

STUDY COMPLETION REPORT
SURVEYS AND ~~INVESTIGATIONS~~ PROJECTS

As Required By
FEDERAL AID IN WILDLIFE RESTORATION ACT

ILLINOIS

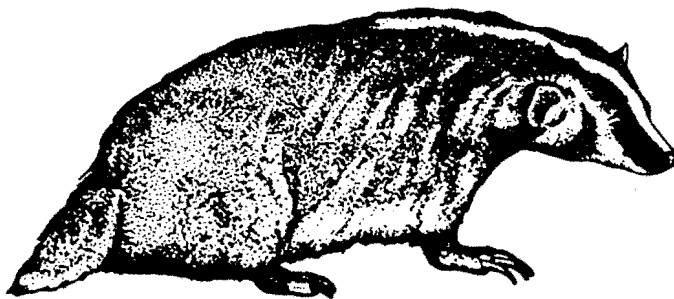
Federal Aid Project No. W-49-R-27 (1979-80)

STUDY VII: Badger Status Evaluation

Job No. 1: Badger population survey
Job No. 2: Badger Collections

By

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ILLINOIS DEPARTMENT OF CONSERVATION

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13 March 1980

PERMISSION TO QUOTE

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STUDY COMPLETION REPORT
SURVEYS AND INVESTIGATIONS PROJECTS

STATE OF ILLINOIS

PROJECT NO. W-49-R(27)

STUDY VII

JOBS NO. 1 & 2

STUDY NO. VII: Badger Status Evaluation

ABSTRACT

JOB NO. 1: Badger population survey

A mail survey of Conservation Police Officers and District Wildlife Managers employed by the Department of Conservation was conducted from July - September 1979 to determine the present range of the badger (Taxidea taxus) in Illinois and to collect mortality data. Useable replies were obtained from 54 Conservation Officers and 10 District Managers following a single mailing. These responses provided information for 60 of the 102 counties in the state. Based on the present survey and data collected during 1977 and 1978, the badger probably occurs throughout Illinois north of a line extending from Perryville, Missouri, to Vincennes, Indiana, except in isolated areas where habitat is unsuitable. The present distribution represents a southward range extension of at least 128 km (80 mi) during the past 22 years.

Most of the recent badger mortalities reported by project personnel were directly related to man. Road-kills were the most important cause of mortality accounting for 39 of 58 (67%) documented badger kills. Non-target trap catches and accidental/intentional shootings accounted for an additional 14 (24%) deaths.

JOB NO. 2: Sex and/or age data were obtained from 5 badgers during the reporting period. Of the 5 animals sexed, 3 were females. The 2 specimens aged were both juveniles. One juvenile female collected in late November weighed 5.7 kg.

STUDY COMPLETION REPORT
SURVEYS AND INVESTIGATIONS PROJECTS

STATE OF ILLINOIS

PROJECT NO. W-49-R-27

STUDY VII

JOBS NO. 1 & 2

STUDY NO. VII: Badger Status Evaluation

OBJECTIVE: To determine selected population characteristics of the badger in Illinois and if current population levels and characteristics warrant the establishment of an annual trapping season.

Job No. 1: Badger population survey

Objective: To collect information on the distribution, abundance, and mortality factors of the badger in Illinois.

Procedures: The present distribution of the badger in Illinois and the mortality factors affecting this species were determined from a mail survey of Conservation Police Officers and District Wildlife Managers employed by the Department of Conservation. An intra-departmental memorandum (Fig. 1) and a questionnaire sheet (Fig. 2) were used to survey all Officers and Managers engaged in field activities. No follow-up to the initial mailing was made.

Additional information relative to badger distribution, mortality, and population characteristics was obtained from reports of sightings, confiscated specimens, or road-killed animals which were submitted to the project leader with appropriate data. Records of accidental badger captures submitted by trappers on the report form-questionnaire utilized in the annual trapper mail survey were maintained. The locations of all specimens examined or reported were plotted on a map for future reference.

Findings and Analysis:

Intra-departmental memoranda and badger status questionnaires were distributed to Conservation Police Officers and District Wildlife Managers with field assignments on 9 July 1979. All individuals received the official correspondence. When the survey was closed 9 September 1979, useable replies had been received from 54 Officers and 10 District Wildlife Managers.

The questionnaires submitted by Conservation Officers covered 44 of the 102 counties in Illinois (Fig. 3). Badgers were reported present in 40 counties and present based on unconfirmed reports in 4 additional counties. The occurrence of badgers in 25 of these counties was substantiated by road-kills, non-target trap catches, or personal observations made by the Officer completing the questionnaire.

District Wildlife Managers submitted questionnaires covering 24 counties in the state (Fig. 4). The geographic range of the badger based on their reports

approximated that based on Conservation Officer responses except for a few extreme southern counties. Badgers were reported to be present in 21 counties and present based on unconfirmed reports in 3 additional counties. The presence of badgers in 13 of these counties was supported by road-kills, non-target trap catches, or personal observations made by the District Manager filing the report.

A total of 10 badger specimens collected in 9 different Illinois counties between May 1979 and November 1979 was examined by Department of Conservation personnel during the reporting period (Table 1, Fig. 5). Of these, 8 were road-kills, 1 was found dead, and 1 was killed during live-trapping operations. The road-killed badger from Coles County was donated to the mammal collection at Eastern Illinois University, Charleston. In addition, a report of a visual observation was submitted by an instructor from Greenville College, Greenville, Illinois (Table 1, Fig. 5).

As noted above, the causes of mortality for the 10 specimens examined by Department of Conservation personnel were as follows: 8 road-kills (80%), 1 drug overdose during live-trapping (10%), and 1 unknown (10%). Road-kills and non-target trap catches were the two most common types of mortality reported for recent badger kills listed by Conservation Officers and District Wildlife Managers on the 1979 questionnaire sheets (Table 2). Badgers were also shot (probably on purpose), killed by dogs, or died in accidents (Table 2). The reported number of mortalities due to non-target catches by trappers is believed minimal because there is a reluctance to notify enforcement personnel of such incidents. Based on these data, it appears that many of the badger mortalities in Illinois during July 1978-June 1979 were related directly to man.

Hoffmeister and Mohr (1957) indicated that in 1957 badgers were common locally in northwestern Illinois and had spread as far south as Fulton and Douglas counties. The distributional data collected by Hubert (1978), Hubert (1979), and the present study affirm the fact that the badger has continued to extend its range southward during the past 22 years. The badger now occurs as far south as Jackson, Franklin, Hamilton, Wayne, Richland, and Lawrence counties (Figs. 3, 4, 6). Present distribution represents a southward range extension of at least 128 km since 1957 (approximately 6.4 km - yr).

Similar southward range extensions have been reported by previous investigators (Kennicott 1859). However, such extensions have been followed by periods of population declines and ensuing re-establishment (Hoffmeister and Mohr 1957, Schwartz and Schwartz 1959). The reason for these periodic range extensions is unknown, but the recent increase in agricultural activity and associated clearing of timbered land near the southern fringe of the range may be important factors.

Literature Cited:

- Hoffmeister, D. F., and C. O. Mohr. 1957. Fieldbook of Illinois mammals. Manual 4. Illinois Nat. Hist. Surv., Urbana. 233pp.
- Hubert, G. F., Jr. 1978. Badger status evaluation. Illinois Dept. of Cons. P-R Proj. Rep. W-49-R-25, Study I, Job 7. 12pp.
- _____. 1979. Badger status evaluation. Illinois Dept. of Cons. P-R Proj. Rep. W-49-R-26, Study I, Job 7. 4pp.

Kennicott, R. 1859. The quadrupeds of Illinois injurious and beneficial to the farmer. U.S. Commr. Patents Rep. (Ag.) for 1858:241-256.

Schwartz, C. W., and E. R. Schwartz. 1959. The wild mammals of Missouri. Univ. of Missouri Press, Columbia. 341pp.

Job No. 2: Badger collections

Objective: To collect data on sex, age, weight, standard measurements, and productivity of Illinois badgers.

Procedures: Badger specimens in the possession of private individuals or public institutions were examined as they became available or time permitted. When possible, the animals were sexed and aged using the methods described by Petrides (1950). Whole animals were weighed to the nearest 0.1 kg using a suspended scale.

Findings and Analysis:

Sex and/or age data were obtained from 5 of the 10 badgers examined by Department of Conservation personnel during the reporting period (Table 1, Fig. 5). Of the 5 animals sexed, 3 were females. The 2 specimens aged were both juveniles (females). One (#GH449) of these juvenile females collected on 26 November 1979 weighed 5.7 kg. Its standard body measurements were 684 mm - 111 mm - 93 mm - 50 mm.

Literature Cited:

Petrides, G. A. 1950. The determination of sex and age ratios in fur animals. Amer. Midland Nat. 43:355-382.

RECOMMENDATIONS:

Project personnel should continue to examine all badger specimens which become available and collect sex, age, and mortality data whenever possible. Attempts to secure specimens from the extreme southern limit of the badger range in Illinois as well as areas of questionable occurrence should be expanded. All animals collected should be placed in a collection maintained by an educational institution. An annual reminder outlining the procedure for submitting specimens should be sent to all Conservation Police Officers and District Wildlife Managers.

Badger densities on selected study areas in various sections of the range should be determined. Potential sample areas in northern Illinois include the Lee County Conservation Area near Amboy and Clinton Township in DeKalb County. Other areas in the northern management zone should be examined for possible inclusion in this phase of the investigation.

DATA AND REPORTS:

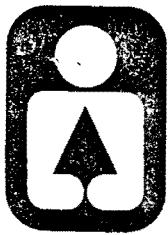
Original data and related reports in this investigation are on file in the Division of Wildlife Resources Office, Illinois Department of Conservation, Springfield IL 62706.

PREPARED BY: G. F. Hubert, Jr.
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APPROVED BY: T. B. Miller
Supervisor
Div. of Wildlife Resources

DATE: 13 March 1980

GH:jmm



Illinois
Department of
Conservation
Let's all work together

-5-
office
memorandum

to: All District Wildlife Managers and Conservation Police Officers
from: George Hubert, Jr., Div. of Wildlife Resources *GH*
date: 1979
subject: Badger Status Questionnaire/Collection of Specimens

I am presently collecting information relative to the current status of the badger in Illinois. Data about recent population trends and mortality in your district are needed. Please assist me by completing the attached questionnaire. Your cooperation will be greatly appreciated.

Kindly return the completed form to: George Hubert, Jr.
Div. of Wildlife Resources
Ill. Dept. of Conservation
PO Box 728
Hinckley IL 60520

In addition, I would like to secure any badger, river otter, or bobcat specimens that become available via confiscation, road-kills, etc. If you obtain any carcasses in reasonably good condition, please tag the animal with the date and location of collection and freeze it whole. Next, notify one of the following to arrange for pick-up:

George Hubert
815-286-7434

Jack Ellis (Vandalia)
618-283-3070

John Cole (Gibson City)
217-784-4730

If you encounter a bobcat or river otter that is in poor condition (decayed, etc.), please try to salvage the skull.

GH:gh
Attach.

cc: T. Miller, Klinedinst, Ellis, Moak, Loomis, Becker, Kleen, RWMs

Figure 1. Intra-departmental memorandum sent to Conservation Police Officers and District Wildlife Managers in 1979 badger survey.

ILLINOIS DEPARTMENT OF CONSERVATION
Division of Wildlife Resources
Furbearer Section

BADGER STATUS QUESTIONNAIRE - 1979

1. Are badgers now found in your district? District No. _____
 Yes _____ No _____ Unconfirmed reports _____

Please list county or counties in your district where badgers are presently found:

_____	_____	_____
_____	_____	_____
_____	_____	_____

2. In your opinion, what is the status of the badger in your district?
 Increasing _____ Decreasing _____ Remain about same _____

3. Do you know of any badgers that were accidentally or intentionally killed in your district during the past 12 months (July 1978-June 1979)?
 Yes _____ No _____

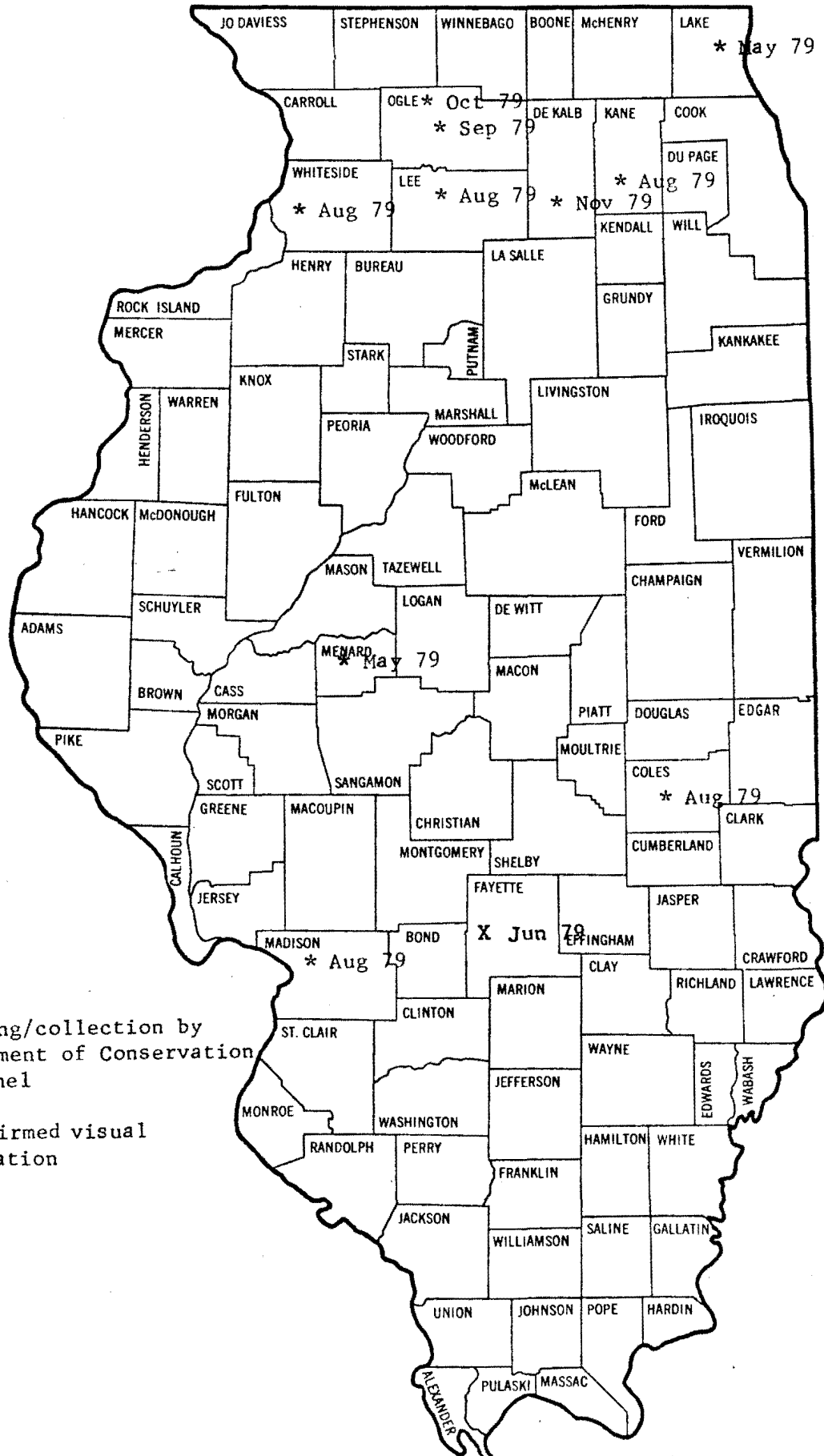
If yes, please list location, date, and type of kill (e.g. road kill, killed by farmer, killed by dogs, etc.):

<u>Location</u>	<u>Date</u>	<u>Type of kill</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Form completed by: _____ Date: _____

Please return completed form to: George Hubert, Jr.
Illinois Dept. of Conservation
PO Box 728
Hinckley IL 60520

Figure 2. Badger status questionnaire sent to Conservation Police Officers and District Wildlife Managers in 1979 badger survey.



* = Sighting/collection by Department of Conservation personnel

X = Unconfirmed visual observation

Figure 5. Date and location of recent badger sightings/collections documented by project personnel during status evaluation study. (Data corresponds with Table 1).

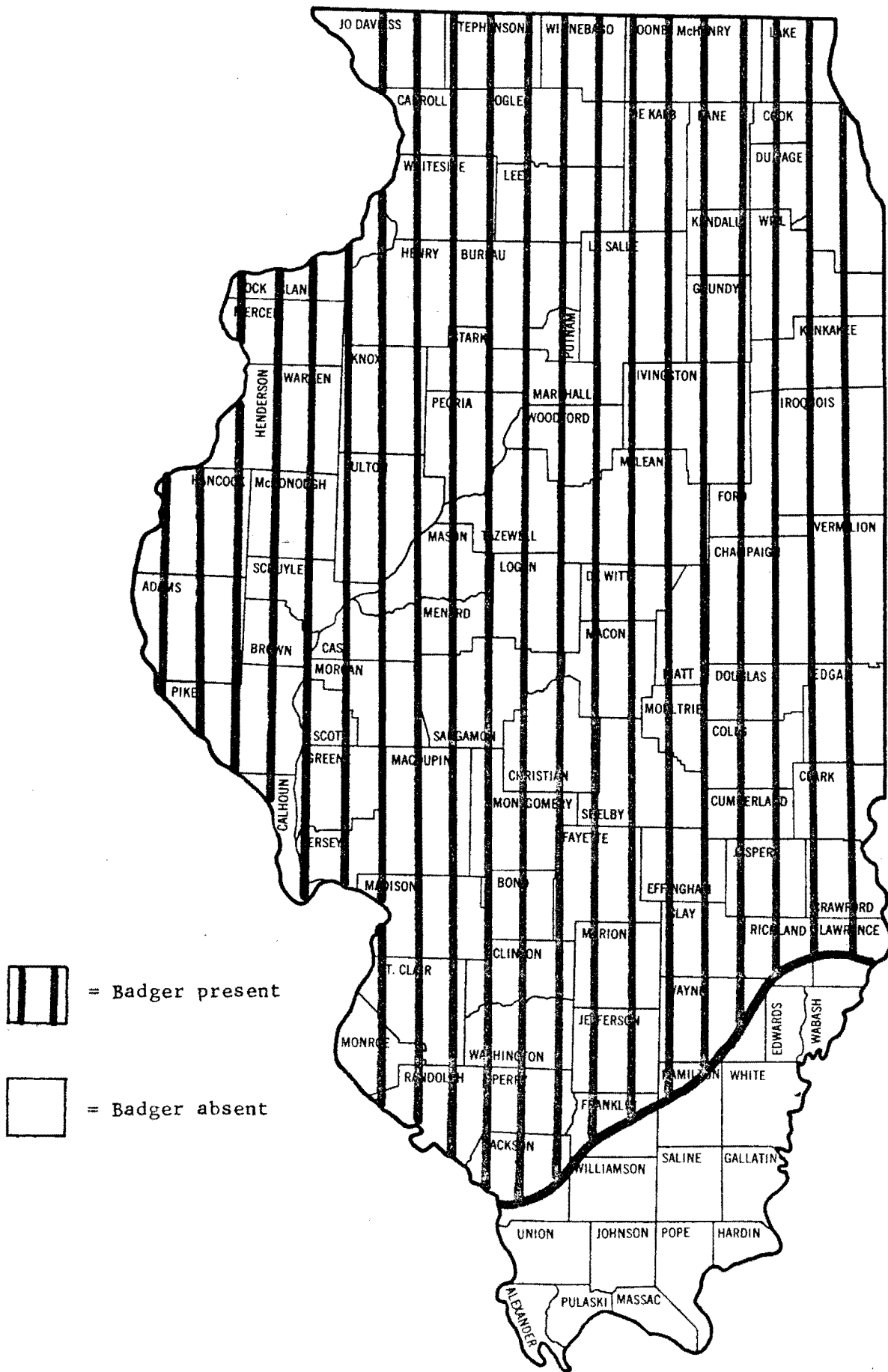


Figure 6. Probable distribution of badger in Illinois, summer 1979.

Table 1. Details about recent badger sightings/collections documented by Department of Conservation personnel, May through November 1979.

Collection date	Cause of mortality	Locality of collection	Person submitting information
15 May 79	Road-kill	Sec. 22, T45N, R11E, Lake Co., Ill.	F. M. Harty, DOC ^a
23 May 79	Road-kill	1.4 km west of Petersburg, Menard Co., Ill.	M. Murphy, DOC
3-9 June 79	Visual Observation	Sec. 31, T6N, R1W, Fayette Co., Ill.	J. Brushaber, Greenville College
7 Aug 79	Road-kill	Rt. 5 (9.6 km west of Rt. 78), Whiteside Co., Ill.	H. Hier, DOC
10 Aug 79	Road-kill	Sec. 24, T22N, R9E, Lee Co., Ill.	C. Ballard, DOC
20 Aug 79	Live Capture	Town of Wood River, Madison Co., Ill.	D. Harper, DOC
22 Aug 79	Road-kill	Sec. 32, T38N, R7E, Kane Co., Ill.	F. M. Harty, DOC
22 Aug 79	Road-kill	Sec. 4, T12N, R10E, Coles Co., Ill.	R. Cottingham, DOC
28 Sep 79	Road-kill	0.8 km west of Harper Road on Rt. 72, Ogle Co., Ill.	T. Moyer, DOC
13-19 Oct 79	Road-kill	East of Polo on White Pines blacktop, Ogle Co., Ill.	T. Moyer, DOC
26 Nov 79	Found dead	Sec. 6, T38N, R4E, DeKalb Co., Ill.	G. F. Hubert, DOC

^a DOC = Illinois Department of Conservation.

Table 2. Causes of recent badger mortalities reported by District Wildlife Managers (DWM) and Conservation Police Officers (CPO) in 1979 badger survey.

Reporting group	Type of mortality					Totals
	Road-kill	Trapped	Shot	Machinery	Dog kill	
DWM	7	2	1	1	1	12
CPO	24	6	5	0	1	36
Totals	31(64.6) ^a	8(16.7)	6(12.5)	1(2.1)	2(4.1)	48(100.0)

^a Numbers in parentheses are percentages.