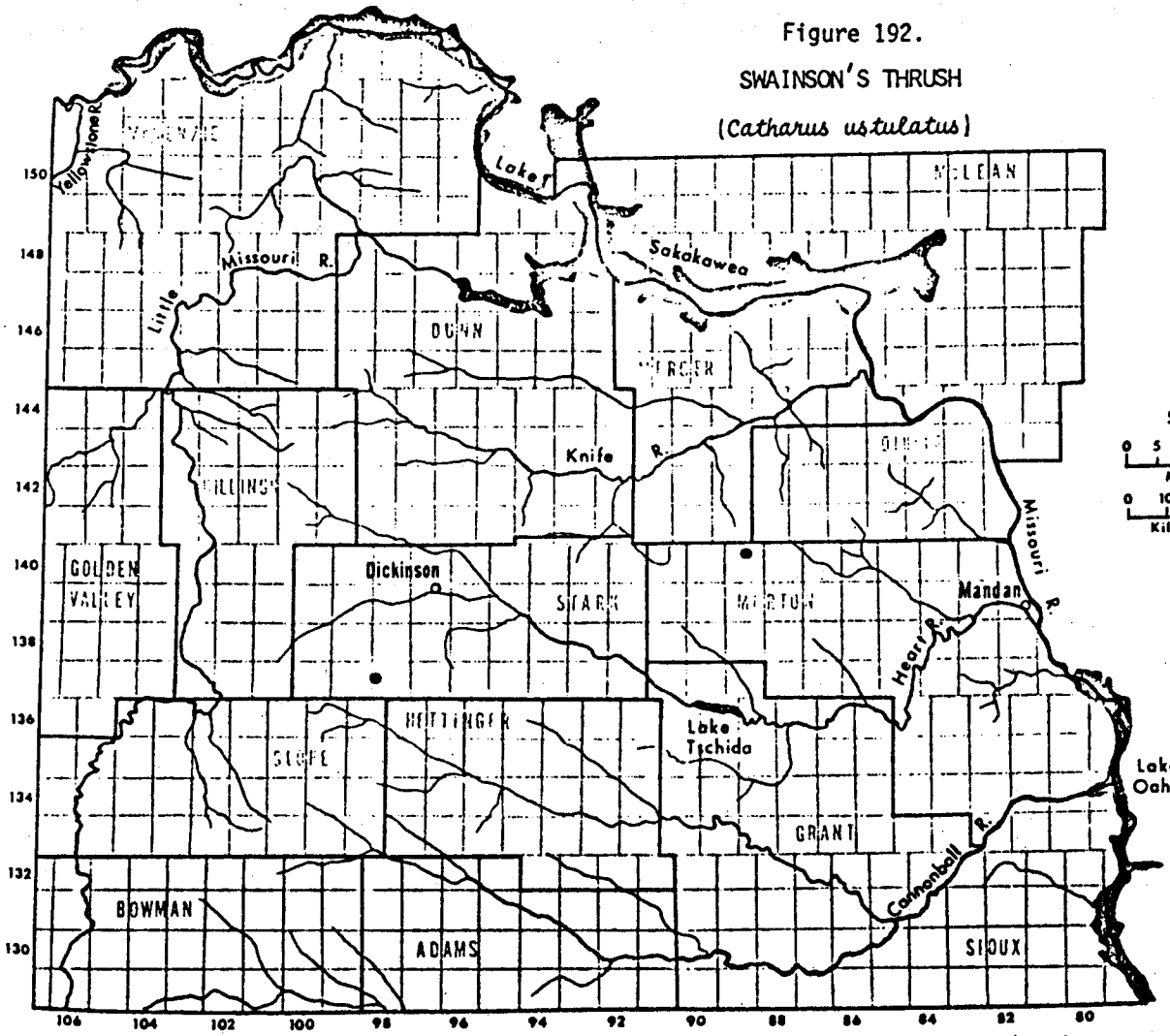


Figure 193.

SWAINSON'S THRUSH

(*Catharus ustulatus*)

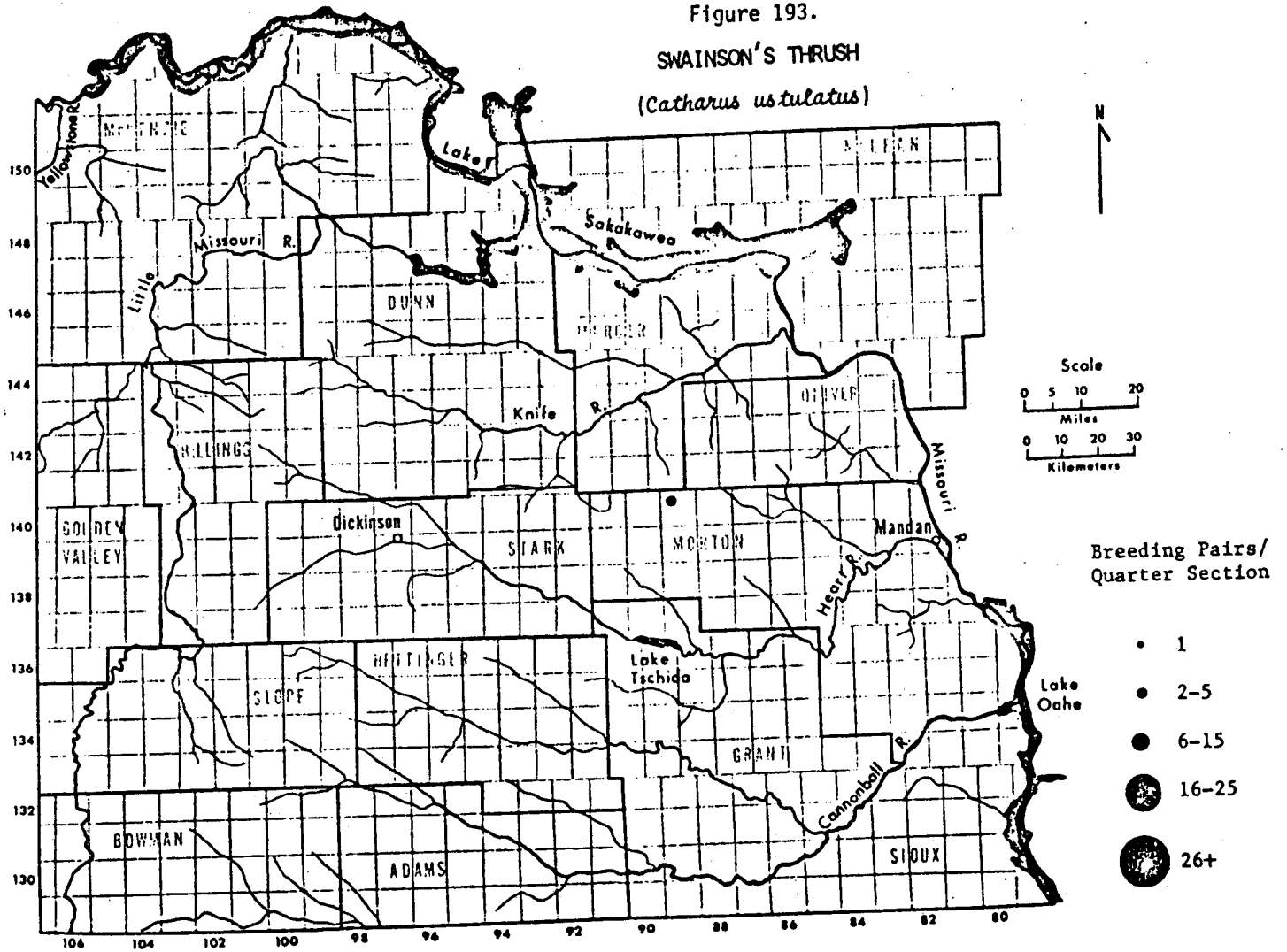


Figure 194.

ROBIN

(*Turdus migratorius*)

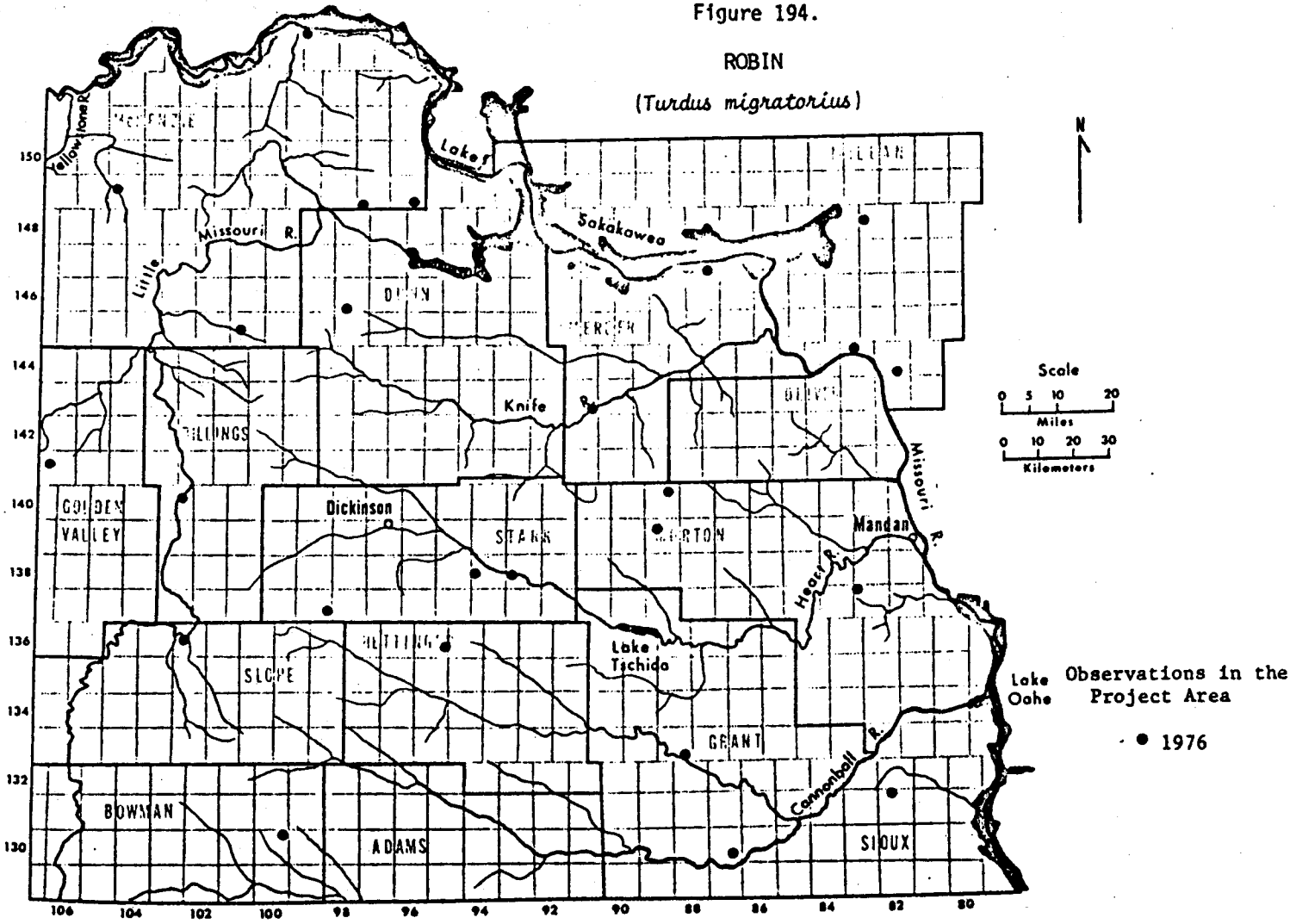


Figure 195.

ROBIN

(Turdus migratorius)

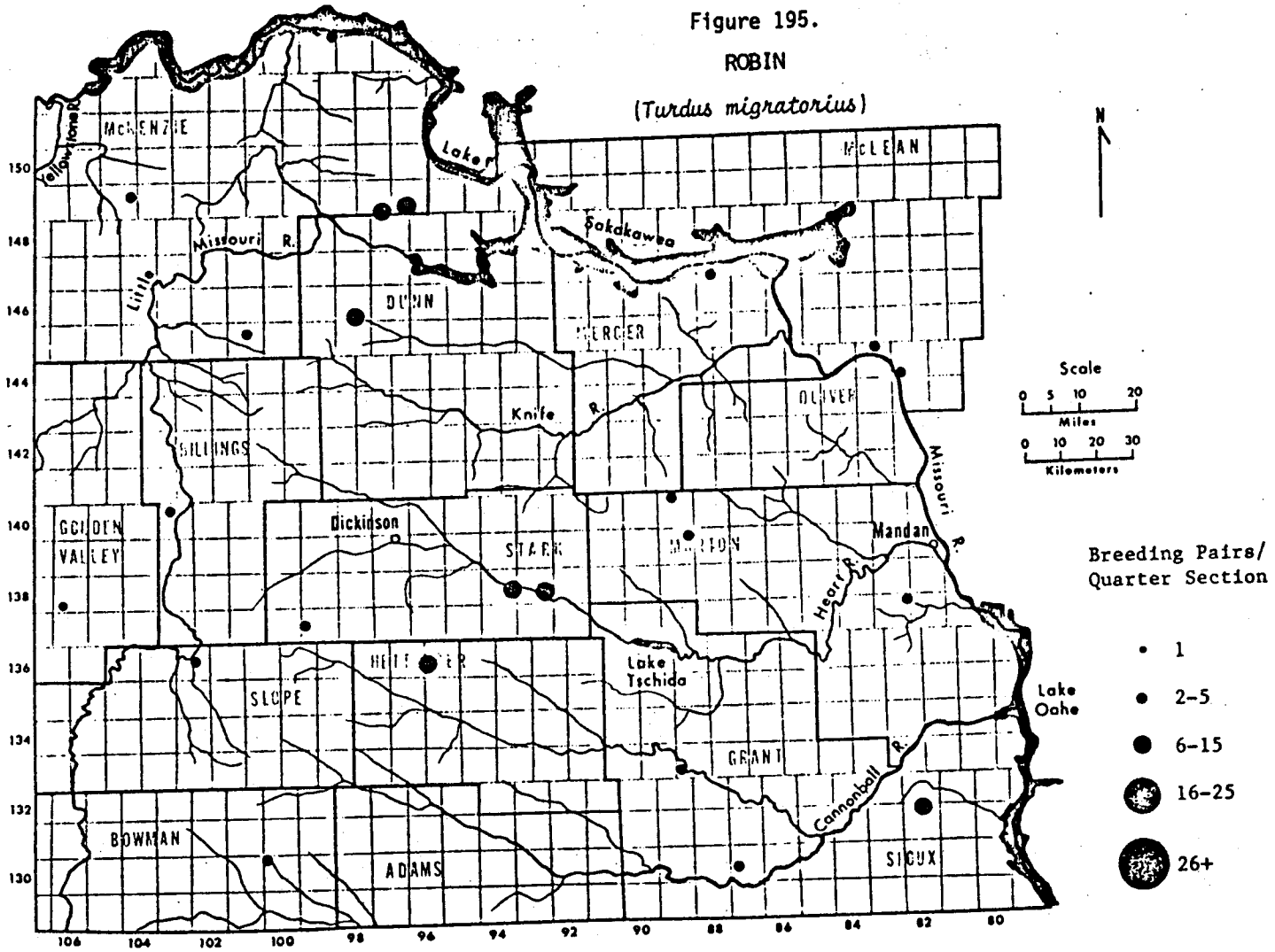


Figure 196.

EASTERN BLUEBIRD

(*Sialia sialis*)

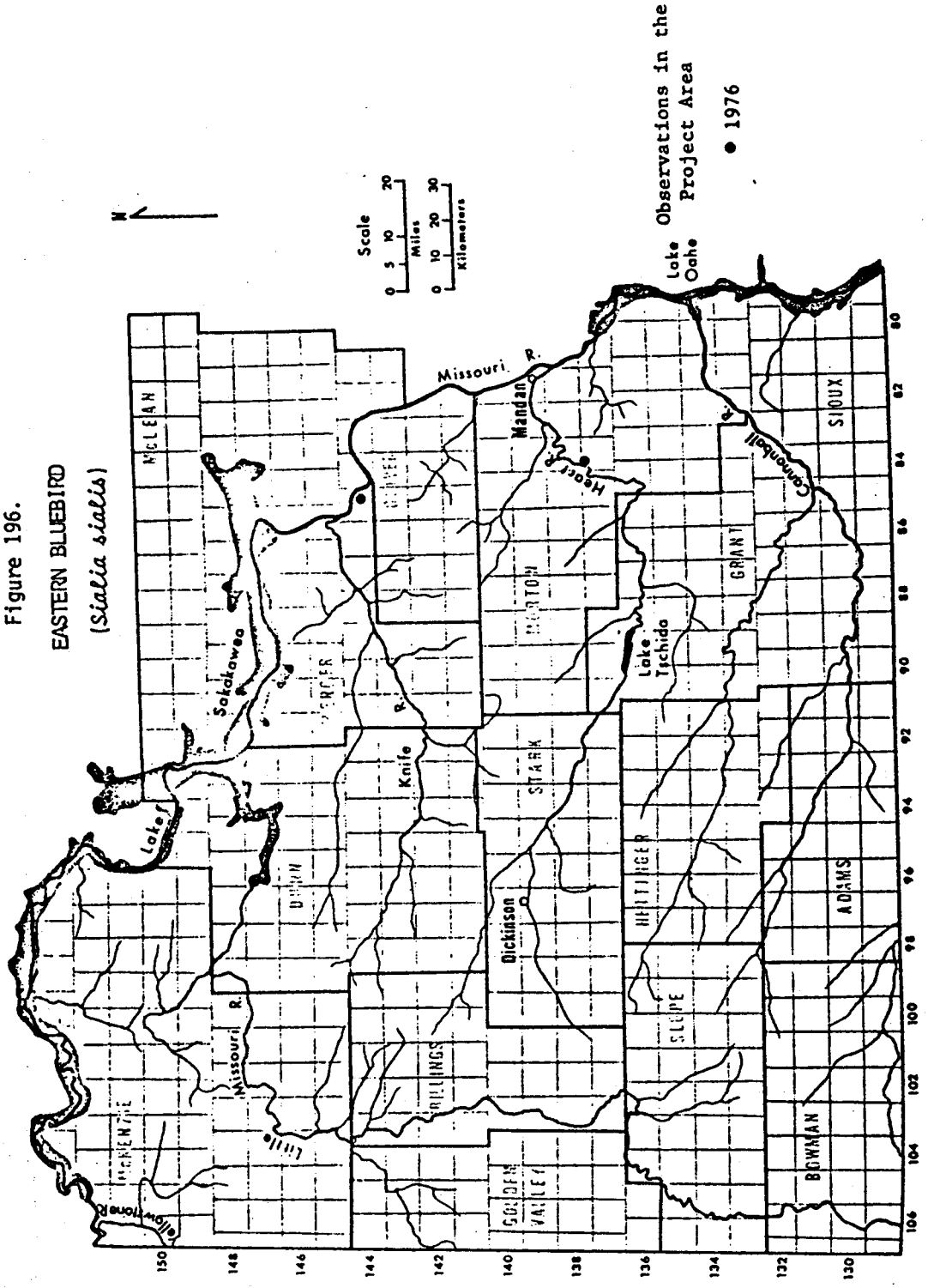
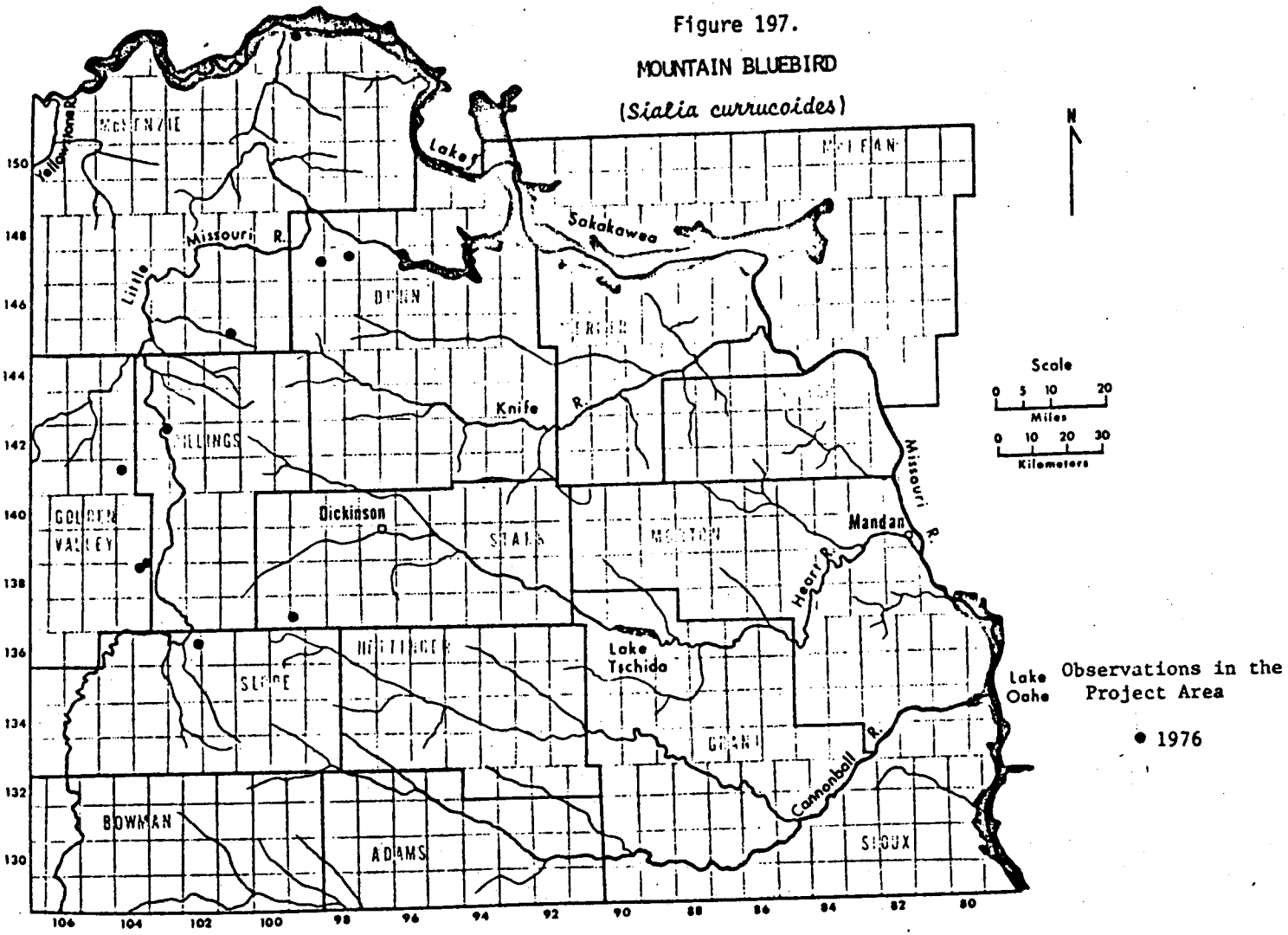


Figure 197.

MOUNTAIN BLUEBIRD

(*Sialia currucoides*)



Observations in the Project Area

● 1976

Figure 198.

MOUNTAIN BLUEBIRD

(*Sialia currucoides*)

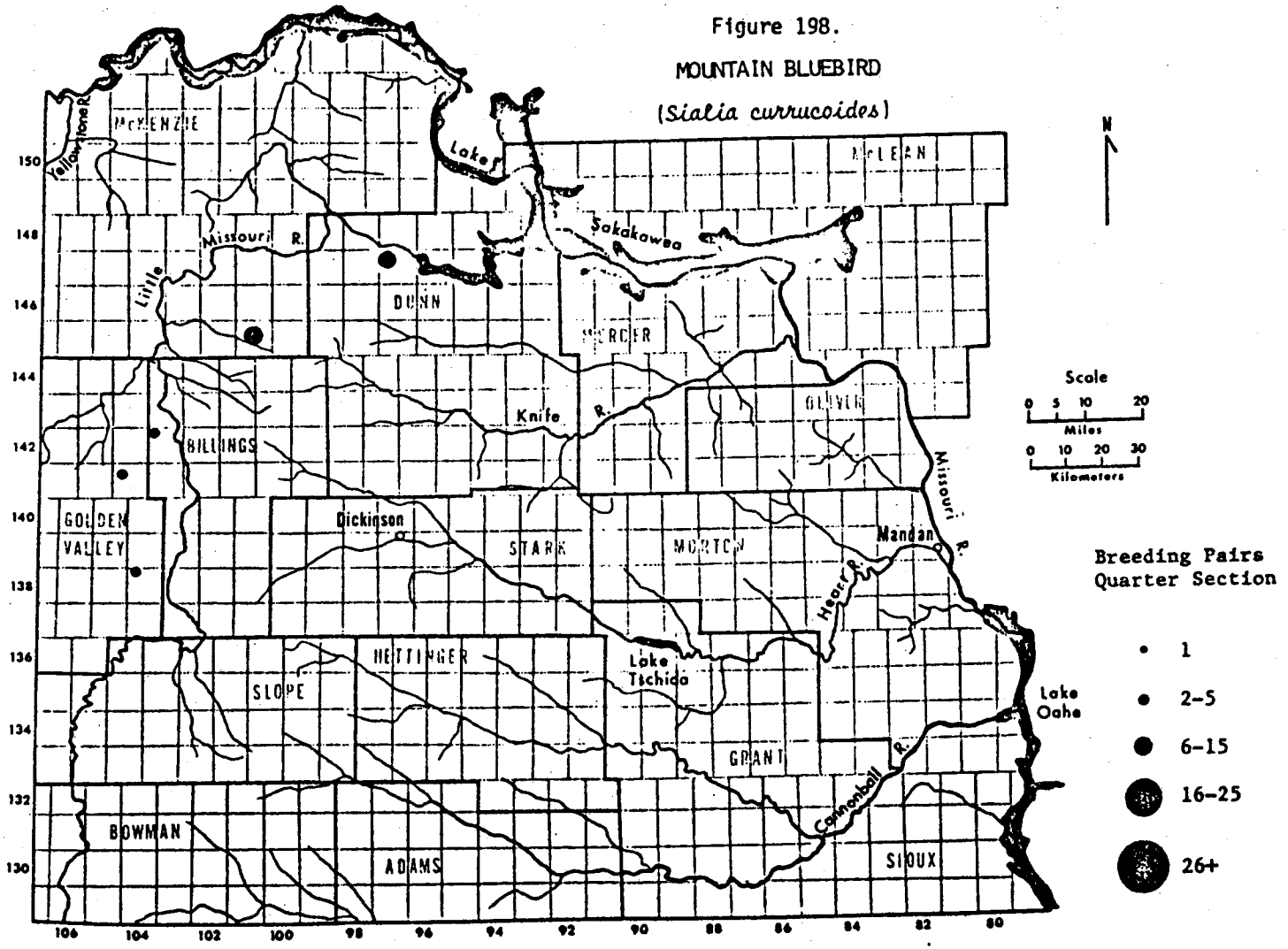
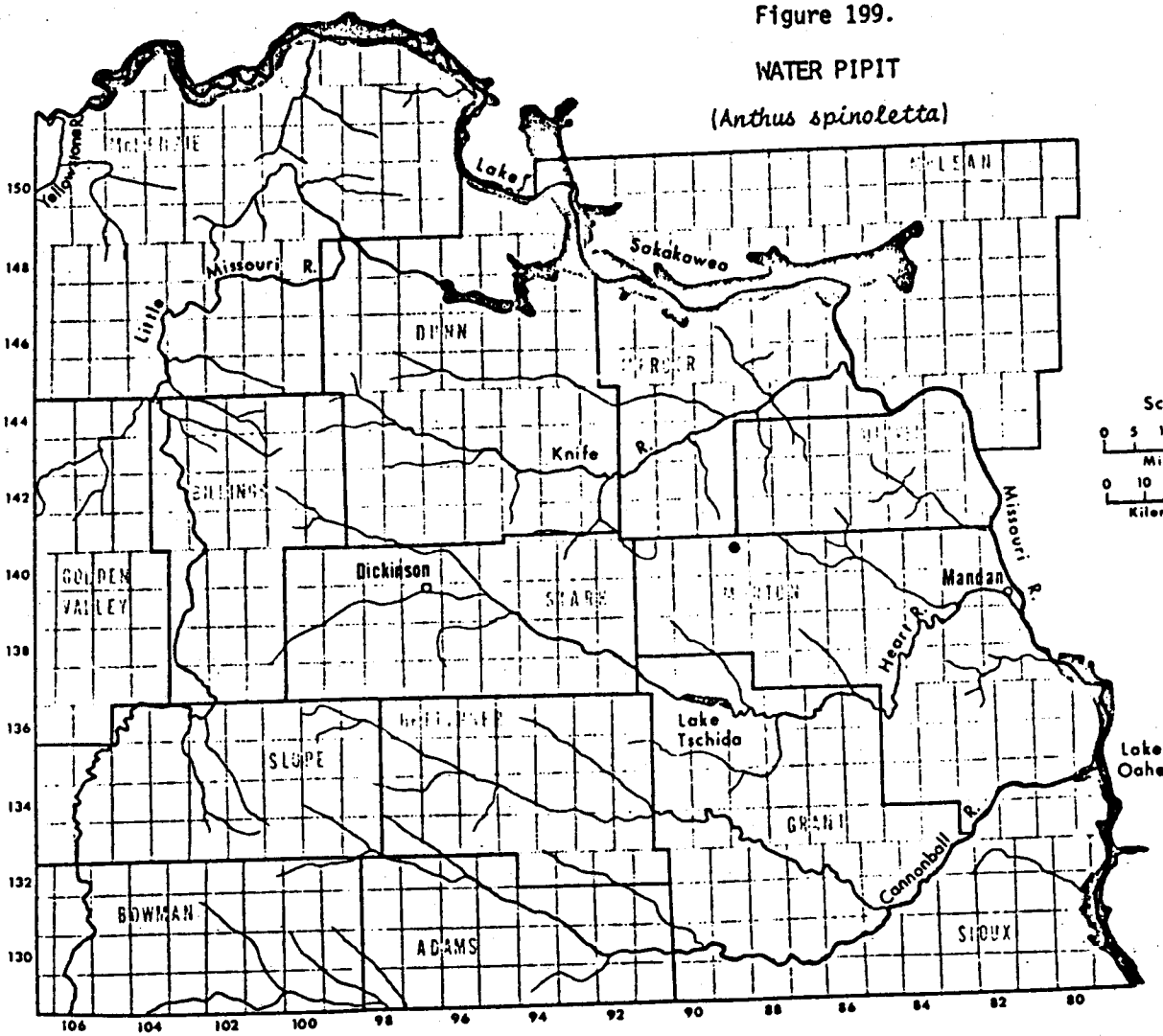


Figure 199.

WATER PIPIT

(*Anthus spinoletta*)



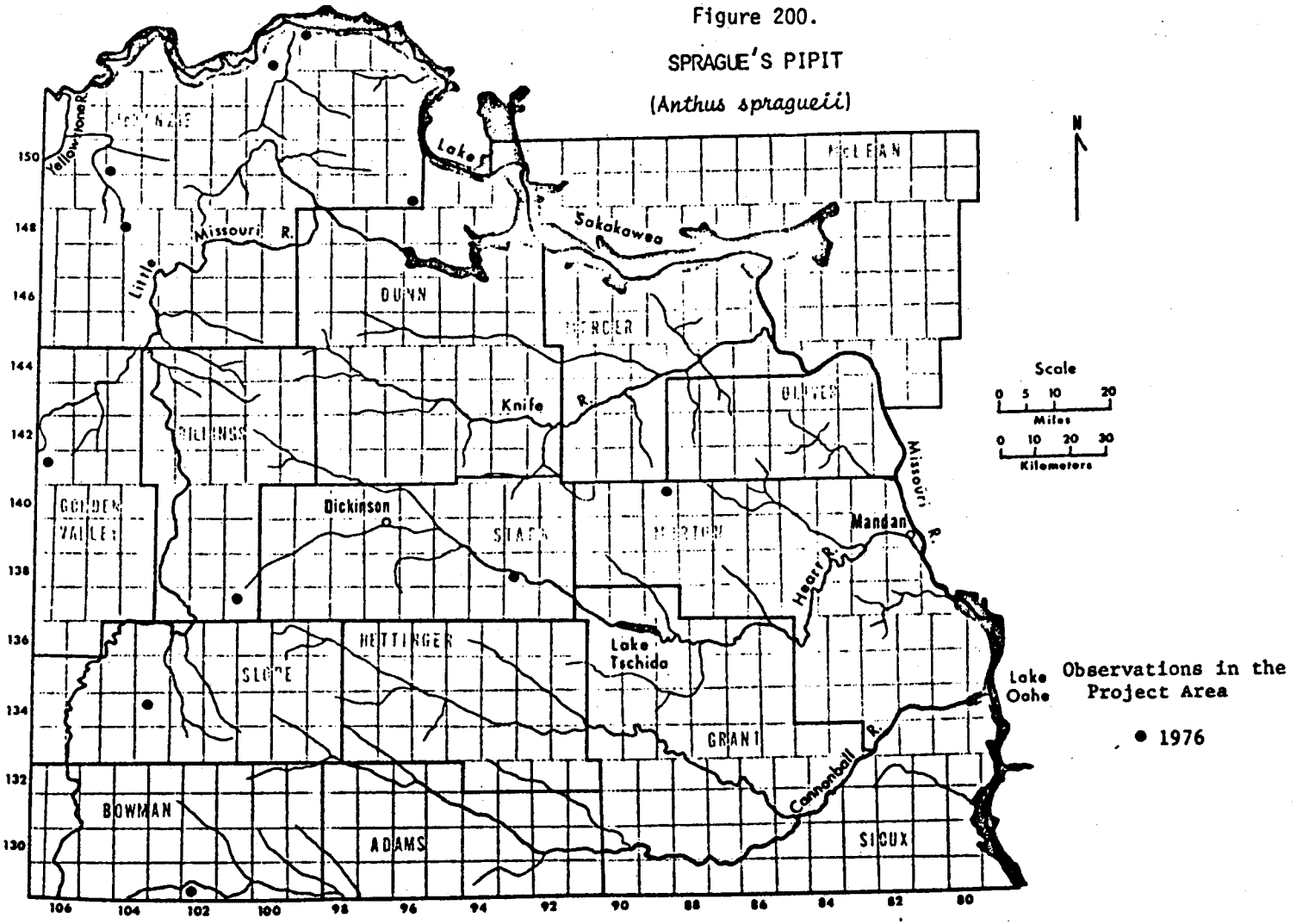
Observations in the Project Area

● 1976

Figure 200.

SPRAGUE'S PIPIT

(*Anthus spragueii*)



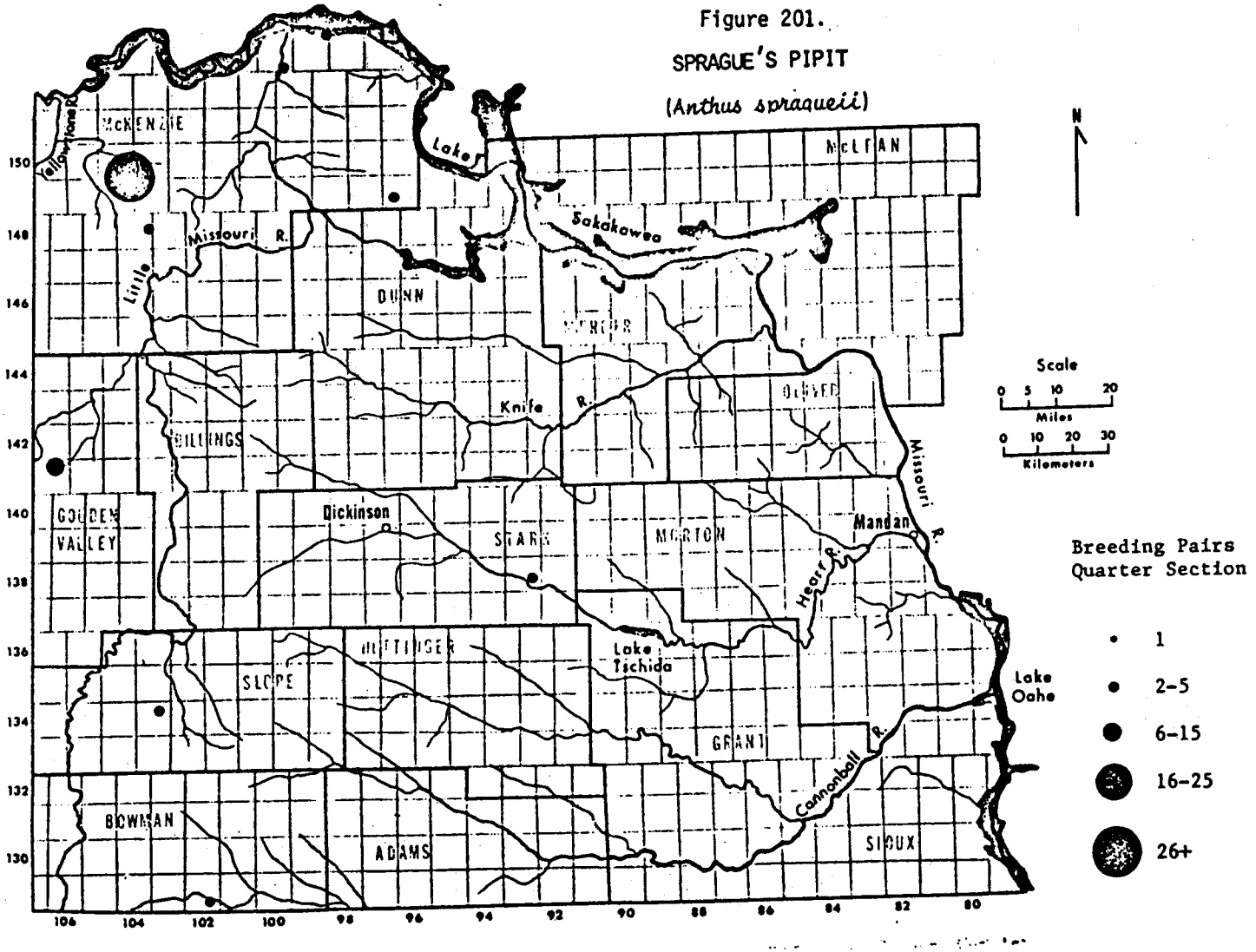
Observations in the Project Area

● 1976

Figure 201.

SPRAGUE'S PIPIT

(*Anthus spraqueii*)



ORDER: Passeriformes

FAMILY: Bombycillidae (Waxwings) - A family of 3 species found in the subarctic and temperate portions of the northern hemisphere, the waxwings live in evergreen or birch forests and are gregarious and arboreal (Austin, 1971).

Cedar Waxwing (*Bombycilla cedrorum*) - These birds are found over all of North America except northern Canada and all of Alaska. Breeding range is in southern Canada and the northern United States, while the winter range is found in southern North America. The birds are permanent residents in the Pacific Northwest and central to eastern United States (Robbins, et al., 1966). In North Dakota, Stewart (1975) lists them as common in the Turtle Mountains, fairly common along the Missouri and eastern rivers, and uncommon and local elsewhere.

Distribution in the project area: Four observations were made in a riparian woodland, hardwood draw, spoil pile, and shelterbelt in Bowman, McLean, and Stark Counties (Fig. 202, 203).

Habitat: Found in semiopen deciduous woodland, including lowland woods on river floodplains and upland woods. They are attracted to berry-laden thickets or trees. Nests usually are situated in small trees (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Lanidae (Shrikes) - This family contains 64 living species in North America to southern Mexico, Africa and Eurasia (except the arctic). Found in open woodlands, forest edges, clearings, brushlands, and farmlands. They are solitary and aggressive (Austin, 1971).

Loggerhead Shrike (*Lanius ludovicianus*) - This species is found over all of the United States and southern Canada. The breeding range is in the northern United States and southern Canada, while winter range is on the Gulf coast of Mexico and south. Elsewhere the bird is a year round resident (Robbins, et al., 1966). Stewart (1975) lists it as common in the southern portion of the Little Missouri Slope, and uncommon to fairly common, at least locally, elsewhere in North Dakota.

Distribution in the project area: 13 observations were made in hardwood draws, rolling grasslands, and shelterbelts of Bowman, Golden Valley, Grant, McKenzie, Mercer, Morton, Oliver, and Stark Counties (Fig. 204, 205).

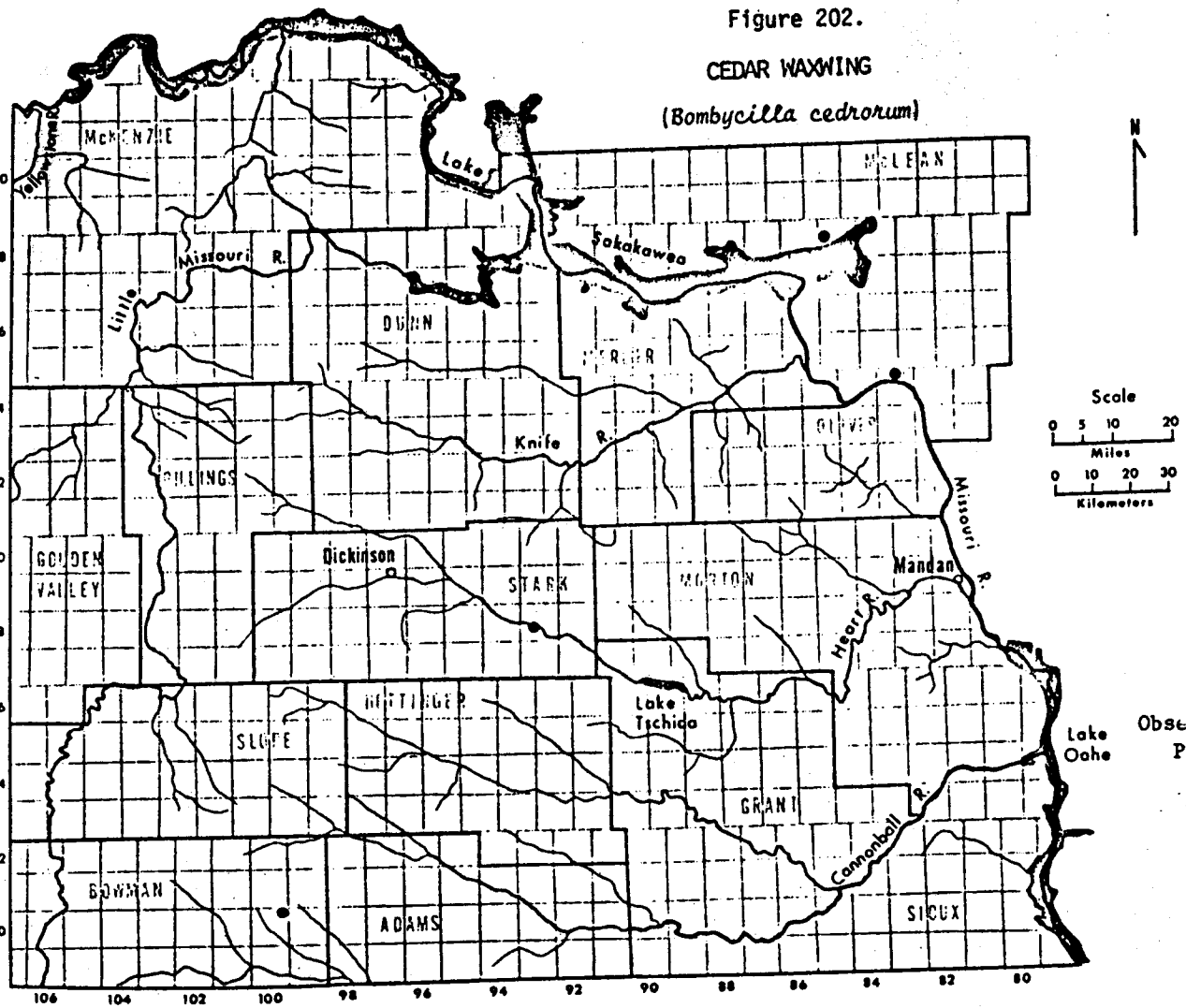
Habitat: Found in open-country edge and small trees and shrubs within or adjacent to croplands or tracts of native prairie. Nests usually are situated in isolated small trees with dense foliage (Stewart, 1975).

Status: Uncommon breeding species in the project area.

Figure 202.

CEDAR WAXWING

(*Bombycilla cedrorum*)



Observations in the Project Area

● 1976

Figure 203.

CEDAR WAXWING

(*Bombycilla cedrorum*)

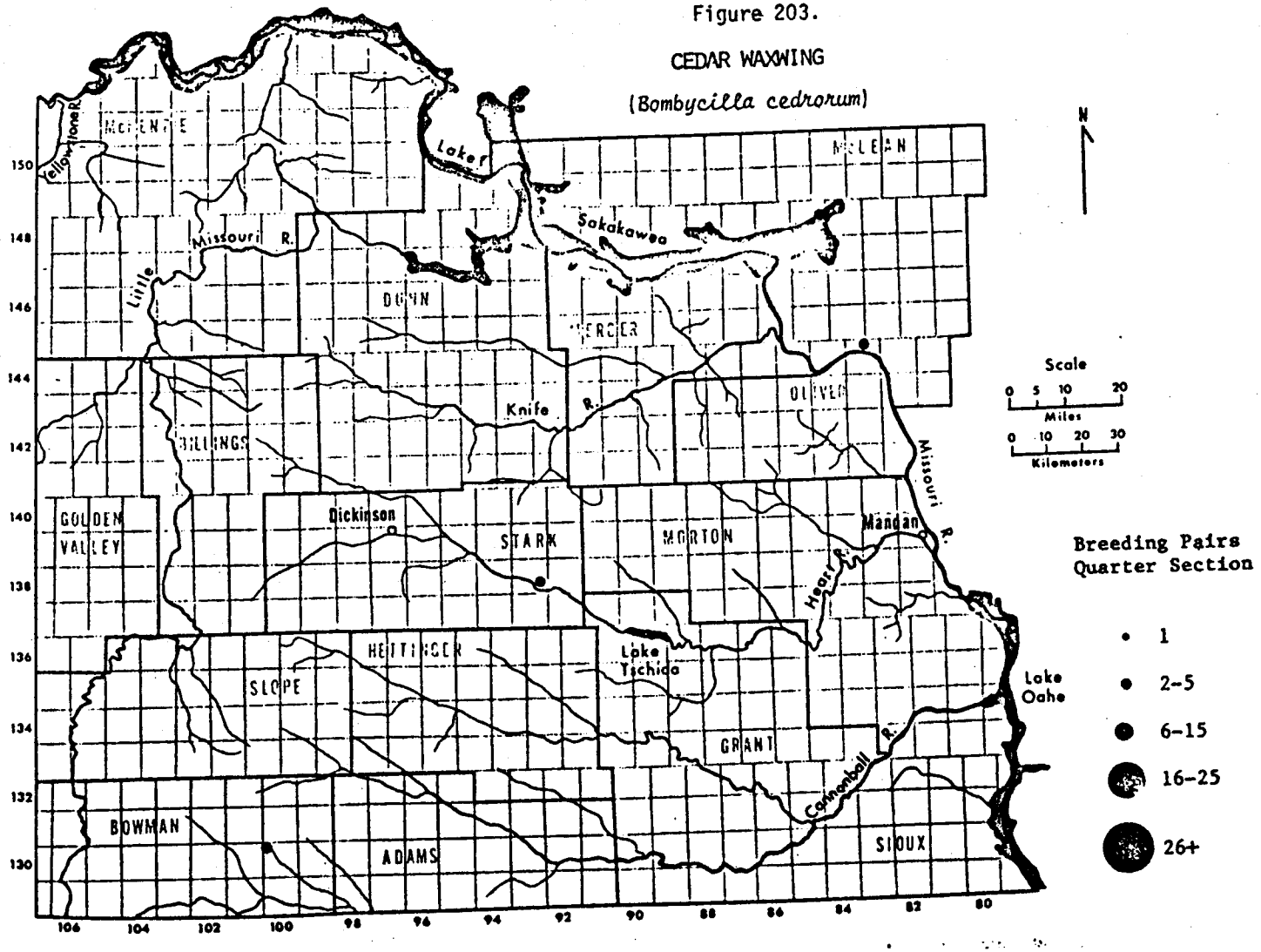
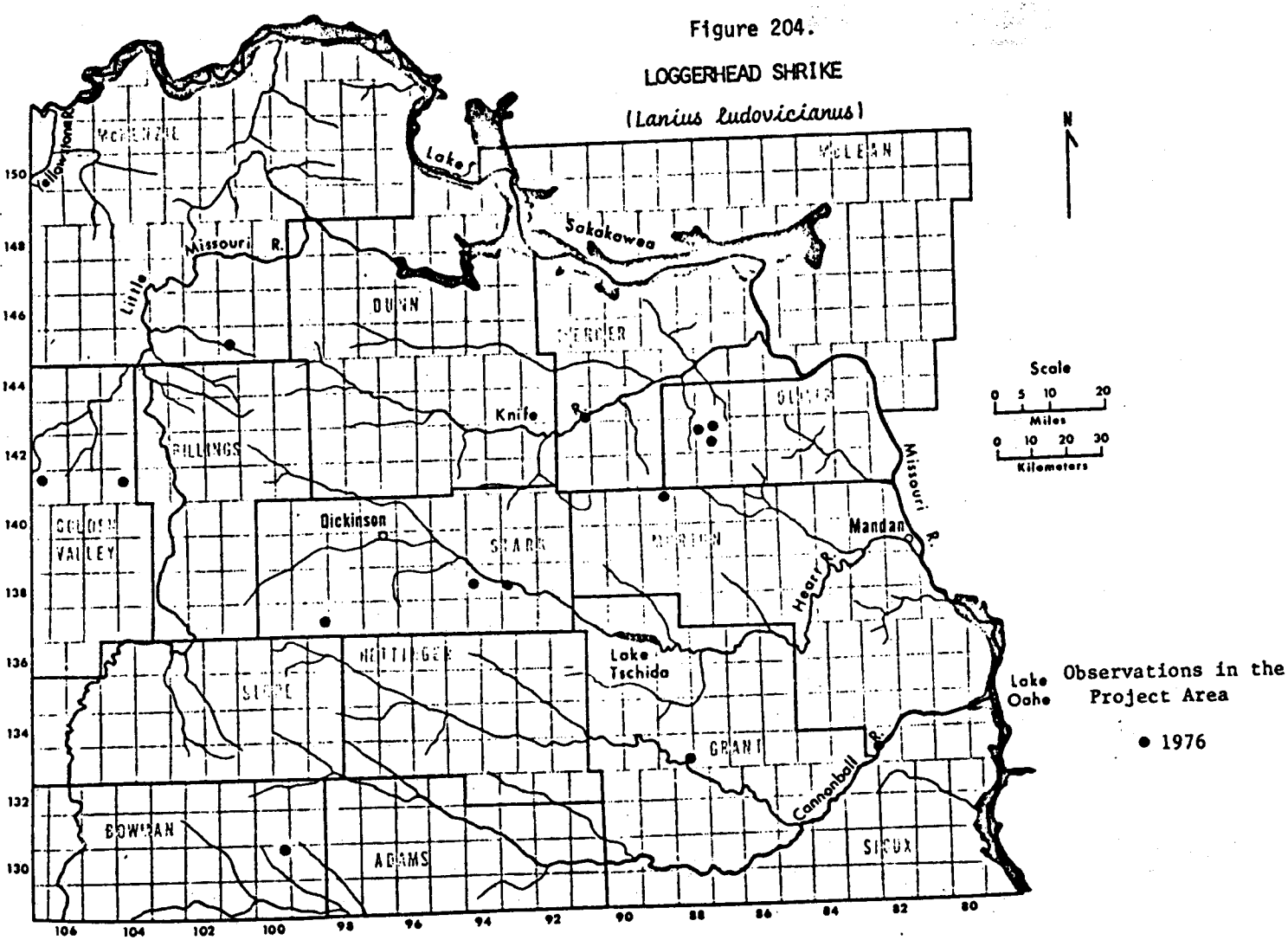


Figure 204.

LOGGERHEAD SHRIKE

(*Lanius ludovicianus*)



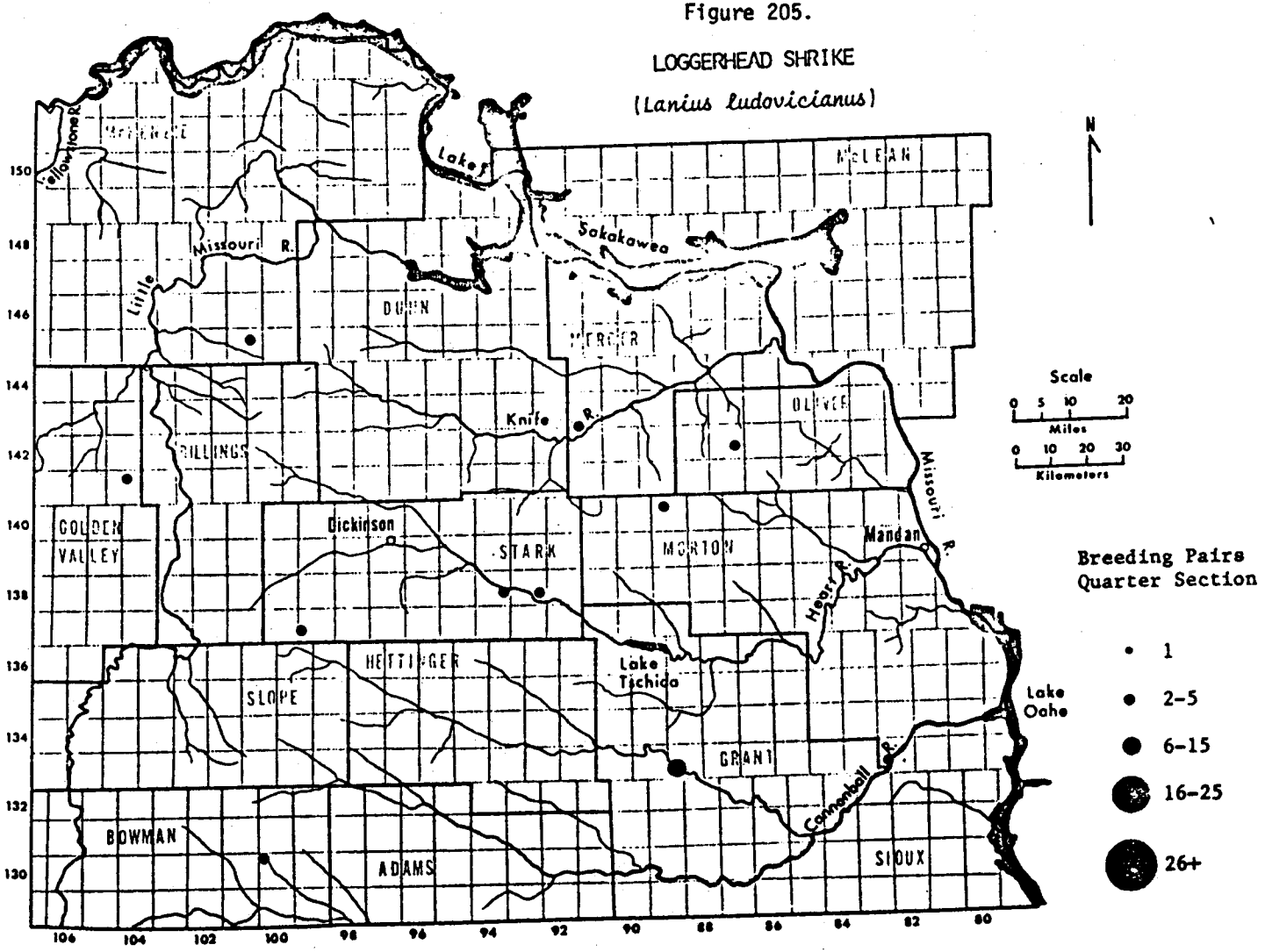
Observations in the Project Area

● 1976

Figure 205.

LOGGERHEAD SHRIKE

(*Lanius ludovicianus*)



ORDER: Passeriformes

FAMILY: Sturnidae (Starlings) - A family of 107 living species, the Starlings are found in Eurasia, Africa, the East Indies, Australia, Pacific Islands, and introduced elsewhere. They live in all types of wooded country, agricultural lands, cities, and towns (Austin, 1971).

Starling (*Sturnus vulgaris*) - Since its introduction into North America, the Starling has spread over a wide area to include the United States, southern Canada, and northern Mexico. They breed in southern Canada, winter in northern Mexico and live year round in the United States (Robbins, et al., 1966). Stewart (1975) lists the greater breeding populations to be found in the eastern third of North Dakota, and are limited and local elsewhere in the state.

Distribution in the project area: Three observations were made on farmsteads and in a shelterbelt in Bowman, Hettinger, and Stark Counties (Fig. 206, 207).

Habitat: Found near buildings and on established lawns, trees, and shrub growth. Various types of cavities in trees are used for nesting (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Vireonidae (Vireos) - This family contains 37 living species in central Canada south to Uruguay and northern Argentina. They live in all types of forests and brushlands and are solitary (Austin, 1971).

Red-eyed Vireo (*Vireo olivaceus*) - This vireo is found over all the United States except the southwest and north through central Canada. The bird breeds throughout this whole area (Robbins, et al., 1966). In North Dakota, Stewart (1975) lists it as common or fairly common in the Turtle Mountains, eastern portions of the state, along the lower Missouri River, and in the Killdeer Mountains; uncommon elsewhere.

Distribution in the project area: Nine observations were made in hardwood draws, riparian woodlands, and shelterbelts of Adams, Bowman, McKenzie, Mercer, and Morton Counties (Fig. 208, 209).

Habitat: Found in deciduous forests with fairly dense canopies, river floodplains, and some uplands (Stewart, 1975).

Status: Uncommon breeding species in the project area.

ORDER: Passeriformes

FAMILY: Vireonidae

Warbling Vireo (*Vireo gilvus*) - The Warbling Vireo is found over the entire United States north through west-central Canada. The breeding range covers most of this area except for the coasts of Mexico and the southeastern United States (Robbins, et al., 1966). In North Dakota, Stewart (1975) lists it as fairly common to abundant from the Missouri River east, and uncommon and local elsewhere.

Distribution in the project area: Five observations were made in a hardwood draw in McLean County and shelterbelts in Bowman, Grant, and Morton Counties (Fig. 210, 211).

Habitat: Found in open stands of deciduous trees including aspen, cottonwood and elm. Nests are situated several feet above ground in small trees (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Vireonidae

Solitary Vireo (*Vireo solitarius*) - This species is found over all of the United States and Mexico north through central Canada. The breeding range includes the area in Canada and south along the western half of the United States. Winter range extends along the southern border of the United States and south through Mexico (Robbins, et al., 1966). No breeding records are known for North Dakota.

Distribution in the project area: One observation was made in a hardwood draw in Dunn County (Fig. 212, 213).

Habitat: Found in mixed northern hardwood-coniferous forests (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Passeriformes

FAMILY: Parulidae (Wood Warblers) - A family of 118 living species, the warblers occur in Alaska and Labrador south to Paraguay, Argentina, and Peru. They live in forests and scrublands of all types (Austin, 1971).

Black-and-White Warbler (*Mniotilta varia*) - This species is found in the eastern half of the United States and Mexico, and north through central Canada. Breeding range covers central Canada and the eastern United States. Winter range is found on the Mexican Gulf coast and south and in Florida (Robbins, et al., 1966). Stewart (1975) lists this species to be fairly common to uncommon in the Badlands, and uncommon and local elsewhere in the state.

Distribution in the project area: 12 observations were found in hardwood draws, juniper draws, ponderosa pines, and shelterbelts in Billings, Bowman, Dunn, Golden Valley, McKenzie, McLean, Mercer, and Slope Counties (Fig. 214, 215).

Habitat: Found in semiopen stands of upland forest composed of immature or second-growth trees (Stewart, 1975).

Status: Uncommon breeding species in the project area; probably fairly common to common locally along the Little Missouri River and in the Killdeer Mountains.

ORDER: Passeriformes

FAMILY: Parulidae

Yellow Warbler (*Dendroica petechia*) - The Yellow Warbler is found over the entire North American continent except northern Canada and Alaska. The breeding range covers all but the southernmost United States and all of Mexico (Robbins, et al., 1966). Stewart (1975) lists the bird as common or fairly common over most of the state.

Distribution in the project area: 16 observations were made primarily in riparian woodlands and hardwood draws over most of the project area (Fig. 216, 217).

Habitat: Found in fairly dense thickets of small deciduous trees and tall shrubs near moist areas. They also utilize shelterbelts and partially wooded areas of towns and farmsteads (Stewart, 1975).

Status: Fairly common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Parulidae

Yellow-rumped (Audubon's) Warbler (*Dendroica coronata auduboni*) - This species is found over the entire North American continent except northern Canada and Alaska. Breeding range is in Canada and a few areas of the northern United States, and the species winters in the southern United States and Mexico (Robbins, et al., 1966). Stewart (1975) lists this subspecies as restricted to ponderosa pines in western North Dakota.

Distribution in the project area: Two observations were made in the ponderosa pines of Slope County (Fig. 218, 219).

Habitat: Found in spruce-fir forests and along the coasts in winter (Robbins, et al., 1966), and in ponderosa pine in North Dakota (Stewart, 1975).

Status: Rare breeding species in the total project area; probably uncommon locally in the ponderosa pine area.

ORDER: Passeriformes

FAMILY: Parulidae

Ovenbird (*Seiurus aurocapillis*) - This bird is found over the eastern half of the United States and southeastern portions of Canada. Breeding range covers all but the southeastern section of the United States (Robbins, et al., 1966). In North Dakota, Stewart (1975) lists is as common or fairly common along the lower Missouri, Little Missouri, and Turtle Mountains. Elsewhere it is uncommon or rare and local.

Distribution in the project area: Seven observations were made in hardwood draws, a juniper draw, and ponderosa pines in Billings, Dunn, McKenzie, McLean, and Slope Counties (Fig. 220, 221).

Habitat: Found in mature upland or well-drained bottomland deciduous forests (Stewart, 1975).

Status: Uncommon breeding species in the project area; probably fairly common locally along portions of the Little Missouri River and in the Killdeer Mountains.

ORDER: Passeriformes

FAMILY: Parulidae

Common Yellowthroat (*Teothlypis trichas*) - The Common Yellowthroat is found over all the United States and Mexico and the southern half of Canada. The bird breeds over the entire area, and is in the extreme southern portion of the United States and Mexico year round (Robbins, et al., 1966). Stewart (1975) lists the species as common in the Turtle Mountains, Agassiz Lake Plain Region, and throughout the Prairie Pothole Region; fairly common in the Southwestern Slope Region.

Distribution in the project area: 27 observations were made primarily in hardwood draws, riparian woodlands, and rolling grasslands in all but Adams, Hettinger, and Sioux Counties (Fig. 222, 223).

Habitat: Found in lush stands of herbaceous vegetation with or without associated small trees and shrubs. Most commonly it is found on moist or boggy sites (Stewart, 1975).

Status: Common breeding species in the project area; dense populations occur along several rivers and in the Killdeer Mountains.

ORDER: Passeriformes

FAMILY: Parulidae

Yellow-breasted Chat (*Icteria virens*) - This bird is found over all of Mexico and the United States, except around the Great Lakes (Robbins, et al., 1966). Stewart (1975) lists it as fairly common throughout the western portion of North Dakota.

Distribution in the project area: Ten observations were made in riparian woodland hardwood draws, and upland grasslands in Billings, McKenzie, McLean, Mercer, Slope, and Stark Counties (Fig. 224, 225).

Habitat: Found in fairly dense thickets of small trees and tall shrubs that are located in moist situations of valleys, ravines, or east- or north-facing slopes (Stewart, 1975).

Status: Uncommon breeding species in the project area; evidently fairly common locally along the Missouri and Little Missouri Rivers and their tributaries.

ORDER: Passeriformes

FAMILY: Parulidae

American Redstart (*Setophaga ruticilla*) - The American Redstart is found over all the North American continent except the west coast, northern Canada, and Alaska. Breeding range covers all but the southern portion of this area (Robbins, et al., 1966). For North Dakota, Stewart (1975) lists the bird as common or fairly common in many wooded areas throughout the state.

Distribution in the project area: Five observations were made in hardwood draws, of Dunn, Golden Valley, and McKenzie Counties, and in riparian woodland in Billings County (Fig. 226, 227).

Habitat: Found on floodplains or upland mesophytic deciduous forests, particularly young or second-stand growths, and wood margins or forest openings in mature stands (Stewart, 1975).

Status: Rare breeding species in the project area; probably common or fairly common locally along at least the Little Missouri River.

ORDER: Passeriformes

FAMILY: Icteridae (Blackbirds and allies) - This family contains 88 living species and occurs in almost all terrestrial habitats of the New World, except in the extreme north. Most are gregarious (Austin, 1971).

Boblink (*Dolichonyx oryzivorus*) - The Bobolink is found over all but the southwestern United States. Breeding range is found in the northern half of the United States (Robbins, et al., 1966). Stewart (1975) lists it as common or fairly common over most of North Dakota, and uncommon in the more southern portion of the Little Missouri Slope.

Distribution in the project area: 19 observations were made primarily in grasslands over much of the project area (Fig. 228, 229).

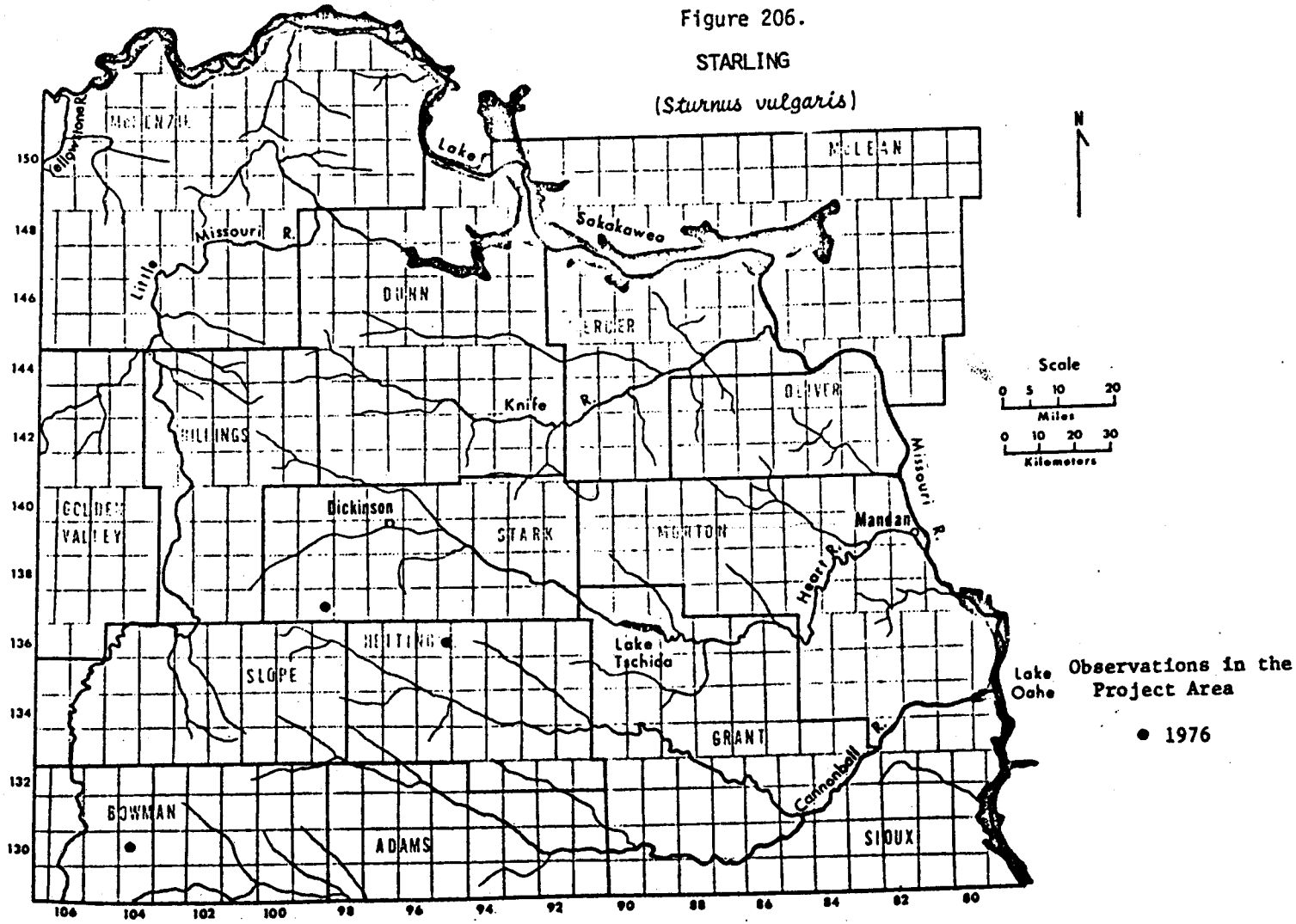
Habitat: In North Dakota, it is found on ungrazed and lightly grazed mixed-grass prairie, tall-grass prairie, wet-meadow zones, domestic haylands, and retired croplands (Stewart, 1975).

Status: Fairly common breeding species in the project area.

Figure 206.

STARLING

(*Sturnus vulgaris*)



Observations in the Project Area

● 1976

Figure 207.

STARLING

(Sturnus vulgaris)

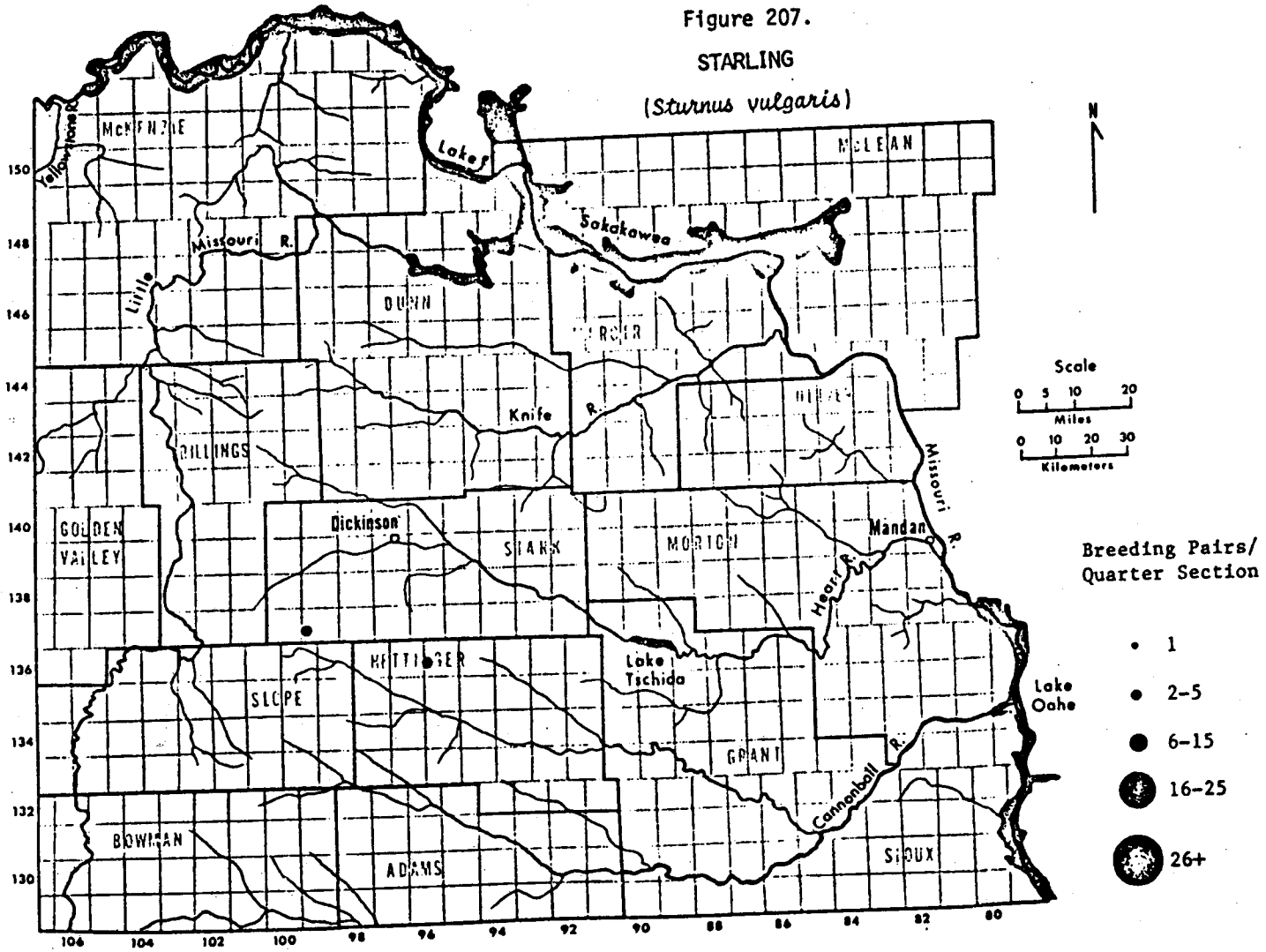


Figure 208.

RED-EYED VIREO

(Vireo olivaceus)

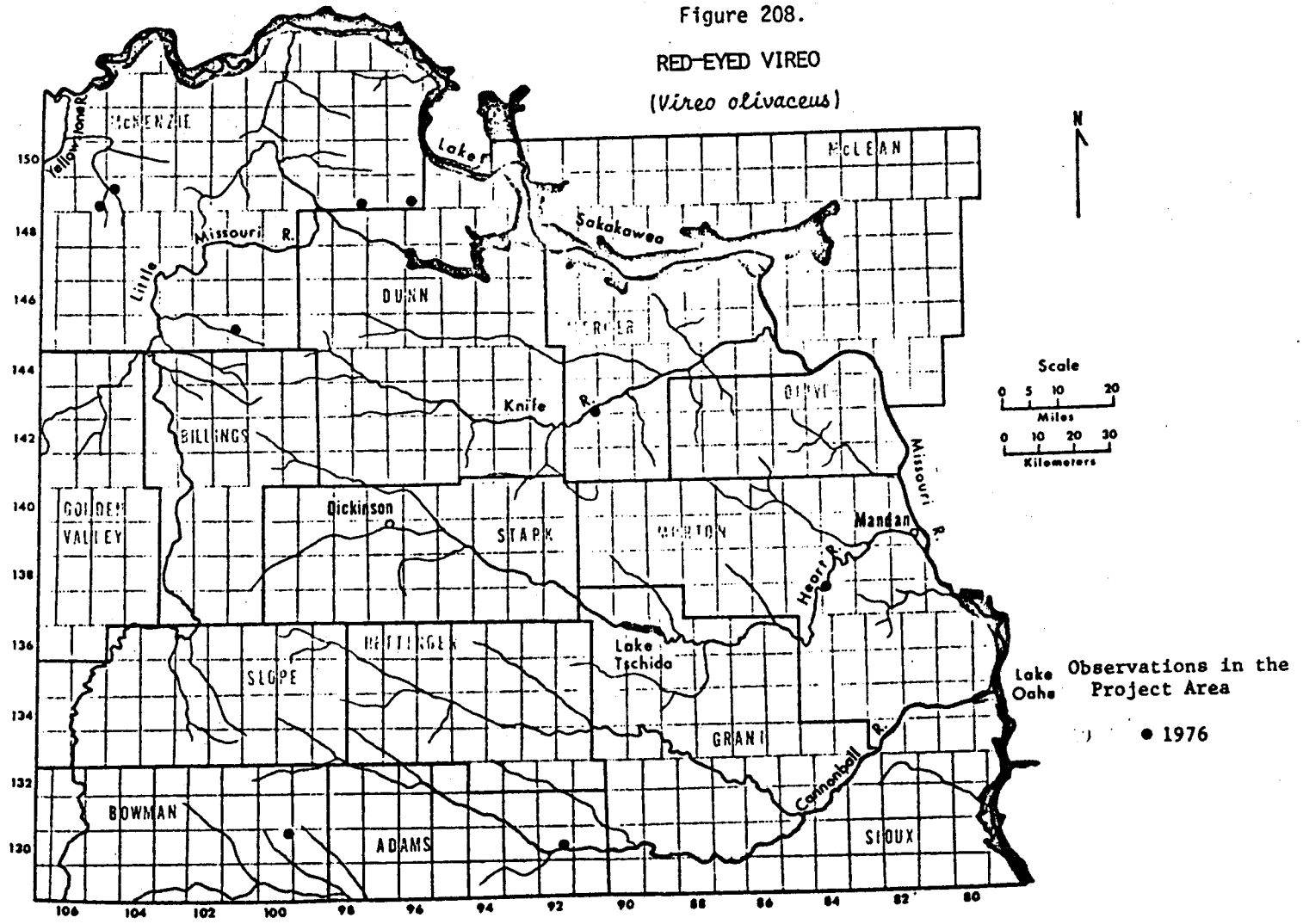


Figure 209.

RED-EYED VIREO

(*Vireo olivaceus*)

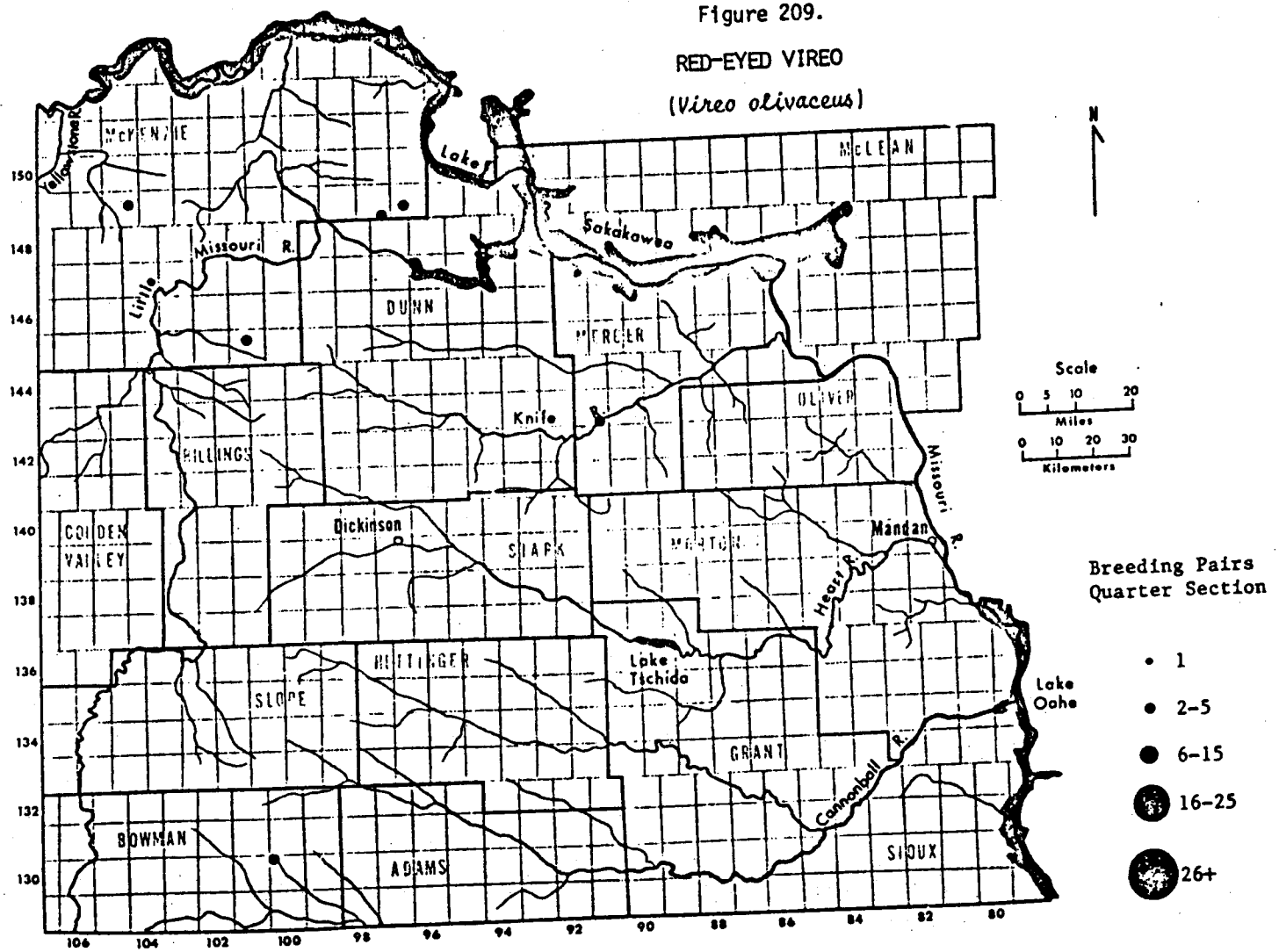
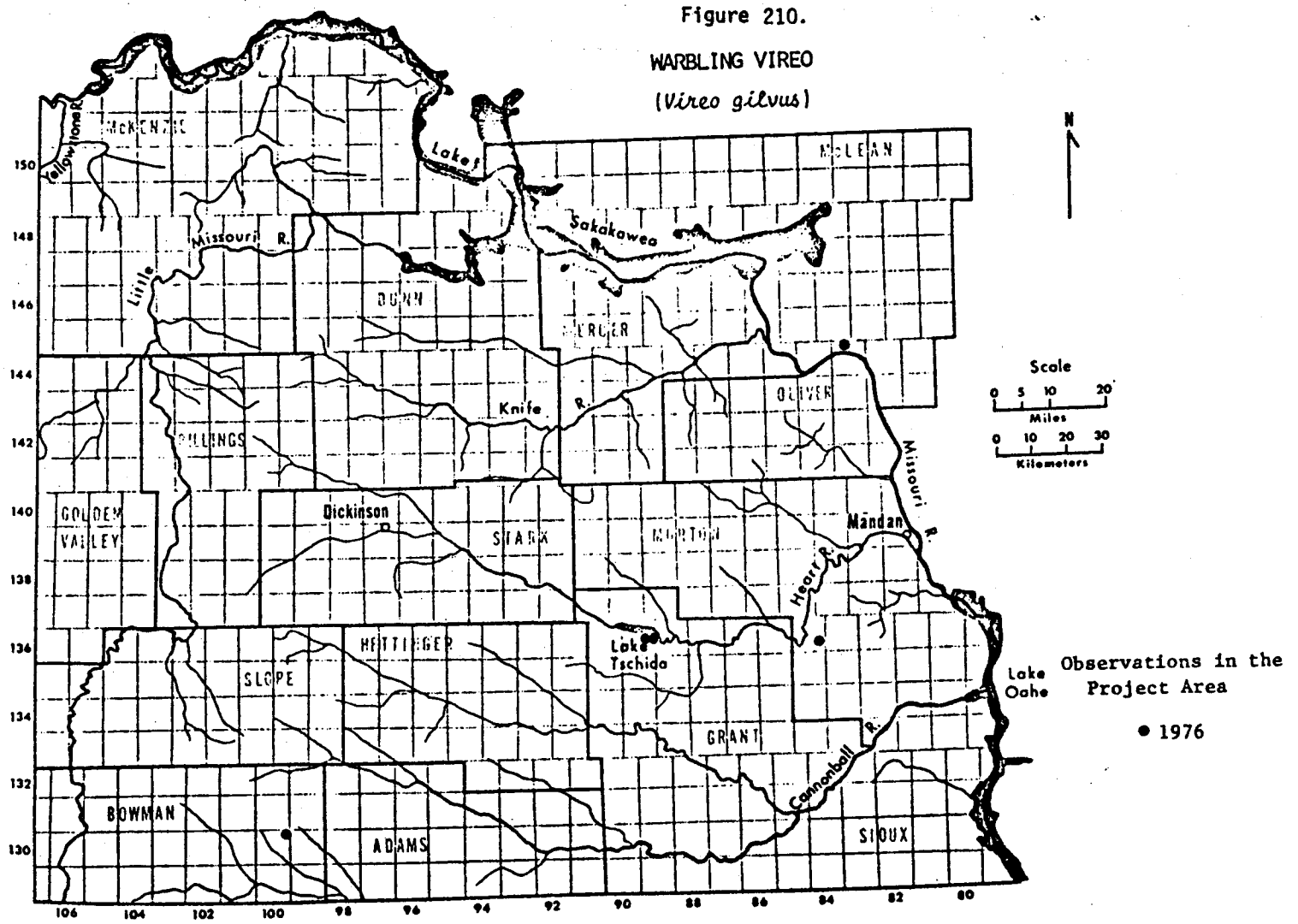


Figure 210.

WARBLING VIREO

(*Vireo gilvus*)



Observations in the Project Area

● 1976

Figure 211.

WARBLING VIREO

(Vireo gilvus)

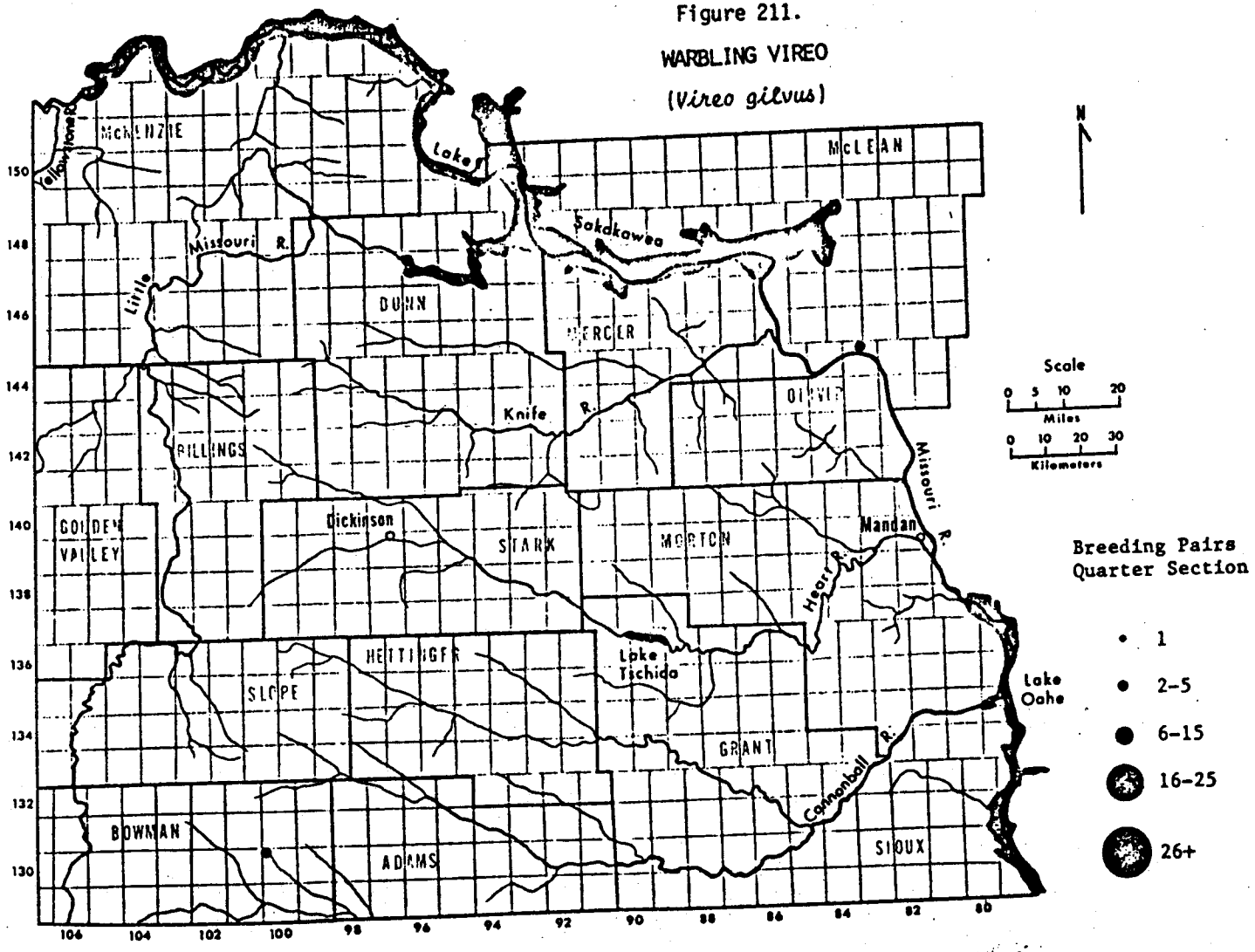
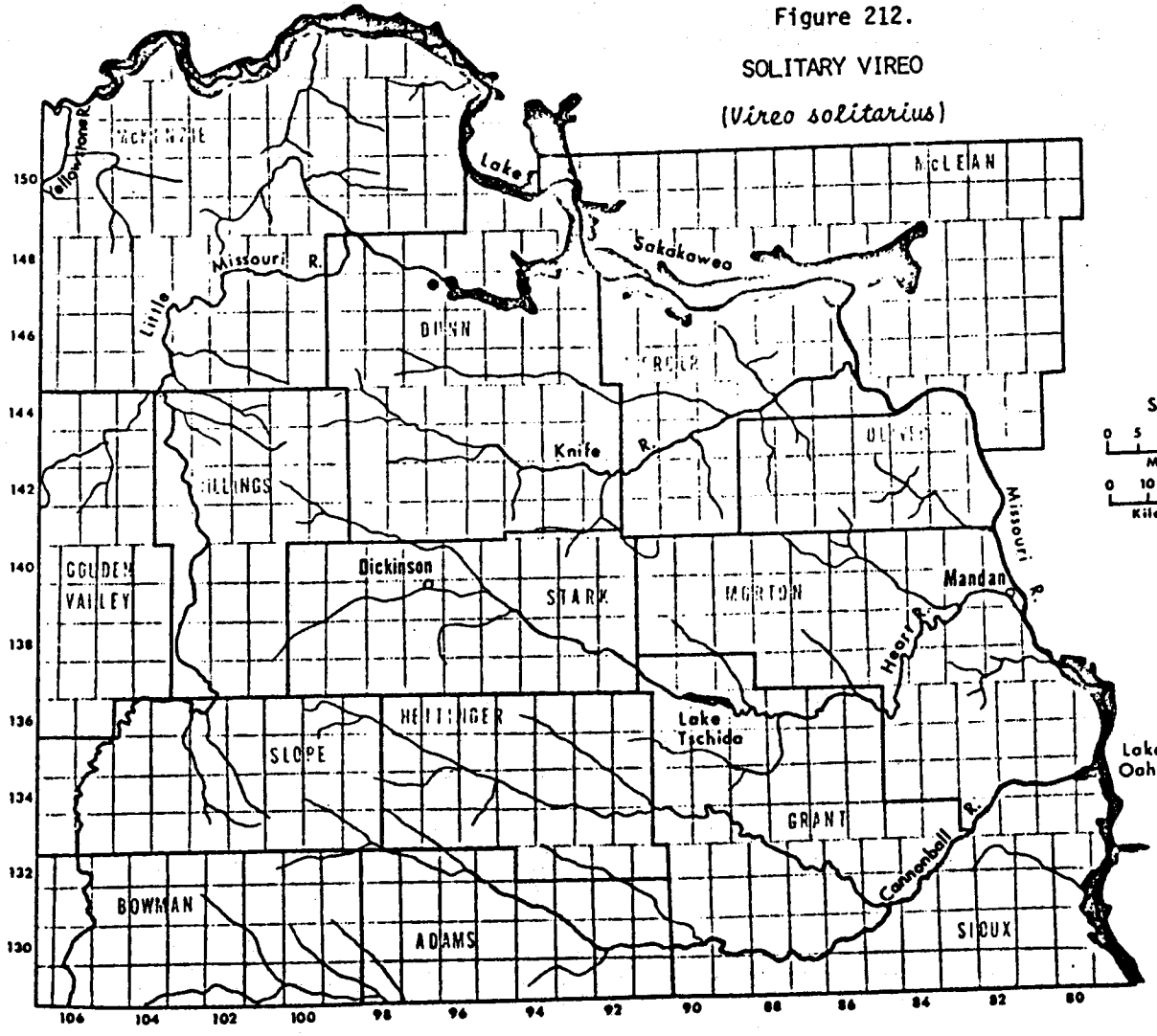


Figure 212.

SOLITARY VIREO

(*Vireo solitarius*)



Observations in the Project Area

● 1976

Figure 213.

SOLITARY VIREO

(*Vireo solitarius*)

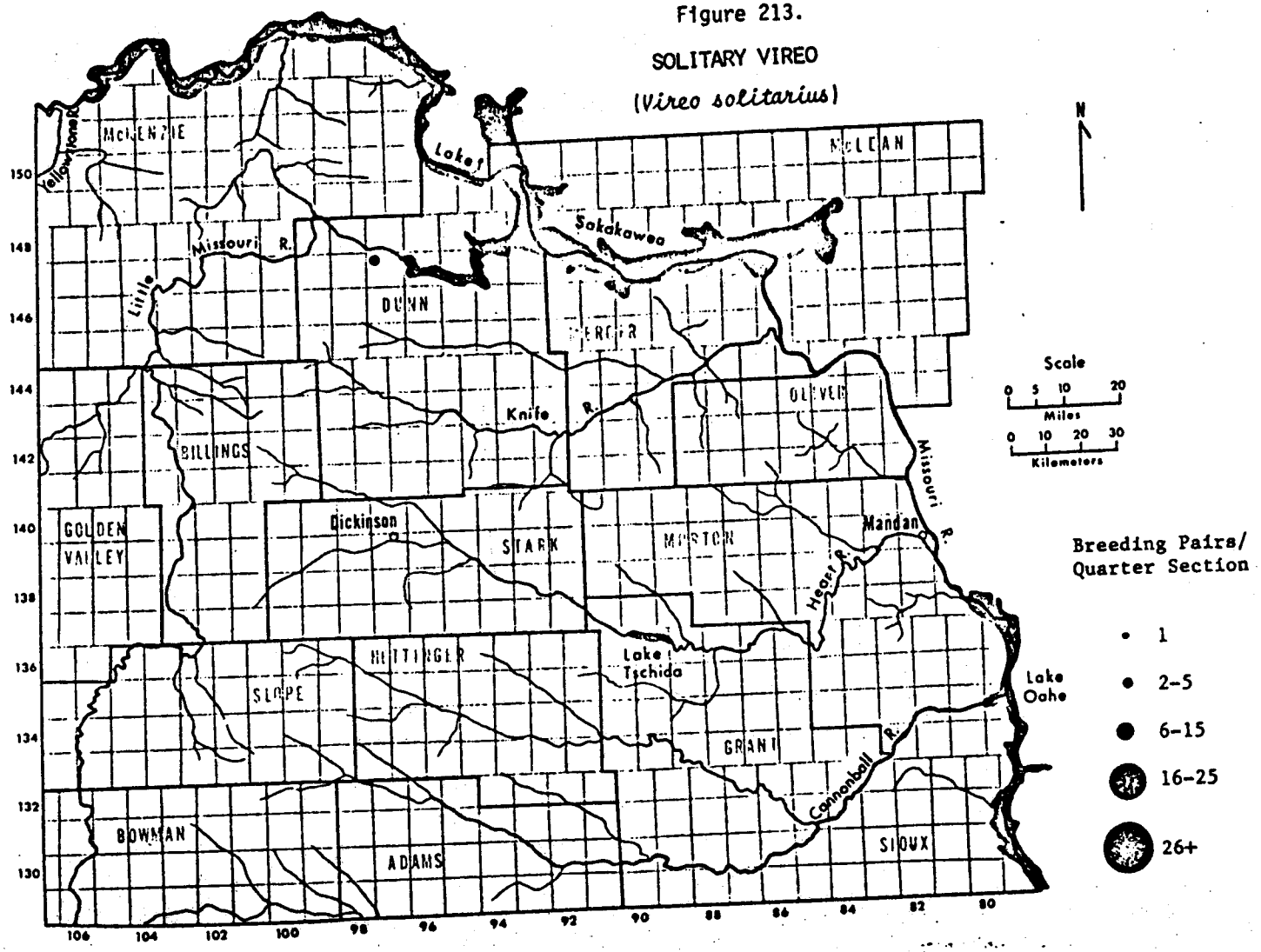
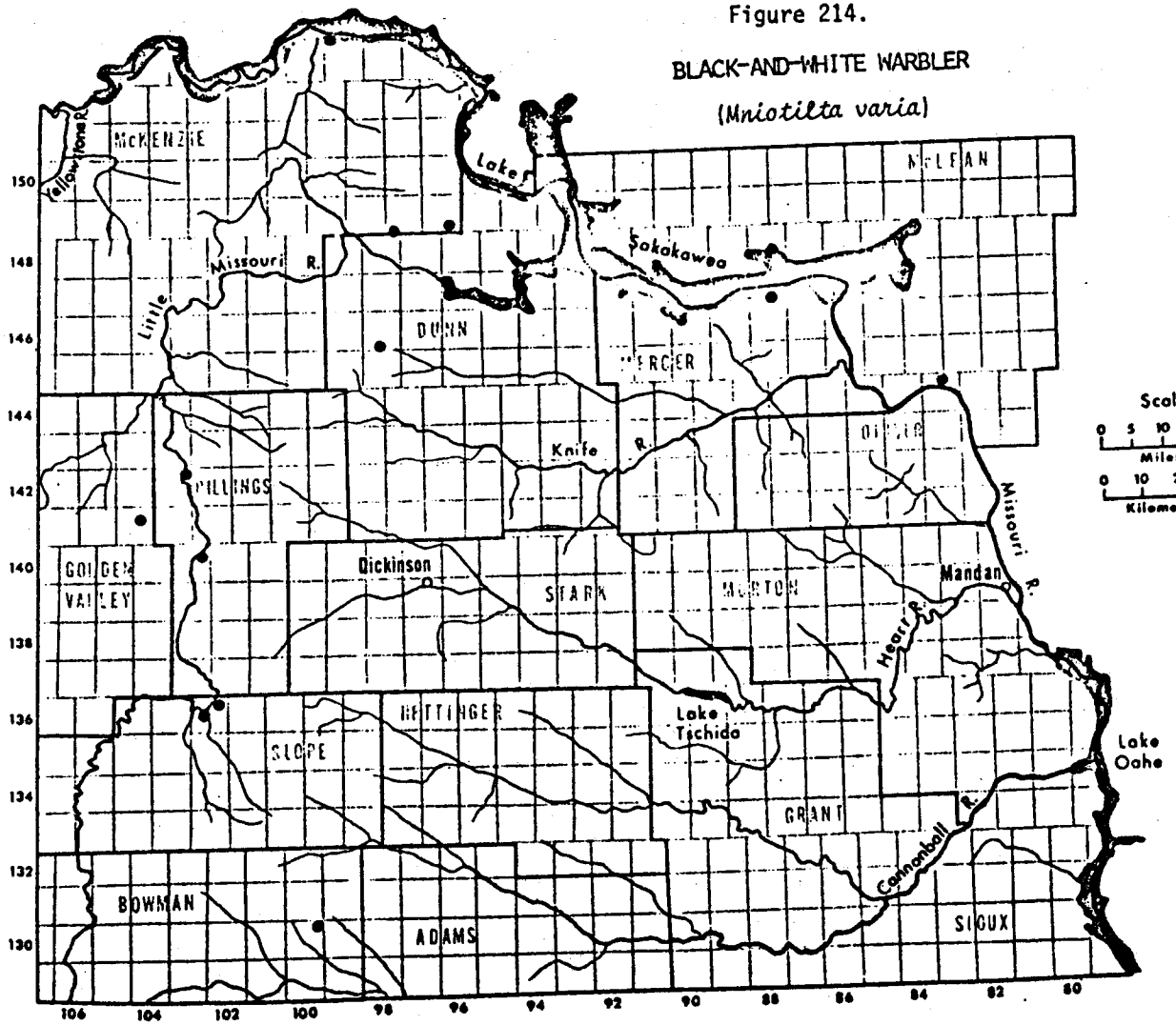


Figure 214.

BLACK-AND-WHITE WARBLER

(*Mniotilta varia*)



Observations in the Project Area .

● 1976

Figure 215.

BLACK-AND-WHITE WARBLER

(*Mniotilta varia*)

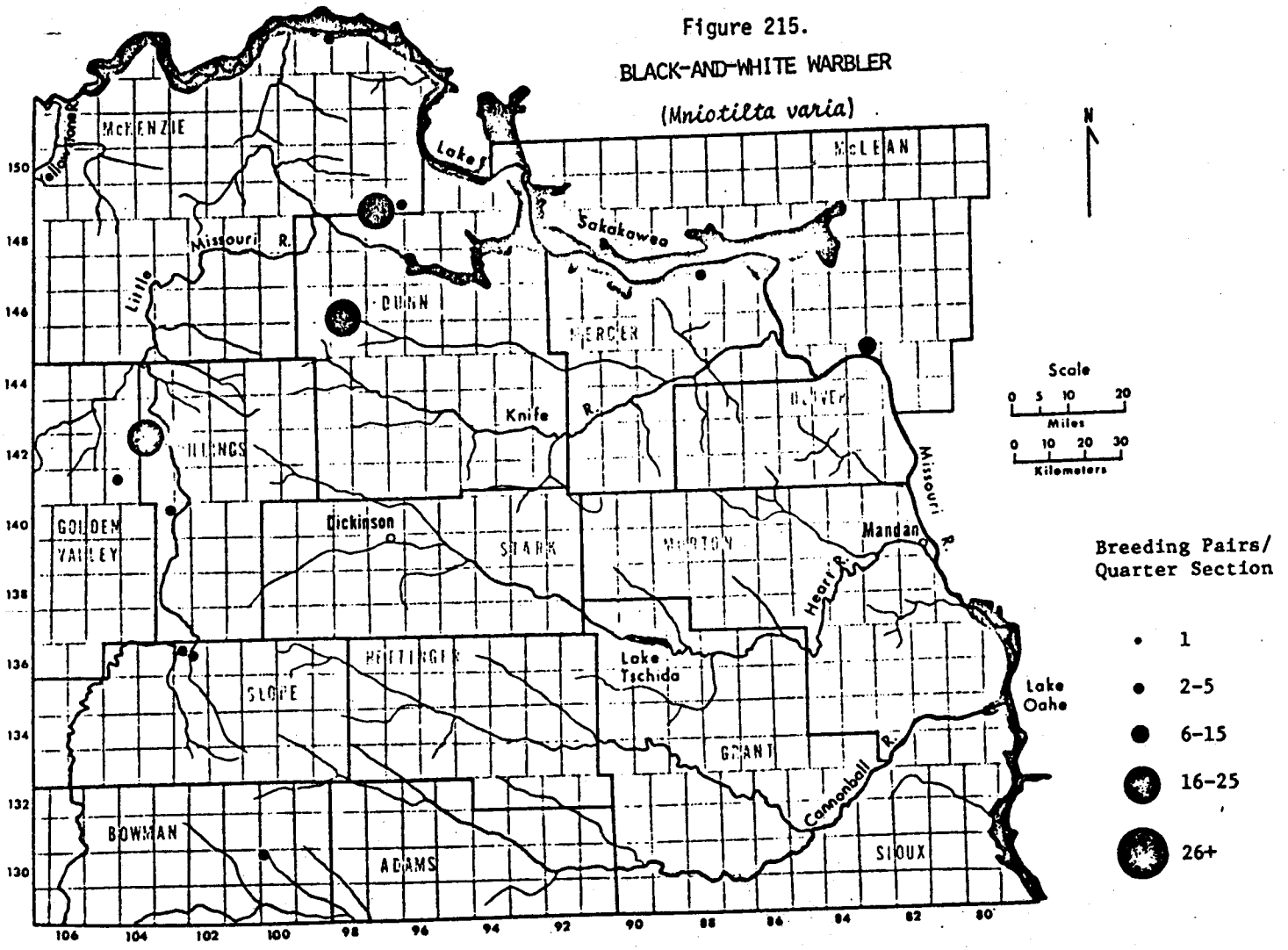
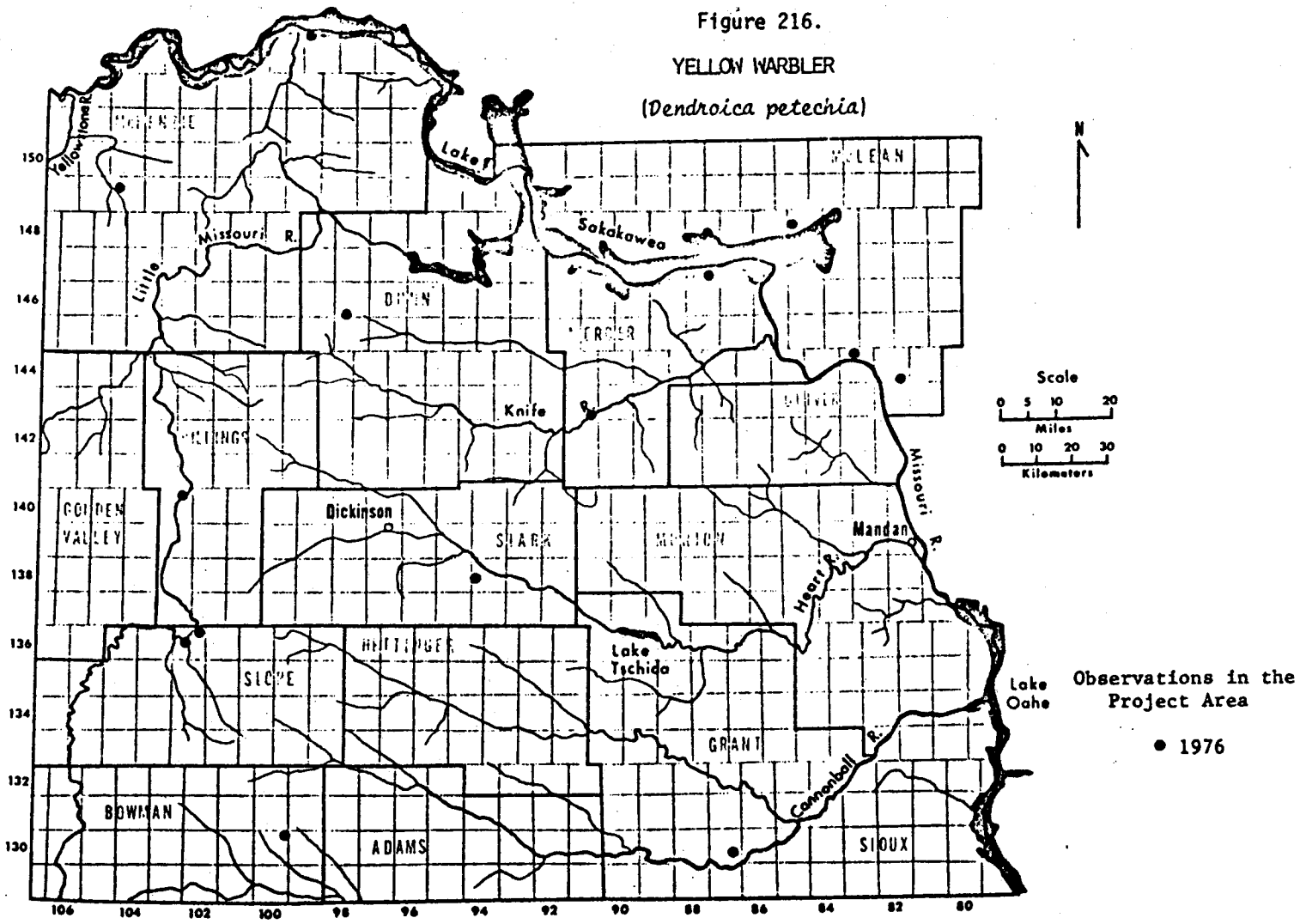


Figure 216.

YELLOW WARBLER

(Dendroica petechia)



Observations in the Project Area

● 1976

Figure 217.

YELLOW WARBLER

(Dendroica petechia)

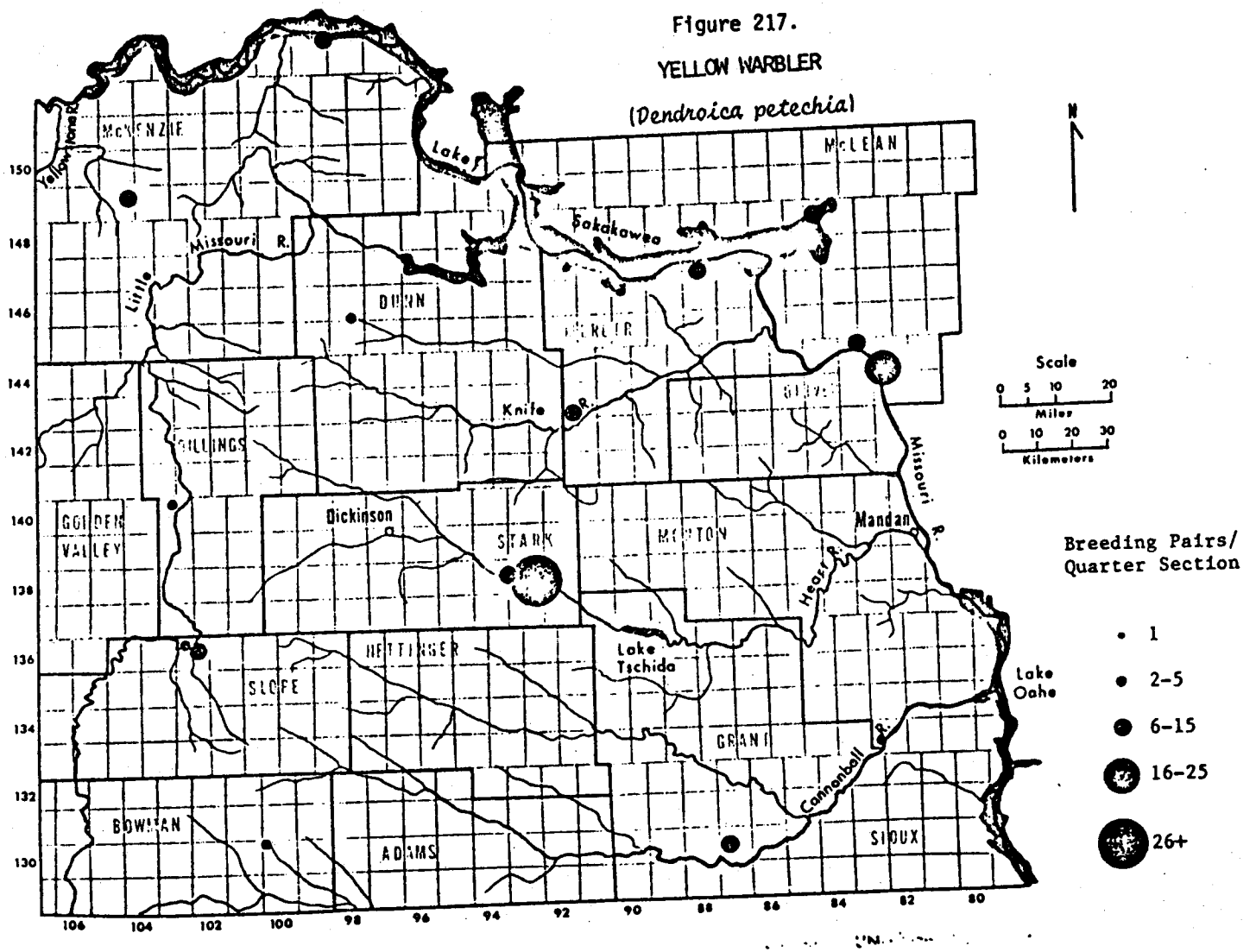
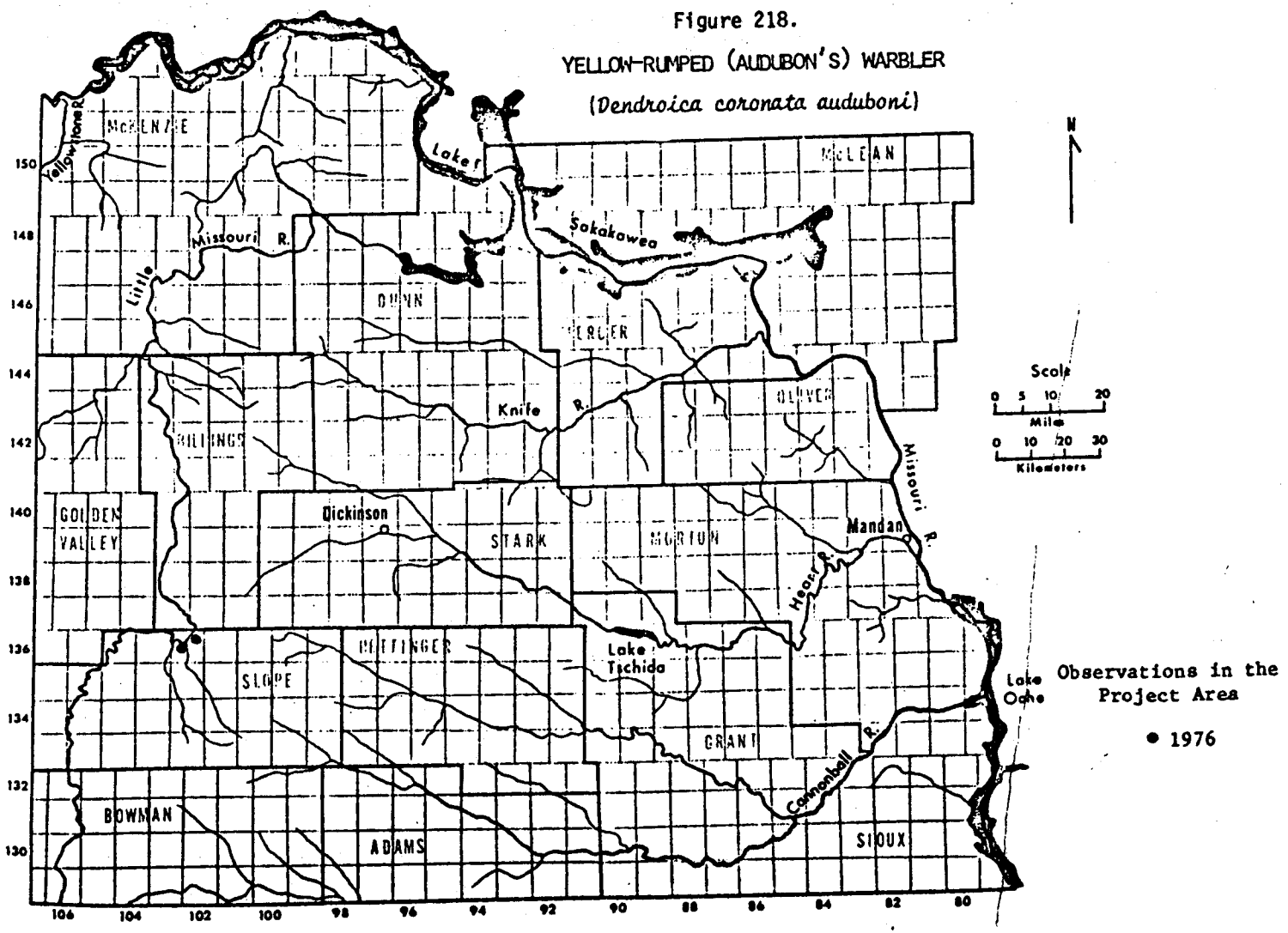


Figure 218.

YELLOW-RUMPED (AUDUBON'S) WARBLER

(Dendroica coronata auduboni)



Observations in the Project Area

● 1976

Figure 219.

YELLOW-RUMPED (AUDUBON'S) WARBLER

(Dendroica coronata auduboni)

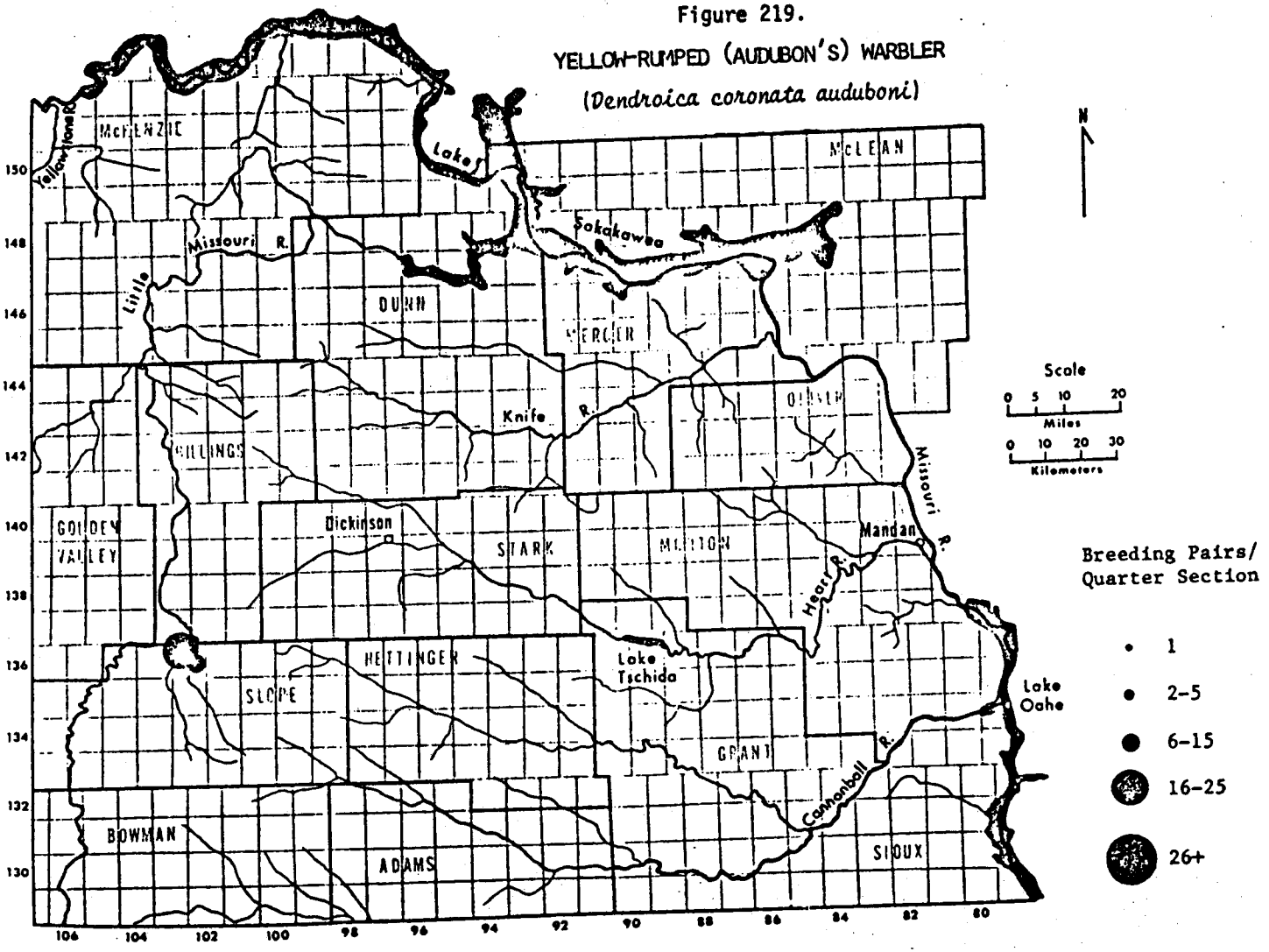
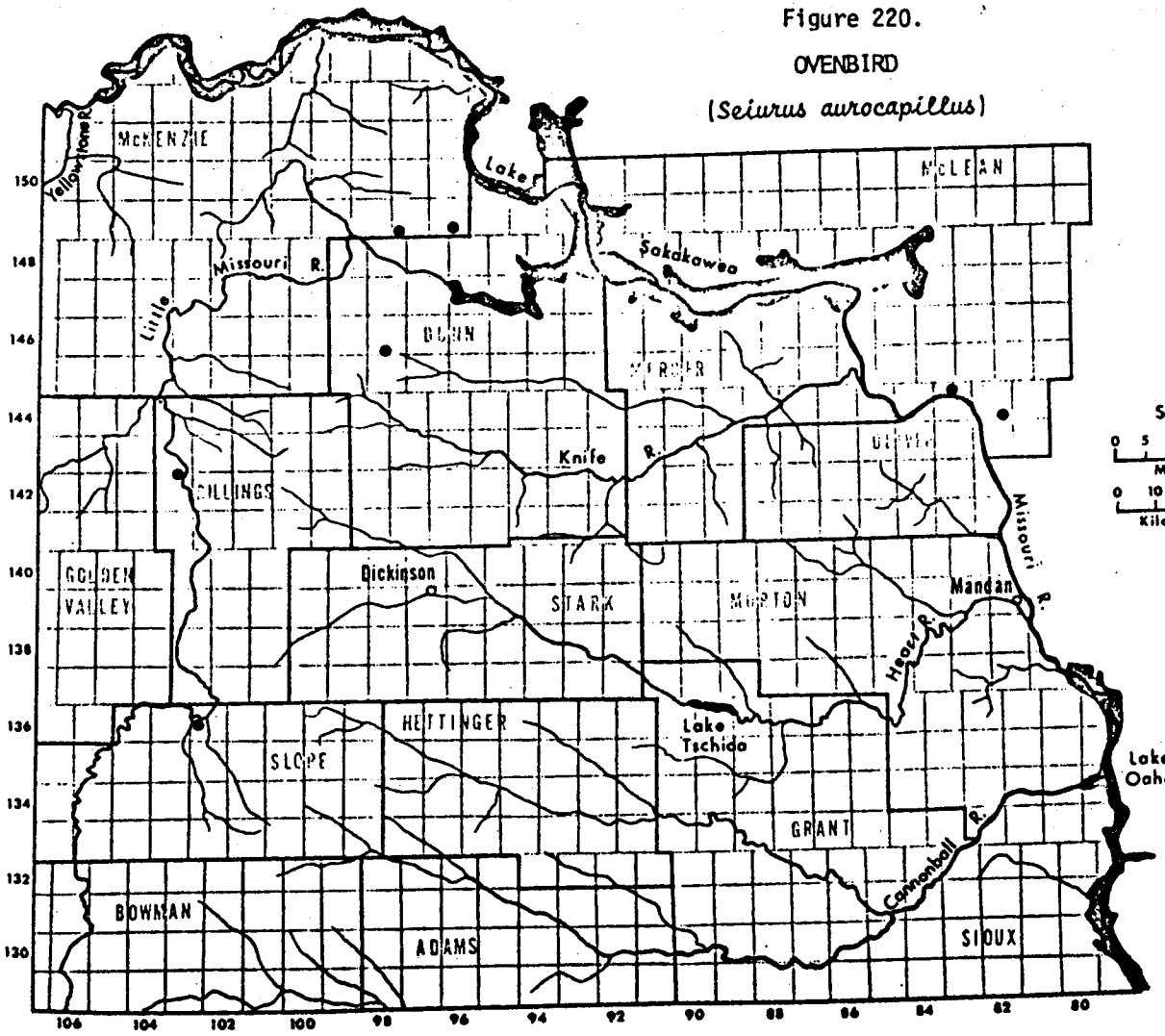


Figure 220.

OVENBIRD

(*Seiurus aurocapillus*)



Observations in the Project Area

● 1976

Figure 221.

OVENBIRD

(*Seiurus aurocapillus*)

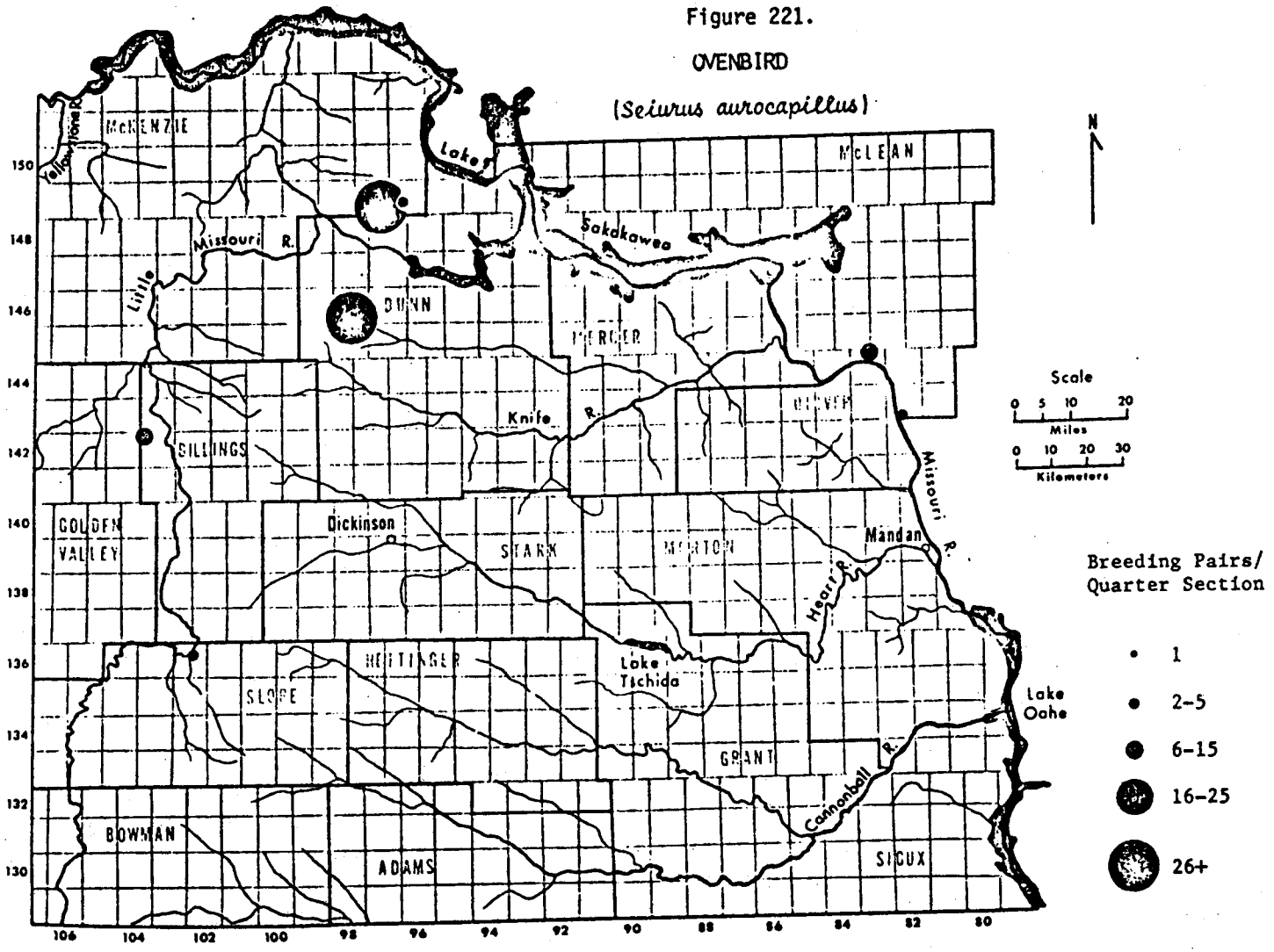
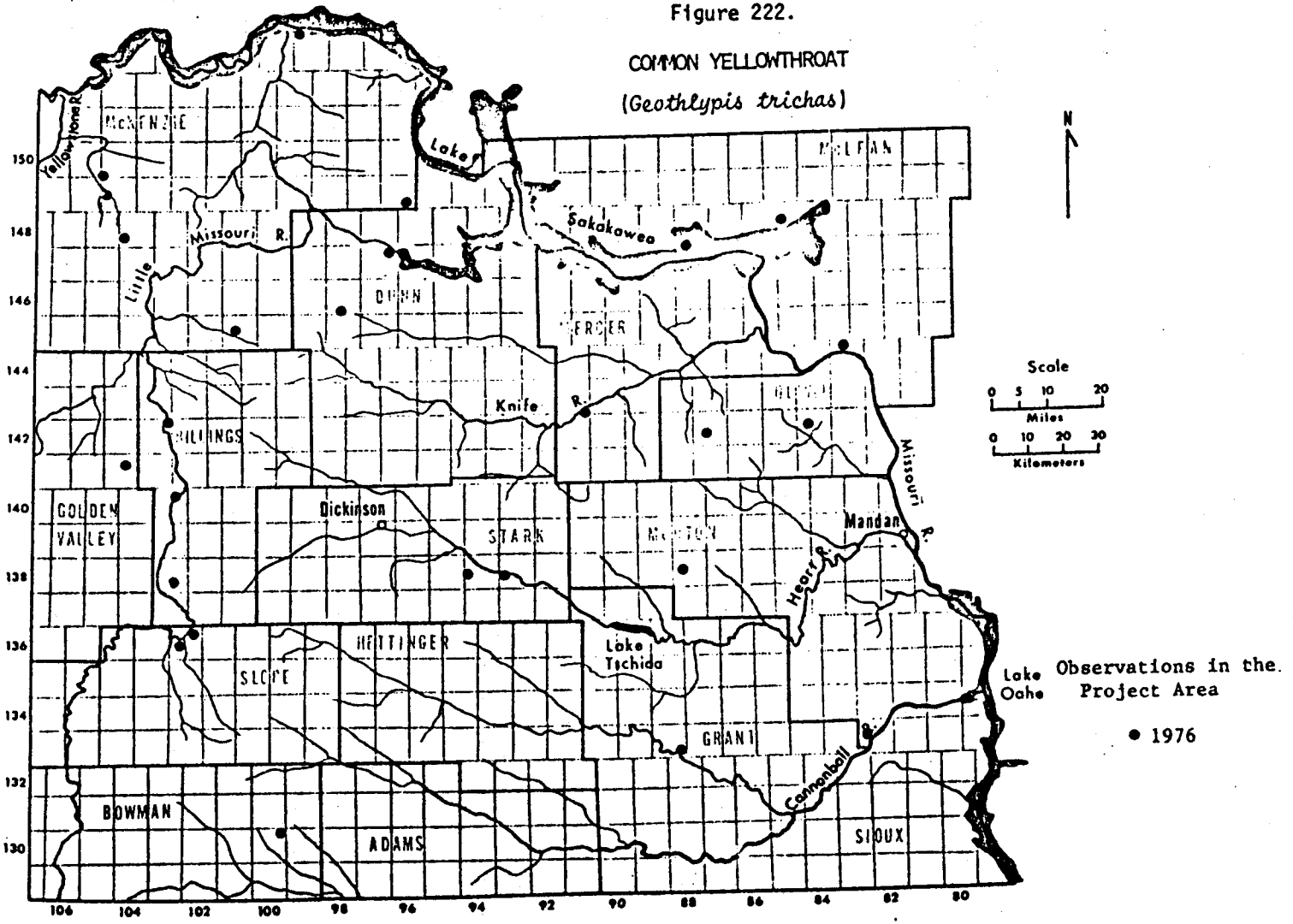


Figure 222.

COMMON YELLOWTHROAT

(*Geothlypis trichas*)



Observations in the Project Area

● 1976

Figure 223.

COMMON YELLOWTHROAT

(*Geothlypis trichas*)

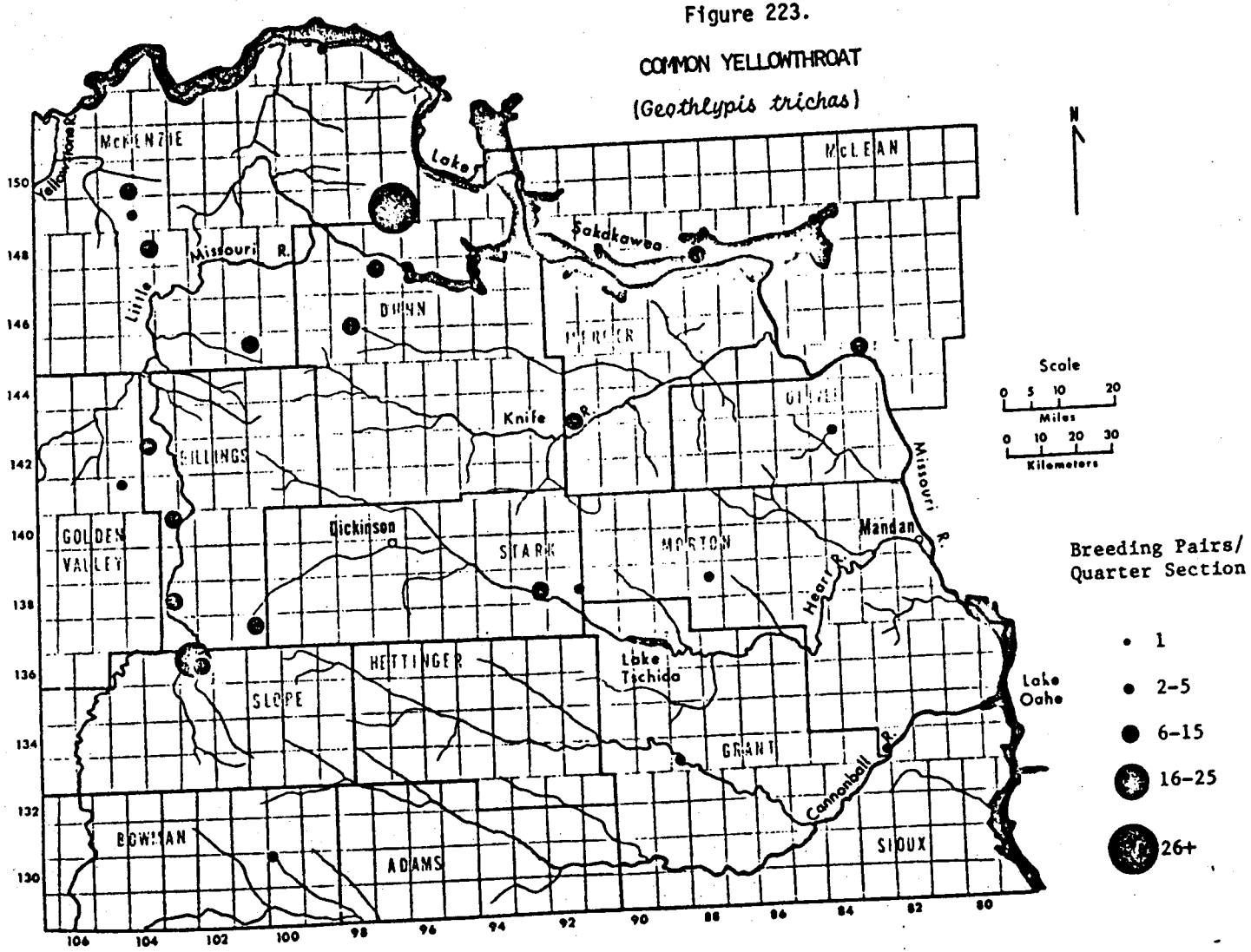
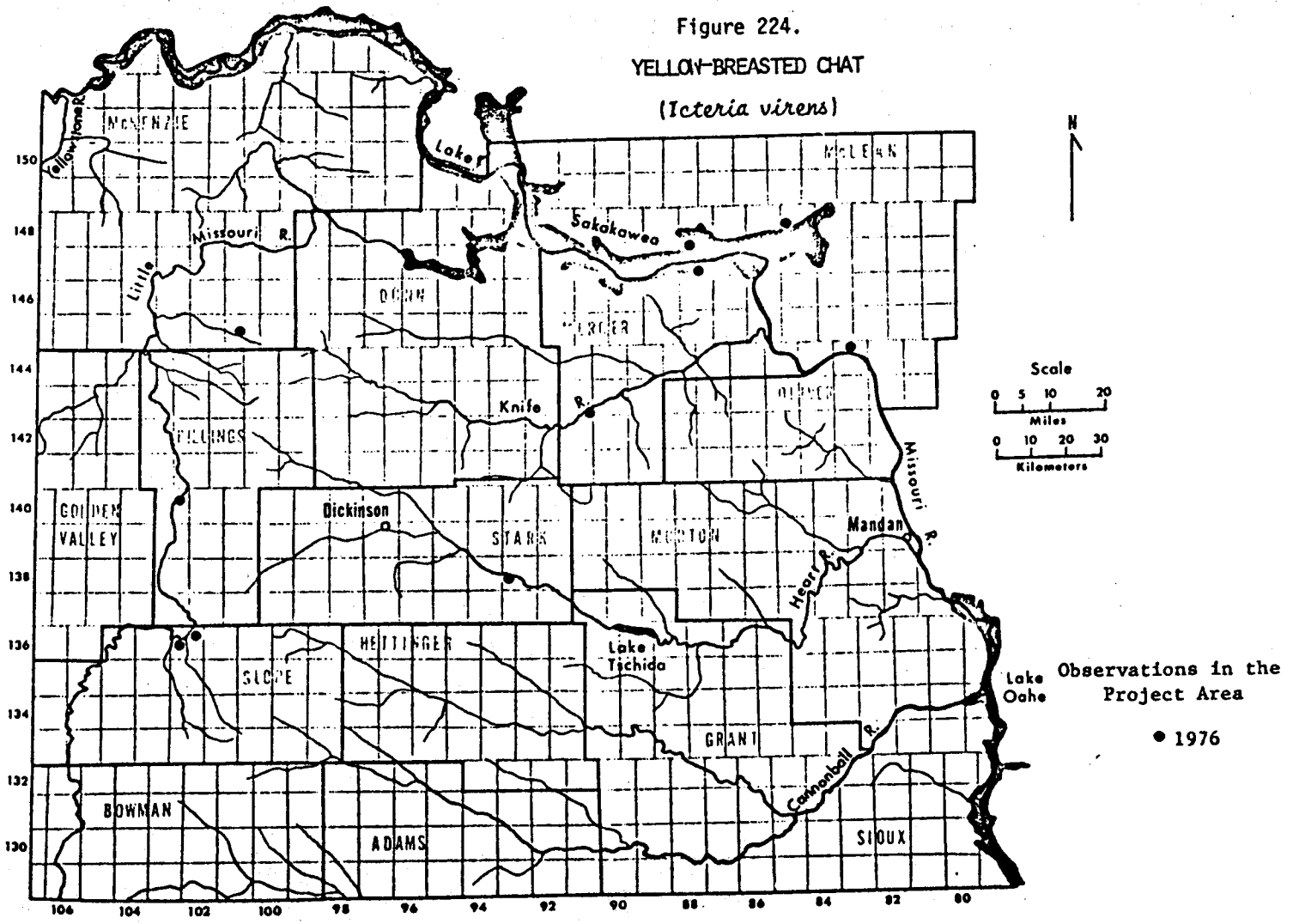


Figure 224.

YELLOW-BREASTED CHAT

(Icteria virens)



Observations in the Project Area

● 1976

Figure 225.

YELLOW-BREASTED CHAT

(*Icteria virens*)

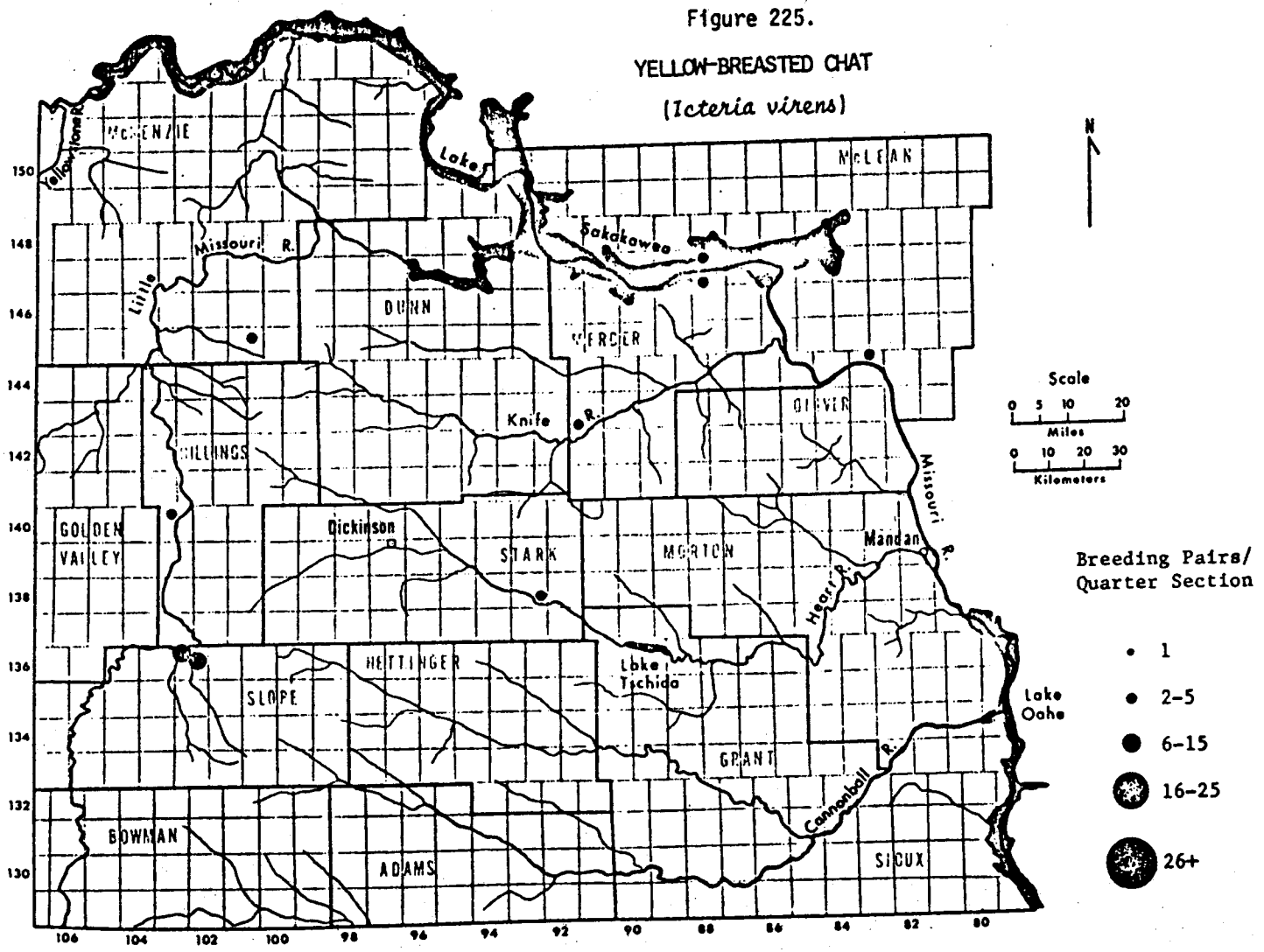
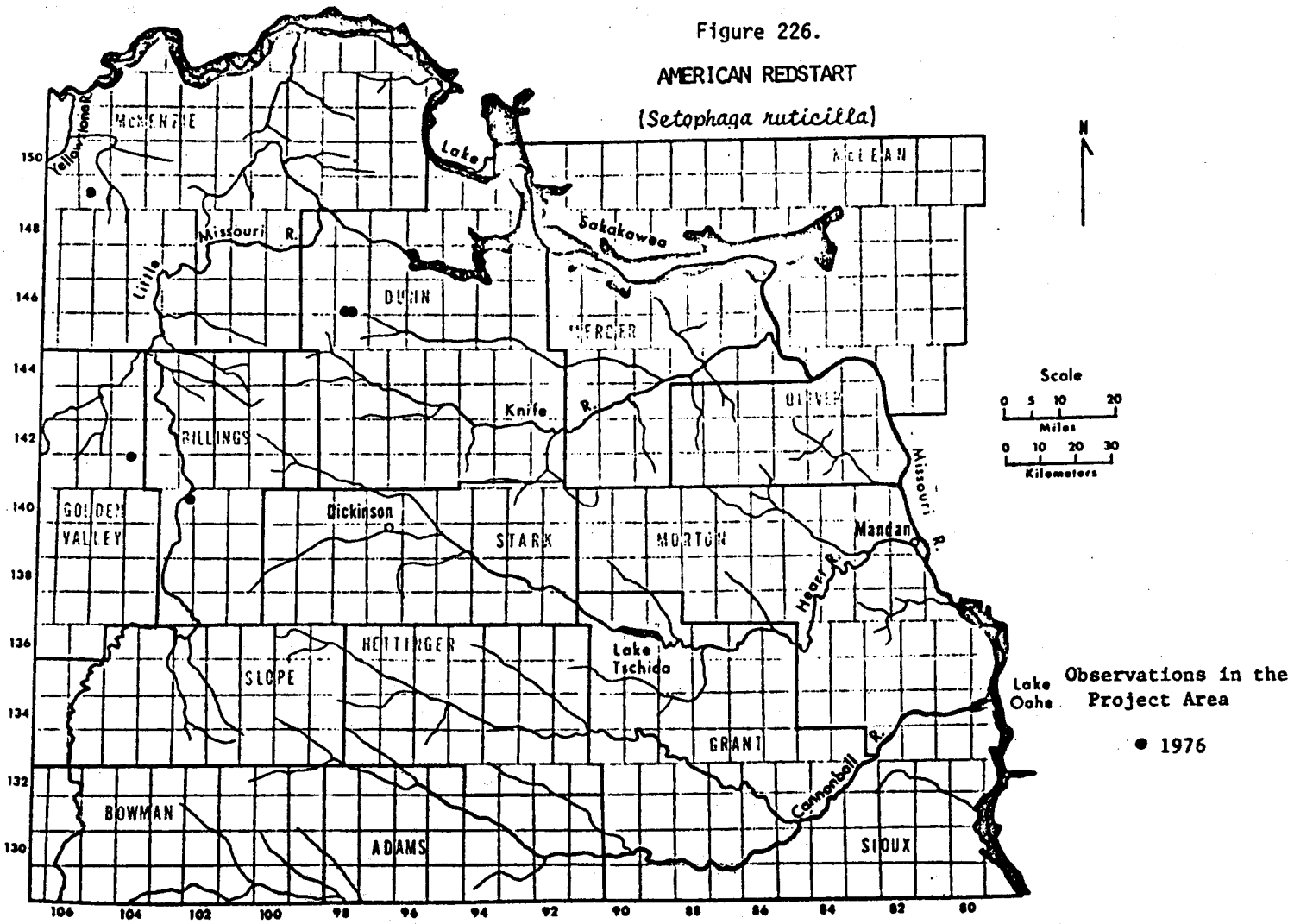


Figure 226.

AMERICAN REDSTART

(*Setophaga ruticilla*)



Observations in the Project Area

● 1976

Figure 227.

AMERICAN REDSTART

(*Setophaga ruticilla*)

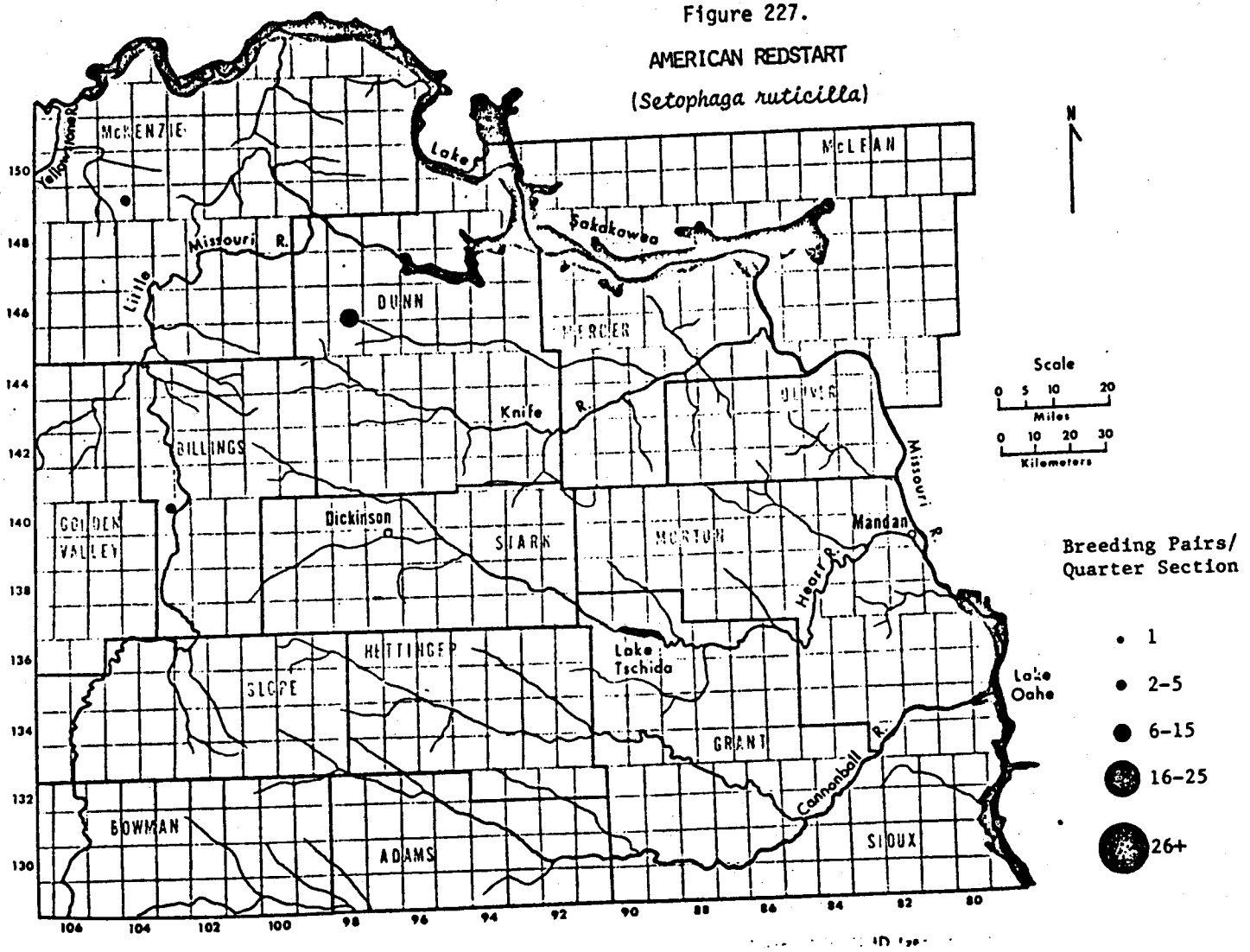
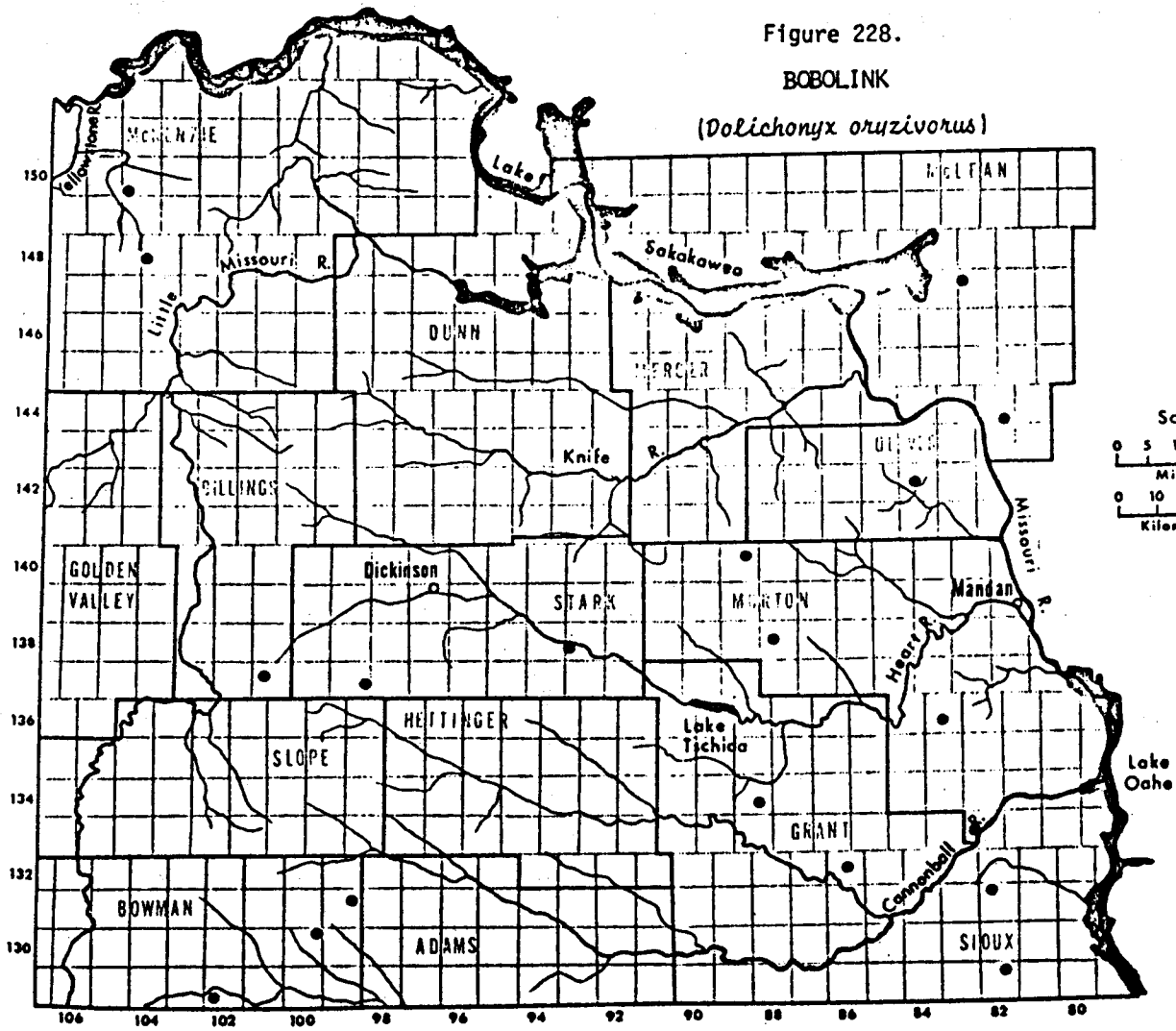


Figure 228.

BOBOLINK

(Dolichonyx oryzivorus)



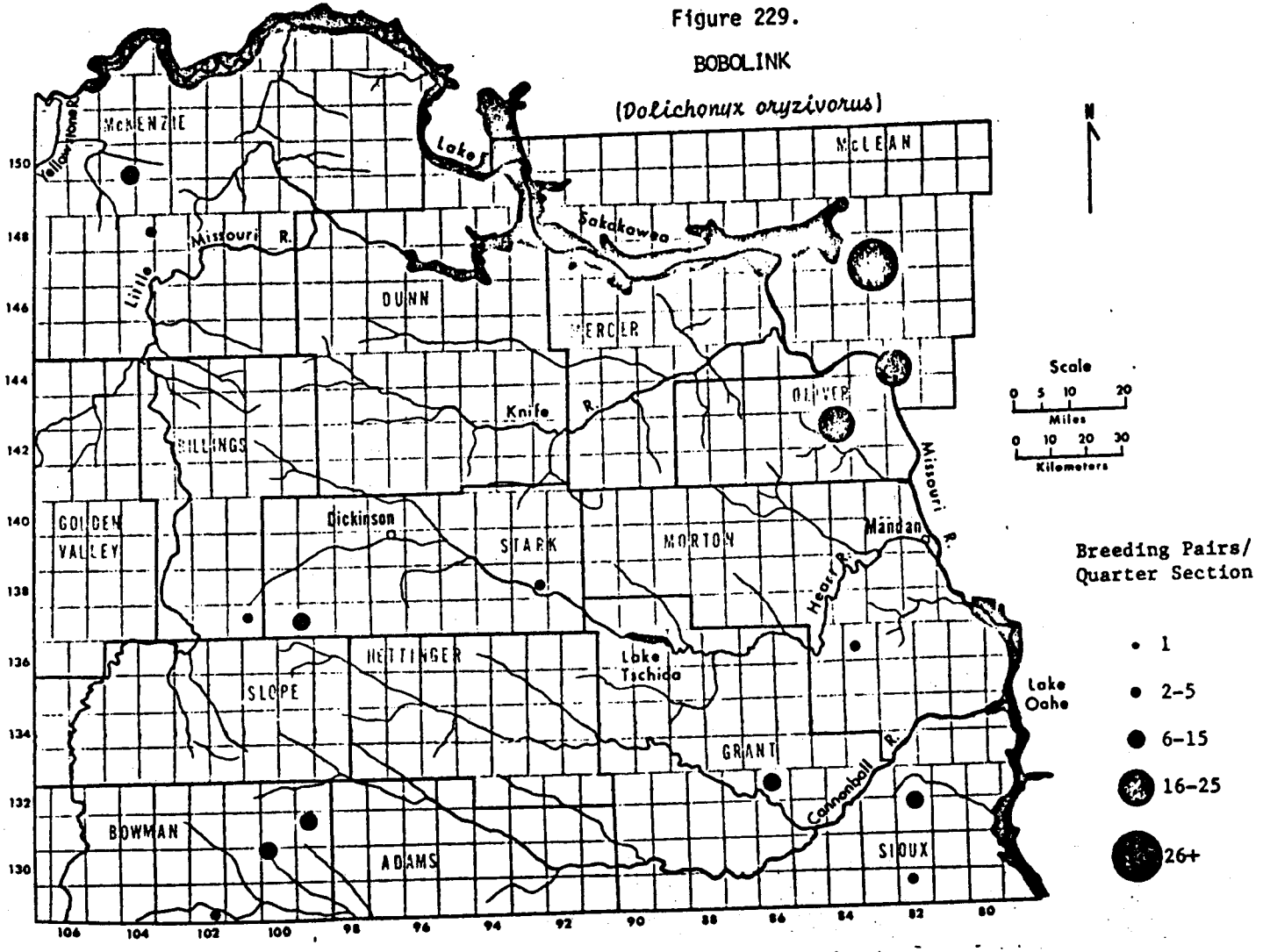
Observations in the Project Area

● 1976

Figure 229.

BOBOLINK

(*Dolichonyx oryzivorus*)



ORDER: Passeriformes

FAMILY: Icteridae

Brown-headed Cowbird (*Molothrus ater*) - The entirely parasitic Cowbird is found over all of the United States and Mexico north through west-central Canada. The breeding range covers the northern portion of this area, while the bird winters along the southeastern coast. The species is a year round resident over the entire southern half of the United States and all Mexico (Robbins, et al., 1966). Stewart (1975) lists it as common throughout North Dakota.

Distribution in the project area: 54 observations were made in all counties of the project area, with agriculturally disturbed areas and rolling and upland grasslands being the primary habitats (Fig. 230, 231).

Habitat: Found in edge complexes composed of woodlands, wood margins, or brushy thickets, and in various types of open country that lie adjacent to them (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Icteridae

Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*) - This bird is found over the western United States, Mexico, and central Canada. It breeds in most of this area, except Mexico (Robbins, et al., 1966). For North Dakota, Stewart (1975) lists the bird as common or fairly common over the area east and north of the Missouri River, and uncommon and local in the southwestern portion of the state.

Distribution in the project area: Seven observations were made mainly on natural wetlands or dugouts in Adams, Bowman, Golden Valley, McLean, and Morton Counties (Fig. 232).

Habitat: Found in deep-marsh zones of natural ponds and lakes and shallow river impoundments, particularly those dominated by cattails, hardstem bulrush, slender bulrush, and river bulrush. Nests are situated among the bulrushes several inches above the water and towards the center of the marshes (Stewart, 1975).

Status: Uncommon breeding species in the project area.

ORDER: Passeriformes

FAMILY: Icteridae

Red-winged Blackbird (*Agelaius phoeniceus*) - This species is found over most of the North American continent except northern Canada and Alaska. The breeding range covers the northern portion of this area and the species is present year round in the remaining area (Robbins, et al., 1966). Stewart (1975) lists it as fairly common in the Agassiz Lake Plain and Southwestern Slope Regions; common or abundant elsewhere in North Dakota.

Distribution in the project area: 43 observations were made in riparian woodlands, rolling grassland, natural wetlands, and agriculturally disturbed areas in all but Adams County (Fig. 233, 234).

Habitat: Found in deep-marsh zones of ponds, lakes, and shallow river impoundments, shallow-marsh zones, thickets of shrubs and small trees on wet or moist sites, patches of brush in mixed-grass prairie, and weedy roadsides. Nests are situated towards the edges of these zones (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Icteridae

Western Meadowlark (*Sturnella neglecta*) - This bird is found over the western portion of the United States and all of Mexico, extending somewhat into south-central Canada. Breeding range includes the northeast portion of this area, while winter range is along both Mexican coasts. Elsewhere the species is present year round (Robbins, et al., 1966). Stewart (1975) indicates the species is common throughout North Dakota.

Distribution in the project area: We made 58 observations in rolling and upland grasslands and agriculturally disturbed areas in all counties of the project area (Fig. 235, 236).

Habitat: Found in mixed-grass prairie, tall-grass prairie, wet-meadow zones, domestic haylands, retired croplands, weedy field borders, and roadsides (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Icteridae

Orchard Oriole (*Icterus spurius*) - The Orchard Oriole is found in the eastern half of the United States and in eastern Mexico. The species breeds over this entire area (Robbins, et al., 1966). Stewart (1975) lists it as fairly common in all but the northern portion of North Dakota, where it is uncommon and local.

Distribution in the project area: Seven observations were made in riparian woodland in Grant, McKenzie, and Morton Counties, a hardwood draw in McLean County, and in a shelterbelt in Bowman County (Fig. 237, 238).

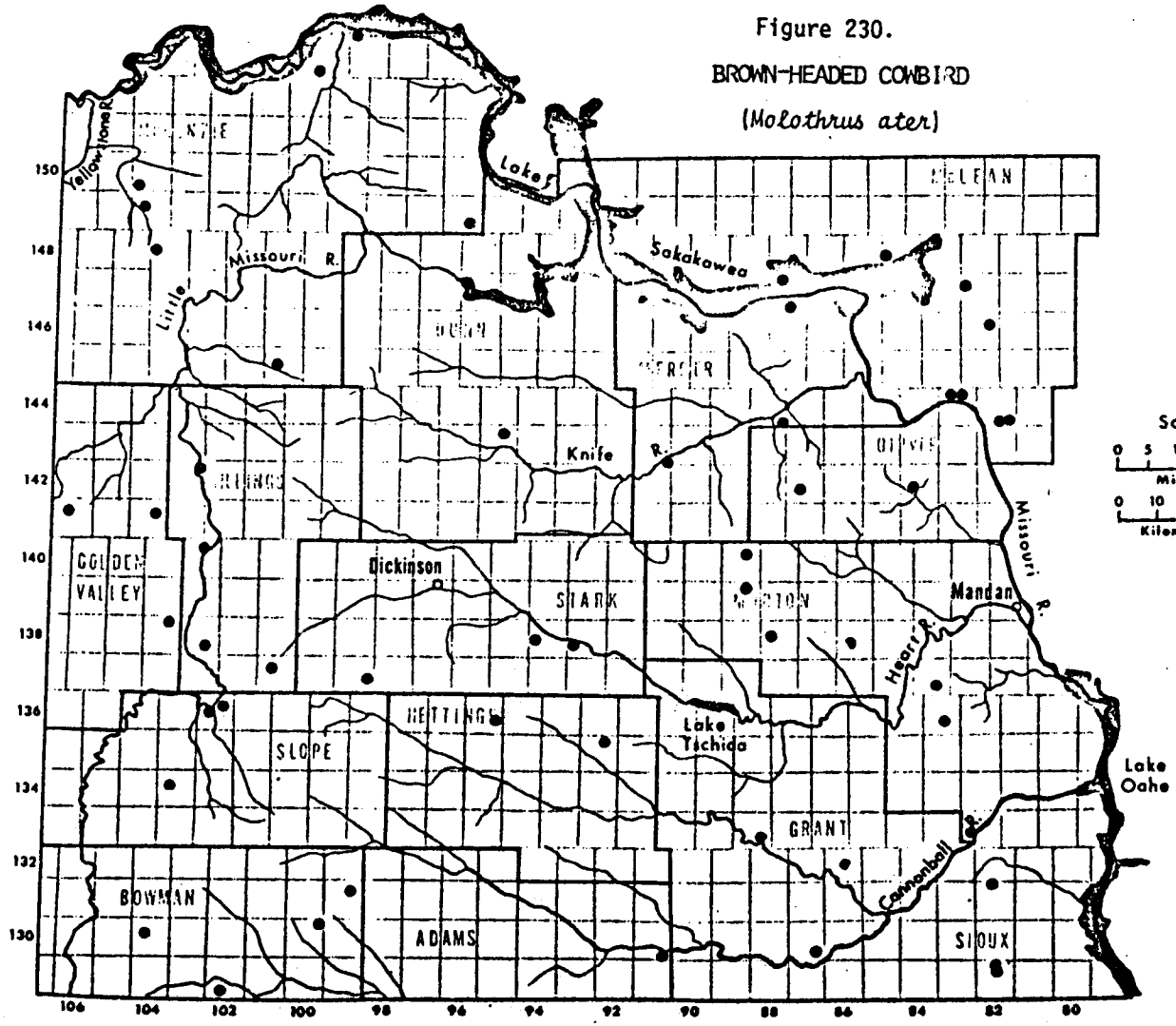
Habitat: Found in residential areas of towns and farmsteads, shelterbelts, and partially wooded stream valleys (Stewart, 1975).

Status: Uncommon breeding species in the project area.

Figure 230.

BROWN-HEADED COWBIRD

(*Molothrus ater*)



Observations in the Project Area

● 1976

Figure 231.

BROWN-HEADED COWBIRD

(Molothrus ater)

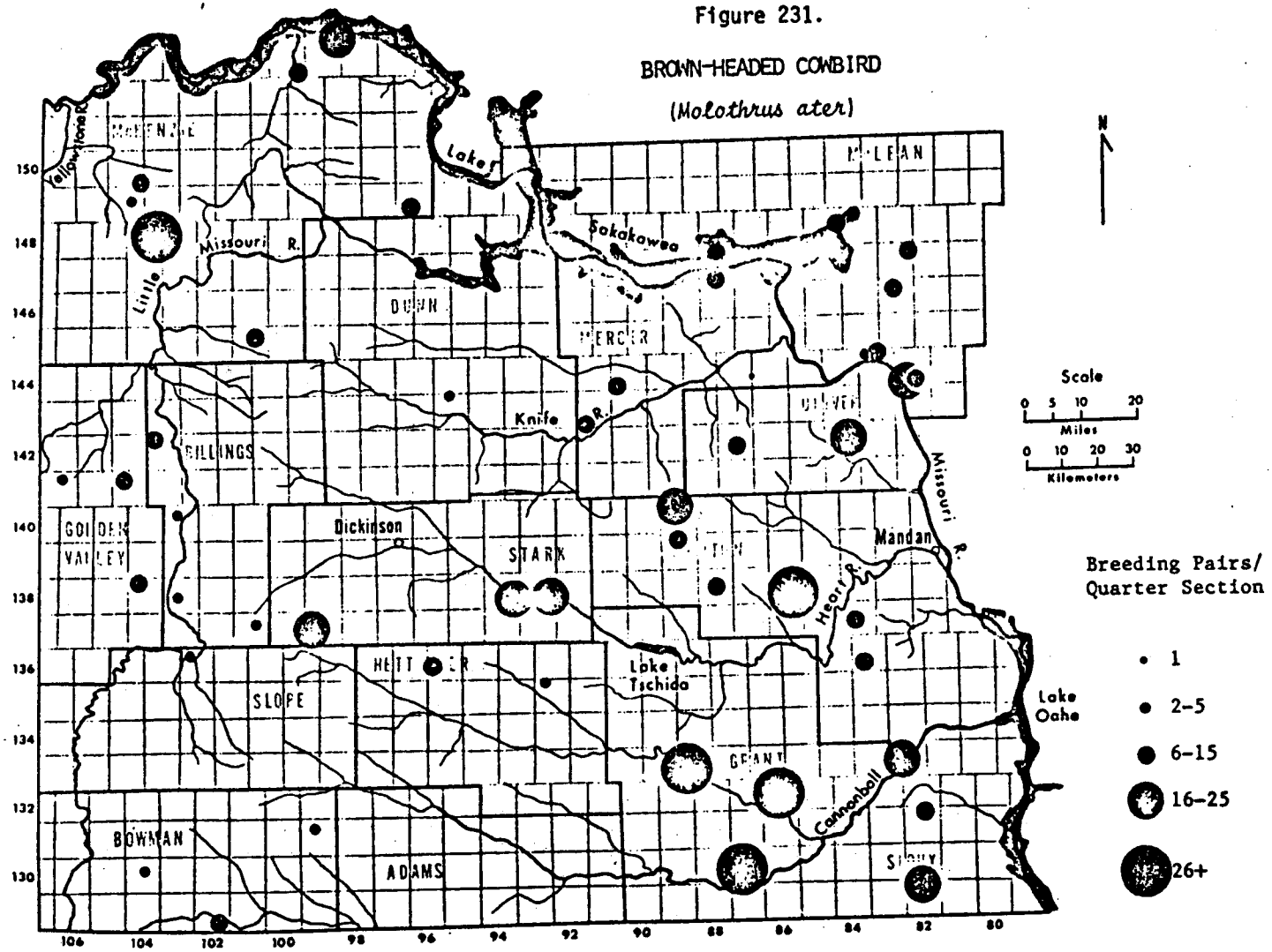


Figure 232.

YELLOW-HEADED BLACKBIRD

(*Xanthocephalus xanthocephalus*)

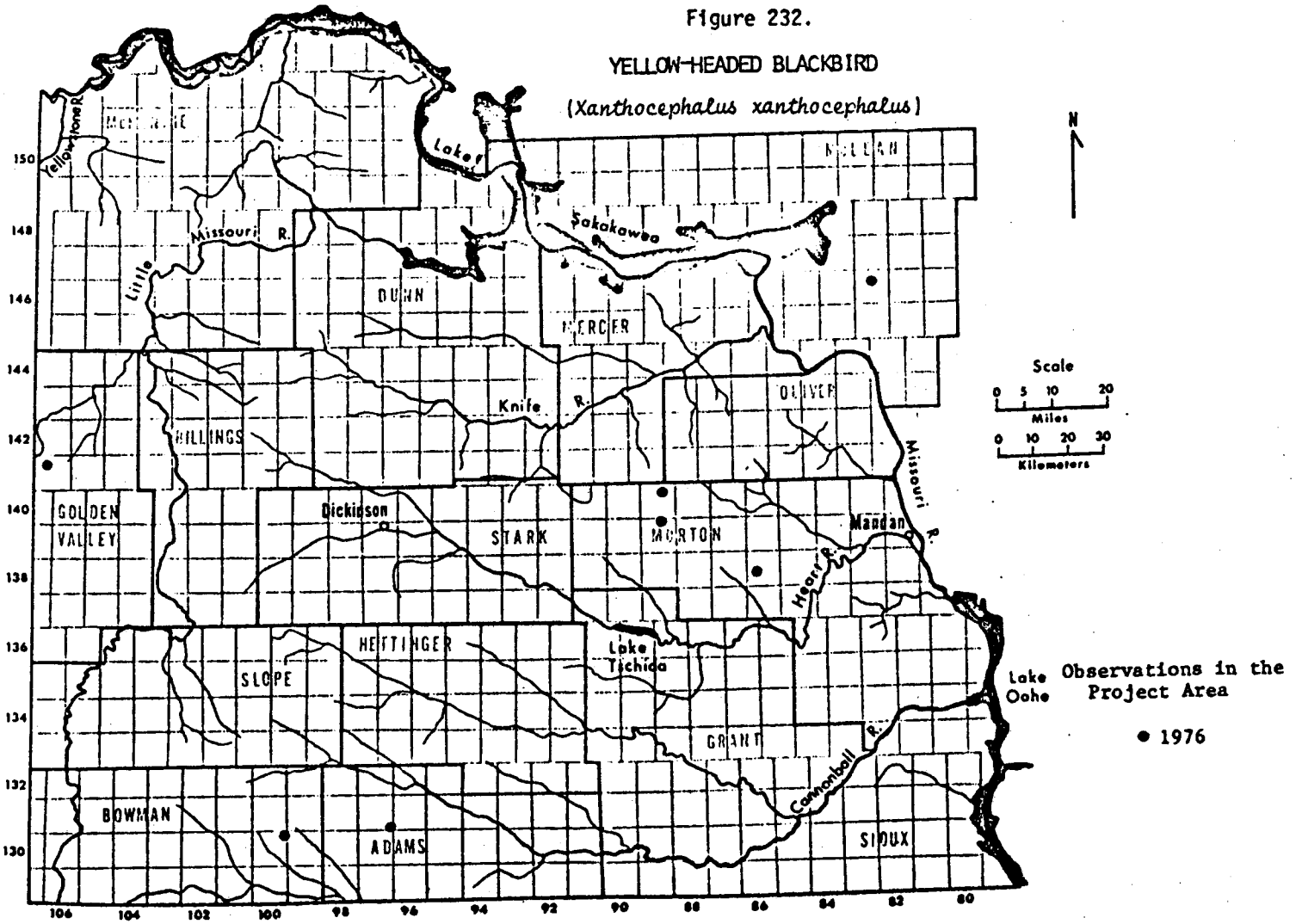
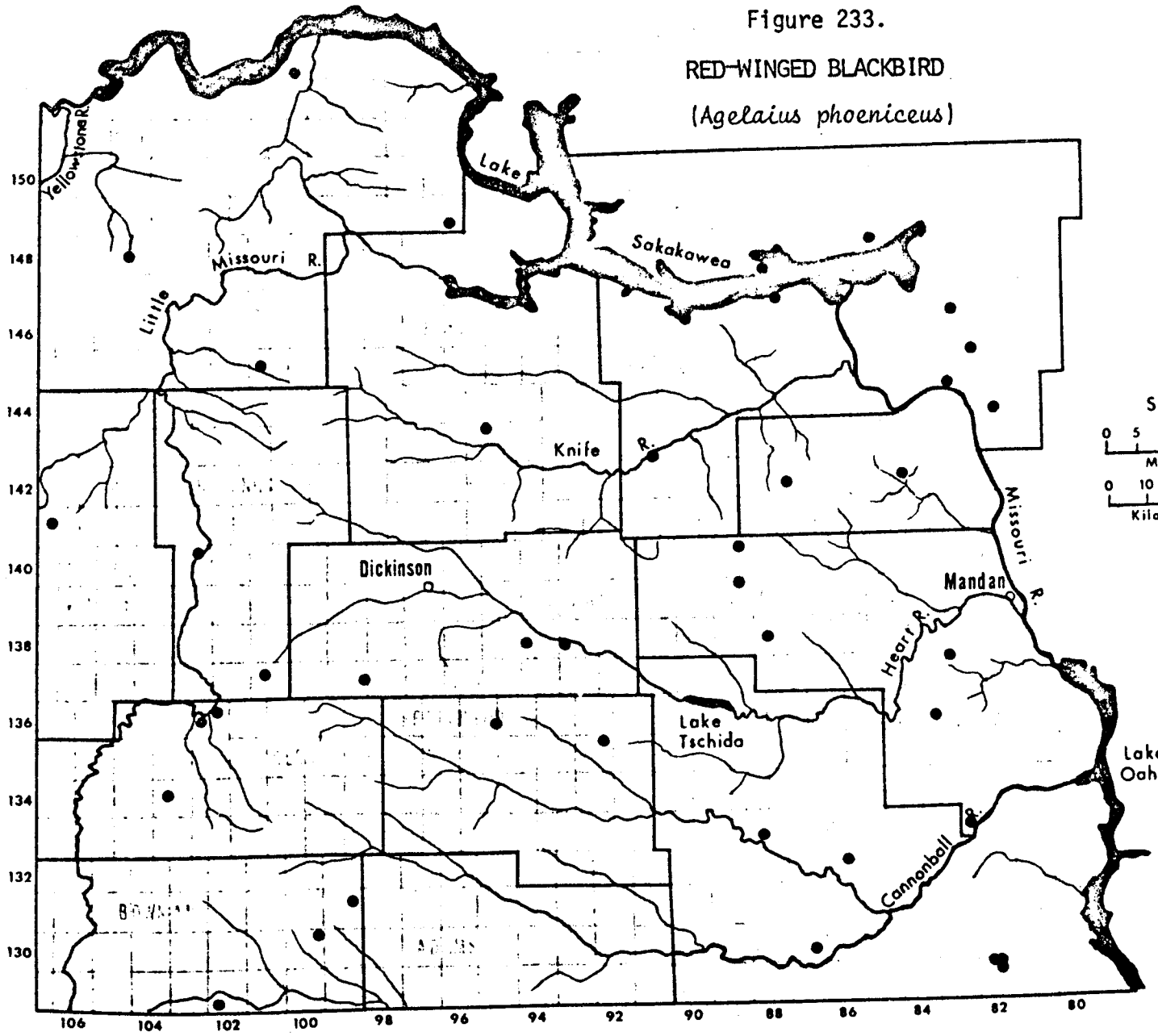


Figure 233.

RED-WINGED BLACKBIRD

(*Agelaius phoeniceus*)



Observations in the Project Area

● 1976

Figure 234.

RED-WINGED BLACKBIRD

(*Agelaius phoeniceus*)

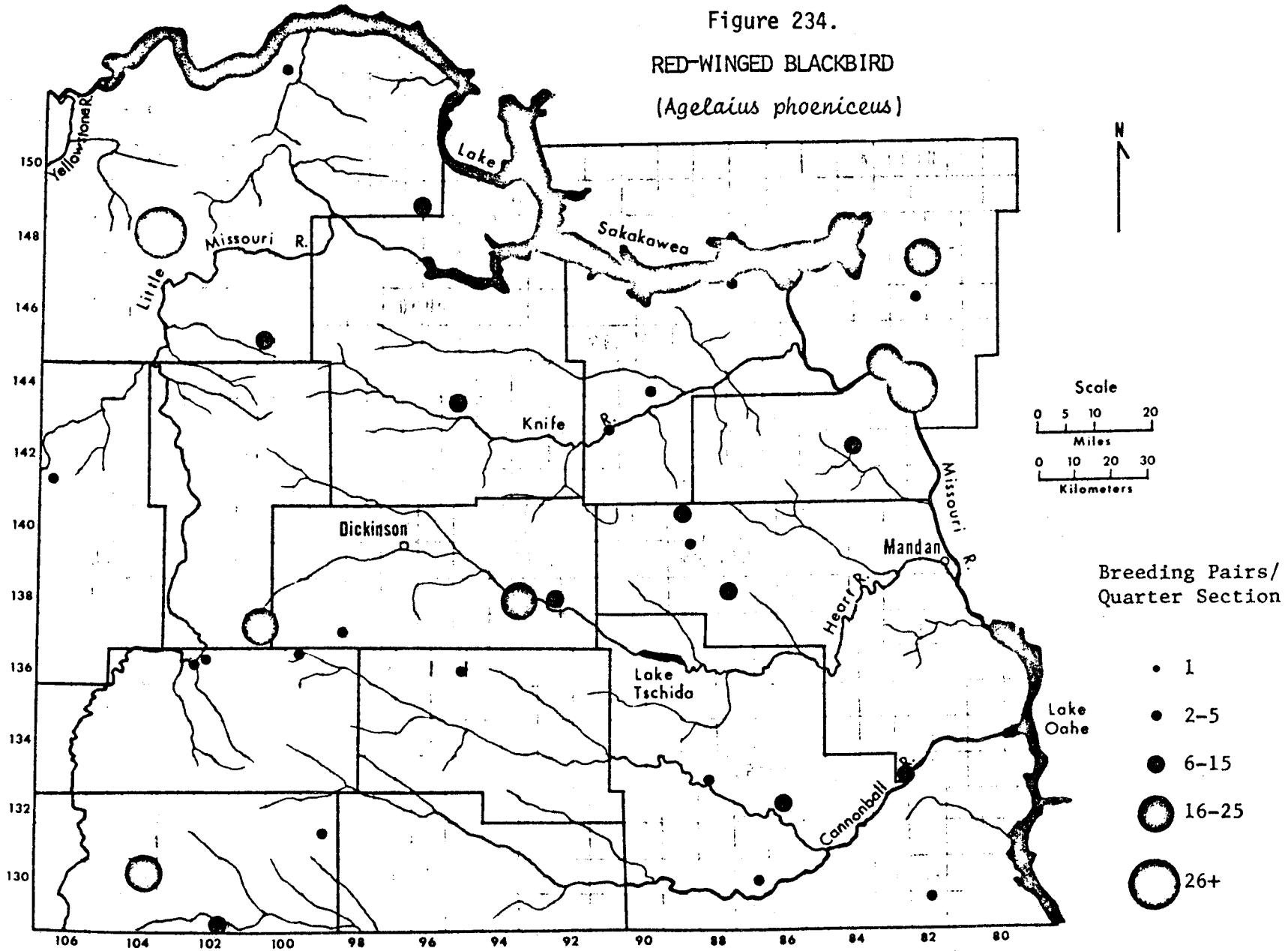


Figure 235.

WESTERN MEADOWLARK

(*Sturnella neglecta*)

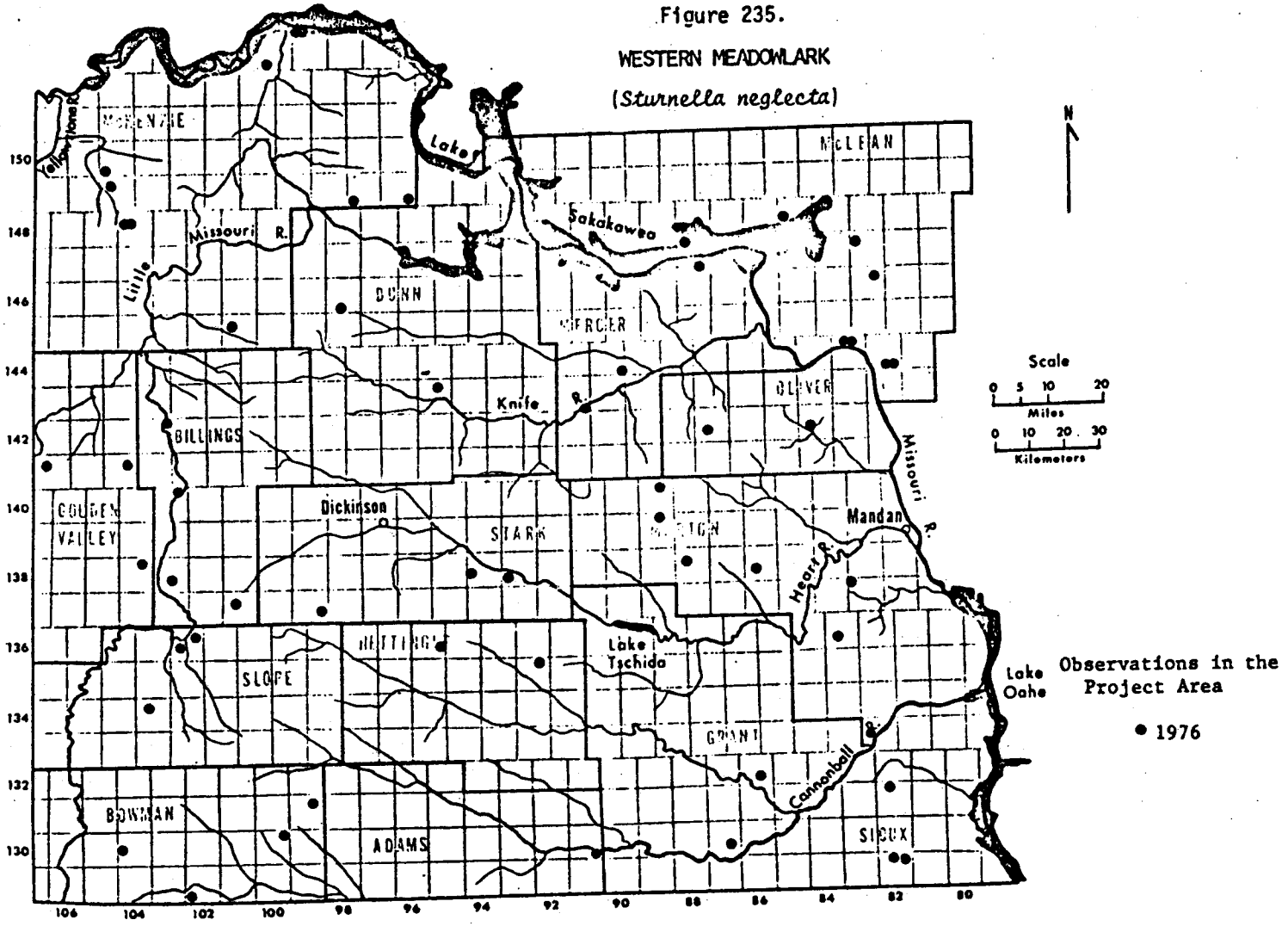


Figure 236.

WESTERN MEADOWLARK

(*Sturnella neglecta*)

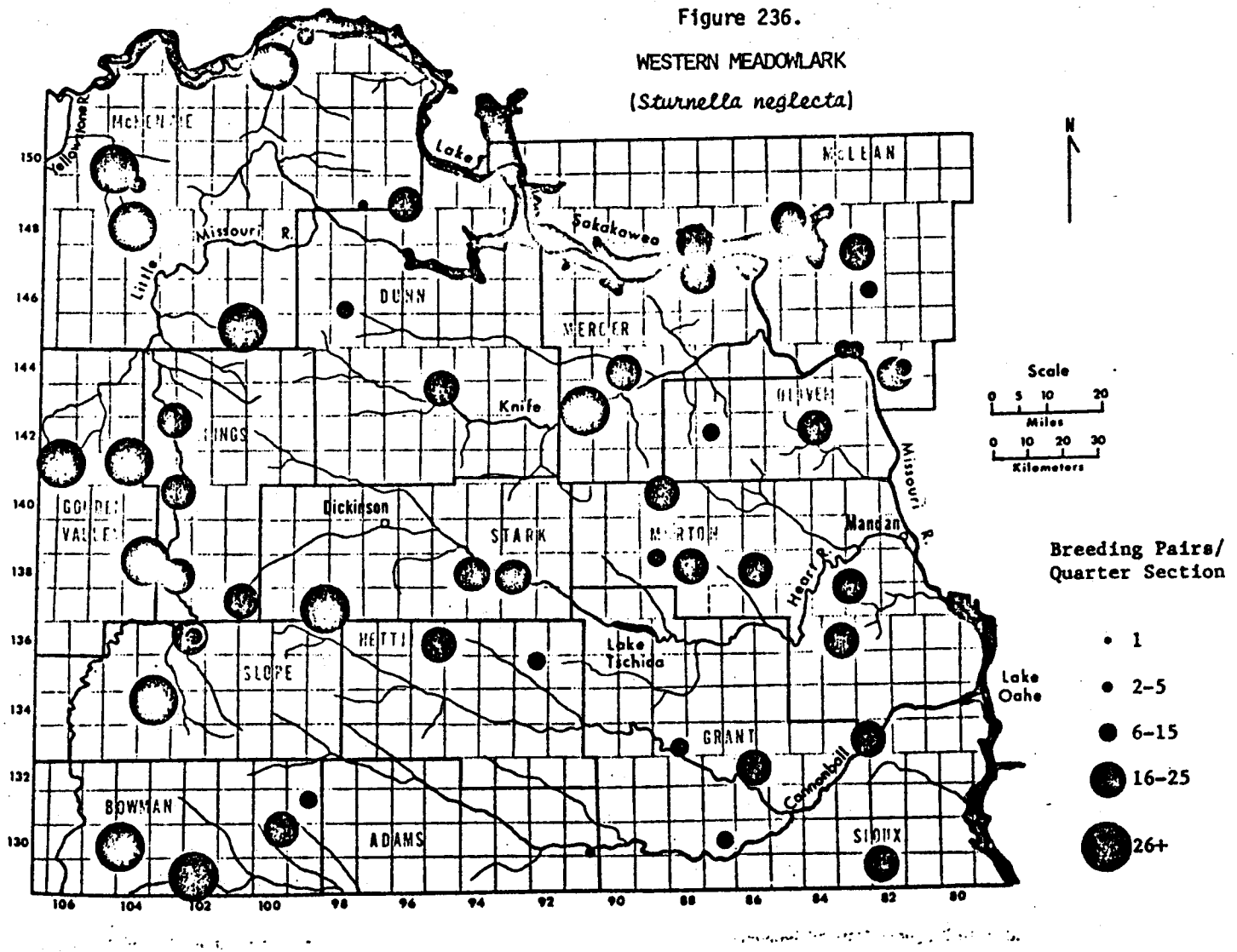
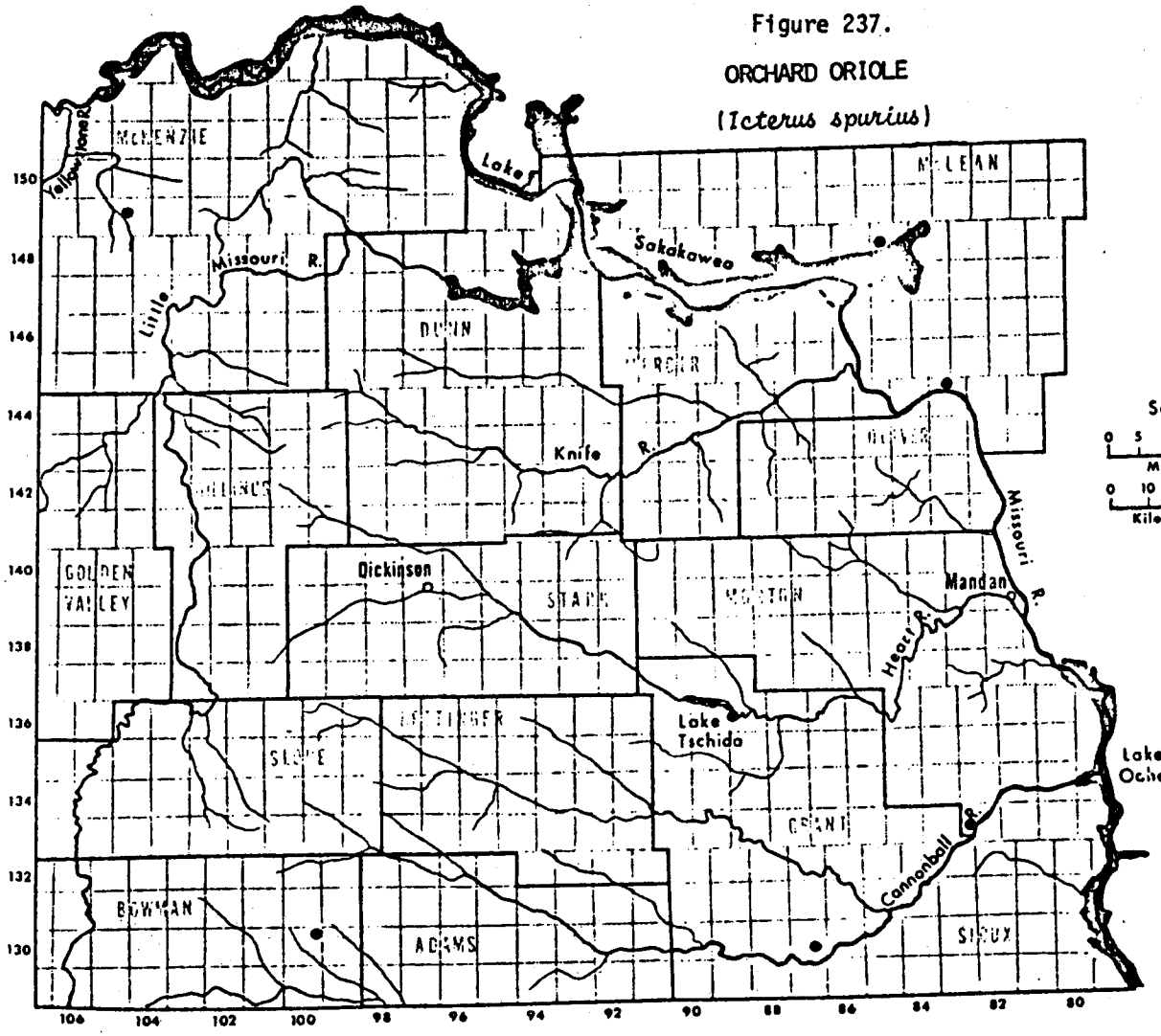


Figure 237.

ORCHARD ORIOLE

(Icterus spurius)



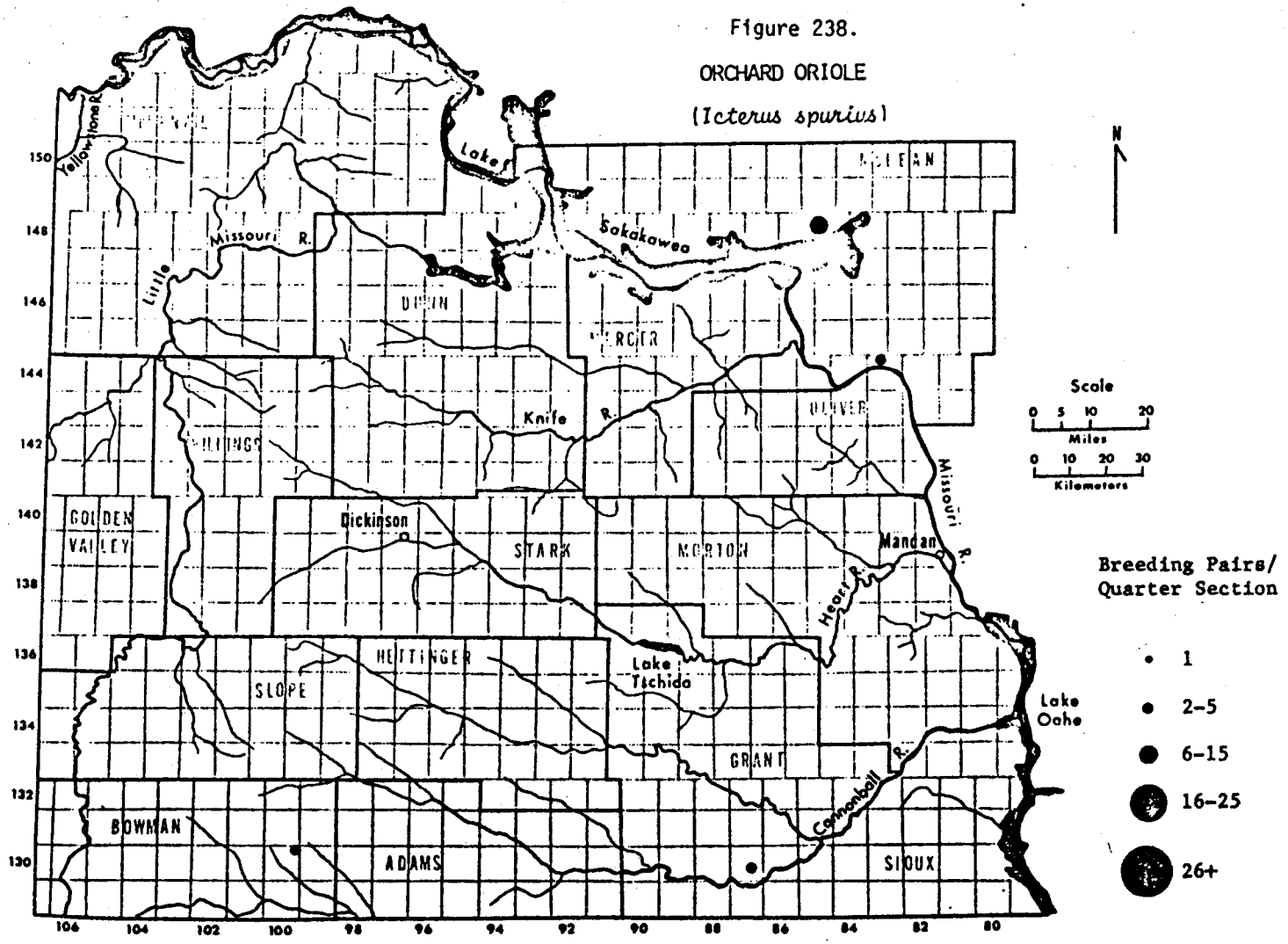
Observations in the Project Area

● 1976

Figure 238.

ORCHARD ORIOLE

(*Icterus spurius*)



ORDER: Passeriformes

FAMILY: Icteridae

Northern (Baltimore and Bullock's) Oriole (*Icterus galbula*) - This bird is found over the entire United States and Mexico and into southern Canada. The species breeds over all but the southeast United States and coasts of Mexico (Robbins, et al., 1966). Stewart (1975) lists it as common or fairly common east and north of the Missouri River, and uncommon or rare in the southwest portion of the state.

Distribution in the project area: 12 observations were made mainly in riparian woodland or hardwood draws of Billings, Grant, McLean, Mercer, Morton, and Stark Counties (Fig. 239, 240).

Habitat: Found in stands of cottonwoods on river floodplains, wooded stream valleys, upland forests, tree claims, mature shelterbelts, and partially wooded residential areas (Stewart, 1975).

Status: Uncommon breeding species in the project area.

ORDER: Passeriformes

FAMILY: Icteridae

Brewer's Blackbird (*Euphagus cyanocephalus*) - This blackbird is found over the western two-thirds of the United States, Mexico, and southwestern Canada. Breeding range covers the northern midwest and southwestern Canada, while winter range is found in south-central United States, south through Mexico. The species is present year round in the western United States (Robbins, et al., 1966). Stewart (1975) lists the species as common or fairly common in most of North Dakota, except the Southern Drift Plain where it is uncommon or rare and local.

Distribution in the project area: 13 observations were made on rolling and upland grasslands, natural wetlands, hardwood draws, and agriculturally disturbed areas scattered over the project area (Fig. 241, 242).

Habitat: Found in short-growth grasslands, roadsides, rights-of-way, and residential areas. Areas occupied are often near buildings or tracts of brush and trees. Nests are situated on the ground on in shrubs and small trees close to the ground (Stewart, 1975).

Status: Uncommon breeding species in the project area; probably fairly common locally, at least in the Badlands.

ORDER: Passeriformes

FAMILY: Icteridae

Common Grackle (*Quiscalus quiscala*) - The Common Grackle is found over the eastern United States and north through central Canada. The breeding range covers the northern portion of this area, and the bird is present year round in most of the remaining area (Robbins, et al., 1966). Stewart (1975) lists this species as common or fairly common throughout most of North Dakota.

Distribution in the project area: 15 observations were made mainly in rolling and upland grasslands and agriculturally disturbed areas in most of the counties in the project area (Fig. 243, 244).

Habitat: Found in wood margins and adjacent open expanses of prairie or cropland. Common in areas of human habitation. Nests are situated in variable habitats, including trees, cattails, or beams in abandoned buildings (Stewart, 1975).

Status: Uncommon breeding species in the project area; possibly fairly common locally in the western portion of the project area.

ORDER: Passeriformes

FAMILY: Thraupidae (Tanagers) - A family of some 223 living species, the Tanagers are found from southern Alaska and Canada south to Brazil and northern Argentina. They are found in forests and brushlands and are generally solitary and arboreal (Austin, 1971).

Scarlet Tanager (*Piranga rubra*) - These birds are found in the eastern United States, the breeding range covering the northeast and around the Great Lakes (Robbins, et al., 1966). Stewart (1975) lists it as fairly common in the Pembina Hills, and in other wooded areas in Pembina, Richland, and Ransom Counties, but uncommon or rare elsewhere in North Dakota.

Distribution in the project area: One observation was made in a rolling grassland in Morton County (Fig. 245).

Habitat: Found in mature deciduous forests that occur on slopes and valley bluffs and on well-drained floodplains of large streams (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Carduelidae (Goldfinches and allies) - This family contains 112 living species occurring worldwide except for Australia and the Pacific Islands. They are found in woodlands and scrublands and are gregarious (Austin, 1971).

American Goldfinch (*Carduelis tristis*) - The American Goldfinch is found over all of the United States and into southern Canada and northern Mexico. Breeding range is in the north-central United States, while the winter range eovers the southern United States. The species is present year round elsewhere (Robbins, et al., 1966). Stewart (1975) lists them as common or fairly common locally thoughout North Dakota.

Distribution in the project area: 23 observations were made in river bottoms, hardwood draws, grasslands, juniper draws, ponderosa pines, and agriculturally disturbed areas in all but Adams, Hettinger, and Oliver Counties (Fig. 246, 247).

Habitat: Found in marginal zones of woodlands and brushland, wooded residential areas, and shelterbelts. Nests are situated in small trees or tall shrubs (Stewart, 1975).

Status: Fairly common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae (New World Seedeaters) - A large family of 315 living species, the Fringillids are found worldwide except oceanic islands, East Indies, Australia, New Zealand, Madagascar, and Antarctica. They are present in all types of terrestrial habitats (Austin, 1971).

Chestnut-collared Longspur (*Calcarius ornatus*) - This species is found in an area extending from north-central Mexico to south-central Canada, but mainly on the Great Plains. The breeding range is in the northern portion of this area, while the wintering grounds cover the southern portion (Robbins, et al., 1966). Stewart (1975) lists it as fairly common to abundant locally over all but the Agassiz Lake Plain Region where it is uncommon in the north and rare in the south.

Distribution in the project area: 37 observations were made on mainly rolling grasslands in all but Billings County (Fig. 248, 249).

Habitat: Found on grazed or hayed mixed-grass prairie, short-grass prairie, and grazed brackish or subsaline wet-meadow zones. Nests are in small depressions on the ground in sparse herbaceous vegetative cover (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Vesper Sparrow (*Pooecetes gramineus*) - The Vesper Sparrow is found over all the United States, southern Canada, and parts of Mexico. Breeding range is in the northern half of this area and winter range in the southern half (Robbins, et al., 1966). Stewart (1975) lists the species as locally common or fairly common over most of the state.

Distribution in the project area: 33 observations were made on rolling and upland grasslands and agriculturally disturbed areas in all but Adams, Hettinger, and Oliver Counties (Fig. 250, 251).

Habitat: Found in field and prairie edge where thickets or scattered small trees and shrubs or patches of coarse forbs adjoin tracts of open prairie, hayfields, or cropland. Nests are situated on the ground in sparse to fairly dense herbaceous vegetation (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Savannah Sparrow (*Passerculus sandwichensis*) - This sparrow is found over the entire North American continent, its breeding range being in Canada and the northern United States and its winter range is in the southern United States and Mexico. It is present all year on the United States west coast (Robbins, et al., 1966). Stewart (1975) lists it as common or fairly common east and north of the Missouri River and in the southwestern portion of the Missouri Slope; uncommon elsewhere.

Distribution in the project area: 16 observations were made on mainly rolling grasslands scattered over most of the project area (Fig. 252, 253).

Habitat: Found in tall-grass prairie, ungrazed and lightly grazed mixed-grass prairie, and wet-meadow zones bordering prairie ponds and lakes (Stewart, 1975).

Status: Fairly common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Baird's Sparrow (*Ammodramus bairdii*) - The Baird's Sparrow is found in a narrow strip running north-south from south-central Canada to north-central Mexico. Breeding range is in south-central Canada, and winter range extends from the central Great Plains to north-central Mexico (Robbins, et al., 1966). Stewart (1975) lists the species as common or fairly common from the northwest corner of the state to the south-central part and in the southwestern corner of the state. Elsewhere it is uncommon, rare or absent.

Distribution in the project area: 18 observations were made on rolling and upland grasslands over much of the project area (Fig. 254, 255).

Habitat: Found on extensive idle or lightly grazed mixed-grass prairie, local wet-meadow zones, or tall-grass priaire situated in lowland areas. Nests are situated on the ground in fairly dense herbaceous vegetation (Stewart, 1975).

Status: Fairly common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Grasshopper Sparrow (*Ammodramus savannarum*) - This sparrow is found over the entire United States and all of Mexico, plus southern Canada. Breeding range is in the northern half of this area while the winter range extends over the south (Robbins, et al., 1966). Stewart (1975) lists the species as common or fairly common throughout the state except the Turtle Mountains, Agassiz Lake Plain Region, and Northeastern Drift Plain where it is uncommon.

Distribution in the project area: 57 observations were made mainly on rolling and upland grasslands and agriculturally disturbed areas in all counties of the project area (Fig. 256, 257).

Habitat: Found on idle or lightly grazed mixed-grass prairie, tall-grass prairie, and scrub sage prairie. Nests usually are situated on the ground in dense herbaceous vegetative cover (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Le Conte's Sparrow (*Ammospiza leconteii*) - This sparrow is found from the southeastern United States northwesterly to west-central Canada. Breeding range covers a narrow strip from the Great Lakes to west-central Canada. Winter range extends over the southeastern United States (Robbins, et al., 1966). Stewart (1975) lists it as locally common or fairly common in the northeastern half of the state, but rare over most of the southwestern-western half.

Distribution in the project area: One observation was made in early July on a moderately grazed rolling grassland in Mercer County (Fig. 258, 259).

Habitat: Found in fens, lowland tracts of tall-grass prairie, and wet-meadow zones around prairie ponds. Nests are situated on the ground in dense herbaceous vegetation (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Sharp-tailed Sparrow (*Ammospiza caudacuta*) - This species is found over the eastern half of the United States north through west-central Canada where the species breeds. Winter range is a narrow area along the Atlantic and Gulf coasts of the United States (Robbins, et al., 1966). Stewart (1975) lists the bird as fairly common locally throughout the Prairie Pothole Region, deltaic sand area of western Pembina County, and Turtle Mountains.

Distribution in the project area: One observation was made on a moderately grazed rolling grassland in Morton County (Fig. 260).

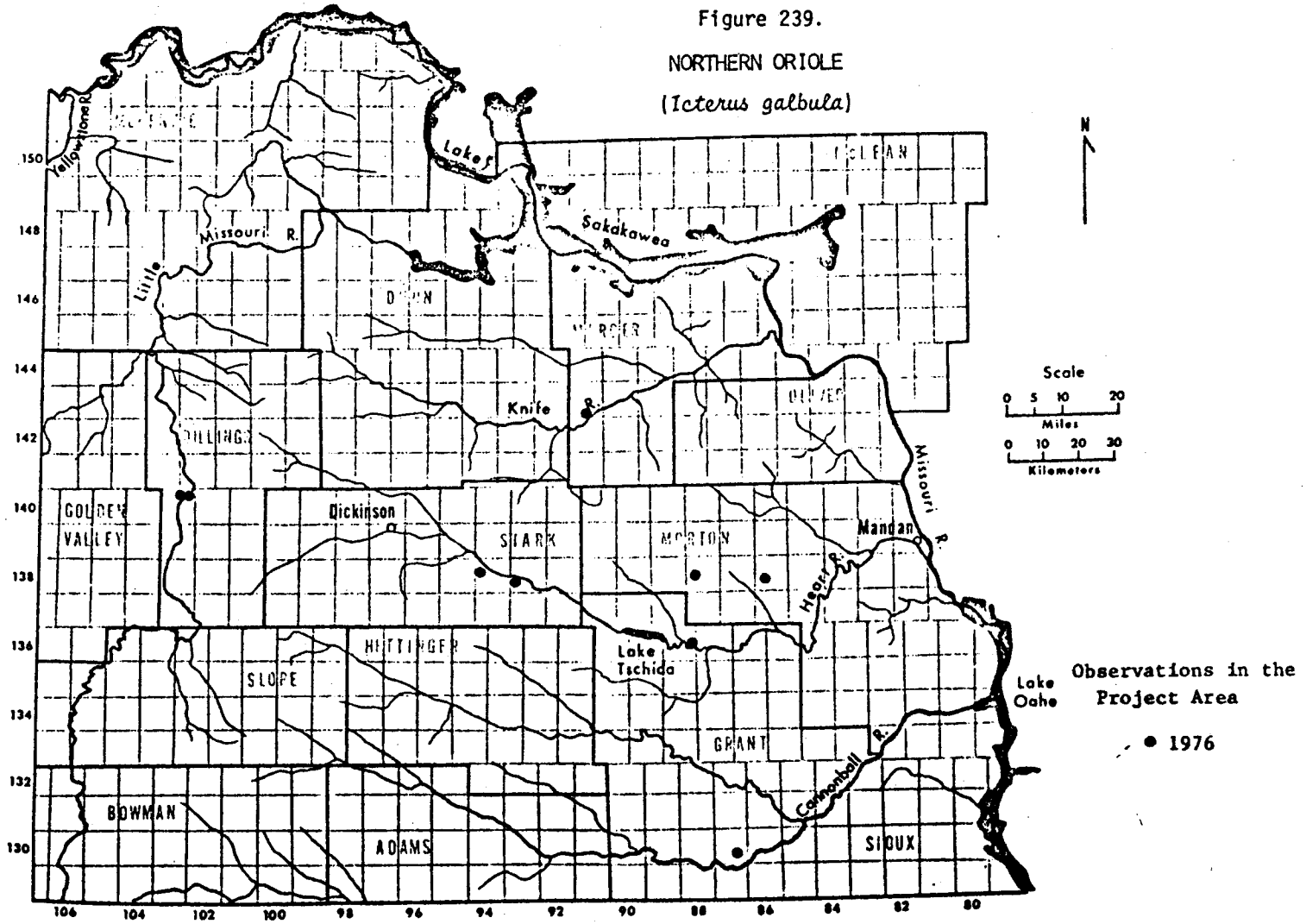
Habitat: Found in fens, shallow marsh, and deep-marsh zones. Nests are located on the ground in damp situations in coarse emergent vegetation (Stewart, 1975).

Status: Pending further study we list it here as a non-breeding species in the project area.

Figure 239.

NORTHERN ORIOLE

(*Icterus galbula*)



Observations in the Project Area

● 1976

Figure 240.

NORTHERN ORIOLE

(*Icterus galbula*)

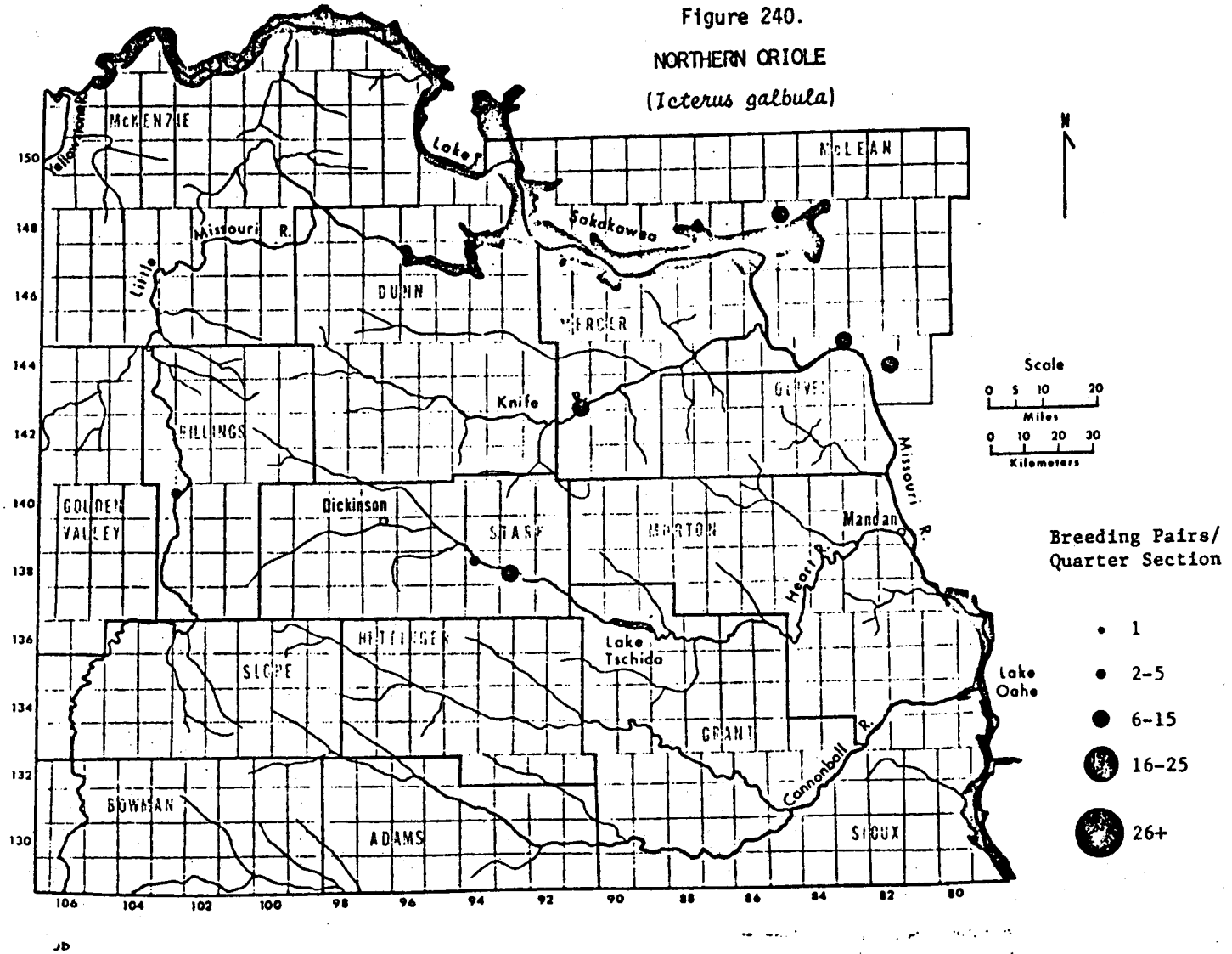
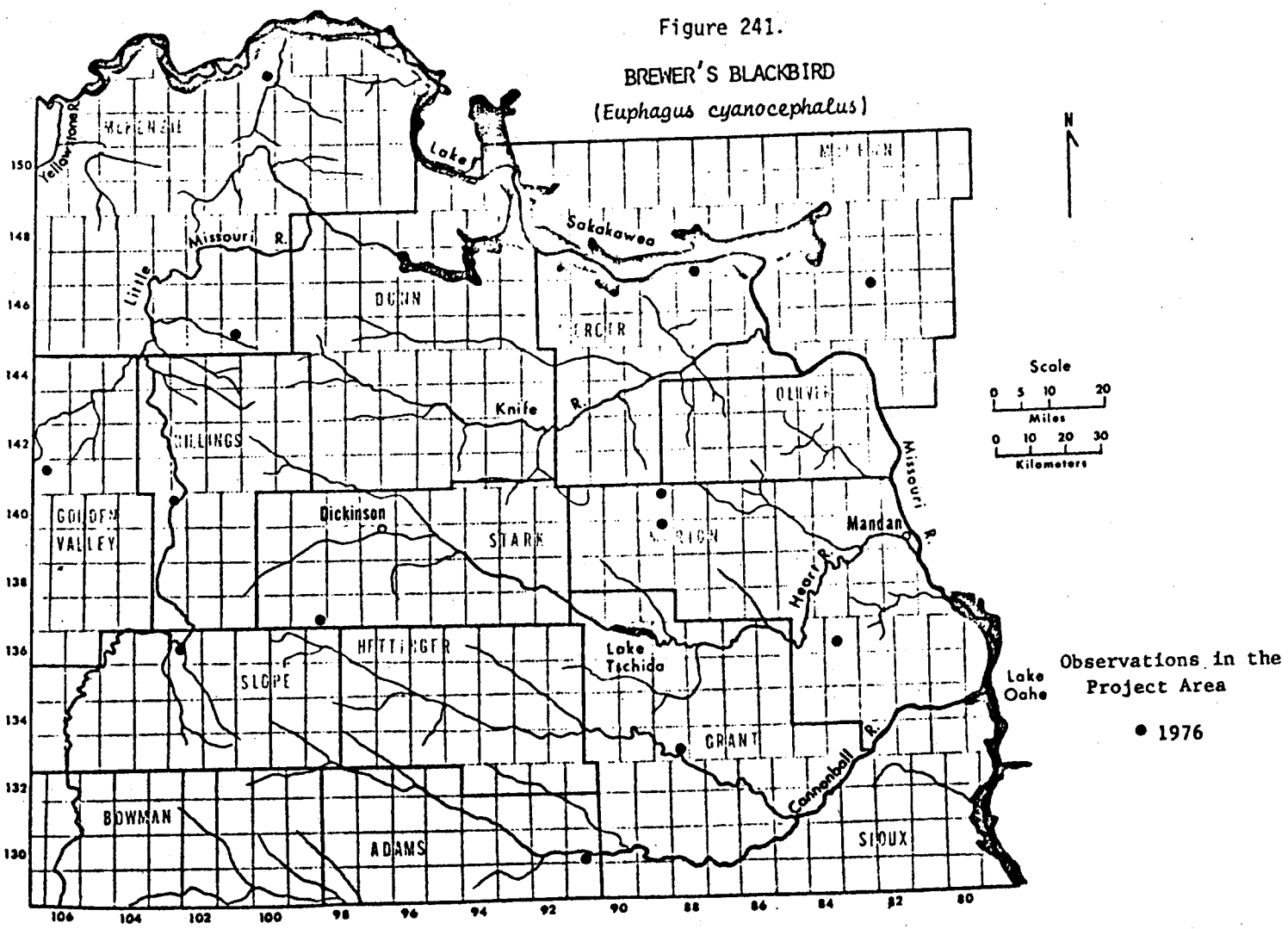


Figure 241.

BREWER'S BLACKBIRD

(*Euphagus cyanocephalus*)



Observations in the Project Area

● 1976

Figure 242.

BREWER'S BLACKBIRD

(*Euphagus cyanocephalus*)

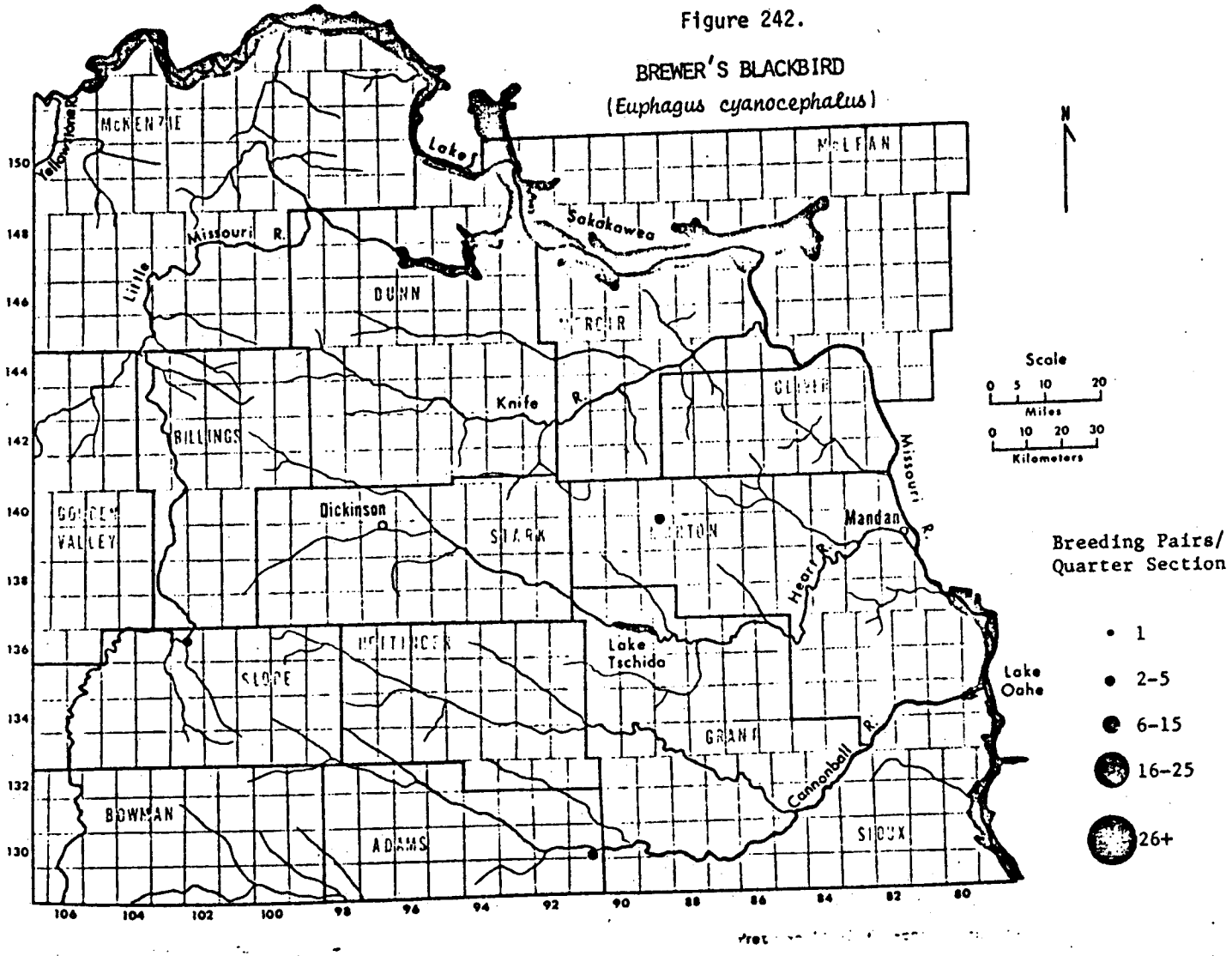
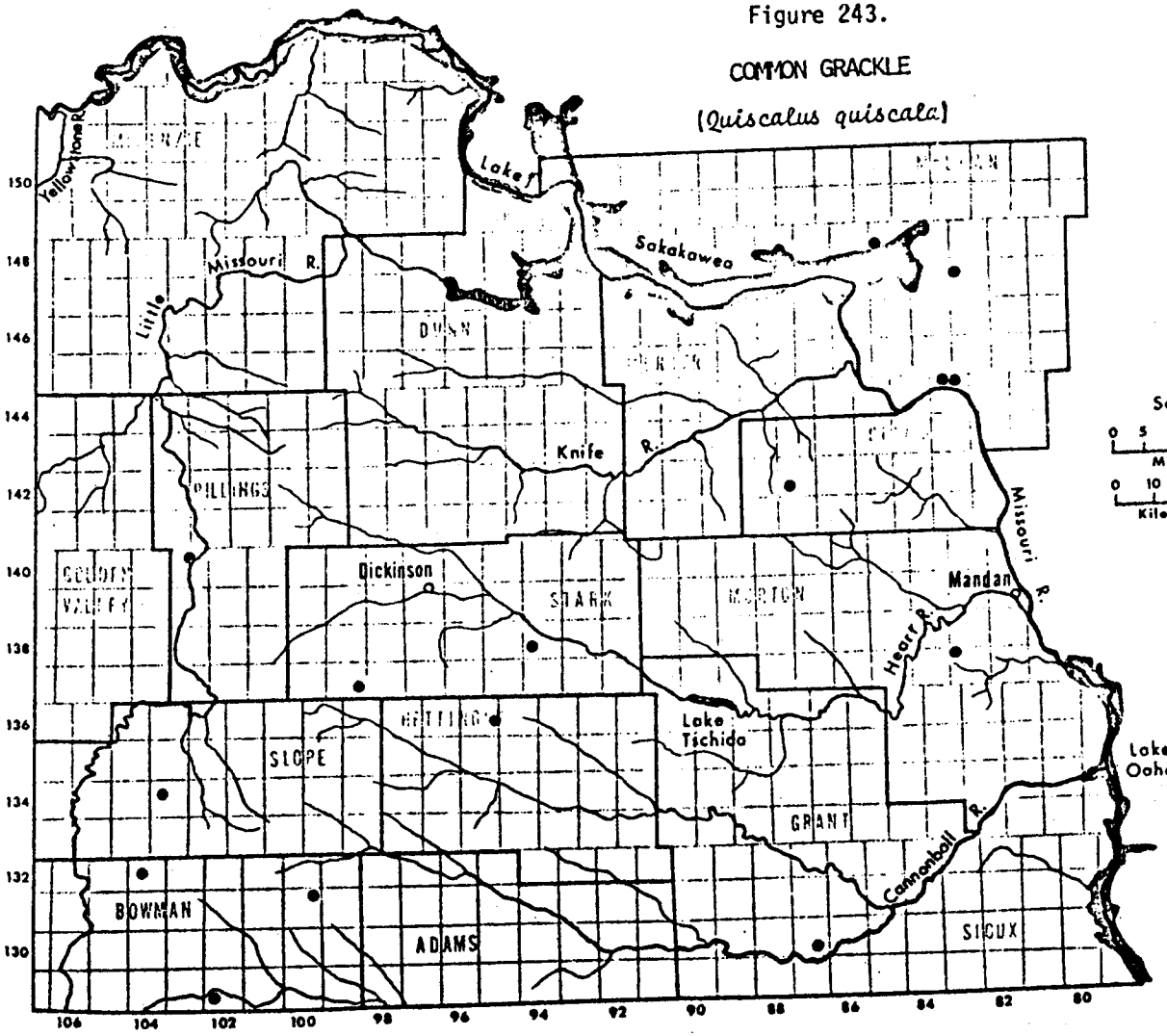


Figure 243.

COMMON GRACKLE

(*Quiscalus quiscala*)



Lake Oahe

Observations in the Project Area

● 1976

Figure 244.

COMMON GRACKLE

(*Quiscalus quiscala*)

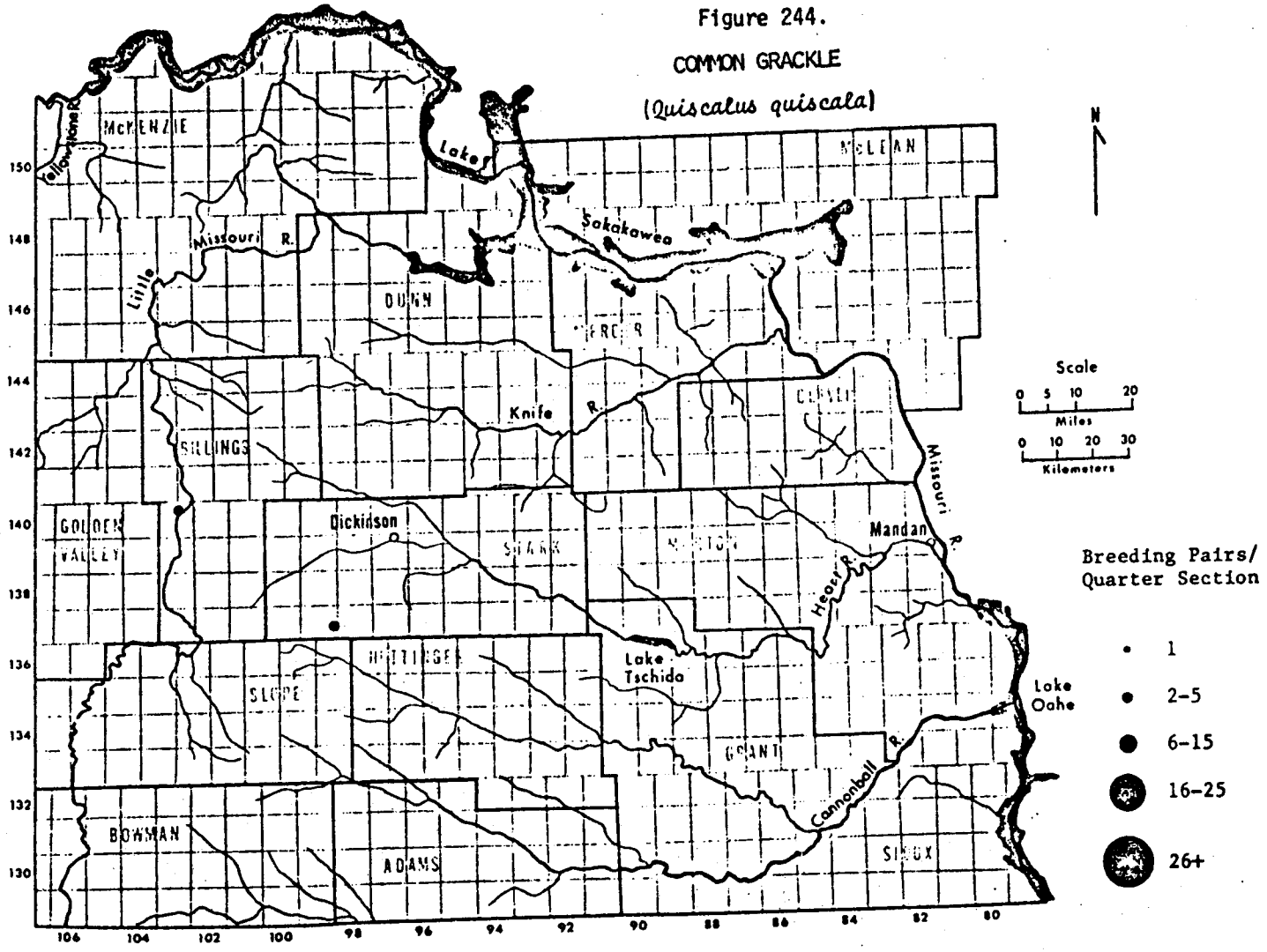
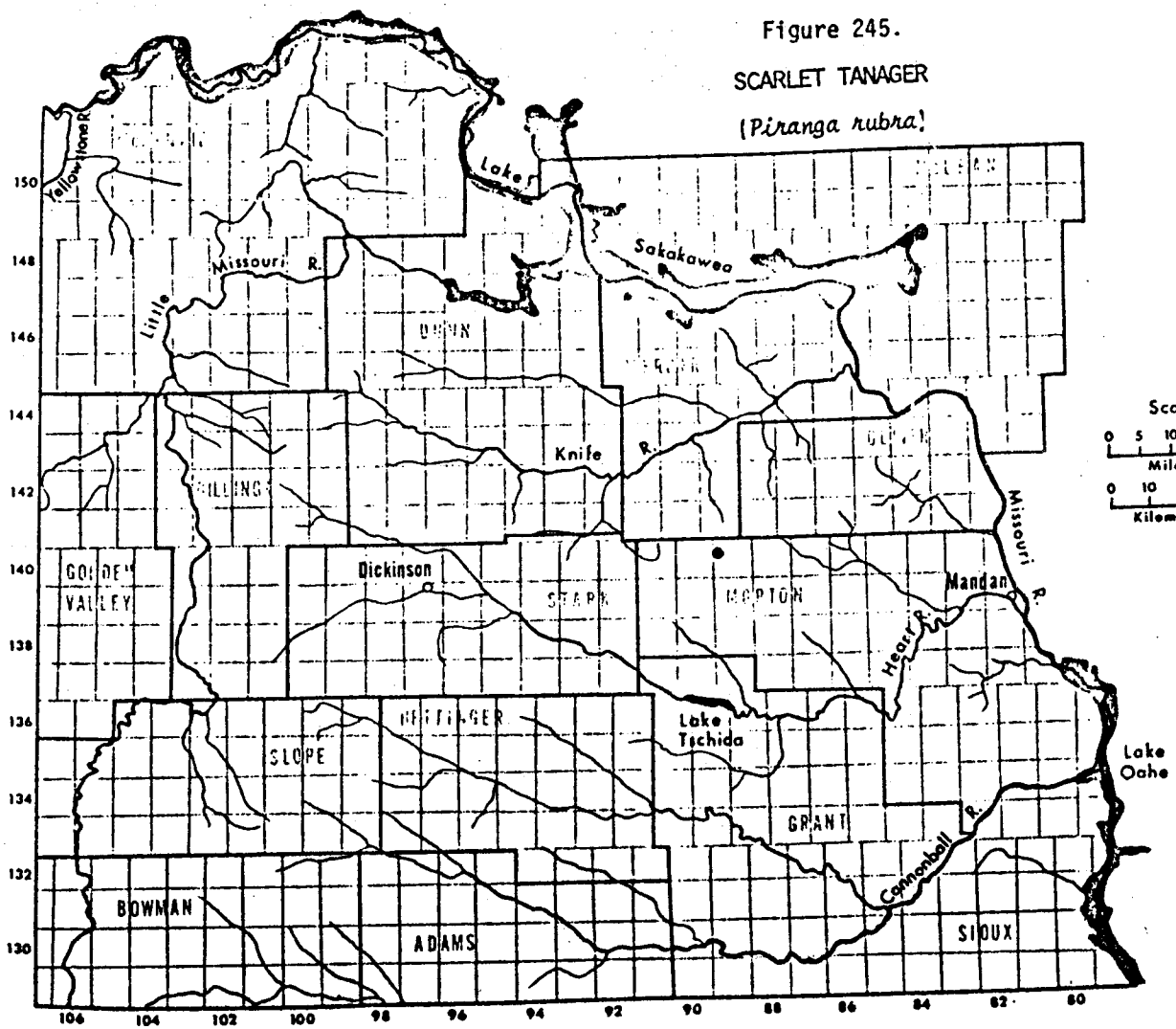


Figure 245.

SCARLET TANAGER

(*Piranga rubra*)



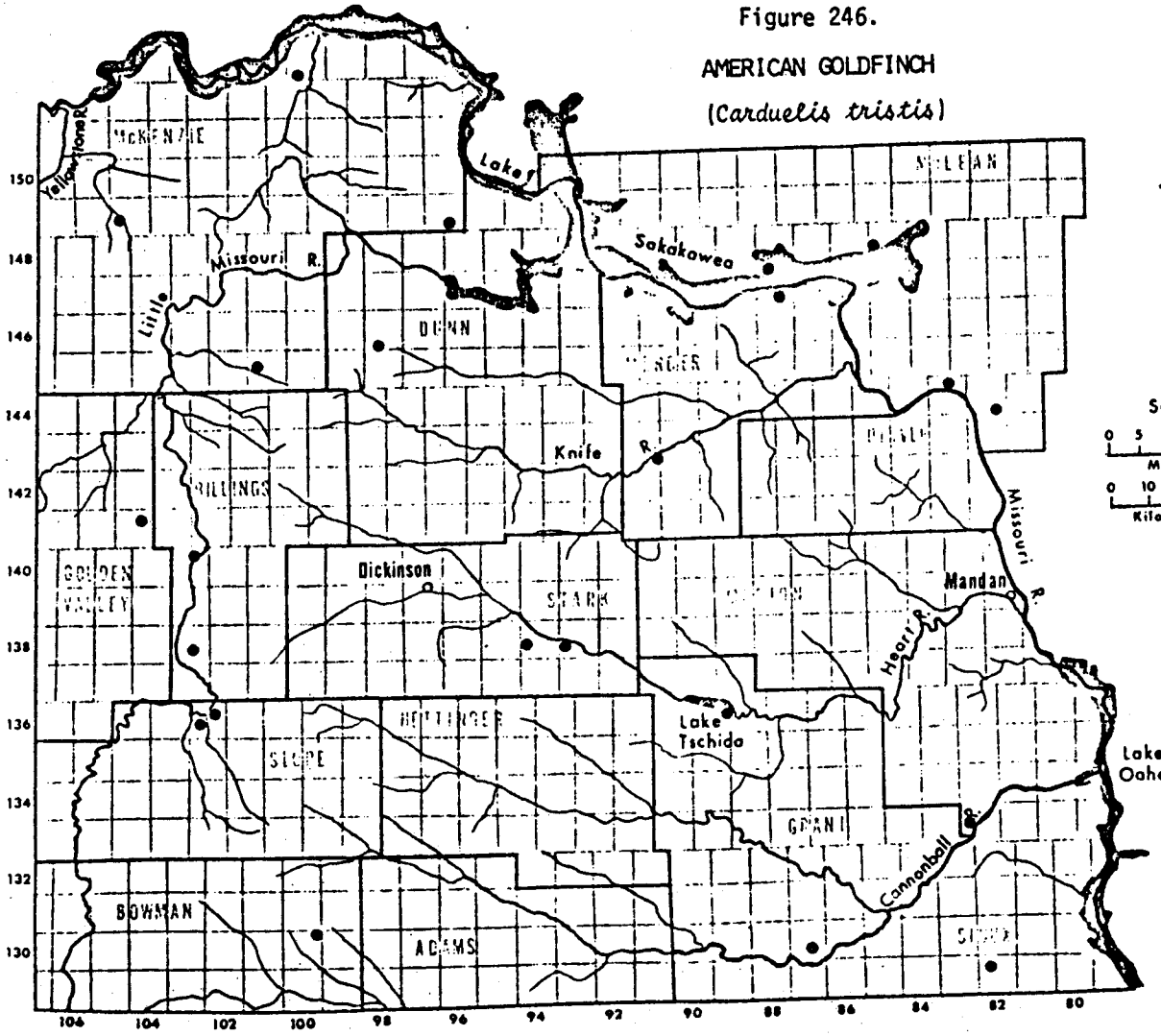
Observations in the Project Area

● 1976

Figure 246.

AMERICAN GOLDFINCH

(*Carduelis tristis*)



Observations in the Project Area

● 1976

Figure 247.

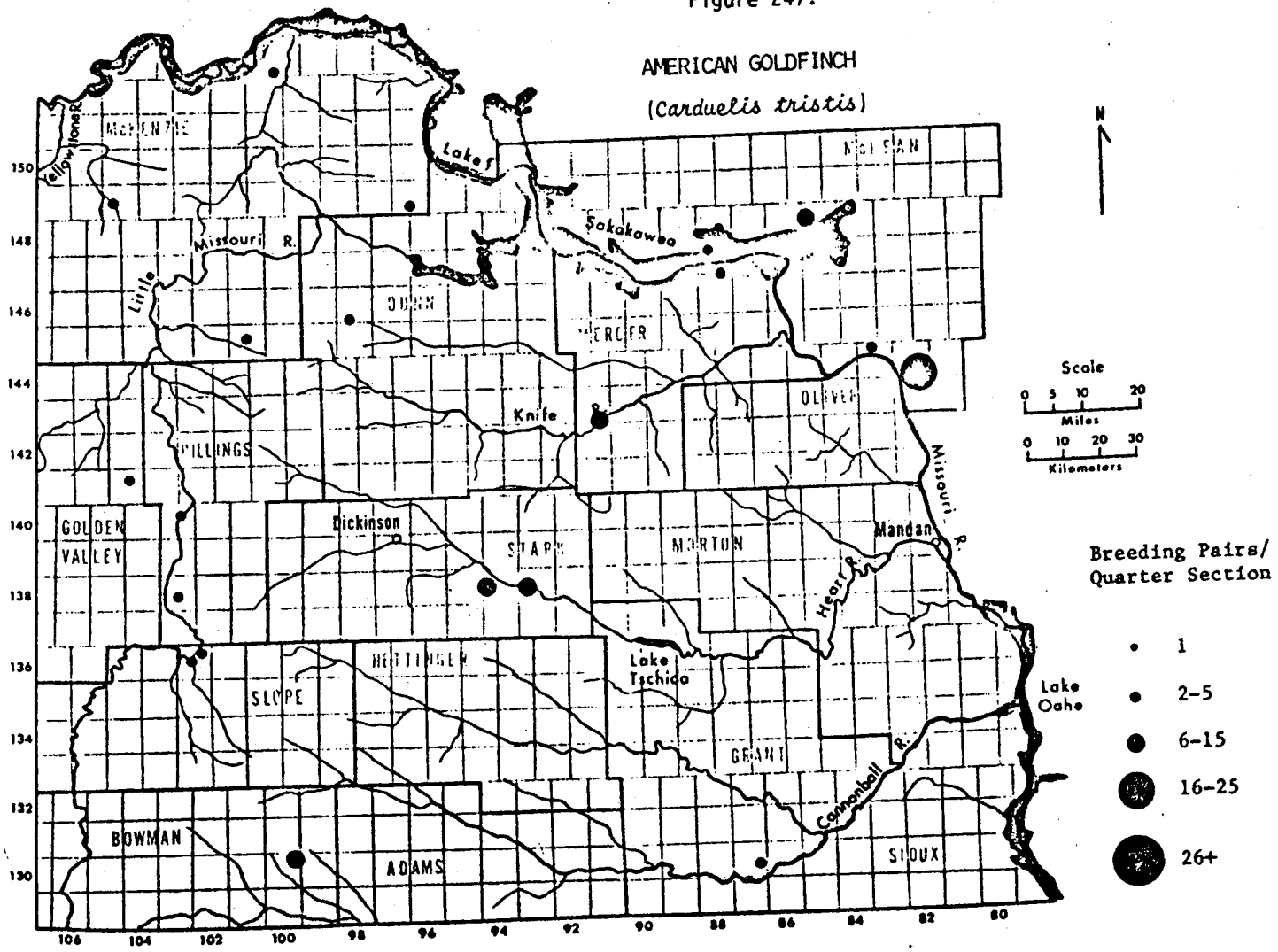
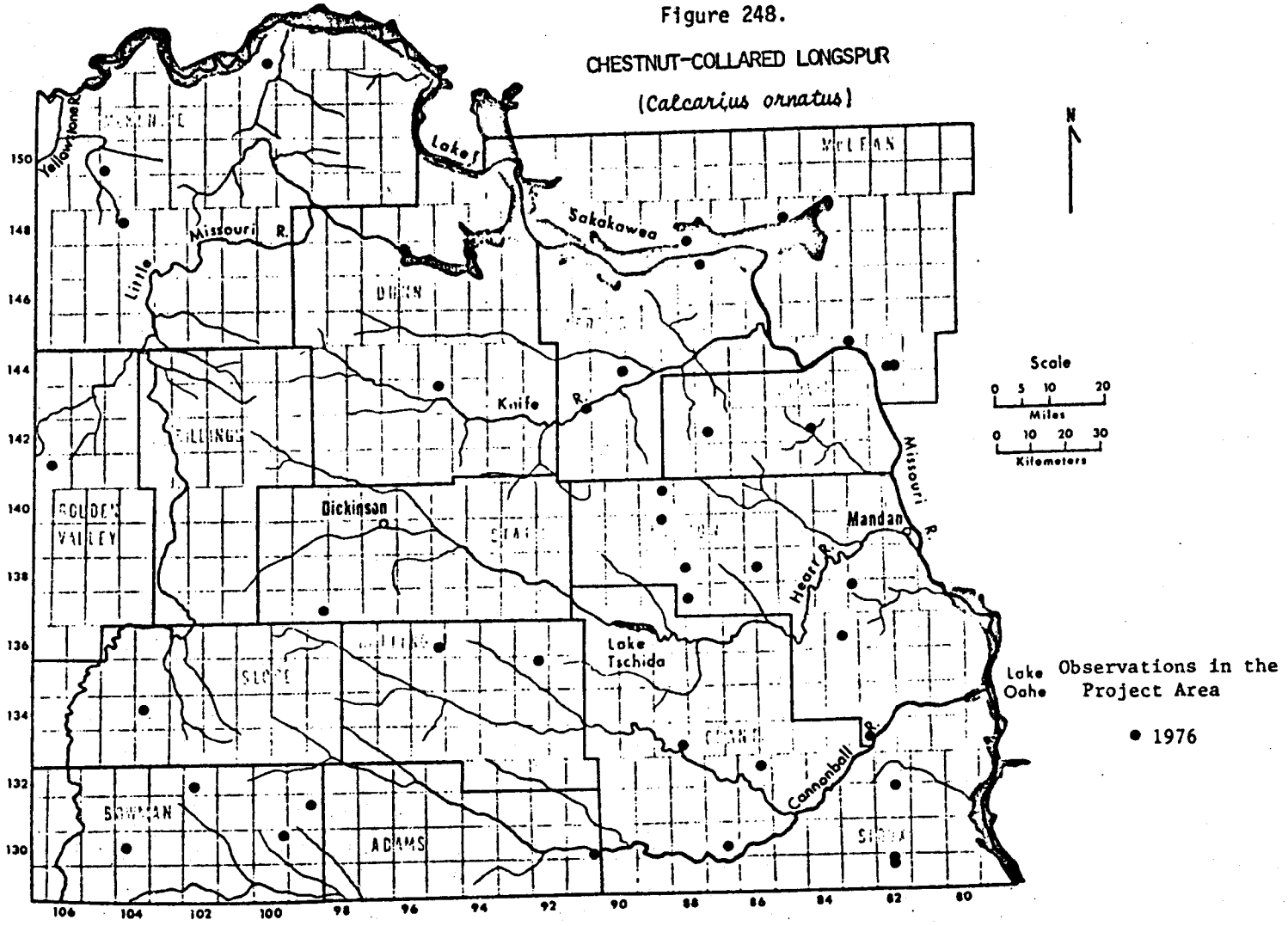

AMERICAN GOLDFINCH
(Carduelis tristis)
N
Scale
0 5 10 20
Miles
0 10 20 30
Kilometers
Breeding Pairs/
Quarter Section
1
2-5
6-15
16-25
26+
Yellowstone R.
McKENZIE
Lake S
Missouri R.
Little
Sakakawea
DUNN
MERCER
OLIVER
Knife
PILLINGS
GOLDEN VALLEY
Dickinson
SLOPE
HETTINGER
STARK
MORTON
Mandan
Heart R.
Missouri R.
Lake Tschida
Lake Oahe
GRANT
Cannonball R.
SIOUX
BOWMAN
ADAMS
150
148
146
144
142
140
138
136
134
132
130
106
104
102
100
98
96
94
92
90
88
86
84
82
80

Figure 248.

CHESTNUT-COLLARED LONGSPUR

(*Calcarius ornatus*)



Observations in the Project Area

● 1976

Figure 249.

CHESTNUT-COLLARED LONGSPUR

(*Calcarius ornatus*)

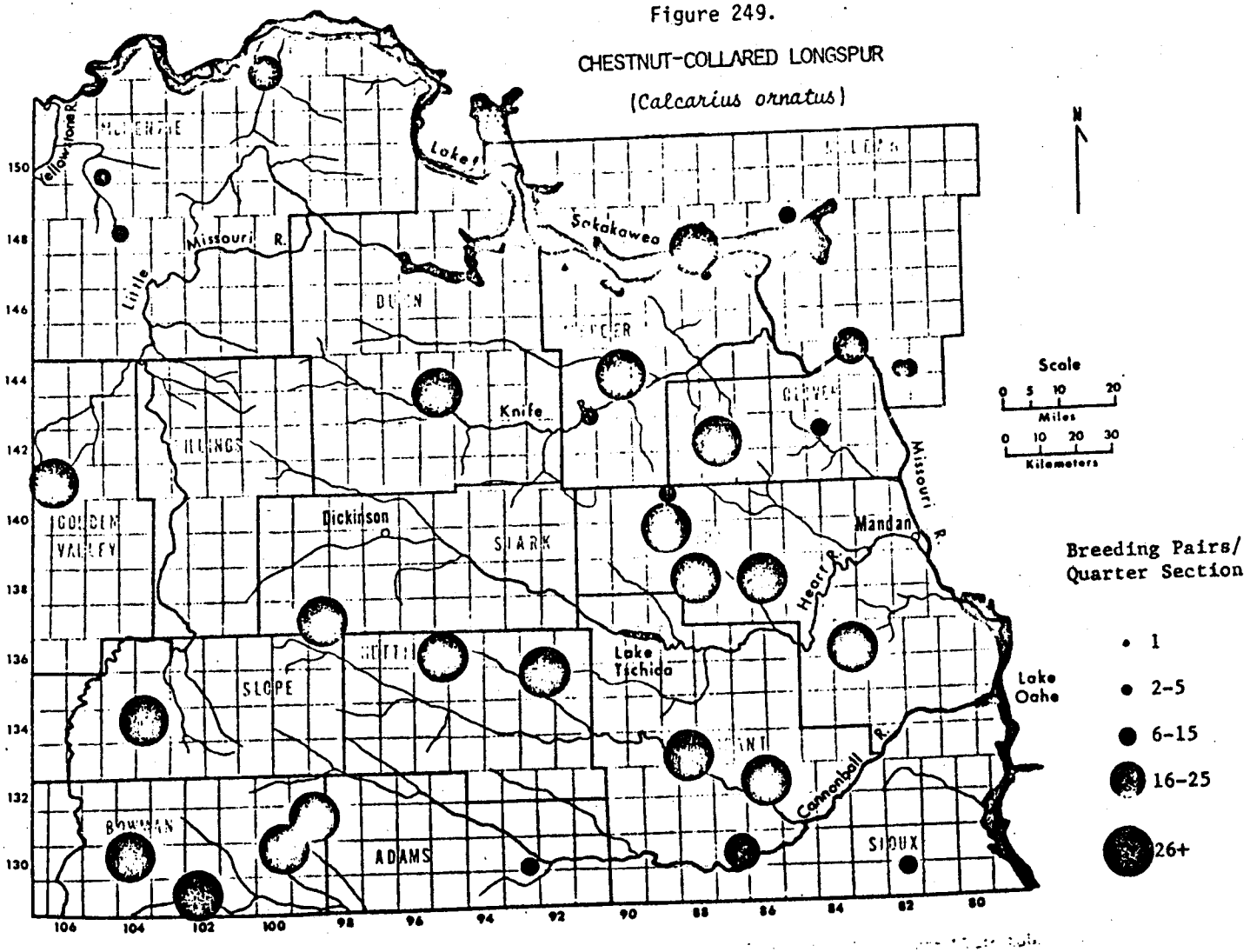


Figure 250.

VESPER SPARROW

(Pooecetes gramineus)

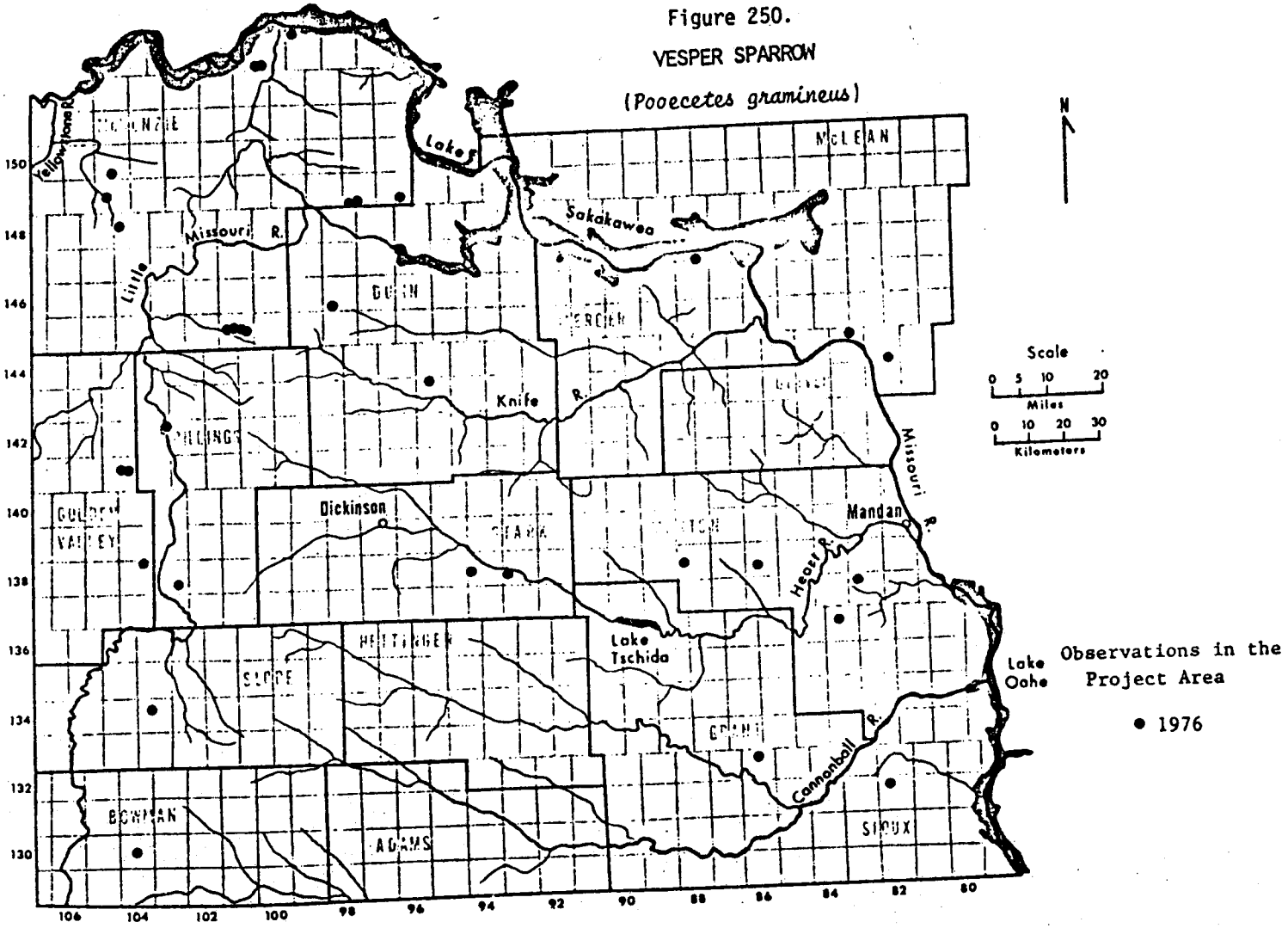


Figure 251.

VESPER SPARROW

(*Pooecetes gramineus*)

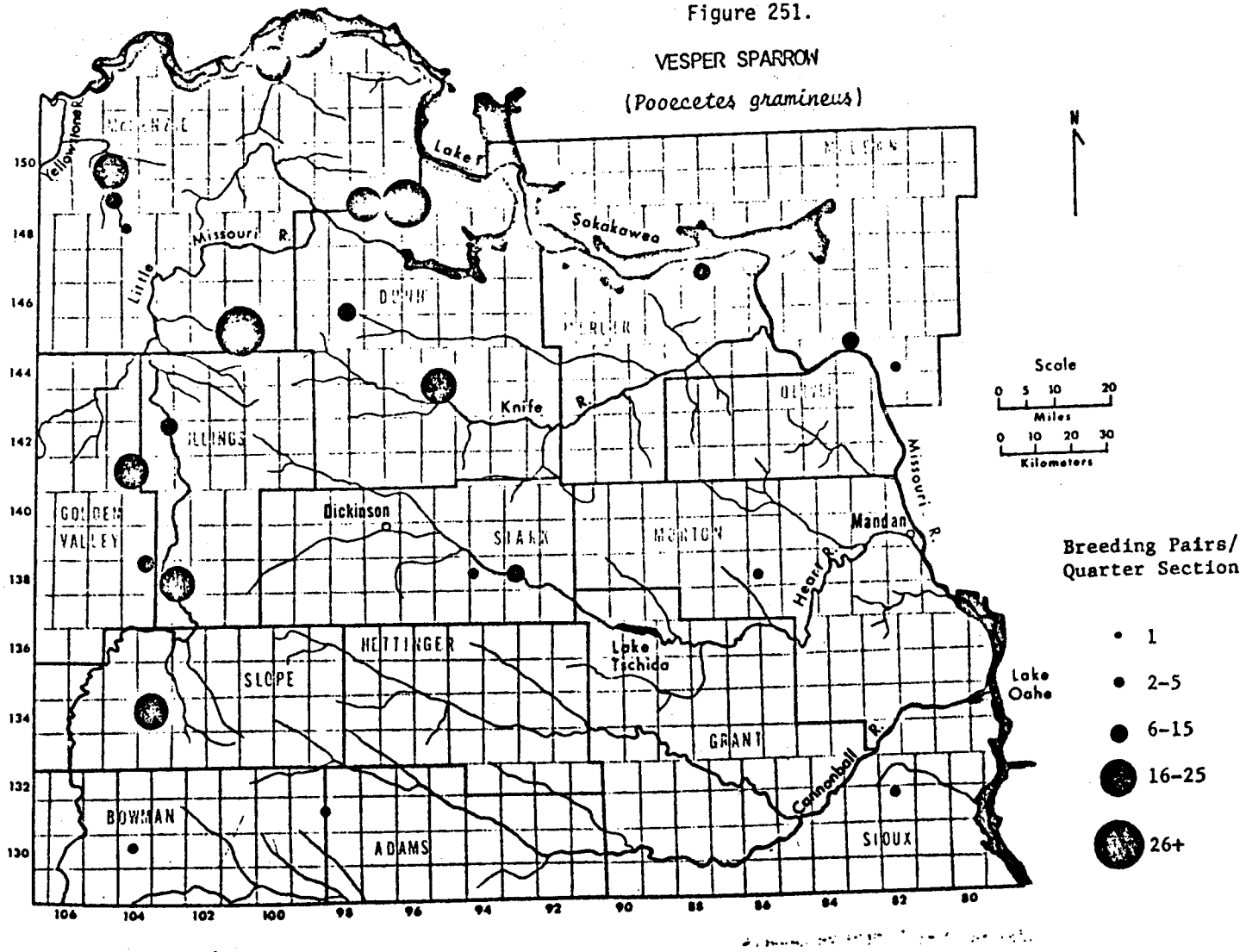
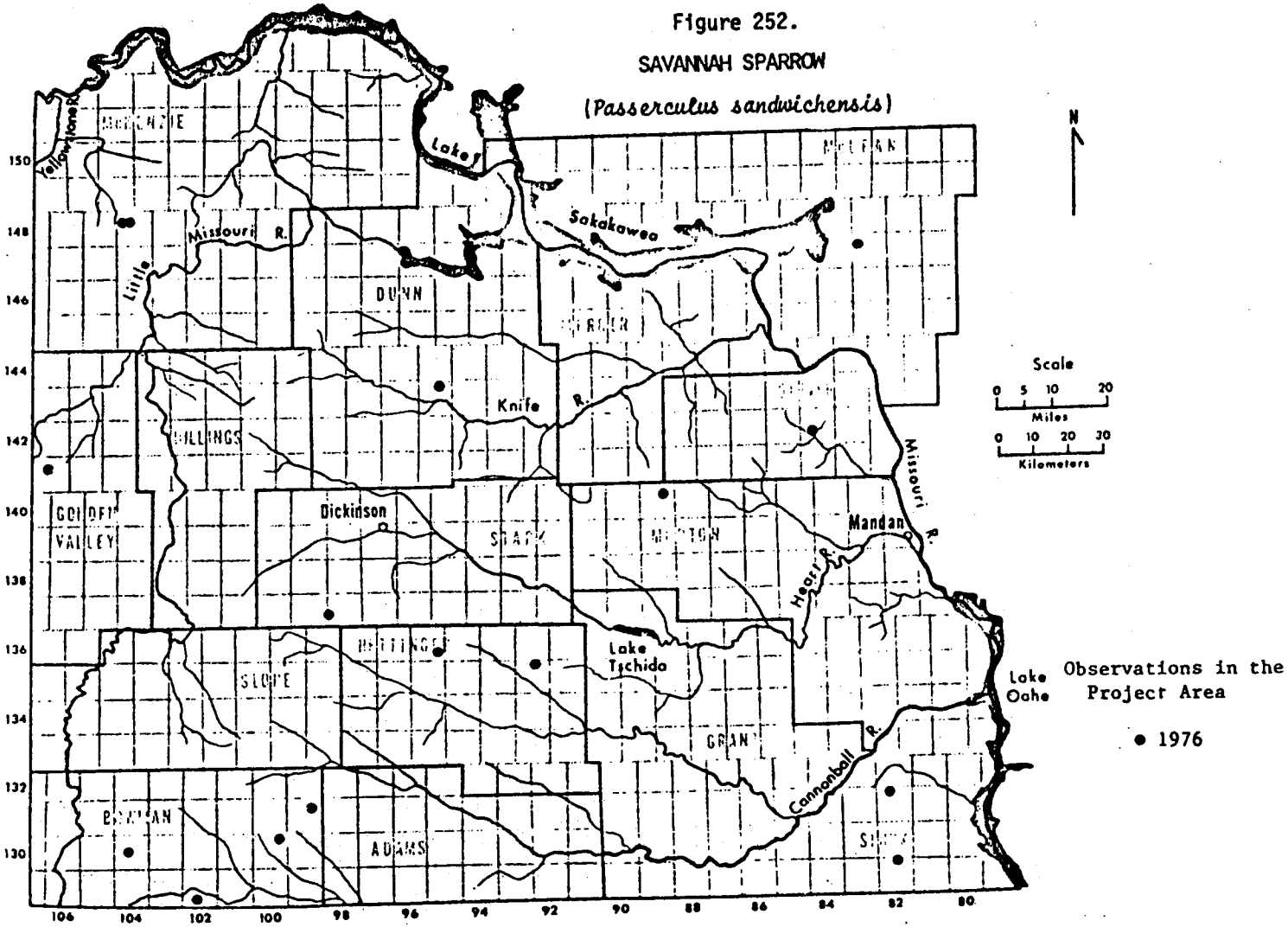


Figure 252.

SAVANNAH SPARROW

(*Passerculus sandwichensis*)



Observations in the Project Area

• 1976

Figure 253.

SAVANNAH SPARROW

(*Passerculus sandwichensis*)

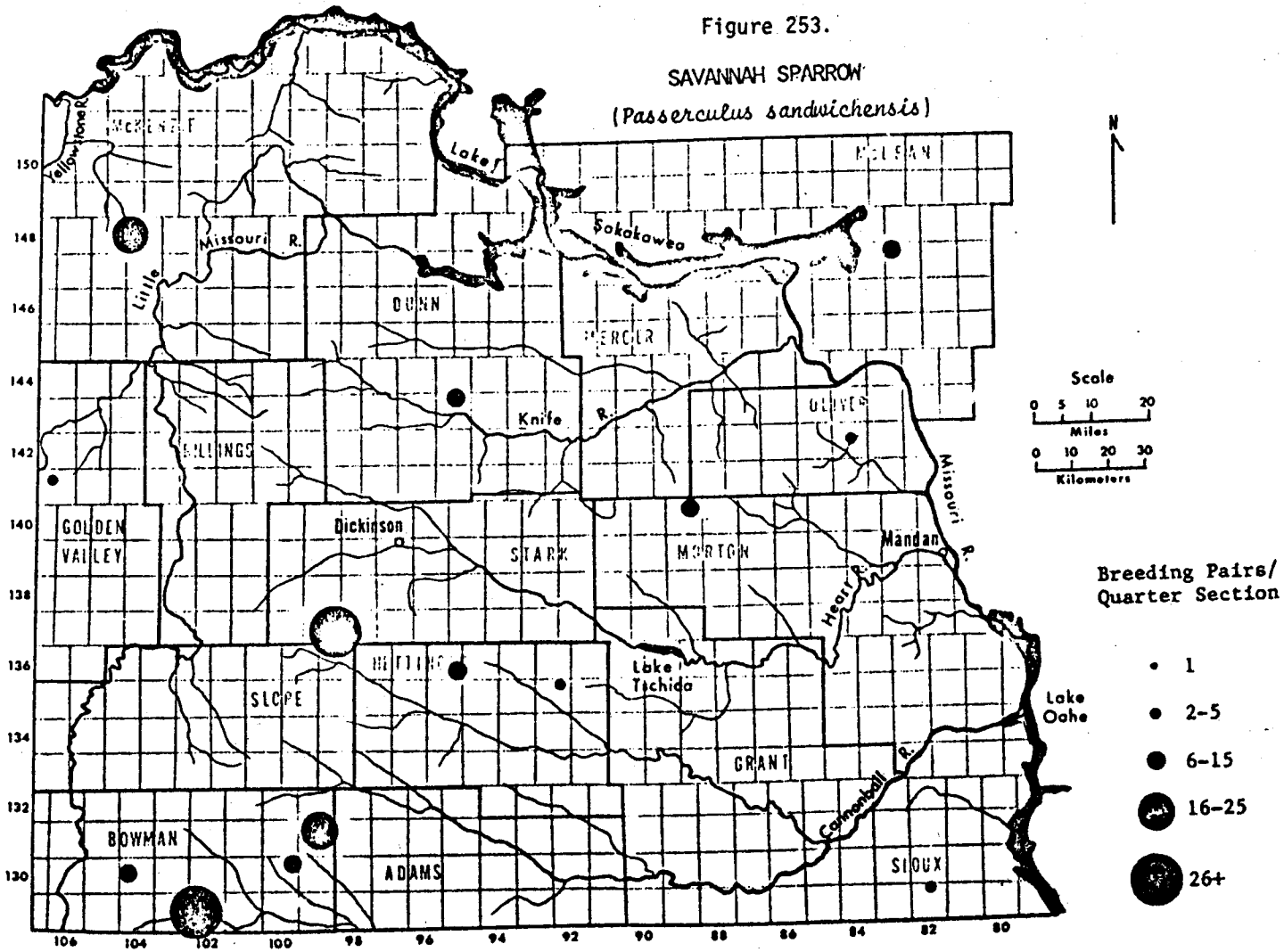
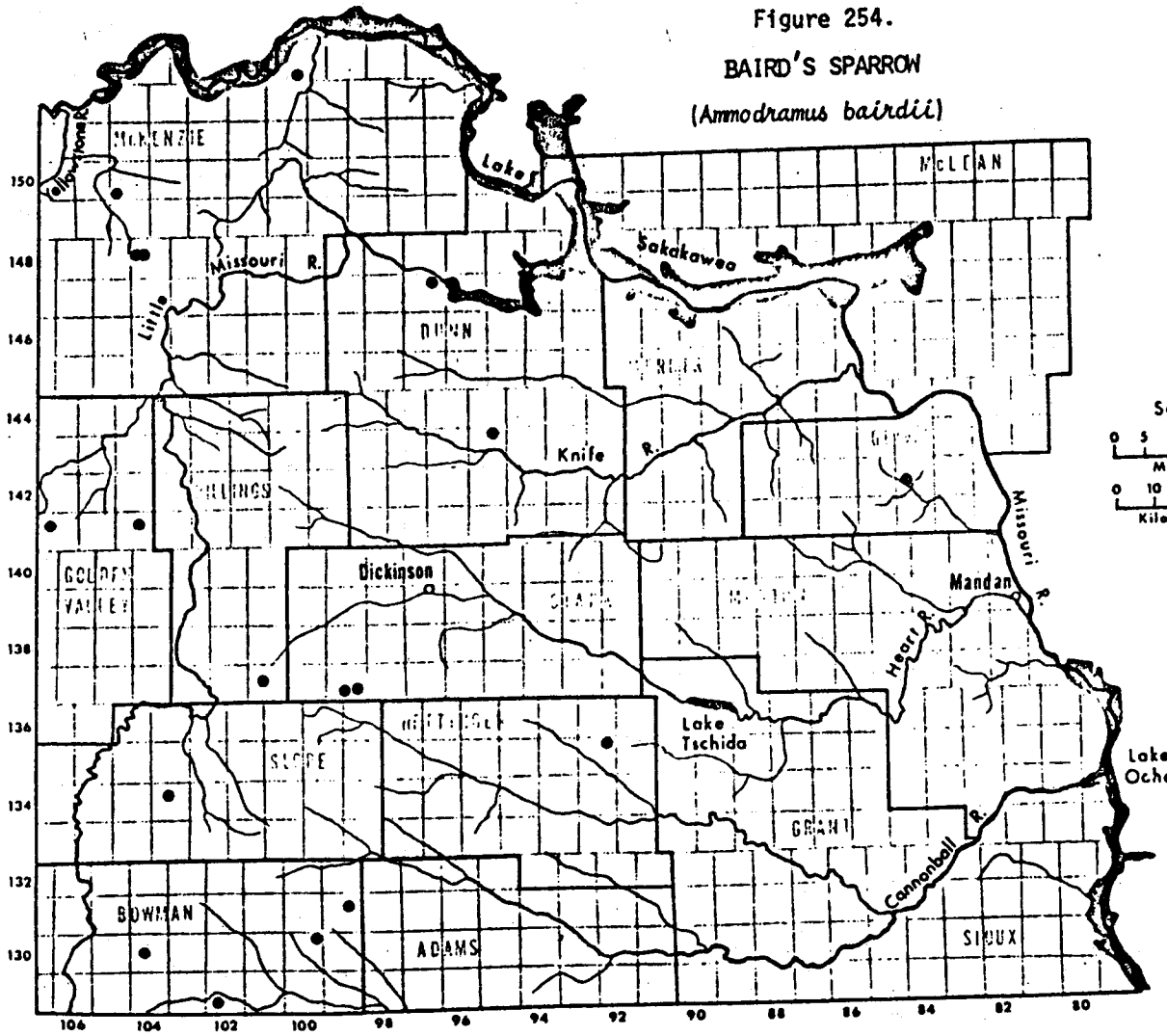


Figure 254.

BAIRD'S SPARROW

(*Ammodramus bairdii*)



Observations in the Project Area

● 1976

Figure 255.

BAIRD'S SPARROW

(*Ammodramus bairdii*)

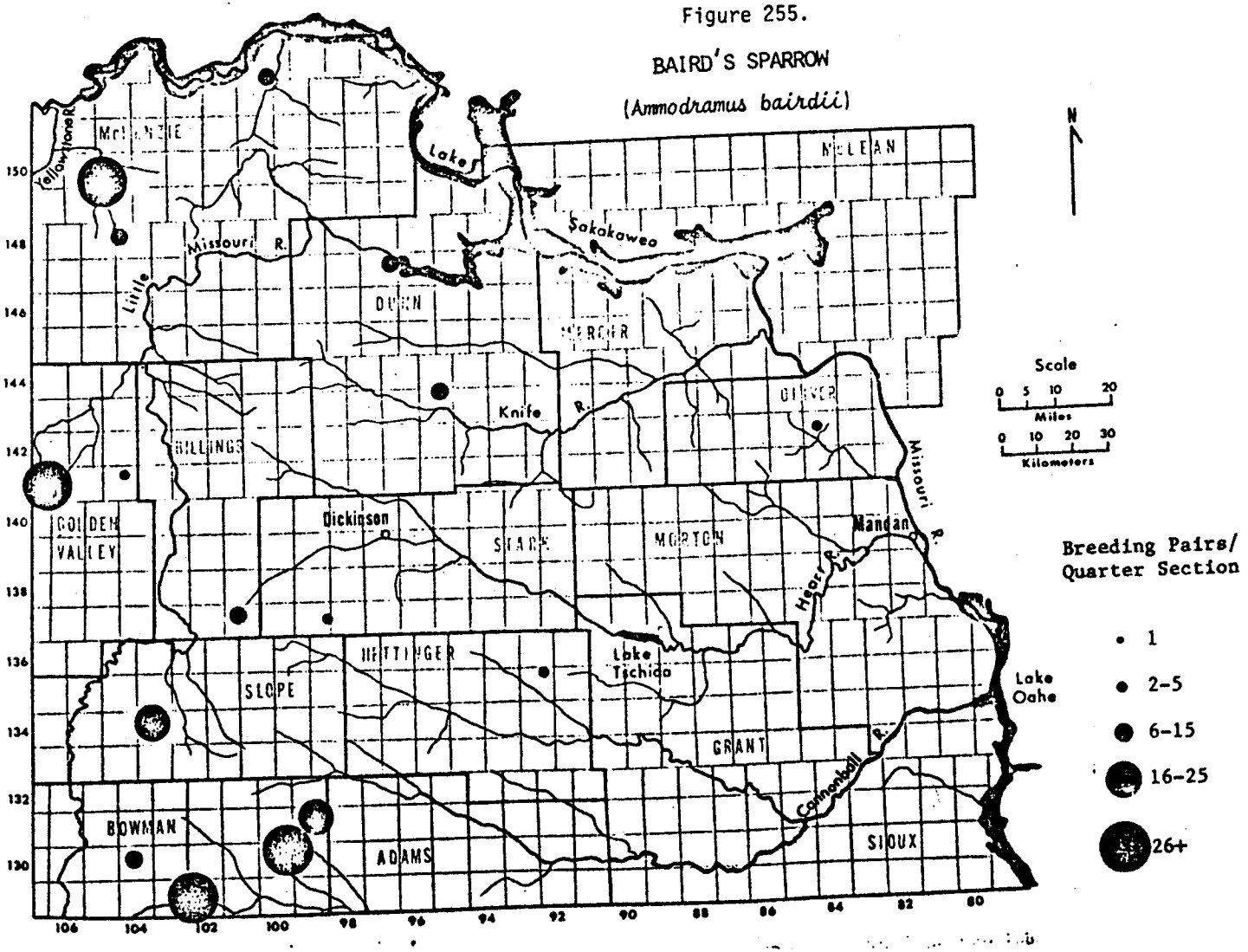
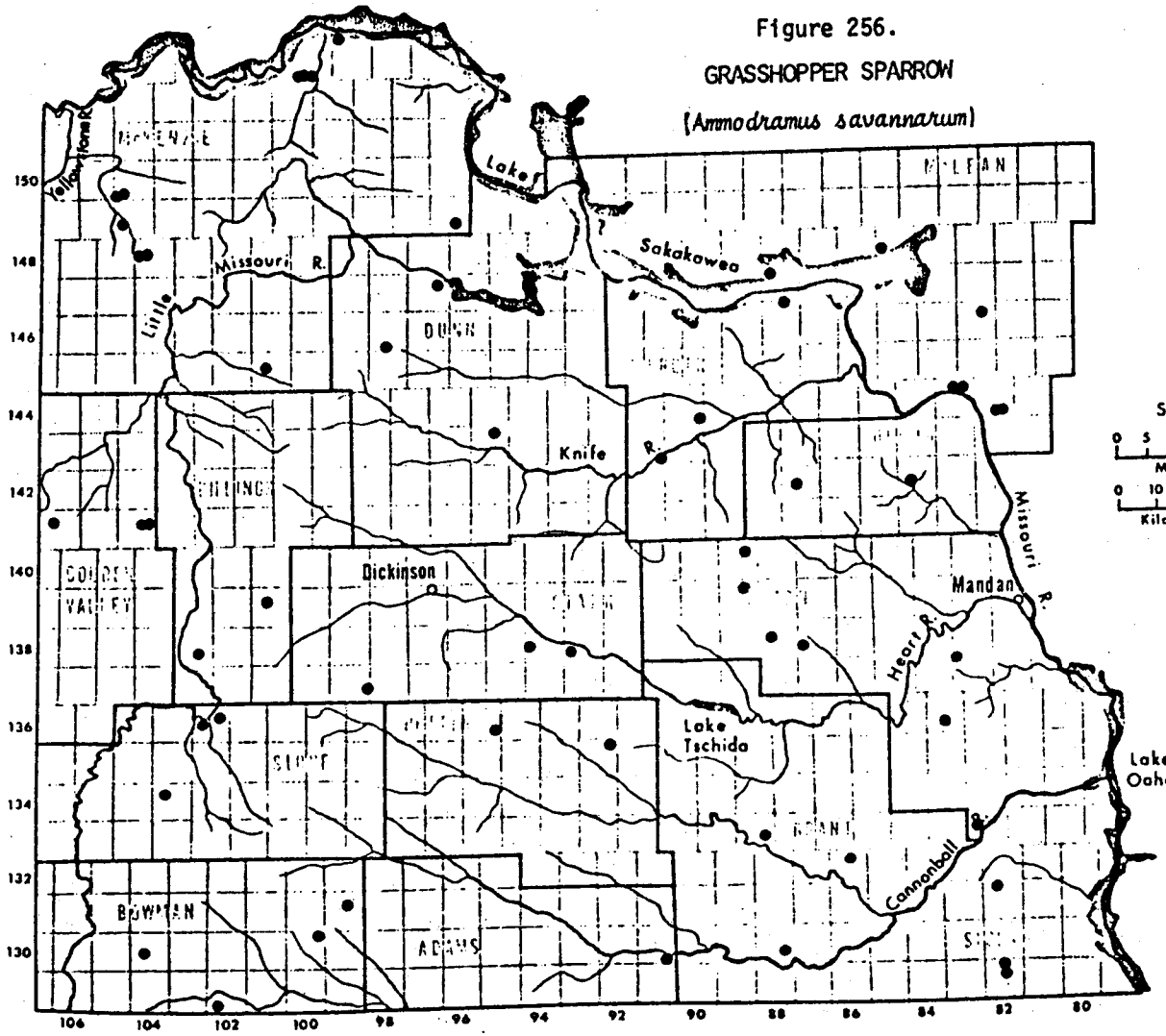


Figure 256.

GRASSHOPPER SPARROW

(*Ammodramus savannarum*)



Observations in the Project Area

● 1976

Figure 257.

GRASSHOPPER SPARROW

(*Ammodramus savannarum*)

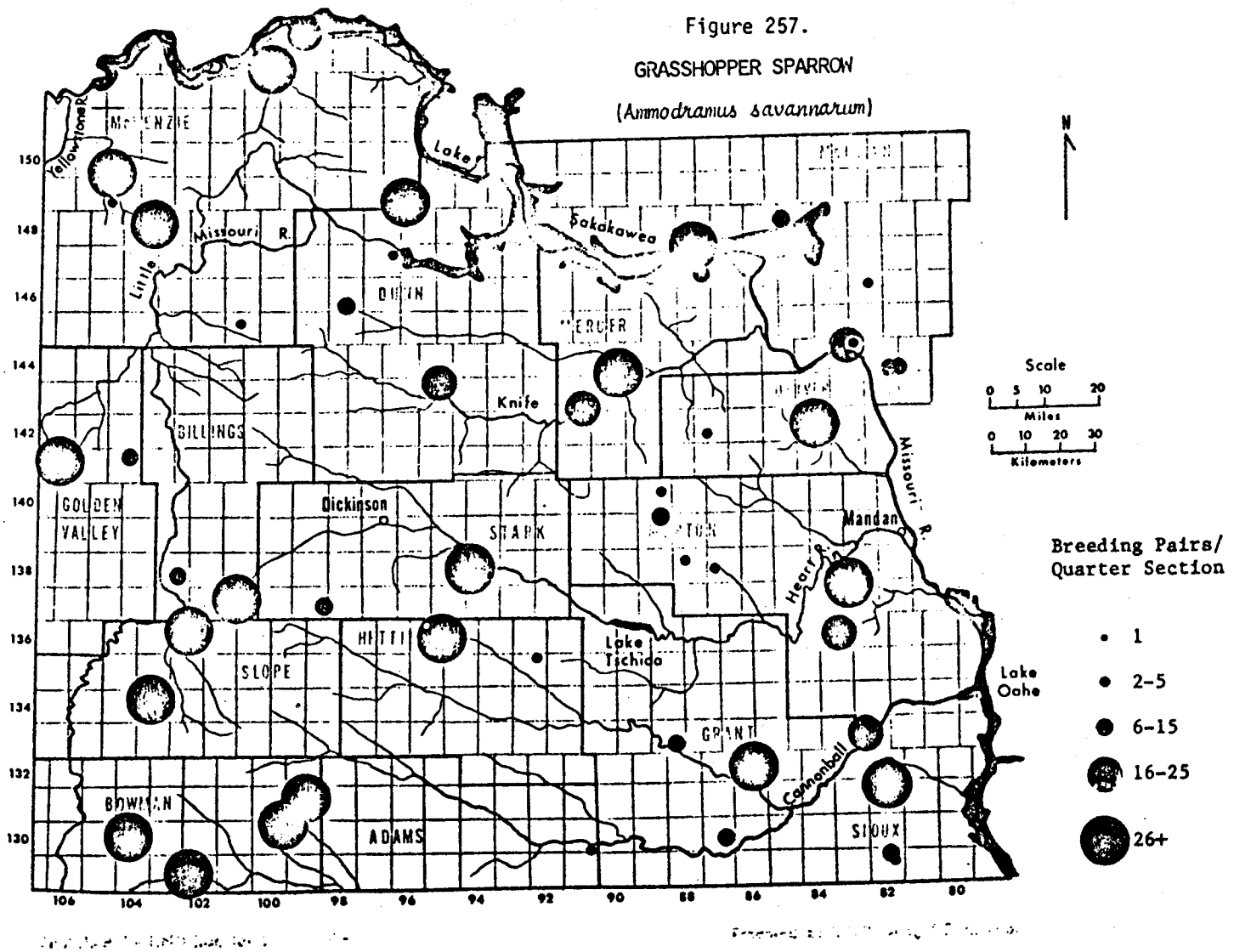
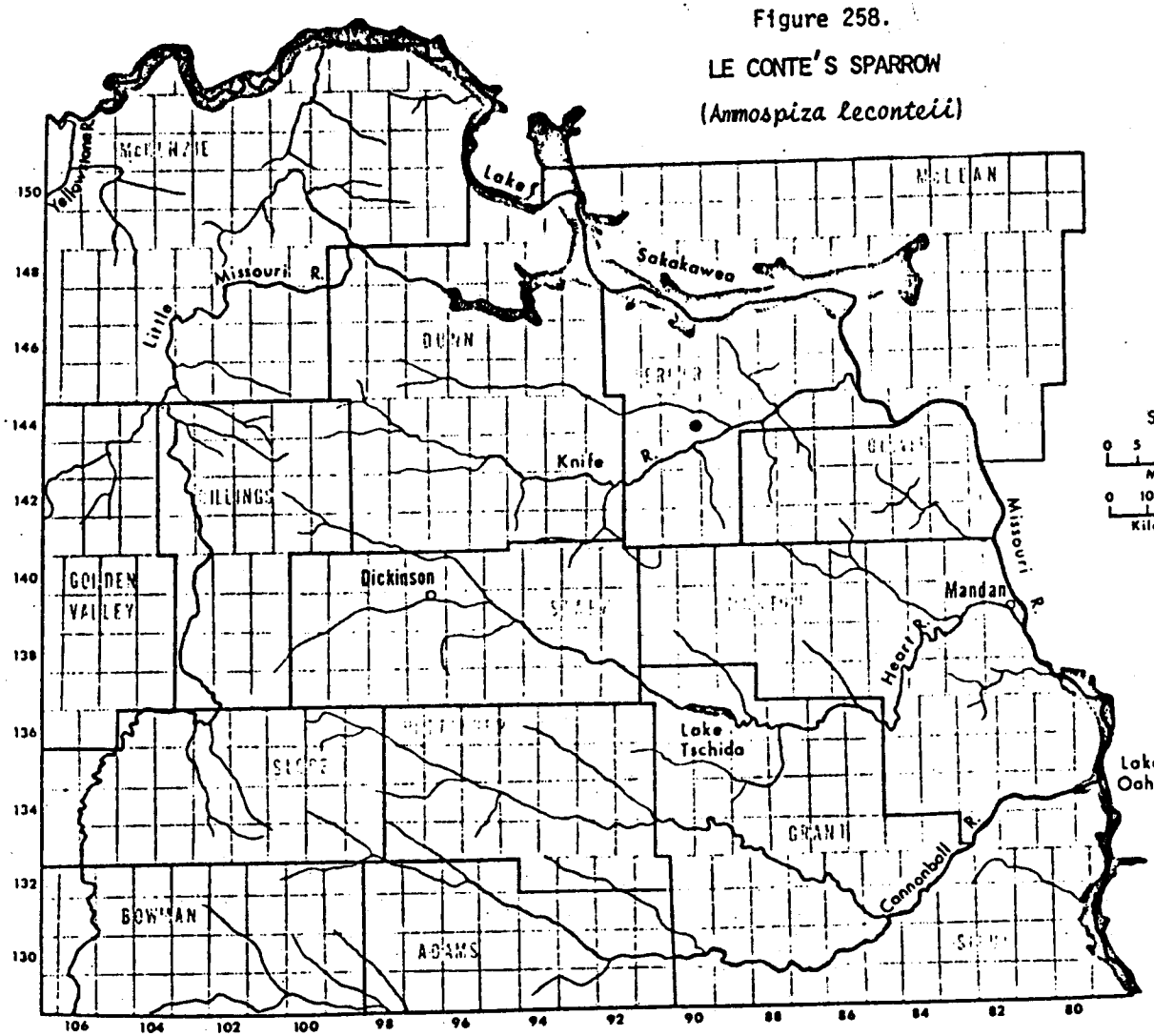


Figure 258.

LE CONTE'S SPARROW

(*Ammospiza leconteii*)



Observations in the Project Area

● 1976

Published by UND Inst. for Ecol. Studies

Prepared by UND Geog./Cart. Lab.

Figure 259.

LE CONTE'S SPARROW

(*Ammospiza leconteii*)

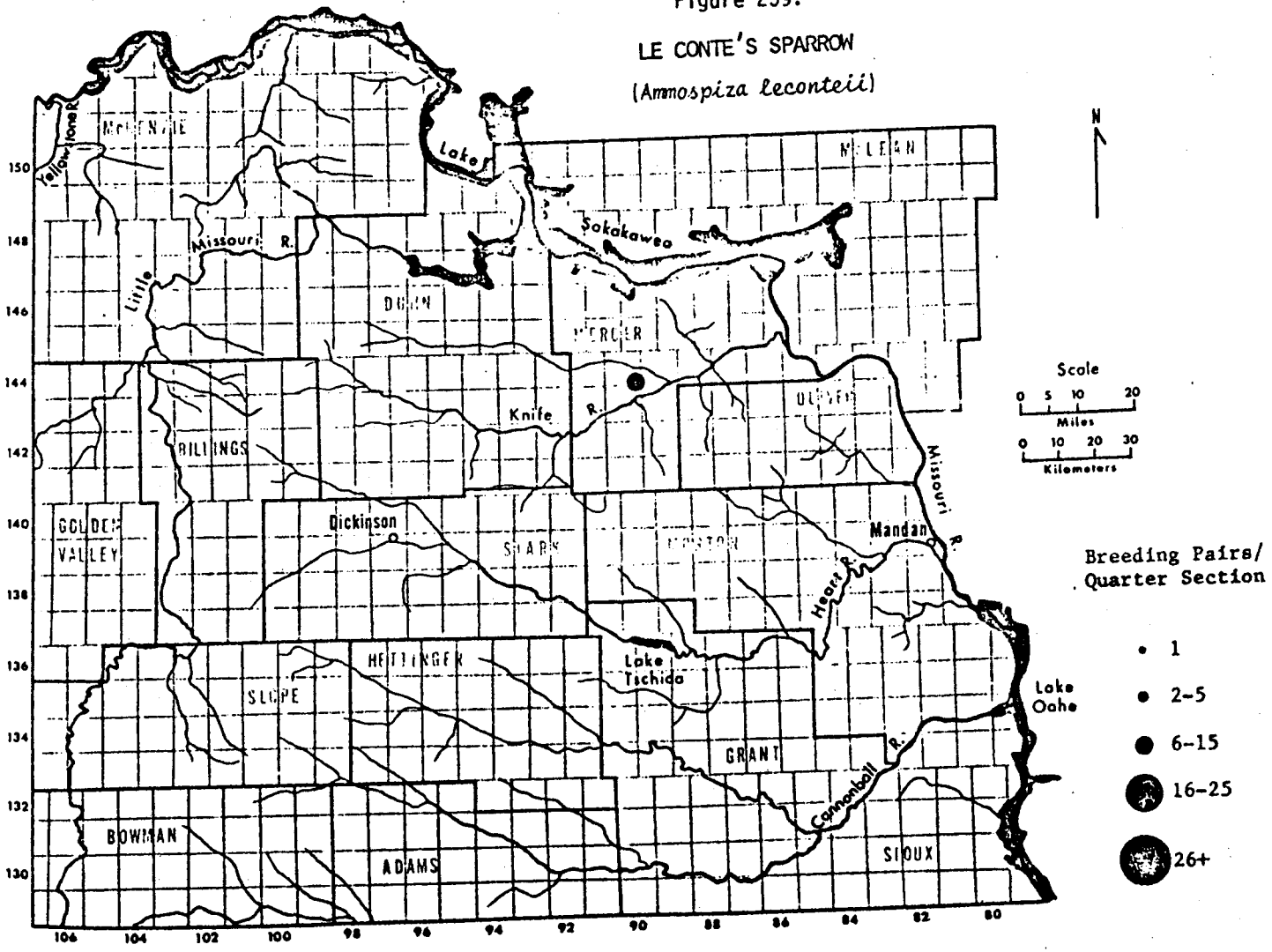
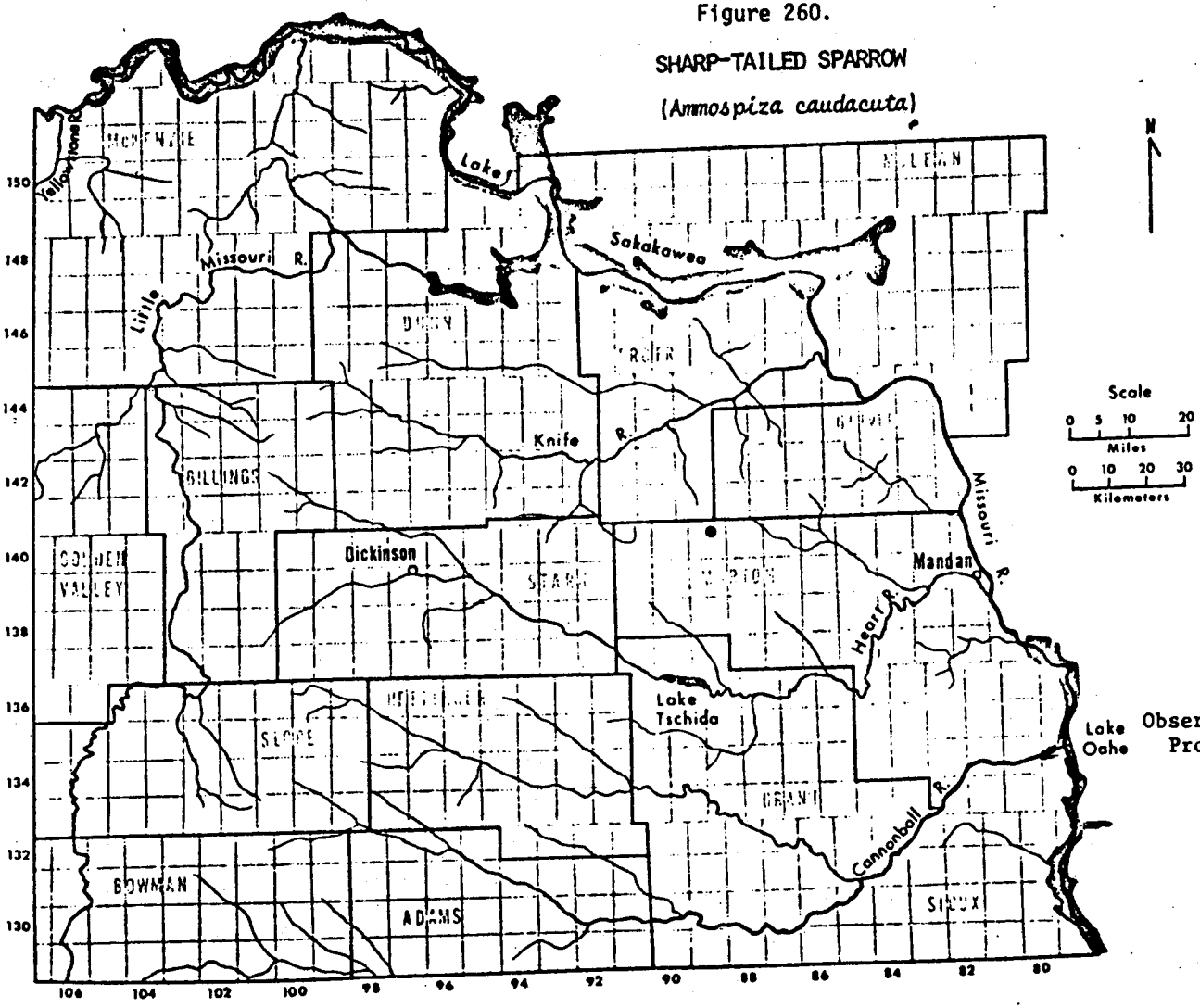


Figure 260.

SHARP-TAILED SPARROW

(*Ammospiza caudacuta*)



Observations in the Project Area

● 1976

ORDER: Passeriformes

FAMILY: Fringillidae

Lark Sparrow (*Chondestes grammacus*) - The Lark Sparrow is found over most of the United States and all of Mexico. Breeding range covers most of the United States and winter range extends south through Mexico (Robbins, et al., 1966). Stewart (1975) lists it as locally common southwest of the Missouri River, fairly common near the Sheyenne Grasslands, and uncommon or rare elsewhere in the state.

Distribution in the project area: 15 observations were made in riparian woodlands, hardwood draws, rolling and upland grasslands, ponderosa pines, and shelterbelts over much of the project area (Fig. 261, 262).

Habitat: Found in edge complexes that include wood margins or thickets of trees and shrubs, and in adjoining tracts of grassland and weedy fields. Nests usually are situated on the ground within sparse herbaceous vegetation (Stewart, 1975).

Status: Uncommon breeding species in the project area; probably fairly common locally in the Badlands.

ORDER: Passeriformes

FAMILY: Fringillidae

Harris' Sparrow (*Zonotrichia querula*) - This sparrow is found in a narrow band from the upper Mississippi River north to north-central Canada where the bird breeds. Winter range is a small area in the south-central United States (Robbins, et al., 1966).

Distribution in the project area: One observation was made in a shelterbelt in Morton County (Fig. 263).

Habitat: It breeds at the timberline, and winters in hedgerows, wooded margins, and brush (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

White-crowned Sparrow (*Zonotrichia leucophrys*) - This sparrow is found over most of the North American continent. It breeds in Alaska and northern and western Canada, and winters in the southern half of the United States and Mexico. It is present year round in the Pacific Northwest (Robbins, et al., 1966).

Distribution in the project area: One observation was made in a shelterbelt in Morton County (Fig. 264).

Habitat: Found in thickets, hedgerows, or wooded margins adjacent to fields or open areas (Robbins, et al., 1966).

Status: Non-breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Chipping Sparrow (*Spizella passerina*) - The Chipping Sparrow is found over most of the North American continent except northern Canada and all of Alaska. It breeds over most of the United States and Canada, winters along the Gulf coast and Mexican west coast, and is a permanent resident elsewhere in the southern United States and central Mexico (Robbins, et al., 1966). Stewart (1975) lists it as locally common or fairly common throughout the state, except for the Northeastern Drift Plain and Missouri Coteau where it is uncommon or rare.

Distribution in the project area: 17 observations were made mainly in hardwood draws, juniper draws, ponderosa pines, and shelterbelts in most counties of the project area (Fig. 265, 266).

Habitat: Found in ponderosa pine, margins of deciduous woodlands, wooded lawns, parks, and landscaped areas. Nests are placed in shrubs or small trees usually within a few feet of the ground (Stewart, 1975).

Status: Fairly common breeding species of the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Clay-colored Sparrow (*Spizella pallida*) - The Clay-colored Sparrow is found in a narrow section covering most of Mexico north through the Great Plains to central Canada. It breeds in an area from the central Great Plains to central Canada, while it winters in southern Mexico (Robbins, et al., 1966). Stewart (1975) lists is as locally abundant or common throughout the state, except in southern portions of the Missouri Coteau, Missouri Slope, and Little Missouri Slope, where it is uncommon and local.

Distribution in the project area: 33 observations were made in hardwood draws, rolling and upland grasslands, and agriculturally disturbed areas in all but Adams and Grant Counties (Fig. 267, 268).

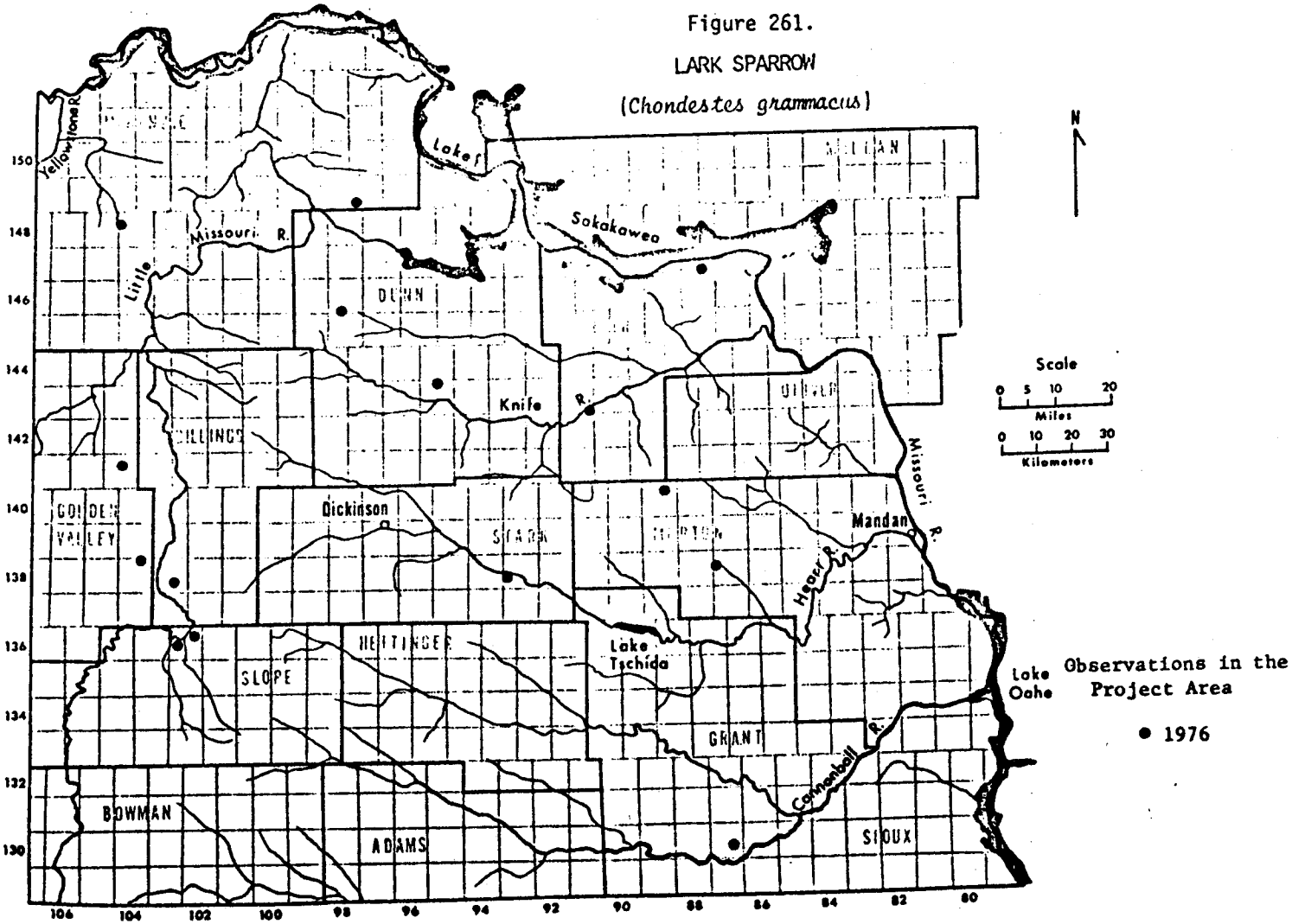
Habitat: Found in low thickets of wolfberry, mixed-grass prairie, and thickets of small trees and tall shrubs. Nests usually are situated near the ground in or beneath low shrubs (Stewart, 1975).

Status: Common breeding species in the project area; greatest concentrations occur in the northern half of the study area.

Figure 261.

LARK SPARROW

(*Chondestes grammacus*)



Observations in the Project Area

● 1976

Figure 262.

LARK SPARROW

(*Chondestes grammacus*)

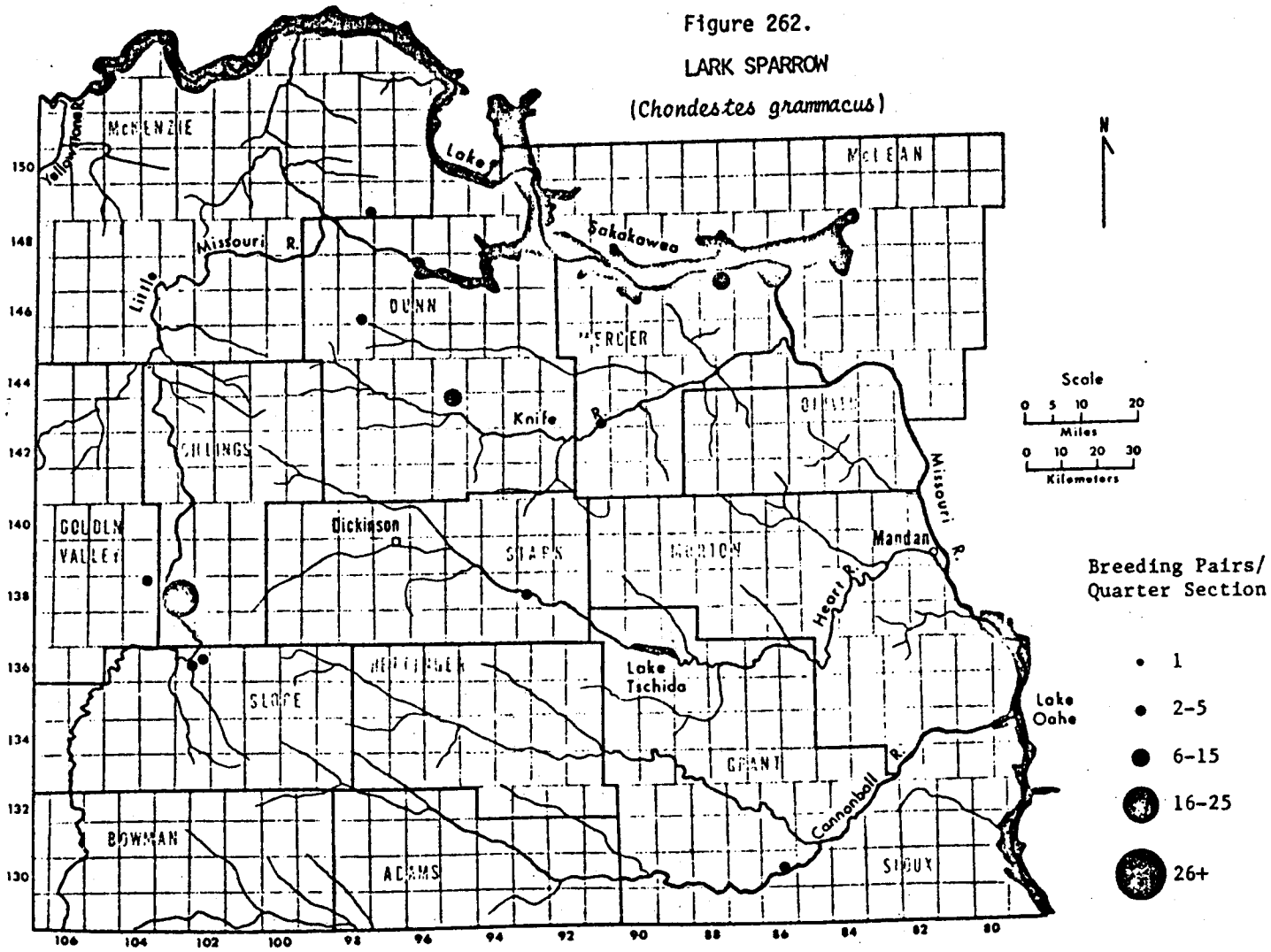
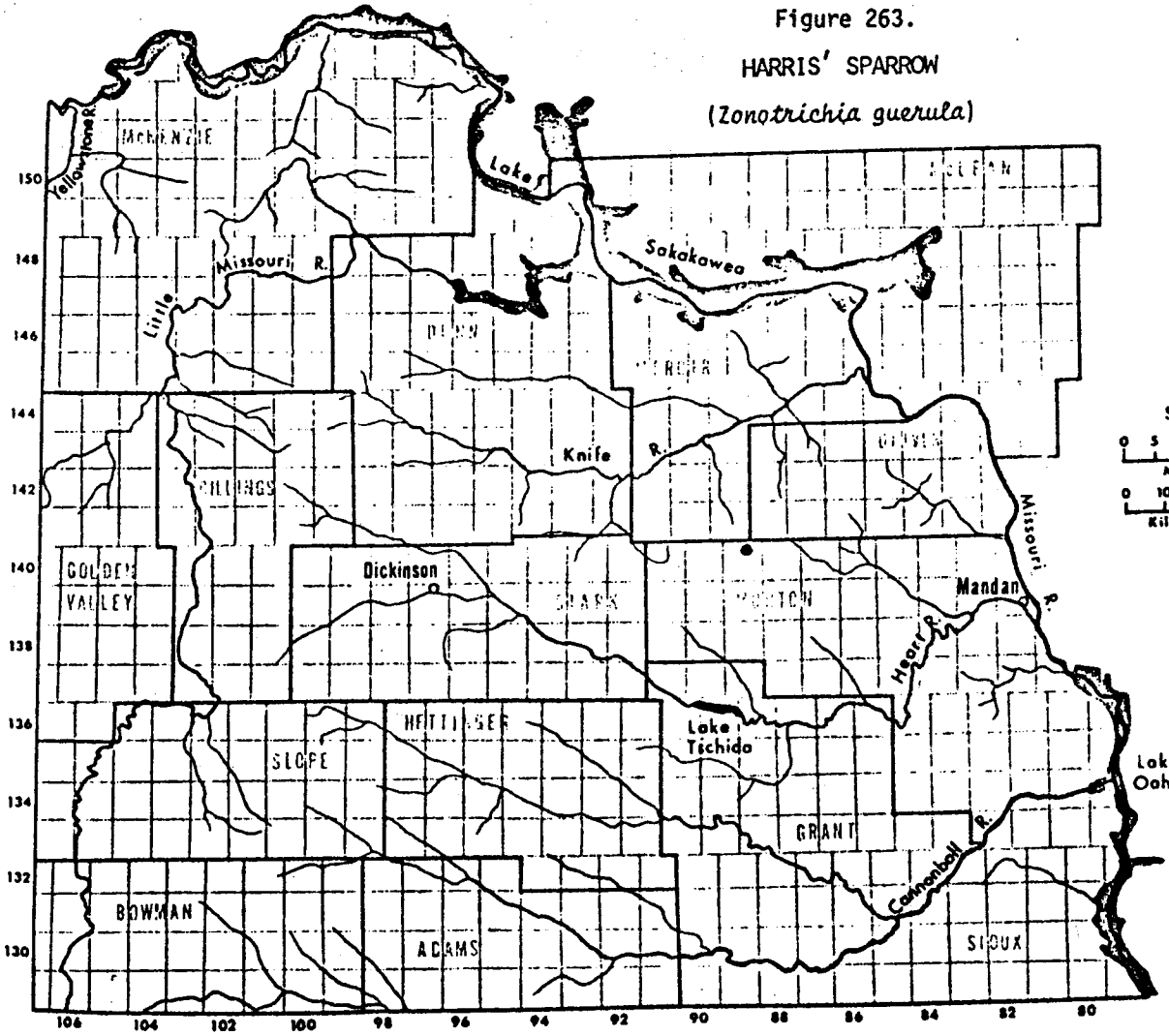


Figure 263.

HARRIS' SPARROW

(*Zonotrichia querula*)



Observations in the Project Area

● 1976

Figure 264.

WHITE-CROWNED SPARROW

(*Zonotrichia leucophrys*)

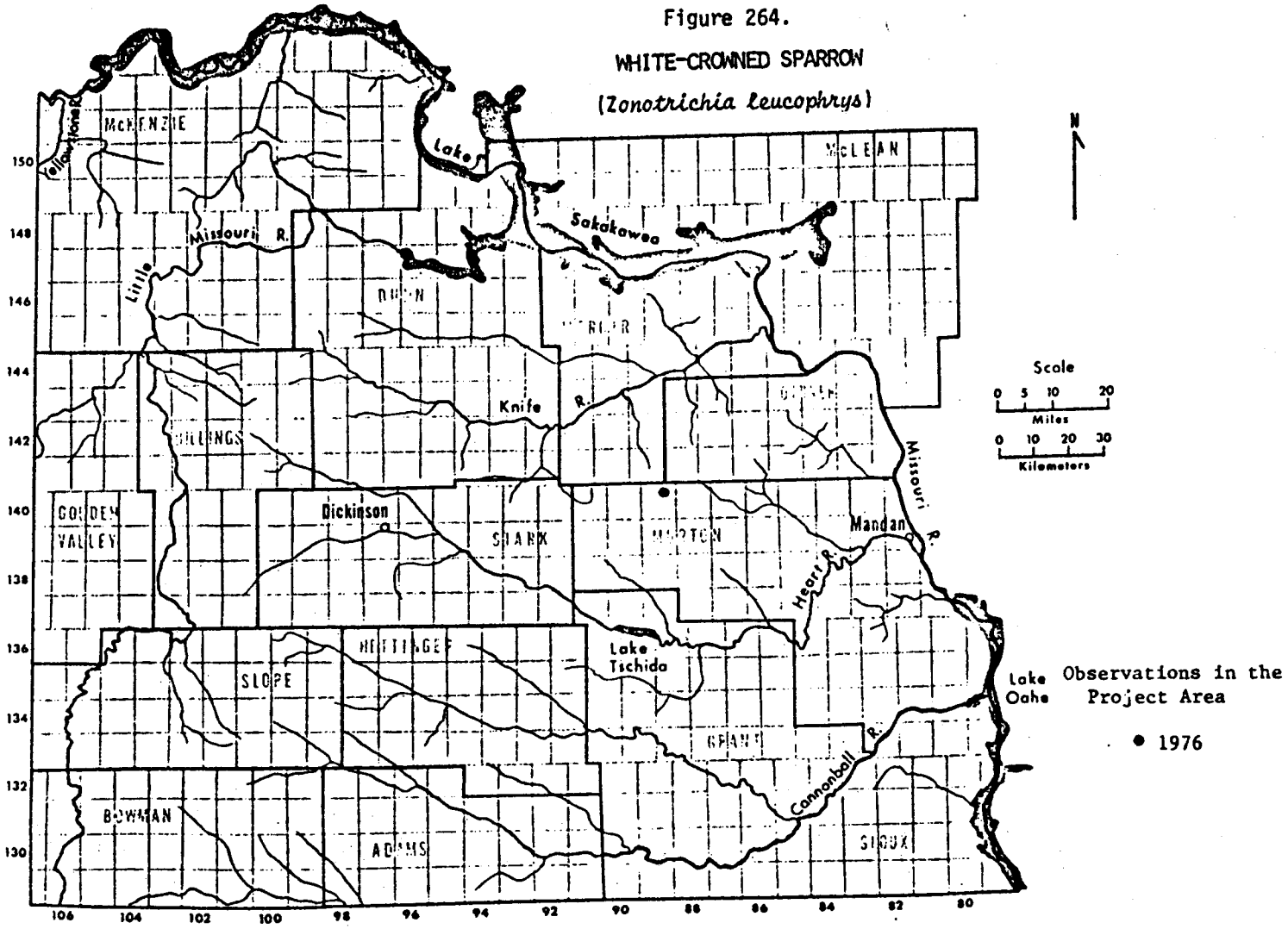
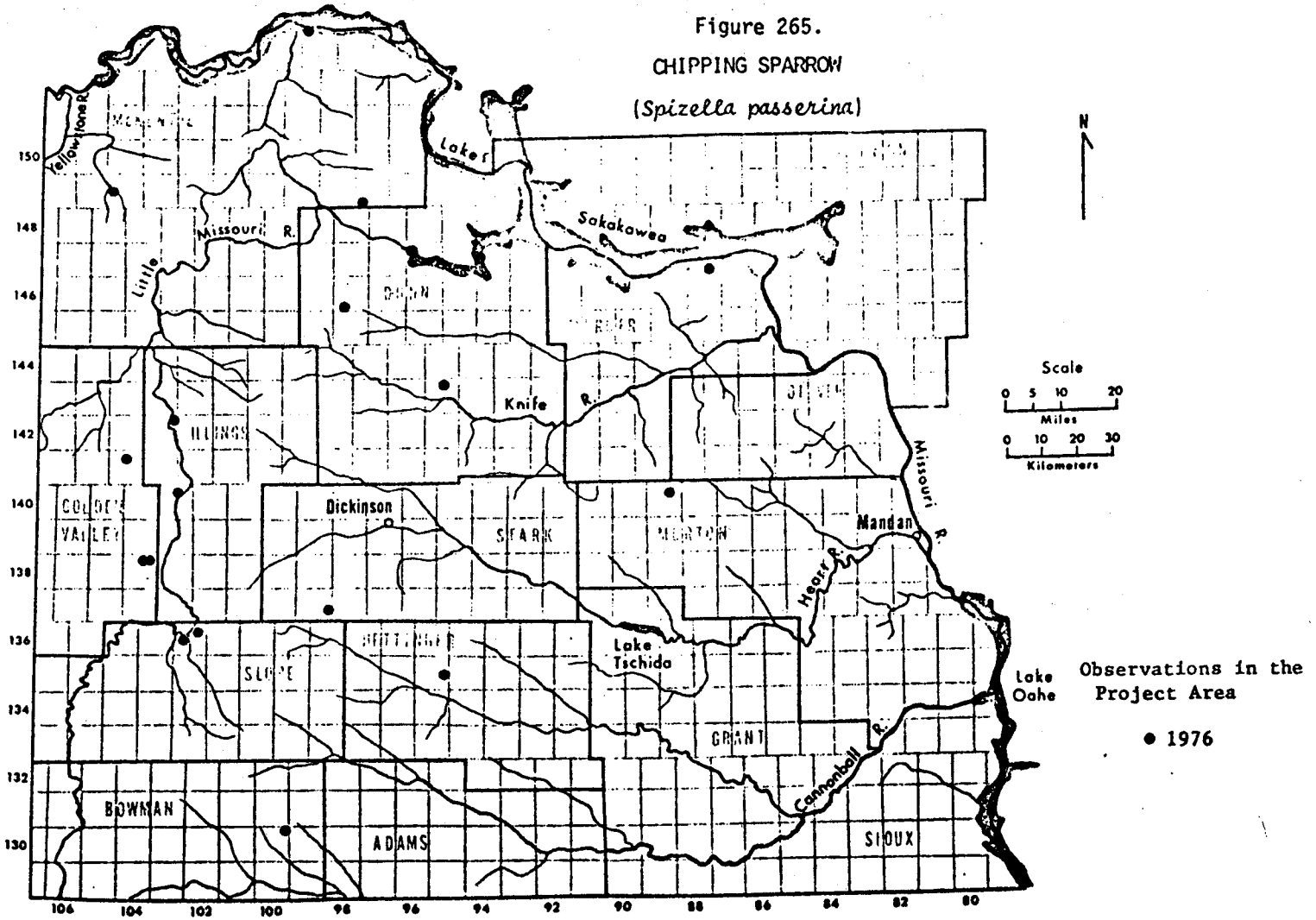


Figure 265.

CHIPPING SPARROW

(*Spizella passerina*)



Observations in the Project Area

● 1976

Figure 266.

CHIPPING SPARROW

(*Spizella passerina*)

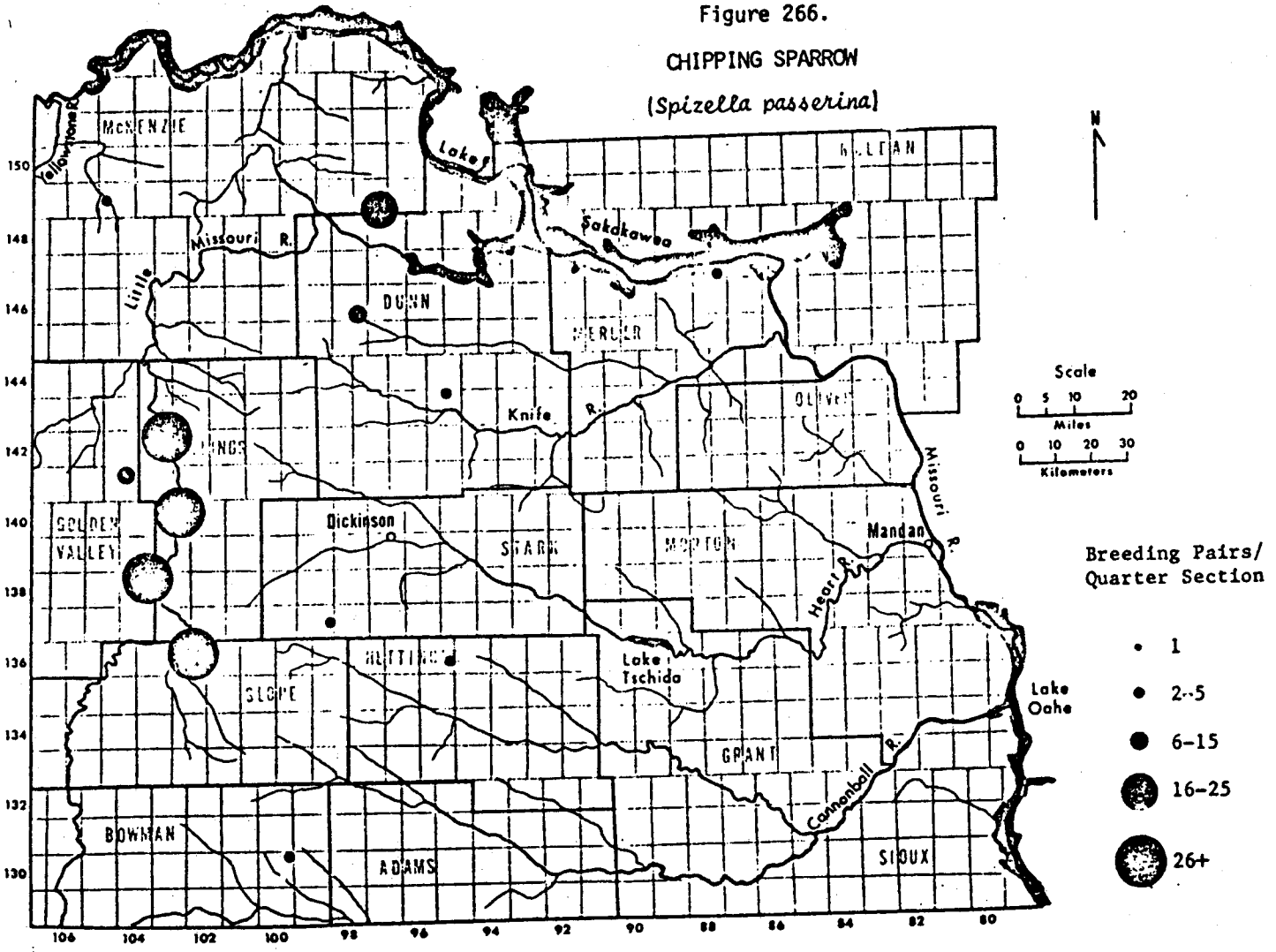
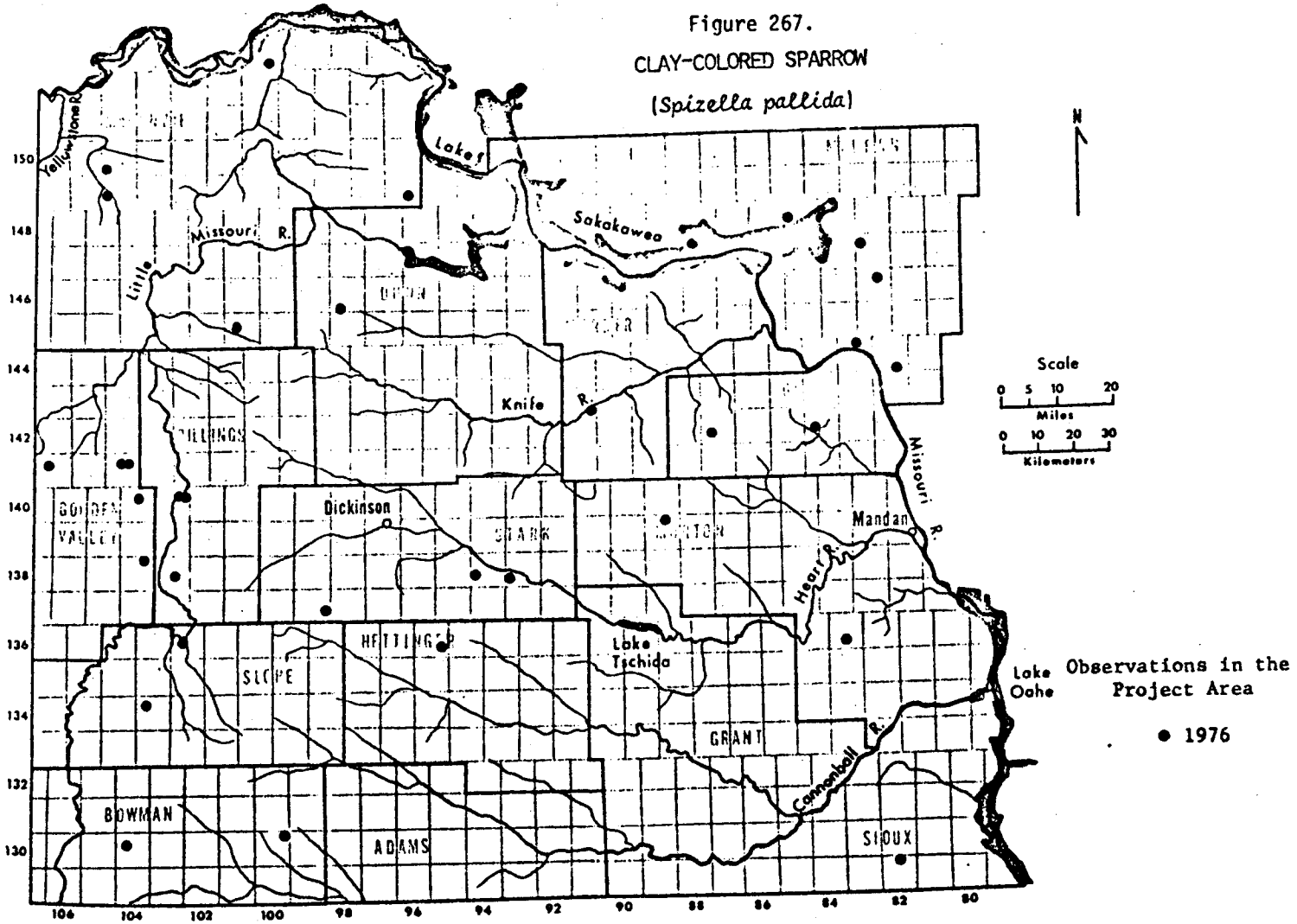


Figure 267.

CLAY-COLORED SPARROW

(*Spizella pallida*)



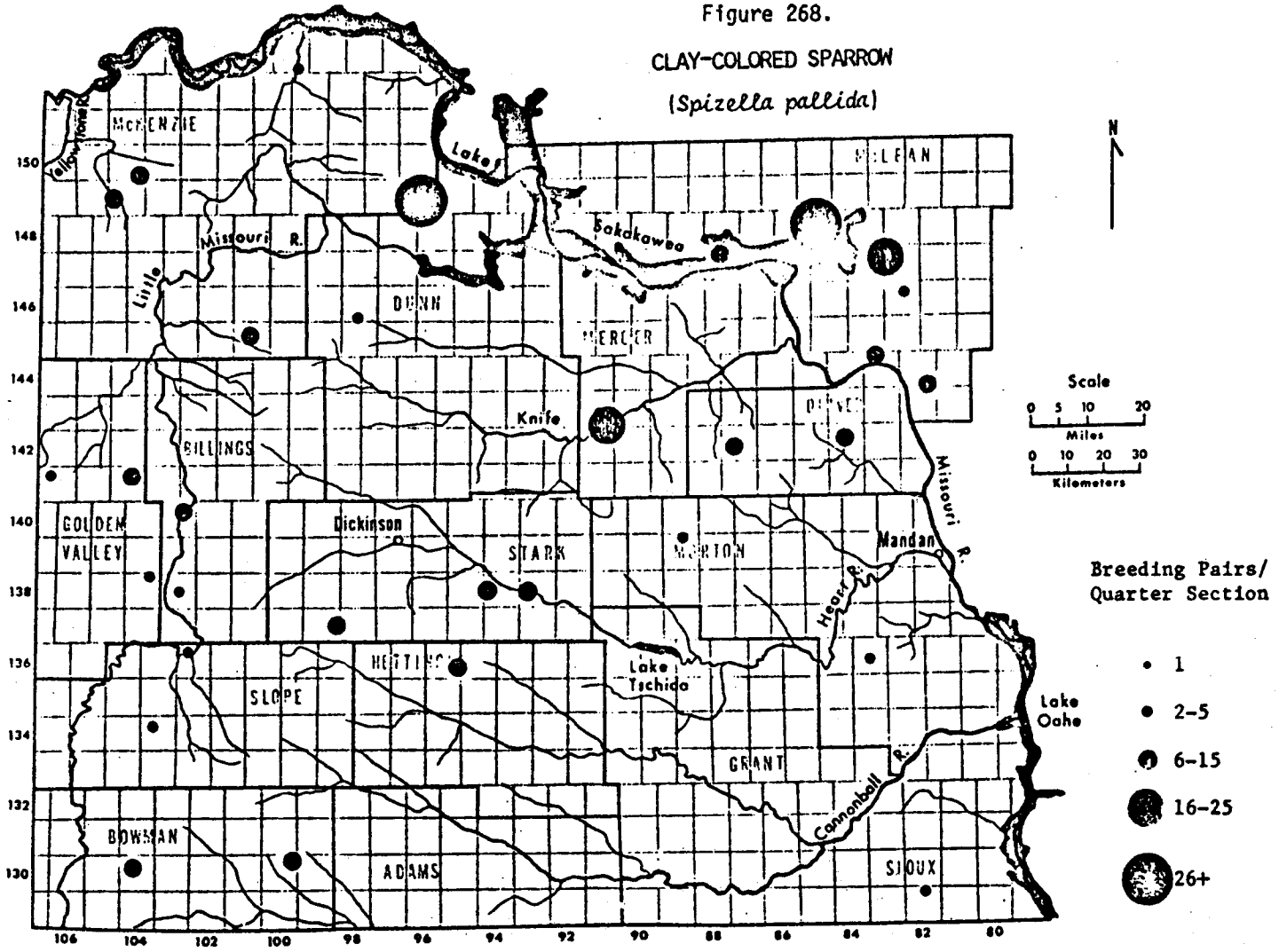
Observations in the Project Area

● 1976

Figure 268.

CLAY-COLORED SPARROW

(*Spizella pallida*)



ORDER: Passeriformes

FAMILY: Fringillidae

Brewer's Sparrow (*Spizella breweri*) - This sparrow is found west of the Rockies in the United States and Canada where it breeds, and in the southwestern United States and western Mexico where it winters (Robbins, et al., 1966). Stewart (1975) lists it as fairly common in the extreme southwestern corner of the state, and rare or absent elsewhere.

Distribution in the project area: Two observations were made; one in the sagebrush flats and bottoms in Bowman County and one in a hardwood draw in McLean County (Fig. 269, 270).

Habitat: Found in semiarid scrub or sage prairie, or short-grass prairie with a partially open canopy of shrubs (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Field Sparrow (*Spizella pusilla*) The Field Sparrow is found in the eastern half of the United States. It breeds in the northern part of this area around the Great Lakes and northern Great Plains, and winters along the Gulf coast and is present year round elsewhere (Robbins, et al., 1966). Stewart (1975) lists it as fairly common west of the Missouri River; uncommon and local in southeastern North Dakota and Northwestern Drift Plain; and rare or absent elsewhere.

Distribution in the project area: 28 observations were made mainly in hardwood draws and rolling and upland grassland across much of the project area (Fig. 271, 272).

Habitat: Found in mixed-grass prairie partially covered by an open canopy of low shrubs, and in brushy open woodlands (Stewart, 1975).

Status: Common breeding species in the project area; highest densities occur in the Badlands area.

ORDER: Passeriformes

FAMILY: Fringillidae

Song Sparrow (*Melospiza melodia*) - The Song Sparrow is found over all of North America except northern Canada and northern Alaska. It breeds in Canada, is present year round in the northern United States, and winters in the southern United States and Mexico (Robbins, et al., 1966). Stewart (1975) lists it as common or fairly common east and north of the Missouri River, while it is generally uncommon southwest of the river.

Distribution in the project area: Ten observations were made on rolling grasslands, riparian woodland, hardwood draws, and retired croplands of Dunn, McKenzie, McLean, Mercer, Morton, Oliver, and Stark Counties (Fig. 273, 274).

Habitat: Found in thickets of shrubs and small trees on native prairie, brushy margins or openings of upland and bottomland woods, brushy margins of ponds and lakes, and shrub swamps. Nests ordinarily are situated several inches above ground in shrubs or tree saplings or in coarse weeds and grasses (Stewart, (1975).

Status: Uncommon breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Rufous-sided Towhee (*Pipilo erythrophthalmus*) - This species is found over all the United States and Mexico and south-central Canada. Its breeding range covers the northern United States and south-central Canada, while it winters along the Mexican west coast and from the Gulf coast to the central United States. Elsewhere it is present year round (Robbins, et al., 1966). Stewart (1975) lists it as locally common throughout the Southwestern Slope Region; fairly common along the Mouse River and in the Pembina Hills; and uncommon on the Missouri Coteau, in the Turtle Mountains, and in the Devils Lake area.

Distribution in the project area: 33 observations were made mainly in hardwood draws over most of the counties in the project area (Fig. 275, 276).

Habitat: Found in semi-open woodlands with a fairly dense understory of small trees and tall shrubs (Stewart, 1975).

Status: Common breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Rose-breasted Grosbeak (*Pheucticus ludovicianus*) - This grosbeak is found in the eastern half of the United States north through central Canada. The breeding range covers the northern United States and central Canada (Robbins, et al., 1966). Stewart (1975) lists it as fairly common in the Turtle Mountains and in eastern North Dakota, while it is uncommon or rare elsewhere in the state.

Distribution in the project area: Five observations were made in riparian woodlands of Billings and Stark Counties, shelterbelts in Hettinger and Morton Counties, and in a hardwood draw in Mercer Coungy (Fig. 277, 278).

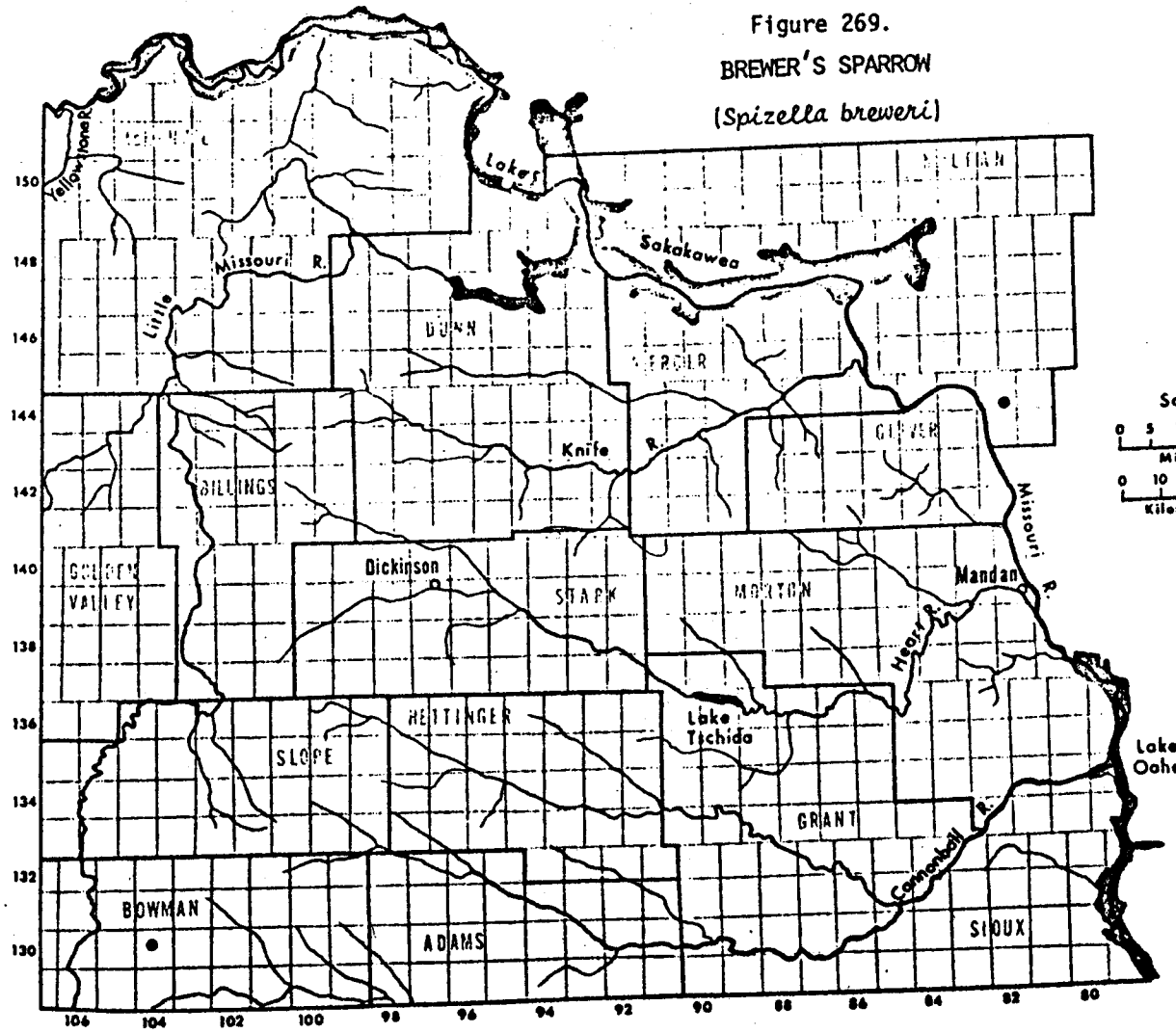
Habitat: Found in semi-open, mesophytic, deciduous forests that occur on slopes and valley bluffs and on well-drained floodplains of large streams (Stewart, 1975).

Status: Rare breeding species in the project area.

Figure 269.

BREWER'S SPARROW

(*Spizella breweri*)



Observations in the Project Area

● 1976

Figure 270.

BREWER'S SPARROW

(*Spizella breweri*)

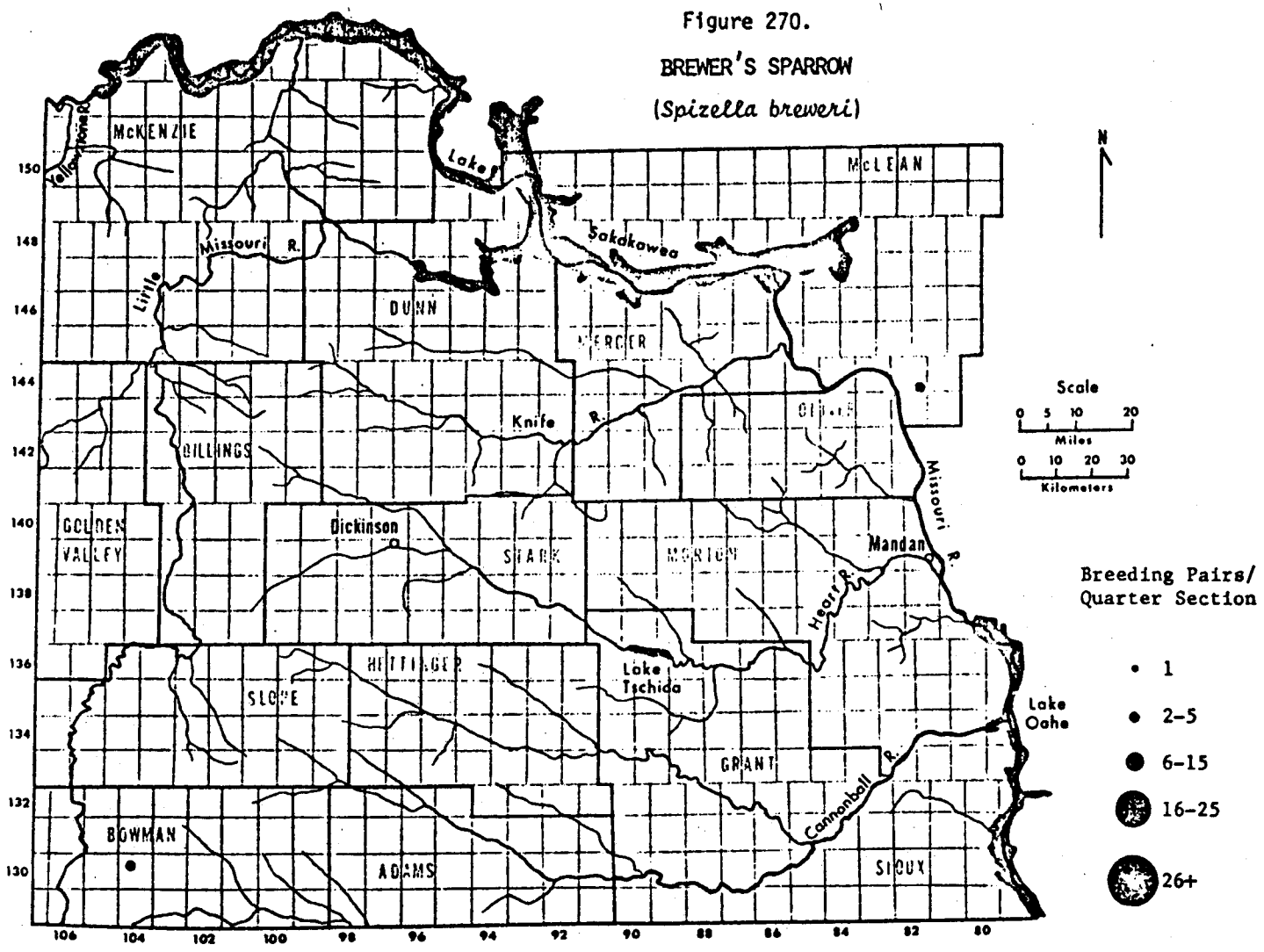


Figure 271.

FIELD SPARROW

(*Spizella pusilla*)

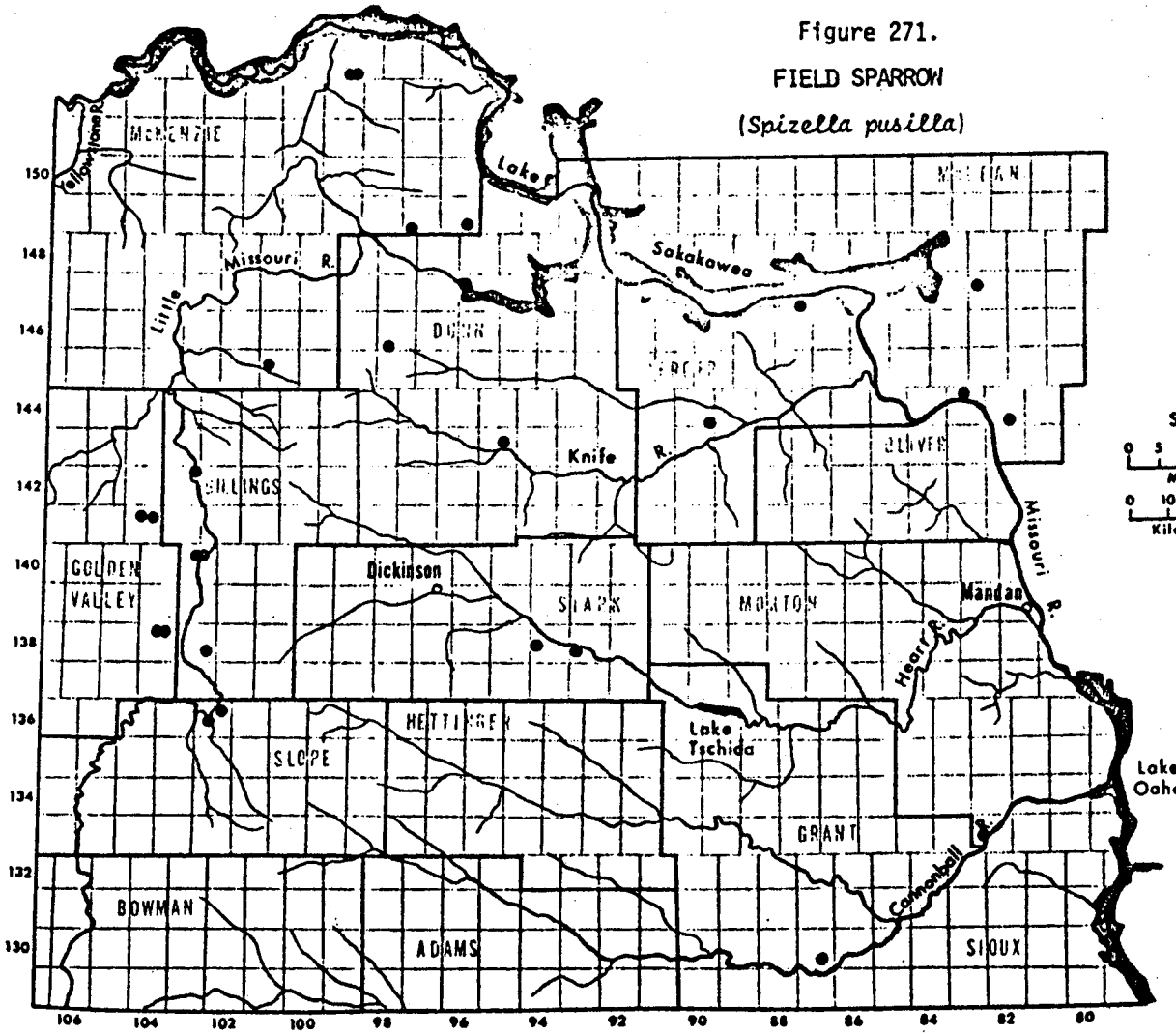


Figure 272.

FIELD SPARROW

(*Spizella pusilla*)

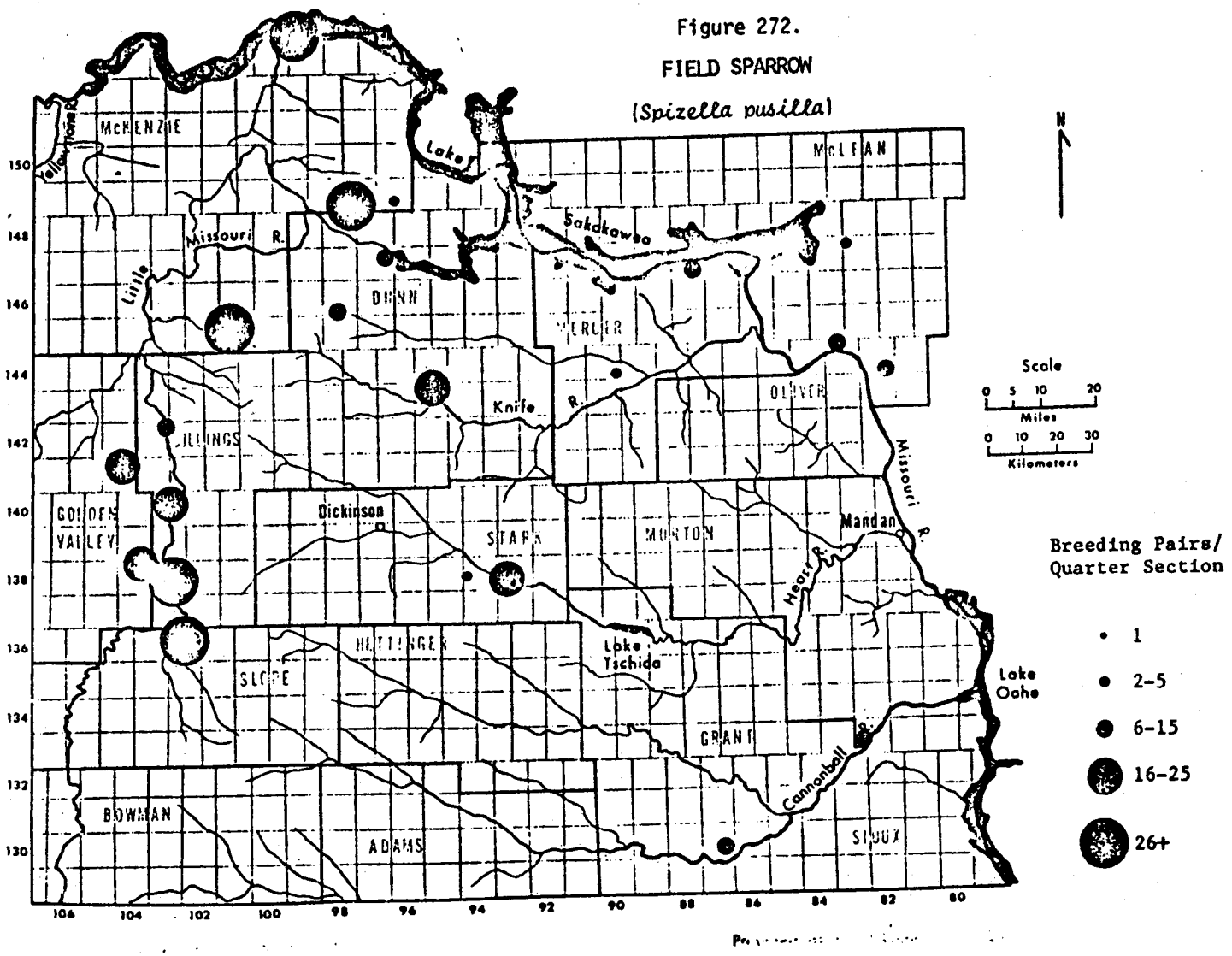


Figure 273.

SONG SPARROW

(*Melospiza melodia*)

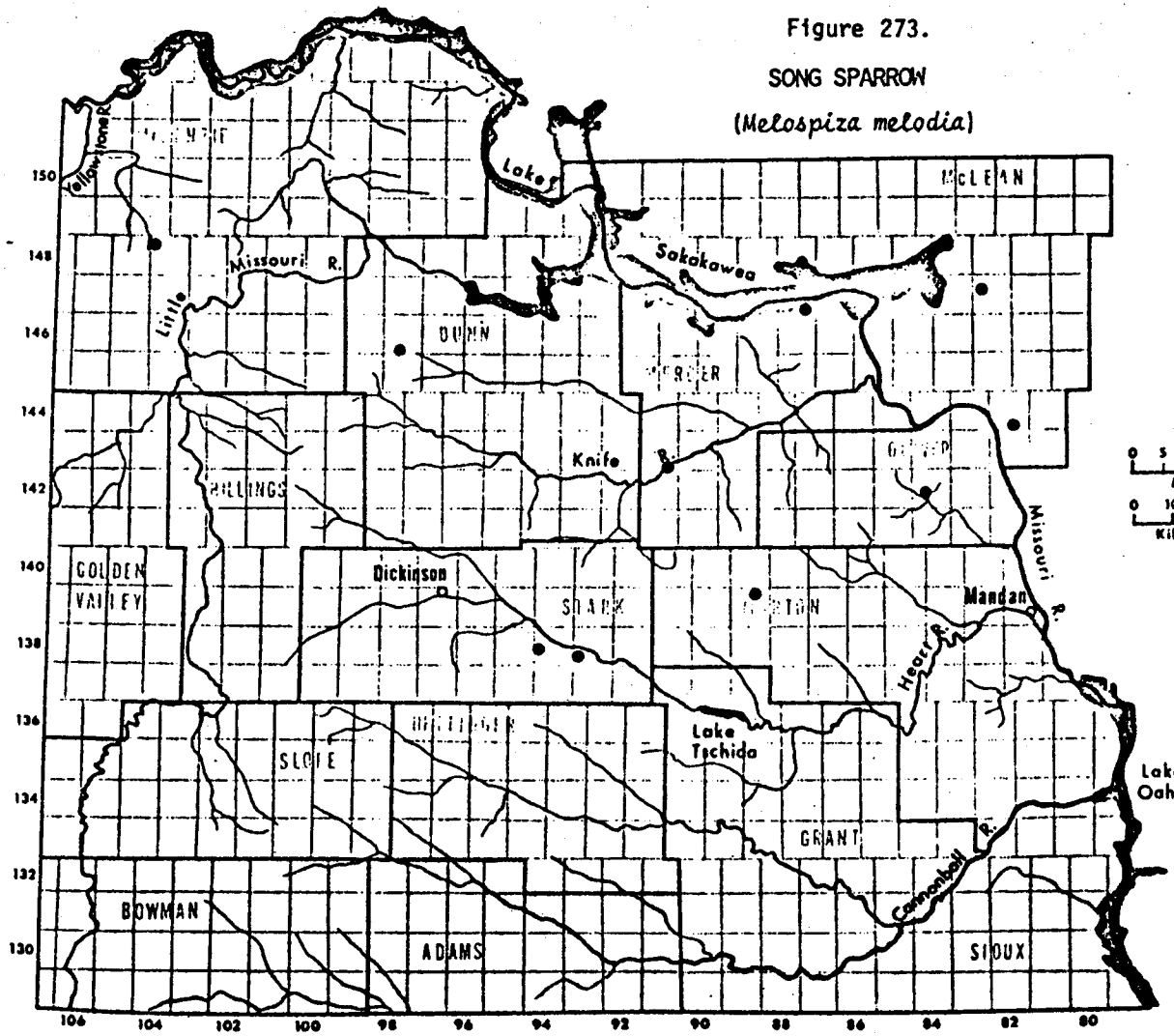


Figure 274.

SONG SPARROW

(Melospiza melodia)

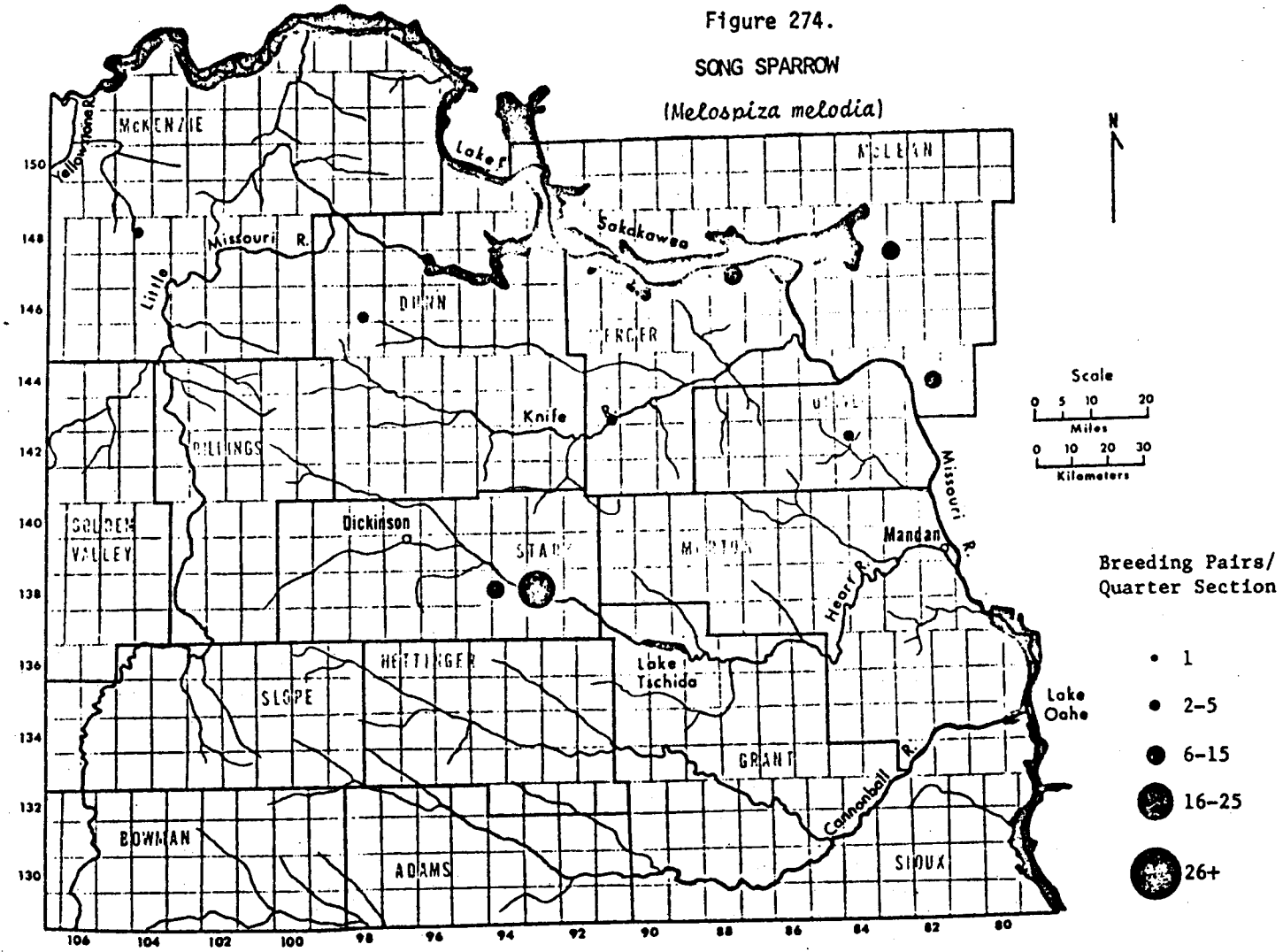
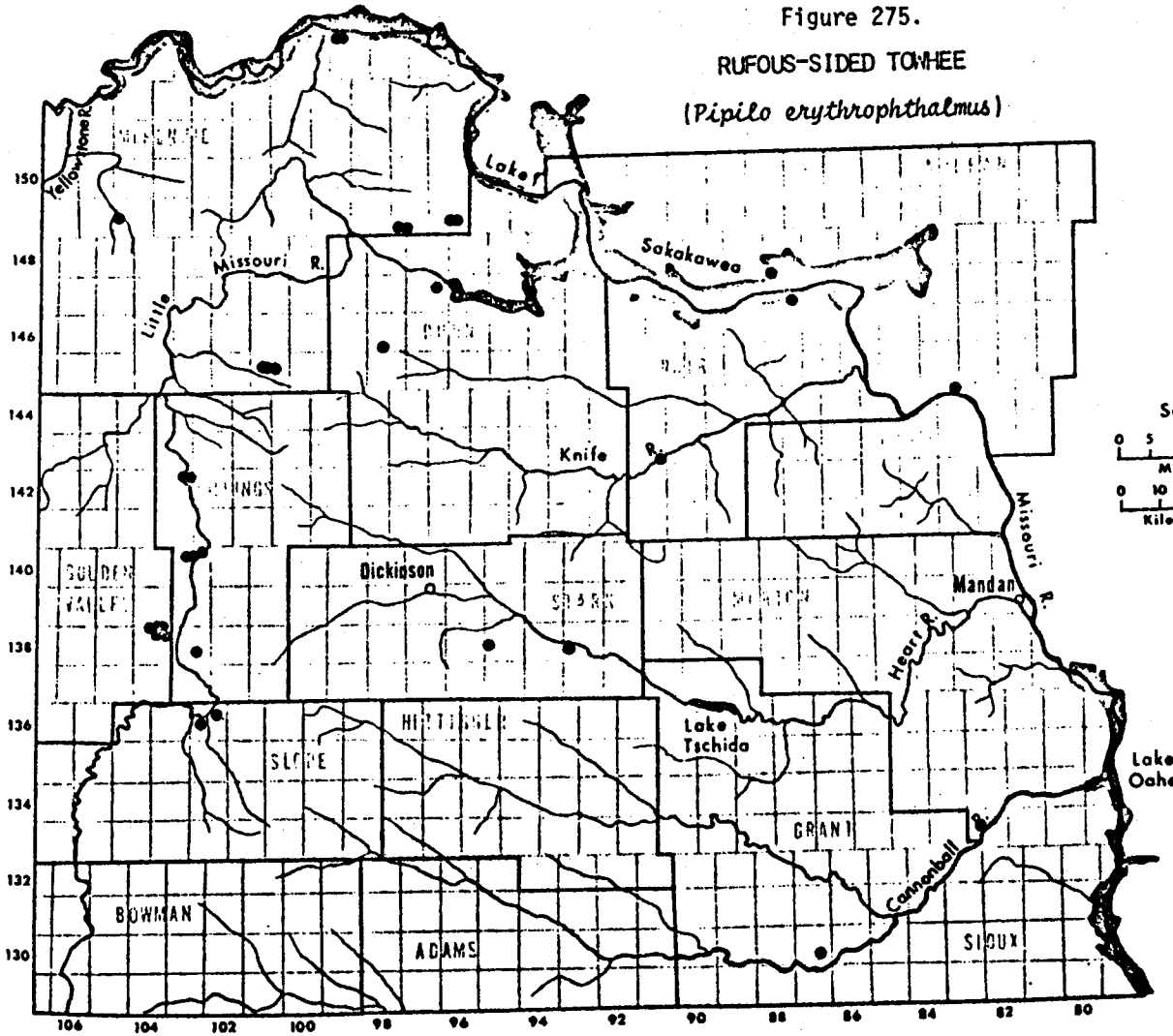


Figure 275.

RUFOUS-SIDED TOWHEE

(Pipilo erythrophthalmus)



Observations in the Project Area

● 1976

Figure 276.

RUFOUS-SIDED TOWHEE

(*Pipilo erythrophthalmus*)

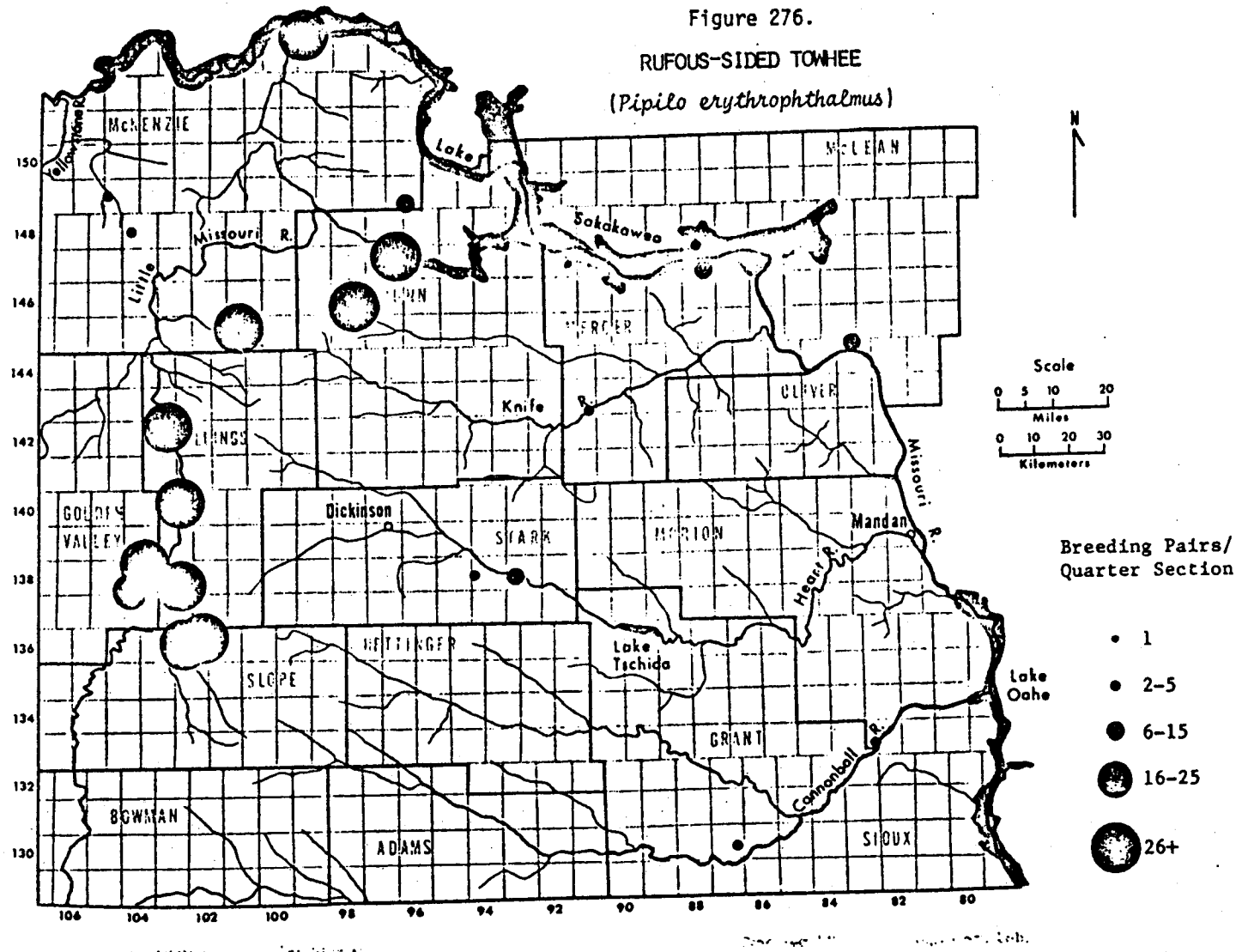
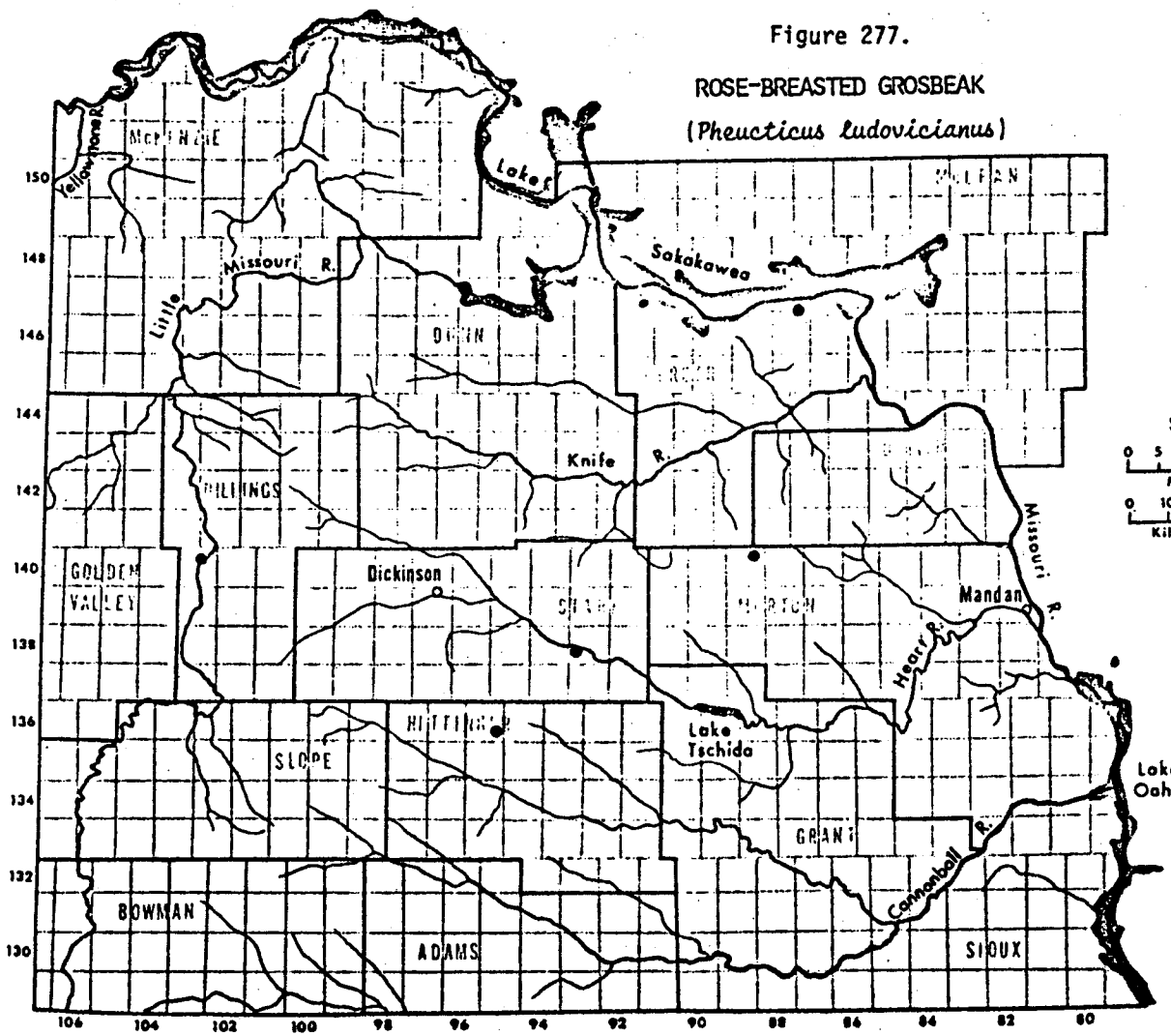


Figure 277.

ROSE-BREASTED GROSBEAK

(*Pheucticus ludovicianus*)



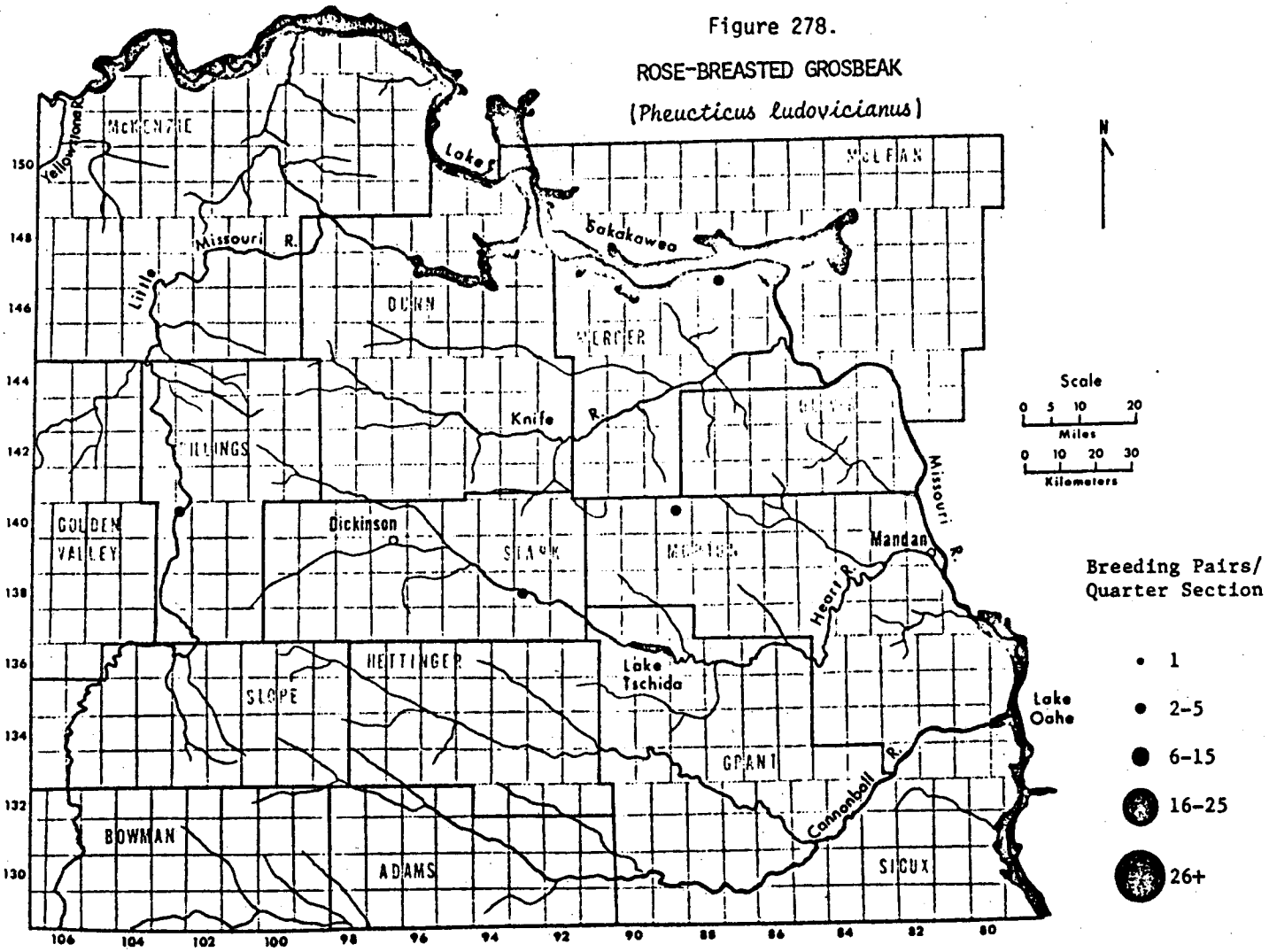
Observations in the Project Area

● 1976

Figure 278.

ROSE-BREASTED GROSBEAK

(*Pheucticus ludovicianus*)



ORDER: Passeriformes

FAMILY: Fringillidae

Black-headed Grosbeak (*Pheucticus melanocephalus*) - This bird is found in the western United States and Mexico. Breeding range covers the entire western United States, while winter range is in southwest Mexico (Robbins, et al., 1966). Stewart (1975) lists it as fairly common in the wooded valley of the lower Missouri River, uncommon on upper portions of the Missouri River and elsewhere in the southwest, and rare along the Mouse River.

Distribution in the project area: Three observations were made in riparian woodland in Billings County and hardwood draws of McKenzie and McLean Counties (Fig. 279, 280).

Habitat: Found in semi-open, mesophytic, deciduous forest that occurs on prominent hill slopes and on well-drained floodplains of large streams (Stewart, 1975).

Status: Rare breeding species in the project area; possibly locally common in scattered areas.

ORDER: Passeriformes

FAMILY: Fringillidae

Indigo Bunting (*Passerina cyanea*) - The Indigo Bunting breeds over most of the eastern half of the United States (Robbins, et al., 1966). Stewart (1975) lists it as fairly common in the eastern one-fourth of the state and uncommon or rare elsewhere.

Distribution in the project area: Three observations were made in hardwood draws of Dunn and McKenzie Counties and a riparian woodland in Stark County (Fig. 281).

Habitat: Found in semi-open, mesophytic deciduous forests that occur on prominent hill slopes and well-drained floodplains of major streams (Stewart, 1975).

Status: Rare breeding species of the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Lazuli Bunting (*Passerina amoena*) - The Lazuli Bunting is found in the western half of the United States and Mexico. Breeding range covers the northwestern portion and west coast of the United States, while the species winters on the Mexican west coast (Robbins, et al., 1966). Stewart (1975) lists it as common or fairly common along the Missouri and Little Missouri Rivers and on wood-bordered streams on the Northwestern Drift Plain.

Distribution in the project area: Seven observations were made in riparian woodlands, hardwood draws, and juniper draws of Billings, Dunn, McKenzie, Morton, and Slope Counties (Fig. 282, 283).

Habitat: Found in semi-open, mesophytic woodlands that occur on prominent hill slopes and on well-drained floodplains of major streams (Stewart, 1975).

Status: Uncommon breeding species of the project area; probably locally common in several areas in the western portion of the study area.

ORDER: Passeriformes

FAMILY: Fringillidae

Dickcissel (*Spize americana*) - The Dickcissel is found in the eastern half of the United States, except for the Appalachian Mountains. It breeds in an area west of these mountains, and winters along the east coast (Robbins, et al., 1966). Stewart (1975) lists it as common or fairly common in the southeastern quarter of North Dakota, and uncommon and local throughout most of the rest of the state.

Distribution in the project area: Four observations were made in a rolling grassland of Grant County, shelterbelt of Hettinger County, hardwood draw of McLean, and on hayland in Morton County (Fig. 284, 285).

Habitat: Found in alfalfa hay fields, sweetclover fields and weedy cropland temporarily retired (Stewart, 1975).

Status: Rare breeding species in the project area.

ORDER: Passeriformes

FAMILY: Fringillidae

Lark Bunting (*Calamospiza melanocorys*) - The Lark Bunting is found from east-central Mexico north through the Great Plains to the Canadian border. It breeds in the northern portion of this area and winters in Mexico southwart (Robbins, et al., 1966). Stewart (1975) lists it as abundant or common throughout most of the state, except the northern portion of the Northeastern Drift Plain and most of the Agassiz Lake Plain Region where it is uncommon or rare.

Distribution in the project area: 38 observations were made mainly in rolling grassland and agriculturally disturbed areas in all but Billings County (Fig. 286, 287).

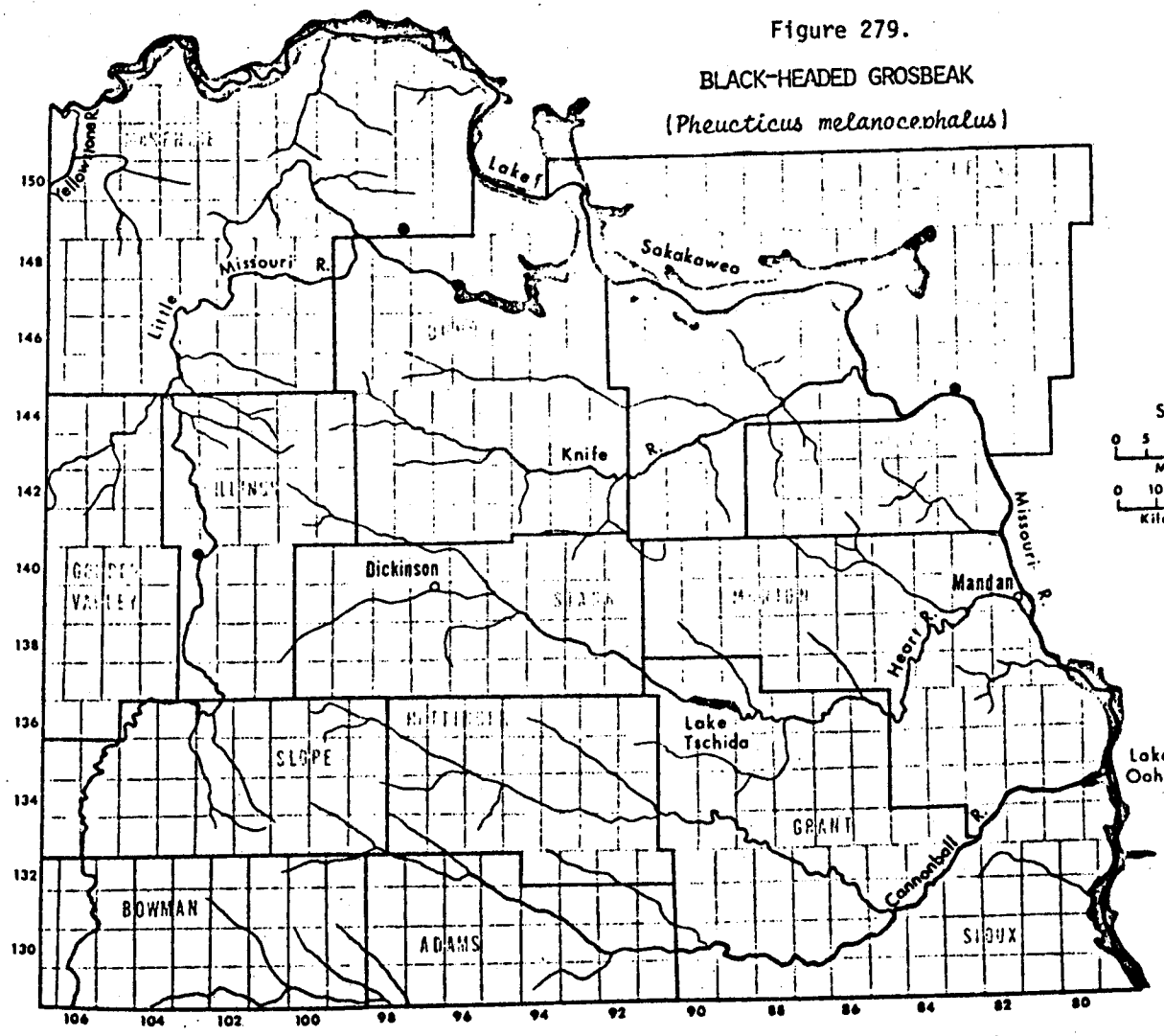
Habitat: Found on tracts of sage prairie and disturbance habitats created by man, including weedy roadsides, retired cropland, weedy fallow fields and alfalfa hayfields. Nests are situated on the ground often at the base of a low shrub or coarse forb (Stewart, 1975).

Status: Common breeding species in the project area.

Figure 279.

BLACK-HEADED GROSBEAK

(*Pheucticus melanocephalus*)



Observations in the Project Area

● 1976

Figure 280.

BLACK-HEADED GROSBEAK

(*Pheucticus melanocephalus*)

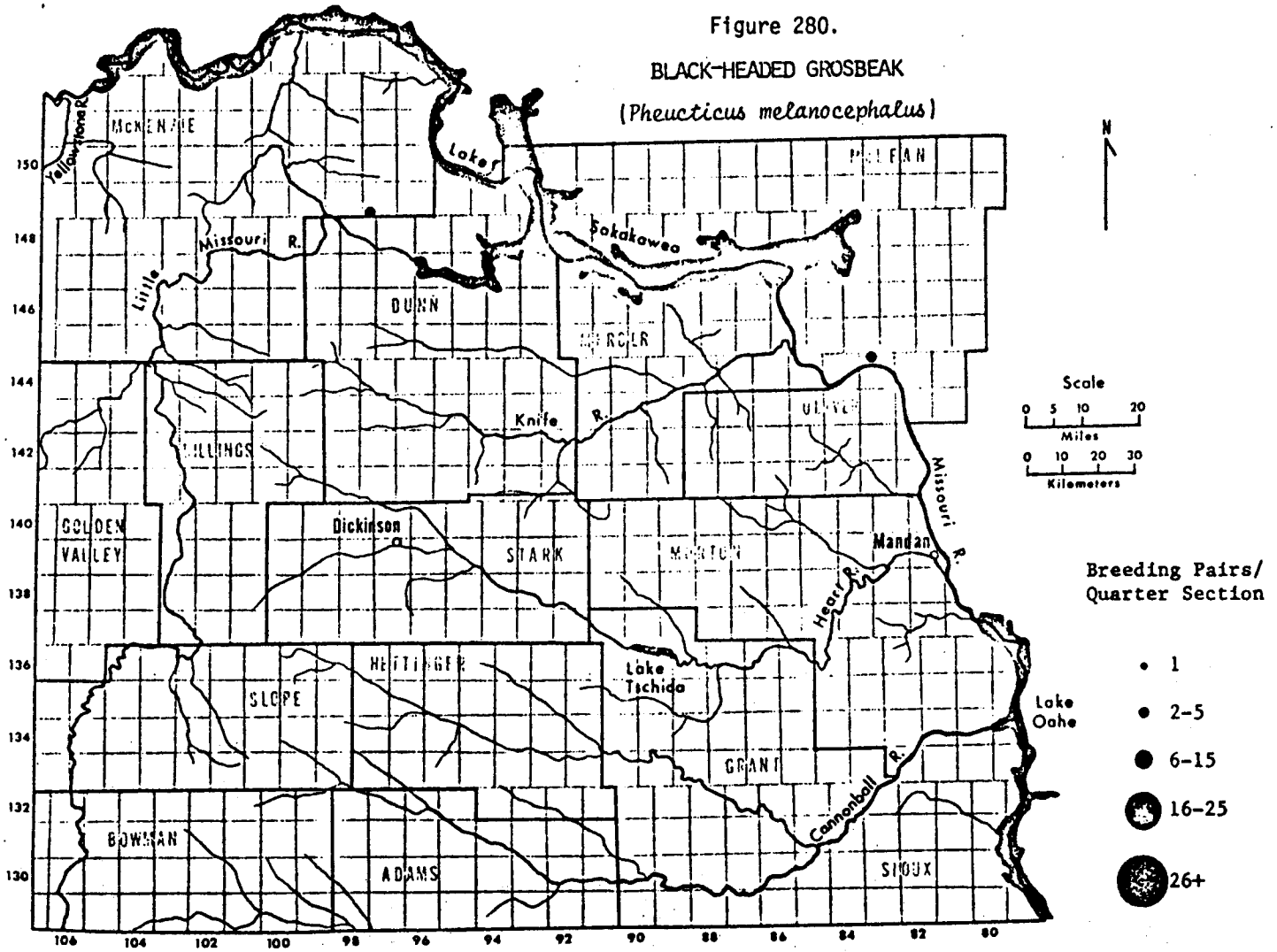
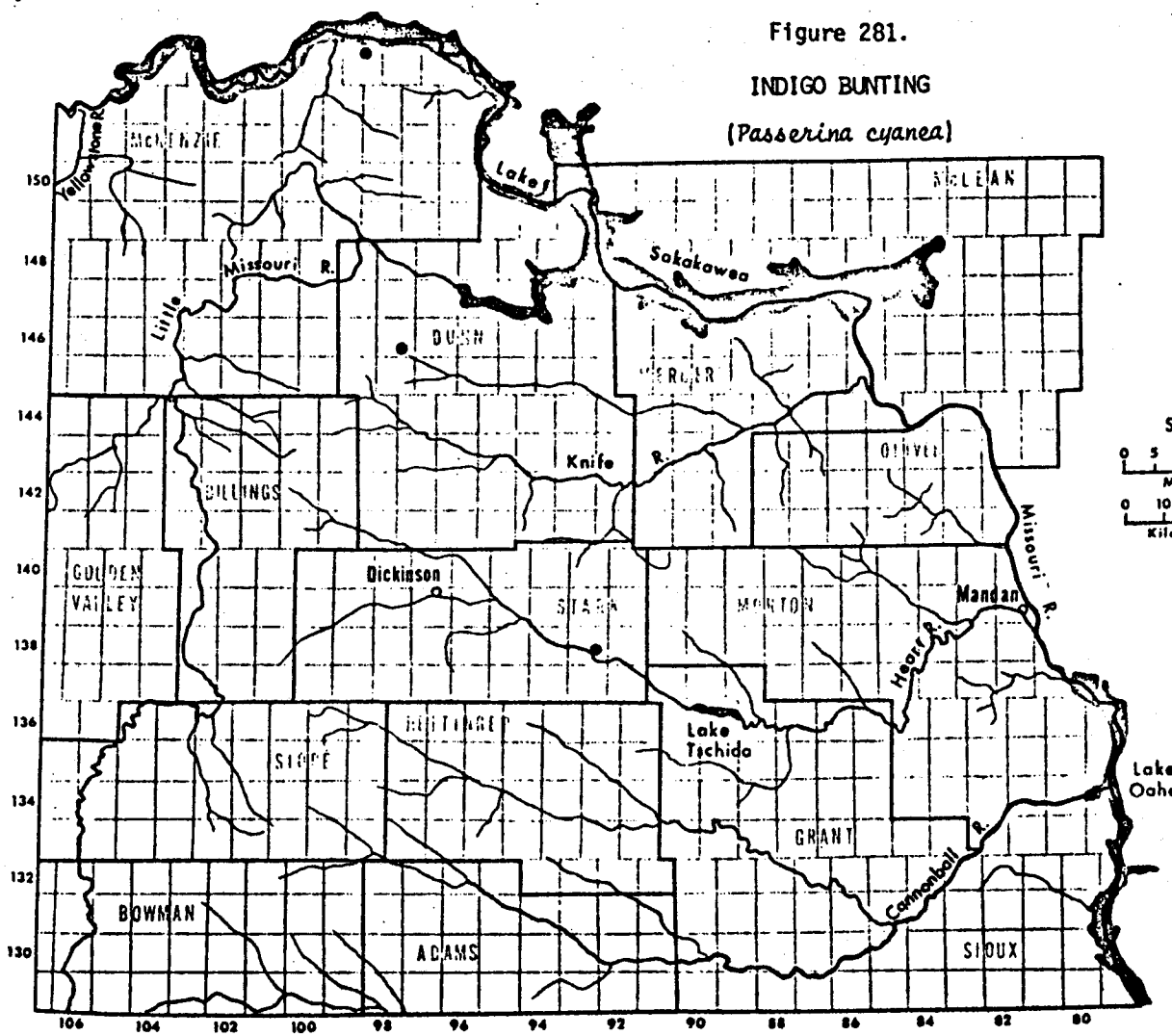


Figure 281.

INDIGO BUNTING

(*Passerina cyanea*)



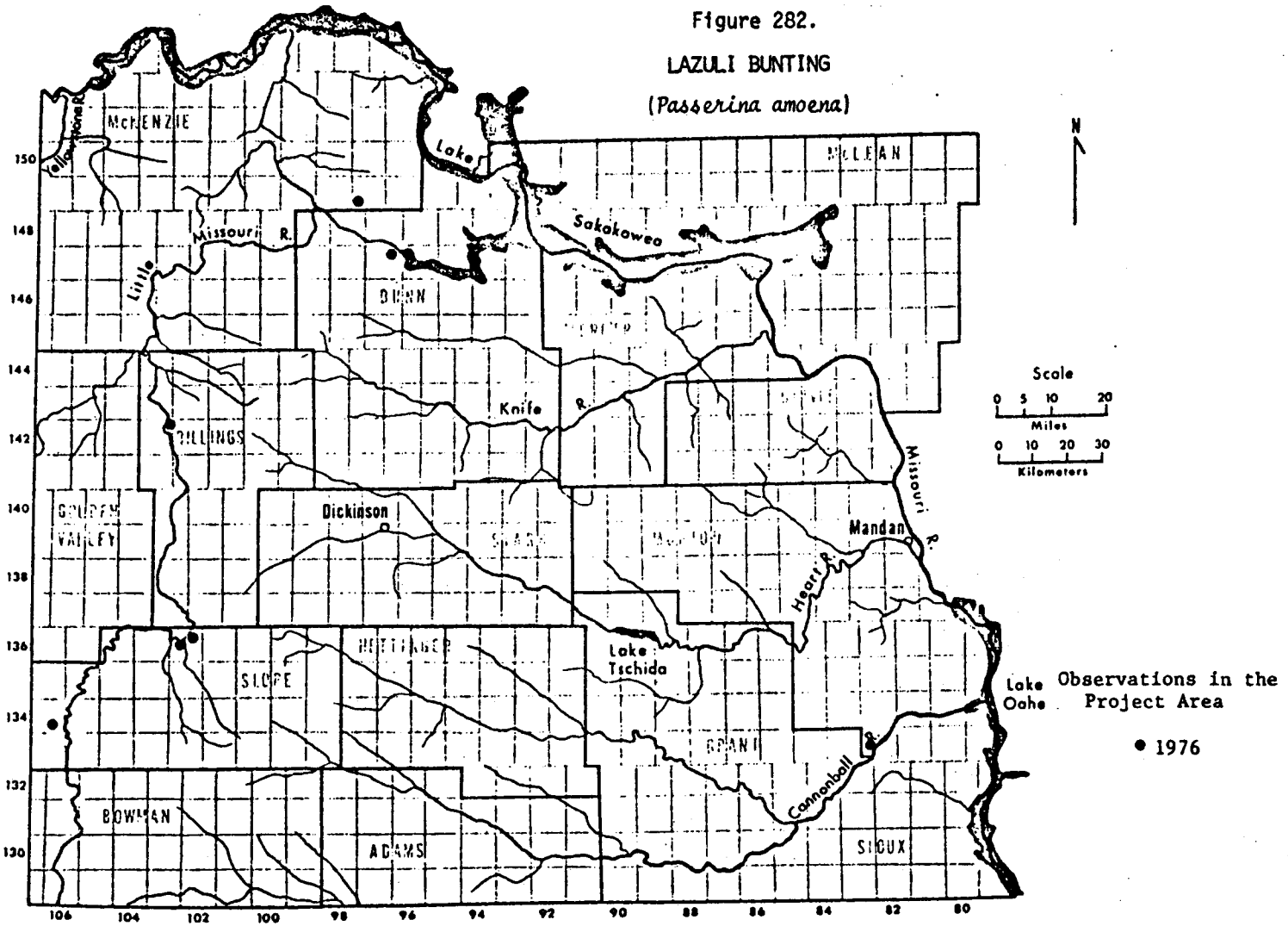
Observations in the Project Area

● 1976

Figure 282.

LAZULI BUNTING

(*Passerina amoena*)



Observations in the Project Area

● 1976

Figure 283.

LAZULI BUNTING

(*Passerina amoena*)

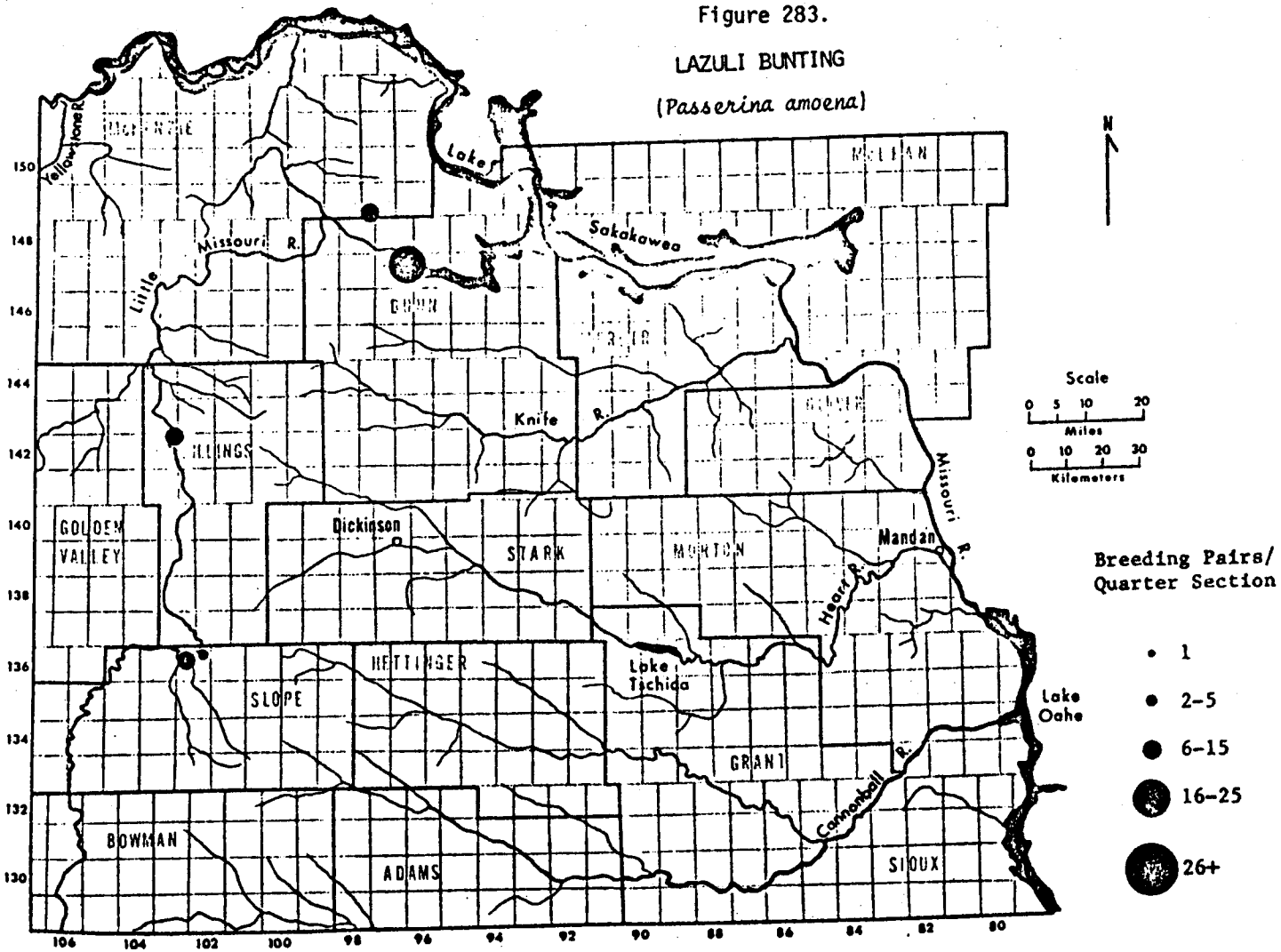
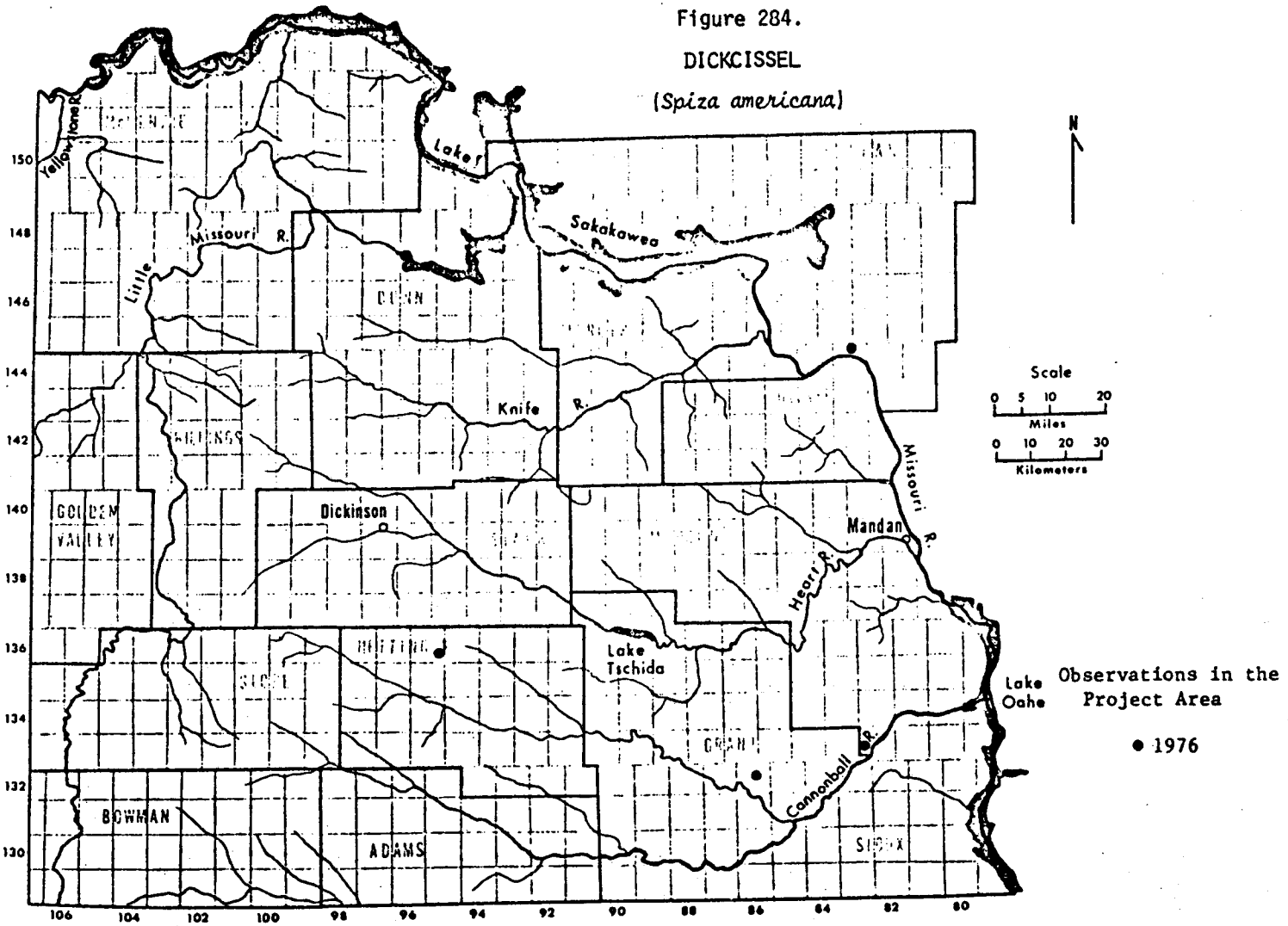


Figure 284.

DICKCISSEL

(Spiza americana)



Observations in the Project Area

● 1976

Figure 285.

DICKCISSEL

(*Spiza americana*)

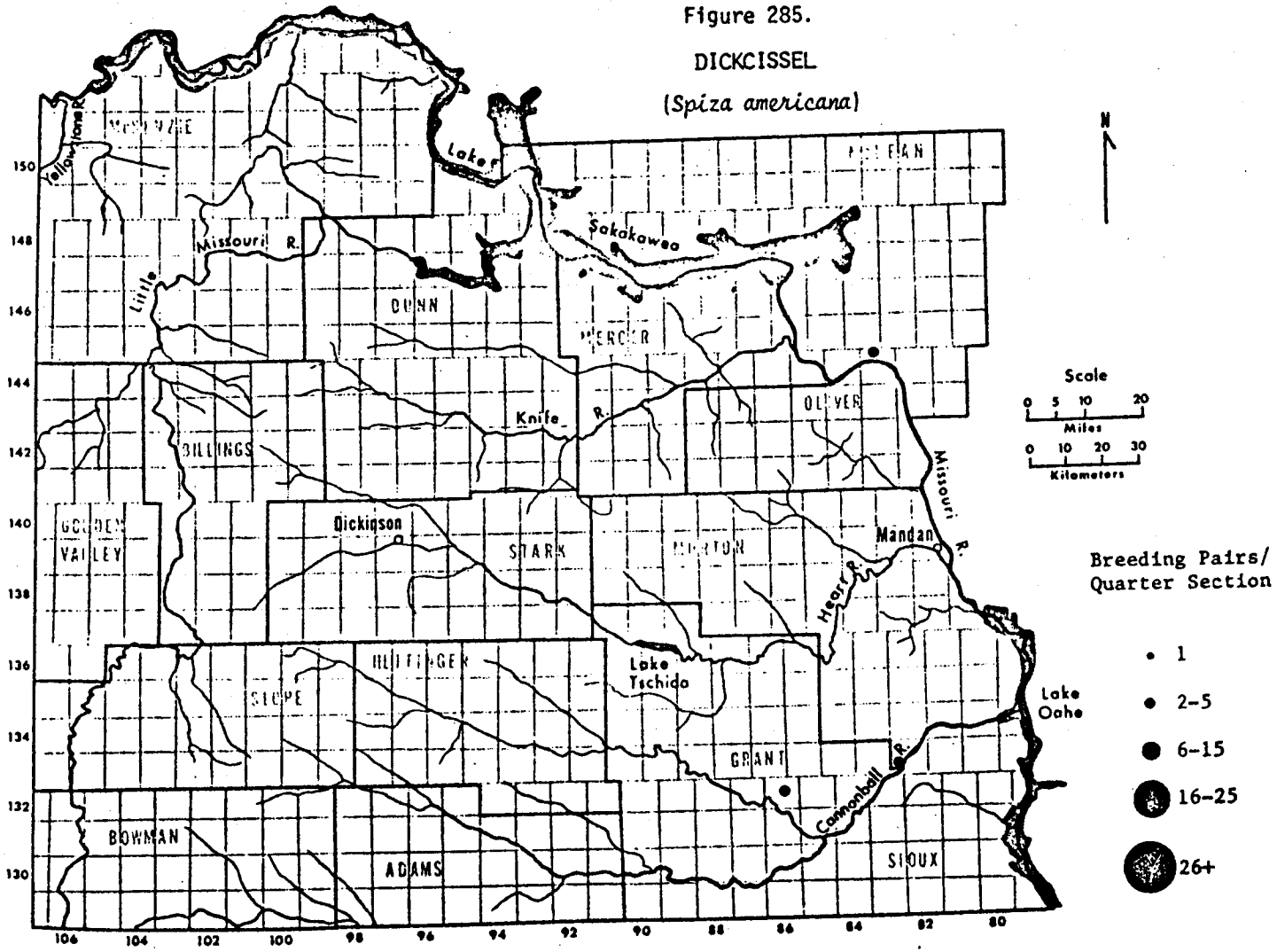
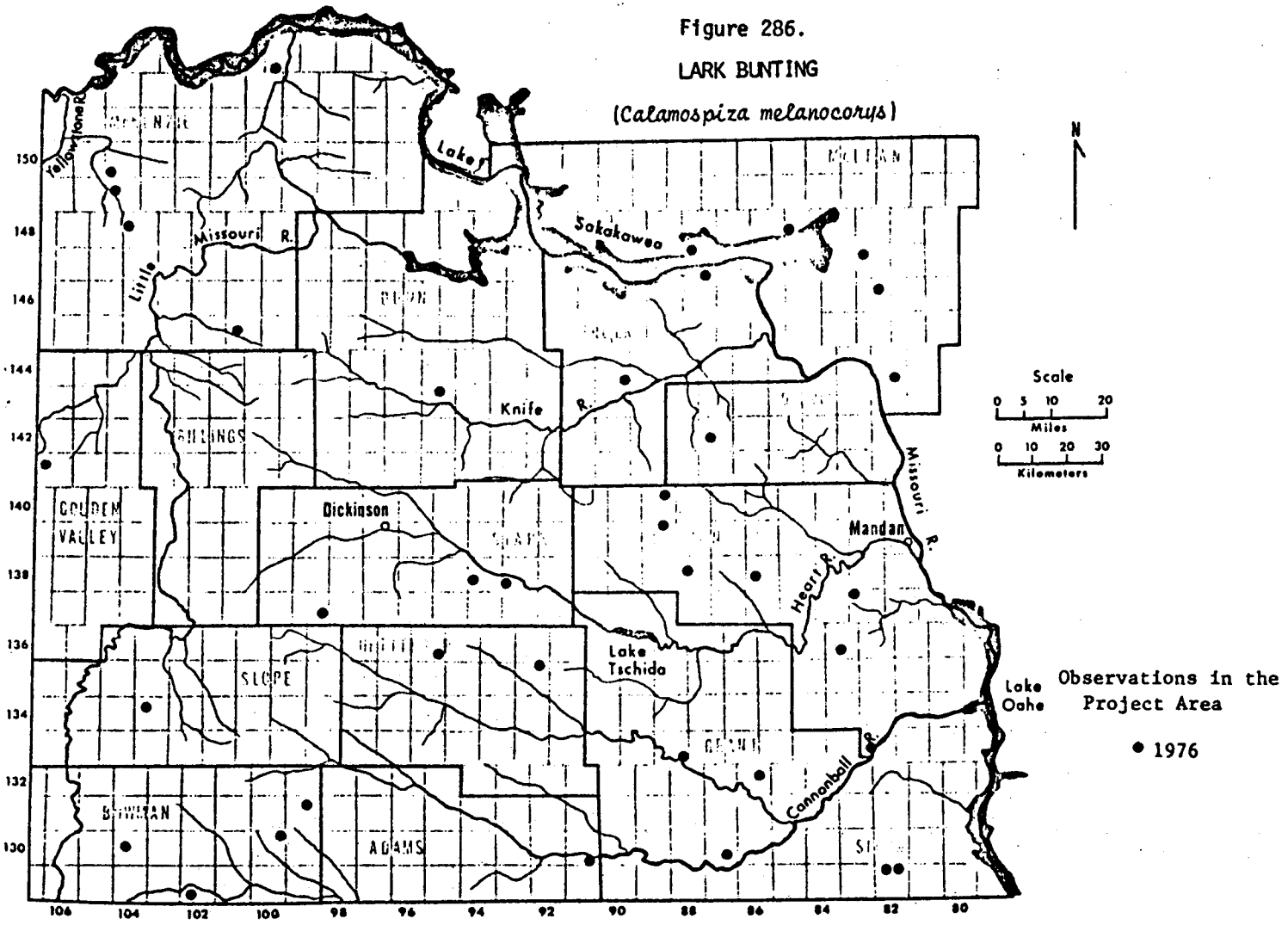


Figure 286.

LARK BUNTING

(*Calamospiza melanocorys*)



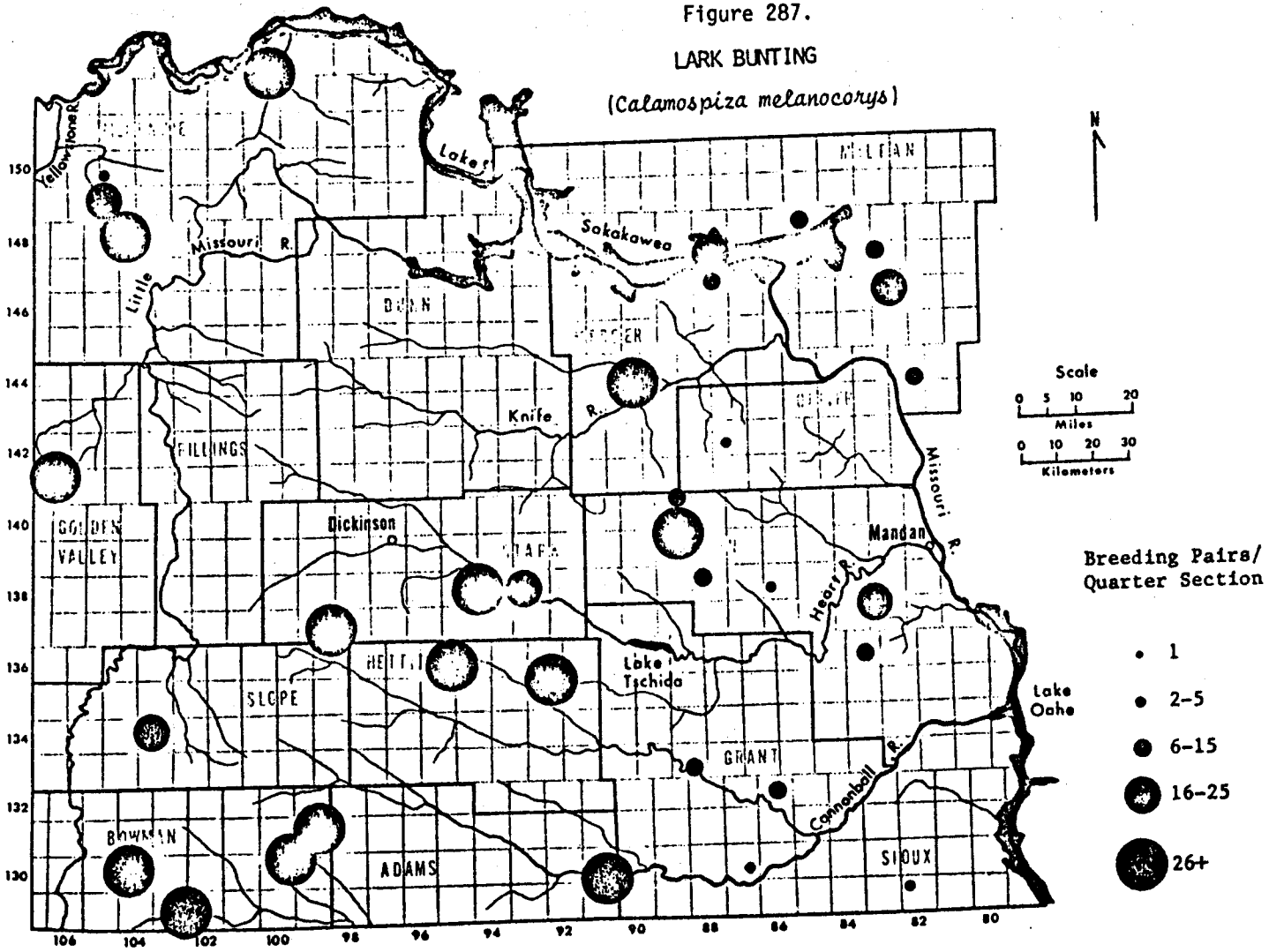
Observations in the Project Area

• 1976

Figure 287.

LARK BUNTING

(*Calamospiza melanocorys*)



4.4 Mammals

The project area in southwestern North Dakota lies wholly within the Kansan Mammal Province, which also includes much of the central Great Plains extending as far south as northern Texas and western Oklahoma (Hagmeier, 1966). Consequently, the mammalian fauna can be described as being dominated by southern semi-arid grassland species.

A total of 48 species of mammals are reported herein. Of these, 32 are considered characteristic of the Kansan Mammal Province, and 14 occur primarily in the adjacent Alleghanian, Saskatchewanian and Illinoian provinces (excluding bats and the introduced house mouse). In the following accounts, frequency of observation is reported as rare, uncommon or common, while population levels are reported on a subjective scale from sparse to abundant.

ORDER: Insectivora (Shrews and Moles)

FAMILY: Soricidae (Shrews) - These small mammals generally have a mouse-like shape with small eyes and long pointed noses. They live a secretive life beneath leaf litter, grass, fallen logs and in runways of other small mammals. Their food mainly consists of animal matter (Hall and Kelson, 1959).

Masked Shrew (*Sorex cinereus*) - This tiny shrew has a slender, pointed nose, minute eyes, concealed ears, and a slender tail about half as long as its body. Its body color is brown on the back and ashy-gray on the underparts. It may weigh less than 2 grams. The species is widely distributed throughout North America and covers North Dakota and most of the surrounding prairie country. It lives on or under the surface of the ground, feeding mainly on insects, earthworms and small animal life (Bailey, 1926), being active day and night (Burt and Grossenheider, 1964).

Distribution in the project area: *Sorex cinereus* was collected in 1976 at 3 different sites in McKenzie, McLean, and Stark Counties (Fig. 288).

Habitat: In southwestern North Dakota, Genoways and Jones (1972) recorded that most specimens were taken in mesic habitats, mainly along moist stream banks with tall reeds and grass, and also in marshy lowlands. In this study, masked shrews were collected along roadsides and in rolling grasslands.

Status: Rare and sparse in the project area.

Comments: The few observations made in 1976 and lack of them in 1977 might be related to the dryness of the past year.

ORDER: Chiroptera (Bats)

FAMILY: Vespertilionidae (Vespertilionid Bats) - Most bats found north of Mexico are of this family, hence the name "common bats." This family is one of insect-eaters and is nocturnal. It is worldwide in distribution excluding the Arctic, Antarctic, and some oceanic islands (Hall and Kelson, 1959).

Little Brown Myotis (*Myotis lucifugus*) - This species covers all but the extreme northern part of North America. It has a forearm length of 3.81 cm. and weighs 7-9 gm. The ears are moderate in size and the hairs on the back have long glossy tips. This is a colonial species which will migrate south to go into hibernation (Burt and Grossenheider, 1964). The Little Brown Myotis spends the daylight hours roosting in dark places; e.g. caves, cliffs and old buildings. It comes out at dusk, first quenching its thirst then hunting insects in its erratic flight (Bailey, 1926).

Distribution in the project area: Svihovec (1967) found this species to be the most abundant bat in Slope County, finding it near Amidon in old buildings. We collected specimens in Dunn and Mercer Counties in 1976, and in Billings and Mercer Counties (in the same area as found the year before) in 1977 (Fig. 289).

Habitat: Not being restricted to any particular habitat, it has been found in the Missouri Valley floodplain forest (Hibbard, 1972) and along the Little Missouri River and west of Killdeer in Medicine Hole Cave (Genoways and Jones, 1972). The species was collected in the project area near farmsteads and hardwood draws.

Status: Uncommon in the project area.

Comments: This species as with other bats is difficult to collect and probably more common than existing records would indicate.

ORDER: Chiroptera

FAMILY: Vespertilionidae

Keen's Myotis (*Myotis keenii*) - This species of bat has an irregular distribution over North America (Bailey, 1926). Its forearm measures 3.5-4 cm. and it weighs 7-9 gm. *M. keenii* can be distinguished by the size of its ears, which extend about 1.5 mm. beyond its nose. It is usually dark brown and similar to the Long-eared Myotis, *Myotis evotis*. It occurs in small scattered colonies and may spend the winter in hibernation in the north (Burt and Grossenheider, 1964).

Distribution in the project area: Hall and Kelson (1959) indicate that this species covers all of North Dakota. Bailey (1926), who mistakenly described *Myotis keenii* as *Myotis subulatus*, indicates that there are few records over the prairie region, but many more over the mountain areas. The few collected long ago were from the Fort Buford and Upper Missouri River area. He speculated that it would most likely be found in the Badlands. We recorded one observation in Mercer County on the Knife River in 1976 (Fig. 290).

Habitat: This species' habitat preferences are similar to those of *Myotis lucifugus*. The observation made on our project area was near a farmstead.

Status: Rare in the project area.

Comments: See *M. lucifugus*.

Figure 288.

MASKED SHREW

(*Sorex cinereus*)

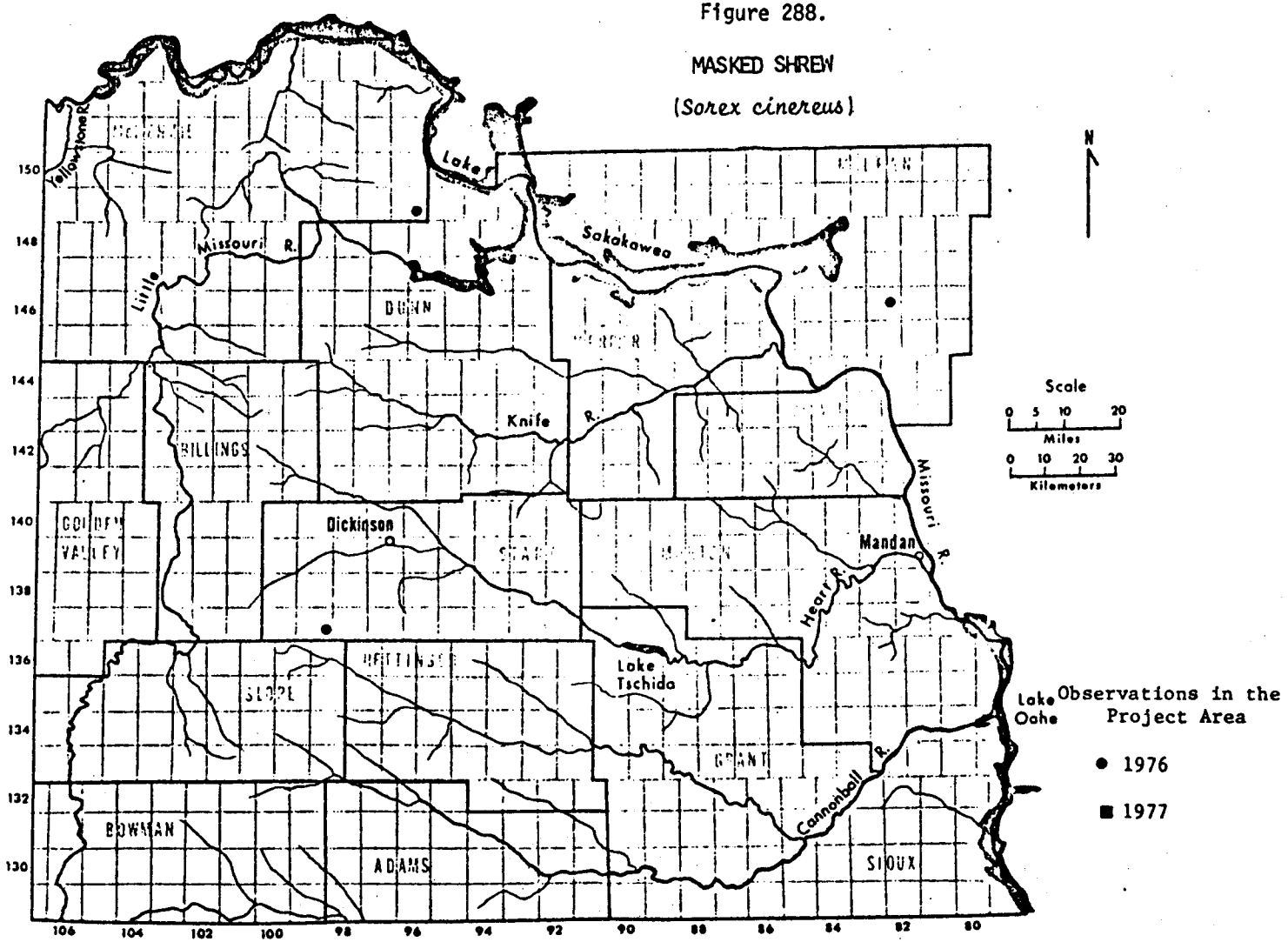


Figure 289.

LITTLE BROWN MYOTIS

(*Myotis lucifugus*)

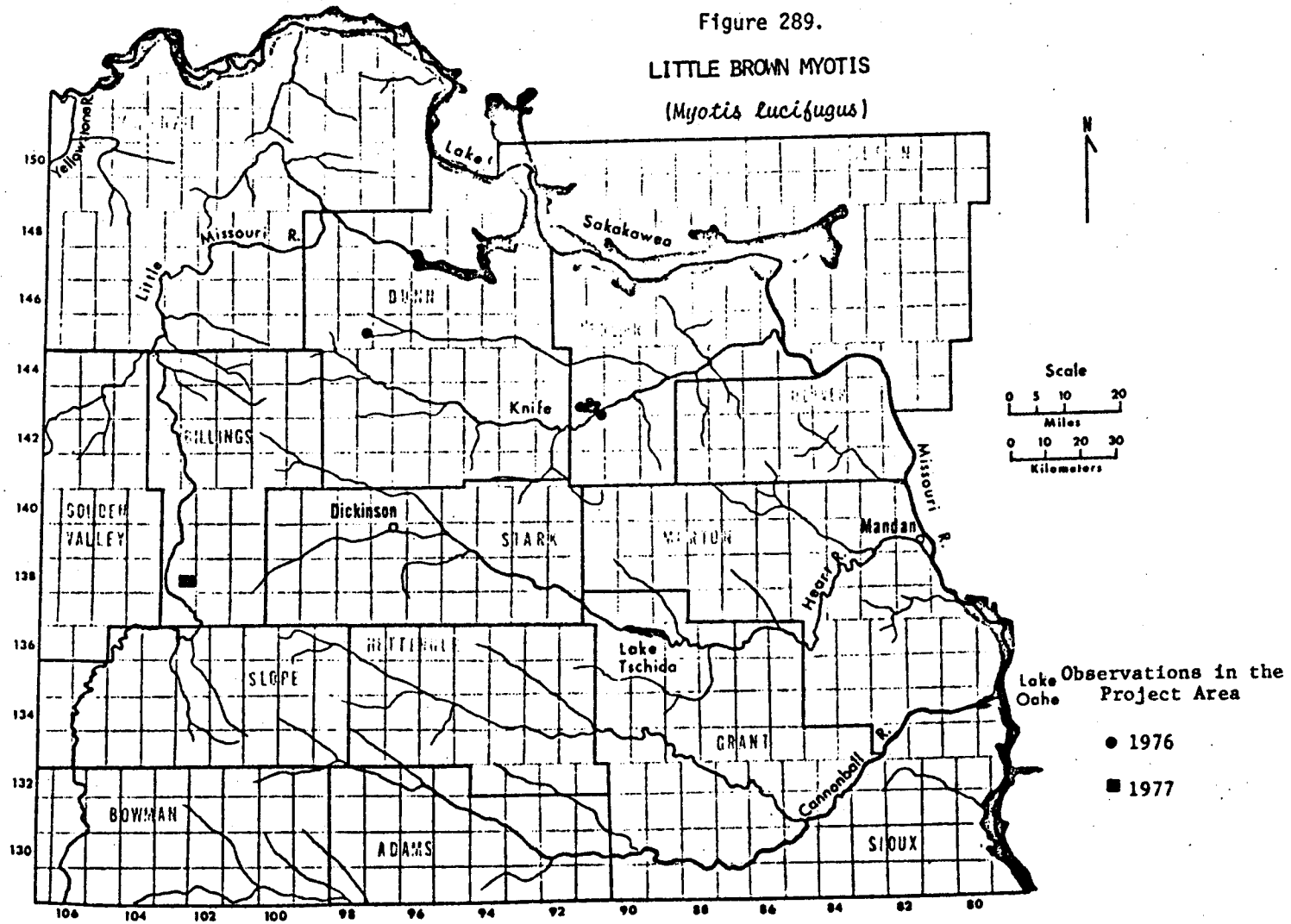
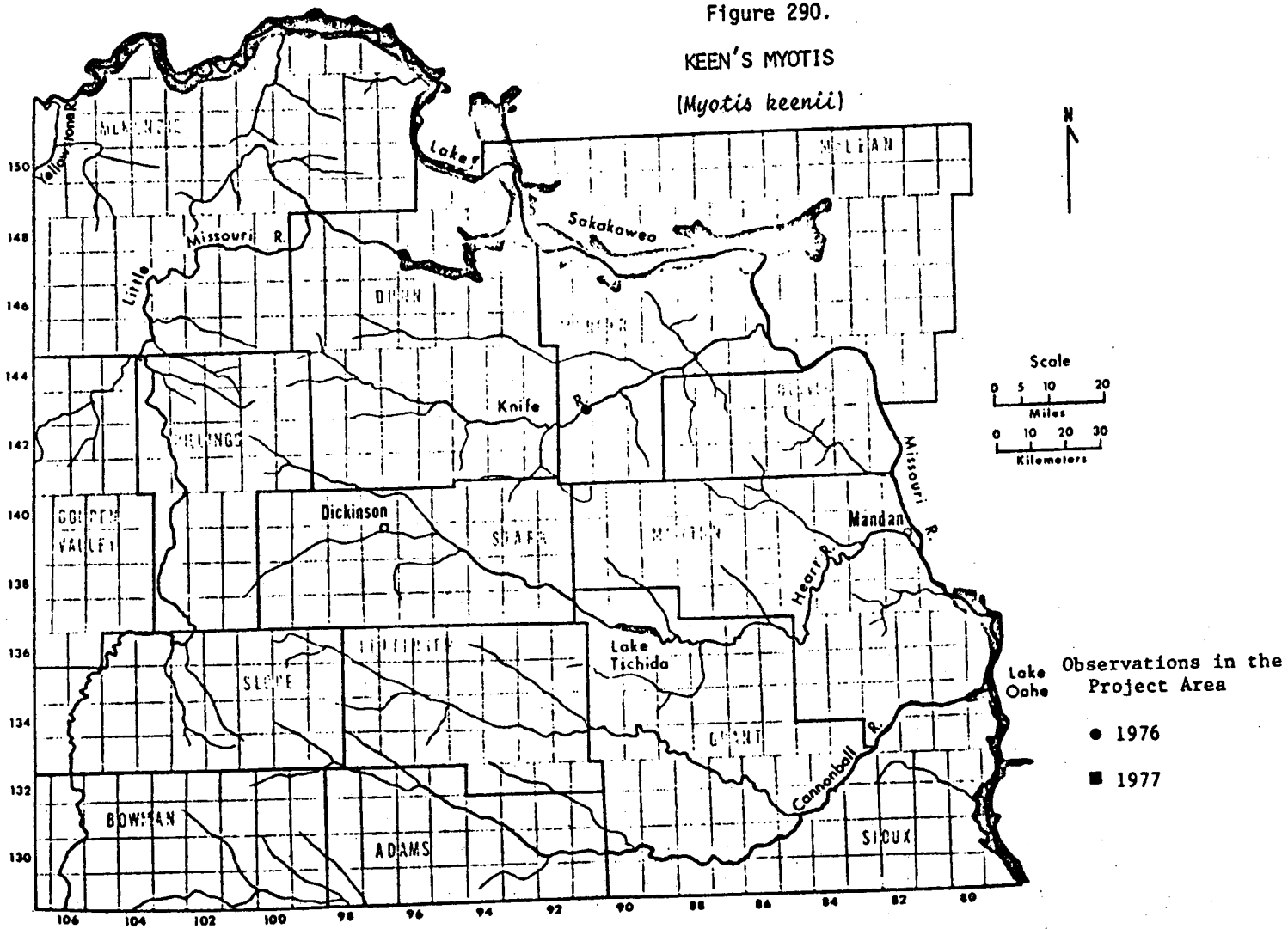


Figure 290.

KEEN'S MYOTIS

(Myotis keenii)



Observations in the Project Area

- ● 1976
- ■ 1977

ORDER: Chiroptera

FAMILY: Vespertilionidae

Small-footed Myotis (*Myotis leibii*) - Formerly listed as *Myotis subulatus*, this bat is the smallest *Myotis* in the eastern area of its range in North America. Its range covers most of the western United States, extending through the central United States northward to the New England states (Hall and Kelson, 1959). It has a forearm length of 3-3.5 cm and is 5-9 gm in weight. The bat's long silky hair is yellowish and a distinct black mask across the face distinguishes it from other bats (Burt and Grossenheider, 1964).

Distribution in the project area: Svihovec (1967) collected a specimen in a building in Amidon, thereby constituting the third record for the state. Genoways and Jones (1972) also recorded it near Amidon. We collected one specimen along the Little Missouri River in Slope County in 1976, and one in Golden Valley County, northwest of Medora, in 1977 (Fig. 291).

Habitat: Habitat preferences are similar to the of *M. lucifugus*. Genoways and Jones (1972) state that *M. leibii* appeared to be the most common member of the genus along bluffs and badlands lining the Little Missouri River southwest of Medora.

Status: Rare in the project area.

Comments: See *M. lucifugus*.

ORDER: Lagomorpha

FAMILY: Leporidae (Rabbits and Hares) - Five species of hares and rabbits have been reported for North Dakota, three of which were collected or observed on the project area. Hares (genus *Lepus*) bear young which are fully haired and have their eyes open, while rabbits (genus *Sylvilagus*) bear young which are helpless at birth.

Eastern Cottontail (*Sylvilagus floridanus*) - This species is widespread over the eastern United States and extending to the western edge of the Great Plains (Hall and Kelson, 1959). It is a medium-sized rabbit, weighing about 0.9-1.8 kg. Its home range varies from three to 20 acres (Burt and Grossenheider, 1964). It is a grazing animal, feeding on both native and cultivated vegetation (Bailey, 1926).

Distribution in the project area: Bailey (1926) indicates that *S. floridanus* was not common in the Killdeer Mountains until 1913, at which time it had extended its range into north-central North Dakota (Bergeron, 1977). The species moved westward with human habitation and has now replaced a similar species, *S. nuttalli* (Mountain Cottontail) over much if not all of southwestern North Dakota (Genoways and Jones, 1972). Genoways and Jones (1972) collected specimens from deciduous forests of the Killdeer Mountains and riparian communities along the Little Missouri River. Bergeron (1977) found that within terraces and hardwood draws, this species is a superior competitor and is able to utilize the contested niche space more efficiently than the closely related species *S. audubonii* (Desert Cottontail). We made 9 obser-

vations in 1976 in McLean, Mercer, Morton and Billings Counties mostly near rivers or Garrison reservoir, while three observations were made in 1977 in Grant, Sioux, and Adams Counties along the Cannonball River and Cedar Creek (Fig. 292).

Habitat: Most sources tend to agree that *S. floridanus* prefers an ecosystem characterized by dense vegetation consisting mainly of shrubs and trees. Willow, buffaloberry and rose are a few of the plant species utilized, while nearby open areas are also a factor in creating suitable habitat for this species (Bailey, 1926; Genoways and Jones, 1972; Hibbard, 1972; Bergeron, 1977). Habitats in which the Eastern Cottontail was most often observed during the REAP study were upland and rolling grasslands (moderately grazed) and hardwood draws.

Status: Uncommon in the project area, but may be locally abundant with suitable cover.

Comments: The nocturnal habits of the species precluded accurate census and we consider it to be more common than our records would indicate.

ORDER: Lagomorpha

FAMILY: Leporidae

Desert Cottontail (*Sylvilagus audubonii*) - This species is found over the southwestern United States and up to the Missouri River (Hall and Kelson, 1959), including southwestern North Dakota along the Little Missouri River Valley and around the buttes of the badlands (Bailey, 1926). It is smaller than the Eastern Cottontail, being 0.6-1.2 kg in weight. Its home range is also smaller, varying from one to 15 acres (Burt and Grossenheider, 1964). The Desert Cottontail has been recorded to occur along broken slopes and among rock piles and badlands gulches of the roughest country (Bailey, 1926).

Distribution in the project area: Desert Cottontails entered North Dakota from Wyoming by moving along the Little Missouri River Valley (Bergeron, 1977). Genoways and Jones (1972) indicate *S. audubonii* to be uncommon in southwestern North Dakota. However, both Desert and Eastern Cottontails were known to be abundant in southwestern North Dakota until populations were decimated during the severe winters of the mid-1960's (Robert Seabloom, unpublished). Since that time cottontail populations are believed to be gradually increasing. Bergeron (1977) collected specimens of Eastern and Desert Cottontails in western Stark and Bowman, all of Billings and Slope, and eastern Golden Valley Counties, finding the two species to be common in close proximity to the Little Missouri River and its tributaries. During the REAP project work, there were nine observations of *S. audubonii* southwest of Bowman, in Golden Valley County northwest of Medora, and in Slope County near the Burning Coal Vein northwest of Amidon (Fig. 293).

Habitat: *S. audubonii* is common in valleys of the arid southwest, on open plains, foothills, grass and sagebrush and in scattered pinons and junipers (Bailey, 1926). Bergeron (1977) found it to occur in a wider range of habitat than *S. floridanus*, but was only found consistently in upland breaks and upland

grasslands. Habitats in the project area included hardwood draws, upland grasslands, ponderosa pines, upland breaks and farmsteads.

Status: Uncommon in the project area.

Comments: See *S. floridanus*.

ORDER: Lagomorpha

FAMILY: Leporidae

White-tailed Jack Rabbit (*Lepus townsendii*) - This species extends over the Great Plains of the central and northern United States into southern Canada. It is the largest hare of the northern plains and western mountains (Hall and Kelson, 1959). It is a nocturnal animal, feeding largely on grass, growing grain, and prairie plants in the summer, and buds and browse in the winter. It has adapted to living in open country by possessing great speed and protective coloration (Bailey, 1926).

Distribution in the project area: Bailey (1926) indicated that *L. townsendii* was generally distributed over the plains and prairie region including all of North Dakota except the forested areas. It was reported in almost every locality in the state where field work had been carried on. Genoways and Jones (1972) found it abundant in southwestern Bowman County, with specimens taken in sagebrush and short grasses. James (1967) collected his largest numbers of specimens in Slope, Bowman, and Hettinger Counties, with fair numbers also caught throughout the rest of southwestern North Dakota. We made 24 observations in all the counties of the project area except Sioux County in 1976, and 36 observations in all but Golden Valley and Oliver Counties in 1977 (Fig. 294).

Habitat: Hibbard (1972) found *L. townsendii* common on the prairie above the floodplain, but rarely entering the bottomland habitats except in winter in search of food and cover. James (1967) found the species to seek shelter in brushy draws and shelterbelts in winter and also to construct winter forms by burrowing into snow drifts. Habitats in the REAP study included upland grasslands, rolling grasslands, upland breaks, and agriculturally disturbed areas.

Status: Common in the project area.

ORDER: Rodentia

FAMILY: Sciuridae (Squirrels) - This family is widely distributed and has remarkable ecological versatility. Members are primarily herbivorous, but will eat animal flesh on occasion. They are less subject to periodic fluctuations in populations than many other rodents (Hall and Kelson, 1959).

Least Chipmunk (*Eutamias minimus*) - This species ranges over the boreal forests of Canada, north-central United States, Rocky Mountains and portions of the Great Plains (Hall and Kelson, 1959). The Least Chipmunk eats a great variety

of seeds and berries and a little green vegetation. It will climb trees in search of this food, but does most of its foraging on the ground near thickets and sagebrush (Bailey, 1926). The pale, badlands subspecies, *E. m. pallidus* occurs in southwestern North Dakota, west of the Missouri River (Bailey, 1926; Hall and Kelson, 1959).

Distribution in the project area: Svihovec (1967) noted that chipmunks were fairly abundant in Slope and Bowman Counties and Genoways and Jones (1972) collected specimens south of Medora along the Little Missouri River and in the area of the Killdeer Mountains. The Least Chipmunk was collected in the project area in Stark and Mercer Counties in 1976 (9 observations) and observed quite commonly (15 observations) along the Little Missouri River in 1977 (Fig. 295, 296).

Habitat: Hall and Kelson (1959) describes the Least Chipmunk as living in sagebrush areas both near and far from conifer forests, while Svihovec (1967) collected it only in brushy coulees in southwestern North Dakota. Genoways and Jones (1972) collected specimens in bluff areas and rocky outcrops. In the REAP project area, the species was especially common in woody habitats (e.g. hardwood draws and forested areas) and broken country (e.g. upland breaks, rockland).

Status: Common in the project area.

Comments: The badlands Least Chipmunk is restricted to southwestern North Dakota; its statewide distribution is discontinuous with the boreal Least Chipmunk in the northeast.

ORDER: Rodentia

FAMILY: Sciuridae

Richardson's Ground Squirrel (*Spermophilus richardsonii*) - This ground squirrel, commonly known as the "flickertail," is the North Dakota state animal. It is a rather large gray or cinnamon dappled squirrel, having internal cheek pouches used for carrying seeds and other foods (Hall and Kelson, 1959). Its range covers all of North Dakota east and north of the Missouri River. The species' range seems to stop where that of the prairie dog begins (Bailey, 1926). Being a hibernator, it is only active during part of the year. Its short breeding season begins in the early spring after emergence from hibernation (Pigage, 1975).

Distribution in the project area: The Missouri River seems to be the boundary of this species' range in North Dakota. It was observed in McLean County, but one observation was also made on the west side of the river in McKenzie County (Fig. 297). The present range of *S. richardsonii* is moving eastward with the deciduous forest-grassland ecotone being the eastern limit. This is probably the result of current agricultural practices (Pigage, 1975).

Habitat: Bailey (1926) reported it to be most abundant over the high open prairie in the central part of the state and indicated that the greatest numbers often appear in areas of the shorter grass and lowest vegetation, where it feeds

on seeds of prairie plants and grasses and insects. In the project area, the species was found in roadsides and on moderately grazed rolling grasslands.

Status: Common in McLean County; rare west of the Missouri River.

Comments: The Richardson's Ground Squirrel appears to be an eastern ecological equivalent of the prairie dog, and it is unlikely to overlap its range significantly with the latter species. However, rafting and large earthen structures such as Garrison Dam, can provide corridors for further westward expansion of the species' range.

ORDER: Rodentia

FAMILY: Sciuridae

Thirteen-lined Ground Squirrel (*Spermophilus tridecemlineatus*) - This small ground squirrel is distinguished by its series of 13 alternating dark and light longitudinal dorsal stripes. It also has internal cheek pouches used for gathering and carrying seeds and other food matter. Its range covers the Great Plains of the United States and the states around the Great Lakes, thus including all of North Dakota (Hall and Kelson, 1959). This species is strictly diurnal and partial to warm weather. A great part of its food consists of seeds, grain, and nuts, but its omnivorous habits also find it eating insects, birds, or any small animal it might capture or find dead (Bailey, 1926).

Distribution in the project area: Genoways and Jones (1972) found *S. tridecemlineatus* to be especially abundant northwest of Dickinson where sandy soils and good food supplies provide optimum habitat. We collected specimens in every county of the project area and found the species to be quite abundant in most areas (Fig. 298, 299).

Habitat: This species has been previously collected in sagebrush bottomland with sparse vegetation (Svihovec, 1967) and in short-grass situations and along regularly mowed roadsides (Genoways and Jones, 1972). These observations agree with Hall and Kelson (1959) and Bailey's (1926) descriptions of habitat preference as well as with our descriptions of collection sites for *S. tridecemlineatus* in the REAP project area.

Status: Common and abundant in the project area.

ORDER: Rodentia

FAMILY: Sciuridae

Black-tailed Prairie Dog (*Cynomys ludovicianus*) - This colonial squirrel lives in scattered "towns" where it maintains cohesiveness with fellow occupants by a variety of calls (Waring, 1970) and social interactions (King, 1955). The species occurs in the Great Plains from Montana and North Dakota south to Texas (Hollister, 1916) and recently has extended its range into Saskatchewan (Soper, 1938). The species has been reported in southwestern North Dakota since the expeditions of Lewis and Clark (Bailey, 1926).

Distribution in the project area: In North Dakota, the range of the Black-tailed Prairie Dog is chiefly restricted to areas west of the Missouri River (Bailey, 1926). According to Bailey the species seemed to be primarily concentrated in the vicinity of the Missouri and Little Missouri Rivers. Along the Missouri River there were originally towns for its entire length from South Dakota to the Montana line. However, few recent comprehensive reports of the distribution and/or abundance of the species in this state exist.

Grondahl (1973) made an effort to locate the dog towns in the state from the data available at the time (Table 1). Bishop and Culbertson (1976) noted the decline of the species from 1939 to 1972 in the Medora Ranger District of the Little Missouri National Grasslands, Custer National Forest (Table 2). Their study was chiefly based on examination of aerial photographs, but for the 1970-72 period, data from other sources, including field surveys, supplemented the aerial photos. However, both recent studies agree that control measures and changing land use practices have contributed to the decline of prairie dog populations in North Dakota.

Adams (1964) reported two unsuccessful attempts at establishing prairie dogs on two different State Game Management Areas in western North Dakota. Currently a similar experiment in transplanting prairie dogs is being conducted in Adams County (T129N, R98W, Sec. 34, SE¼) and there are indications that it will be successful. Future plans are being made to establish the animal in Dunn County (T146N, R97W, Sec. 14, NE¼ of SW¼) on a State Game Management Area (C.R. Grondahl, personal communication).

In North Dakota, the distribution of the Black-tailed Prairie Dog seems to be clumped into two main areas (Fig. 300). One area consists of southern Morton County, all of Sioux County except the western corner, and part of Grant County along the Grant-Sioux border. This aggregation of towns is relatively isolated from the others in the project area. Oliver and Hettinger Counties have no known towns, Adams County has only two widely separated towns, and Stark County has towns only in the west.

The other area of aggregation is a more or less continuous band of towns extending from western Bowman County up into Slope County, through most of Billings County and western Stark County and into the northeast corner of Golden Valley County and the southwestern corner of McKenzie County. Dunn, Mercer, and the remaining part of McKenzie Counties have relatively few towns.

Besides these two large aggregations, numerous small clumps of towns exist. Several examples include Dunn County (T142N, R91W) with 4 towns, 3 of which are relatively continuous; Golden Valley (T144N and T143N, R103W) with 9 towns; Billings County, in Theodore Roosevelt National Memorial Park, South Unit with 10 towns; Bowman County (T132N, R106W) with 5 towns, 4 of which are in adjacent or common sections; Morton County (T143N, R82W) with 5 towns; Sioux County (T133N, R79W) with 5 towns; and McKenzie County (T149N, R103W) with 4 towns.

The distribution of the Black-tailed Prairie Dog in North Dakota thus has become more restricted since Bailey's (1926) report, undoubtedly as a result of increased human disturbance. Extensive agriculture in Adams and Hettinger Counties is a probable cause of the lack of dog towns in this area; however, these counties were not in the original areas of concentration reported by Bailey (1926). Much of the area around Sioux County is grazing land, and is potentially good prairie dog habitat. It seems that many towns in the

Figure 291.

SMALL-FOOTED MYOTIS

(Myotis leibii)

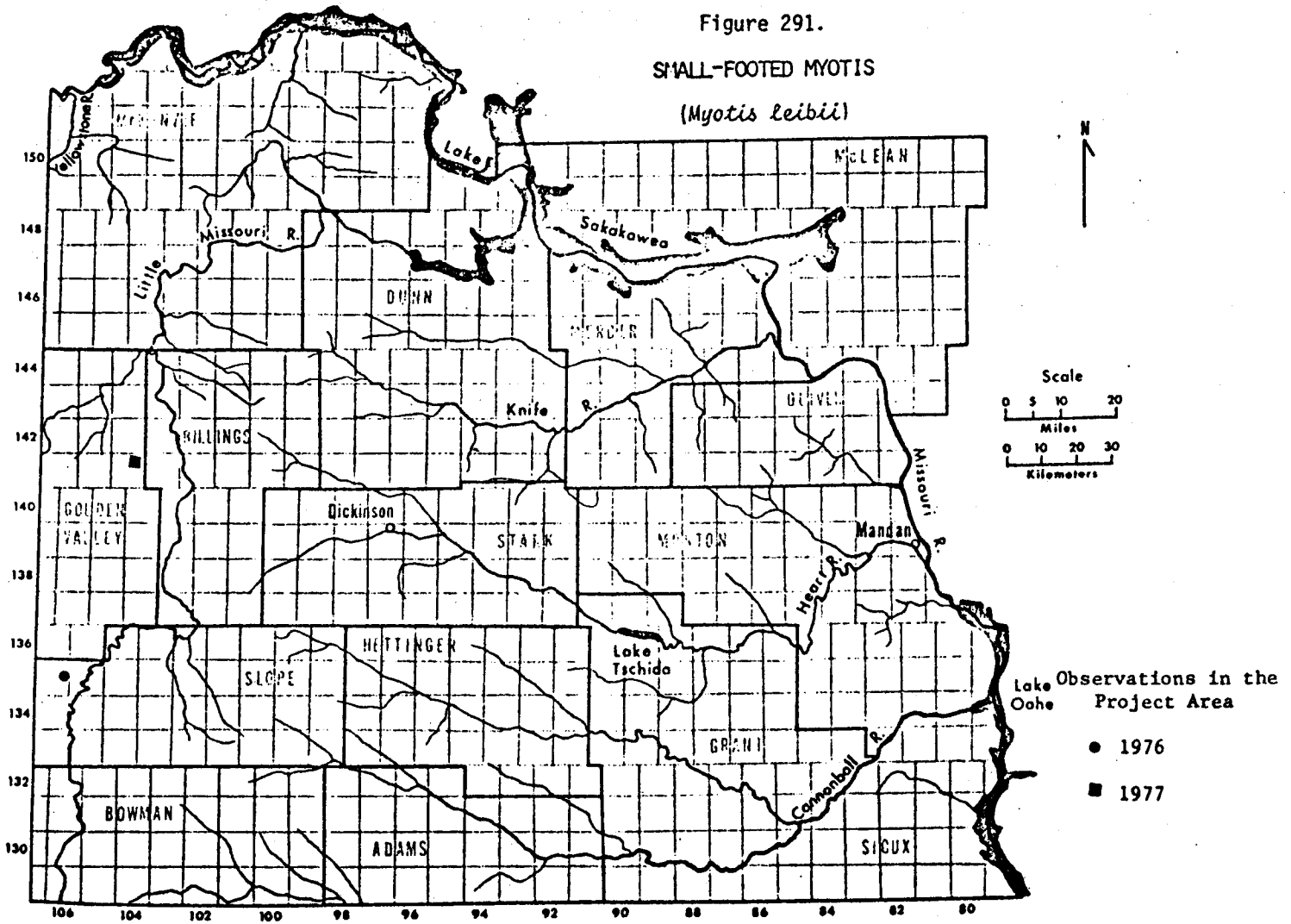


Figure 292.

EASTERN COTTONTAIL

(*Sylvilagus floridanus*)

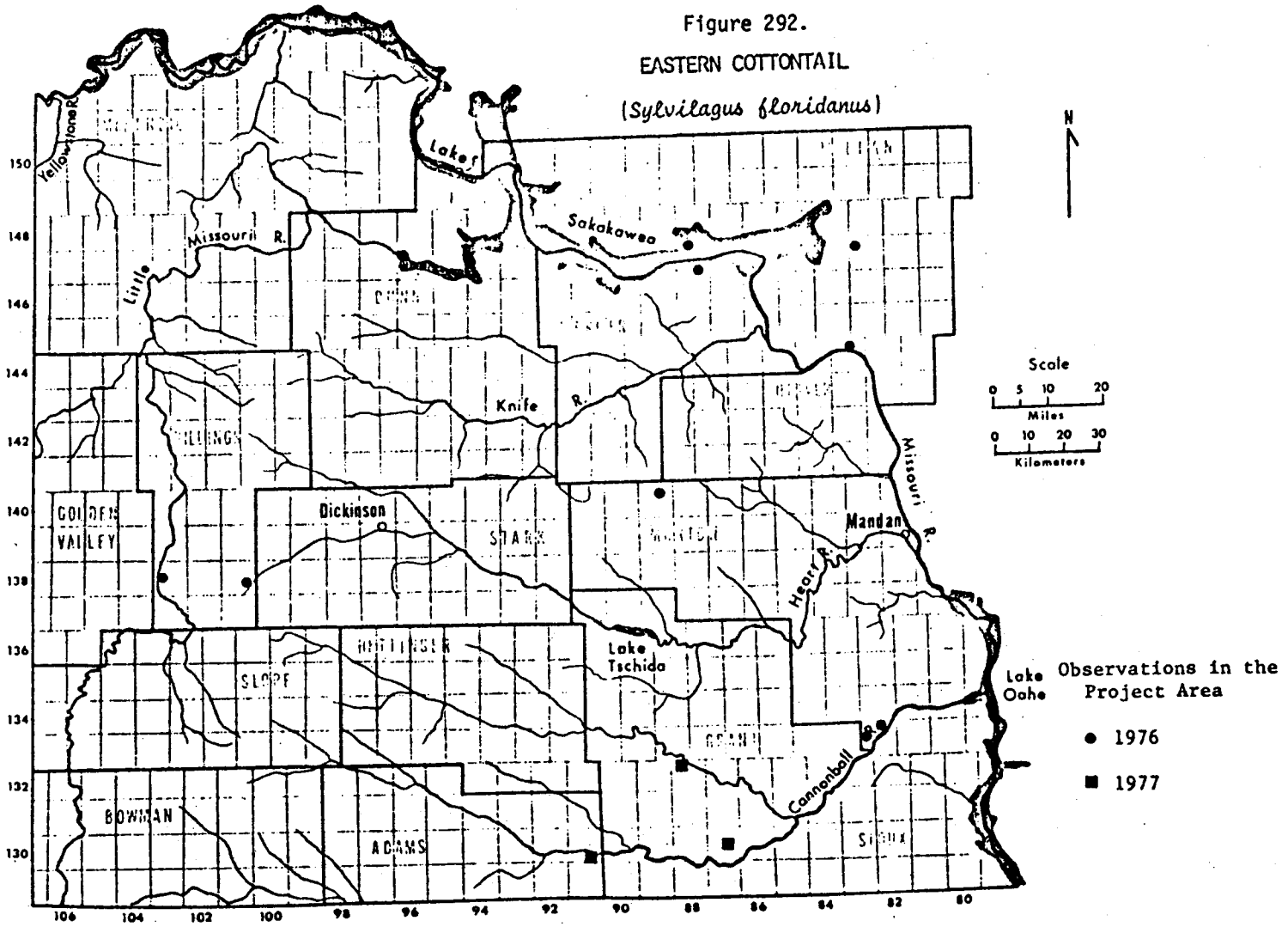


Figure 293.

DESERT COTTONTAIL

(*Sylvilagus audubonii*)

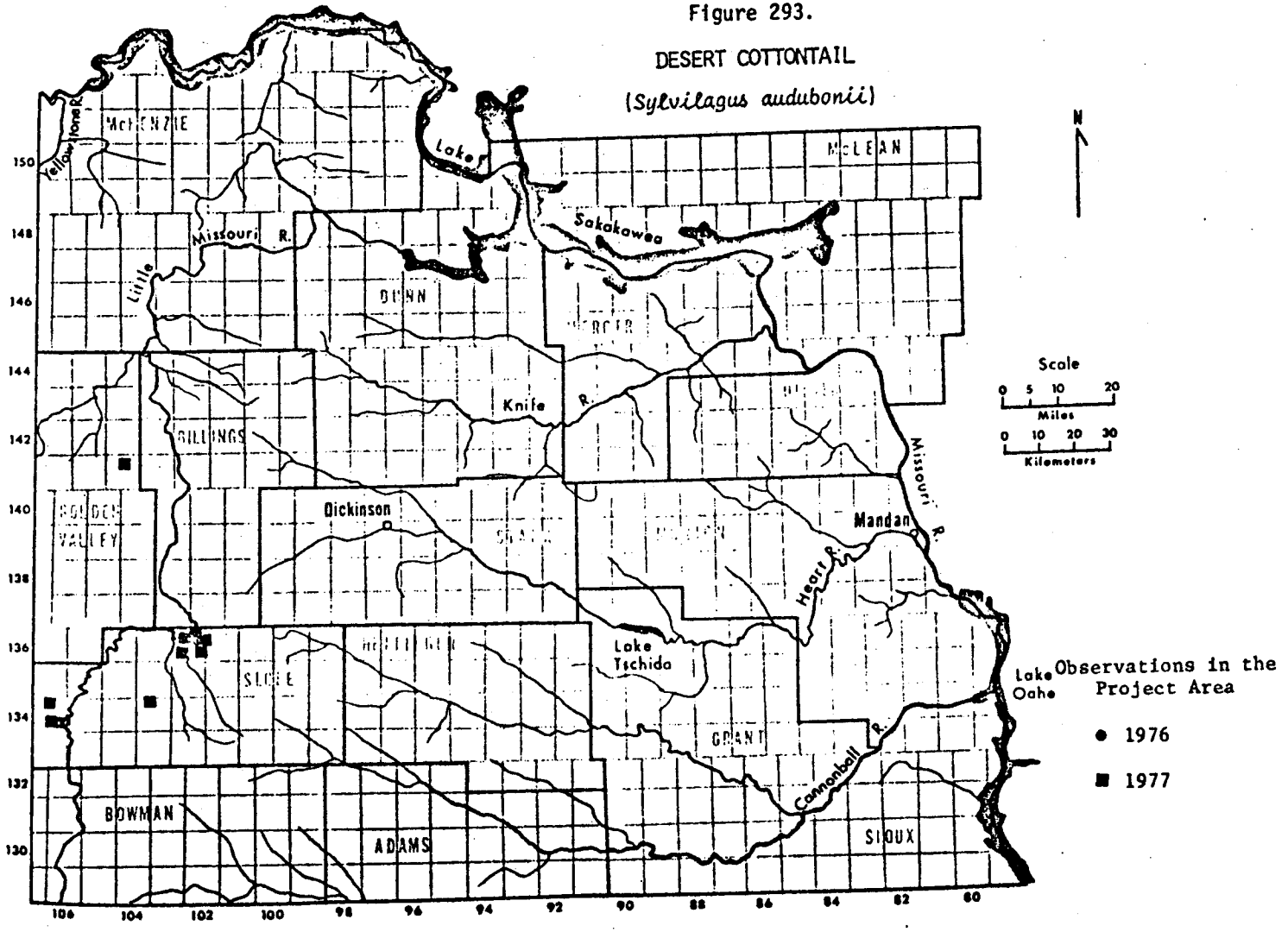


Figure 294.

WHITE-TAILED JACKRABBIT

(*Lepus townsendii*)

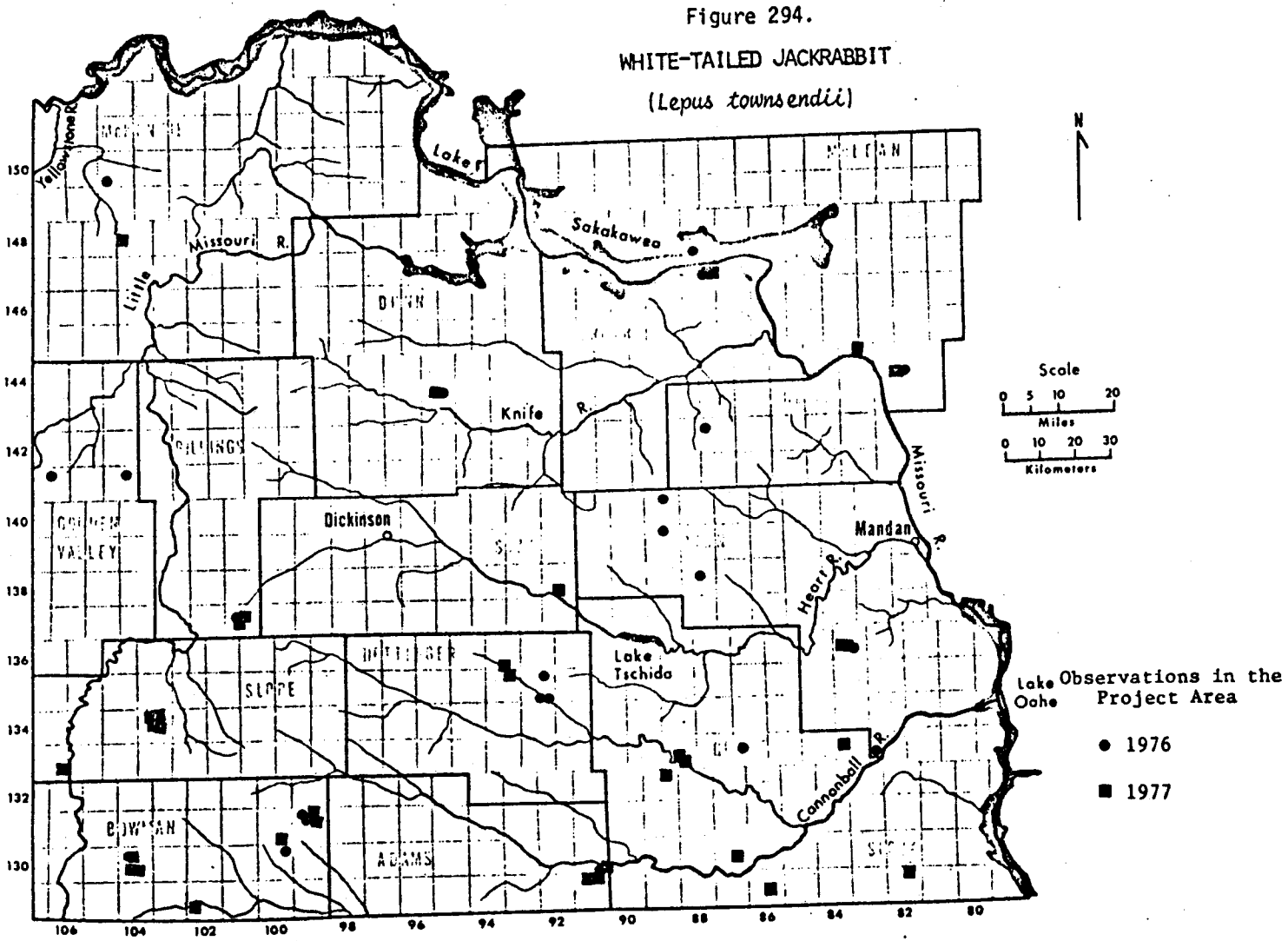


Figure 295.

LEAST CHIPMUNK

(*Eutamias minimus*)

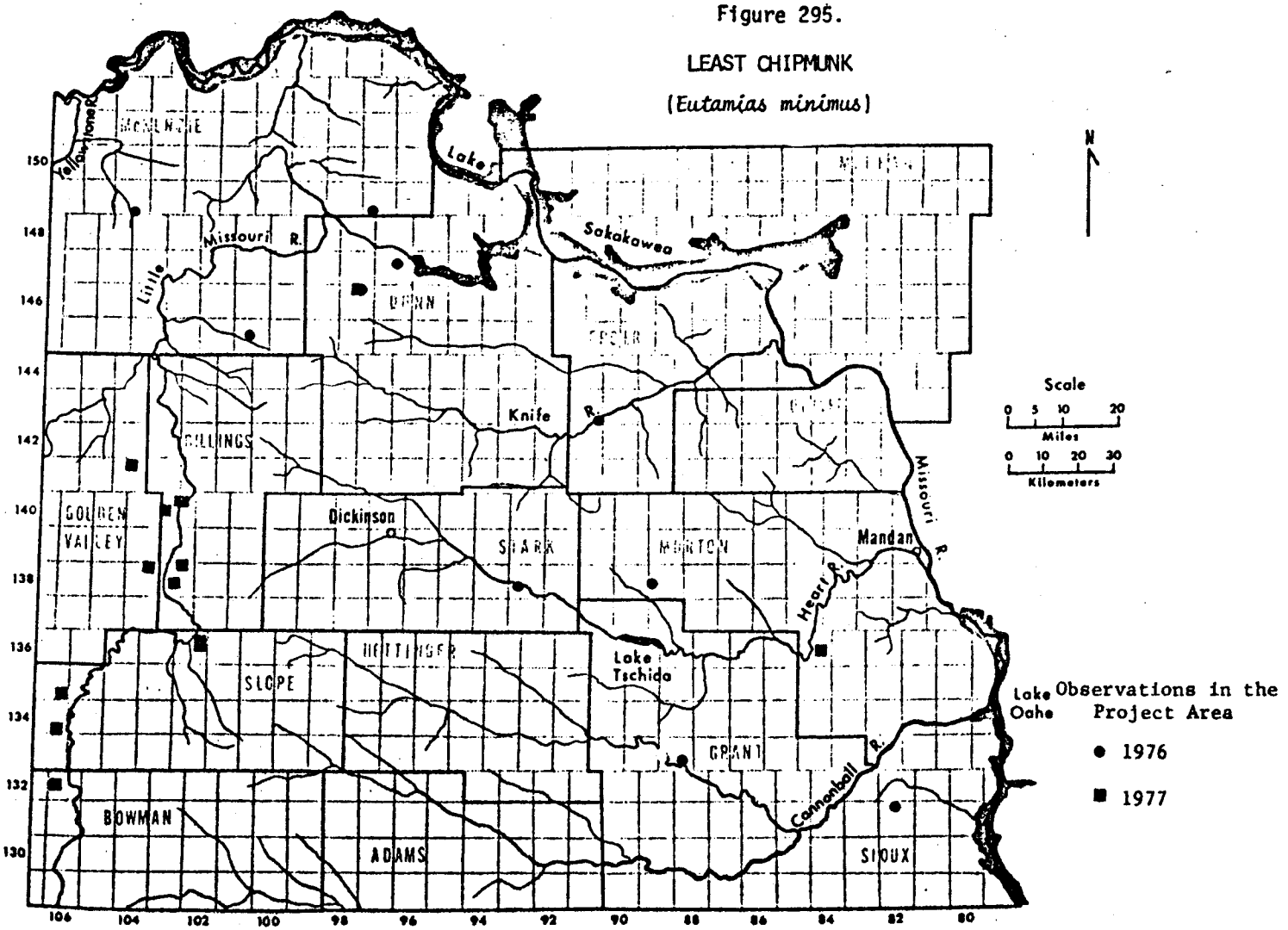


Figure 296.

LEAST CHIPMUNK

(*Eutamias minimus*)

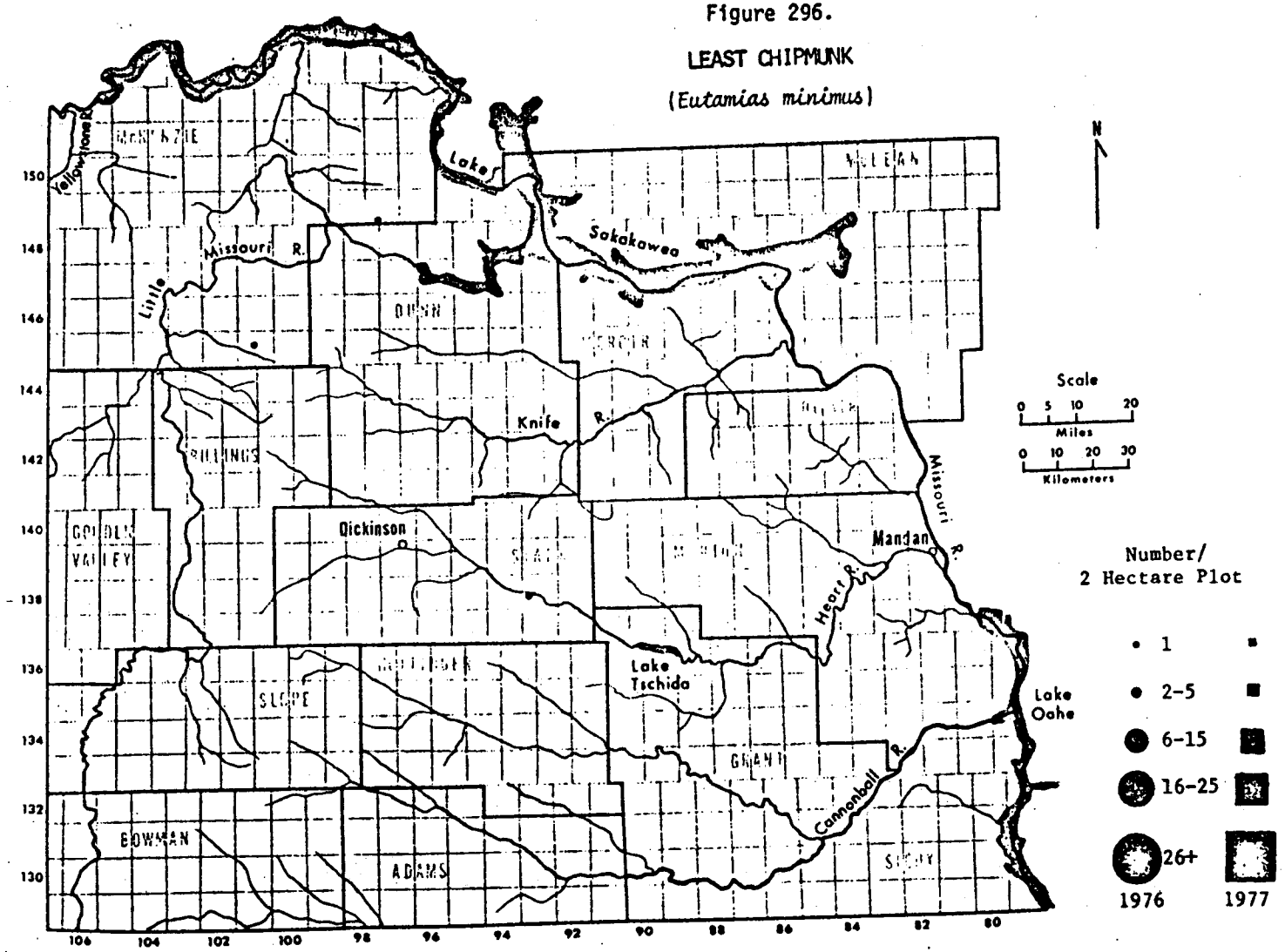


Figure 297.

RICHARDSON'S GROUND SQUIRREL

(*Spermophilus richardsonii*)

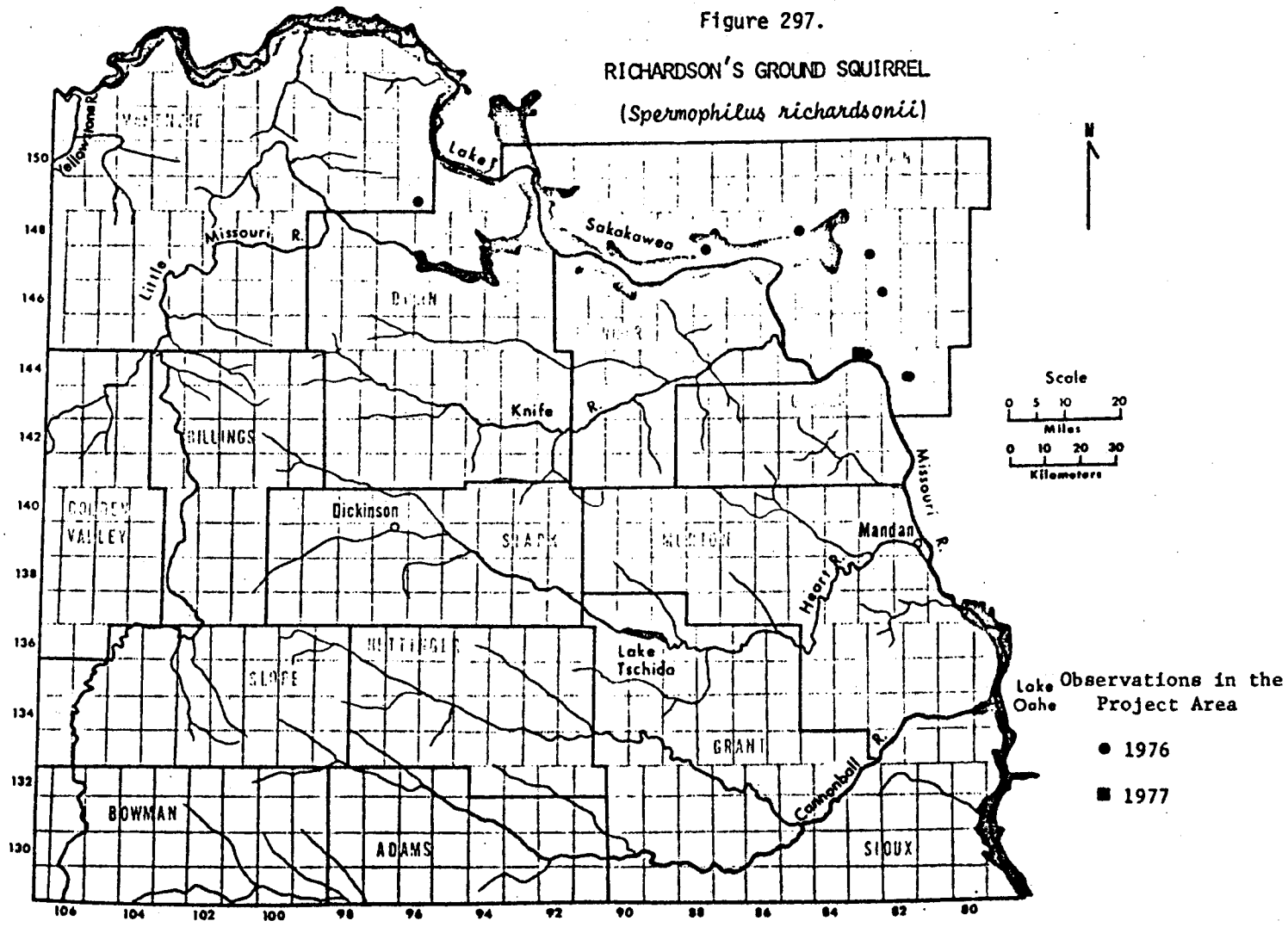


Figure 298.

THIRTEEN-LINED GROUND SQUIRREL

(*Spermophilus tridecemlineatus*)

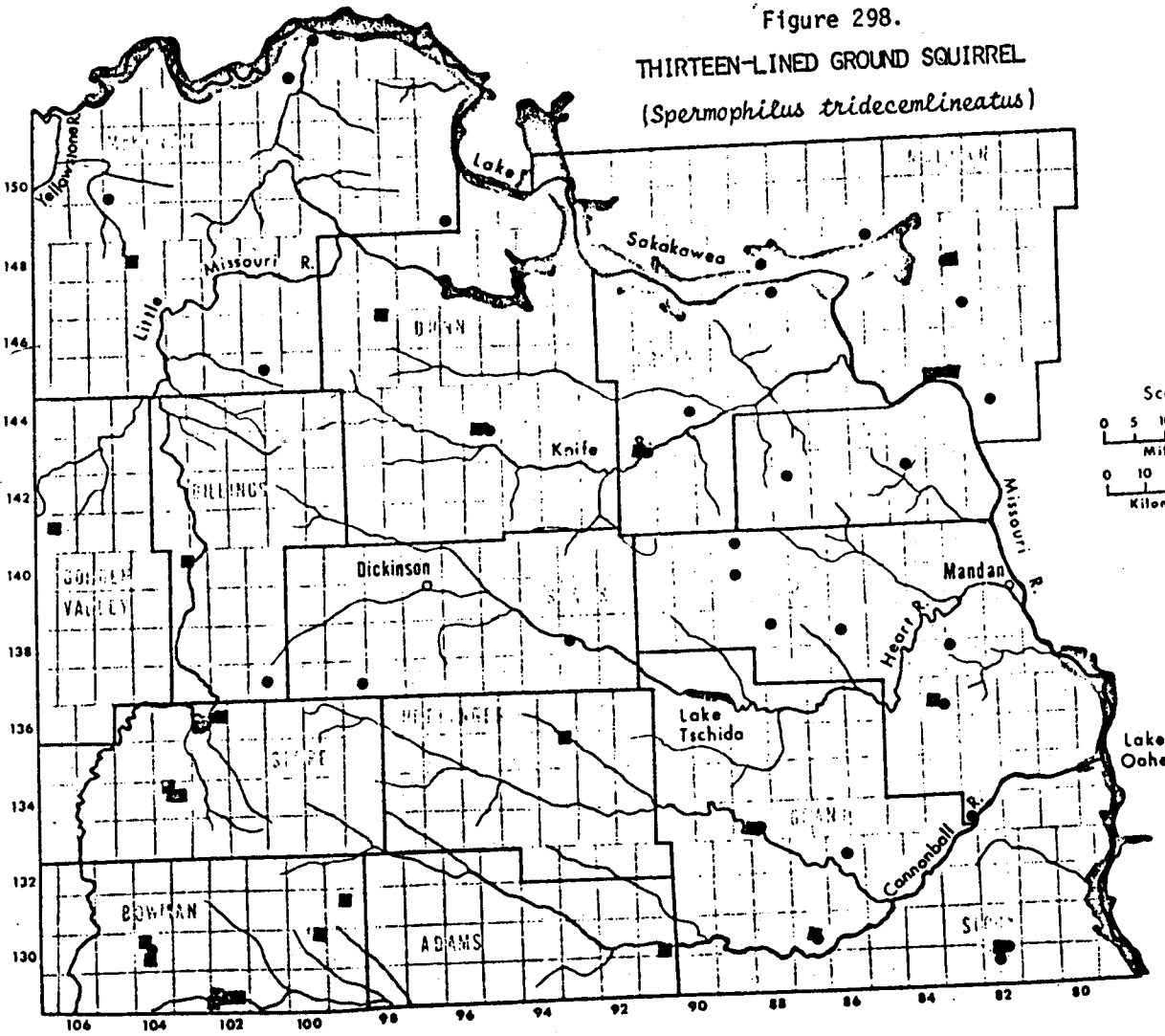


Figure 299.

THIRTEEN-LINED GROUND SQUIRREL

(*Spermophilus tridecemlineatus*)

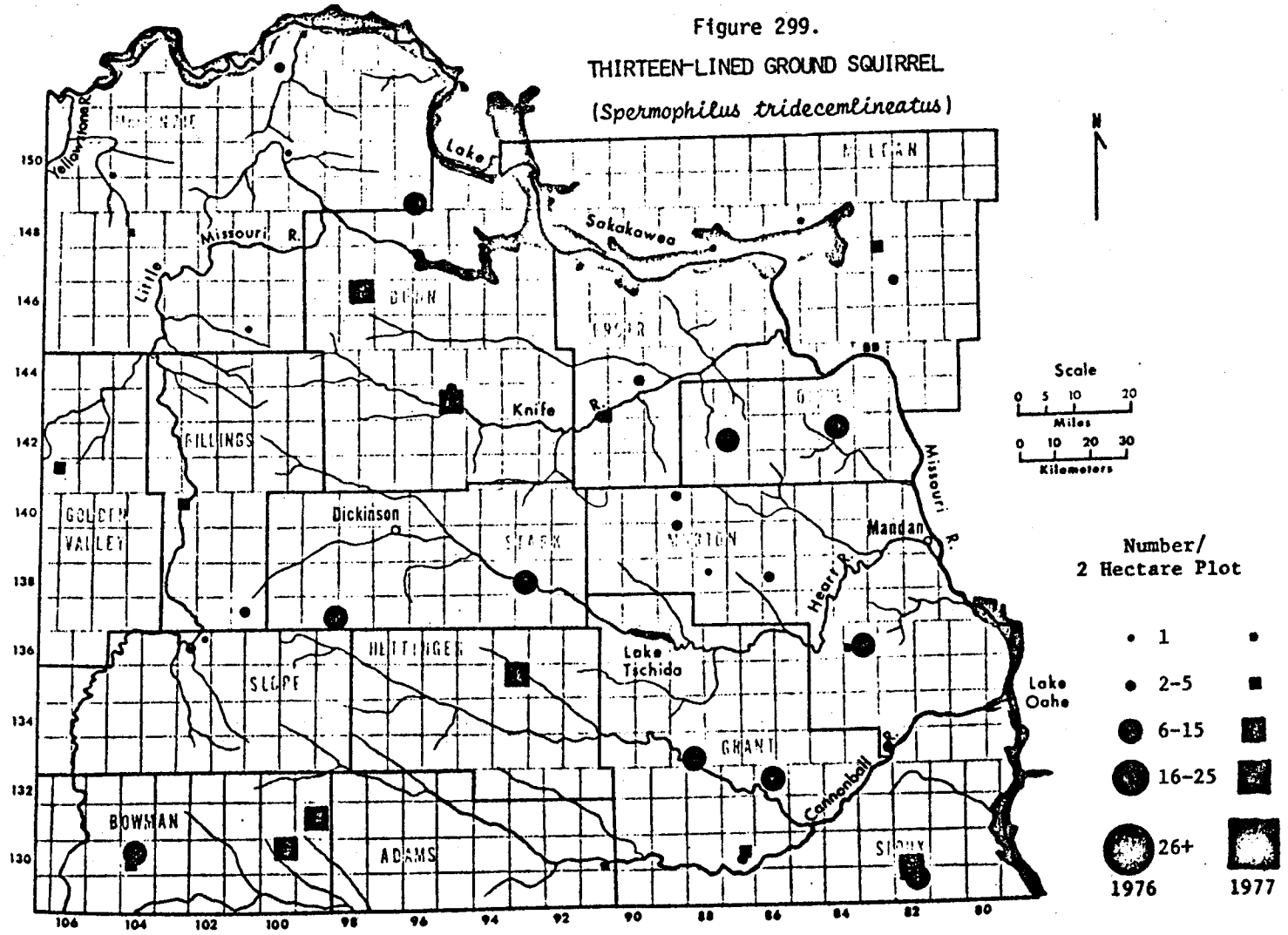
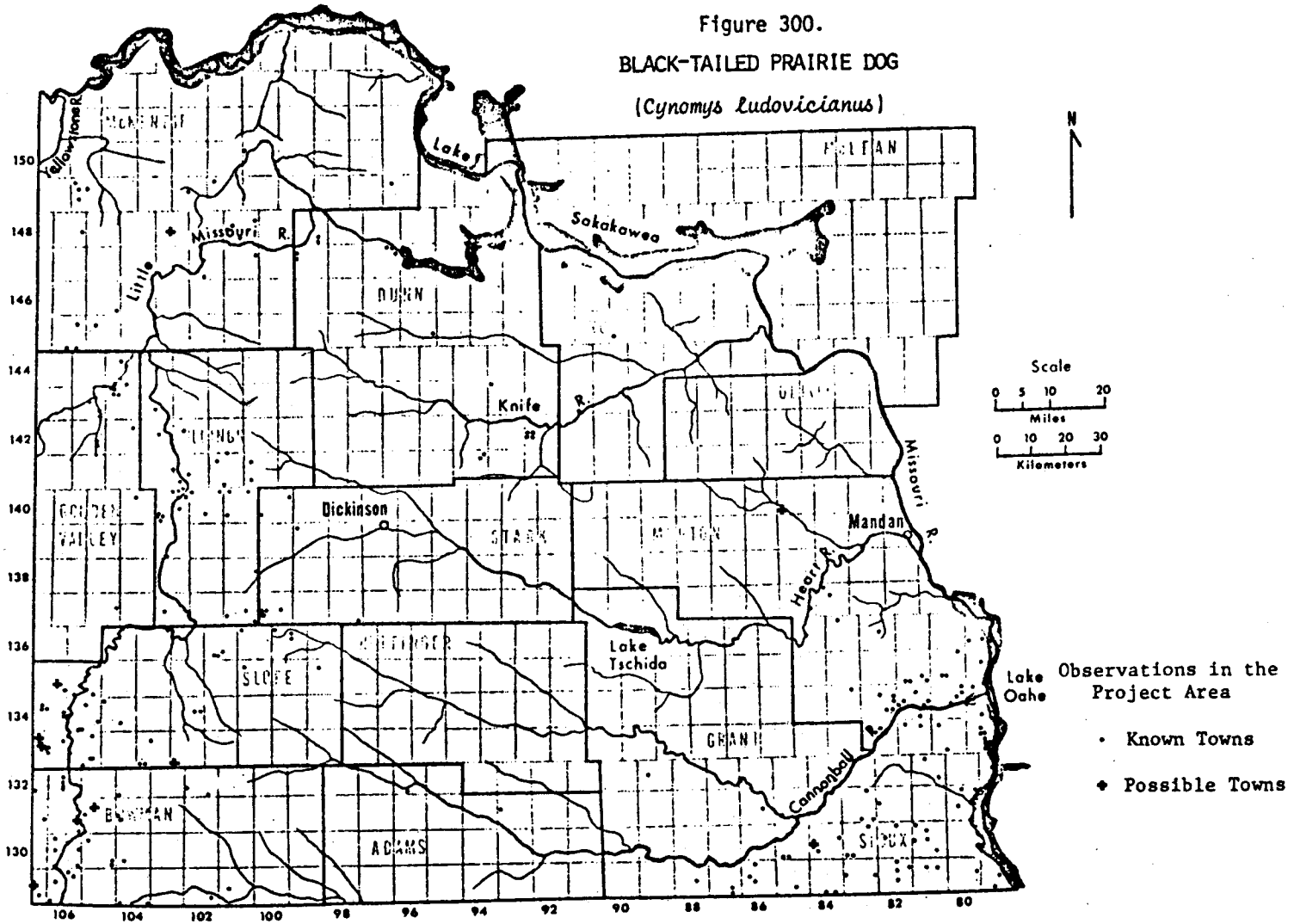


Figure 300.

BLACK-TAILED PRAIRIE DOG

(*Cynomys ludovicianus*)



Observations in the Project Area

- Known Towns
- Possible Towns

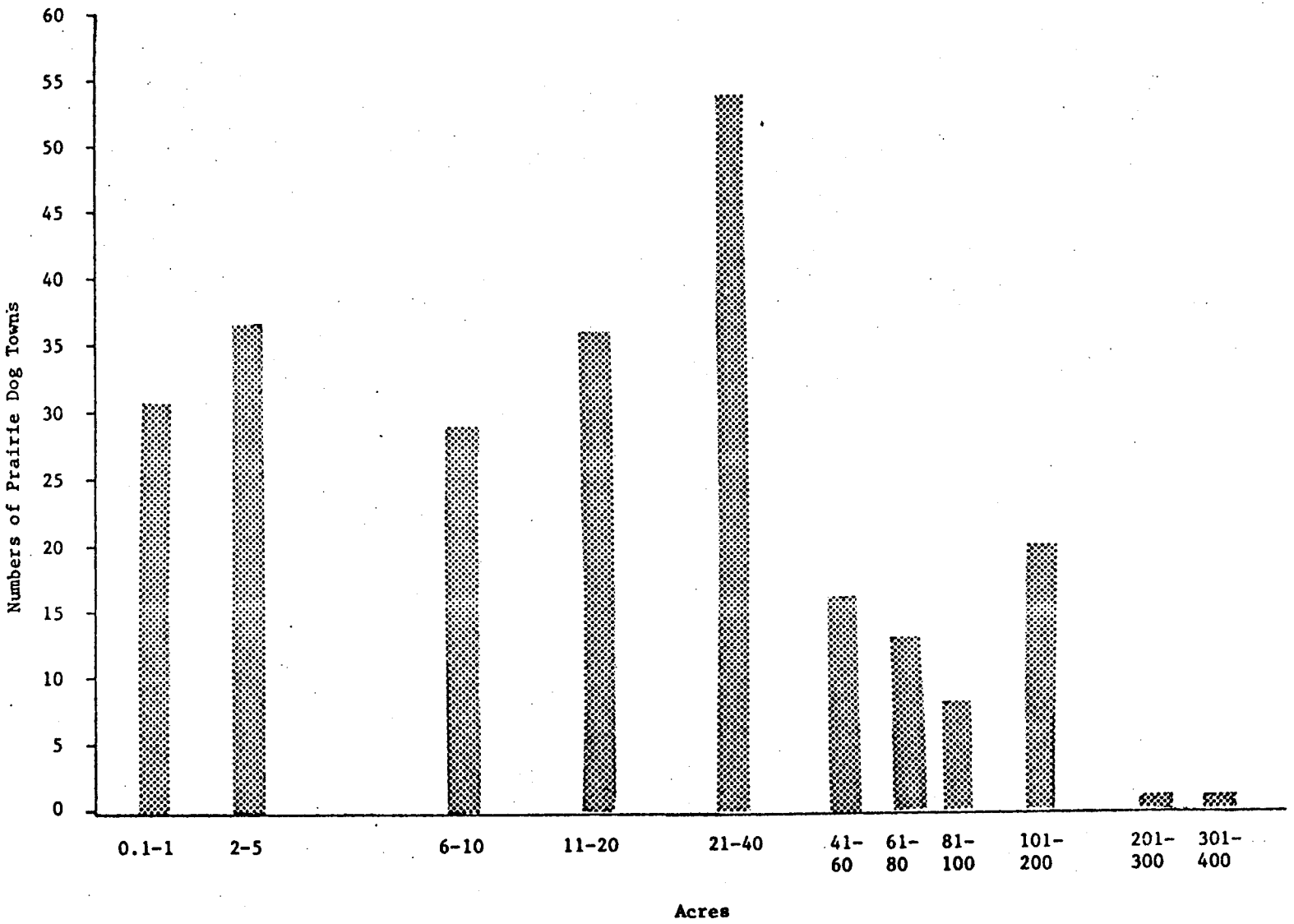
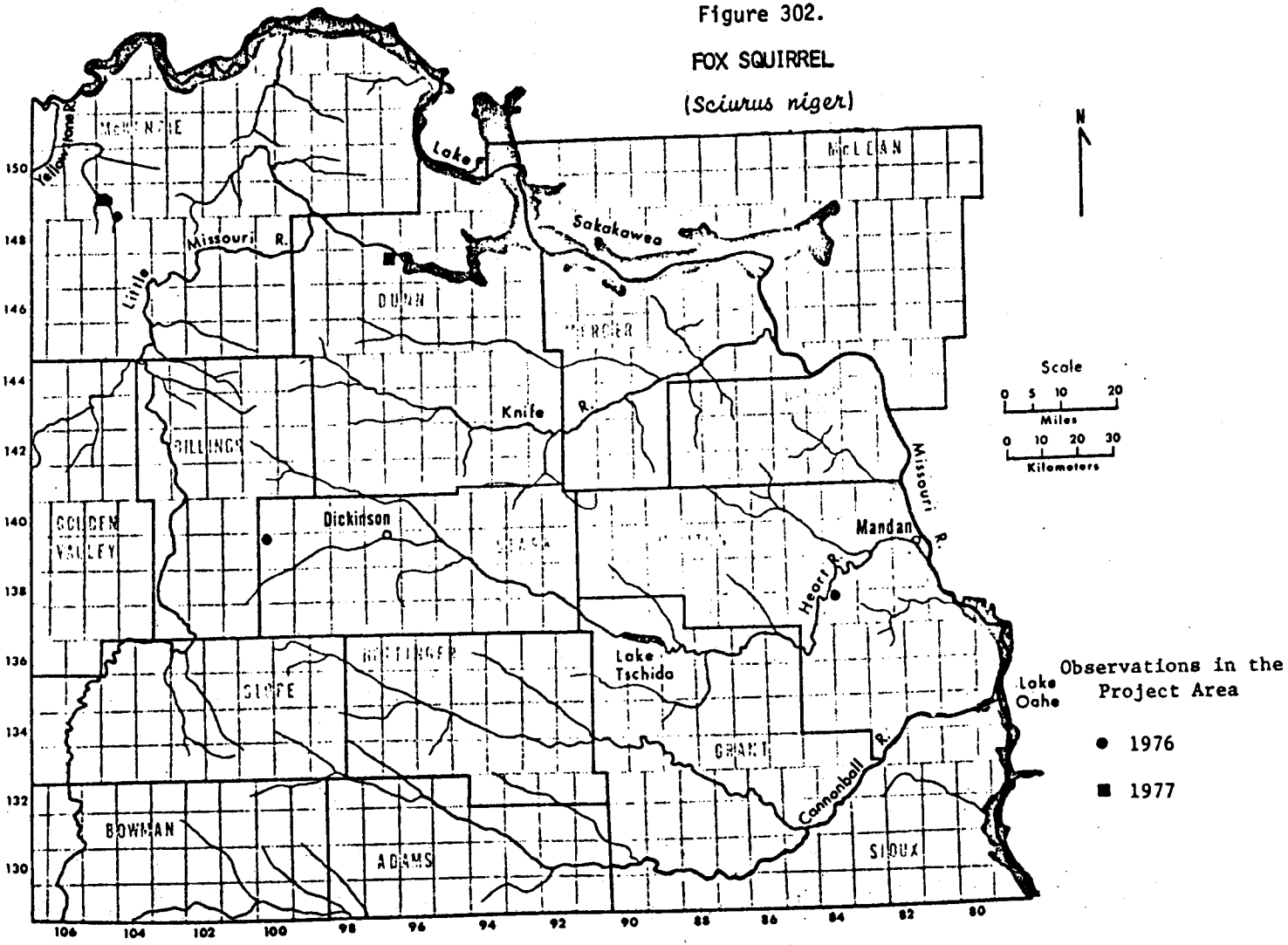


FIGURE 301. Frequency Distribution of Known Prairie Dog Town Acreages.

Figure 302.

FOX SQUIRREL

(Sciurus niger)



ORDER: Rodentia

FAMILY: Sciuridae

Red Squirrel (*Tamiasciurus hudsonicus*) - This small squirrel can be identified by its rusty, reddish, or brownish upper parts and usually with a black or blackish lateral line. The Red Squirrel eats a wide variety of food including acorns, nuts, seeds, mushrooms and occasional birds' eggs (Bailey, 1926). Its range covers the northeastern United States, the Rocky Mountains and most of Canada. None of this area, however, includes extreme southwestern North Dakota (Hall and Kelson, 1959).

Distribution in the project area: Bailey (1926) lists the Red Squirrel as being abundant in the Red River Valley, throughout the Turtle Mountains and in the Pembina Hills, but lists no records for southwestern North Dakota. We made one observation along the Knife River in Mercer County (Fig. 303), representing approximately a 100 mile range extension.

Habitat: *T. hudsonicus* lives mainly in hollow trees (Bailey, 1926), and occurs most often in hardwood and coniferous forests. Our sighting was made in riparian woodland.

Status: Rare in the project area.

Comments: This species has been known to sometimes migrate, and readily swims rivers and creeks. Consequently, the large rivers and streams of the project area would not comprise major barriers to its distribution. Our observation may represent a wanderer or a small population originally emanating out of the Turtle Mountains or the Black Hills of South Dakota.

ORDER: Rodentia

FAMILY: Geomyidae (Pocket Gophers) - This family consists of medium-sized rodents with thickset bodies, and are strongly modified for fossorial life by having small eyes and ears, and stout strong-clawed forelegs. The large fur-lined cheek pouches open externally and are used for carrying food and moving dirt from the burrows. Members of this family are rarely seen above ground and feed on the underground parts of plants.

Northern Pocket Gopher (*Thomomys talpoides*) - The color of this species is highly variable, but it can be distinguished by a minute groove near the medial edge of the anterior surface of the upper incisors. Its range covers the northwestern one-fourth of the United States (from the Mississippi River westward) including nearly all of North Dakota (Hall and Kelson, 1959).

Distribution in the project area: Genoways and Jones (1972) found *T. talpoides* locally abundant throughout most of southwestern North Dakota. Specimens were taken along the Little Missouri River south of Medora, northwest of Amidon, and southwest of Bowman. We collected specimens in all but Adams and Golden Valley Counties, with usually not more than 2-3 in a sampling area (Fig. 304, 305).

Habitat: The species occurs in montane meadows, and lowland situations where overgrazed conditions are indicated, but not caused by an abundance of this gopher (Hall and Kelson, 1959). Bailey (1926) found it in arid open habitat often with sandy or light-colored soils. In the project area it was most abundant in upland and rolling grasslands and agricultural lands.

Status: Common and abundant in the project area.

ORDER: Rodentia

FAMILY: Heteromyidae (Pocket Mice and Kangaroo Rats) - Members of this family live mainly in dry, open plains and deserts. Food consists of seeds and some green vegetation. Most species of this family require little free water and some require none. Heteromyids are nocturnal and spend the daylight hours in underground burrows (Hall and Kelson, 1959).

Olive-backed Pocket Mouse (*Perognathus fasciatus*) - This small rodent does not hibernate and is solitary except during the breeding season. Its food consists mainly of seeds which are stored in special chambers in the burrows. Range of *P. fasciatus* covers most of North and South Dakota, eastern Montana and Wyoming, with small extensions into northwestern Nebraska and northern Colorado (Hall and Kelson, 1959).

Distribution in the project area: *P. fasciatus* is scattered over a large part of western North Dakota and adjacent areas of semi-arid plains (Bailey, 1926). Svihovec (1967) collected specimens in most habitats sampled in Slope and Bowman Counties except lowland meadows and cottonwood bottomlands, while Genoways and Jones (1972) recorded the species as particularly abundant in sandy areas of the Little Missouri River floodplain. We collected specimens throughout the project area, usually only trapping one specimen per site (Fig. 306, 307).

Habitat: This species lives on high plains, usually in sandy soils, where it burrows as far as 6 feet below the surface. The burrows are dug on short-grass plains in the barest situations, since unlike other mice, this species seems to avoid the cover of vegetation (Bailey, 1926). Our specimens were collected mainly in haylands and moderately grazed rolling grasslands.

Status: Uncommon in the project area.

ORDER: Rodentia

FAMILY: Heteromyidae

Hispid Pocket Mouse (*Perognathus hispidus*) - This larger pocket mouse has a range which covers the Great Plains up to the southern border of North Dakota. It lives in burrows which are distinguished by conspicuous piles of earth, often on bare ground. The species eats and stores a great variety of seeds, but will eat some animal matter, especially insects (Hall and Kelson, 1959).

Distribution in the project area: One specimen was collected in 1913 along the Cannonball River (Bailey, 1926). Since 1913 the only known observations for the state are those of Hibbard (1972) on the Missouri River floodplain, and five specimens collected by us along the Cannonball River in Morton County (Fig. 308, 309).

Habitat: Both Bailey (1926) and Hall and Kelson (1959) describe *P. hispidus* as living in small scattered populations in an open type habitat. In the project area it was collected in agricultural haylands.

Status: Rare and local in the project area.

Comments: Along with Hibbard's observations, our collections represent the first records of the species in North Dakota in over 60 years.

ORDER: Rodentia

FAMILY: Heteromyidae

Ord's Kangaroo Rat (*Dipodomys ordii*) - This is a bi-colored rodent, measuring 208-281 mm in total body length, most of its length being that of the tail which is 100-163 mm long. Food preference is toward seed plants, with the rats foraging at night and being rather inactive during the day. The range of this species covers most the United States west of the Mississippi excluding the Pacific Northwest and California (Hall and Kelson, 1959).

Distribution in the project area: Svihovec (1967) found *D. ordii* locally abundant in Slope and Bowman Counties, collecting specimens mainly by shooting. Genoways and Jones (1972) indicated that it is known only west or in the immediate vicinity of the Little Missouri River which agrees with our findings in the REAP study. We collected Kangaroo Rats only in southwestern Slope and western Bowman Counties along the Little Missouri River where they appear to be locally abundant (Fig. 310). Most specimens were captured alive at night, by spotlighting, then caught by hand.

Habitat: *D. ordii* is restricted to sandy soils of semi-arid and short-grass prairies, probably due to its inability to burrow into heavier soils (Svihovec, 1967; Genoways and Jones, 1972). Hall and Kelson (1959) list favorable environmental factors as 1) arid or semi-arid climate, 2) proper drainage, 3) combination of soil and climate providing abundant seed plants and light ground cover, 4) some provision for shelter, and 5) availability of dusting places for at least part of the year. All specimens taken or observed in the project area were on seeded croplands, roadsides, and upland grasslands.

Status: Locally common in the southwestern corner of the project area; absent elsewhere.

Figure 303.

RED SQUIRREL

(*Tamiasciurus hudsonicus*)

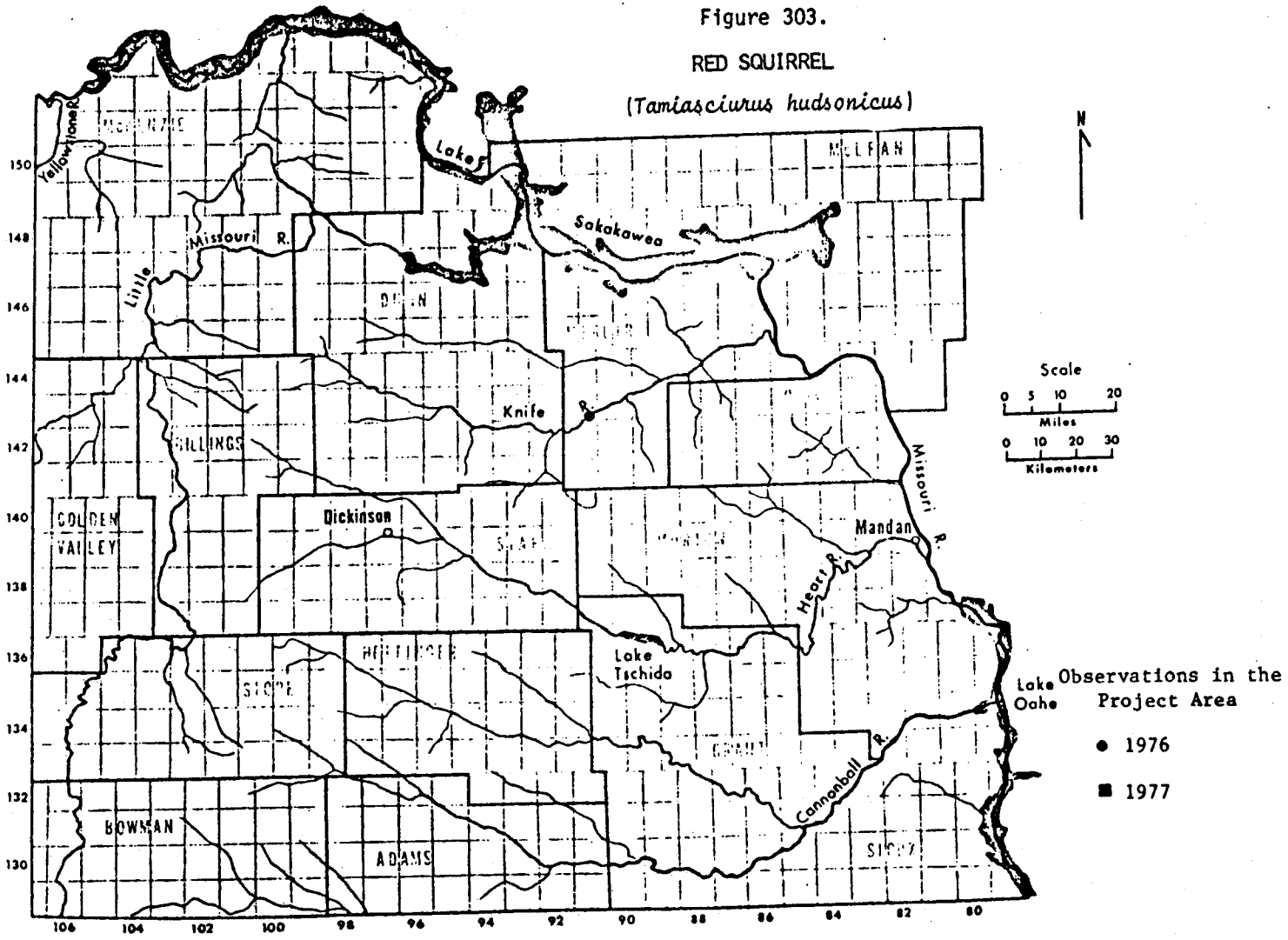


Figure 304.

NORTHERN POCKET GOPHER

(*Thomomys talpoides*)

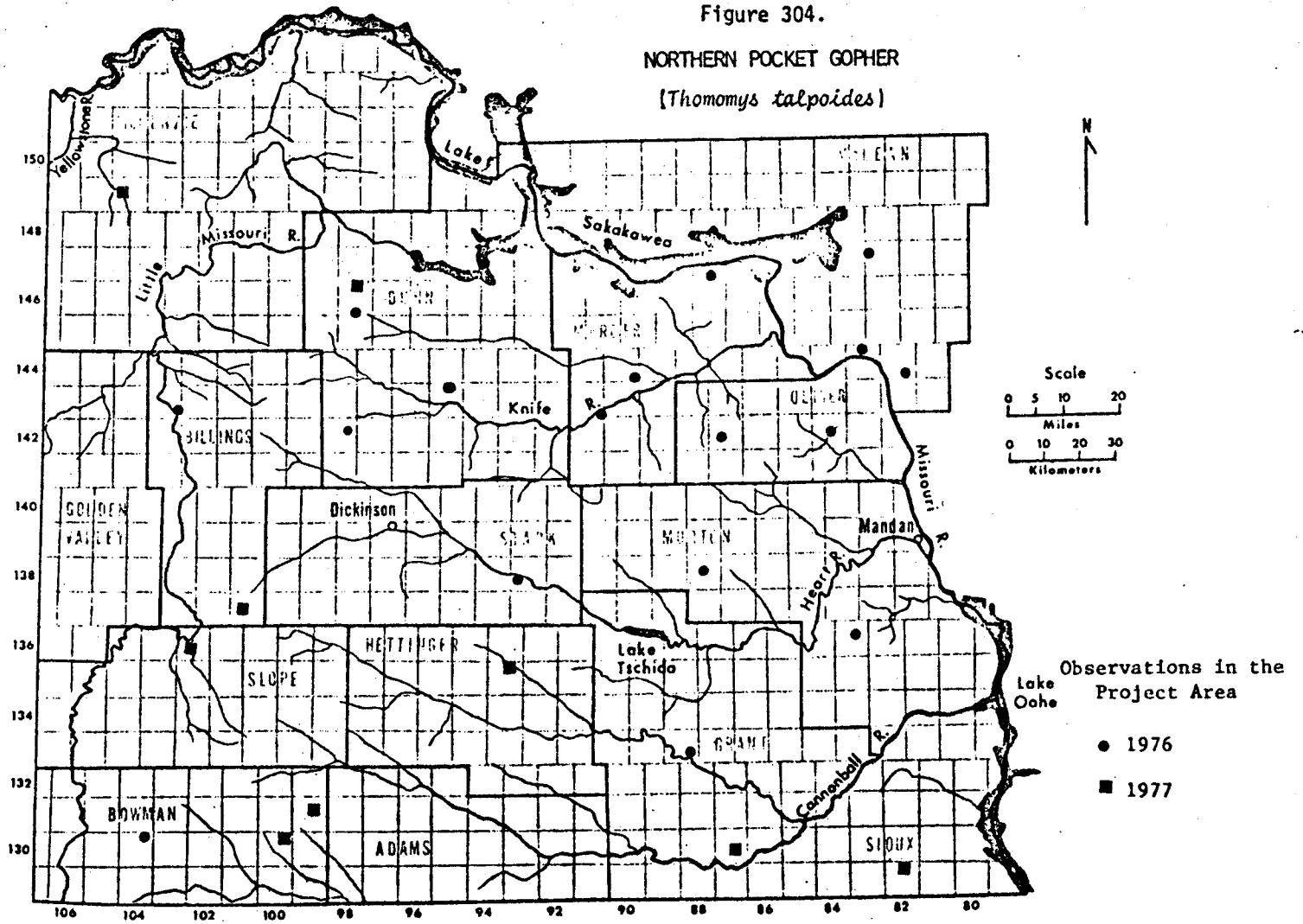


Figure 305.

NORTHERN POCKET GOPHER

(*Thomoys talpoides*)

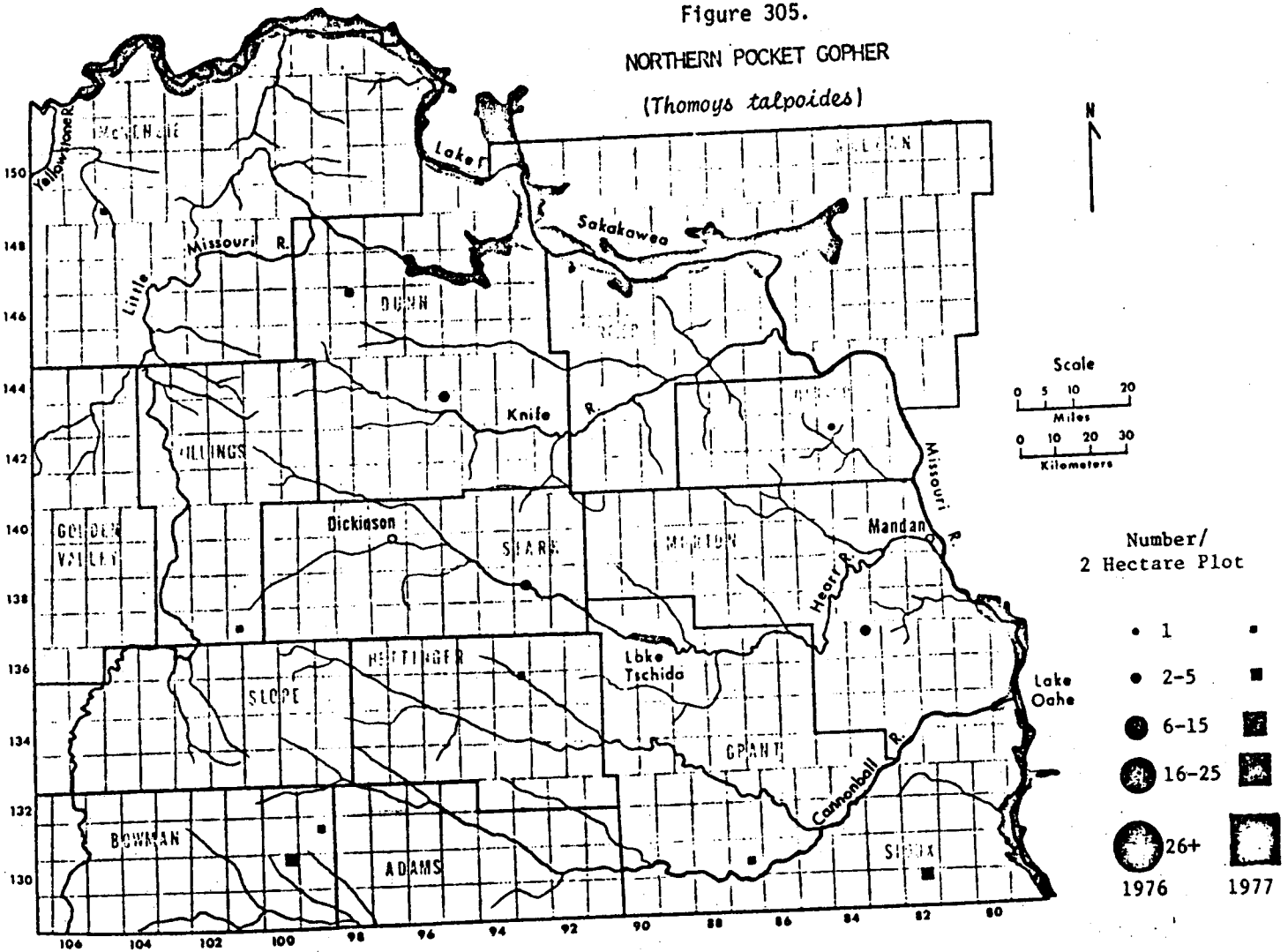


Figure 306.

OLIVE-BACKED POCKET MOUSE

(Perognathus fasciatus)

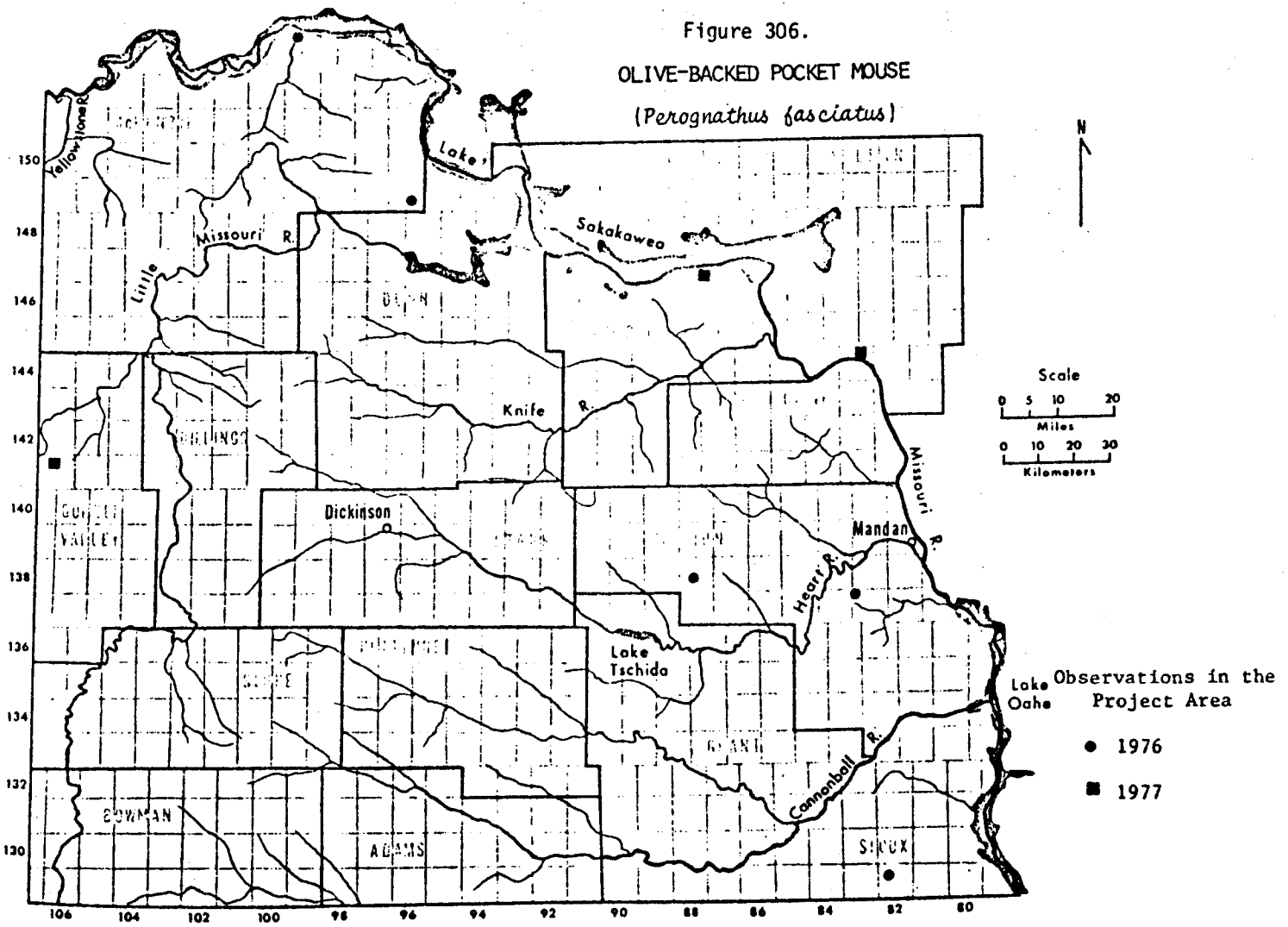


Figure 307.

OLIVE-BACKED POCKET MOUSE

(*Perognathus fasciatus*)

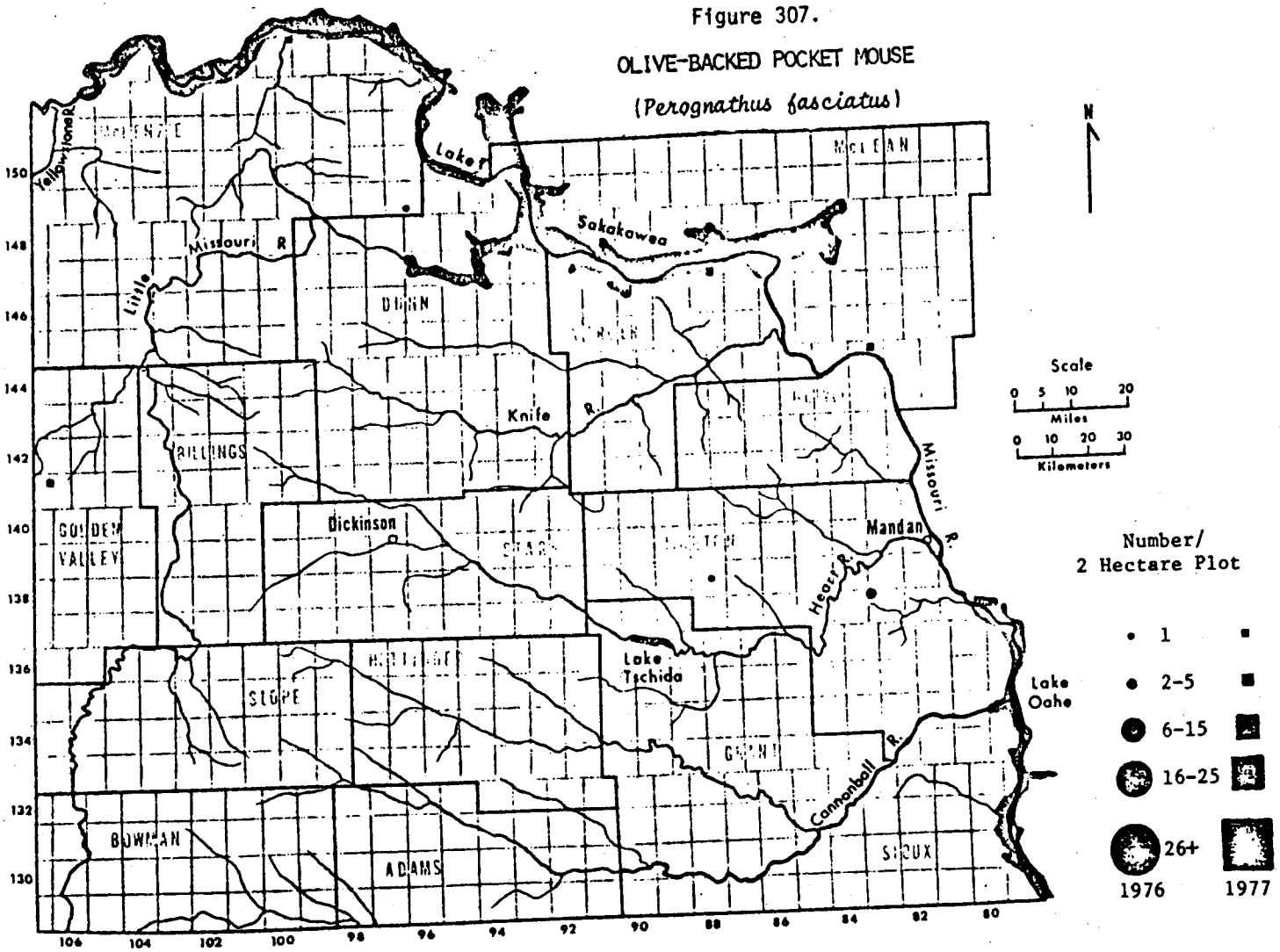


Figure 308.

HISPID POCKET MOUSE

(*Perognathus hispidus*)

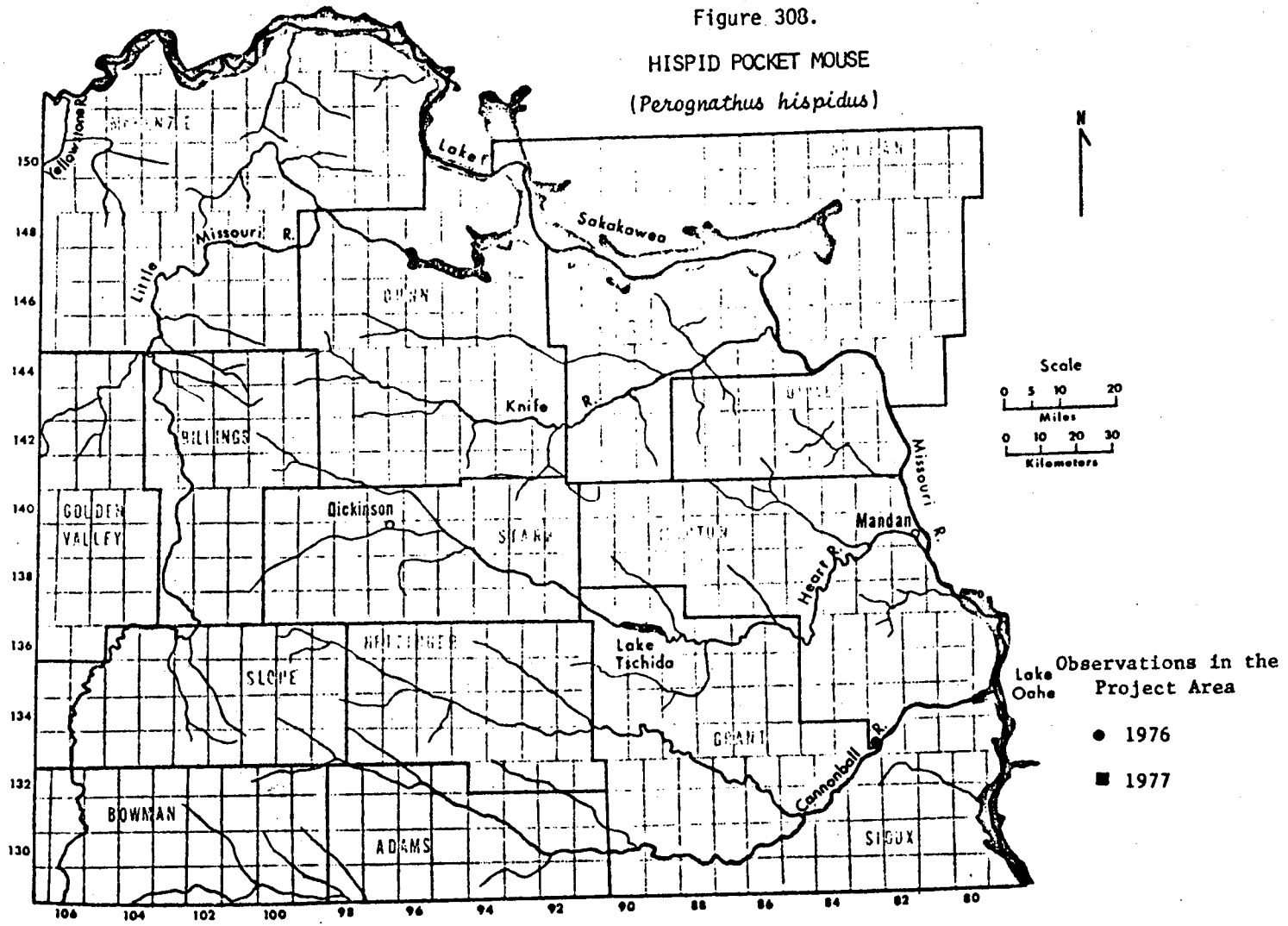


Figure 309.

HISPID POCKET MOUSE

(*Perognathus hispidus*)

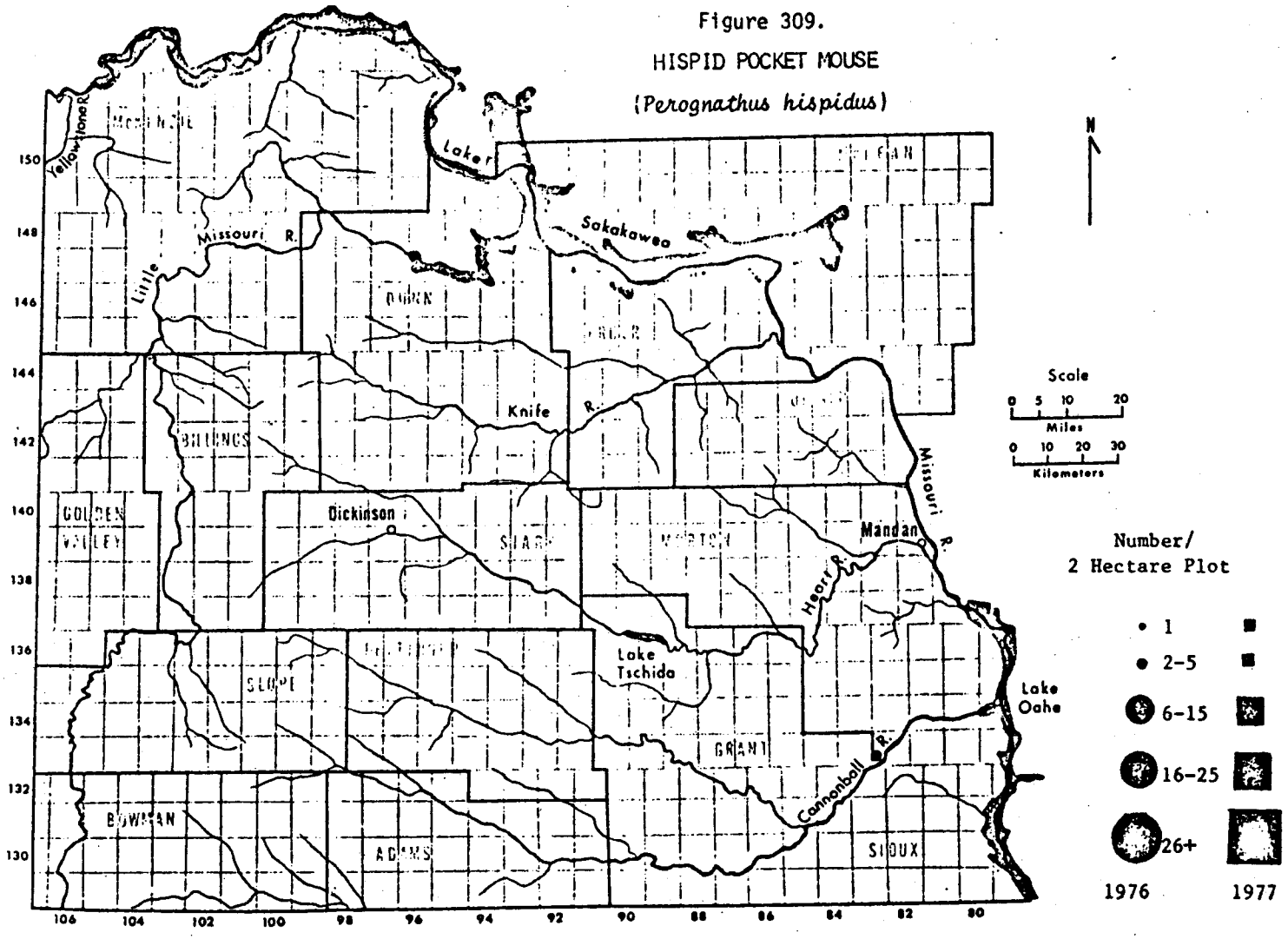
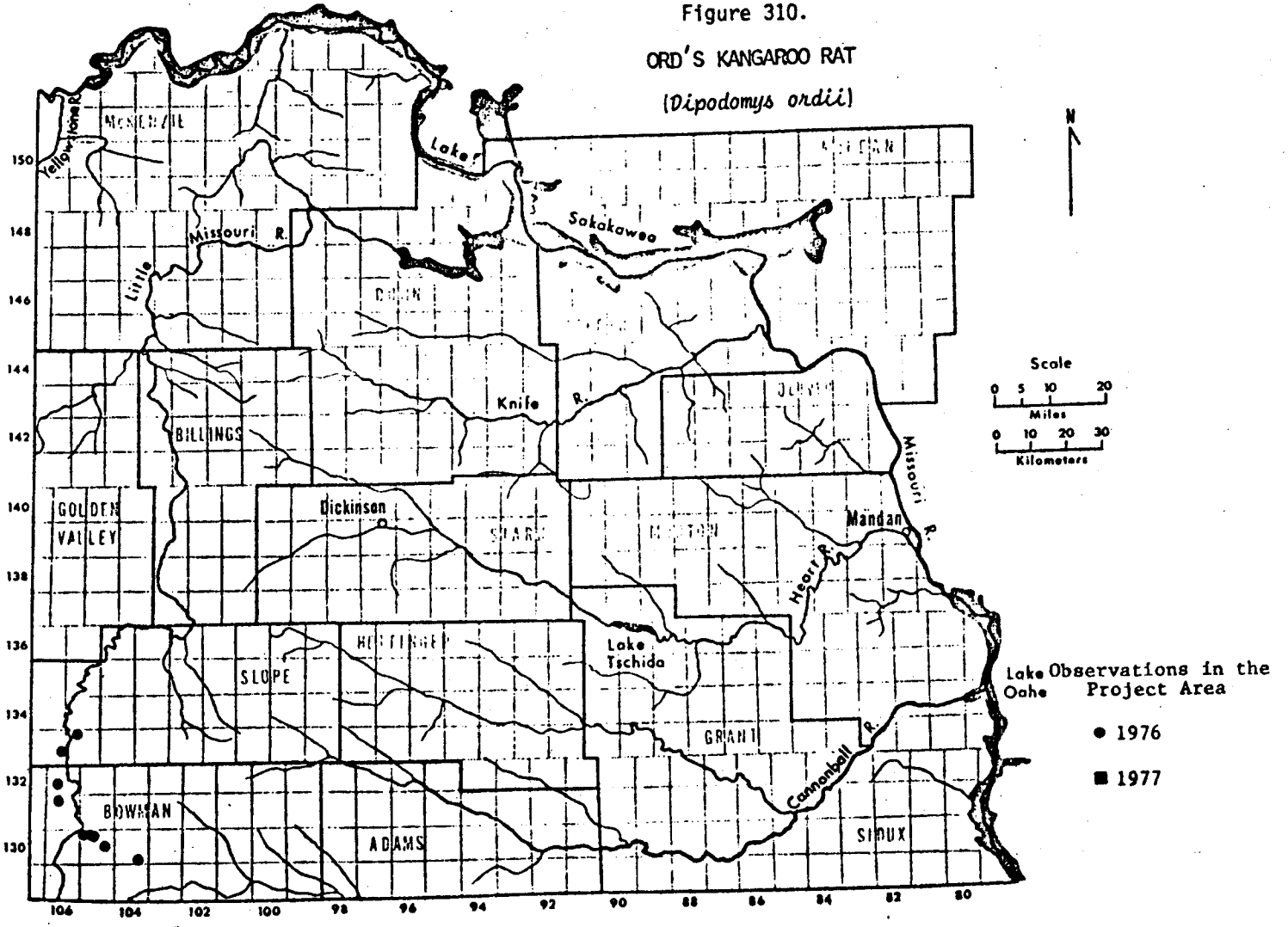


Figure 310.

ORD'S KANGAROO RAT

(Dipodomys ordii)



ORDER: Rodentia

FAMILY: Castoridae (Beavers) - The members of this family are the largest rodents north of Panama and are highly modified for aquatic life, having a paddle-like tail and webbed hind feet. The incisors are stongly developed for gnawing. Their pelage consists of unusually dense, fine underfur, which is overlaid with many coarse guard hairs. Food consists mainly of bark and cambium of trees (Hall and Kelson, 1959).

Beaver (*Castor canadensis*) - Normally a nocturnal animal, the beaver is seen in streams and rivers throughout the project area (Bailey, 1926). It is normally located by its dams or caches. The species ranges over most of the United States and Canada (Hall and Kelson, 1959).

Distribution in the project area: It is found throughout the project area where there are streams (Fig. 311).

Habitat: The beaver is found in true river bottoms and in deciduous forests.

Status: No recent data are available on populations but we feel that the beaver is locally common to rare depending on the part of the project area sampled (Fig. 311).

Comments: Beaver are frequently seen in the Killdeer Mountains in the daytime because of the heavy timber shading.

ORDER: Rodentia

FAMILY: Cricetidae - This family contains a vast assemblage of mice, rats, voles and lemmings, differing widely in habits, habitats, and body form (Hall and Kelson, 1959).

Western Harvest Mouse (*Reithrodontomys megalotis*) - This small rodent superficially resembles the house mouse. It is the most widewpread of all species of harvest mice and often the most common. Its range covers most of the western United States (except the northern Rockies), most of Mexico, and into the southern half of North Dakota (Hall and Kelson, 1959). *R. megalotis* is active throughout the year and lives mainly on the ground surface under the cover of grass and low vegetation. Principal foods include grass seeds and growing grains, but it will eat some insects (Bailey, 1926).

Distribution in the project area: Bailey (1926) recorded the only specimens west of the Missouri to be found at Cannon Ball and Fort Clark, while Genoways and Jones (1972) collected specimens in 1965 along the Little Missouri River south of Medora. It seemed to be abundant in the extreme southwestern corner of the state. Svihovec (1967) collected specimens in nearly every habitat of her study area (Bowman and Slope Counties). We collected specimens in Slope, Hettinger, Morton, and Sioux Counties in 1976. The species was not abundant at any collection site (Fig. 312, 313).

Habitat: *R. megalotis* prefers thick moist stands of grass on sandy soils (Bailey, 1926; Hall and Kelson, 1959; Svihovec, 1967; Genoways and Jones, 1972). Observed habitats in the project area were haylands, retired croplands, lightly grazed rolling grasslands, and upland grasslands with sagebrush and erosion.

Status: Locally common in the southern counties of the project area.

ORDER: Rodentia

FAMILY: Cricetidae

Deer Mouse (*Peromyscus maniculatus*) - The Deer Mouse ranges over the whole northern half of the United States and all of Canada. It includes a series of intergrading populations all of which have sharp bicoloration of body and tail. Both plant and animal material is eaten and stored in significant quantities (Hall and Kelson, 1959). The species is strictly nocturnal, hiding in the daytime in hollow logs or other cavities in the forests and in natural cavities and abandoned burrows on the prairie. It is not dependent on a permanent water supply (Bailey, 1926).

Distribution in the project area: Bailey (1926) records this species as abundant over the western drier part of North Dakota, being equally distributed over the prairies, badlands buttes, marshes and wooded bottoms. Specimens were taken along the Little Missouri River, in the Killdeer Mountains, near Sentinel Butte, Glen Ullin, Mandan and Cannon Ball. Genoways and Jones (1972) found it to be the most common and widespread mammal of southwestern North Dakota. They collected specimens south of Medora, southwest of Bowman, near Dickinson, Dunn Center and the Killdeer Mountains. We collected the Deer Mouse in every county of the project area and found it to be fairly abundant (6-15) to very abundant (more than 26) in most areas sampled (Fig. 314, 315).

Habitat: This species adapts to a great variety of conditions and is found in nearly every dry-land habitat within its range. In southwestern North Dakota it was very abundant in grassy uplands (Genoways and Jones, 1972) and lowland meadows (Svihovec, 1967). Habitats in the project area included haylands, hardwood draws, moderately grazed rolling grasslands, and upland grasslands.

Status: Common and abundant in the project area.

ORDER: Rodentia

FAMILY: Cricetidae

White-footed Mouse (*Peromyscus leucopus*) - The range of this species covers the eastern half of the United States down through eastern Mexico. This includes all but extreme northeastern North Dakota. The upper parts vary in color but the feet and underparts are white. The tail is indistinctly bicolored, distinguishing it from *Peromyscus maniculatus* (Hall and Kelson, 1959). It is strictly nocturnal, feeding on seeds, nuts and insects (Bailey, 1926).

Distribution in the project area: Bailey (1926) found *P. leucopus* to be less numerous and not as widely collected as *P. maniculatus*. Specimens taken were from along the Missouri River and westward. Genoways and Jones (1972) collected specimens on the lower slope of the Killdeer Mountains. We collected the species in Grant, Billings and Dunn Counties during the REAP project, but did not find it abundant at any of these sites (Fig. 316).

Habitat: Genoways and Jones (1972) state that the species is generally restricted west of the Missouri River to riparian and other moist situations. Bailey (1926) collected specimens only in timbered flats along streams. It was collected in the project area in upland breaks.

Status: Rare in the project area.

Comments: The specimens collected during this study together with thos reported by Genoways and Jones (1972) comprise the first known records of the species in western North Dakota since 1920.

ORDER: Rodentia

FAMILY: Cricetidae

Northern Grasshopper Mouse (*Onychomys leucogaster*) - This species has a range covering the Great Plains and Rocky Mountain region of the United States, including all of North Dakota. The pelage of the Grasshopper Mouse is sharply bicolored, but the species has a larger body and shorter tail than the related white-footed and deer mice. It is nocturnal, feeding mainly on animal material (Hall and Kelson, 1959).

Distribution in the project area: Bailey (1926) found this species to cover most of the state in its dark or paler western form, being widely distributed but never very abundant locally. It is a wanderer and caught at random. Svihovec (1967) collected two specimens from fence lines in Slope and Bowman Counties and Genoways and Jones (1972) collected individuals northwest of Dickinson. We collected specimens from all but Adams, Oliver, Stark, Slope and Billings Counties in the 1976-77 REAP project area, but never found the species abundant in any one area (Fig. 317, 318).

Habitat: Habitat preferences are described as open country, sagebrush, grass, greasewood and sandy or gravelly soil (Burt and Grossenheider, 1964; Genoways and Jones, 1972), avoiding marshy areas, rocky situations and alkali flats (Svihovec, 1967). It has also been found that *O. leucogaster* requires frequent dust-bathing. Common habitats in the project area included haylands and moderately grazed rolling grasslands.

Status: Common in the project area.

Figure 311.

BEAVER

(*Castor canadensis*)

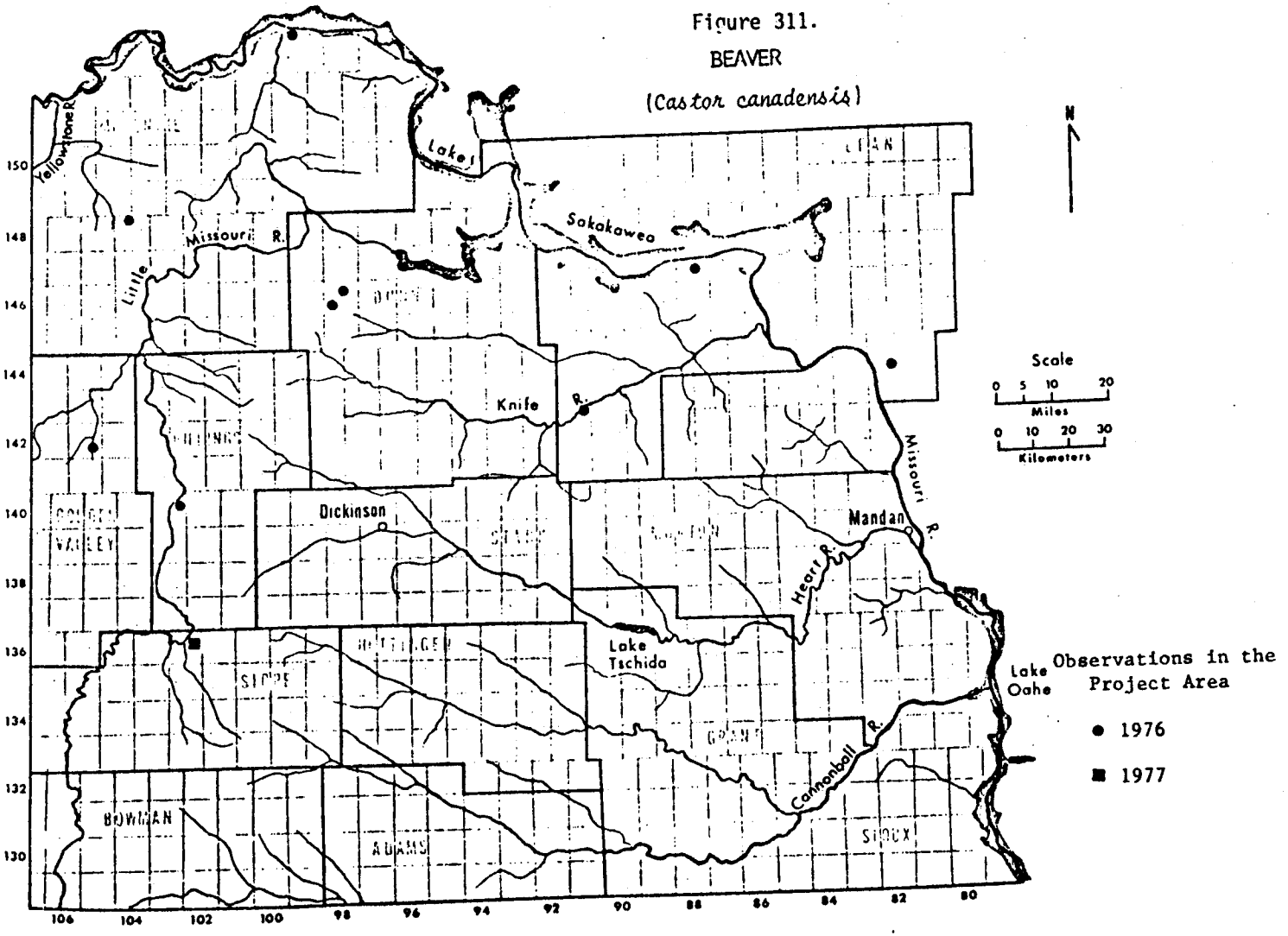


Figure 312.

WESTERN HARVEST MOUSE

(Reithrodontomys megalotis)

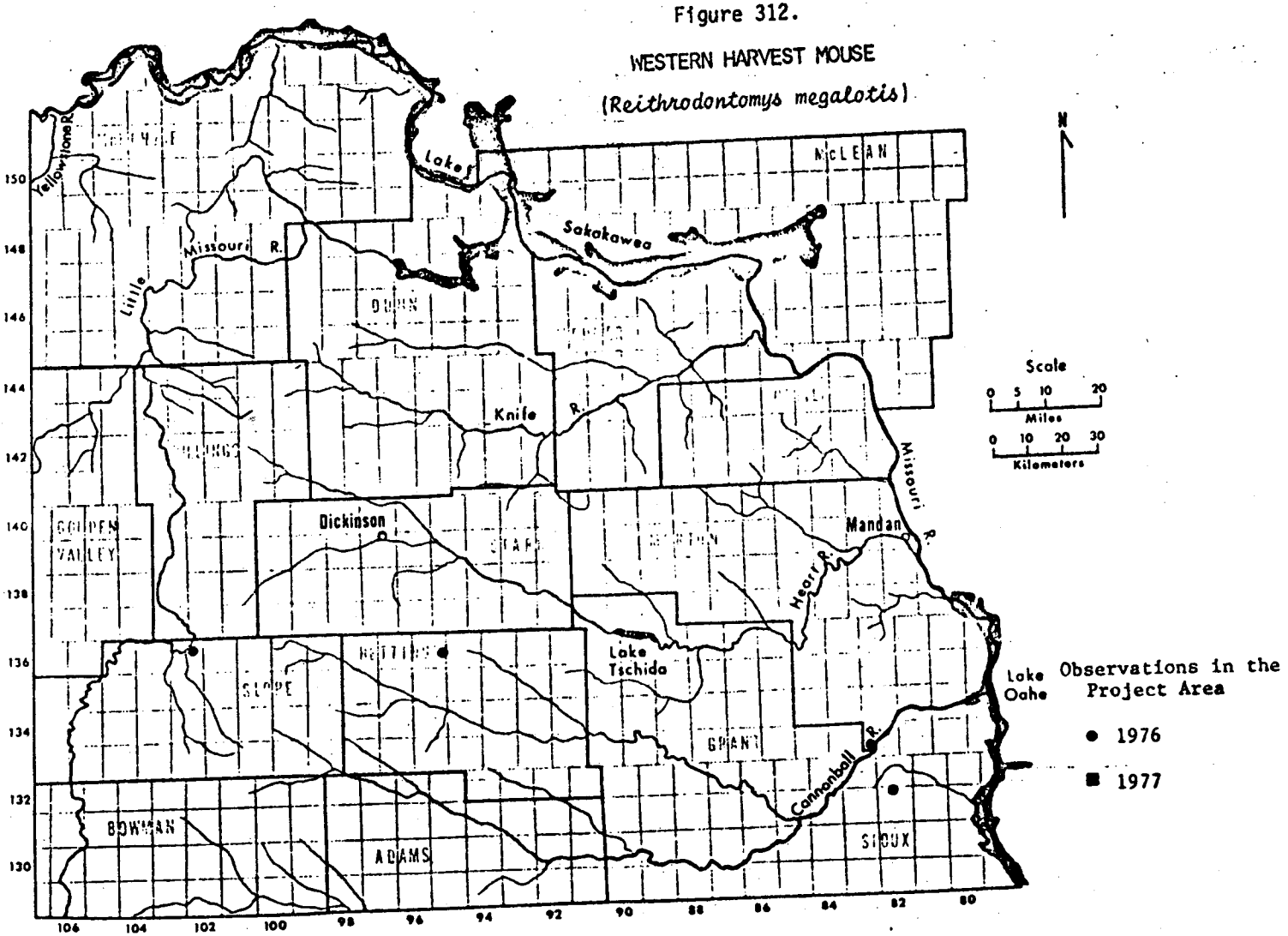


Figure 313.

WESTERN HARVEST MOUSE

(*Reithrodontomys megalotis*)

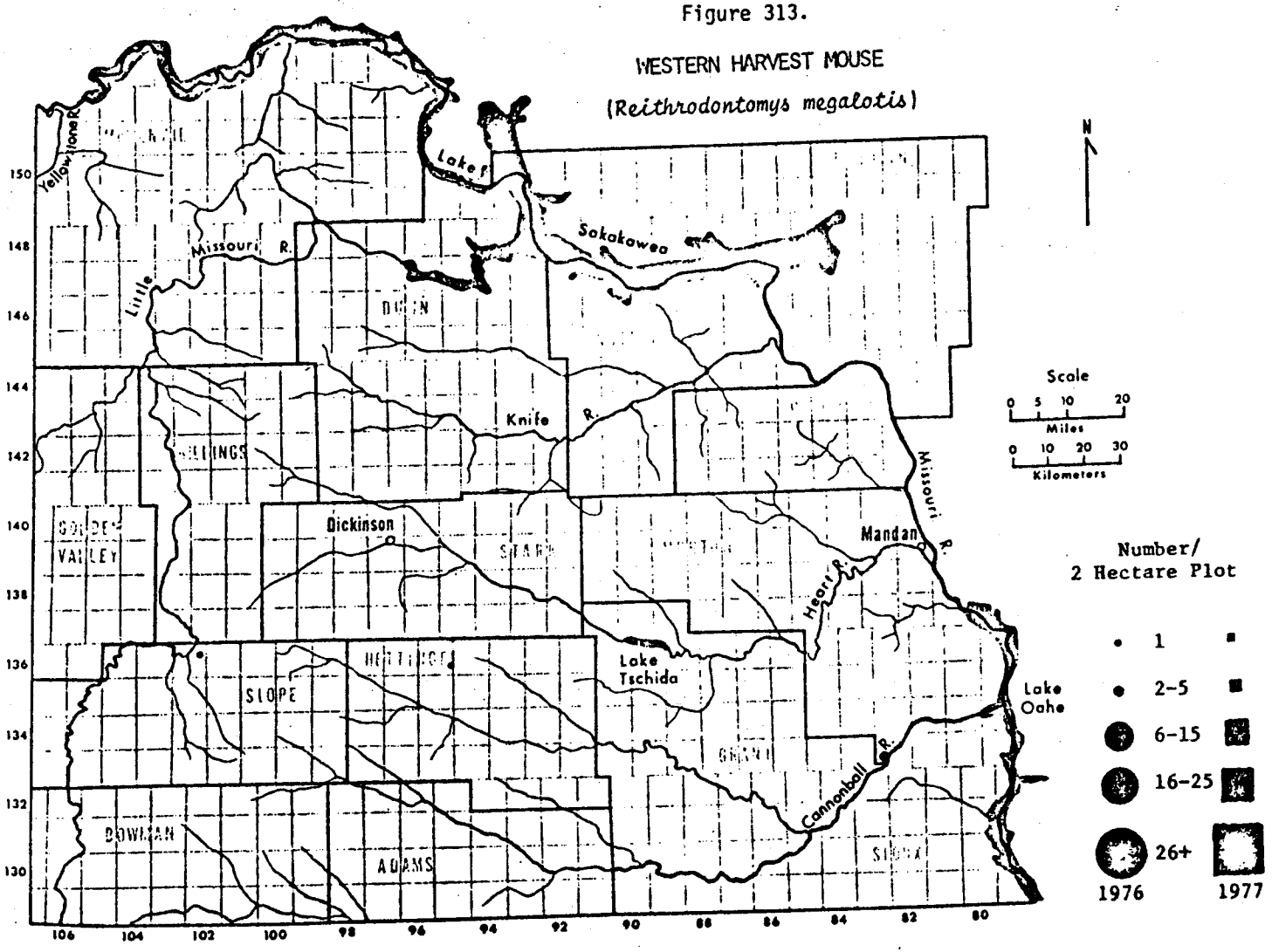


Figure 314.

DEER MOUSE

(*Peromyscus maniculatus*)

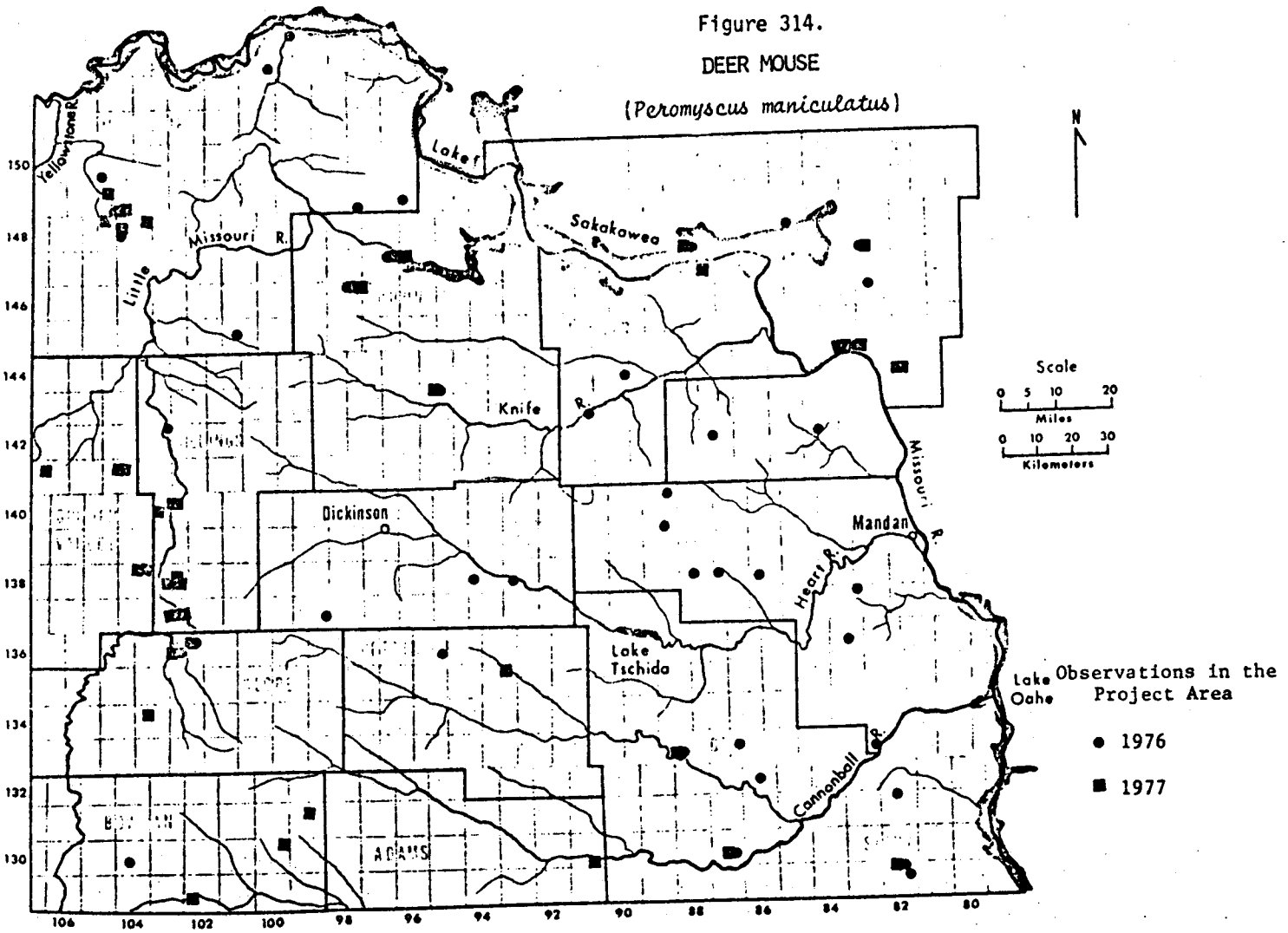


Figure 315.

DEER MOUSE

(*Peromyscus maniculatus*)

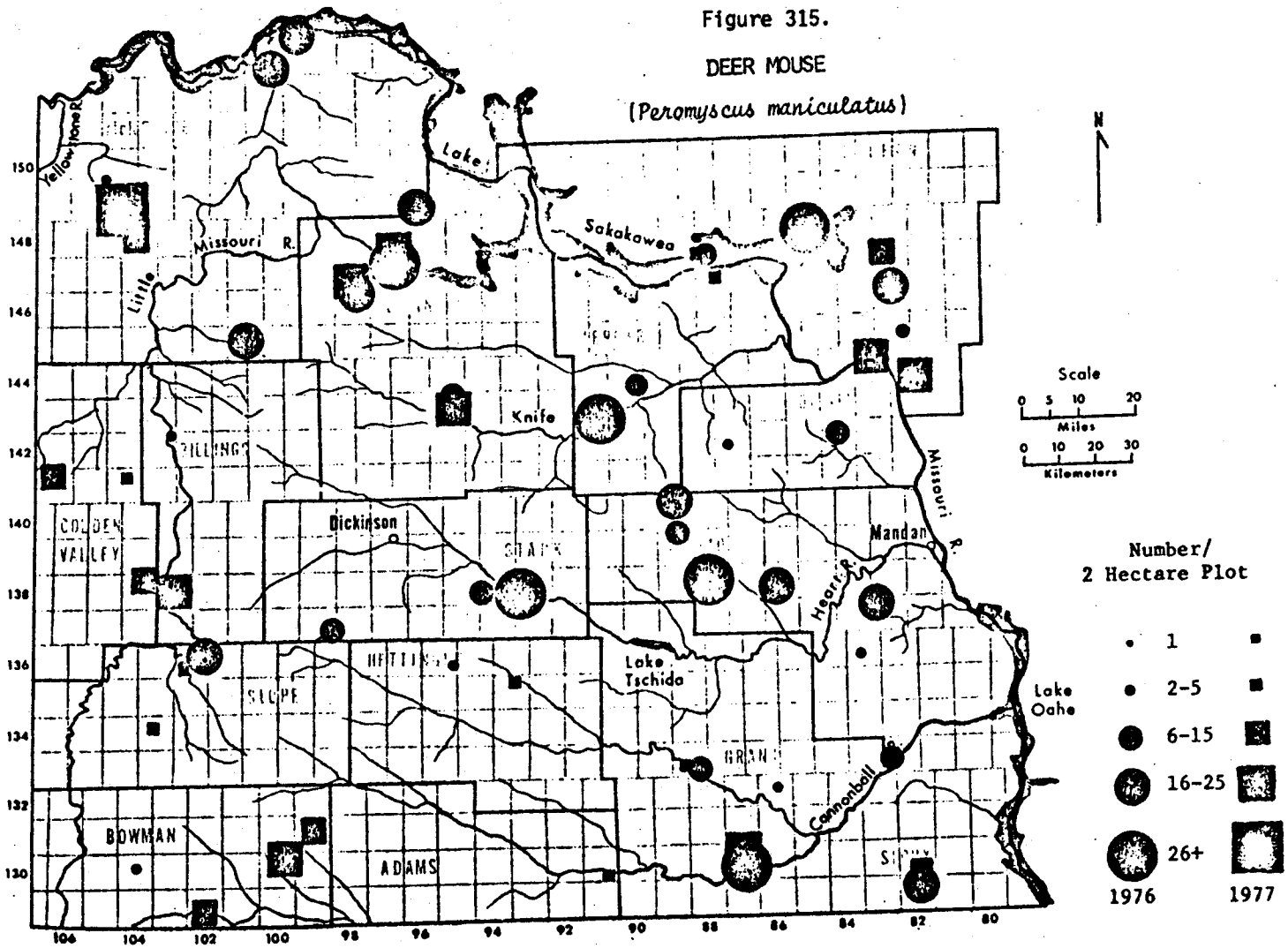


Figure 316.

WHITE-FOOTED MOUSE

(*Peromyscus leucopus*)

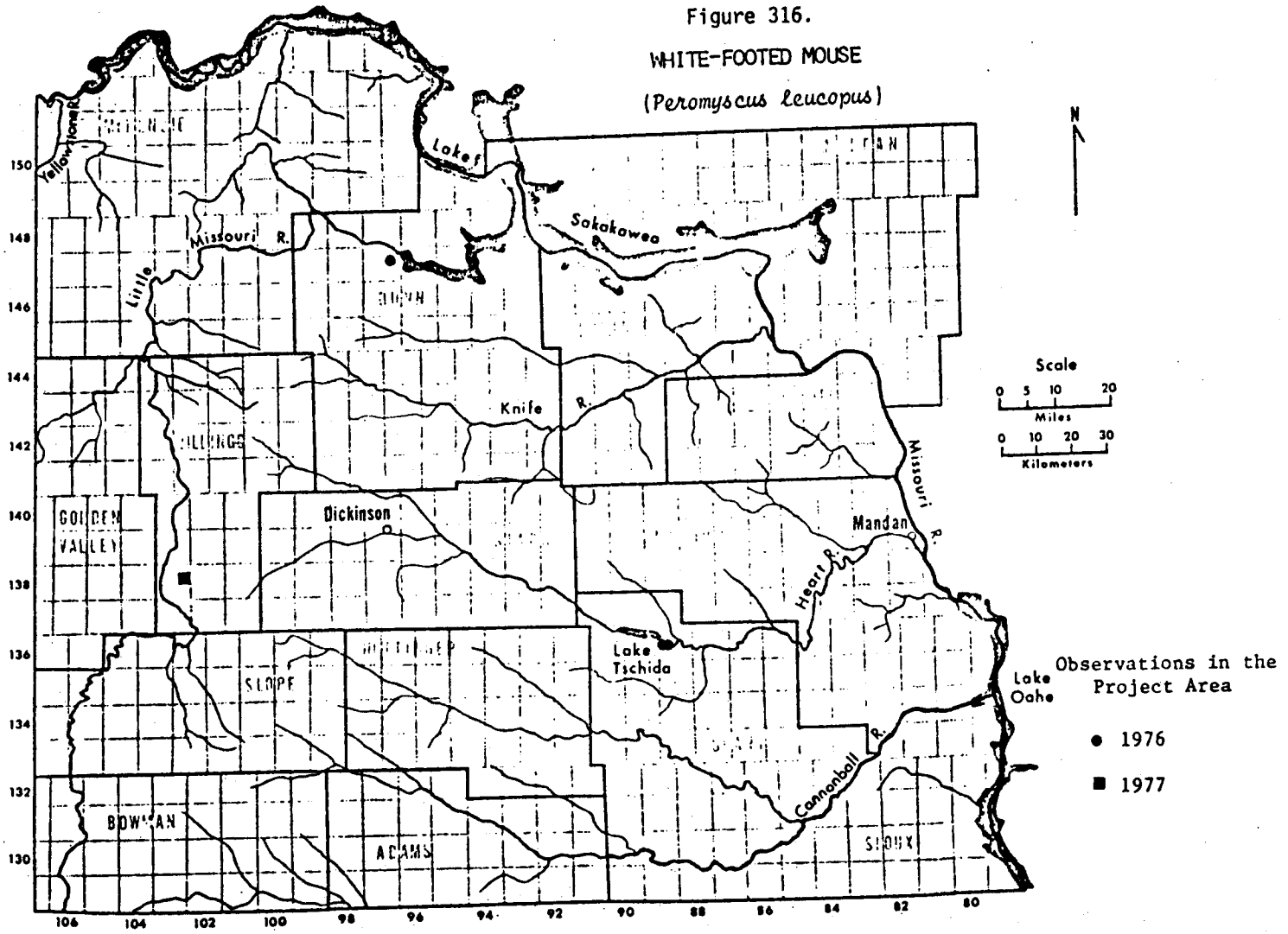


Figure 317.

NORTHERN GRASSHOPPER MOUSE

(Onychomys Leucogaster)

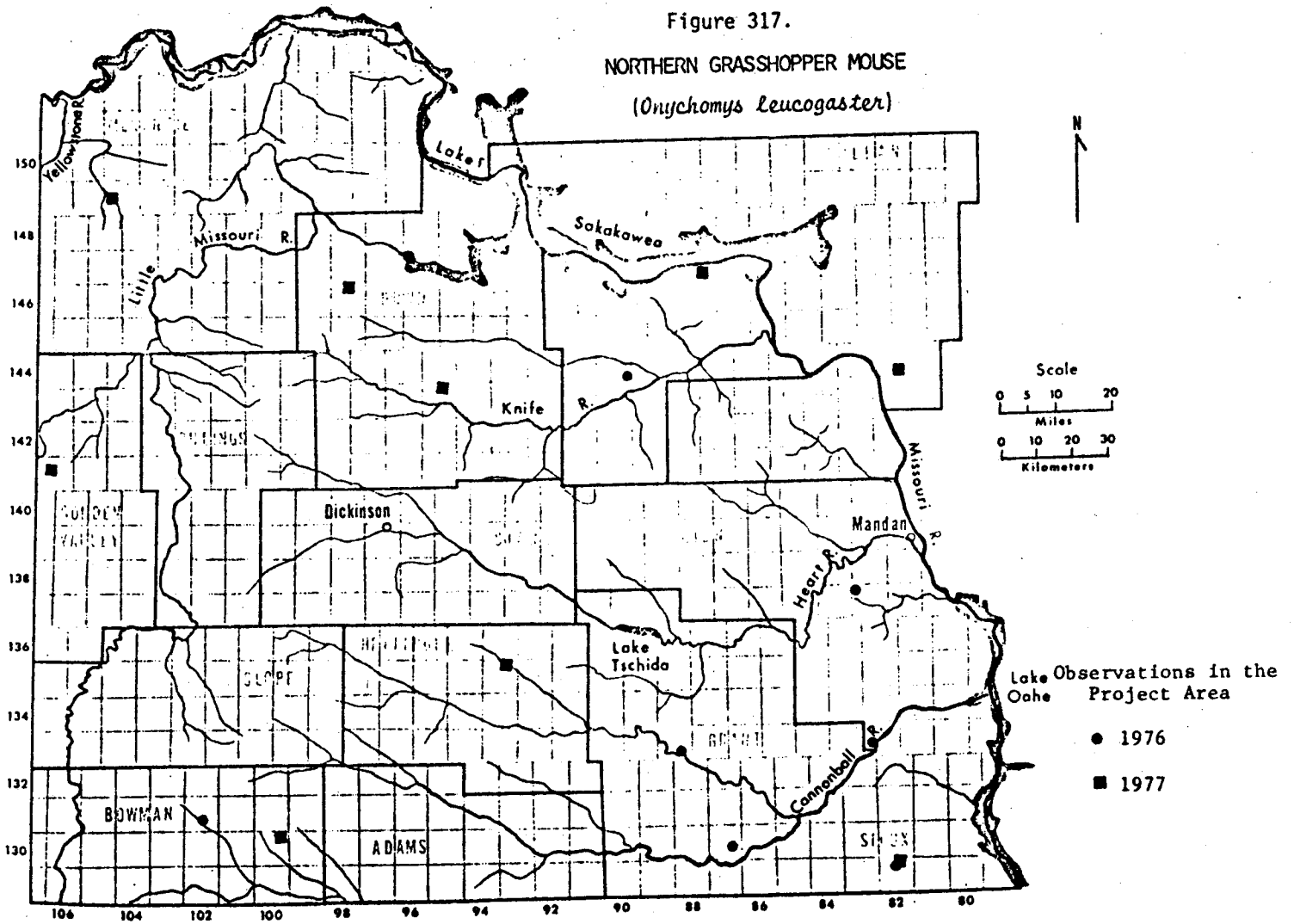
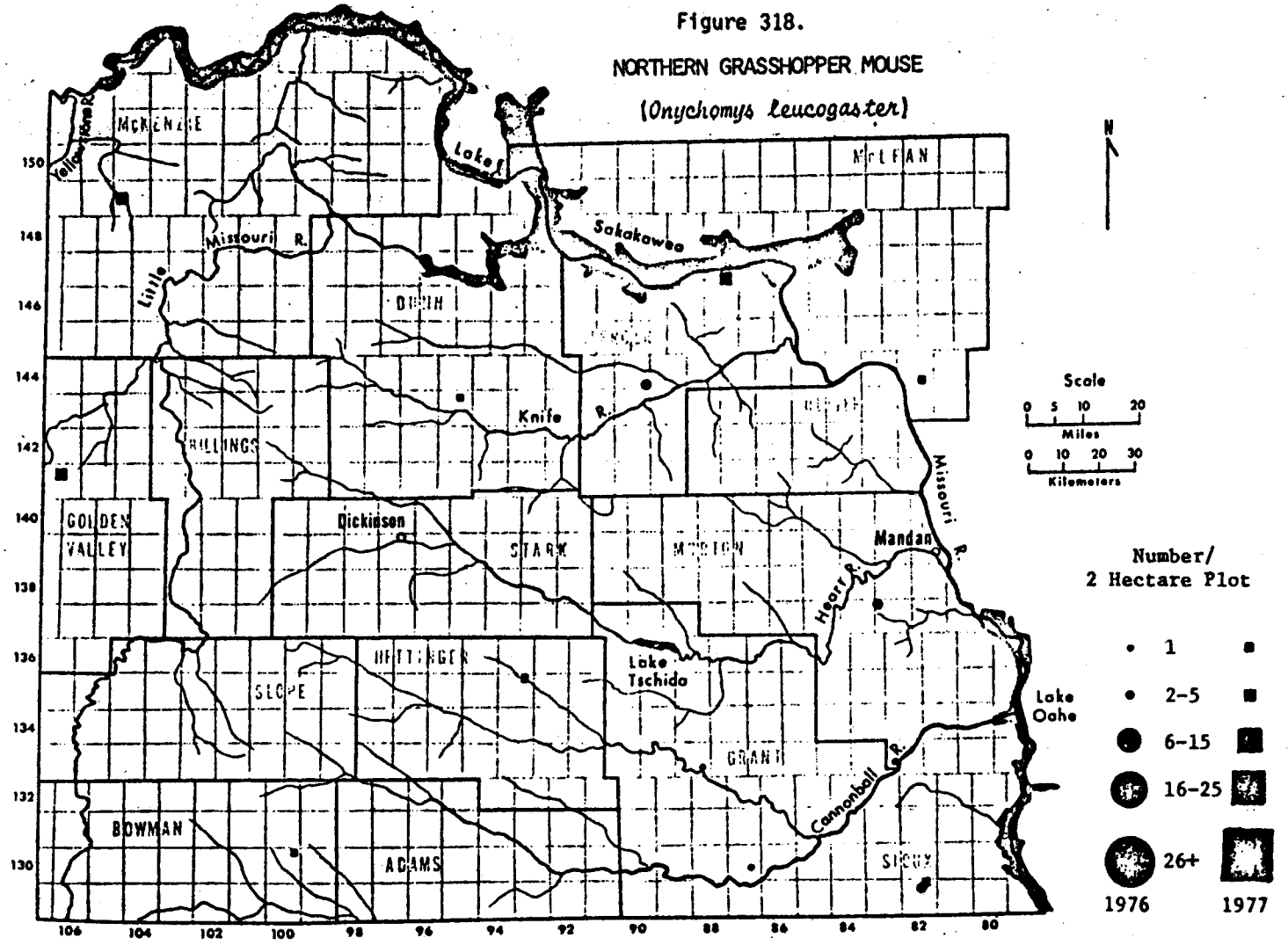


Figure 318.

NORTHERN GRASSHOPPER MOUSE

(*Onychomys leucogaster*)



ORDER: Rodentia

FAMILY: Cricetidae

SUBFAMILY: Cricetinae

Bushy-tailed Woodrat (*Neotoma cinerea*) - This species has a range covering the northwestern quarter of the United States and all of British Columbia. This includes all of southwestern North Dakota. The upper parts of *N. cinerea* vary in color and the underparts are light. It is the only species of this genus having a bushy, squirrel-like tail and is distinguished from other cricetines by having looped cheek-teeth (Hall and Kelson, 1959). It is mainly nocturnal with its food consisting largely of green vegetation, but also eating grain and fruit. One characteristic of this species is its instinct to block openings of caves and burrows with sticks, stones and rubbish (Bailey, 1926).

Distribution in the project area: Bailey (1926) found the species to be scattered over the state from the Missouri River Valley, westward and throughout the Badlands region. It was nowhere abundant or common but seemed to be generally distributed. He found it along the Little Missouri River in western Golden Valley, Slope and Bowman Counties. Genoways and Jones (1972) found the species locally common in badlands and other areas of rocky outcroppings. They took one specimen from the Killdeer Mountains and one from northwest of Amidon. Svihovec (1967) cites a recent record reported for Slope County near the Burning Coal Vein by R.W. Seabloom. We recorded observations in Slope, Billings and Dunn Counties in both 1976 and 1977 (Fig.319).

Habitat: *N. cinerea* is found in high mountains, rimrock, rockslides, pines and cottonwoods (Bailey, 1926; Burt and Grossenheider, 1964). Preferred habitats in the project area were ponderosa pines, rockland, toe slopes, hilly scoria and upland breaks.

Status: Sparse but fairly common in the badlands; uncommon to rare elsewhere in the project area.

ORDER: Rodentia

FAMILY: Cricetidae

SUBFAMILY: Microtinae - This subfamily consists of thickset animals with bluntly rounded muzzles. Species in this subfamily have a short-legged appearance and a short tail.

Gapper's Red-backed Mouse (*Clethrionomys gapperi*) - The range of this species covers all of Canada and the northern United States extending south through the Appalachian and Rocky Mountains. This includes all of North Dakota. This species is distinguished by its dorsal stripe which varies from bright chestnut to yellowish brown contrasting its gray sides (Hall and Kelson, 1959). Contrasted to other microtines, it runs at random over leaves and open ground, and uses natural cavities in or under logs, stumps or trees for homes. Food consists chiefly of seeds and other vegetation (Bailey, 1926).

Distribution in the project area: Although Genoways and Jones (1972) claim the only population southwest of the Missouri River is in the Killdeer Mountains, Hibbard (1972) trapped this species in Morton County. We collected *C. gapperi* in McLean, Mercer, Dunn and McKenzie Counties, but did not find it abundant in any of these sites (Fig. 320, 321).

Habitat: Bailey (1926) speculated that it was probable that *C. gapperi* occupied every suitable locality in the state, mainly in coniferous, deciduous or mixed forests in damp situations (Burt and Grossenheider, 1964). Hibbard (1972) collected the species in jungle-like bushy undergrowth, and Genoways and Jones (1972) collected their specimens along logs and at the bases of trees in deciduous forest. Preferred habitats in the project area were deciduous forest, hardwood draws and riparian woodland.

Status: Uncommon in the project area.

ORDER: Rodentia

FAMILY: Cricetidae

SUBFAMILY: Microtinae

Meadow Vole (*Microtus pennsylvanicus*) - This rodent has the largest geographic range in North America of any species of *Microtus*. Its range covers all of Canada and most of the northern United States (Hall and Kelson, 1959). This species varies in color from gray in the West to dark brown in the East. The tail is shorter than the head and body and bicolored. The Meadow Vole is active both day or night and feeds on grass and weed stems, seeds and grain. Populations fluctuate with highs at 3 to 4 year intervals (Burt and Grossenheider, 1964).

Distribution in the project area: Bailey (1926) found the Meadow Vole less uniformly distributed and almost colonial in areas of southwestern North Dakota. Genoways and Jones (1972) collected specimens in the Killdeer Mountains, near Dunn Center, south of Bowman, and near Dickinson. We collected the Meadow Vole in all but Adams County during the REAP project, finding it to be fairly abundant (6-15) to very abundant (more than 26) on many of the collection sites (Fig. 322, 323).

Habitat: Habitat preference was found to be grassy meadows and rich bottomlands usually in moist situations (Bailey, 1926; Svihovec, 1967; Genoways and Jones, 1972). Preferred habitats in the project area included haylands and light and moderately grazed rolling grasslands.

Status: Common and abundant in the project area.

ORDER: Rodentia

FAMILY: Cricetidae

SUBFAMILY: Microtinae

Prairie Vole (*Microtus ochrogaster*) - The range of this species covers the central United States and south-central Canada, covering a major portion of the Great Plains west of the Mississippi. This species has a peppery appearance, being smaller than *M. pennsylvanicus* and having a somewhat shorter tail (Hall and Kelson, 1959). This species is active day or night and has an extensive underground burrow system. It eats largely green vegetation, flowers and seeds (Burt and Grossenheider, 1964).

Distribution in the project area: Bailey (1926) records the species as coming into North Dakota west of the Missouri River. Specimens were obtained from Cannon Ball and Wade. Genoways and Jones (1972) found it not to be as abundant as the Meadow Vole in southwestern North Dakota, collecting specimens along the floodplain of the Little Missouri River south of Medora and in a small wash southwest of Bowman. Svihovec's (1967) specimens were taken mostly near the Little Missouri River. She cites Dice (1922) who found that green herbage might be an important source of water and therefore may be a limit contributing to its local distribution. We collected the species on ten sites in 1976 and on five sites in 1977, finding it fairly abundant only on the Cannonball River in extreme southwestern Morton County (Fig. 324, 325).

Habitat: Most specimens caught were in relatively dry habitat. The species seems to avoid moist situations (Bailey, 1926; Svihovec, 1967; Genoways and Jones, 1972). Preferred habitats in the project area included upland grasslands (all types), moderately grazed rolling grasslands and haylands.

Status: Common but not abundant in the project area.

ORDER: Rodentia

FAMILY: Cricetidae

SUBFAMILY: Microtinae

Sagebrush Vole (*Lagurus curtatus*) - This species has a range covering the northwestern quarter of the United States, including the southwestern corner of North Dakota. Its pelage is long and lax, the upper parts being pale buffy gray and tail indistinctly bicolor (Hall and Kelson, 1959). It makes shallow burrows usually close to sagebrush and feeds on green vegetation, particularly sagebrush (Burt and Grossenheider, 1964).

Distribution in the project area: Genoways and Jones (1972) state that this rare microtine was previously known only from Fort Buford and Glen Ullin. They collected three specimens west of Dickinson and one specimen southwest of Bowman. Svihovec (1967) also caught *L. curtatus* in her study area (Bowman and Slope Counties), but misidentified it as *Microtus*. We collected specimens at six sites in Dunn, Billings, Golden Valley and Bowman Counties during the 1976-77 season, but did not find it abundant at any of these locations (Fig. 326, 327).

Habitat: This species is found mainly in scattered sagebrush and loose soil in arid condition (Burt and Grossenheider, 1964).' Genoways and Jones (1972)

collected their specimens in a ditch grown to bluestem, bromegrass, and some forbs. Preferred habitats in the project area were moderately grazed rolling grasslands and upland grasslands with sagebrush flats and erosion.

Status: Rare to uncommon in the project area.

ORDER: Rodentia

FAMILY: Cricetidae

SUBFAMILY: Microtinae

Muskrat (*Ondatra zibethica*) - This large rodent has a range covering practically all of the United States and Canada, including all of North Dakota. It was introduced in many areas where it did not occur naturally, becoming a valuable fur-bearer (Hall and Kelson, 1959). This species is mainly aquatic, but is perfectly at home on dry land. *O. zibethica* builds conical houses with 2 or more openings in shallow water (Burt and Grossenheider, 1964). It feeds on tender shoots and stems of numerous grasses, tules, cattails, and water plants along shores, on roots and bulbs and to some extent mussels and other animal material (Bailey, 1926).

Distribution in the project area: Bailey (1926) records that specimens have been taken from all over the state. Genoways and Jones (1972) collected one specimen in southwestern North Dakota, in a small pond west of the Killdeer Mountains. We made eight observations in 1976 and four observations in 1977 in all but Grant, Sioux, Oliver, Stark, and Bowman Counties (Fig. 328).

Habitat: The muskrat is present in every suitable slough, lake, marsh and stream which contain cattails, rushes, water lilies, and open water (Bailey, 1926; Burt and Grossenheider, 1964). Preferred habitats in the project area were true river bottoms and wetlands (both dugouts and reservoirs).

Status: Fairly common in the project area.

ORDER: Rodentia

FAMILY: Muridae (Old World Rats and Mice) - This family has been introduced throughout the world with its distribution closely associated with human habitation.

House Mouse (*Mus musculus*) - This species ranges wherever an area is inhabited by man. Its pelage varies from light brown to black (Hall and Kelson, 1959). It has been generally imported in boxes and loads of goods where it had made a nest, being very prolific and eating anything which was edible (Bailey, 1926).

Distribution in the project area: Bailey (1926) describes *M. musculus* as being well-established over almost every part of North Dakota, being dependent on habitations of man. Specimens have been taken all over the state. Genoways

and Jones (1972) collected specimens in Billings and Dunn Counties, while Svihovec (1967) collected nine specimens in Bowman and Slope Counties. We collected *M. musculus* in Sioux, Grant, Morton, Mercer, and McLean Counties, with it being very abundant in Mercer County along the Knife River (Fig. 329, 330).

Habitat: This species is common around the vicinity of towns and farms, usually spending winters in inhabited buildings. We found it chiefly in moderately grazed rolling grasslands, upland grassland with sage and erosion and in haylands.

Status: Common in the project area.

ORDER: Rodentia

FAMILY: Zapodidae (Jumping Mice) - This family is composed of species which have hind legs longer than the forelegs. Members are primarily nocturnal, preferring open grasslands or woodlands, having rather localized distributions throughout their range.

Meadow Jumping Mouse (*Zapus hudsonius*) - This species ranges over the north-central and northeastern United States and southern Canada (Hall and Kelson, 1959). It is mainly nocturnal. Its diet consists of seeds and it becomes excessively fat in the fall, hibernating after the first frosty nights (Bailey, 1926).

Distribution in the project area: Bailey (1926) records specimens taken from all over the state while Genoways and Jones (1972) found the species to be locally abundant in southwestern North Dakota along the Little Missouri River south of Medora and west of Killdeer. We collected specimens in Morton, Hettinger, Dunn, McKenzie, and McLean Counties in 1976 and in McKenzie, Dunn, McLean, and Billings Counties in 1977. It was not abundant in any of these localities (Fig. 331, 332).

Habitat: This species prefers low meadows, but is not restricted to any land habitat (Burt and Grossenheider, 1964) and Genoways and Jones (1972) found it in riparian communities and other mesic habitats and in grassy areas. Observed habitats in the project area were moderately grazed rolling grasslands, deciduous forests, and hardwood draws.

Status: Fairly common in the project area.

ORDER: Rodentia

FAMILY: Erthizontidae (Porcupines) - This family consists of rodents with heavy, robust forms covered above with thick, sharp spines distributed among their hairs. The feet of these rodents are noticeably modified for an arboreal life.

Porcupine (*Erethizon dorsatum*) - The genus is monotypic with its range covering all of Canada and all but the southeastern United States. The species is slow-moving and clumsy on the ground, but is a skillful climber. It is solitary except during breeding season. It is most active at night, but may be seen during the day, especially in the tops of trees (Burt and Grossenheider, 1964).

Distribution in the project area: Bailey (1926) found *E. dorsatum* to be fairly common in the Missouri Valley and westward and along the Cannonball River. Genoways and Jones (1972) listed the species as widespread in southwestern North Dakota, collecting one specimen east of the Killdeer Mountains. We made observations in Dunn, Bowman, Slope, Stark, Billings, McKenzie, McLean and Morton Counties during the 1976-77 season (Fig. 333).

Habitat: This species prefers timbered areas, but will occasionally move away from trees if brush is available. Bailey (1926) found it in brushy gulches on both sides of the Missouri River, in the badlands and in brushy stream bottoms. Observed habitats in the project area were ponderosa pines, deciduous forest, hardwood draws, riparian woodland and river and upland breaks.

Status: Fairly common in the project area.

ORDER: Carnivora (Carnivores)

FAMILY: Canidae (Wolves, Coyotes, Dogs and Foxes) - This family occurs on all continents. All members are doglike in general appearance and all have a scent gland at the base of the tail (Burt and Grossenheider, 1964).

Coyote (*Canis latrans*) - Range of this species covers western and southern Canada, all of the United States, except the eastern third, and most of Mexico (Hall and Kelson, 1959). The coyote may weigh up to 25 kg, but the western specimens in North Dakota are smaller and more pale than in the eastern portions of its range (Bailey, 1926).

Distribution in the project area: Bailey (1926) records the coyote as being found over practically the entire state. Allen (1972) indicated that populations had increased from 1962 to 1970, despite intense predator control programs. Hibbard (1972) stated that this species occurs in fair numbers on the floodplain of the Riverdale Game Management area. We had numerous sightings of *C. latrans* throughout the project area (Fig. 334).

Habitat: The coyote inhabits partly timbered, partly open country, but readily adapts itself to either type where game or livestock furnish a satisfactory food supply (Bailey, 1926). Hibbard (1972) noted that in his study of the Missouri Valley floodplain, the coyote tended to utilize all the available habitats. The most common observed habitats in the REAP project area included moderately grazed rolling grasslands, upland and river breaks, and upland grasslands.

Status: Common in the project area.

Figure 319.

BUSHY-TAILED WOODRAT

(Neotoma cinerea)

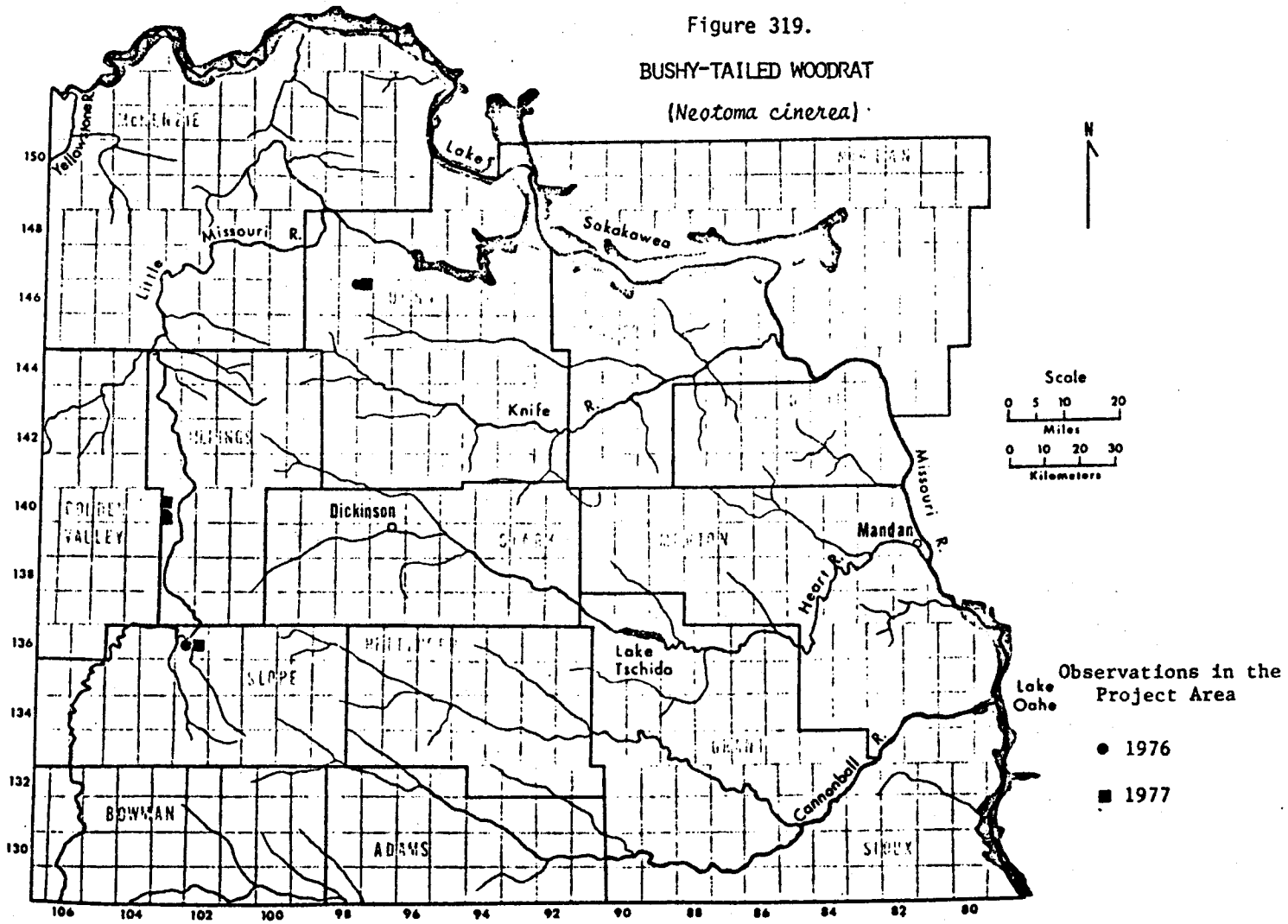


Figure 320.

GAPPER'S RED-BACKED MOUSE

(*Clethrionomys gapperi*)

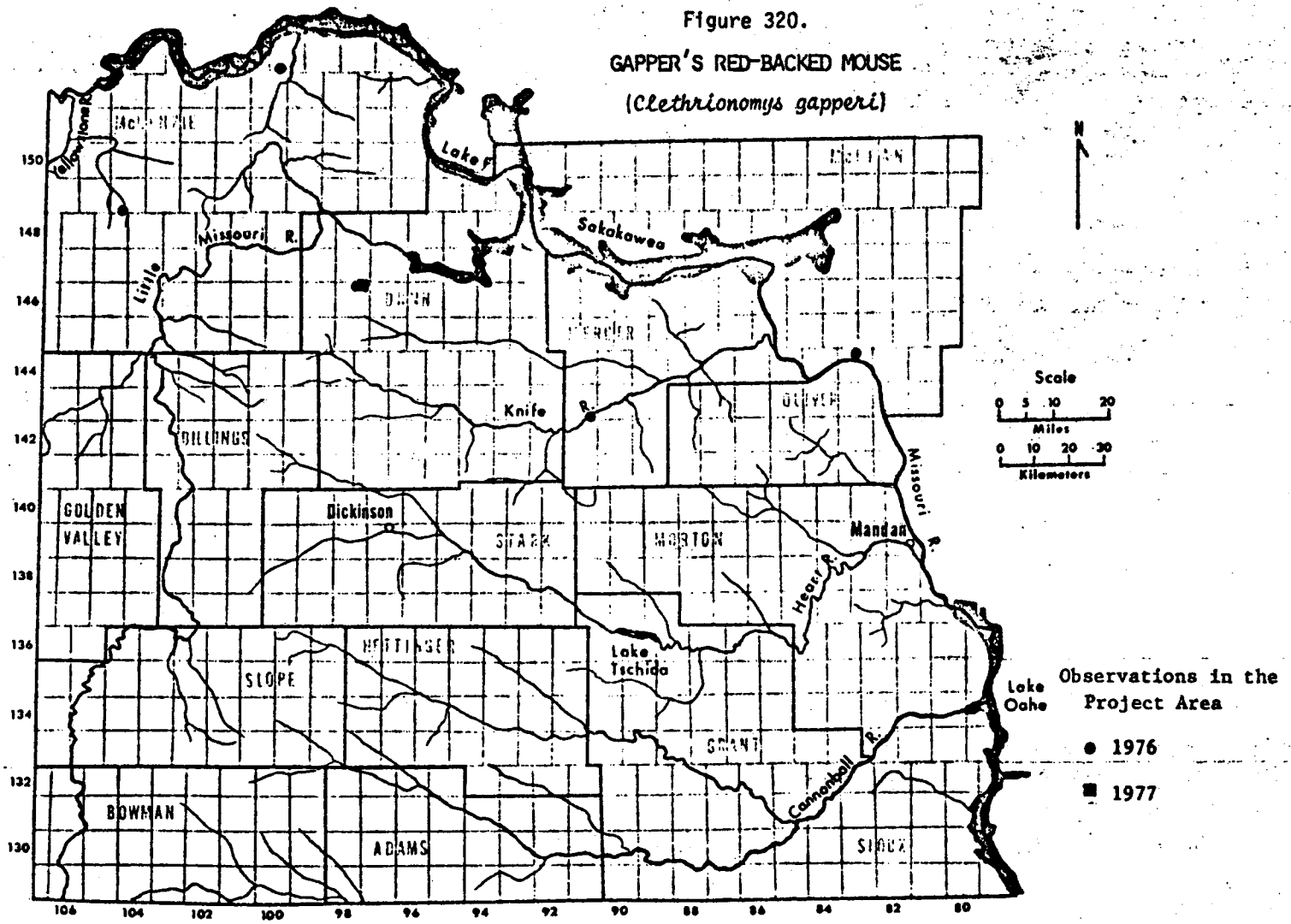


Figure 321.

GAPPER'S RED-BACKED MOUSE

(*Clethrionomys gapperi*)

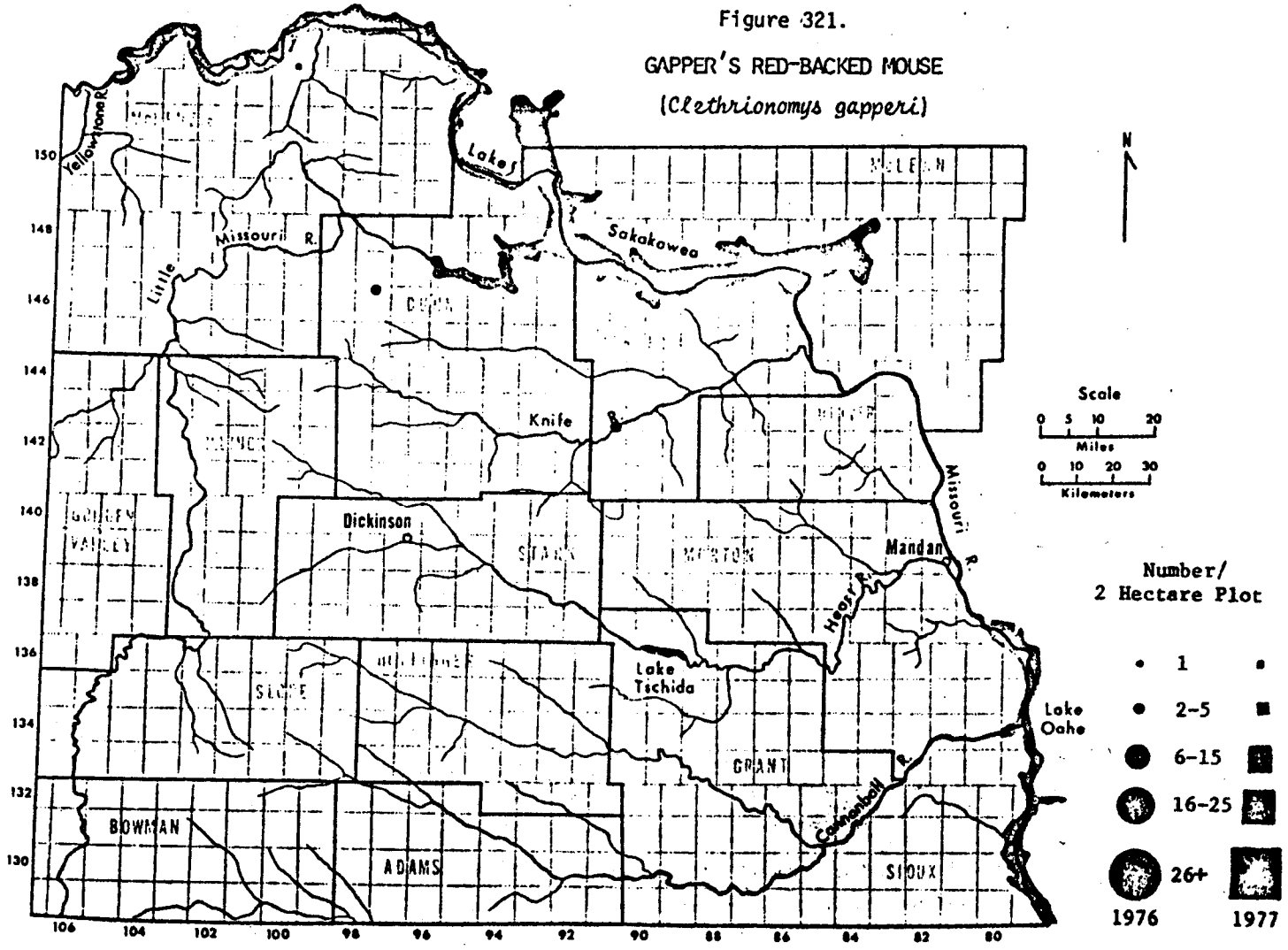
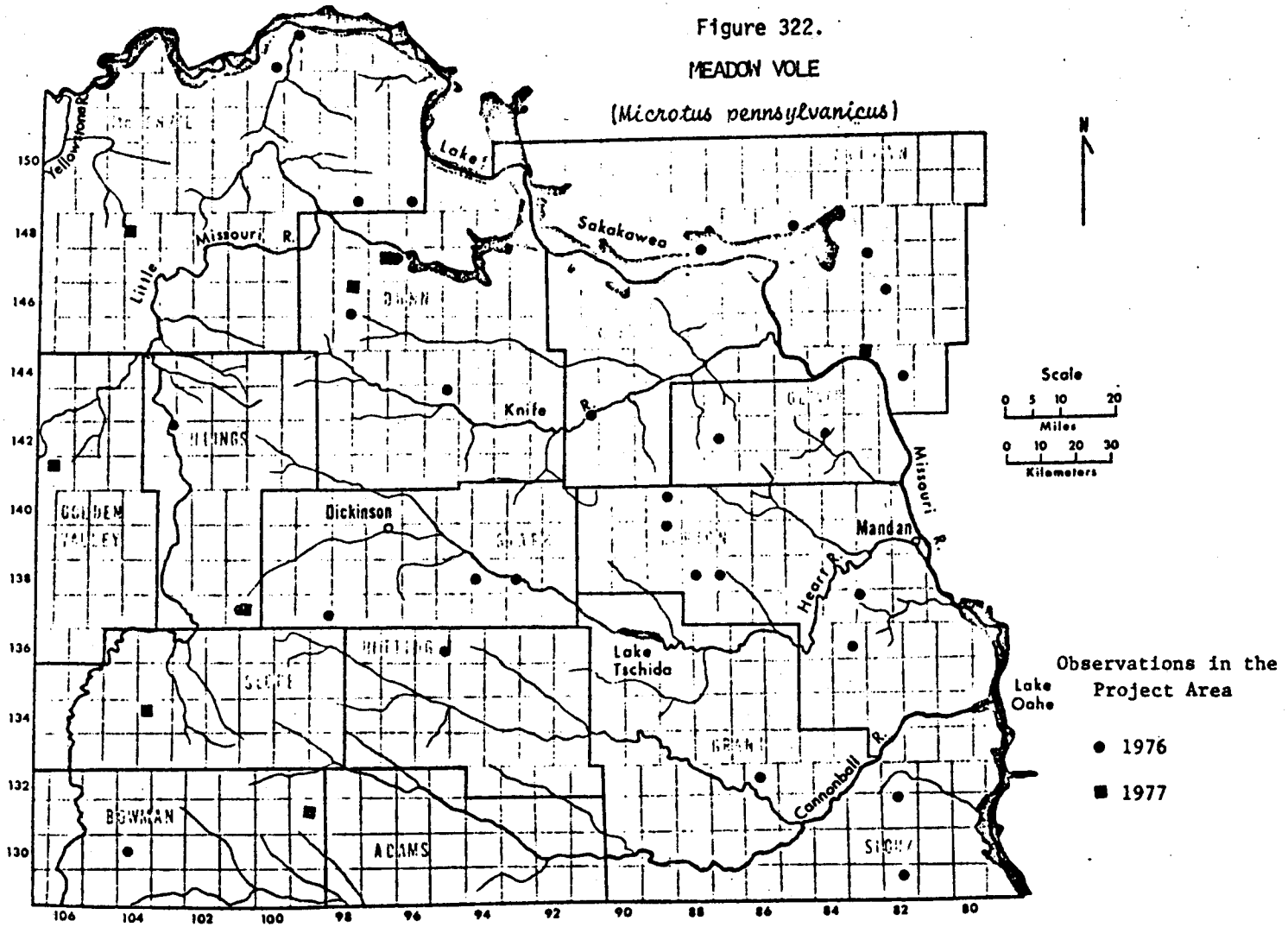


Figure 322.

MEADOW VOLE

(*Microtus pennsylvanicus*)



Observations in the Project Area

- ● 1976
- ■ 1977

Figure 323.

MEADOW VOLE

(*Microtus pennsylvanicus*)

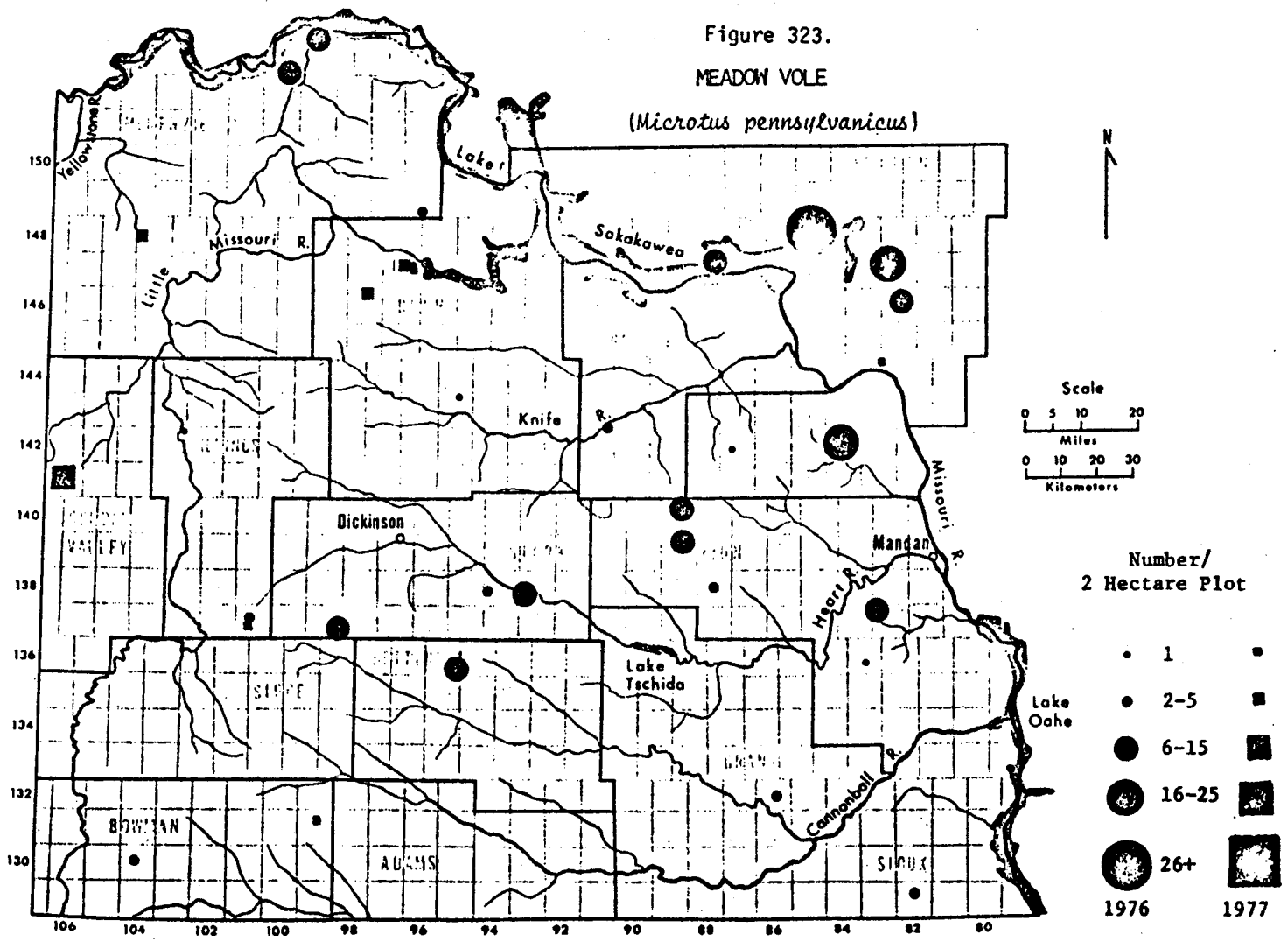


Figure 324.

PRAIRIE VOLE

(Microtus ochrogaster)

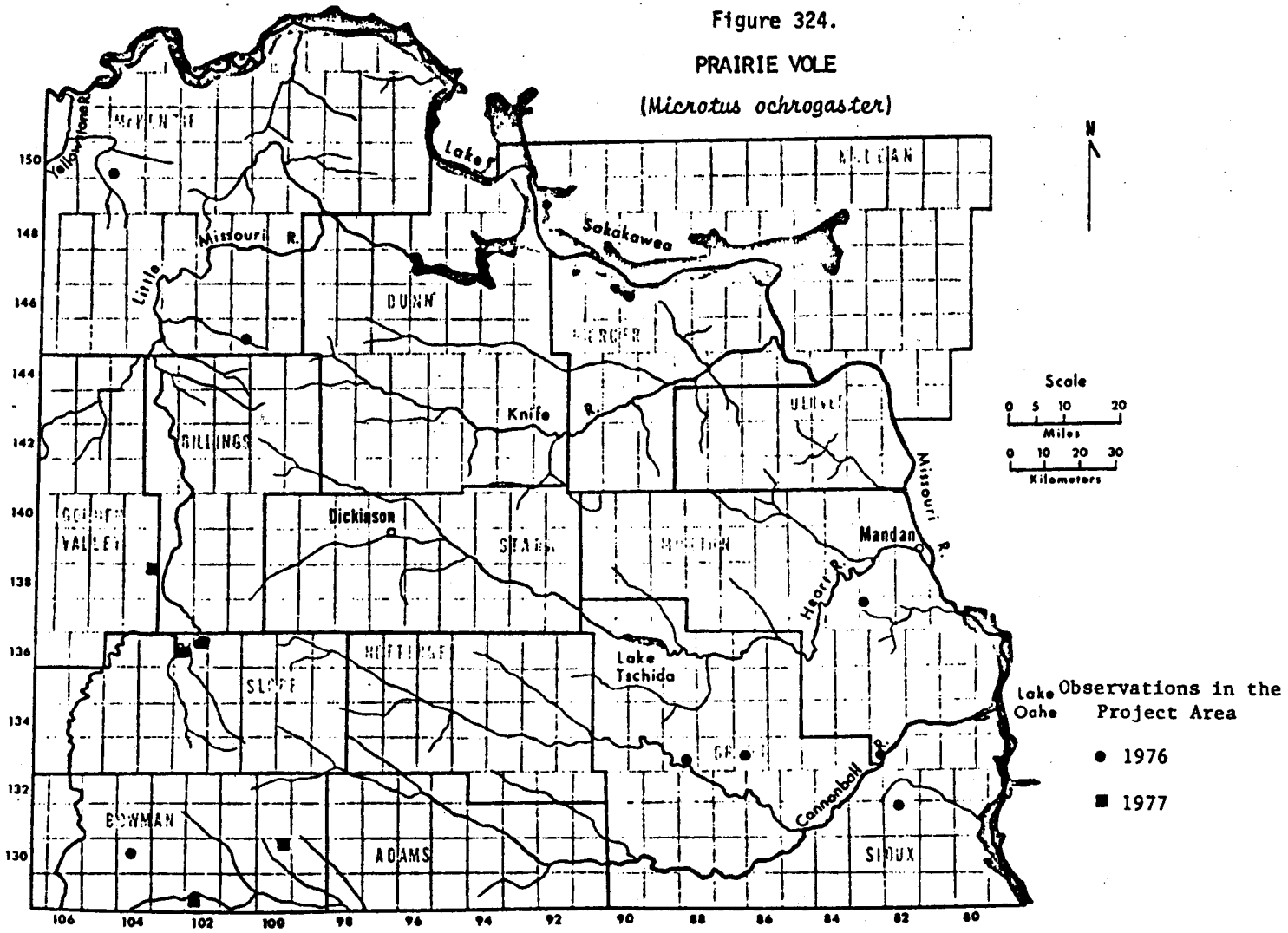


Figure 325.

PRAIRIE VOLE

(*Microtus ochrogaster*)

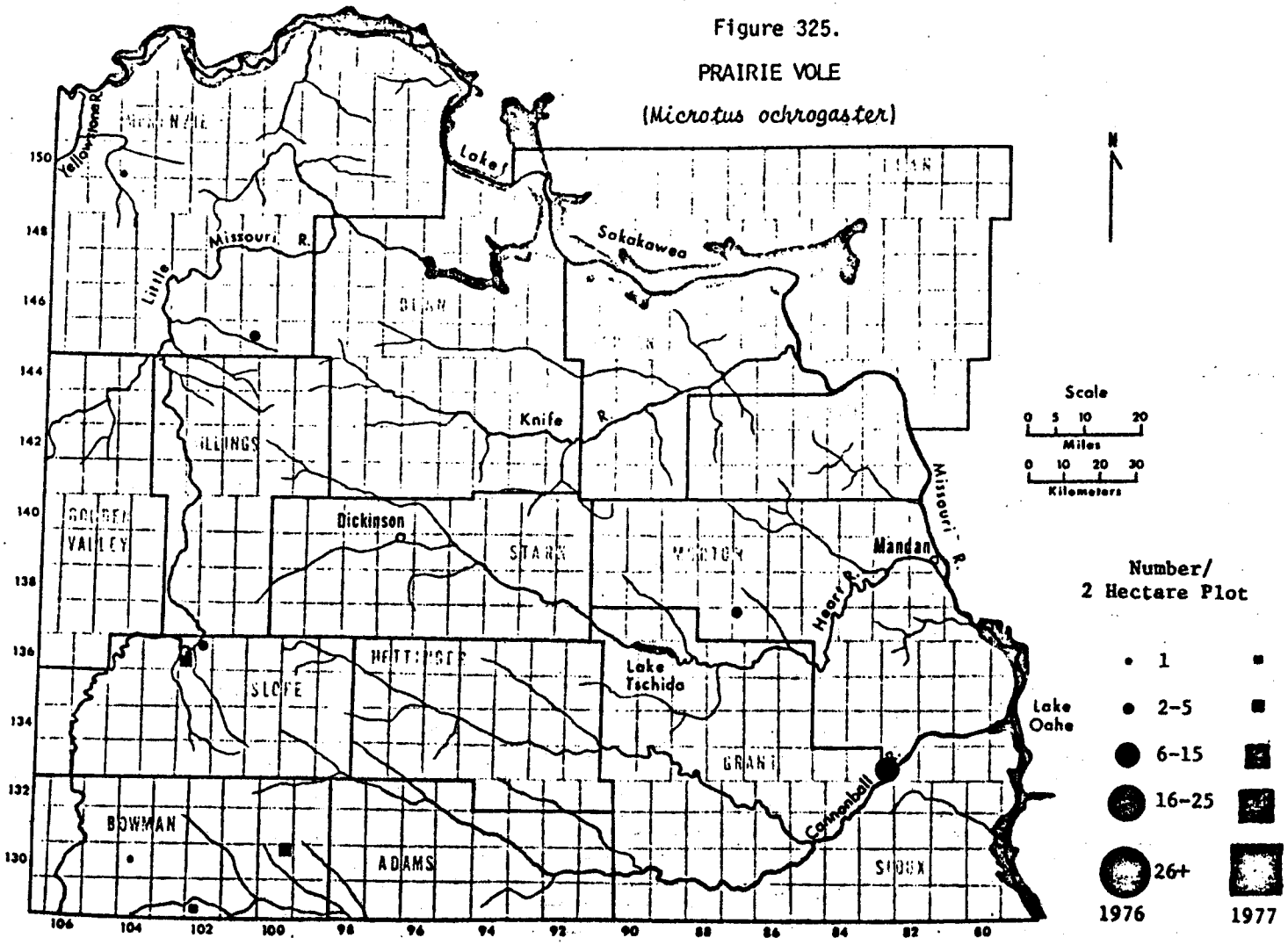


Figure 326.

SAGEBRUSH VOLE

(*Lagurus curtatus*)

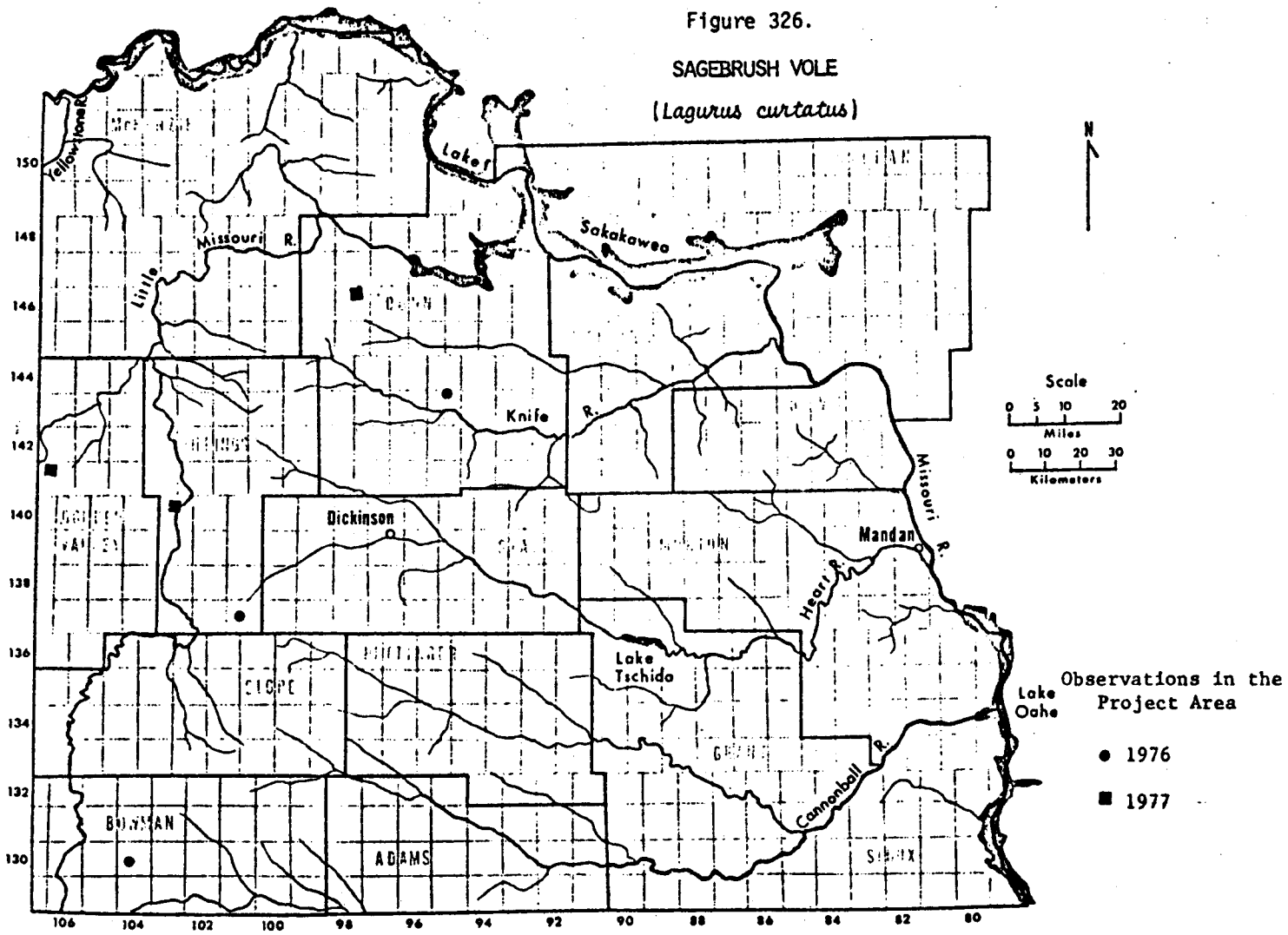


Figure 327.

SAGEBRUSH VOLE

(*Lagurus curtatus*)

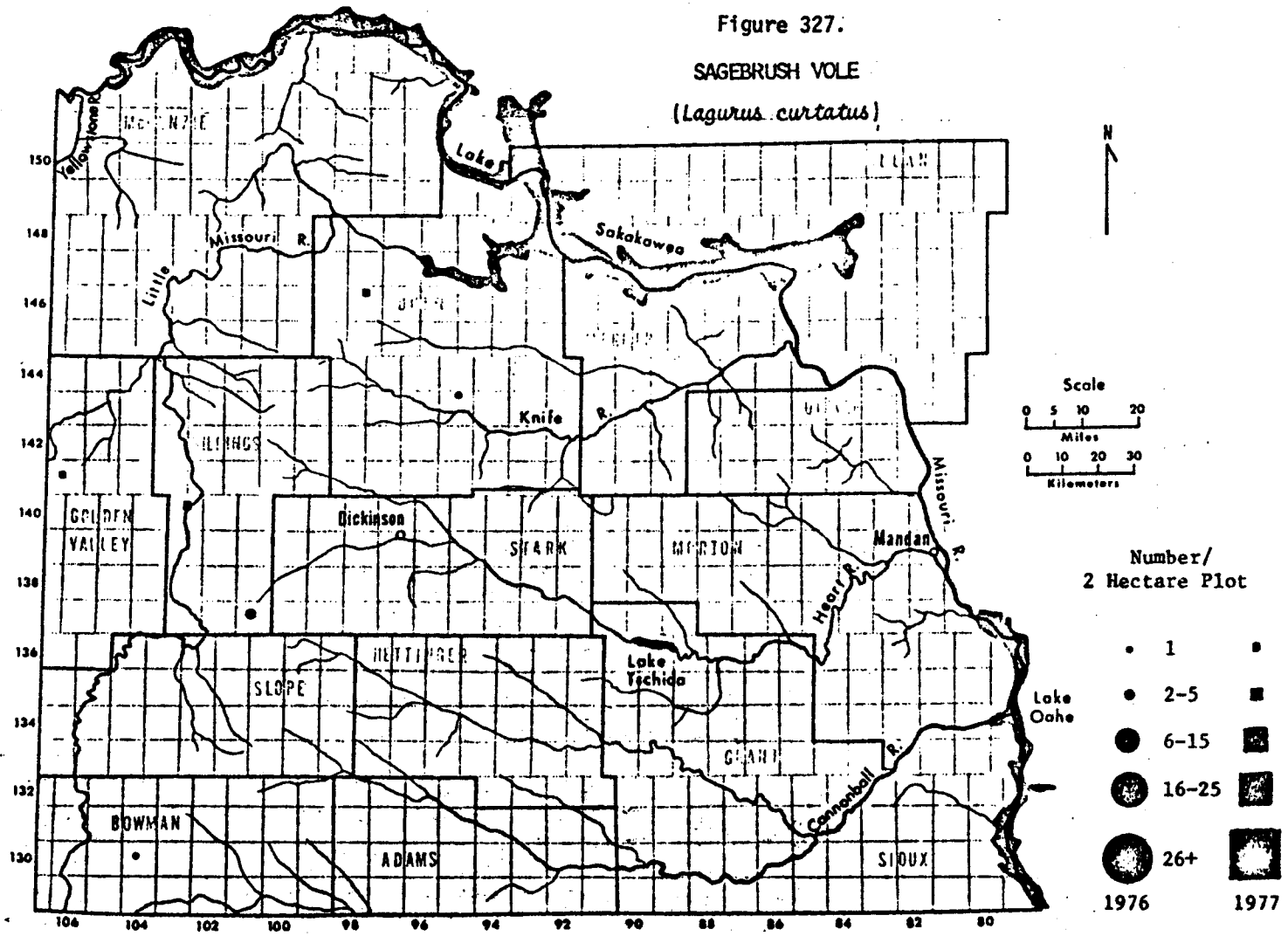
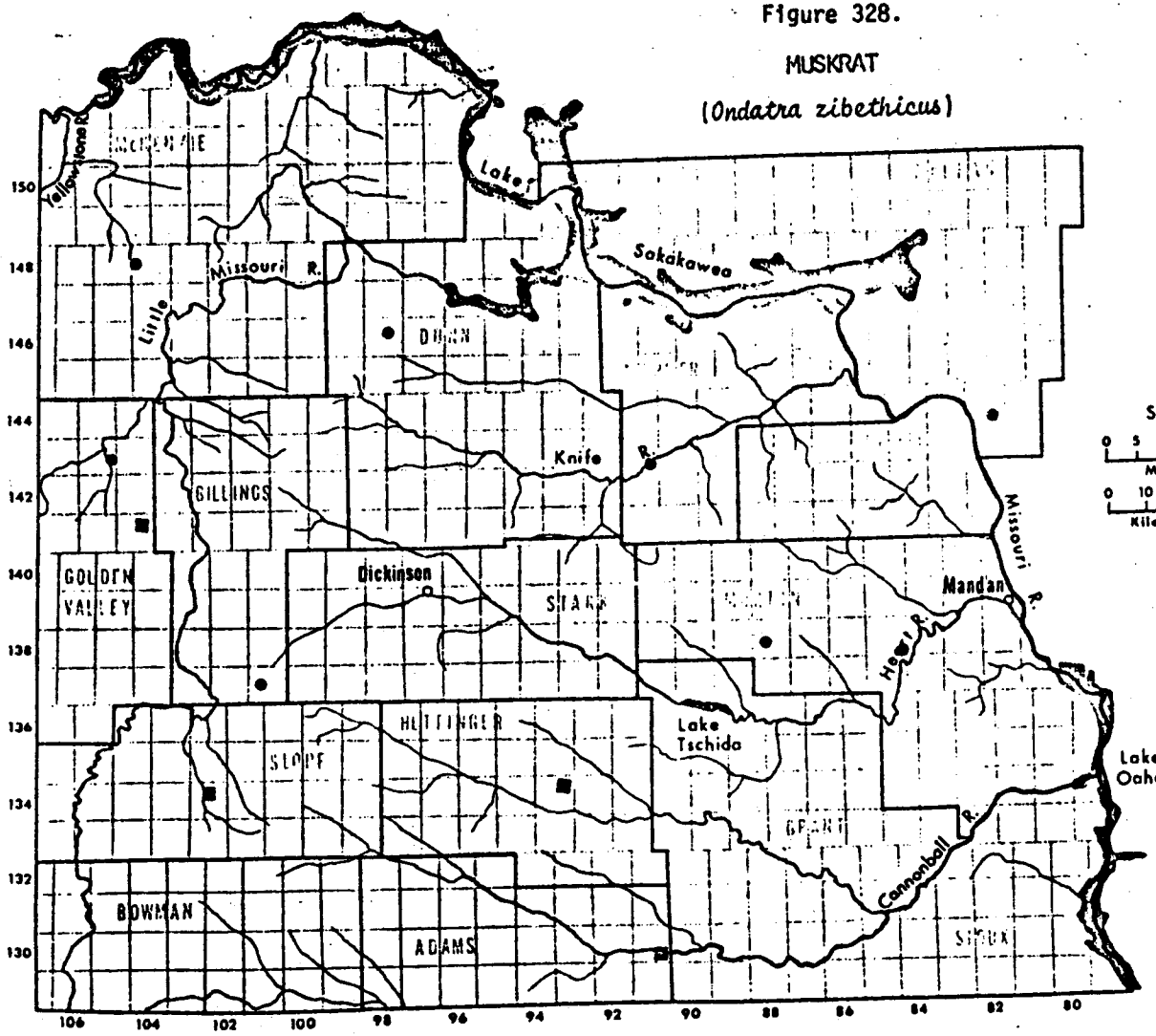


Figure 328.

MUSKRAT

(*Ondatra zibethicus*)



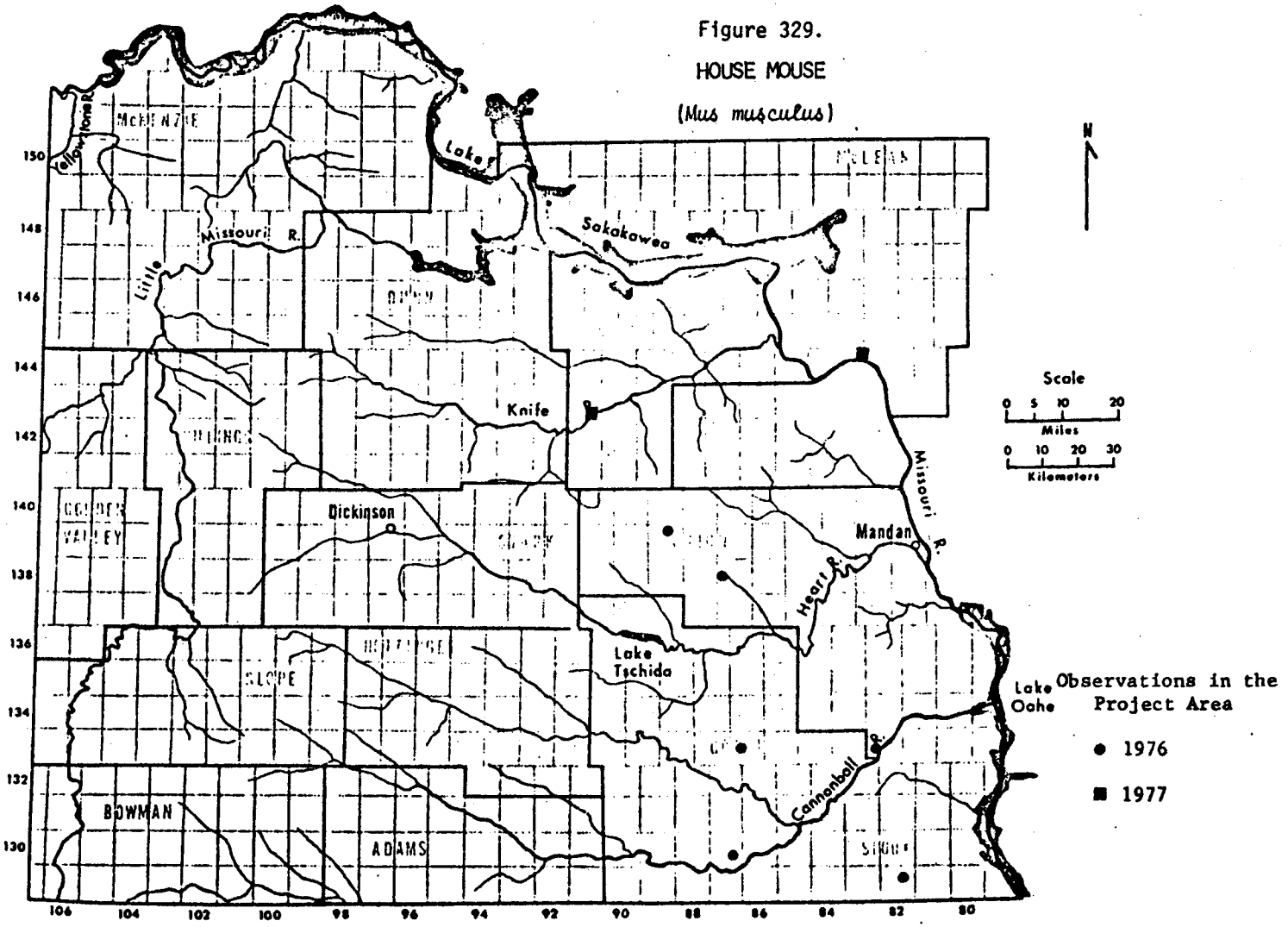
Observations in the Project Area

- 1976
- 1977

Figure 329.

HOUSE MOUSE

(*Mus musculus*)



Figuer 330.

HOUSE MOUSE

(*Mus musculus*)

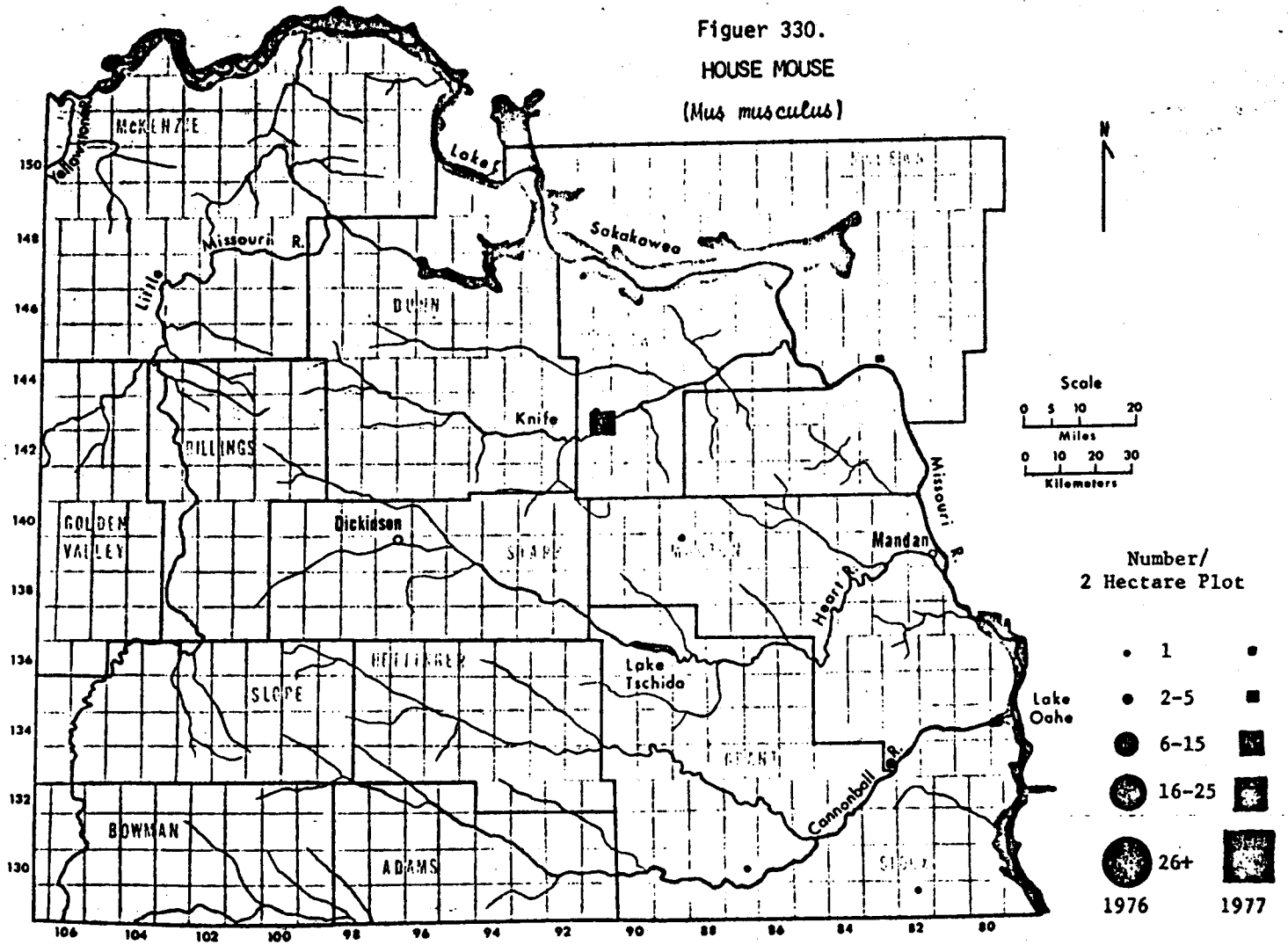


Figure 331.

MEADOW JUMPING MOUSE

(*Zapus hudsonius*)

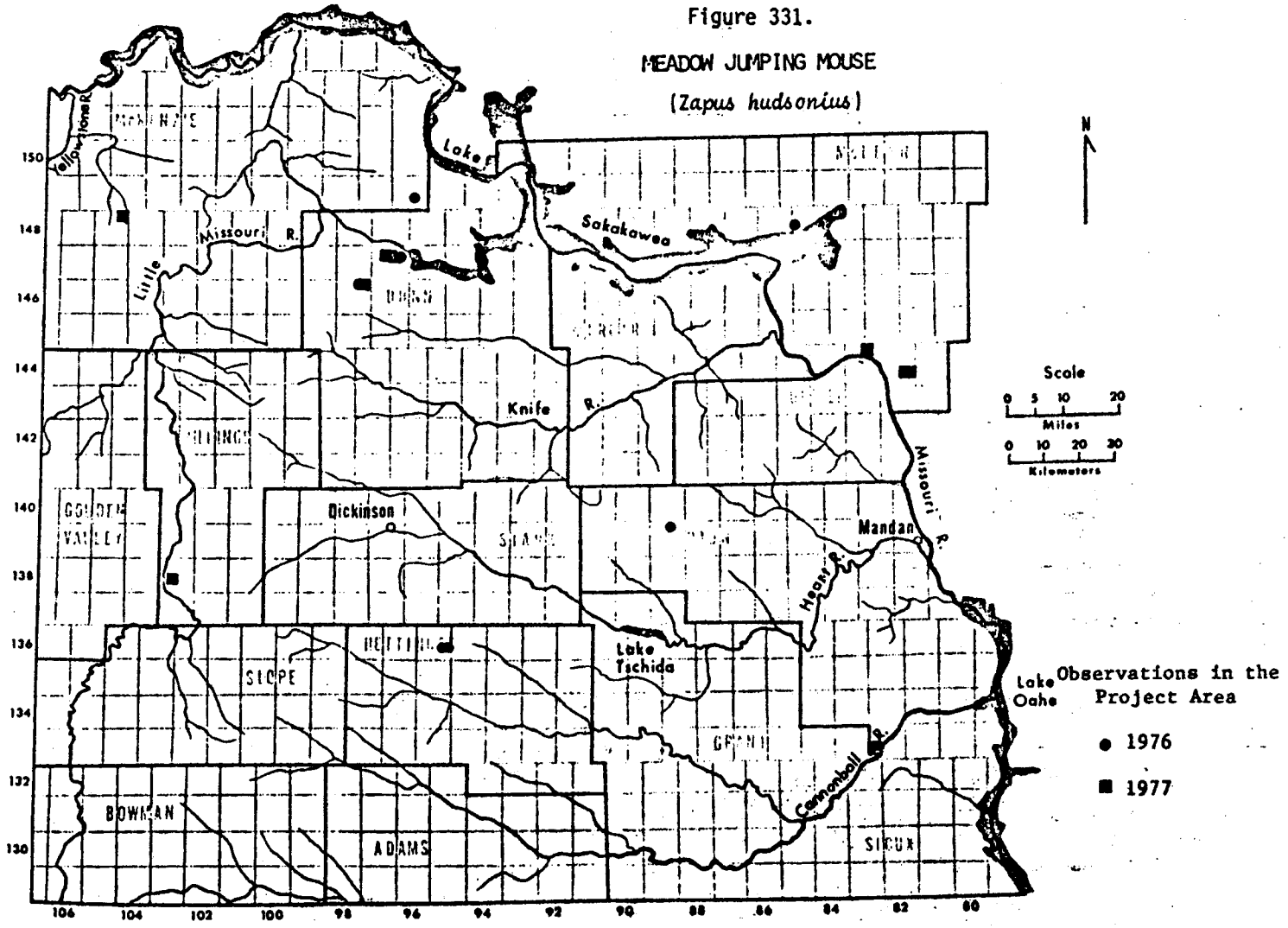


Figure 332.

MEADOW JUMPING MOUSE

(*Zapus hudsonius*)

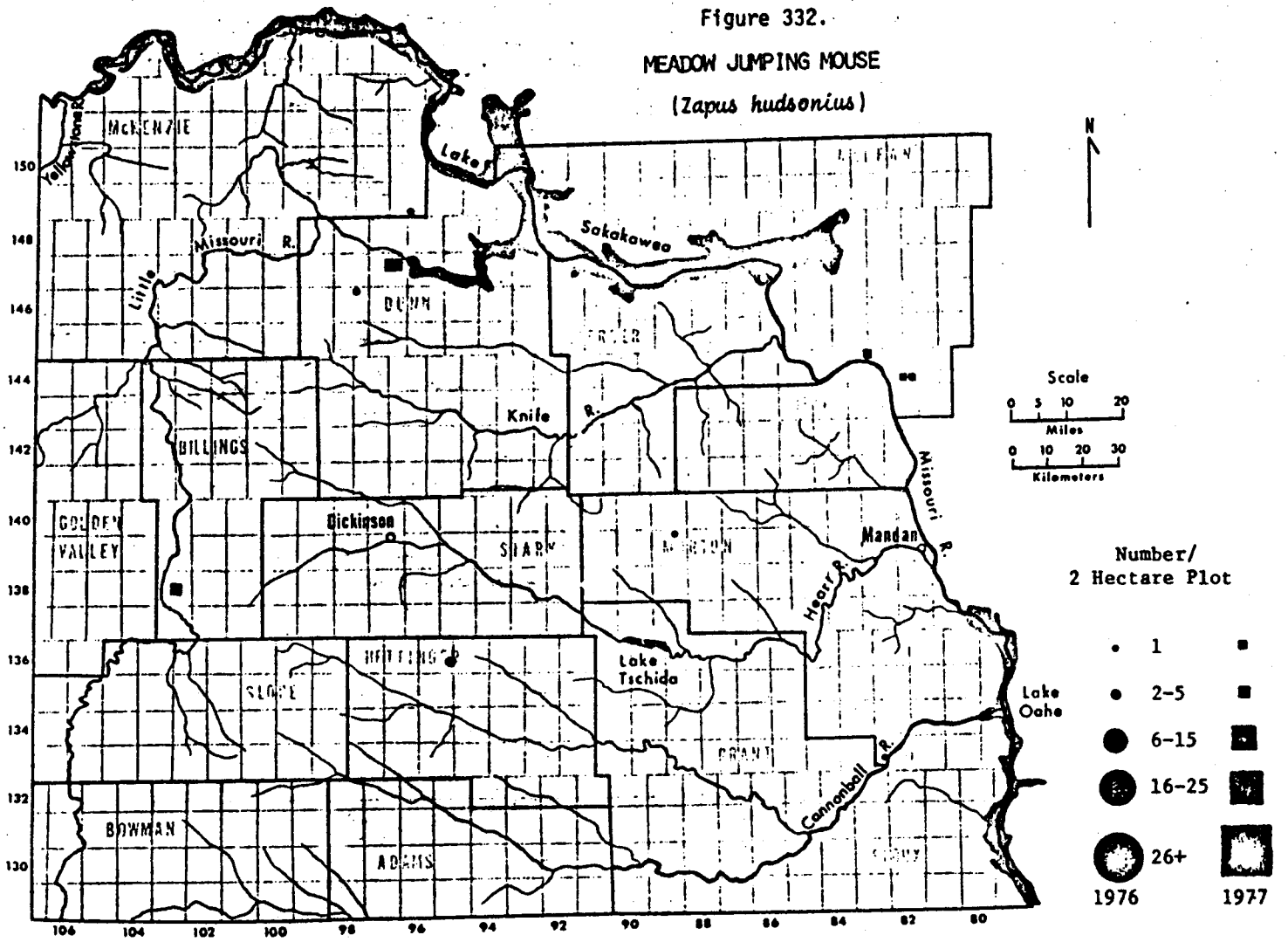
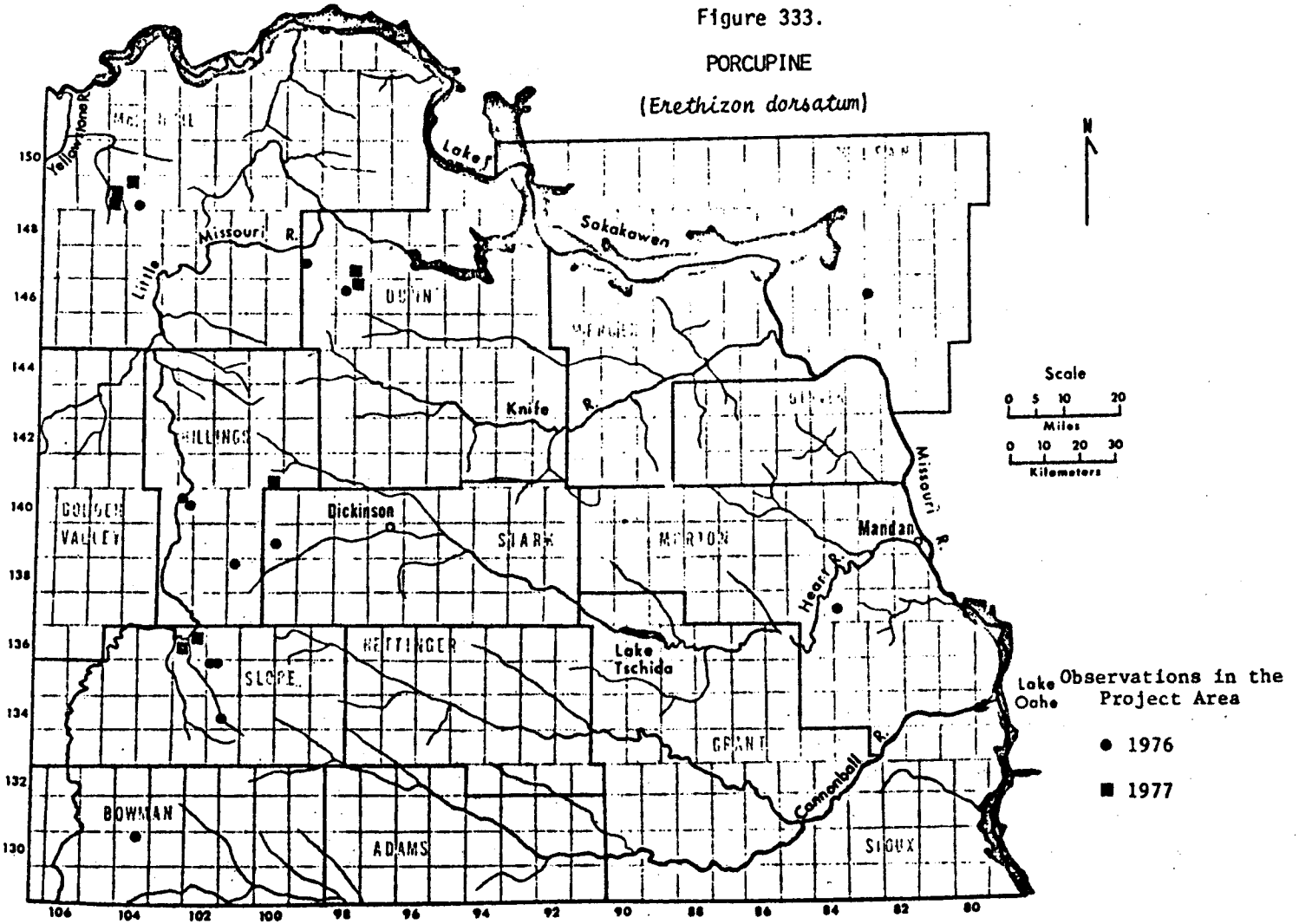


Figure 333.

PORCUPINE

(*Erethizon dorsatum*)



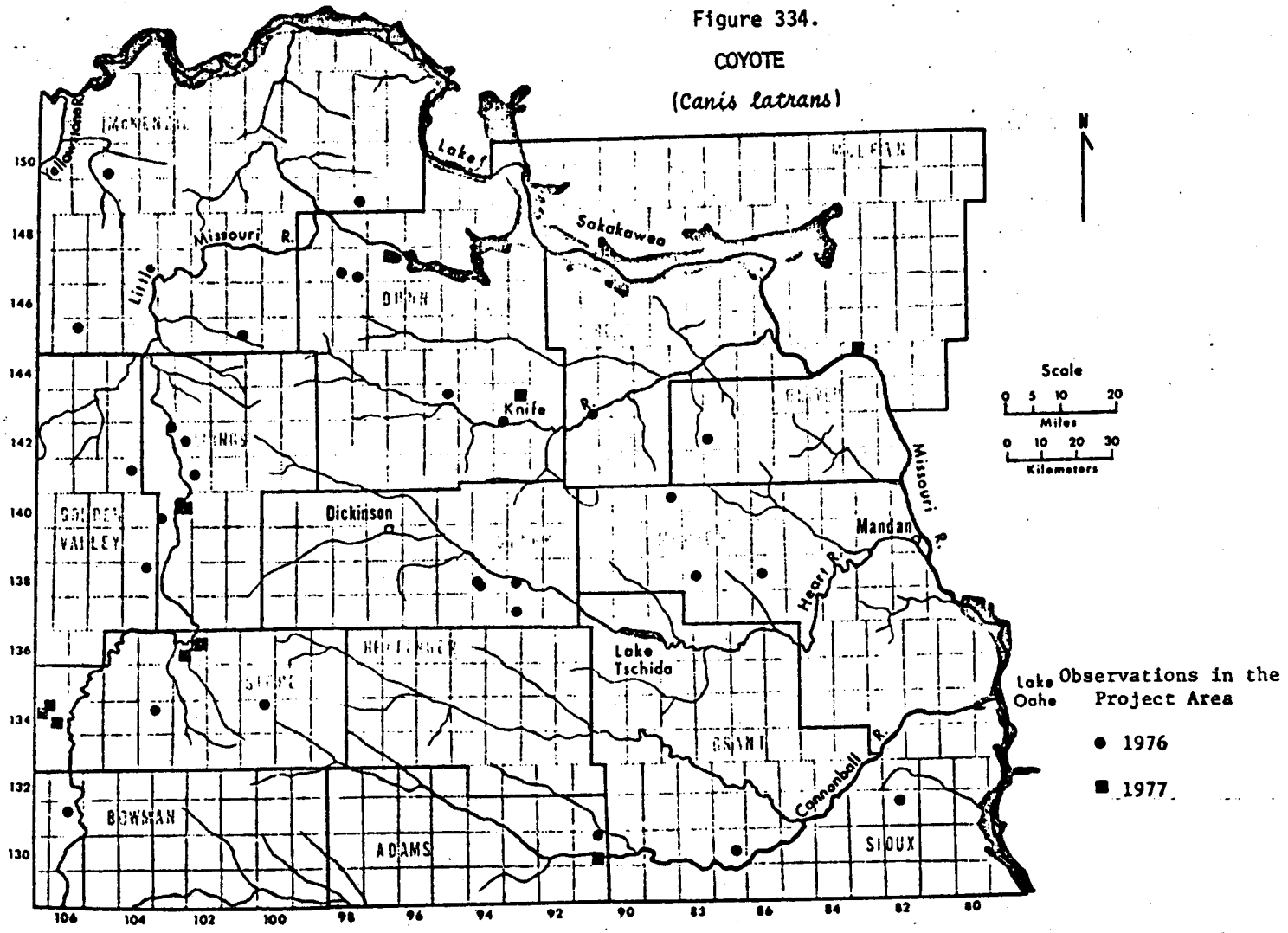
Observations in the Project Area

- ● 1976
- ■ 1977

Figure 334.

COYOTE

(*Canis latrans*)



ORDER: Carnivora

FAMILY: Canidae

Red Fox (*Vulpes vulpes*) - This species covers all of Canada and most of the United States, except the extreme southwest and an area running north-south on the western edge of the Great Plains (Hall and Kelson, 1959). Although it is a skillful hunter, the Red Fox is omnivorous, its diet consisting of mice, ground squirrels, pocket gophers, birds, blueberries and other fruits. This species is mainly nocturnal and lives in burrows (Bailey, 1926). It is a valuable fur-bearer in North Dakota and an important predator.

Distribution in the project area: Although Allen (1972) lists the fox population as having decreased from 1961 to 1970, Hibbard (1972) indicates that the species occurs in fair numbers on the floodplain of the Riverdale Game Management area. We recorded 17 observations in 1976, the majority being in Slope and Bowman Counties. Six observations were made in 1977 in Bowman, Slope, Hettinger, and Grant Counties (Fig. 335).

Habitat: The Red Fox tends to prefer more open forests, abandoned pastures, etc. (Hibbard, 1972: Burt and Grossenheider, 1964). We observed the species in lightly to heavily grazed rolling grasslands, roadsides, seeded croplands and spoil piles.

Status: Common in the project area.

ORDER: Carnivora

FAMILY: Canidae

Swift Fox (*Vulpes velox*) - A small fox with a short black-tipped tail and a buffy gray color. At one time it ranged from western Iowa through the Dakotas into eastern Wyoming and Montana. The species declined rapidly with the coming of the settlers (Bailey, 1926). It is very susceptible to traps and shooting. At one time it was thought to be extinct but some sightings have recently been made.

Distribution in the project area: Only two sightings have been made in the project area since 1970 (Fig. 336). A specimen was found dead in Slope County in 1970 (Pfeifer and Hibbard, 1970), and a sighting in Mercer County was made in 1976 (Keith Killingbeck, personal communication). Although formerly occurring throughout the area, it is so rare that its present distribution is indeterminate.

Habitat: Prairie regions are its major habitat.

Status: Rare. Classified as an endangered species (U.S. Fish & Wildlife Service, 1976).

Comments: Recent reports from South Dakota may indicate that the species may be partially recovering (Hawley, 1974, Van Ballenberghe, 1975). However, increased trapping pressure due to high fur prices may inhibit or terminate any possible comeback by this rare animal.

Figure 335.

RED FOX

(Vulpes vulpes)

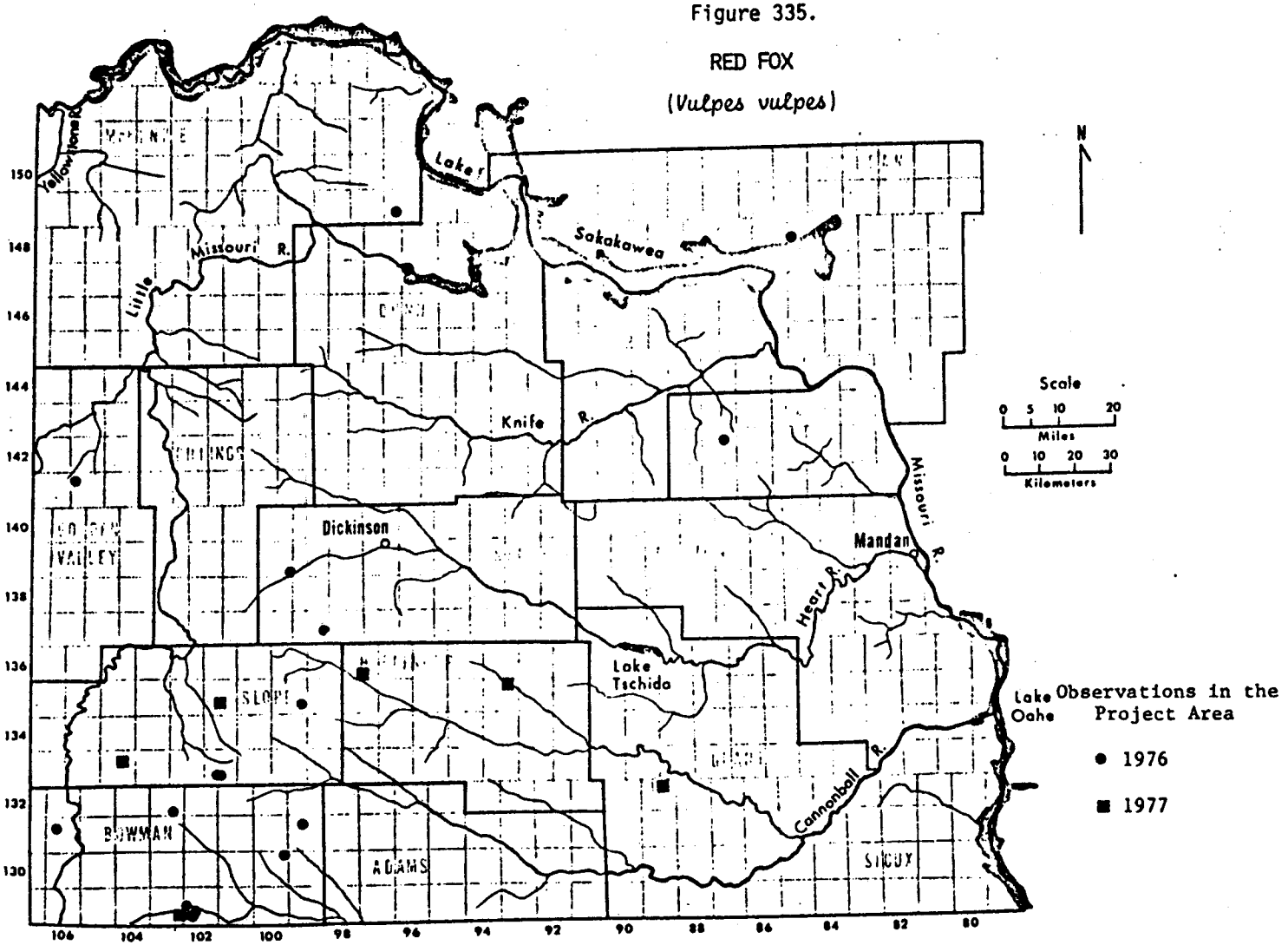
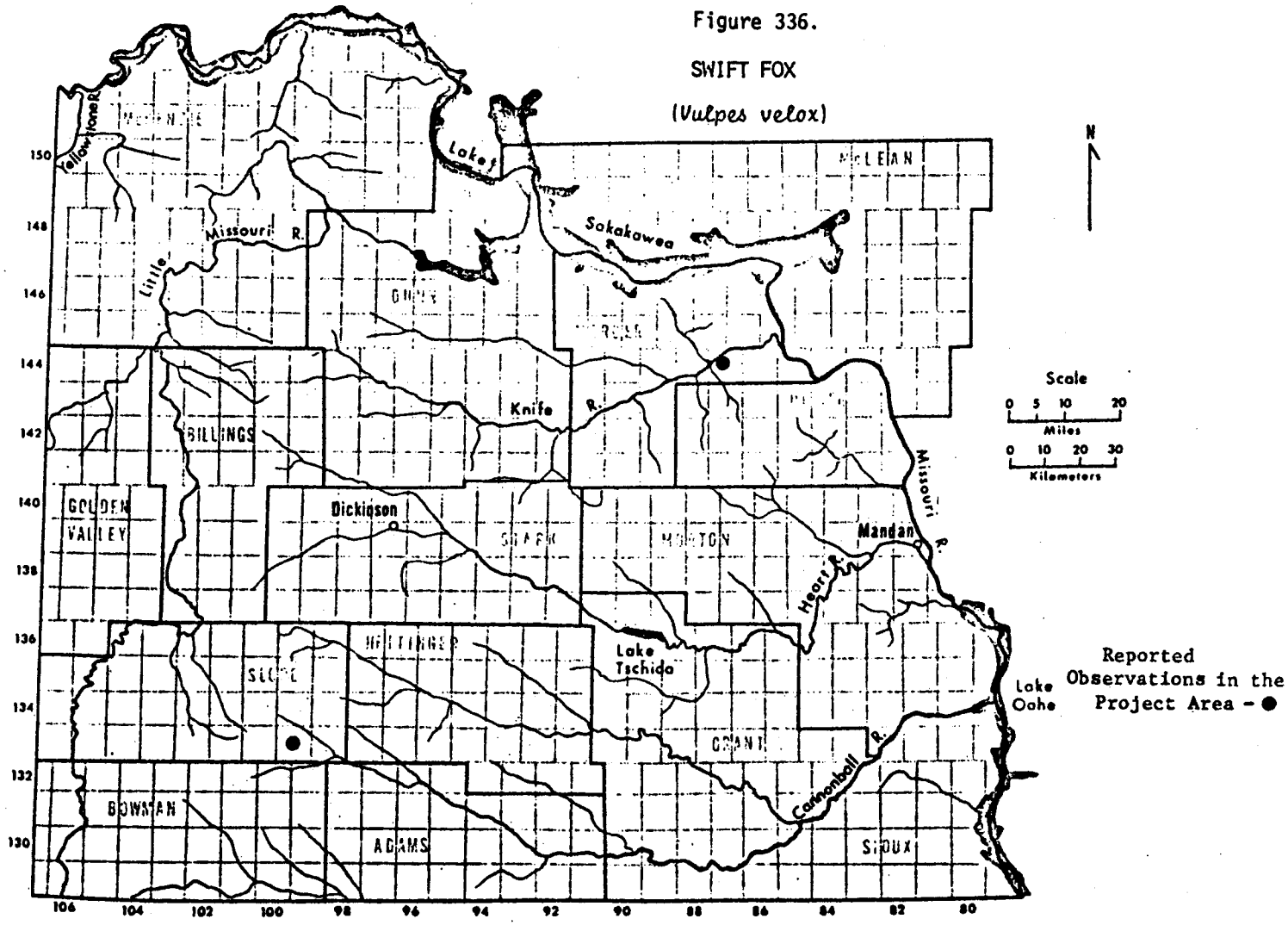


Figure 336.

SWIFT FOX

(*Vulpes velox*)



Reported Observations in the Project Area - ●

ORDER: Carnivora

FAMILY: Procyonidae (Raccoons) - Members of this family are of medium size and have five toes on each foot. The claws are non-retractile and the animal walks on the entire foot. The tail is long with either distinct yellowish-white rings, or very indistinct rings (Burt and Grossenheider, 1964).

Raccoon (*Procyon lotor*) - This species' range covers all of the United States except the Rocky Mountain region. This area includes all of North Dakota. The Raccoon can reach a size of 46-71 cm and can weigh up to 16 kg. It is omnivorous, eating fish, fowl, meat, fruit, nuts, and corn. It is an excellent climber, usually making its home in a hollow tree near water. The species is mainly nocturnal and hibernates after the first snowfall (Bailey, 1926).

Distribution in the project area: Hibbard (1972) records the species as common throughout the several habitats of the Missouri River floodplain. Genoways and Jones (1972) found one dead specimen in southern Stark County. We recorded nine observations in 1976 in Billings, Golden Valley, McKenzie, McLean, Morton, and Stark Counties (Fig. 337).

Habitat: Raccoons are usually found along potholes, lakes, and water courses where there are wooded areas or rock cliffs nearby (Burt and Grossenheider, 1964). Our observations were made in hardwood draws, upland breaks, agriculturally/disturbed areas, and on dugouts and natural wetlands.

Status: Common in the project area.

Comments: Because of its nocturnal habits, *P. lotor* was not amenable to our censusing as has been found with other furbearers.

ORDER: Carnivora

FAMILY: Mustelidae (Mustelids) - This family consists of small to medium-sized animals with long slender bodies and short legs. Anal scent glands are common in some members of this family.

Ermine (*Mustela erminea*) - The reported range of this species covers almost all of Canada and the northern United States, excluding western North Dakota. This small animal is white in winter (tip of the tail is always black) while it is brown and white during the summer months (Hall and Kelson, 1959). It is chiefly a nocturnal mammal, and more at home on the ground than in trees. Food consists mainly of small mammals and a few birds. The home range extends over approximately 30 to 40 acres (Burt and Grossenheider, 1964).

Distribution in the project area: Bailey (1926) lists records of *M. ermincea* in eastern North Dakota, but none in southwestern North Dakota. We recorded two observations in Stark and Hettinger Counties in 1976 (Fig. 338).

Habitat: Ermine are found in brushy or wooded areas, usually not far from water (Burt and Grossenheider, 1964). Both observations made in the REAP project area were on moderately grazed rolling grasslands.

Status: Rare in the project area.

Comments: The two observations in the project area represent a significant western range extension for the species in the state.

ORDER: Carnivora

FAMILY: Mustelidae

Long-tailed Weasel (*Mustela frenata*) - This species has a range covering all but the extreme southwestern United States, southern Canada, and all of Mexico. It is a larger animal than the ermine, has a proportionally longer tail, and is of similar coloration (Hall and Kelson, 1959). It is primarily a nocturnal species, feeding on small mammals and a few birds (Bailey, 1926).

Distribution in the project area: Bailey (1926) found *M. frenata* inhabiting the northern plains including practically all of North Dakota. Genoways and Jones (1972) found the species to be uncommon in southwestern North Dakota, collecting a few specimens in the Little Missouri River area south of Medora and one northwest of Dickinson. However, during the REAP study it was regarded as a relatively common weasel throughout the project area. We recorded eight sightings in 1976 and nine in 1977 (Fig. 339).

Habitat: The Long-tailed Weasel seems to prefer the grasslands of the state where if lives in burrows (Bailey, 1926), but in fact is not restricted to any specific habitat so long as it is near water. Most observations in the project area were recorded in moderately grazed rolling grasslands and roadsides.

Status: Fairly common in the project area.

ORDER: Carnivora

FAMILY: Mustelidae

Black-footed Ferret (*Mustela nigripes*) - This rare species originally ranged from Texas to Alberta. The Black-footed Ferret is heavily dependent upon prairie dogs and their burrows for food and shelter, and most observations have been made in prairie dog towns (Bailey, 1926). It was held in special regard by the Indians who used pelts as ornamental dressings or ceremonial objects. It is distinguished by a black mask across its face, and black on the feet, legs, shoulders, and terminal quarter of the tail. It is nocturnal and active throughout the winter. Mating is believed to occur in April or May (Henderson et al., 1974).

Distribution in the project area: Since observations have been quite infrequent, distribution is difficult to ascertain. Reported sightings of ferrets (Table 5, Fig. 340) indicate possible distribution of the species in North Dakota. A potential distribution could be assumed from Fig. 340, which also coincides with the distribution of known prairie dog towns in the state.

TABLE 5. Reported Black-footed Ferret Sightings in North Dakota

Year	County	Location	Reported or Sighted by	Source of Information
1910	Billings	Medora vicinity	Howard Eaton	Bailey[1]
1912	Emmons	Fort Rice vicinity	H.C. Fish	Bailey
1913	Dunn?	Quinion (between Killdeer and Medora)	S.G. Jewett	Hillman[2]
1915	Mercer	Stanton	Kellogg	Bailey
1933	Billings	Ash Coulee (S16, T142N, R101W)	J. Harold Johnson	Hillman
1936	Billings	Blacktail Creek (S14, T143N, R101W)	Art Elkins and J. Harold Johnson	Hillman
1945	Golden Valley	S34, T144N, R103W	Francis Boyce	Bishop[3]
1948	Slope	S32, T135N, R105W	Merle Clark	Bishop
1955	Adams?	15 miles east of Hettinger	Irving Mork	Leppart[4]
1957	?	Cedar River	Ernest Pittsley	Leppart
1961	Burleigh	East of Bismarck	S.H. Richards	NDGFD[5]
1963	Kidder	S12, T139N, R73W	Herb Troester	Hillman
1964	?	Fort Berthold Indian Reservation	Dr. Ralph Hubbard	Hillman
?	?	Theodore Roosevelt National Park	Dr. Ralph Hubbard	Hillman
1965	?	Fort Berthold Indian Reservation	Sam Miller	Leppart
1966	Bowman	Near Bowman	Morris Erickson	Hillman
1966	Bowman	3 miles south Marmarth (This reported as 7 mi. S. by Leppart[4])	Morris Erickson	Hillman

TABLE 5 (cont'd)

Year	County	Location	Reported or Sighted by	Source of Information
1969	Billings	S19, T138N, R102W	Muggs Vanvig	Bishop
1960's	?	Theodore Roosevelt National Park	Dr. Harold Goetz	Hillman
1967	Golden Valley	S20, T134N, R104W	Irving Mork	NDGFD
1967	Mountrail	1 mi. NW Parshall	Don Strube and Dennis Eltestad	Leppart
1968	Morton	S21, T137N, R80W	John Goertell	NDGFD
1971	Morton	S28, T135N, R80W	Lowell E. Siebels	NDGFD
1973	Bowman	S25, T130N, R106W	Thomas M. Lavelle	USFWS(6)
1973	Slope	S26, T136N, R100W	J.A. Schaeffer	USFWS
1976	Bowman	Prob. S8, T130N, R106W	Kevin Zimmer	USFWS
1977	Morton	T135N, R79W	Jim Nelson	USFWS
1977	Sioux	T131N, R82W	Jim Nelson	USFWS
1977	Billings	T140N, R101W	Jim Nelson	USFWS

(1) Bailey, V. 1926. A biological survey of North Dakota, N. Amer. Fauna No. 49. 226 pp.

(2) Letter dated 5 June 1973 from Conrad Hillman, Research Biologist, USFWS, 919 Main St., Rapid City, SD.

(3) Bishop, N. 1972. Black-footed Ferret and Black-tailed Prairie Dog survey, 1972. Unpub. Report Medora Ranger District, U.S. Forest Service, Dickinson, ND. 21 pp.

(4) Leppart, G. 1970. Black-footed Ferret -- a vanishing species. ND Outdoors. 32(11):18-20.

(5) North Dakota Game and Fish Department files, Bismarck, ND.

(6) Personal Communication with William K. Pfeifer Wildlife Biologist, Area Office, USFWS, Bismarck, ND.

Habitat: Prairie dog towns comprise the principal habitat but ferrets have also been sighted living in haystacks, under buildings and in ground squirrel colonies.

Status: Rare. Designated as an endangered species (U.S. Fish & Wildlife Service, 1976).

Comments: It should be noted that our data consists of reported sightings only, and the validity of specific reports is not known. Ferrets have probably always been few in number. Furthermore, with the drastic reduction of prairie dog towns until recent years, it may be surmised that ferret populations have also been proportionately reduced.

ORDER: Carnivora

FAMILY: Mustelidae

Mink (*Mustela vison*) - This species has a range covering most of Canada and all of the United States. The mink is dark brown, weighing up to 1 kg. It swims very well, but is also at home on land and will climb trees. Dens are often made in abandoned burrows of muskrats (Hall and Kelson, 1959). It is a nocturnal hunter, and its diet includes fish, rodents, birds, and crustaceans.

Distribution in the project area: Although Bailey (1926) found *M. vison* to be fairly common along most streams in the state, we recorded only two observations, one in Grant County in 1976 and one in Bowman County in 1977 (Fig. 341).

Habitat: Mink live along streams and the edges of ponds and lakes (Hall and Kelson, 1959). Both of our observations were made in true river bottom habitat.

Status: Fairly common in the project area.

Comments: This species, like many other furbearers, was relatively invulnerable to our sampling approach, and probably more common than reported observations would indicate.

ORDER: Carnivora

FAMILY: Mustelidae

Badger (*Taxidea taxus*) - The range of the badger covers most of the western half of the United States, extending into southern Canada and central Mexico. This animal is a rapid, powerful digger, using its claws for digging burrows and unearthing game. It feeds largely on burrowing animals, mainly ground squirrels (Hall and Kelson, 1959).

Distribution in the project area: Bailey (1926) records the badger as ranging over the whole of North Dakota. We recorded observations in all but four counties of the project area (Fig. 342).

Habitat: The badger prefers open country where it can see great distances, such as open grasslands and deserts (Bailey, 1926). Observed habitat in the project area was primarily moderately grazed rolling grasslands and roadsides.

Status: Common in the project area.

ORDER: Carnivora

FAMILY: Mustelidae

Striped Skunk (*Mephitis mephitis*) - This species is found over most of the United States, southern Canada and northern Mexico (Hall and Kelson, 1959). The main distinguishing characteristics of the skunk are its alternating black and white stripes and scent glands. It is mainly nocturnal and will often travel long distances in search of food. Its diet consists chiefly of insects, but the skunk will eat young animals and is very fond of eggs.

Distribution in the project area: Bailey (1926) indicates that *M. mephitis* is distributed over practically all of North Dakota, and Genoways and Jones (1972) list it as probably the most abundant carnivore in southwestern North Dakota. They collected specimens west and northwest of Dickinson. We observed this species in all but five counties in the project area, with 13 observations in 1976 and 9 observations in 1977 (Fig. 343).

Habitat: The skunk ranges over prairie and open forest habitat, but is most abundant along the brushy borders of streams and lakes, and in thickets of gulches (Bailey, 1926). Observed habitat in the project area included roadsides, farmsteads, moderately grazed rolling grasslands, and hardwood draws.

Status: Common in the project area.

ORDER: Carnivora

FAMILY: Felidae (Cats) - Except for size and color, most members of this family look alike. Cats have short faces, small rounded ears and retractile claws (Hall and Kelson, 1959).

Cougar (*Felis concolor*) - This is a large cat, weighing 36-91 kg. Its range covers the western United States, Canada, and Mexico (Hall and Kelson, 1959).

Distribution in the project area: Reported observations have been primarily in the northern part of the project area (Fig. 344).

Habitat: It occurs in a wide variety of habitats, including mountains, forests, and swamps. The few reported observations in the project area have primarily been from remote, broken country.

Status: The animal is very secretive and sightings are rare. Nero and Wrigley (1977) studied the mountain lion in Manitoba and found that wandering males travel great distances in a short time. They have reported evidence indicating

a resident breeding population in Manitoba, which may extend into North Dakota. There may be a breeding population in the project area, but it is also possible that reported sightings are of wandering males. It is rare in the project area.

Comments: Other sightings north of the project area indicate that if there is not a resident breeding population, migrants may come from Saskatchewan or Manitoba.

ORDER: Carnivora

FAMILY: Felidae

Lynx (*Lynx canadensis*) - This cat has a bobbed tail with a black tip and large ear tufts. It weighs 7 to 14 kg. Its range includes Canada and the northern United States.

Distribution in the project area: Sightings have been made in the northern part of the project area (Fig. 345).

Habitat: The Lynx prefers forest areas and swamps but the actual habitat preference in the project area is unknown.

Status: It is rare in the project area. There are occasional sightings but the cat is probably not breeding in the area.

Comments: The Lynx has been known to periodically move into the northern tier of states, these movements coinciding with cyclic declines of the snowshoe hare, its principal prey, in Canada.

ORDER: Carnivora

FAMILY: Felidae

Bobcat (*Lynx rufus*) - This species is similar to the Lynx, but only has black on the top of its tail and has shorter ear tufts. It ranges throughout most of the United States.

Distribution in the project area: Occurrence in the project area is reported to be mainly from the Badlands and the Killdeer Mountains. However, this species may wander along rivers throughout the area.

Habitat: It is found in all forest types, grasslands, and hardwood draws. Our one observation (Fig. 346) was in deciduous forest.

Status: The Bobcat is rare, but the project area has a sustaining breeding population. It is fairly frequently shot and taken by hunters and trappers. Sightings are infrequent but regular (Fig. 347).

Comments: Very little is known about this animal but local ranchers in the badlands feel its present population is much lower than in past years. This may be due to increased hunting and trapping pressure for its valuable pelt.

Figure 337.

RACCOON

(*Procyon lotor*)

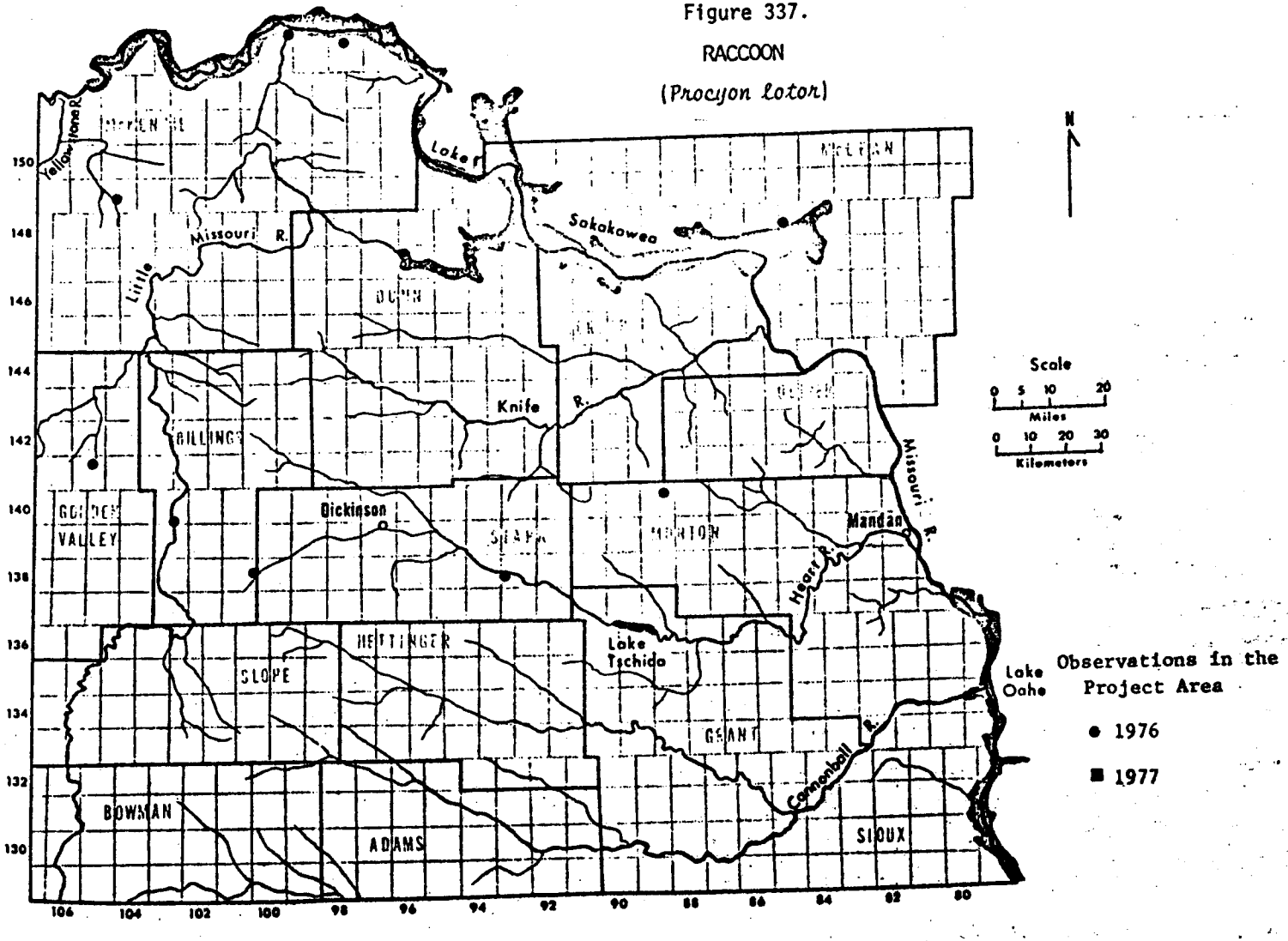


Figure 338.

ERMINE

(Mustela erminea)

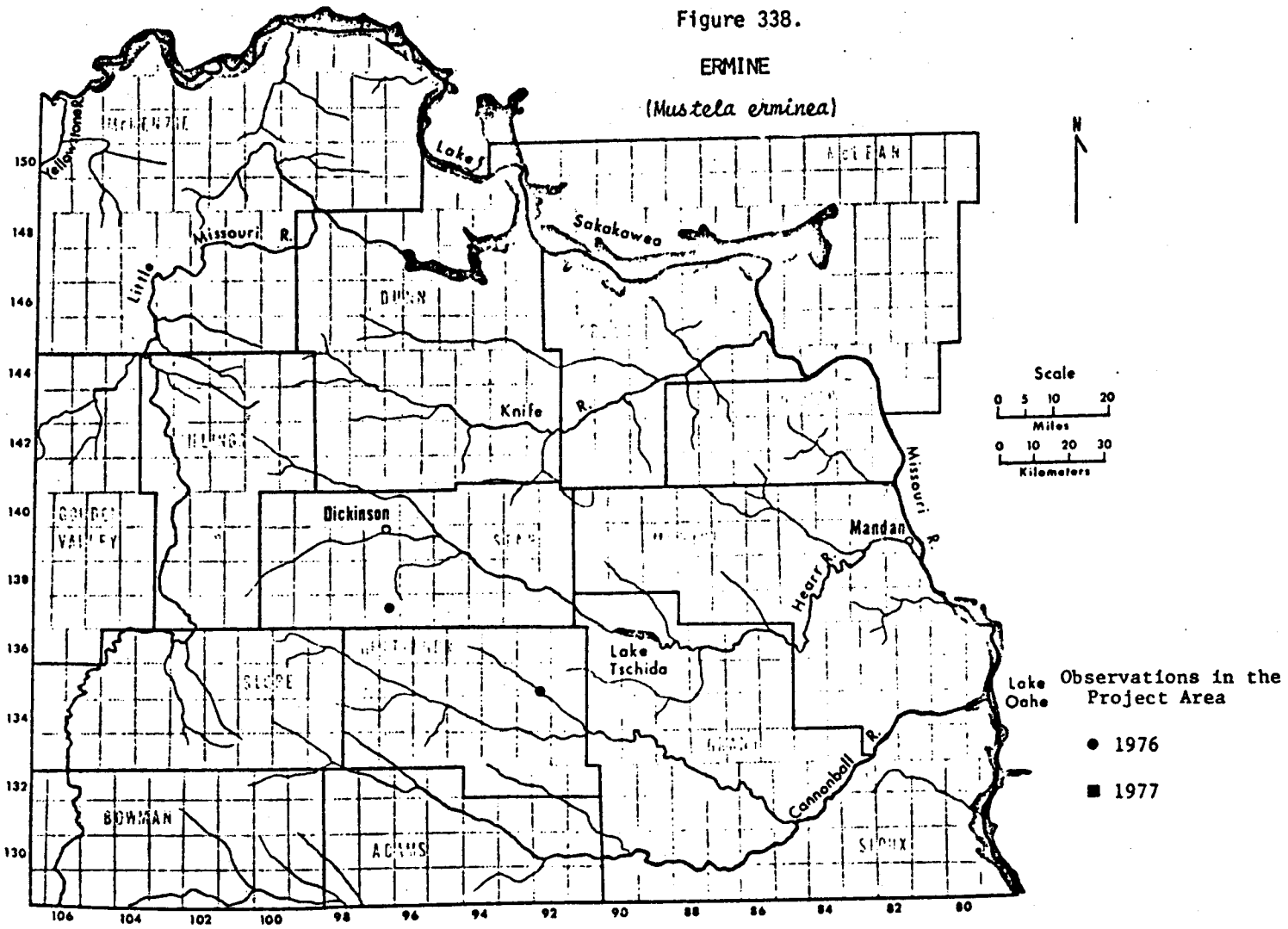


Figure 339.

LONG-TAILED WEASEL

(Mustela frenata)

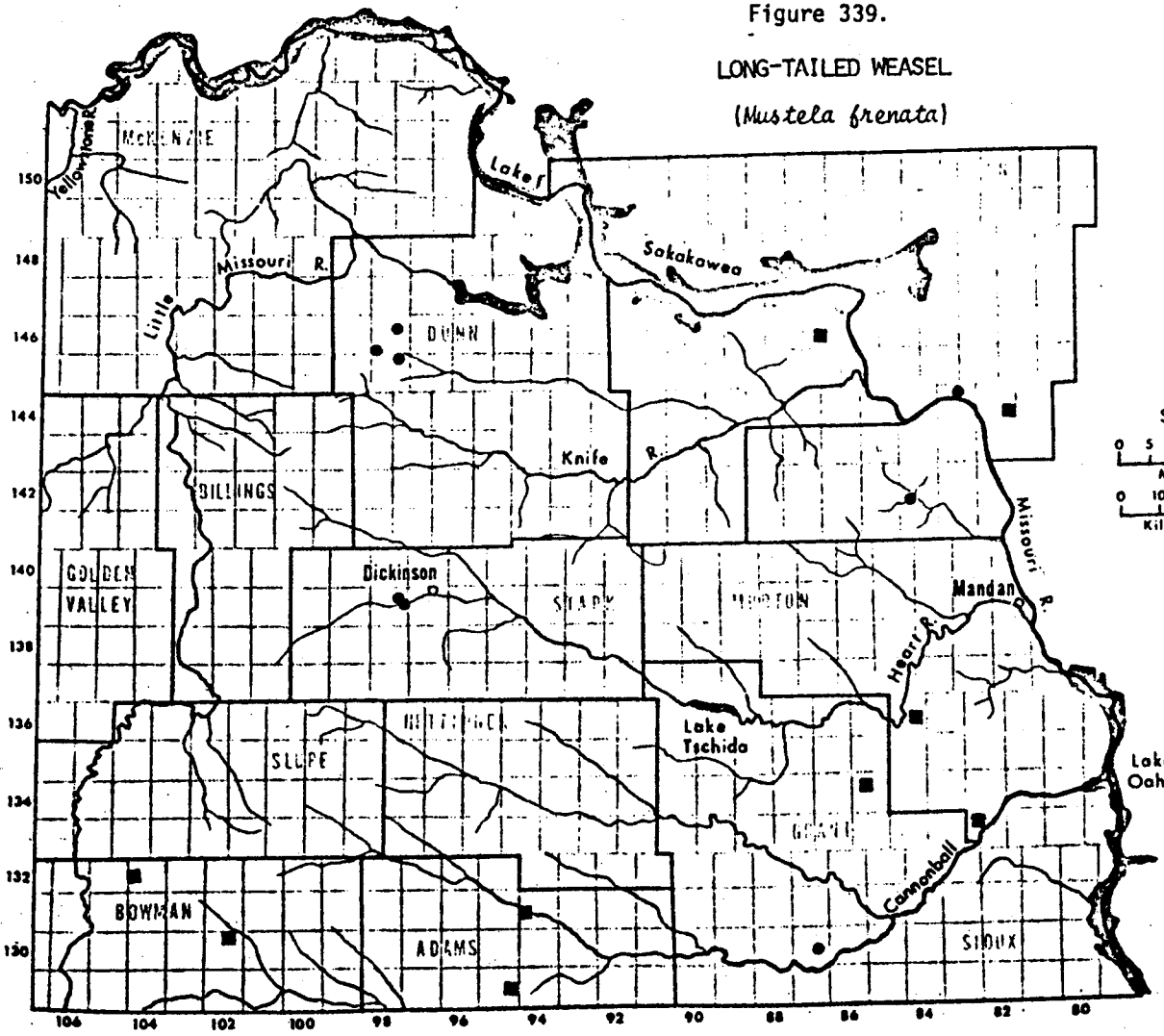


Figure 340.

BLACK-FOOTED FERRET

(*Mustela nigripes*)

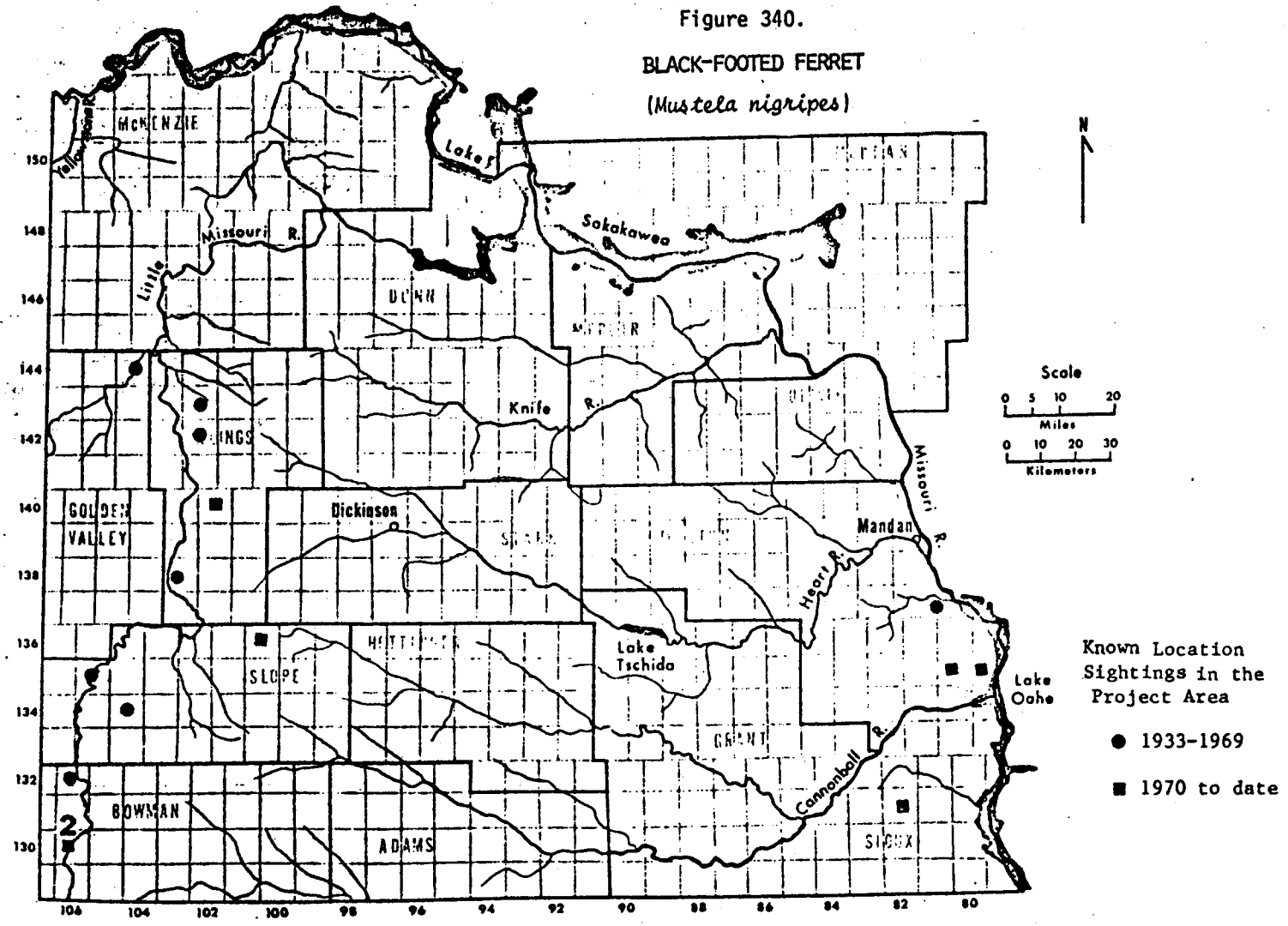


Figure 341.
MINK
(*Mustela vison*)

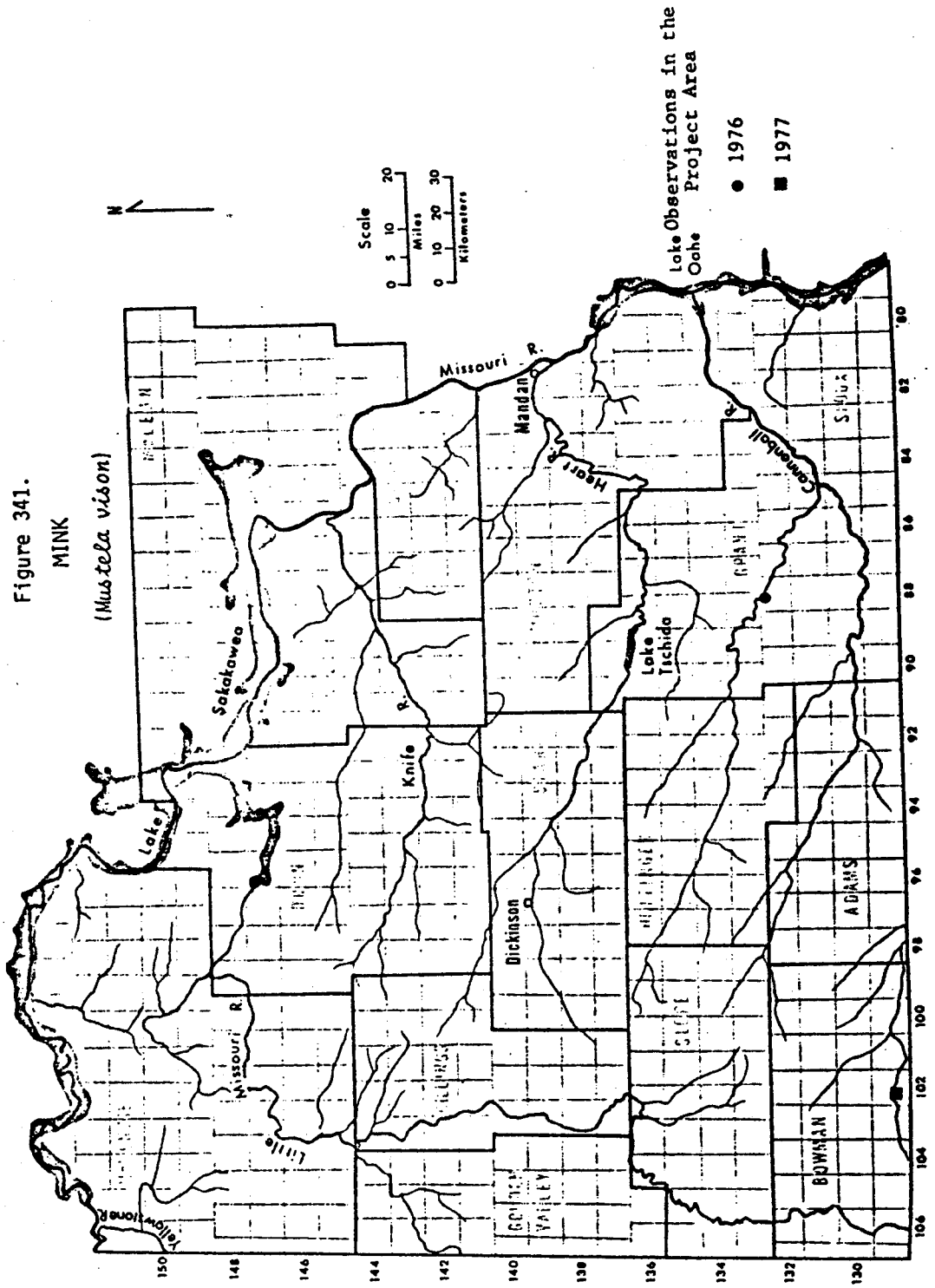


Figure 342.

BADGER

(*Taxidea taxus*)

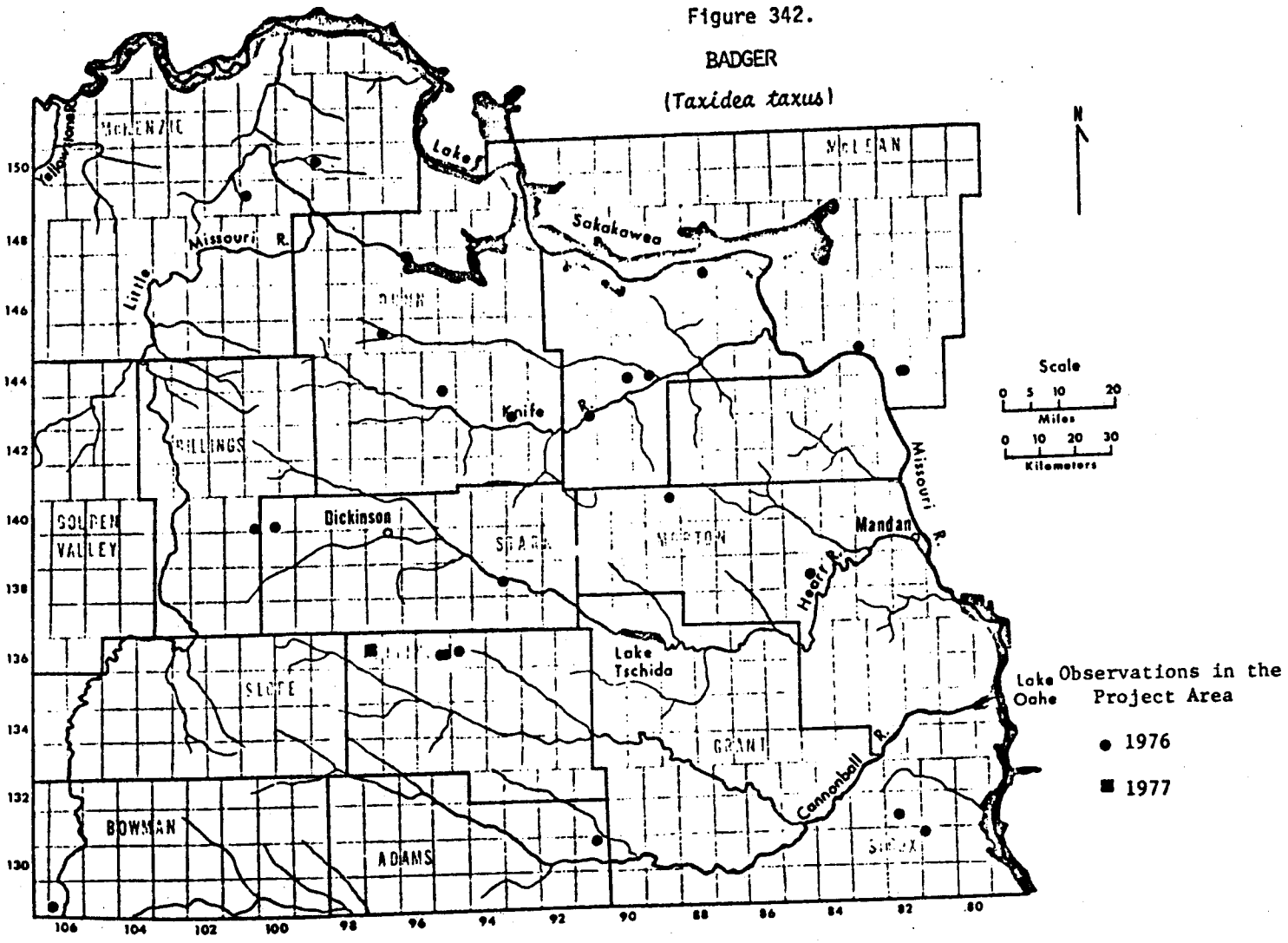


Figure 343.

STRIPED SKUNK

(*Mephitis mephitis*)

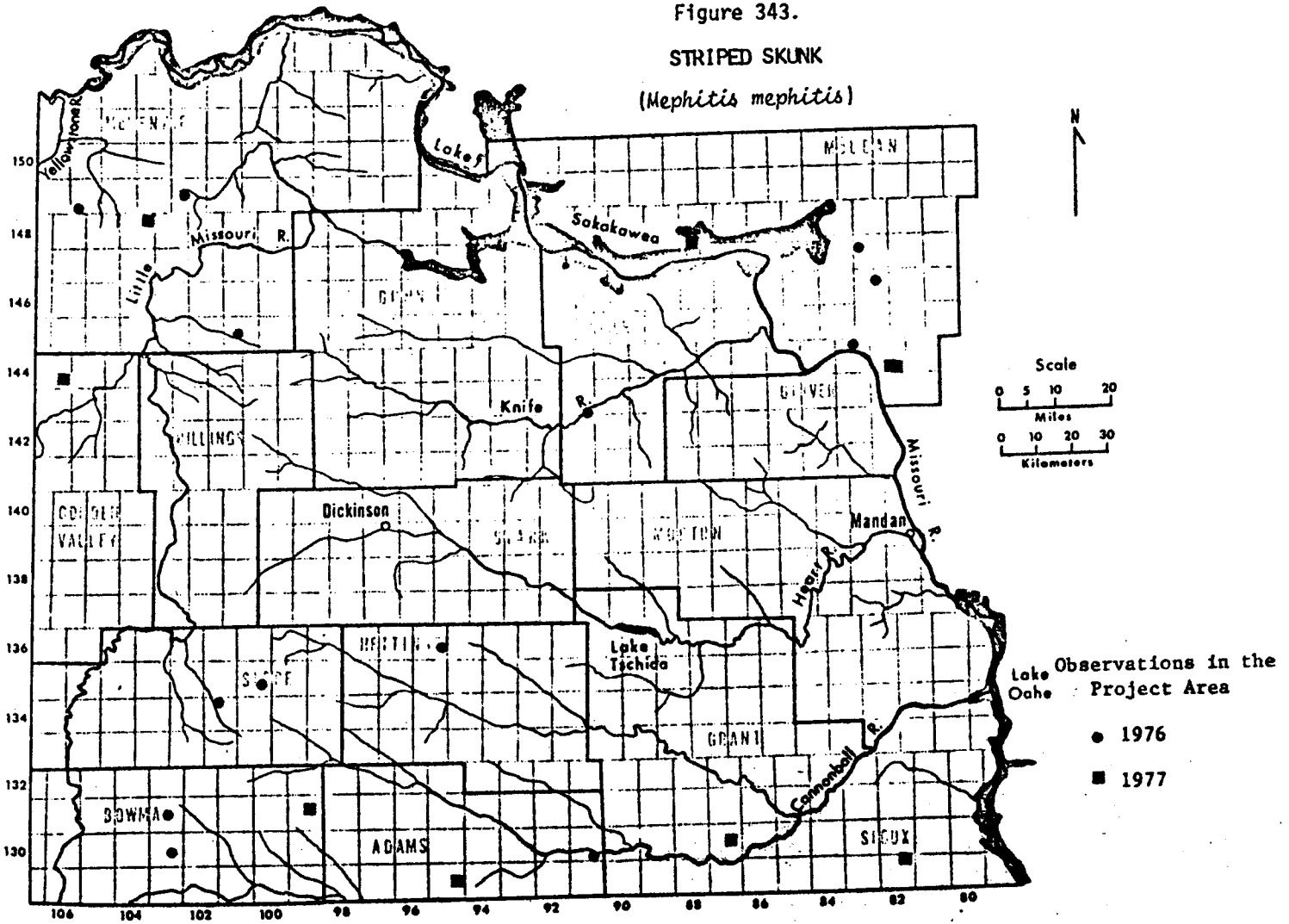
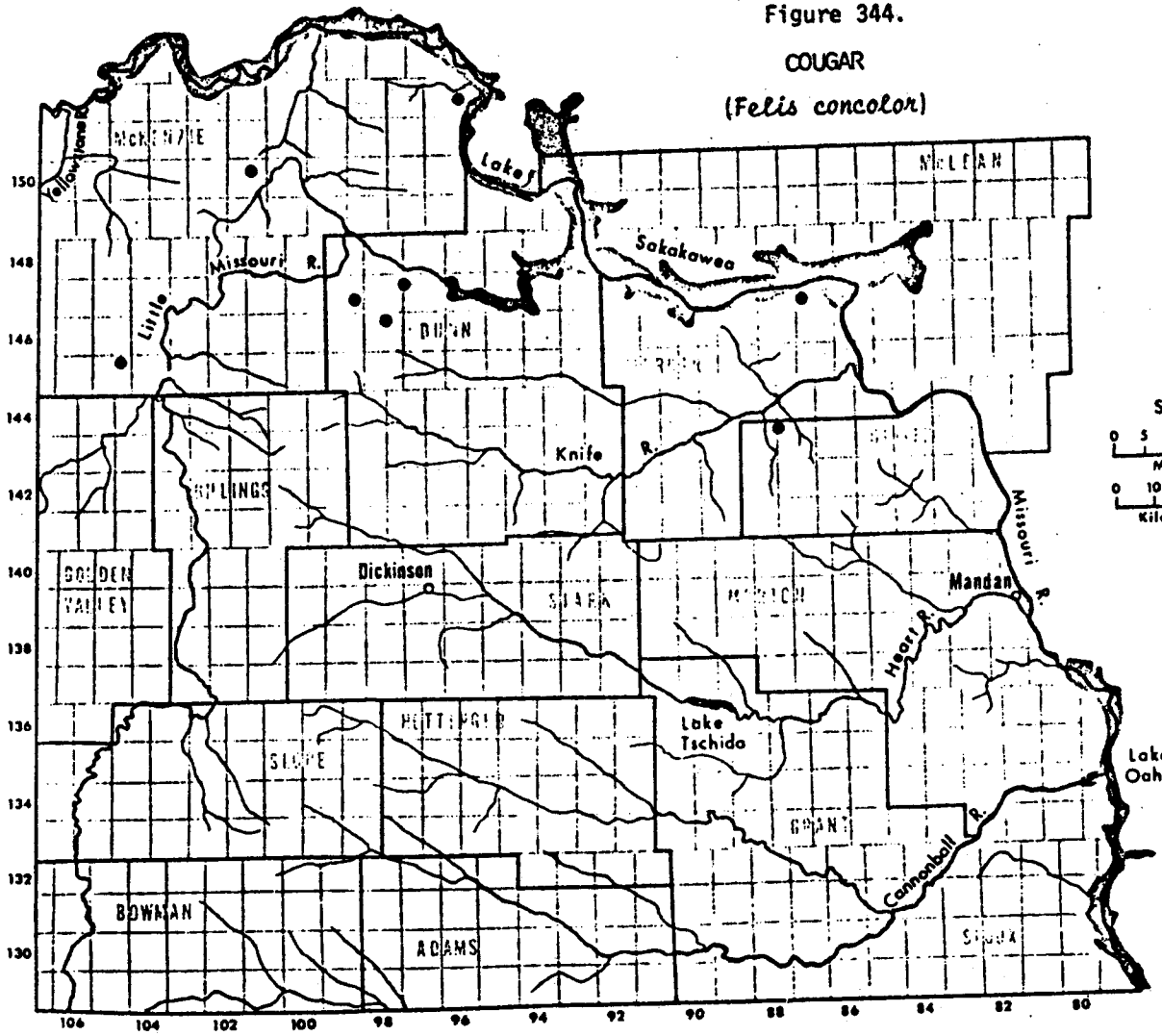


Figure 344.

COUGAR

(*Felis concolor*)



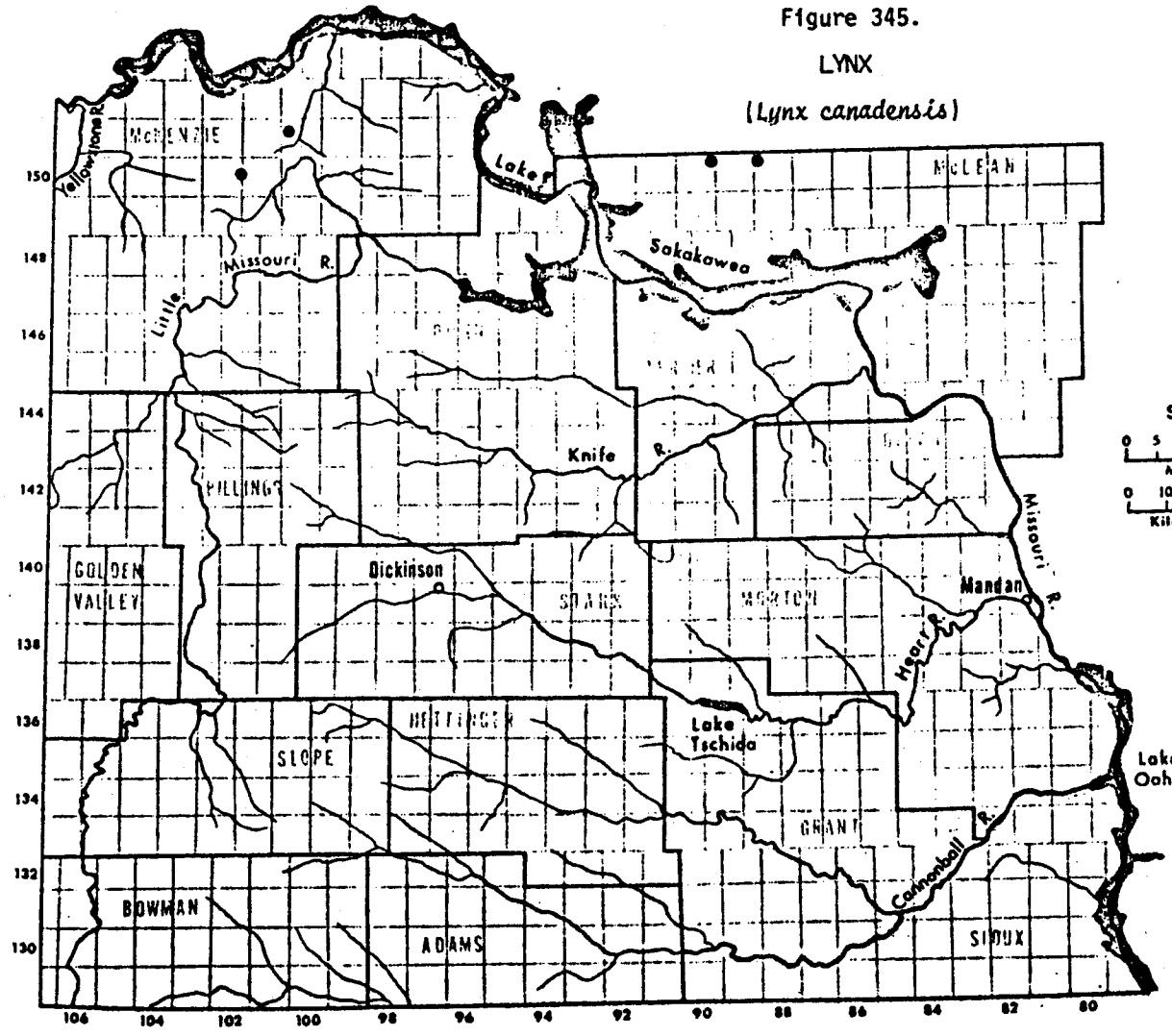
Reported Observations in the Project Area

(After Nero and Wrigley, 1977)

Figure 345.

LYNX

(Lynx canadensis)



Reported Observations in the Project Area

(North Dakota Game and Fish Department Records)

Figure 346.

BOBCAT

(*Lynx rufus*)

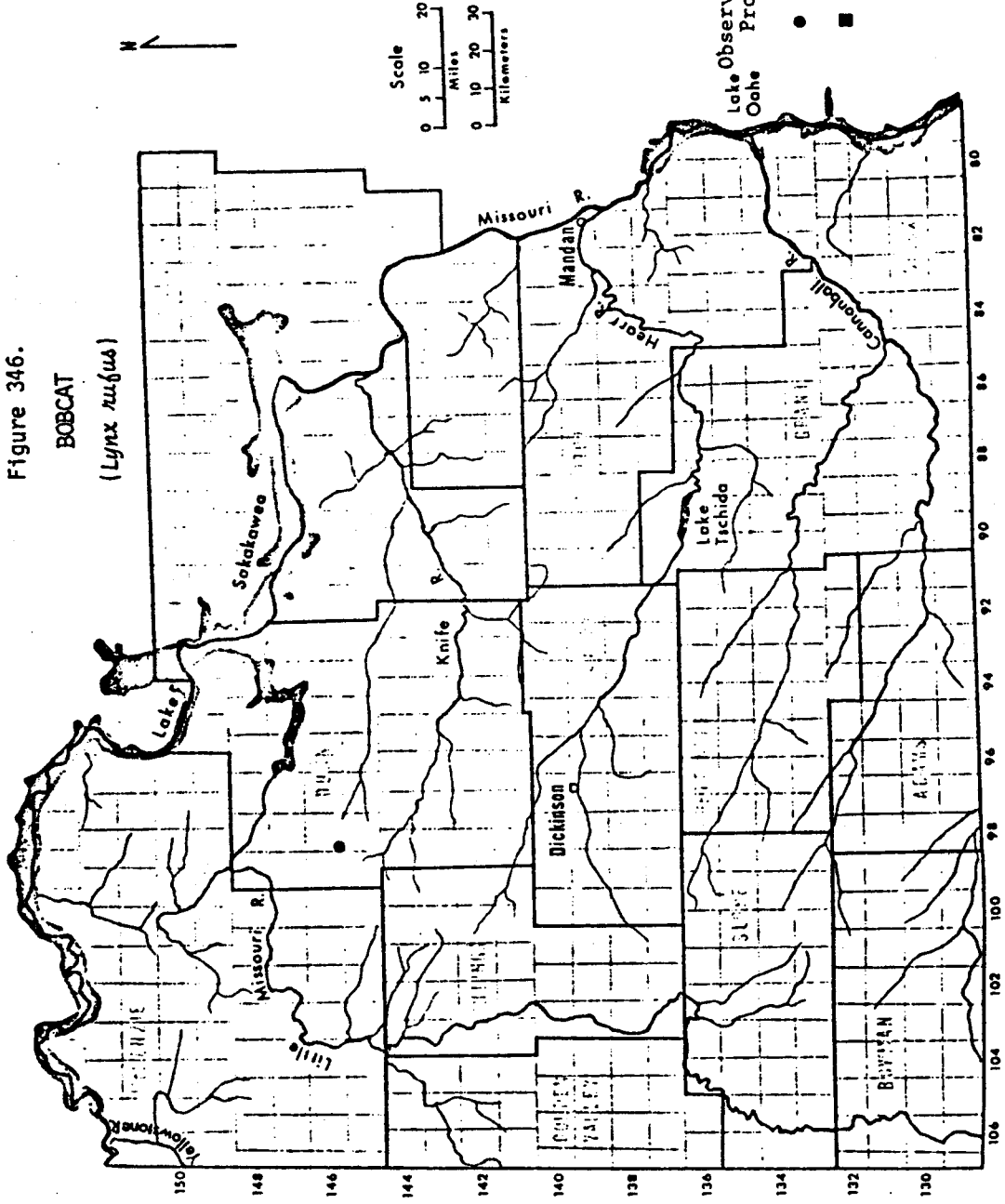
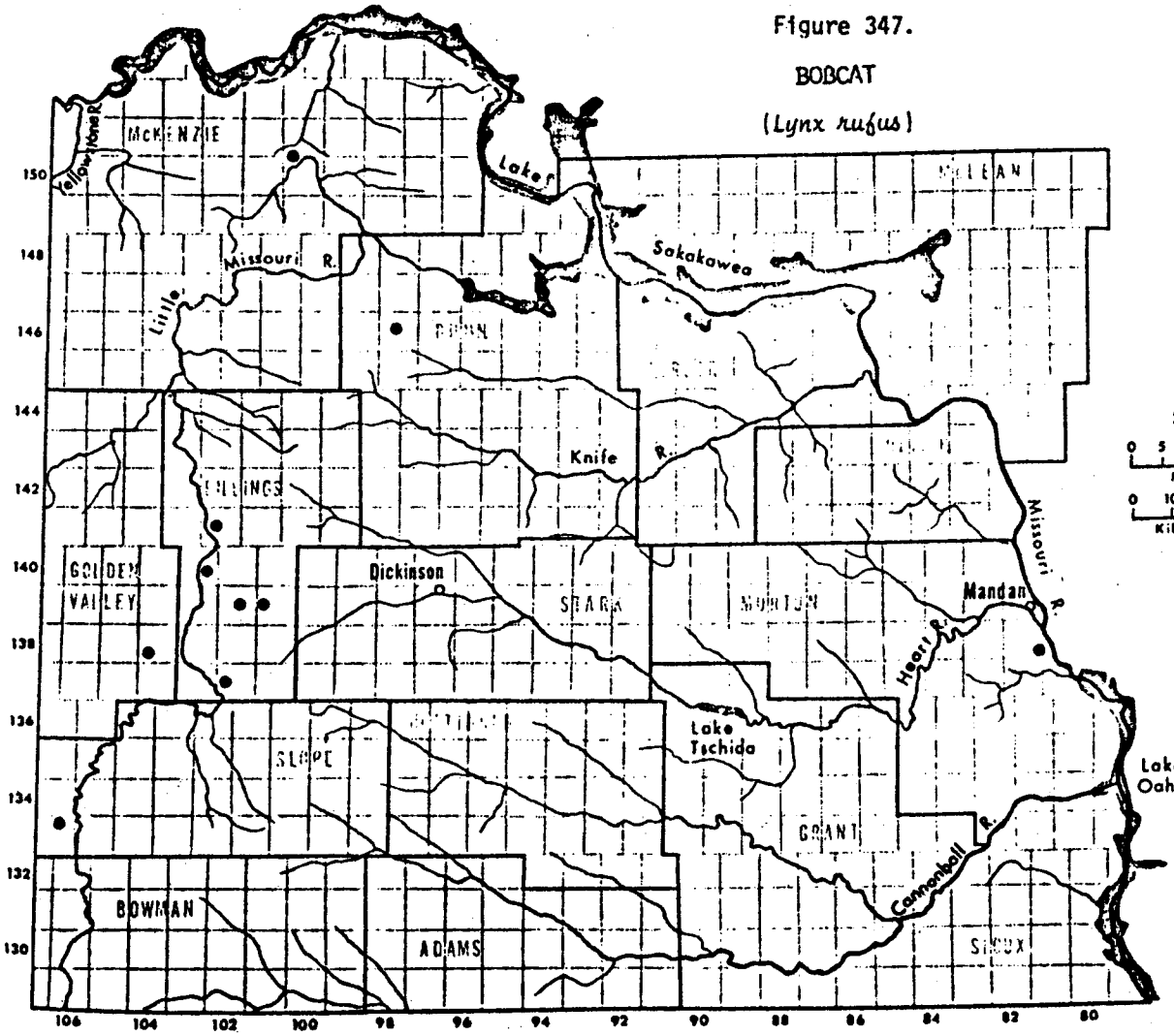


Figure 347.

BOBCAT

(*Lynx rufus*)



Recent Reported Sightings

(North Dakota Game and Fish Department Records)

ORDER: Artiodactyla

FAMILY: Cervidae (Deer, Elk, Moose, and Caribou) - Members of this family are hoofed mammals which are chiefly browsers and chew their cud. Only the males have antlers, which are shed and replaced annually (Hall and Kelson, 1959).

Mule Deer (*Odocoileus hemionus*) - The Mule Deer is characterized by its large ears and "hopping" run. Its color varies with the season but is usually some shade of grey. It is most active in the mornings, evenings and throughout the night. Its range is the western United States and Canada, including all of North Dakota (Hall and Kelson, 1959).

Distribution in the project area: Mule Deer are found throughout the project area, but are most abundant in the western counties and along the principal tributaries of the Missouri River (Fig. 348). The North Dakota Game and Fish Department has been censusing Mule Deer populations in the badlands for twenty years (Fig. 349), and its data was our basis for conclusions. At the present time, population density in the primary badlands habitat averages over two deer per square mile, which is higher than the 20 year mean (Table 6).

Habitat: Although Mule Deer are found in all habitats throughout the project area, upland breaks, toe slopes, juniper draws, and brushy draws are regarded as preferred. These habitats are most extensive in the areas of highest population density indicated in Figure 350.

Status: In the badlands area we consider Mule Deer to be common and locally abundant. It is also common along most of the rivers, and in Sioux County. In the rest of the project area sightings were rare to locally common.

ORDER: Artiodactyla

FAMILY: Cervidae

White-tailed Deer (*Odocoileus virginianus*) - The White-tailed Deer ranges throughout southern Canada and all of the United States except the southwest. The species is the most numerous of North Dakota's big game animals.

Distribution in the project area: White-tailed deer is found throughout the project area (Fig. 351).

Habitat: The White-tailed Deer is found in all habitats throughout the project area; it prefers areas with some trees. In the project area, it was most commonly observed in moderately grazed rolling grassland, hardwood draws, riparian woodland, and deciduous forest.

Status: Due to poor snow conditions, there has not been an aerial census for White-tailed Deer in the project area for several years (McKenzie, 1976); therefore, recent data on populations is lacking. However, known habitat preferences and our observations indicate that areas in the vicinity of river systems seem to have the largest populations (Fig. 351). Populations over the last three years may be somewhat lower than they were five or six years ago, but well above the 20-year average (James McKenzie, personal communication).

Table 6. 1976 Mule Deer survey results compared to 1975 and averaged data for past years. (from McKenzie, 1976)

Management Unit Study Area		square miles	Average of Past Years			1975		1976	
			No. years	Total Mule Deer	Average/ sq. mi.	Total Mule Deer	Average/ sq. mi.	Total Mule Deer	Average/ sq. mi.
Snake Butte	1	12.5	15	30	2.4	36	2.9	54	4.3
Marmarth	2	13.0	6	12	0.9	16	1.2	15	1.2
Engessor-Strom	3	31.5	20	98	3.1	195	6.2	115	3.7
3-V	4	16.0	20	106	6.6	106	6.6	78	4.9
H-T	5	12.5	20	39	3.1	40	3.2	71	5.7
Pine Forest	6	12.5	20	19	3/2	16	1.3	19	1.5
Devils Slide	7	14.0	4	107	7.6	123	8.9	136	9.7
Moody Plateau	8	17.5	4	34	1.9	41	2.3	27	1.5
Ripley	9	10.5	20	38	3.6	52	5.0	46	4.4
Christianson	10	7.5	20	18	2.4	7	0.9	23	3.1
Tommy Olson	11	14.5	19	31	2.1	20	1.4	24	1.7
Annear	12	6.0	20	13	2.2	16	2.7	12	2.0
Magpie Creek	13	----	4	22	2.1	36	3.4	6	0.6
Beicegel Creek	14	6.5	6	26	4.0	42	6.5	16	2.5
Corral Creek	15	14.0	15	48	3.4	81	5.8	93	6.6
Charley Bob Creek	16	9.0	6	22	2.4	32	3.6	13	0.7
Danielson-Olson	17	5.0	15	35	7.0	53	10.6	40	8.0
Averages					3.3		4.3		3.7

This short-term decline is probably due to Epizootic Hemorrhagic Disease that has been affecting populations in the southwestern portion of the state. We consider White-tailed Deer to be common to locally abundant throughout the project area.

ORDER: Artiodactyla

FAMILY: Cervidae

Elk (*Cervus canadensis*) - This is a large deer-like animal weighing up to 454 kg. Elk distribution is spotty but the Rocky Mountains, southern Saskatchewan and Manitoba contain the greatest numbers.

Distribution in the project area: Occasional reported sightings have been made throughout the project area (Fig. 352).

Habitat: The Elk prefers forests and mountains, but since it wanders throughout the project area, all habitats are utilized.

Status: It is rare and only a few sightings have been made throughout the project area.

Comments: Sightings are probably of wandering animals from the Riding Mountain herd in Manitoba and Saskatchewan, although some may be escapees from capture herds. There is no resident breeding population in the project area.

ORDER: Artiodactyla

FAMILY: Cervidae

Moose (*Alces alces*) - This is the largest North American member of the family Cervidae. Its range covers Canada, Alaska and portions of the Rocky Mountains. Recently it has extended farther south into the United States due to gradual forest maturation.

Distribution in the project area: Moose are occasionally seen throughout the project area (Fig. 353).

Habitat: Although it prefers swamps and mature forests, it will utilize brushy areas and most other habitats.

Status: It is rare, and only occasional sightings have been made in the project area.

Comments: There is probably no breeding population in the project area. It appears that young bulls wander some distances from population centers, and the sightings in the project area are probably indicative of these wanderings.

Figure 348.

MULE DEER

(*Odocoileus hemionus*)

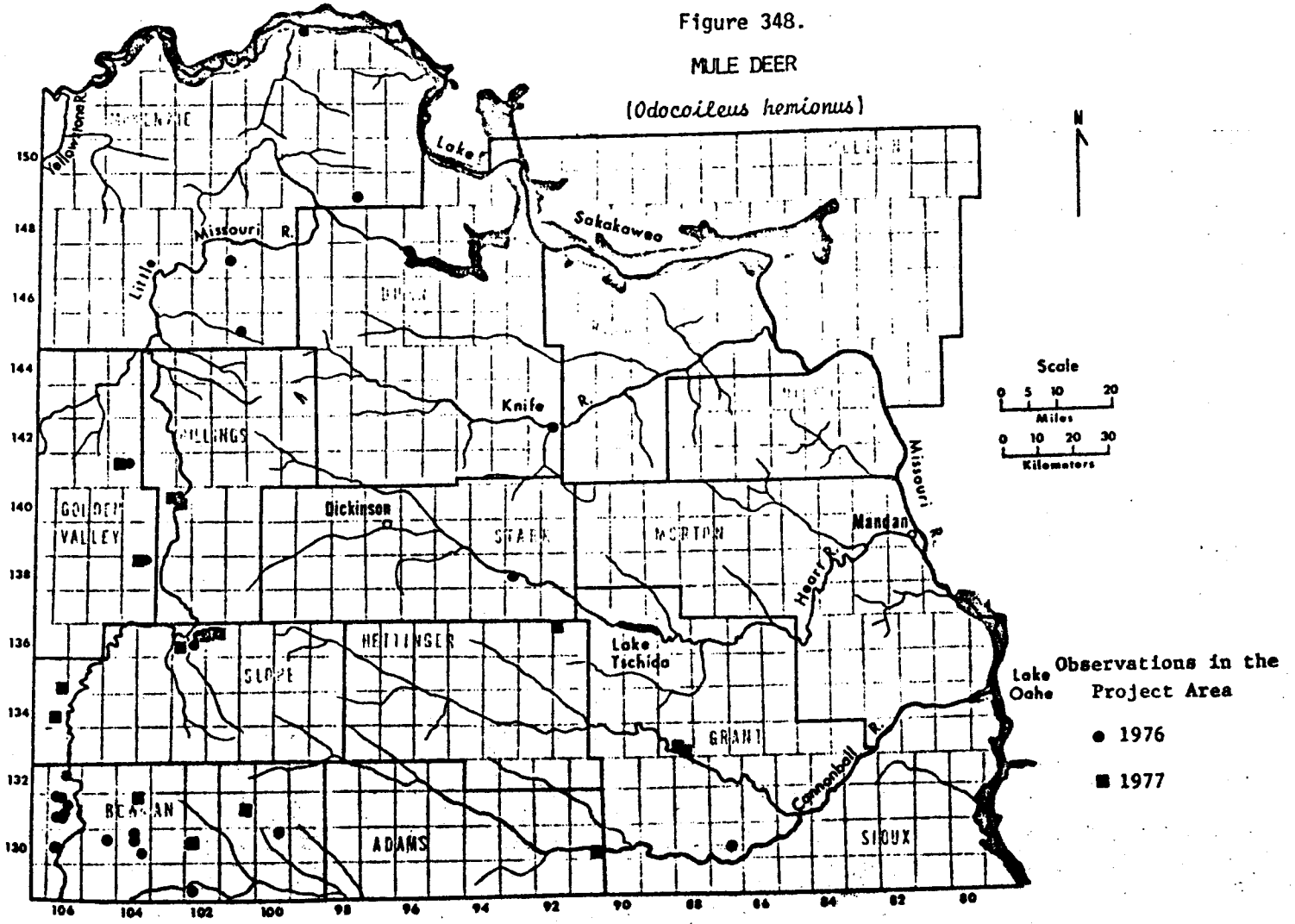
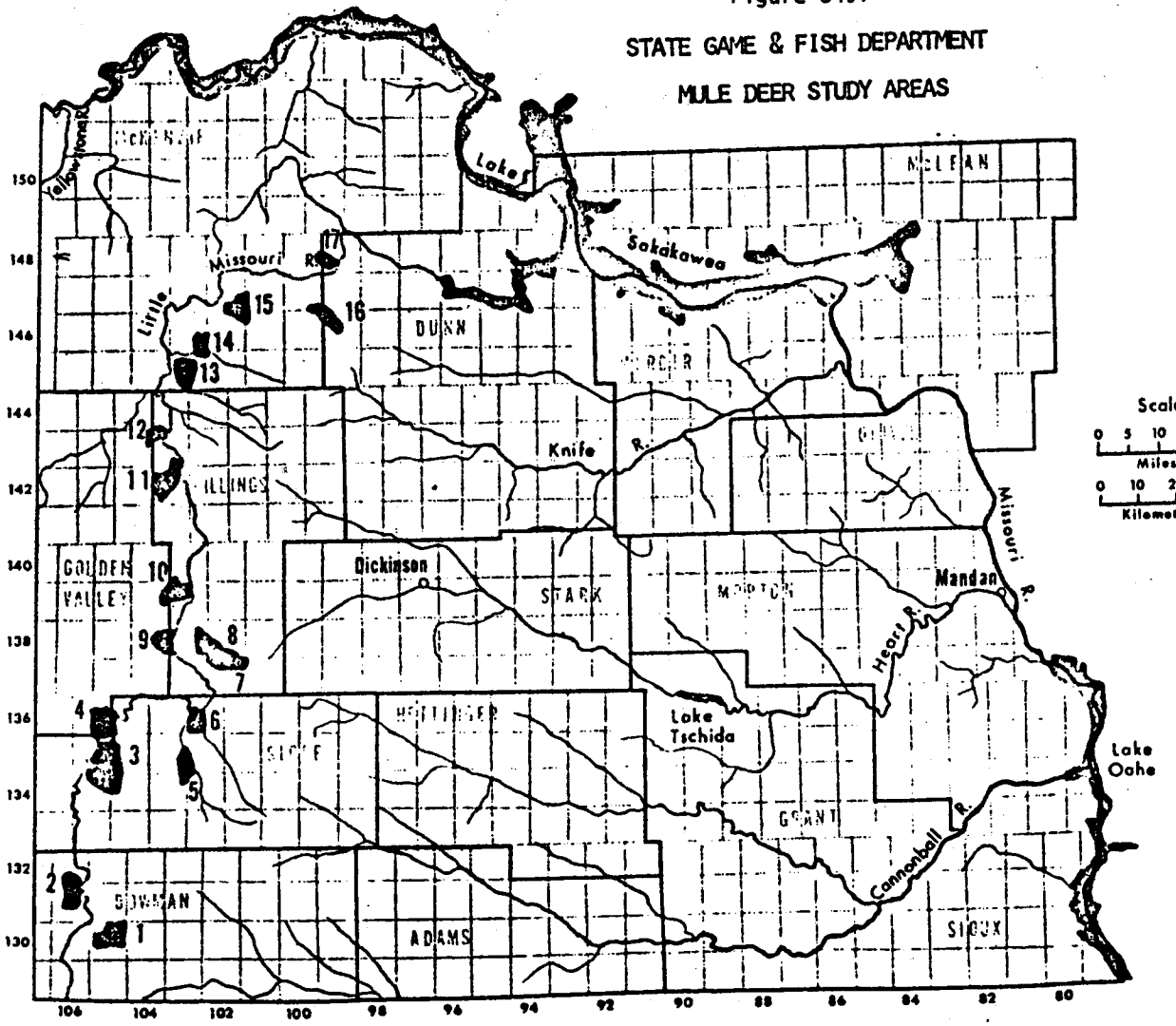


Figure 349.

STATE GAME & FISH DEPARTMENT

MULE DEER STUDY AREAS



Areas identified in Table 6.

Figure 350.

APPROXIMATE DENSITIES OF MULE DEER

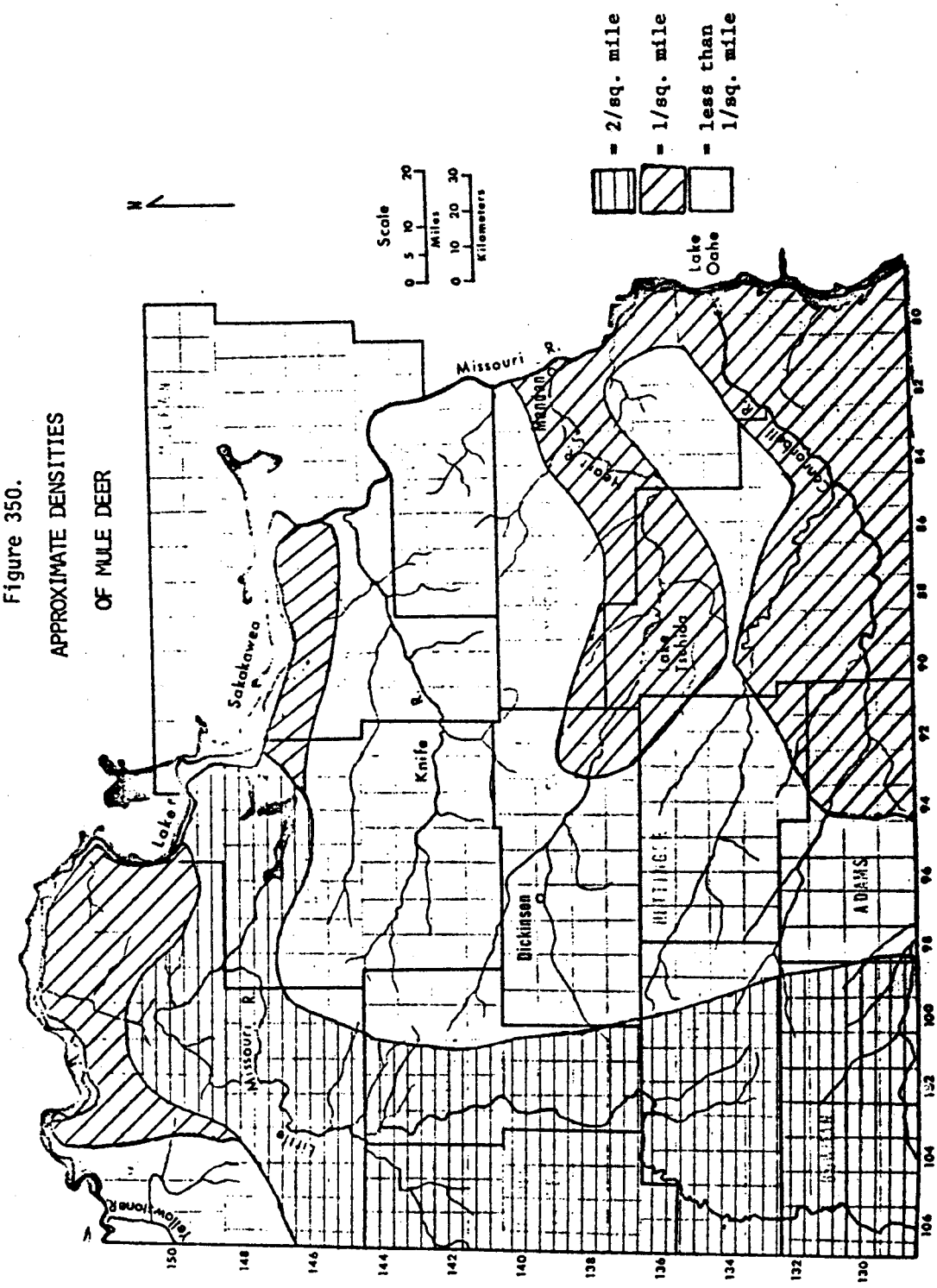


Figure 351.

WHITE-TAILED DEER

(*Odocoileus virginianus*)

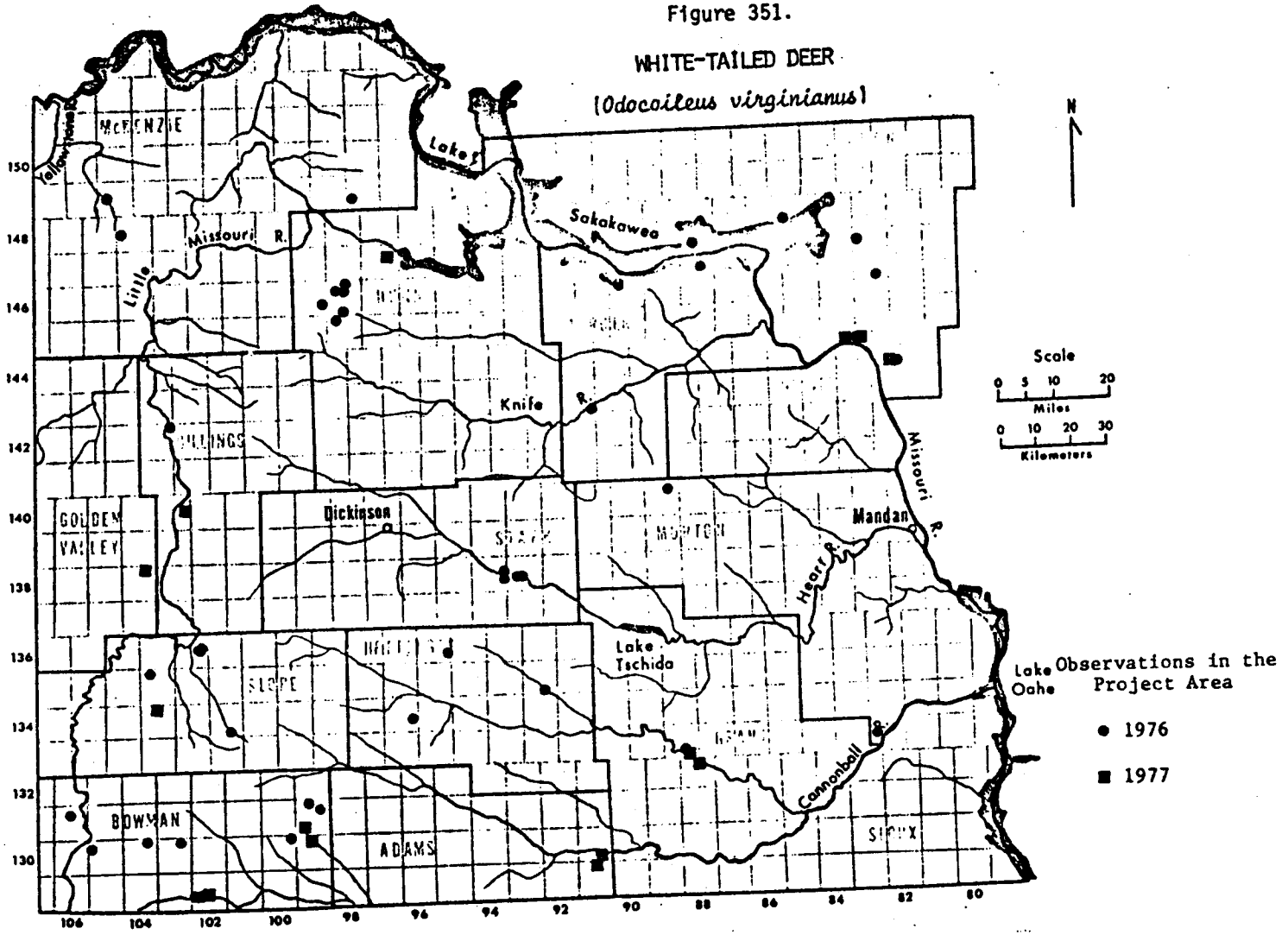
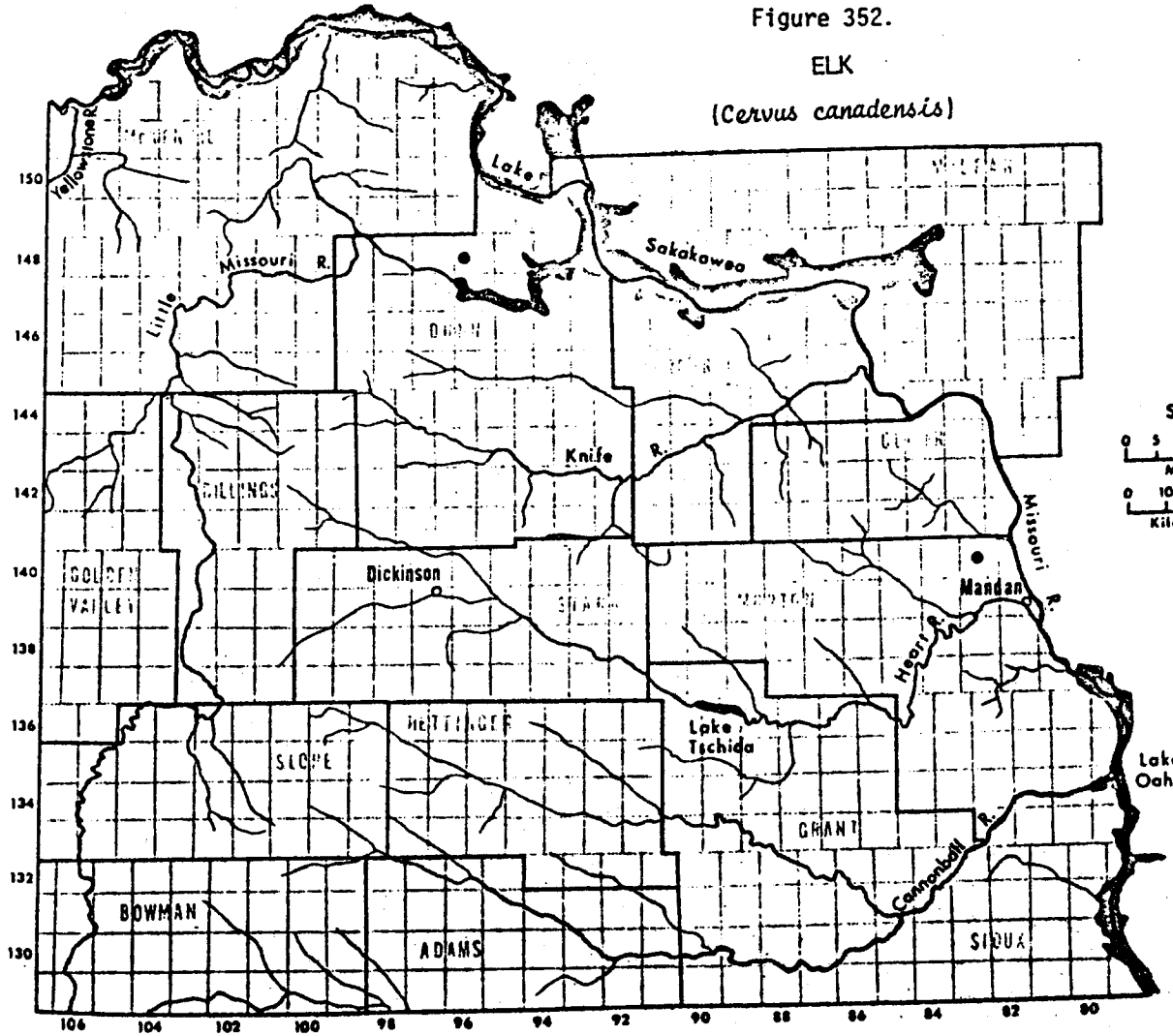


Figure 352.

ELK

(*Cervus canadensis*)



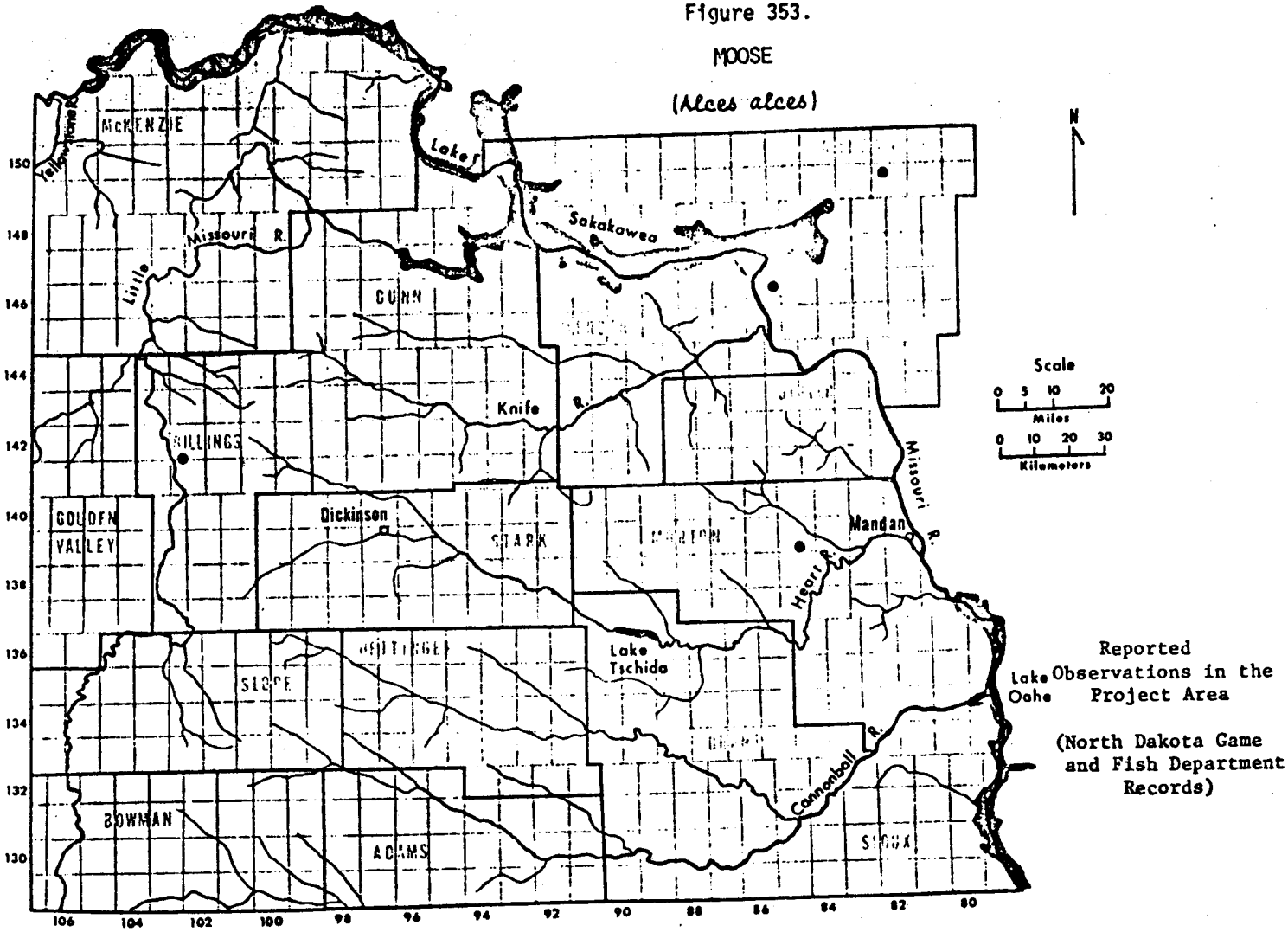
Reported Observations in the Project Area

(North Dakota Game and Fish Department Records)

Figure 353.

MOOSE

(*Alces alces*)



Reported Observations in the Project Area

(North Dakota Game and Fish Department Records)

ORDER: Artiodactyla

FAMILY: Antilocapridae

Pronghorn (*Antilocapra americana*) - The Pronghorn is the only member of the family Antilocapridae and is found only in North America. The species range includes the Rocky Mountains to western Dakotas south to Mexico (Hall and Kelson, 1959). As a species it was nearly extirpated due to market hunting and poor range management (Bailey, 1926), but with protection, populations underwent significant recovery.

Distribution in the project area: The Pronghorn is found throughout the project area, but is especially abundant in the western tier of counties (Fig. 354, 355).

Habitat: Although all habitats are utilized at various times of the year, a marked preference is shown for open areas and sagebrush plains. Hardwood draws (all types) are a critical component of both primary and secondary habitats in providing winter storm cover. The following habitats contain approximately 90% of the Pronghorn population throughout the year: grasslands (all types), agriculture/disturbed (all types), and hardwood draws (all types).

Status: North Dakota Game and Fish Department estimated approximately 5660 animals in the project area in 1975, which was about 17% below the 1974 census (Samuelson, 1976). Data indicate that populations fluctuate from year to year, but the trend is definitely downward. We consider Pronghorn to be locally common to abundant in western Bowman and Slope Counties, common in most other areas, and locally common to rare in some areas (Fig. 354, 355).

Comments: The history of the Pronghorn in North America is a dramatic example of man's influence on a wild population; the early pressures of cattle-raising and agriculture resulted in elimination from much of its original range (Allen, 1954). Populations underwent significant recovery under protection and as land use stabilized. However, the recent downward trend of the Pronghorn in North Dakota may be correlated with the loss of winter cover due to more intensive land use. It appears that weather and winter habitat or their interrelation are the most critical factors to Pronghorn populations. If storm cover (e.g. brushy draws, etc.) continues to decrease, we assume that Pronghorn populations will also decrease. As this report is being completed (1978), indications are that a drastic reduction in antelope numbers has occurred due to the recent severe winter.

ORDER: Artiodactyla

FAMILY: Bovidae (Bison and Bighorn Sheep) - This family is chiefly one of grazers. Members have unbranched horns which are usually present on both sexes. These horns are permanent bony outgrowths from the skull and are covered with a permanent horny sheath. Domestic cattle, sheep, and goats are also included in the family (Hall and Kelson, 1959).

California Bighorn Sheep (*Ovis canadensis californiana*) - This subspecies of Bighorn Sheep was introduced into the Badlands in 1956 to fill the niche originally occupied by the now extinct Audubon Sheep (*O. c. audubonii*). Bighorn Sheep are gregarious; ewes and lambs usually are separate from rams in the summer, but are joined by the rams in the fall. Rutting occurs in November and December with lambs born in May or June.

Distribution in the project area: Bighorn Sheep are found along the Little Missouri River from southern McKenzie County to about the Slope County line (Fig. 356, 357). The ewes occupy a relatively small home range and consequently the herds do not disperse readily.

Habitat: Bighorn Sheep prefer areas where there are grassy plateaus with steep cuts and juniper draws.

Status: North Dakota State Game and Fish Department estimates the population to be approximately 300 head (Samuelson, 1975).

Comments: In view of the past history of the Bighorn in North Dakota, culminating in its extinction, we regard the species as being especially vulnerable to unregulated hunting, competing land use and parasitic diseases. McKenna et al. (1978) have documented the occurrence of those lungworms associated with "bighorn sheep lungworm-pneumonia complex," known to be the most significant disease of Bighorn Sheep and the causal agent of large scale mortality elsewhere in the species' range. Furthermore, Bickel (1977) has identified land snails in the project area which serve as intermediate hosts for lungworms. Consequently, the past history of the Bighorn in North Dakota, its tendency for overcrowding, and the occurrence of a known serious parasite in the local population, cause us to be concerned for the welfare of this unique game animal in the state.

Figure 354.

PRONGHORN

(*Antilocapra americana*)

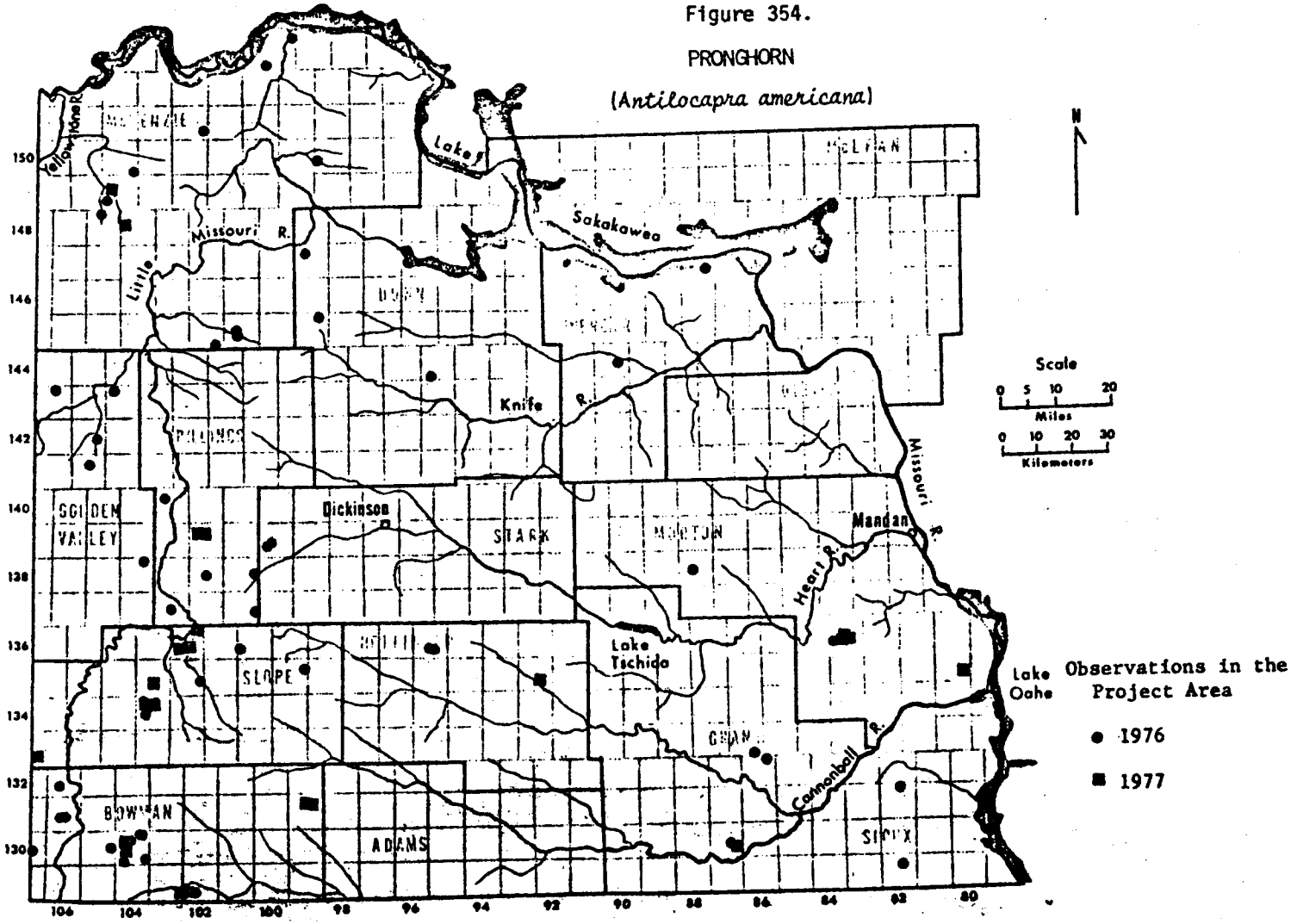


Figure 355.

APPROXIMATE DENSITIES

OF PRONGHORNS

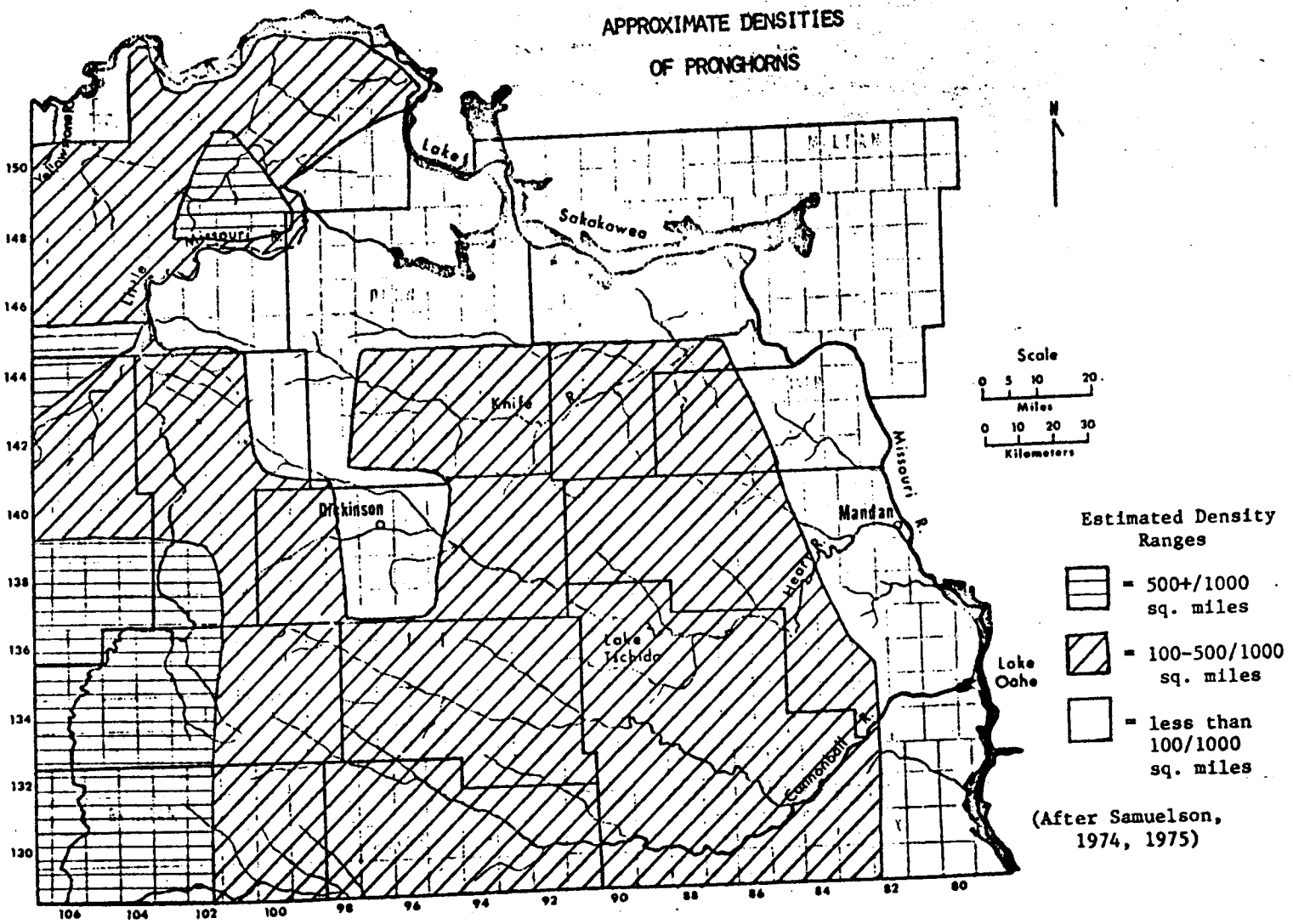


Figure 356.

BIGHORN SHEEP

(*Ovis canadensis*)

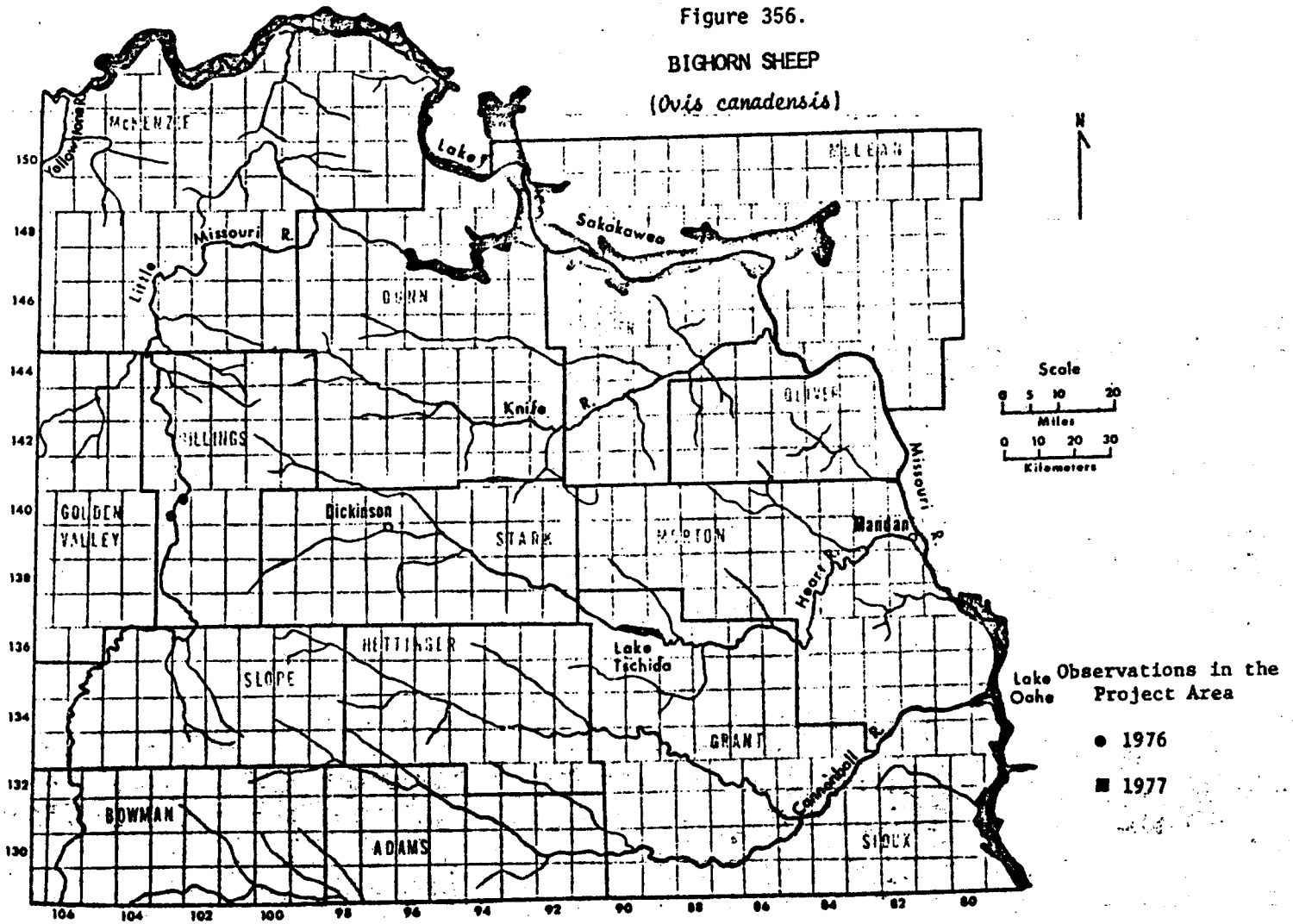
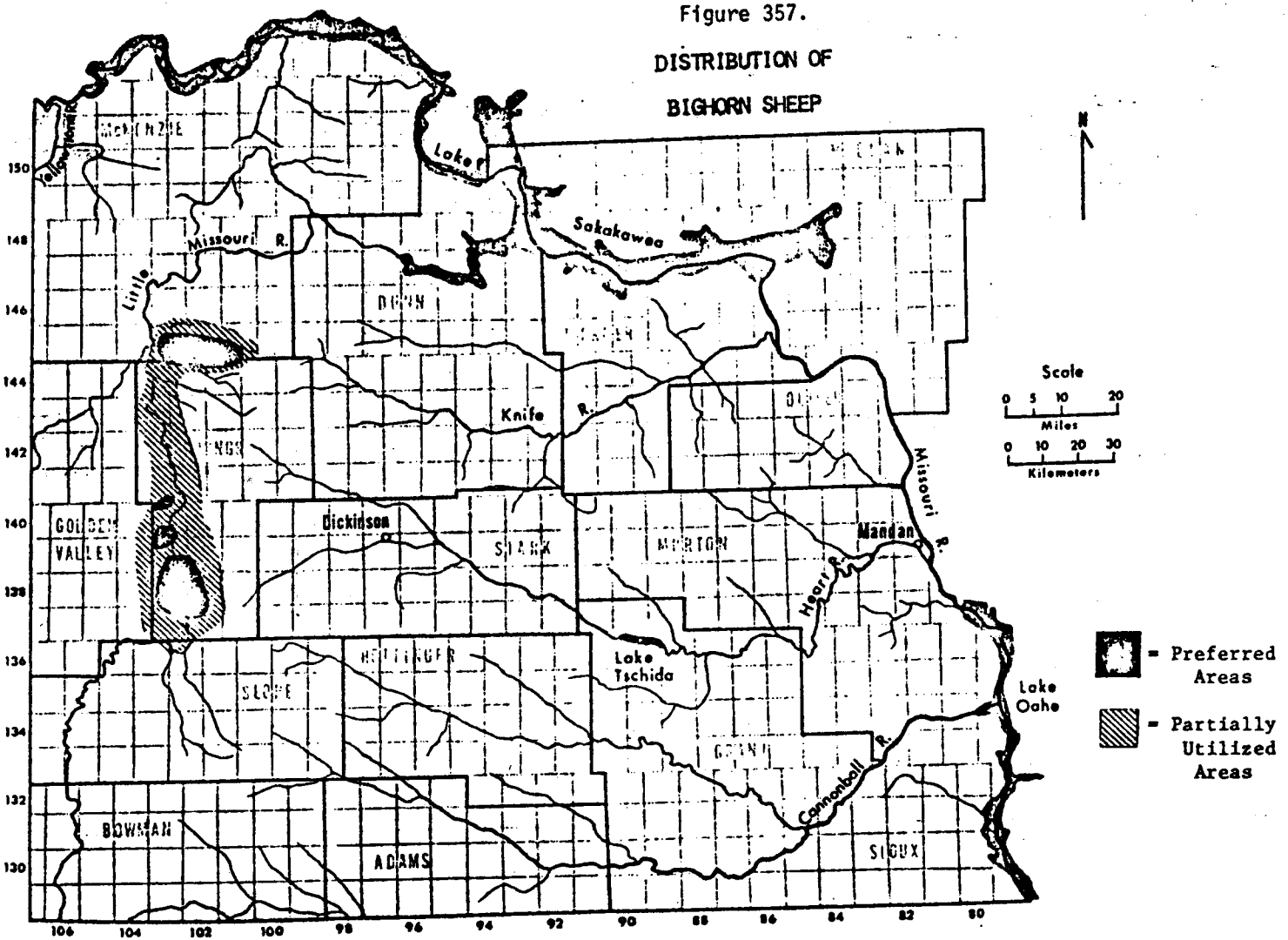


Figure 357.

DISTRIBUTION OF

BIGHORN SHEEP



SECTION 5. DISCUSSION

5.1 Trends in Bird Populations

Stewart and Kantrud (1972) surveyed 130 quarter-section plots in North Dakota during 1967-1969. Forty-four of their study plots lie within the present project area and were surveyed during 1967. During 1976 we surveyed 33 of these plots. Comparisons between Stewart and Kantrud's (1972) data for 1967 and ours for 1976 are given in Table 7. Raptors (hawks and owls) are not included in the analysis because the survey methods are not comparable.

The quarter-section survey is designed to indicate trends only, and, hence, caution should be used in interpreting data in Table 7. Whether large percentage changes in Table 7 represent true population changes is unknown. Although many variables are inherent in the data, general upward trends were noted for most upland game birds (Tetraonidae and Phasianidae), flycatchers (Tyrannidae), thrushes (Turdidae), Warblers (Parulidae), blackbirds (Icteridae) and sparrows (Fringillidae). Several population decreases are possible, but, in most cases, sample sizes are too low to draw definite conclusions. Two population decreases, however, may be significant. Evidently, McCown's Longspurs are scarce or nonexistent in the project area. Stewart and Kantrud (1972) recorded 10 individuals; we found none. Stewart (1975) noted that McCown's Longspurs once were fairly common in parts of North Dakota, but have recently disappeared in most areas. An intensive search for this species in the project area should be conducted. The other possibly significant population decrease is the Cliff Swallow. The change from 145 individuals in 1967 to none in 1976 might represent nothing more than missing one or more colonies on the surveys. The decrease might also represent complete destruction or desertion of entire colonies. Populations of these and other species should be closely monitored in future studies.

Most population changes probably represent annual or short-term population fluctuations. Many environmental factors conceivably could produce these changes (i.e. temperature, rainfall, grazing pressure, etc.). Future REAP studies should endeavor to separate these annual or short-term fluctuations from long-term trends.

5.2 Faunal Associations of Recognized Habitat Types

The following discussion is relevant to the habitat classification system utilized in this study. If REAP adopts a unified system of habitat classification, our data should be subjected to reanalysis. Acreage estimates for habitat types are based on field observations on quarter-section quadrats extrapolated to the total acreage comprised in the 59 sites. Consequently, it should not be construed that these percentages are necessarily representative of the entire project area, but rather only those areas that were sampled.

Table 7. Comparison of bird surveys of Stewart and Kantrud (1972) and REAP (1976)

Species	Numbers of pairs recorded		%
	Stewart & Kantrud (1967)	REAP (1976)	Change
Eared Grebe	4	0	-100
Double-crested Cormorant	0	14	---
Great Blue Heron	0	6	---
Mallard	26	32	+23
Gadwall	6	6	0
American Wigeon	3	4	+33
American Green-winged Teal	3	0	-100
Blue-winged Teal	21	18	-14
Northern Shoveler	11	8	-27
Pintail	23	8	-65
Sharp-tailed Grouse	13	28	+115
Gray Partridge	8	18	+125
Ring-necked Pheasant	2	34	+1600
Sora	2	0	-100
American Coot	3	2	-33
Killdeer	30	86	+187
Common Snipe	0	2	---
Marbled Godwit	0	2	---
Upland Plover	12	26	+117
Spotted Sandpiper	2	2	0
Long-billed Curlew	0	2	---
Wilson's Phalarope	6	2	-67
Ring-billed Gull	1	0	-100
Franklin's Gull	3	0	-100
Mourning Dove	98	141	+44

Table 7. (cont'd)

Species	Numbers of pairs recorded		% Change
	Stewart & Kantrud (1967)	REAP (1976)	
Black-billed Cuckoo	2	8	+300
Common Nighthawk	5	14	+180
Chimney Swift	1	0	-100
Belted Kingfisher	0	2	---
Hairy Woodpecker	1	0	-100
Common Flicker	19	18	-5
Eastern Kingbird	35	56	+60
Western Kingbird	8	18	+125
Say's Phoebe	6	12	+100
Least Flycatcher	3	16	+433
Traill's Flycatcher	5	12	+140
Horned Lark	814	870	+7
Cliff Swallow	145	0	-100
Barn Swallow	11	20	+82
Bank Swallow	2	6	+200
Rough-winged Swallow	5	0	-100
Black-billed Magpie	18	5	-72
Blue Jay	6	14	+133
Common Crow	6	4	-33
Black-capped Chickadee	2	56	+2700
White-breasted Nuthatch	0	3	---
Rock Wren	8	40	+400
House Wren	17	30	+76
Gray Catbird	14	28	+100
Brown Thrasher	33	33	0
Veery	2	6	+200

Table 7. (cont'd)

Species	Numbers of pairs recorded		% Change
	Stewart & Kantrud (1967)	REAP (1976)	
Gray-cheeked Thrush	0	2	---
Swainson's Thrush	0	2	---
Robin	28	58	+107
Eastern Bluebird	1	0	-100
Mountain Bluebird	8	6	-25
Sprague's Pipit	6	52	+767
Cedar Waxwing	4	4	0
Loggerhead Shrike	5	16	+220
Starling	4	6	+50
Red-eyed Vireo	20	7	-65
Warbling Vireo	0	4	---
Black-and-White Warbler	9	54	+500
Yellow Warbler	31	40	+29
Ovenbird	17	64	+276
Common Yellowthroat	18	84	+367
Yellow-breasted Chat	3	4	+33
American Redstart	13	18	+38
House Sparrow	61	---*	---
Bobolink	25	72	+188
Brown-headed Cowbird	106	358	+238
Yellow-headed Blackbird	1	0	-100
Red-winged Blackbird	144	174	+21
Western Meadowlark	490	656	+34
Orchard Oriole	5	12	+140
Northern Oriole	2	8	+300

*Data not collected by REAP teams during 1976.

Table 7. (cont'd)

Species	Numbers of pairs recorded		%
	Stewart & Kantrud (1967)	REAP (1976)	Change
Brewer's Blackbird	6	24	+300
Common Grackle	13	6	-54
American Goldfinch	23	24	+4
McCown's Longspur	10	0	-100
Chestnut-collared Longspur	901	1104	+23
Vesper Sparrow	77	162	+110
Savannah Sparrow	60	148	+147
Baird's Sparrow	28	210	+650
Grasshopper Sparrow	107	836	+681
Lark Sparrow	29	20	-31
Chipping Sparrow	32	116	+263
Clay-colored Sparrow	54	208	+285
Brewer's Sparrow	2	4	+100
Field Sparrow	42	174	+314
Song Sparrow	15	10	-33
Rufous-sided Towhee	92	282	+207
Rose-breasted Grosbeak	0	4	---
Black-headed Grosbeak	5	6	+20
Lazuli Bunting	15	8	-47
Dickcissel	17	6	-65
Lark Bunting	308	706	+129

The discussion of species diversity is based on census data from the quarter-section quadrats (Table 8). Preliminary determination of assemblages of species for which any given habitat was of primary or secondary importance is based on census data and subjective interpretation of general observations of those species not amenable to our sampling methods.

River Bottoms

The river bottom habitat comprised 283 acres (3.3%) of the area sampled (Table 8) and consisted primarily of true river bottom, as compared to riparian woodland. While of more limited acreage, riparian woodland was significantly higher in species diversity (44 species) than true river bottom (12 species), the difference primarily attributed to the avian component. Considering its limited acreage in the areas sampled, such diversity is considered significant.

True River Bottom

Primary Habitat Component: Amphibians - Tiger Salamander, Plains Spadefoot, Dakota Toad, Rocky Mountain Toad; Reptiles - Snapping Turtle, Plains Garter Snake; Birds - Great Blue Heron, Mallard, Spotted Sandpiper, Mourning Dove, Belted Kingfisher, Cliff Swallow, Barn Swallow, Bank Swallow, Rough-winged Swallow, American Goldfinch, Song Sparrow, Rose-breasted Grosbeak, Black-headed Grosbeak; Mammals - White-footed Mouse, Beaver, Muskrat, Mink.

Secondary Habitat Component: Amphibians - Great Plains Toad, Chorus Frog, Leopard Frog; Reptiles - Painted Turtle; Birds - Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Canada Goose, Killdeer, Black Tern, Great Horned Owl, Common Nighthawk, Hairy Woodpecker, Traill's Flycatcher, Tree Swallow, Loggerhead Shrike, Yellow Warbler, Common Yellowthroat, Brown-headed Cowbird, Northern Oriole, Clay-colored Sparrow; Mammals - White-tailed Deer.

Riparian Woodland

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - American Kestrel, Turkey, Mourning Dove, Black-billed Cuckoo, Great Horned Owl, Common Nighthawk, Hairy Woodpecker, Red-headed Woodpecker, Common Flicker, Eastern Kingbird, Western Kingbird, Eastern Wood Pewee, Western Wood Pewee, Least Flycatcher, Blue Jay, Black-capped Chickadee, White-breasted Nuthatch, House Wren, Gray Catbird, Brown Thrasher, Gray-cheeked Thrush, Robin, Eastern Bluebird, Cedar Waxwing, Red-eyed Vireo, Yellow Warbler, Orchard Oriole, Northern Oriole, Common Grackle, American Goldfinch, Lark Sparrow, Rufous-sided Towhee, Rose-breasted Grosbeak, Black-headed Grosbeak, Indigo Bunting, Lazuli Bunting; Mammals - Fox Squirrel, Red Squirrel, Deer Mouse, Gapper's Red-backed Mouse, Porcupine, White-tailed Deer.

Table 8. Species Diversity in Major Habitats of Quarter-Section Sampling Sites

Habitat Type	Acreage (% of Areas Sampled)	No. of Species Censused				
		Amphibians	Reptiles	Birds	Mammals	Total
River Bottoms						
True River Bottom	231 (2.6)	1	2	8	1	12
Riparian Woodland	52 (0.7)	0	1	41	2	44
Hardwood Draws						
Brush Only	100 (1.1)	0	1	29	1	31
Trees & Brush	344 (3.8)	0	0	47	1	48
Upland Grasslands						
Sage & Erosion	354 (3.9)	0	1	24	8	33
Sage Flats	177 (1.9)	0	2	22	3	27
Rolling Grasslands						
Lightly Grazed	1859 (20.6)	0	2	27	7	36
Moderately Grazed	2263 (24.4)	0	4	44	10	58
Heavily Grazed	238 (2.6)	0	0	12	3	15
Hayed	153 (1.7)	0	0	2	4	6
Juniper Draw	82 (0.9)	0	0	20	2	22
Ponderosa/Limber Pine	152 (1.7)	0	0	20	0	20
Deciduous Forest	40 (0.4)	0	1	3	3	7
Wetlands						
Reservoirs	65 (0.7)	0	0	3	3	3
Dugouts	3 (0.03)	1	2	11	0	14
Natural	82 (0.9)	1	3	17	0	21
Terraces	0 (0.0)	---	---	---	---	---
Upland Breaks	200 (2.2)	1	2	11	3	17
River Breaks	2 (0.02)	---	---	---	---	---

Table 8. (cont'd)

Habitat Type	Acreage (% of Areas Sampled)	No. of Species Censused				
		Amphibians	Reptiles	Birds	Mammals	Total
Rockland	0 (0.0)	---	---	---	---	---
Toe Slopes	10 (0.1)	0	0	1	0	1
Hilly Scoria	0 (0.0)	---	---	---	---	---
Agricultural/Disturbed						
Spoil Piles	132 (1.5)	0	1	24	4	29
Retired Cropland	217 (2.4)	0	0	18	4	22
Haylands	302 (3.3)	0	0	15	12	27
Seeded Croplands	1197 (13.3)	0	1	16	0	17
Fallow Lands	623 (6.9)	0	0	3	0	3
Stubble	110 (1.2)	0	0	2	0	2
Roadsides	13 (0.1)	0	0	5	5	10
Shelterbelts	14 (0.2)	0	0	33	0	33
Farmsteads	80 (0.9)	0	0	4	0	4

Secondary Habitat Component: Amphibians - Leopard Frog; Reptiles - Plains Garter Snake, Blue Racer, Smooth Green Snake, Bull Snake, Prairie Rattlesnake; Birds - Great Blue Heron, Red-tailed Hawk, Swainson's Hawk, Gray Partridge, Ring-necked Pheasant, Traill's Flycatcher, Common Crow, Loggerhead Shrike, Ovenbird, Common Yellowthroat, Yellow-breasted Chat, American Redstart, Red-winged Blackbird, Chipping Sparrow, Clay-colored Sparrow, Field Sparrow, Song Sparrow; Mammals - Beaver, Muskrat.

Hardwood Draws

Hardwood draws covered 444 acres (4.9%) of the sampling sites and were dominated by trees and brush (Table 8). As with riparian woodland, hardwood draws with trees and brush had very high species diversity (48) considering their limited extent in the areas sampled.

Brush Only

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - Gray Partridge, Ring-necked Pheasant, Black-billed Cuckoo, Hairy Woodpecker, Traill's Flycatcher, House Wren, Gray Catbird, Brown Thrasher, Robin, Mountain Bluebird, Loggerhead Shrike, Red-eyed Vireo, Yellow Warbler, Common Yellowthroat, Yellow-breasted Chat, Brewer's Blackbird, Common Grackle, American Goldfinch, Vesper Sparrow, Lark Sparrow, Chipping Sparrow, Clay-colored Sparrow, Field Sparrow, Rufous-sided Towhee, Indigo Bunting; Mammals - Meadow Vole, Sagebrush Vole, Porcupine.

Secondary Habitat Component: Amphibians - Great Plains Toad, Leopard Frog; Reptiles - Plains Garter Snake, Blue Racer, Bull Snake, Prairie Rattlesnake; Birds - Marsh Hawk, Sharp-tailed Grouse, Mourning Dove, Poor-will, Common Nighthawk, Eastern Kingbird, Western Kingbird, Black-billed Magpie, Eastern Bluebird, Brown-headed Cowbird, Red-winged Blackbird, Orchard Oriole, Northern Oriole, Song Sparrow, Rose-breasted Grosbeak, Black-headed Grosbeak; Mammals - Eastern Cottontail, House Mouse, Meadow Jumping Mouse, White-tailed Deer.

Trees & Brush

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - Sharp-shinned Hawk, Cooper's Hawk, Red-tailed Hawk, American Kestrel, Mourning Dove, Black-billed Cuckoo, Screech Owl, Great Horned Owl, Common Nighthawk, Red-headed Woodpecker, Common Flicker, Eastern Kingbird, Western Kingbird, Least Flycatcher, Traill's Flycatcher, Tree Swallow, Black-billed Magpie, Blue Jay, Common Crow, Black-capped Chickadee, White-breasted Nuthatch, House Wren, Gray Catbird, Brown Thrasher, Veery, Gray-cheeked Thrush, Robin, Mountain Bluebird, Cedar Waxwing, Red-eyed Vireo, Warbling Vireo, Solitary Vireo, Black-and-White Warbler, Yellow Warbler, Ovenbird, Common Yellowthroat, Yellow-breasted Chat, American Redstart, Orchard Oriole, Northern Oriole, Brewer's Blackbird, Common Grackle, American Goldfinch, Vesper Sparrow, Lark Sparrow, Chipping Sparrow, Clay-colored Sparrow, Field Sparrow, Rufous-sided Towhee, Black-headed

Grosbeak, Lazuli Bunting; Mammals - Desert Cottontail, Least Chipmunk, Fox Squirrel, Porcupine, White-tailed Deer.

Secondary Habitat Component: Amphibians - Great Plains Toad, Leopard Frog; Reptiles - Plains Garter Snake, Blue Racer, Bull Snake, Prairie Rattlesnake; Birds - Great Blue Heron, Swainson's Hawk, Ferruginous Hawk, Merlin, Sharp-tailed Grouse, Turkey, Killdeer, Hairy Woodpecker, Mockingbird, Brown-headed Cowbird, Red-winged Blackbird, Western Meadowlark, Brewer's Sparrow, Song Sparrow; Mammals - Eastern Cottontail, Beaver, Coyote, Raccoon, Striped Skunk.

Upland Grassland

There were 531 acres (5.8%) of upland grasslands in the areas sampled (Table 8). Species diversity in upland grasslands with sagebrush and erosion was higher (33) than in sage flats (27), the difference primarily due to the mammalian component. Mammalian species diversity (8) in upland grassland with sage and erosion was higher than all but two other significant habitat types.

Sagebrush and Erosion

Primary Habitat Component: Amphibians - None: Reptiles - Blue Racer, Bull Snake, Prairie Rattlesnake; Birds - Ferruginous Hawk, American Kestrel, Sage Grouse, Vesper Sparrow, Brewer's Sparrow, Rufous-sided Towhee; Mammals - Thirteen-lined Ground Squirrel, White-footed Mouse, Sagebrush Vole, Coyote, Mule Deer, Pronghorn.

Secondary Habitat Component: Amphibians - Rocky Mountain Toad; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake; Birds - Marsh Hawk, Red-tailed Hawk, Swainson's Hawk, Golden Eagle, Prairie Falcon, Sharp-tailed Grouse, Upland Sandpiper, Say's Phoebe, Black-billed Magpie, Black-capped Chickadee, Rock Wren, Yellow-breasted Chat, Brown-headed Cowbird, Western Meadowlark, Common Grackle, Baird's Sparrow; Mammals - Eastern Cottontail, Desert Cottontail, White-tailed Jack Rabbit, Black-tailed Prairie Dog, Deer Mouse, Northern Grasshopper Mouse, Meadow Vole, House Mouse, Meadow Jumping Mouse, Porcupine, Long-tailed Weasel, White-tailed Deer.

Sagebrush Flats

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - Marsh Hawk, Sage Grouse, Chipping Sparrow; Mammals - Eastern Cottontail, Black-tailed Prairie Dog, Prairie Vole, Coyote.

Secondary Habitat Component: Amphibians - Rocky Mountain Toad, Leopard Frog; Reptiles - Plains Garter Snake, Blue Racer, Bull Snake, Prairie Rattlesnake; Birds - American Kestrel, Sharp-tailed Grouse, Gray Partridge, Ring-necked Pheasant, Killdeer, Upland Sandpiper, Mockingbird, Yellow-breasted Chat, Western Meadowlark, American Goldfinch, Clay-colored Sparrow, Brewer's Sparrow, Field Sparrow, Rufous-sided Towhee; Mammals - Thirteen-lined Ground Squirrel, Deer Mouse, Porcupine.

Rolling Grassland

The rolling grassland habitat comprised 4453 acres (49.3%) of the project area sampled and was by far the most extensive habitat type (Table 8). Species diversity ranged from 6 in rolling grasslands which had been hayed, to 58 in the moderately grazed portions. The high diversity reported for moderately grazed rolling grasslands might be partially attributed to the greater detectability of birds compared to the lightly grazed areas. However, mammalian species diversity was also higher in the moderately grazed rolling grasslands and was exceeded only by haylands. The low diversities reported for heavily grazed rolling grasslands and hayed rolling grasslands probably reflect their limited amount of protective cover.

Rolling Grassland/Light Grazing

Primary Habitat Component: Amphibians - None; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer; Birds - Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Marsh Hawk, Ferruginous Hawk, Sharp-tailed Grouse, Gray Partridge, Ring-necked Pheasant, Upland Sandpiper, Long-billed Curlew, Mourning Dove, Short-eared Owl, Horned Lark, Sprague's Pipit, Bobolink, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Chestnut-collared Longspur, Vesper Sparrow, Savannah Sparrow, Baird's Sparrow, Grasshopper Sparrow, Le Conte's Sparrow, Sharp-tailed Sparrow, Song Sparrow, Lark Bunting; Mammals - Thirteen-lined Ground Squirrel, Black-tailed Prairie Dog, Sagebrush Vole, Red Fox.

Secondary Habitat Component: Amphibians - Plains Spadefoot, Great Plains Toad, Rocky Mountain Toad, Leopard Frog; Reptiles - Bull Snake, Prairie Rattlesnake; Birds - Turkey Vulture, Red-tailed Hawk, Swainson's Hawk, Golden Eagle, Prairie Falcon, Merlin, American Kestrel, Sage Grouse, Killdeer, Common Nighthawk, Eastern Kingbird, Western Kingbird, Cliff Swallow, Barn Swallow, Common Grackle, American Godlfinch, Lark Sparrow, Dickcissel; Mammals - Masked Shrew, Northern Pocket Gopher, Western Harvest Mouse, Deer Mouse, Meadow Vole, Porcupine, Long-tailed Weasel, Striped Skunk, Pronghorn.

Rolling Grassland/Moderate Grazing

Primary Habitat Component: Amphibians - None; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Smooth Green Snake; Birds - Cattle Egret, Turkey Vulture, Marsh Hawk, Red-tailed Hawk, Swainson's Hawk, Ferruginous Hawk, Golden Eagle, Prairie Falcon, Merlin, American Kestrel, Sharp-tailed Grouse, Gray Partridge, Ring-necked Pheasant, Killdeer, Marbled Godwit, Upland Sandpiper, Long-billed Curlew, Short-eared Owl, Burrowing Owl, Eastern Kingbird, Western Kingbird, Horned Lark, Cliff Swallow, Barn Swallow, Bank Swallow, Rough-winged Swallow, Robin, Sprague's Pipit, Loggerhead Shrike, Boblink, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Brewer's Blackbird, Common Grackle, American Goldfinch, Chestnut-collared Longspur, Vesper Sparrow, Savannah Sparrow, Baird's

Sparrow, Grasshopper Sparrow, Le Conte's Sparrow, Sharp-tailed Sparrow, Lark Sparrow, Clay-colored Sparrow, Song Sparrow, Lark Bunting; Mammals - Eastern Cottontail, White-tailed Jack Rabbit, Richardson's Ground Squirrel, Thirteen-lined Ground Squirrel, Black-tailed Prairie Dog, Coyote, Red Fox, Ermine, Long-tailed Weasel, Badger, Striped Skunk, Mule Deer, White-tailed Deer, Pronghorn.

Secondary Habitat Component: Amphibians - Plains Spadefoot, Great Plains Toad, Rocky Mountain Toad, Leopard Frog; Reptiles - Bull Snake, Prairie Rattlesnake; Birds - Great Blue Heron, Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Canada Goose, Sharp-shinned Hawk, Sage Grouse, Ring-billed Gull, Mourning Dove, Common Nighthawk, Say's Phoebe, Common Crow, Rock Wren, Northern Oriole, Scarlet Tanager, Dickcissel; Mammals - Masked Shrew, Olive-backed Pocket Mouse, Deer Mouse, Northern Grasshopper Mouse, Meadow Vole, Prairie Vole, Porcupine.

Rolling Grassland/Heavy Grazing

Primary Habitat Component: Amphibians - None; Reptiles - Plains Garter Snake, Smooth Green Snake; Birds - Cattle Egret, Burrowing Owl, Common Flicker, Horned Lark, Chestnut-collared Longspur; Mammals - Thirteen-lined Ground Squirrel, Black-tailed Prairie Dog, Northern Pocket Gopher, Red Fox.

Secondary Habitat Component: Amphibians - Rocky Mountain Toad; Reptiles - Red-sided Garter Snake, Western Hog-nosed Snake; Birds - Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Canada Goose, Turkey Vulture, Marsh Hawk, Red-tailed Hawk, Swainson's Hawk, Ferruginous Hawk, Golden Eagle, Prairie Falcon, Merlin, American Kestrel, Sharp-tailed Grouse, Killdeer, Upland Sandpiper, Short-eared Owl, Common Nighthawk, Eastern Kingbird, Western Kingbird, Cliff Swallow, Barn Swallow, Robin, Bobolink, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Northern Oriole, Brewer's Blackbird, Common Grackle, American Goldfinch, Vesper Sparrow, Savannah Sparrow, Baird's Sparrow, Grasshopper Sparrow, Le Conte's Sparrow, Sharp-tailed Sparrow, Lark Sparrow, Song Sparrow, Dickcissel, Lark Bunting; Mammals - White-tailed Jack Rabbit, Deer Mouse, Badger.

Rolling Grassland/Hayed

Primary Habitat Component: Amphibians - None; Reptiles - Plains Garter Snake; Birds - American Kestrel, Sharp-tailed Grouse; Mammals - Olive-backed Pocket Mouse, Northern Grasshopper Mouse, Prairie Vole.

Secondary Habitat Component: Amphibians - Plains Spadefoot, Leopard Frog; Reptiles - Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Bull Snake, Prairie Rattlesnake; Birds - Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal,

Northern Shoveler, Pintail, Canada Goose, Turkey Vulture, Red-tailed Hawk, Swainson's Hawk, Ferruginous Hawk, Golden Eagle, Prairie Falcon, Merlin, Turkey, Killdeer, Upland Sandpiper, Mourning Dove, Common Nighthawk, Eastern Kingbird, Western Kingbird, Horned Lark, Cliff Swallow, Barn Swallow, Robin, Bobolink, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Common Grackle, American Goldfinch, Chestnut-collared Longspur, Vesper Sparrow, Savannah Sparrow, Baird's Sparrow, Grasshopper Sparrow, Lark Sparrow, Dickcissel, Lark Bunting; Mammals - Thirteen-lined Ground Squirrel, White-tailed Deer.

Juniper Draws

This habitat type comprised 82 acres (0.9%) of the areas sampled (Table 8). Juniper draws had a moderate species diversity (20), primarily due to the avian component. Only 2 species of mammals were censused in juniper draws; however, this does not reflect its seasonal importance in providing protective winter cover for other species including big game.

Juniper Draw

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - Sharp-shinned Hawk, Long-eared Owl, Common Flicker, Black-billed Magpie, Common Crow, Black-capped Chickadee, Black-and-White Warbler, Chipping Sparrow; Mammals - Mule Deer.

Secondary Habitat Component: Amphibians - Rocky Mountain Toad; Reptiles - Plains Garter Snake, Blue Racer, Bull Snake, Prairie Rattlesnake; Birds - Cooper's Hawk, American Kestrel, Mourning Dove, Great Horned Owl, Common Nighthawk, Hairy Woodpecker, Blue Jay, House Wren, Mountain Bluebird, Yellow-rumped Warbler, Ovenbird, Lark Sparrow, Rufous-sided Towhee, Lazuli Bunting; Mammals - Deer Mouse, Meadow Vole.

Ponderosa Pines/Limber Pines

There were 152 acres (1.7%) of this habitat type sampled (Table 8). The pine habitats of southwestern North Dakota are unique in North Dakota and seem to represent outlyers from Montana and the Black Hills of South Dakota. The pine forests have a moderate diversity of vertebrate species (20), but several birds may be regarded as unique in the state (e.g. Merlin, Poor-will, Black-and-White Warbler, Yellow-rumped Warbler). Furthermore, recent records of Clark's Nutcrackers in the limber pine area (Oring and Seabloom, 1971) lend to the uniqueness of the pine habitat.

Ponderosa Pine/Limber Pine

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - Merlin, American Kestrel, Turkey, Poor-will, Red-headed Woodpecker, Common Flicker, Black-billed Magpie, Black-capped Chickadee, Black-and-White Warbler, Yellow-rumped Warbler, Chipping Sparrow; Mammals - Bushy-tailed Woodrat, Porcupine.

Secondary Habitat Component: Amphibians - None; Reptiles - None; Birds - Cooper's Hawk, Swainson's Hawk, Ferruginous Hawk, Golden Eagle, Ring-necked Pheasant, Mourning Dove, Common Nighthawk, Blue Jay, Common Crow, Rock Wren, House Wren, Eastern Bluebird, Mountain Bluebird, Ovenbird, Lark Sparrow, Field Sparrow, Rufous-sided Towhee; Mammals - Desert Cottontail, White-tailed Deer.

Deciduous Forest

40 acres (0.4%) of habitat classified as deciduous forest was sampled (Table 8), represented by a tract of upland forest in the Killdeer Mountains. Species diversity was low (7), but this may represent limited sampling. This area should be more intensely censused in the future. Our general observations led us to regard the deciduous forest as a primary or secondary habitat for 1 amphibian, 2 reptilian, 22 avian and 10 mammalian species.

Deciduous Forest

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - Turkey Vulture, Sharp-shinned Hawk, Red-tailed Hawk, Long-eared Owl, Common Flicker, House Wren, Veery, Red-eyed Vireo, American Redstart, Scarlet Tanager; Mammals - Deer Mouse, Gapper's Red-backed Mouse, Porcupine, White-tailed Deer.

Secondary Habitat Component: Amphibians - Leopard Frog; Reptiles - Plains Garter Snake, Blue Racer; Birds - Marsh Hawk, Prairie Falcon, Mourning Dove, Hairy Woodpecker, Blue Jay, Common Crow, Black-capped Chickadee, Yellow Warbler, Ovenbird, Rufous-sided Towhee, Black-headed Grosbeak, Lazuli Bunting; Mammals - Beaver, Muskrat, Meadow Jumping Mouse, Coyote, Long-tailed Weasel.

Wetlands

Wetland habitats comprised 850 acres (1.6%) of the sampling sites (Table 8). Of these, dugouts and natural wetlands had the highest diversity, undoubtedly a function of the relative amount of edge and cover provided by shallow water emergent vegetation. Eleven species of birds were censused in dugout areas and 17 in natural wetlands. No mammals were censused in wetland areas because aquatic and semi-aquatic species such as muskrat, beaver, and mink were not amenable to the sampling procedures utilized. Other small mammals (e.g. shrews, meadow voles) are highly dependent upon the moist, grassy areas surrounding such wetlands, while bats utilize these areas to forage for aerial insects. Wetlands are extremely important to amphibians, several species of reptiles and many species of marsh and aquatic birds. Considering the limited extent of this habitat type and the unique nature of its fauna in this semi-arid region, wetlands should be considered a significant contributor to the faunal diversity of southwestern North Dakota.

Wetlands/Reservoirs

Primary Habitat Component: Amphibians - Tiger Salamander, American Toad, Great Plains Toad, Dakota Toad; Reptiles - None; Birds - White Pelican, Double-crested Cormorant, American Bittern, Great Blue Heron, Black-crowned Night Heron, Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Redhead, Lesser Scaup, Ruddy Duck, Canada Goose, Sora, American Coot, Killdeer, Ring-billed Gull, Franklin's Gull, Common Tern, Black Tern, Yellow-headed Blackbird, Red-winged Blackbird; Mammals - Beaver, Muskrat, Raccoon.

Secondary Habitat Component: Amphibians - Plains Spadefoot, Rocky Mountain Toad, Chorus Frog, Leopard Frog; Reptiles - Snapping Turtle, Painted Turtle; Birds - Western Grebe, Eared Grebe, Pied-billed Grebe, Marsh Hawk, Mourning Dove, Belted Kingfisher, Cliff Swallow, Barn Swallow, Tree Swallow, Bank Swallow, Rough-winged Swallow, Common Yellowthroat; Mammals - None.

Wetlands/Dugouts

Primary Habitat Component: Amphibians - Tiger Salamander, Plains Spadefoot, American Toad, Great Plains Toad, Dakota Toad, Rocky Mountain Toad, Chorus Frog, Leopard Frog; Reptiles - None; Birds - Western Grebe, Pied-billed Grebe, Double-crested Cormorant, American Bittern, Great Blue Heron, Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Sora, Killdeer, American Avocet, Wilson's Phalarope; Mammals - Muskrat, Raccoon.

Secondary Habitat Component: Amphibians - None; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Smooth Green Snake, Bull Snake; Birds - Eared Grebe, White Pelican, Black-crowned Night Heron, Cattle Egret, Redhead, Lesser Scaup, Ruddy Duck, Canada Goose, Marsh Hawk, Turkey, American Coot, Willet, Upland Sandpiper, Spotted Sandpiper, Mourning Dove, Belted Kingfisher, Purple Martin, Cliff Swallow, Barn Swallow, Tree Swallow, Bank Swallow, Rough-winged Swallow, Robin, Yellow-headed Blackbird, Red-winged Blackbird; Mammals - None.

Wetlands/Natural

Primary Habitat Component: Amphibians - Tiger Salamander, Plains Spadefoot, American Toad, Great Plains Toad, Dakota Toad, Rocky Mountain Toad, Chorus Frog, Leopard Frog; Reptiles - Painted Turtle; Birds - Western Grebe, Eared Grebe, Pied-billed Grebe, White Pelican, American Bittern, Great Blue Heron, Black-crowned Night Heron, Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Redhead, Lesser Scaup, Ruddy Duck, Canada Goose, Marsh Hawk, Sora, American Coot, Killdeer, Piping Plover, Common Snipe, Pectoral Sandpiper, Marbled Godwit, Willet, Upland Sandpiper, American Avocet, Wilson's Phalarope, Common Tern, Black Tern, Cliff Swallow, Barn Swallow, Tree Swallow, Bank Swallow, Rough-winged Swallow, Short-billed Marsh Wren, Long-billed Marsh Wren, Water Pipit, Sprague's Pipit, Common Yellowthroat,

Yellow-headed Blackbird, Red-winged Blackbird, Savannah Sparrow; Mammals - Raccoon.

Secondary Habitat Component: Amphibians - None; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Smooth Green Snake, Bull Snake; Birds - Double-crested Cormorant, Sharp-tailed Grouse, Spotted Sandpiper, Ring-billed Gull, Franklin's Gull, Mourning Dove, Belted Kingfisher, Boblink; Mammals - None.

Terraces

Terraces are one of three habitat types which were not included as sampling sites. Consequently, we are unable to comment on species diversity relative to the other types. Terraces are of very limited extent in southwestern North Dakota and we do not regard them as a primary or secondary habitat type for any of the species observed.

Upland Breaks

This type comprised 200 acres (2.2%) of the areas sampled (Table 8). Upland breaks have a moderate species diveristy (17) and are regarded as a primary habitat type for big game.

Upland Breaks

Primary Habitat Component: Amphibians - None; Reptiles - Sagebrush Lizard, Short-horned Lizard, Blue Racer, Bull Snake, Prairie Rattlesnake; Birds - Turkey Vulture, Marsh Hawk, Sharp-shinned Hawk, Red-tailed Hawk, Ferruginous Hawk, Golden Eagle, Prairie Falcon, Merlin, American Kestrel, Screech Owl, Common Flicker, Say's Phoebe, Black-billed Magpie, Rock Wren, Swainson's Thrush, Mountain Bluebird; Mammals - Desert Cottontail, Least Chipmunk, Deer Mouse, Bushy-tailed Woodrat, Porcupine, Coyote, Mule Deer, Pronghorn, Bighorn Sheep.

Secondary Habitat Component: Amphibians - None; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake; Birds - Cooper's Hawk, Swainson's Hawk, Great Horned Owl, Poor-will, Field Sparrow, Rufous-sided Towhee; Mammals - White-tailed Jack Rabbit, Thirteen-lined Ground Squirrel, Raccoon, Striped Skunk, White-tailed Deer.

River Breaks

River breaks are of very limited extent in southwestern North Dakota and only 2 acres of this habitat were sampled (Table 8). Consequently, these data did not provide us with an index of species diversity. General observations indicated river breaks to be a primary habitat or secondary habitat component for two species of birds and four species of mammals. However, adjacent habitats may well have been of greater importance than these sheer faces.

River Breaks

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - None; Mammals - Porcupine, Coyote, Mule Deer.

Secondary Habitat Component: Amphibians - None; Reptiles - None; Birds - Turkey Vulture, Rock Wren; Mammals - Pronghorn.

Rockland

Along with terraces and hilly scoria, rockland was not included in our sampling sites and we are unable to provide an index of species diversity. It was regarded as a secondary habitat component for three species of birds and one species of mammal.

Rockland

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - None; Mammals - None.

Secondary Habitat Component: Amphibians - None; Reptiles - None; Birds - Turkey Vulture, Red-tailed Hawk, Rock Wren; Mammals - Bushy-tailed Woodrat.

Toe Slopes

Sampling of toe slopes was also limited and comprised only 10 acres (0.1%) (Table 8). Species diversity was the lowest recorded, which may reflect the limited sampling. Toe slopes are regarded as a secondary habitat of two species of reptiles, one bird and one mammal.

Toe Slopes

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - None; Mammals - None.

Secondary Habitat Component: Amphibians - None; Reptiles - Sagebrush Lizard, Short-horned Lizard; Birds - Vesper Sparrow; Mammals - Bushy-tailed Woodrat.

Hilly Scoria

Hilly scoria was the third habitat type which did not fall within our sampling sites. It was regarded as secondary habitat type for two species of bird and one mammal.

Hilly Scoria

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - None; Mammals - None.

Secondary Habitat Component: Amphibians - None; Reptiles - None; Birds - Golden Eagle, Prairie Falcon; Mammals - Bushy-tailed Woodrat.

Agricultural/Disturbed

Agricultural and disturbed areas comprised 2688 acres (29.8%) of the areas sampled and were second in extent only to the rolling grasslands (Table 8). Seeded croplands and fallow lands were the most predominant, comprising 1820 acres. Species diversity in agricultural/disturbed areas was highly variable and ranged from two and three in stubble and fallow lands, to 33 in shelterbelts. Relatively high species diversities in retired cropland, hay lands, spoil piles and shelterbelts probably reflect high food production and early successional stages (seed producing weeds), or the food and cover provided by woody vegetation in predominantly agricultural or grassland areas. Since the extent of agricultural and disturbed areas in the project area is large, they have become primary or secondary habitat components for many species and undoubtedly reflect the ability of some species to adapt to disturbed situations. This provides some indication of the impact of human activity on a natural fauna.

Spoil Piles

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - None; Mammals - Deer Mouse, Meadow Vole, Meadow Jumping Mouse.

Secondary Habitat Component: Amphibians - None; Reptiles - Plains Garter Snake; Birds - Swainson's Hawk, Killdeer, Black-billed Cuckoo, Least Flycatcher, Traill's Flycatcher, Horned Lark, Robin, Cedar Waxwing, Loggerhead Shrike, Yellow Warbler, Common Yellowthroat, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Orchard Oriole, Northern Oriole, Common Grackle, American Goldfinch, Lark Bunting; Mammals - Thirteen-lined Ground Squirrel, Red Fox, Raccoon, White-tailed Deer.

Retired Croplands

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - None; Mammals - Meadow Vole, Meadow Jumping Mouse, Striped Skunk.

Secondary Habitat Component: Amphibians - Leopard Frog; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Bull Snake; Birds - Marsh Hawk, Red-tailed Hawk, Swainson's Hawk, Sharp-tailed Grouse, Gray Partridge, Ring-necked Pheasant, Long-billed Curlew, Mourning Dove, Common Nighthawk, Eastern Kingbird, Western Kingbird, Horned Lark, Cliff Swallow, Barn Swallow, Bank Swallow, Rough-winged Swallow, Bobolink, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Brewer's Blackbird, Common Grackle, Chestnut-collared Longspur, Savannah Sparrow, Baird's Sparrow, Grasshopper Sparrow, Field Sparrow, Lark Bunting; Mammals - Western Harvest Mouse, Deer Mouse, White-tailed Deer.

Haylands

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - Marsh Hawk, Red-tailed Hawk, Swainson's Hawk, American Kestrel, Gray Partridge, Ring-necked Pheasant, Marbled Godwit, Upland Sandpiper, Dickcissel; Mammals - Thirteen-lined Ground Squirrel, Hispid Pocket Mouse, Western Harvest Mouse, Deer Mouse, Meadow Vole, Prairie Vole, House Mouse, Pronghorn.

Secondary Habitat Component: Amphibians - Leopard Frog; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Bull Snake; Birds - Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Turkey Vulture, Ferruginous Hawk, Golden Eagle, Prairie Falcon, Merlin, Sharp-tailed Grouse, Turkey, Killdeer, Mourning Dove, Common Nighthawk, Eastern Kingbird, Western Kingbird, Horned Lark, Robin, Loggerhead Shrike, Bobolink, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Brewer's Blackbird, Common Grackle, American Goldfinch, Chestnut-collared Longspur, Vesper Sparrow, Savannah Sparrow, Baird's Sparrow, Grasshopper Sparrow, Lark Bunting; Mammals - White-tailed Jack Rabbit, Least Chipmunk, Northern Pocket Gopher, Olive-backed Pocket Mouse, Northern Grasshopper Mouse, Meadow Jumping Mouse, Coyote, Striped Skunk, White-tailed Deer.

Seeded Croplands

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - Marsh Hawk, Red-tailed Hawk, American Kestrel, Killdeer, Mourning Dove, Short-eared Owl, Horned Lark; Mammals - Ord's Kangaroo Rat, Pronghorn.

Secondary Habitat Component: Amphibians - Leopard Frog; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Bull Snake; Birds - Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Canada Goose, Turkey Vulture, Swainson's Hawk, Merlin, Sharp-tailed Grouse, Gray Partridge, Ring-necked Pheasant, Upland Sandpiper, Franklin's Gull, Burrowing Owl, Common Nighthawk, Eastern Kingbird, Western Kingbird, Cliff Swallow, Barn Swallow, Bank Swallow, Rough-winged Swallow, Mockingbird, Bobolink, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Brewer's Blackbird, Common Grackle, Chestnut-collared Longspur, Vesper Sparrow, Lark Bunting; Mammals - Eastern Cottontail, White-tailed Jack Rabbit, Red Fox, Badger, Striped Skunk, White-tailed Deer.

Fallow Lands

Primary Habitat Component: Amphibians - American Toad; Reptiles - None; Birds - None; Mammals - None.

Secondary Habitat Component: Amphibians - Leopard Frog; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Bull Snake; Birds - Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Canada Goose, Marsh Hawk, Red-tailed Hawk, Swainson's Hawk, Prairie Falcon, Merlin, Sharp-tailed Grouse, Gray Partridge, Ring-necked Pheasant, Killdeer, Ring-billed Gull, Franklin's Gull, Mourning Dove, Burrowing Owl, Common Nighthawk, Horned Lark, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Brewer's Blackbird; Mammals - White-tailed Jack Rabbit, White-tailed Deer, Pronghorn.

Stubble

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - None; Mammals - Masked Shrew.

Secondary Habitat Component: Amphibians - None; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Bull Snake; Birds - Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Lesser Scaup, Canada Goose, Marsh Hawk, Red-tailed Hawk, Swainson's Hawk, Sharp-tailed Grouse, Gray Partridge, Ring-necked Pheasant, Upland Sandpiper, Long-billed Curlew, Franklin's Gull, Short-eared Owl, Common Nighthawk, Horned Lark, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark; Mammals - Pronghorn.

Roadsides

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - Sharp-tailed Grouse, Gray Partridge, Ring-necked Pheasant, Common Flicker, Chestnut-collared Longspur; Mammals - Thirteen-lined Ground Squirrel, Deer Mouse, Meadow Vole, Long-tailed Weasel.

Secondary Habitat Component: Amphibians - Leopard Frog; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Bull Snake; Birds - Mallard, Gadwall, American Wigeon, American Green-winged Teal, Blue-winged Teal, Northern Shoveler, Pintail, Swainson's Hawk, American Kestrel, Sage Grouse, Killdeer, Upland Sandpiper, Red-headed Woodpecker, Horned Lark, Loggerhead Shrike, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Lark Bunting; Mammals - Eastern Cottontail, Richardson's Ground Squirrel, Gapper's Red-backed Mouse, Muskrat, Porcupine, Red Fox, Raccoon, Badger, Striped Skunk, White-tailed Deer.

Shelterbelts

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - Gray Partridge, Ring-necked Pheasant, Mourning Dove, Black-billed Cuckoo, Red-headed Woodpecker, Common Flicker, Eastern Kingbird, Western Kingbird, Say's Phoebe, Least Flycatcher, Brown Thrasher, Wood Thrush, Swainson's Thrush, Robin, Loggerhead Shrike, Warbling Vireo, Common Yellowthroat, Orchard Oriole, Common

Grackle, American Goldfinch, Harris' Sparrow, White-crowned Sparrow, Chipping Sparrow, Clay-colored Sparrow, Field Sparrow, Rose-breasted Grosbeak; Mammals - None.

Secondary Habitat Component: Amphibians - Great Plains Toad, Leopard Frog; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Bull Snake; Birds - Merlin, American Kestrel, Sharp-tailed Grouse, Short-eared Owl, Great Horned Owl, Hairy Woodpecker, Traill's Flycatcher, Blue Jay, Black-capped Chickadee, House Wren, Veery, Cedar Waxwing, Starling, Red-eyed Vireo, Black-and-White Warbler, Yellow-rumped Warbler, Yellow Warbler, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Northern Oriole, Brewer's Blackbird, Grasshopper Sparrow, Lark Sparrow, Dickcissel; Mammals - None.

Farmsteads

Primary Habitat Component: Amphibians - None; Reptiles - None; Birds - Mourning Dove, Say's Phoebe, Purple Martin, Barn Swallow, Starling; Mammals - None.

Secondary Habitat Component: Amphibians - Great Plains Toad, Leopard Frog; Reptiles - Plains Garter Snake, Red-sided Garter Snake, Western Hog-nosed Snake, Blue Racer, Bull Snake; Birds - American Kestrel, Sharp-tailed Grouse, Killdeer, Great Horned Owl, Common Nighthawk, Hairy Woodpecker, Common Flicker, Eastern Kingbird, Western Kingbird, Tree Swallow, Blue Jay, Common Crow, Black-capped Chickadee, House Wren, Robin, Loggerhead Shrike, Common Yellowthroat, Brown-headed Cowbird, Yellow-headed Blackbird, Red-winged Blackbird, Western Meadowlark, Black-headed Grosbeak; Mammals - Desert Cottontail, Raccoon, Long-tailed Weasel, Striped Skunk, White-tailed Deer.

Faunal Associations - Conclusions

Upon examination of the faunal associations of recognized habitats, the significance of woody types and wetlands becomes readily apparent. Woody vegetation, including riparian woodlands, hardwood draws, juniper draws, ponderosa/limber pine, and deciduous forest, comprised 770 acres (8.6%) of the areas sampled. It provided primary habitat, however, for 83 species (67 birds and 16 mammals), or one third of the observed fauna.

Habitats associated with water, which included river bottoms and all wetlands, comprised only 381 acres (4.23%) of the areas sampled. These limited types provided primary habitat for 66 species (8 amphibians, 3 reptiles, 51 birds, 4 mammals), about one fourth of the observed fauna.

Consequently, only 13 percent of the sampling area was regarded as primary habitat for over half of the observed species, including all of the waterfowl, most big game and furbearers, and many others of high aesthetic appeal. While we do not have data to date on the proportions of these types in the total project area, they can certainly be regarded as extremely limited and of critical importance to its rich faunal diversity.

SECTION 6. RECOMMENDATIONS

6.1 Monitoring

The study provided information on the present distribution and status on 226 species of terrestrial vertebrates in southwestern North Dakota. However, many of the species discussed have high reproductive potentials and equally high mortalities. Consequently, populations may undergo drastic fluctuations over short periods of time. In order to obtain meaningful data on long term changes in abundance, a systematic monitoring scheme is essential, with at least one-third of the established sampling sites censused annually. More frequent sampling may be done in sites adjacent to areas having significant industrial activity. If no such sites exist in these areas, it may be desirable to establish new ones. If population estimates are to be extrapolated to the entire project area, it will be necessary to establish a revised random sampling regime, stratified by relative abundance of habitat types.

A special effort should be made to monitor the status of species classified as threatened or endangered. Indeed, this may be regarded as a new and continuing area of research under REAP sponsorship.

Continuing monitoring of prairie dog towns is further recommended. While we have been able to establish a comprehensive list of such towns along with descriptive information on many, we find that the species appears to be in a dynamic state and subject to significant change. It is a species closely associated with the endangered black-footed ferret. Furthermore, there is intense interest in the prairie dog on the part of a number of government agencies and agricultural (cattle) interests. We have also found that accurate identification and description of prairie dog towns over such a large area involves a very significant effort on the part of field personnel.

Special attention should be allotted to monitoring of critical habitats which contribute significantly to the diversity or unique character of the fauna of southwestern North Dakota. These would include all wetlands, riparian woodlands, deciduous forest, hardwood draws, and ponderosa/limber pine habitats.

6.2 Future Studies

These recommendations tie in, to a certain extent, with the previous section on recommended monitoring activities. Future studies under REAP sponsorship might include:

a) Studies of community structure and function of selected sites in southwestern North Dakota. This would involve the establishment of permanent study areas and closely coordinated teamwork on the part of biological personnel.

b) REAP should consider coordination of a broad research program on endangered species. While a number of state and Federal agencies are highly interested in this category of wildlife, REAP might play an essential role in initiation of research and coordination of monitoring.

c) REAP should consider studies of species somewhat unique to the southwestern project area, despite the fact that these may not be considered threatened or endangered on a national scale.

d) Because of its relationship with endangered species, significance to ranching and significance to overall aesthetics and public interest, a continuing program on the ecology of the black-tailed prairie dog is recommended. The species was largely extirpated from the state, has made significant recovery and should be monitored. Continuing studies should be conducted on distribution and abundance of prairie dog towns, ecological descriptions of town sites, population structure, population growth and physical configurations of towns.

6.3 Changes in Orientation, Techniques or Area

a) As stated previously, we recommend the establishment of permanent study sites where research may be conducted on structure and function of biotic communities in southwestern North Dakota.

b) We recommend establishment of a practical statewide habitat classification system of use to all research personnel on REAP projects.

c) Studies should be conducted of census techniques for certain species. We were not satisfied with our surveys for amphibians and reptiles and would recommend that new sampling schemes be devised. This would involve very specific sampling techniques on selected areas. Bird surveys might be conducted more efficiently if line-transects were utilized rather than quarter-section total counts. However, studies should be conducted in this area relating the two types of surveys to each other prior to any final decision. REAP might conduct additional research into census methods for certain species such as the white-tailed deer. We find that existing population data based upon winter census is spotty and contingent on satisfactory snow cover. Furthermore, data acquisition for the purpose of setting harvest seasons may or may not be relevant to census data for the purpose of monitoring industrial or other development activity, or to structure and function of ecosystems. Consequently, the census data acquired by any outside agency should be evaluated with regard to its relevance to the REAP mission.

SECTION 7. SUMMARY

1. In the spring and summer of 1976 and 1977, 59 sites, representing the major habitat types of the project area, were sampled for representative terrestrial vertebrates.

2. Data on 226 species of terrestrial vertebrates was collected. These include 8 amphibians, 12 reptiles, 158 birds and 48 mammals.

3. Distribution in the project area is discussed with regard to all species. Abundance figures are given for most species, but certain vertebrates did not lend themselves to quantitative sampling in the limited time available.

4. Extensive data were collected on prairie dog towns. Prairie dogs are apparently increasing, presumably due to the cessation of control measures.

5. Counts of certain breeding birds revealed differences from similar studies conducted in 1967. However, the many variables involved preclude reliable predictive trends.

6. Faunal associations were determined for each habitat type. Several habitats, even though they comprised a small portion of the total area, were determined to be very important to many species.

7. Specific recommendations have been made to improve future studies. It should be noted that the whole basis for our approach is dependent upon future studies and monitoring. Sampling over a limited time period has provided baseline data, but cannot provide predictive trend information.

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APPENDICES

APPENDIX 1

Study Areas Censused During the 1976-1977 REAP Project

County	Legal Description			
Adams	130	91	35	NE
Billings	142	102	1	NE
Billings	140	102	10	SW
Billings	138	102	22	NE
Billings	137	100	16	NW
Bowman	131	99	10	NE
Bowman	130	100	1	SW
Bowman	129	102	29	SE
Bowman	130	104	16	SE
Dunn	143	94	3	SW
Dunn	146	96	33	NW
Dunn	146	96	3	NW
Dunn	147	95	11	SW
Golden Valley	138	103	2	SW
Golden Valley	141	103	10	SW
Golden Valley	141	105	9	NW
Grant	130	87	23	NW
Grant	133	88	26	NE
Grant	132	86	15	NW
Hettinger	135	92	2	SE
Hettinger	136	95	24	NE
McKenzie	149	94	27	SW
McKenzie	149	95	32	SW
McKenzie	153	97	32	NW
McKenzie	154	96	31	NW
McKenzie	150	102	31	SW
McKenzie	149	102	17	NE
McKenzie	148	102	18	NW
McKenzie	145	99	16	NW

County	Legal Description			
McLean	147	86	15	NW
McLean	148	83	18	SE
McLean	147	81	7	NW
McLean	146	81	10	NE
McLean	144	81	35	NE
McLean	144	81	35	NW
McLean	144	82	4	NW
McLean	144	82	3	NE
McLean	147	86	34	SW
Mercer	143	90	35	SW
Mercer	144	89	36	SW
Morton	136	83	22	SW
Morton	138	86	18	NE
Morton	133	82	29	NW
Morton	137	82	6	SW
Morton	138	85	20	NE
Morton	138	87	16	NE
Morton	139	88	3	SW
Morton	140	88	10	SE
Oliver	142	83	16	NE
Oliver	142	88	21	NE
Sioux	129	82	10	NE
Sioux	129	82	3	NE
Sioux	131	82	4	NW
Slope	136	102	11	SE
Slope	136	102	16	NE
Slope	134	103	9	SW
Stark	137	98	24	NE
Stark	138	93	19	SE
Stark	138	92	20	SE

APPENDIX 2

Raw data on computer tape for Distribution and Abundance of Amphibians, Reptiles, Birds and Mammals of Southwestern North Dakota.

Consult REAP office for availability of data.

APPENDIX 3

Terrestrial Vertebrate Habitats of Southwestern North Dakota

1. River Bottom
   a. True River Bottom - Surface area occupied by rivers and major streams within their banks. River channels, sandbars, islands, cottonwood trees within the banks are included.
   b. Riparian Woodland - Woody vegatation outside the true river bottom but within the floodplain.

2. Hardwood Draw - Minor draws and narrow drainages of the uplands. Woody vegetation is not limited to this habitat but usually extends up the drainageways to occupy other communities. Two distinct types are recognized:
   a. Brush only
   b. Trees and Brush

3. Upland Grasslands - Hilly and steep uplands. This habitat is interspersed by small rounded hills with steep sides of sandstone, etc. Two distinct types are recognized:
   a. Predominantly grasses with sagebrush and erosion
   b. Sagebrush flats and bottoms - Heavy sagebrush and grasses found in large flat expanses entering major streams. Areas such as Dantz Creek (T138N, R102W, Sec. 23) are typical.

4. Rolling Grasslands - Gently rolling uplands with native grasses and not as extensive erosion as the upland type. Four types are recognized based on usage.
   a. Ungrazed or lightly grazed (Forest Service Lands)
   b. Moderately grazed (grass 2-5")
   c. Heavily grazed (less than 1")
   d. Hayed

5. Juniper Draw - Steep draws dominated by Rocky Mountain Juniper in "badland type area."

6. Ponderosa Pine/Limber Pine - Grasslands with ridges and steep slopes interspersed with scattered groves of Ponderosa Pine (and in one area Limber Pine).

7. Deciduous Forest - Characterized by Aspen, Birch and Oak. Generally in the Killdeer Mountains but also includes some of the larger draws leading into the Missouri River.

8. Wetlands - Three distinct types are recognized:
   a. Reservoirs - Large (over 10 acres) man-made water areas to include lakes Sakakawea and Tschida.
   b. Dugouts - Small man-made water areas such as cattle watering areas, etc. (under 10 acres).
   c. Natural wetlands

9. Terraces - The Terraces ecosystem is composed of former glacial lake bottoms, river bottoms or floodplains of streams and rivers now perched above the present water level. They are relatively flat and composed of materials similar to the river bottoms.

10. Upland Breaks - The Upland Breaks ecosystem along with the River Breaks ecosystem are the true "badlands" type. The Upland Breaks ecosystem occurs back beyond the river breaks with runoff water delivered to tributaries, thence into the river. Steep vertical faces of bedrock, usually barren of vegetation, are typical of the Upland Breaks. Large slumps and earthflows are often found on oversteepened faces.

11. River Breaks - The River Breaks ecosystem covers only a few acres along Lakes Sakakawea and Tschida. Along with the Upland Breaks ecosystem, it is a true "badlands" type. The River Breaks ecosystem consists of steep to vertical slopes adjacent to the river with surface runoff water delivered directly into the river. Bare rock faces of sandstone, siltstone, "scoria," lignite seams, bentonite clays, and some limestones are often found exposed. Wind and water actively erode these softer rocks forming badlands topography. Large slump blocks are numerous at the toe of the breaks.

12. Rockland - The Rockland ecosystem consists of steep, rock-strewn land mainly around Black Butte ("HT" Butte). It occupies the highest areas because of a relatively resistant layer of massive sandstone capping the buttes. Slopes are steeply rolling and hummocky, generally from 15 to 60 percent and more. Here a complex of very shallow, stoney soils have developed from the hard, massive sandstone outcrops.

13. Toe Slopes - The Toe Slopes ecosystem consists of slopes below breaklands or steep bedrock faces. Also included are alluvial deposits along intermittent drainages (especially alluvial fans). The material is loosely consolidated and moved by the effects of wind, water, and gravity. This unit often includes slumps, earthflows, and similar mass movements.

14. Hilly Scoria - The Hilly Scoria ecosystem is composed of hilly and steep "scoria" lands. It is interspersed with small, steep, rounded hills capped with "scoria," or porcellanite, reddish shaley fragments produced from clays baked by former burning coal beds.

15. Agriculture/Disturbed
   a. Spoil piles
   b. Retired crop lands
   c. Hay lands
   d. Seeded crop lands
   e. Fallow lands
   f. Stubble
   g. Roadsides and fence
   h. Shelterbelts
   i. Farmsteads

APPENDIX 4

Evaluation of known Prairie Dog Towns in Southwestern North Dakota.

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County ADAMS

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T132N R96W Sec 33	60	Rolling Grassland	40 State 20 Private	
KNOWN	T131N R93W Sec 18	100	Rolling Grassland	40 State 60 Private	State Game Management Area.

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County BILLINGS

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T143N R102W Sec 27, 28	80	Upland		
KNOWN	T142N R102W Sec 15 NE¼	less than 5	Upland Grassland	Federal	
KNOWN	T142N R101W Sec 8, 9, 17 (intersection)	50	Upland Grassland	Federal	
KNOWN	T141N R101W, R102W Sec 18, 13 (intersection)	less than 1	Upland Grassland	Private	Appears to be almost dead
KNOWN	T141N, T142N R100W Sec 3, 4, 34 (intersection)	80-100	Upland Grassland	Federal & Private	Poisoned in 1976; hunted heavily
KNOWN	T141N R101W Sec 21, 22	40	Upland Grassland Creek Drainage	Private & State	Made up of 3 separate towns, all of which are active
KNOWN	T141N R101W Sec 29 S½, SE¼; Sec 32 N½, NE¼	36	Upland Breaks River Bottom & Gentle Breaks	National Park Service	
KNOWN	T141N R100W Sec 8	100	Upland Grassland	Federal	
KNOWN	T141N R100W Sec 33	less than 20	Upland Grassland	Federal	Hunted heavily
KNOWN	T141N R99W Sec 8 SW¼	less than 2	Rolling Grassland	Private	

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County BILLINGS

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T141N R99W Sec 29 S½	200	Rolling Grassland	Private	
KNOWN	T140N R102W Sec 1 N½ T141N R101W Sec 33 S½ (intersection)	119	Upland Breaks River Bottom & Gentle Breaks	National Park Service	
KNOWN	T140N R102W Sec 2 NE¼, SW¼	8	Upland Grassland Mesa top	National Park Service	
KNOWN	T140N R102W Sec 3 NE¼, SW¼	5	Upland Grassland River tributary Grasslands Bottom	National Park Service	
KNOWN	T140N R102W Sec 11 NE¼, SE¼	9	Upland Grassland Bottomland below Badlands wall	National Park Service	
KNOWN	T140N R102W Sec 12 N½, SW¼	35	Upland Grassland River tributary Grassland Bottom	National Park Service	
KNOWN	T140N R102W Sec 23 N½, NE¼	12	Upland Grassland Mesa top	National Park Service	
KNOWN	T140N R102W Sec 29 west central	40	Upland Grassland	Federal	
KNOWN	T140N R102W Sec 30 north central	1	Upland Grassland Moderately Grazed	Federal	Only one dog seen (1977)
KNOWN	T140N R102W Sec 30 south central	10	Upland Grassland Moderately Grazed	Federal	29 dogs trapped or shot in 1977; very few dogs left

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County BILLINGS

PRAIRIE DOG TOWN EVALUATION

Cat.	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T140N R102W Sec 29, 30, 31, 32 (intersection)	18	Upland Grassland Moderately Grazed	Federal	75 dogs shot or trapped in summer 1977; approximately 100 dogs left
KNOWN	T140N R101W Sec 1 SE¼	60	Upland Grassland Moderately Grazed	Federal	Approximately 200 dogs shot or trapped in summer 1977; many dogs left
KNOWN	T140N R101W Sec 6 NE¼, NW¼	10	Upland Grassland River tributary Grassland Bottom	National Park Service	
KNOWN	T140N R101W Sec 28 NE¼, SE¼	10	Upland Grassland Bottomland below Badlands wall	National Park Service	
KNOWN	T140N R100W Sec 2	100-200	Rolling Grassland	Federal	
KNOWN	T140N R100W Sec 5 NW¼, Sec 6 NE¼	35	Upland Grassland Moderately Grazed	Federal & Private	Approximately 200 dogs trapped or shot in summer 1977; many dogs left in Sec 5, few left in Sec 6
KNOWN	T140N R100W Sec 30 NE¼	104	Upland Grassland Bottomland below Badlands wall	National Park Service	
KNOWN	T139N R102W Sec 32, 33	1	Upland Grassland Moderately Grazed	Private	About 10-15 Mounds
KNOWN	T138N R100W Sec 13 E½	less than 10	Rolling Grassland	Federal	
KNOWN	T137N R102W Sec 20	150	Upland Grassland	Federal	At base of Bullion Butte

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County BILLINGS

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T137N R100W Sec 23 N½	5	Rolling Grassland	Private	Poisoned summer of 1976
KNOWN	T137N R100W Sec 30 NE¼	5-10	Upland Grassland	Private	
KNOWN	T137N R100W Sec 36	20-25	Rolling Grassland	State	

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County BOWMAN

PRAIRIE DOG TOWN EVALUATION

Cal y	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T132N R107W Sec 27 SE¼	1		Private	
KNOWN	T132N R106W Sec 9 SW¼	80		Private	
KNOWN	T132N R106W Sec 16 NW¼	5		Private	
KNOWN	T132N R106W Sec 21 SE¼	55		Private	
KNOWN	T132N R106W Sec 21 SW¼ Sec 28 NW¼	110		Private	
KNOWN	T132N R106W Sec 36			Private	
KNOWN	T132N R104W Sec 31 NE¼	45		Private	
KNOWN	T132N R102W Sec 30 NE¼	10	Rolling Grassland Moderately Grazed	Private	
KNOWN	T132N R102W Sec 35	25		Private	
KNOWN	T131N R107W Sec 24 NW¼	5	Upland Grassland with Sagebrush	Private	

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PRAIRIE DOG TOWN EVALUATION

County BOWMAN

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T131N R106W Sec 36 SW¼	20		Private	
KNOWN	T131N R105W Sec 18	55		Federal	
KNOWN	T131N R105W Sec 31	40		Private	
KNOWN	T131N R104W Sec 18 NW¼ of SW¼	20		Private	
KNOWN	T131N R104W Sec 19, 20	160	Rolling Grassland	Private	10 European ferrets released last week of June 1976
KNOWN	T130N R106W Sec 5 NE¼	30	Upland Grassland with Sagebrush	Private	
KNOWN	T130N R106W Sec 13 NE¼	200	Upland Grassland	Private	
KNOWN	T130N R106W Sec 17 NE¼				
KNOWN	T130N R106W Sec 32 SE¼	less than 1		Private	
KNOWN	T130N R105W Sec 8	35		Private	

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County BOWMAN

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T130N R106W Sec 36	160		Federal	
KNOWN	T130N R105W Sec 36, 25	10	Upland Grassland	Private	
KNOWN	T130N R105W Sec 36 SW¼	20	Upland Grassland	Private	
KNOWN	T130N R104W Sec 29 NE¼ of SW¼	5		Private	
KNOWN	T129N R107W Sec 26	1		Federal	
KNOWN	T129N R106W Sec 3 NW¼	less than 1		Private	
KNOWN	T129N R106W Sec 11	20		Private	
KNOWN	T129N R106W Sec 17	15		Private	
KNOWN	T129N R106W Sec 31			Private	
KNOWN	T129N R104W Sec 31 S	5		Federal	

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PRAIRIE DOG TOWN EVALUATION

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County BOWMAN

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T129N R104W Sec 36	160	Rolling Grassland	Private	Town has had previous ferret sightings
KNOWN	T129N R102W Sec 26	50		Private	
KNOWN	T129N R101W Sec 20 NE¼	10		Private	
POSSIBLE	T131N R106W Sec 24 NE¼				
POSSIBLE	T131N R105W Sec 9 NE¼ of SW¼	3		Private	
POSSIBLE	T129N R107W Sec 15 NW¼			Private	

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County DUNN

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T148N R97W Sec 26 central	40	Rolling Grassland	Private	
KNOWN	T148N R97W Sec 35	25	Rolling Grassland	Private	This town continuous with T148N R97W Sec 26 center
KNOWN	T147N R97W Sec 7	25	Rolling Grassland Sagebrush Flats or Bottoms	Private	
KNOWN	T147N R97W Sec 18	70	Rolling Grassland	Private	Burrows extend into trees; some dogs actually dug into trees
KNOWN	T147N R95W Sec 2	40	Rolling Grassland	Private	Possibly hunted heavily
KNOWN	T147N R95W Sec 3	40	Rolling Grassland	Private	
KNOWN	T147N R95W Sec 12	30	Rolling Grassland Moderately Grazed	Private	
KNOWN	T147N R94W Sec 6	20	Rolling Grassland	Private	
KNOWN	T145N R94W Sec 25 SE¼	1	Rolling Grassland Agricultural Disturbed/Seeded Crop	Private	Almost completely poisoned out; estimated acreage in 1966 was 80 acres
KNOWN	T143N R92W Sec 6	80	Rolling Grassland	Private	

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County DUNN

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T142N R91W Sec 17	40	Rolling Grassland Agricultural Disturbed/Seeded Crop	Private	Poisoned
KNOWN	T142N R91W Sec 18	40	Rolling Grassland Moderately Grazed	Private	T142N R91W Sec 18, 19, 20 are all relatively continuous; hunted lightly
KNOWN	T142N R91W Sec 19	120	Rolling Grassland Moderately Grazed	Private	Hunted lightly
KNOWN	T142N R91W Sec 20	40	Rolling Grassland Moderately Grazed	Private	
KNOWN	T141N R93W Sec 1	30	Agricultural Disturbed/ Seeded Crop	Private	Hunted
KNOWN	T141N R93W Sec 11	50	Agricultural Disturbed/ Seeded Crop	Private	Poisoned; hunted

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PRAIRIE DOG TOWN EVALUATION

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County GOLDEN VALLEY

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T144N R103W Sec 9 SE	2	Upland Grassland	Private	
KNOWN	T144N R103W Sec 15 N	1	Upland Grassland	Private	
KNOWN	T144N R103W Sec 28 SE	20	Upland Grassland	Private	
KNOWN	T144N R103W Sec 32 S	30	Upland Grassland Grazed	Private	
KNOWN	T144N R103W Sec 34 central	15	Upland Grassland	Private	
KNOWN	T143N R104W Sec 15 NW	2	Upland Grassland	Private	Appears to be recent invasion; dogs numerous and active
KNOWN	T143N R104W Sec 25, 26	10-15	Upland Grassland	Private	
KNOWN	T143N R104W Sec 35, 36 S	less than 1	Upland Grassland	Private	
KNOWN	T143N R103W Sec 5 central	3	Upland Grassland	Private	
KNOWN	T143N R103W Sec 5 NW	3	Upland Grassland	Private	One-half mile west of town T143N R103W Sec 5 central

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County GOLDEN VALLEY

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T143N R103W Sec 8 NE	3	Upland Grassland	Federal	Town in two small parts (1 acre & 2 acres) which are separated by about 300 yards of dead town
KNOWN	T143N R103W Sec 9 S	less than 1	Upland Grassland	Federal	
KNOWN	T142N R104W Sec 23 NW	65	Rolling Grassland	Private	
KNOWN	T142N R104W Sec 26 NW	27	Rolling Grassland	Private	
KNOWN	T142N R103W Sec 11, 12	37	Upland Grassland	Private	
KNOWN	T140N R103W Sec 9	2	Upland Grassland	Federal	Recently transplanted; beside campground right along Interstate 94
KNOWN	T137N R104W Sec 13 E	10	Rolling Grassland	Private	

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County GRANT

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T132N R89W Sec 17 E-central	5-8	Rolling Grassland	Private	
KNOWN	T132N R86W Sec 30 SE¼	9	Rolling Grassland	Private	
KNOWN	T132N R84W Sec 26 SE¼	15	Rolling Grassland	Private	
KNOWN	T132N R83W Sec 3 N-central	6	Rolling Grassland	Private	
KNOWN	T132N R83W Sec 3 NW¼	6	Rolling Grassland	Private	Poisoned spring 1976
KNOWN	T131N R86W Sec 23 NE¼	40	Rolling Grassland	Private	
KNOWN	T131N R85W Sec 29 SW¼	2	Rolling Grassland	Private	
KNOWN	T131N R84W Sec 4 NE¼	80-100	Rolling Grassland	Private	

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County McKENZIE

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T150N R104W Sec 27 SW	92	Rolling Grassland	Federal	
KNOWN	T150N R98W Sec 7 S	6		Private	
KNOWN	T149N R103W Sec 6 S	160	Rolling Grassland	Federal	Hunted heavily
KNOWN	T149N R103W Sec 8 NW	3	Rolling Grassland	Federal	Few dogs
KNOWN	T149N R103W Sec 10 E	5	Rolling Grassland	Federal	Hunted
KNOWN	T149N R103W Sec 20 SW¼	3		Federal	
KNOWN	T149N R100W Sec 16 SW	20	Rolling Grassland	State	
KNOWN	T149N R99W Sec 6, 5	49	Rolling Grassland	Private	
KNOWN	T149N R94W Sec 8 S	180		Fort Berthold Indian Reservation	
KNOWN	T148N R104W Sec 24	2		Federal	Few dogs

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County McKENZIE

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T148N R99W Sec 12	16		Private	
KNOWN	T148N R99W Sec 17 S	21		Federal	
KNOWN	T148N R99W Sec 19 SW¼	22	Upland Grassland	National Park Service	
KNOWN	T148N R99W Sec 28	41	Upland Grassland Mesa Top	National Park Service	
KNOWN	T147N R100W Sec 16 N½. SE¼	25	Upland Grassland River tributary Grassland Bottom	National Park Service	
KNOWN	T147N R100W Sec 33 NW	80	Upland Grassland with Sagebrush Flats	Federal	
KNOWN	T147N R99W Sec 12 W	2		Private	
KNOWN	T146N R103W Sec 36	28		State	
KNOWN	T145N R104W Sec 11	5	Rolling Grassland	Federal	Hunted by coyotes
KNOWN	T145N R104W Sec 33	less than 1	Rolling Grassland	Federal	Only one dog seen

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County McKENZIE

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T145N R104W Sec 35	35	Rolling Grassland	Federal	
KNOWN	T145N R103W Sec 8 NE	15		Private	
POSSIBLE	T148N R101W Sec 21	10		Private	Field checked and town is there, but due to inclement weather, it is not known if town is active

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PRAIRIE DOG TOWN EVALUATION

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County MERCER

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T145N R88W Sec 30	25	Rolling Grassland Agriculturally Disturbed	Private	Hunted heavily
KNOWN	T143N R90W Sec 34 central	1	Rolling Grassland	Private	5 active burrows; 1 dog left; poisoned

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County MORTON

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T137N R84W Sec 26 NE¼		Rolling Grassland		
KNOWN	T137N R83W Sec 5 NW¼	1	Rolling Grassland	Private	
KNOWN	T137N R83W Sec 16 NE¼	300-360	Rolling Grassland	Private	
KNOWN	T136N R84W Sec 21 NE¼	80	Rolling Grassland	Private	
KNOWN	T136N R83W Sec 4, 5		Rolling Grassland	Private	
KNOWN	T136N R82W Sec 15 SE¼	20	Rolling Grassland	Private	
KNOWN	T136N R79W Sec 27 NW¼	40	Rolling Grassland	Private	
KNOWN	T136N R79W Sec 30 NE¼	35	Rolling Grassland	Private	
KNOWN	T135N R81W Sec 26 SW¼	5	Rolling Grassland	Private	
KNOWN	T135N R81W Sec 32 central	1	Rolling Grassland	Private	

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County MORTON

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T135N R81W Sec 33 central	1	Rolling Grassland	Private	
KNOWN	T135N R81W Sec 36 SE¼	160	Rolling Grassland	Private	
KNOWN	T135N R80W Sec 2 SW¼	20	Rolling Grassland	Private	
KNOWN	T135N R80W Sec 28 SE¼	100	Rolling Grassland	Private	
KNOWN	T135N R80W Sec 29 SW¼	3	Rolling Grassland	Private	
KNOWN	T135N R79W Sec 15 central	150	Rolling Grassland	Private	Area heavily poisoned; recently cultivated
KNOWN	T134N R83W Sec 2 E central	2	Rolling Grassland	Private	
KNOWN	T134N R82W Sec 10 SE¼, Sec 15 NE¼	10	Rolling Grassland	Private	
KNOWN	T134N R82W Sec 13 SW¼	10	Rolling Grassland	Private	
KNOWN	T134N R82W Sec 24 NW¼	15-20	Rolling Grassland	Private	

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PRAIRIE DOG TOWN EVALUATION

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County MORTON

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T134N R82W Sec 25 W central	15-20	Rolling Grassland	Private	Approximately 100+ dogs
KNOWN	T134N R82W Sec 26 SE¼	5	Rolling Grassland	Private	Approximately 50 dogs; hunted heavily
KNOWN	T134N R81W Sec 10 NE¼	1	Rolling Grassland	Private	
KNOWN	T134N R81W Sec 13 central	2	Rolling Grassland	Private	
KNOWN	T134N R81W Sec 17 S central	40	Rolling Grassland	Private	Poisoned in spring 1976 and to be fall 1976
KNOWN	T134N R81W Sec 26 NE¼	1	Rolling Grassland	Private	
KNOWN	T134N R81W Sec 30 NW¼	less than 1	Rolling Grassland	Private	Approximately 10-20 dogs
KNOWN	T134N R80W Sec 1 SW¼	20	Rolling Grassland	Private	
KNOWN	T134N R80W Sec 12 SE¼	40	Rolling Grassland	Private	
KNOWN	T134N R80W Sec 14 NW¼	40	Rolling Grassland	Private	

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County MORTON

PRAIRIE DOG TOWN EVALUATION

Cate	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T134N R80W Sec 27 NE¼	10	Rolling Grassland	Private	
KNOWN	T134N R79W Sec 5 S½	180	Rolling Grassland	Private	
NOWN	T133N R82W Sec 8 W central	2	Rolling Grassland	Private	Approximately 20 dogs
KNOWN	T133N R82W Sec 10 SW¼	40	Rolling Grassland	Private	Poisoned spring 1976
KNOWN	T133N R82W Sec 21 -	1	Rolling Grassland	Private	Hunted heavily; trapped
POSSIBLE	T140N R84W Sec 31 SW¼	13	Rolling Grassland	Private	

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PRAIRIE DOG TOWN EVALUATION

County SIOUX

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T134N R81W Sec 35 SW¼	80	Rolling Grassland	Private	
KNOWN	T134N R79W Sec 34	6	Rolling Grassland	Private	
KNOWN	T133N R81W Sec 2 S½, E central	80	Rolling Grassland	Private	
KNOWN	T133N R81W Sec 5 SE¼	10	Rolling Grassland	Private	
KNOWN	T133N R80W Sec 5 NW¼	80	Rolling Grassland	Private	
KNOWN	T133N R80W Sec 33 SW¼	3	Rolling Grassland	Private	
KNOWN	T133N R79W Sec 9 central		Rolling Grassland	Private	
KNOWN	T133N R79W Sec 15 central	1	Rolling Grassland	Private	
KNOWN	T133N R79W Sec 16 N central	21	Rolling Grassland	Private	
KNOWN	T133N R79W Sec 22 NE¼	10-15	Rolling Grassland	Private	

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PRAIRIE DOG TOWN EVALUATION

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County SIOUX

Cat[illegible]	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T133N R79W Sec 34		Rolling Grassland	Private	
KNOWN	T132N R81W Sec 4 SW¼		Rolling Grassland	Private	
KNOWN	T132N R81W Sec 26 NE¼	1	Rolling Grassland	Private	
KNOWN	T132N R79W Sec 16 NW¼	83	Rolling Grassland	Private	
KNOWN	T131N R83W Sec 2	40	Rolling Grassland	Private	
KNOWN	T131N R83W Sec 34	30	Rolling Grassland	Private	
KNOWN	T131N R83W Sec 36 NE¼	100	Rolling Grassland	Private	
KNOWN	T131N R82W Sec 18 NE¼	3-5	Rolling Grassland	Private	
KNOWN	T131N R80W Sec 1 SE¼	3-5	Rolling Grassland	Private	
KNOWN	T131N R80W Sec 4 central	32	Rolling Grassland	Private	

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PRAIRIE DOG TOWN EVALUATION

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County SIOUX

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T131N R80W Sec 21 W central	10-15	Rolling Grassland	Private	
KNOWN	T130N R85W Sec 32 central		Rolling Grassland		
KNOWN	T130N R85W Sec 33 NW¼	71	Rolling Grassland	Private	
KNOWN	T130N R84W Sec 13 NW¼	15	Rolling Grassland	Private	
KNOWN	T130N R84W Sec 29 SE¼	14	Rolling Grassland	Private	
KNOWN	T130N R83W Sec 2		Rolling Grassland	Private	
KNOWN	T130N R83W Sec 31 SE¼		Rolling Grassland	Private	
KNOWN	T130N R83W Sec 32 SE¼, NE¼	57	Rolling Grassland	Private	
KNOWN	T130N R82W Sec 3 NE¼	3-5	Rolling Grassland	Private	
KNOWN	T130N R82W Sec 17 central	10-15	Rolling Grassland	Private	

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County SIOUX

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T130N R81W Sec 6 NE¼	40	Rolling Grassland	Private	
KNOWN	T130N R81W Sec 9 central	2-3	Rolling Grassland	Private	
KNOWN	T130N R81W Sec 19 SE¼	1	Rolling Grassland	Private	
KNOWN	T130N R81W Sec 21 central	1	Rolling Grassland	Private	Recently poisoned
KNOWN	T130N R81W Sec 26 W½	135	Rolling Grassland	Private	
KNOWN	T129N R88W Sec 23 N central	1	Rolling Grassland	Private	
KNOWN	T129N R87W Sec 26	40	Rolling Grassland	Private	
KNOWN	T129N R87W Sec 35	40	Rolling Grassland	Private	
KNOWN	T129N R86W Sec 4 NE¼	180	Rolling Grassland	Private	Owner said ferret taken 40 years ago
KNOWN	T129N R86W Sec 17 SW¼		Rolling Grassland	Private	

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County SIOUX

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T129N R86W Sec 21 N central	15	Rolling Grassland	Private	
KNOWN	T129N R85W Sec 27 S central	15	Rolling Grassland	Private	
KNOWN	T129N R84W Sec 33 E central	1	Rolling Grassland	Private	
KNOWN	T129N R84W Sec 35	1	Rolling Grassland	Private	
KNOWN	T129N R83W Sec 13	1	Rolling Grassland	Private	
KNOWN	T129N R83W Sec 18 NE¼	5	Rolling Grassland	Private	
KNOWN	T129N R82W Sec 3	20	Rolling Grassland	Private	
KNOWN	T129N R82W Sec 12	35	Rolling Grassland	Private	
KNOWN	T129N R82W Sec 15	20	Rolling Grassland	Private	
KNOWN	T129N R82W Sec 27	1	Rolling Grassland	Private	

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County SIOUX

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T129N R81W Sec 9 NE¼	40	Rolling Grassland	Private	
KNOWN	T129N R81W Sec 11 SW¼	57	Rolling Grassland	Private	
KNOWN	T129N R80W Sec 13	300	Rolling Grassland	Private	
KNOWN	T129N R79W Sec 22 NW¼	25	Rolling Grassland	Private	
KNOWN	T129N R79W Sec 33 E central		Rolling Grassland	Private	
POSSIBLE	T130N R84W Sec 18	8	Rolling Grassland	Private	

PRAIRIE DOG TOWN EVALUATION

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County SLOPE

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T136N R103W Sec 1 NW¼	11		Private	
KNOWN	T136N R101W Sec 27	45		Private	
KNOWN	T136N R101W Sec 33 N			Private	
KNOWN	T136N R101W Sec 33 NW¼			Private	
KNOWN	T136N R100W Sec 6	10		Private	
KNOWN	T136N R99W Sec 6 NE¼	25		Federal	
KNOWN	T136N R99W Sec 10 NE¼	2		Federal	
KNOWN	T136N R99W Sec 15	30		Federal	
KNOWN	T135N R106W Sec 25 SW¼	30		Private	
KNOWN	T135N R105W Sec 27	10		Federal	

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PRAIRIE DOG TOWN EVALUATION

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County SLOPE

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T135N R105W Sec 33 SW¼ Sec 32	4		Federal	Possibly poisoned
KNOWN	T135N R105W Sec 35 SW¼			Federal	
KNOWN	T135N R100W Sec 8			Private	
KNOWN	T135N R98W Sec 9 SE¼	5		Private	
KNOWN	T134N R106W Sec 5 S, Sec 8 N			Private	
KNOWN	T134N R106W Sec 8 NW¼	12		Federal	
KNOWN	T134N R106W Sec 9 E, Sec 10 W	76		Federal	
KNOWN	T134N R106W Sec 13 SE¼			Private	
KNOWN	T134N R106W Sec 24 SW¼			Federal	
KNOWN	T134N R105W Sec 10 S			Private	

PRAIRIE DOG TOWN EVALUATION

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County SLOPE

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T134N R105W Sec 19 E	22		Federal	
KNOWN	T134N R105W Sec 25			Private	
KNOWN	T134N R105W Sec 32 E, Sec 33W	46		Federal	
KNOWN	T134N R105W Sec 33			Private	
KNOWN	T134N R104W Sec 6 NW¼	30		Federal	
KNOWN	T134N R104W Sec 27 N			Private	
KNOWN	T134N R102W Sec 13	20		Private	Possibly poisoned
KNOWN	T134N R102W Sec 14 NE¼	17		Federal	
KNOWN	T133N R106W Sec 12 NE¼	10	Upland Grassland Grazed	Private	
KNOWN	T133N R106W Sec 16 E	48		Federal	

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PRAIRIE DOG TOWN EVALUATION

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County SLOPE

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T133N R106W Sec 16 SW¼	1		Federal	
KNOWN	T133N R106W Sec 21 NE¼	10		Federal	
KNOWN	T133N R105W Sec 2 NE¼	1		Federal	
KNOWN	T133N R105W Sec 19 N			Private	
KNOWN	T133N R105W Sec 26 NE¼				
KNOWN	T133N R105W Sec 26 NW¼	63		Private	
KNOWN	T133N R105W Sec 33			Private	
KNOWN	T133N R103W Sec 9	10		Private	
KNOWN	T133N R103W Sec 31 central	8		Federal	
KNOWN	T133N R103W Sec 32	35		Private	

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County SLOPE

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
POSSIBLE	T135N R106W Sec 23	50		Federal	
POSSIBLE	T133N R106W Sec 6 SW¼				
POSSIBLE	T133N R106W Sec 17 SE				
POSSIBLE	T133N R102W Sec 31 S central			Private	

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County STARK

PRAIRIE DOG TOWN EVALUATION

Category	Location	Acreage	Habitat	Ownership	Remarks
KNOWN	T140N R99W Sec 12 SE¼	10	Rolling Grassland	Private	
KNOWN	T140N R99W Sec 30 NE¼	10	Rolling Grassland	Private	
KNOWN	T139N R98W Sec 6 NW¼	1-2	Rolling Grassland Moderately Grazed	Private	Only one dog was seen
KNOWN	T137N R99W Sec 23 NW¼	50	Rolling Grassland	Private	
KNOWN	T137N R00W Sec 19 S½	120	Rolling Grassland Moderately Grazed	Private	
KNOWN	T137N R99W Sec 19 Billings & Stark Co. line	200	Rolling Grassland	Private	Hunted heavily
KNOWN	T137N R99W Sec 20 SW¼	10-15	Rolling Grassland Moderately Grazed	Private	
KNOWN	T137N R99W Sec 30 NE¼	30-40	Rolling Grassland Moderately Grazed	Private	
KNOWN	T137N R99W Sec 30 NW¼	20	Rolling Grassland Moderately Grazed	Private	
KNOWN	T137N R97W Sec 36 SE¼	25	Rolling Grassland	Private	

APPENDIX 5

GLOSSARY

Antlers -- Solid, deciduous horns, usually branched, of the deer family (Cervidae) which are lost annually.
Arboreal -- Living in or among the trees.
Boreal Forest -- Forests of the northern areas of the country.
Cache -- Collected groups of twigs and brush which beavers use for food.
Cambium -- Layer of delicate meristematic tissue between the bark and wood of a tree; froms the annual rings of the tree.
Carapace -- In turtles the upper part of the shell.
Crustaceans -- Any chiefly aquatic arthropod of the Class Crustaces (i.e. lobsters, shrimp, crabs, crayfish, etc.)
Cud -- Portion of food which a ruminant (i.e. elk, deer, etc.) returns from the first stomach to the mouth to chew again.
Deciduous -- Sheding leaves each year.
Desiccation -- Thoroughly drying out.
Diurnal -- Active in the daytime.
Ecotone -- Transition zone between 2 plant communities.
EHD -- Epizootic Hemmorhagic Disease.
Emigration -- Act of moving away from an area.
Forbs -- Any herb that is not a grass or grass-like.
Fossorial -- Living underground.
Free Water -- Water in its molecular form (i.e. water not manufactured by metabolic processes)
Gregarious -- Grouping together.
Hibernation -- Dormancy during winter; metabolism is lowered and body temperature is that of surroundings.
Home Range -- Area an animal uses during its normal activities.
Immigration -- Act of moving into an area.
Incisors -- Anterior teeth of each jaw, used for cutting.
Insectivorous -- Adapted to feeding on insects.
Mesic Habitat -- Habitat with a balanced supply of moisture.
Microtine -- Any member of the rodent subfamily Microtinae that have teeth with enamel loops (i.e. meadow voles, prairie voles, etc.).
Migration -- Act of moving from one place to another.
Monotypic -- Having only one type or representative.
Nocturnal -- Mainly active at night.
Omnivorous -- Eating both plant and animal foods.
Parotoids -- Glands forming a warty mass near the ear in toads.
Pelage -- Hair, fur, or wool covering of a mammal.
Plastron -- The ventral part of a turtle shell.
Poikilothermic -- Varying body temperature which approximately corresponds to the environment.
Rafting -- Using some object (i.e. logs, branches) to float across large rivers or other water bodies.
Retractile Claws -- Claws that are able to be drawn back or in, such as a cat's claws.

Riparian -- Pertaining to or situated on the bank of a river or other body of water.

Scutes -- Ventral scales on a snake used for locomotion; also horny scales on the carapace of turtles.

Species Diversity -- Variety of species in an area.

Traditional Den Site -- Overwintering areas for snakes that have been used for many years.

True Horns -- Bone cores covered with horny sheaths made up of agglutinated hair.