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JOB COMPLETION REPORT
SURVEYS AND INVESTIGATIONS PROJECTS

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ILLINOIS

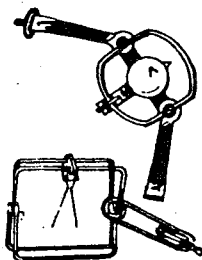
Federal Aid Project No. W-49-R(25)

Study II: Wildlife Harvests

Job No. 4: Trapper harvest survey, 1977-78

By

G. F. Hubert, Jr.



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ILLINOIS DEPARTMENT OF CONSERVATION

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18 August 1978

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JOB COMPLETION REPORT

SURVEYS AND INVESTIGATIONS PROJECTS

STATE OF ILLINOIS

PROJECT NO.: W-49-R(25)

STUDY II

JOB NO. 4

STUDY II: Wildlife Harvests

JOB NO. 4: Trapper harvest survey, 1977-78

ABSTRACT: A stratified random sample of 1,200 persons who purchased 1977 series resident trapping licenses in Illinois ^{6/12/78} were surveyed after the trapping season. The licensees were contacted by first class mail in three mailings. Questionnaires were deliverable to 1,186 (98.83 percent) recipients from which 985 useable replies were received (83.05 percent return). Of these, 84.37 percent were active, i.e. set one or more traps during the season. Only 4.21 percent of the active trappers were ineffective, i.e. caught nothing.

The 1977-78 survey covered 10 furbearer species. Findings are presented on a statewide basis and for each of the 10 wildlife management units in the state. These include estimated number and density of effective trappers, estimated total trapper harvest and trapper harvest per unit area, and average season catch. Statewide projections for number of effective trappers and total trapper harvest (in parentheses) are: muskrat (Ondatra zibethicus) 10,952 (291,906), mink (Mustela vison) 5,759 (14,256), raccoon (Procyon lotor) 11,040 (86,783), opossum (Didelphis marsupialis) 7,155 (33,249), red fox (Vulpes vulpes) 2,596 (5,651), gray fox (Urocyon cinereoargenteus) 2,366 (4,926), beaver (Castor canadensis) 1,307 (2,932), striped skunk (Mephitis mephitis) 2,544 (5,318), weasel (Mustela frenata, M. rixosa) 388 (441), and coyote (Canis latrans) 1,430 (3,266).

The average trapper had 26.48 traps set for 25.48 days (or nights). Between 1 and 50 traps were used by 91.94 percent of all active trappers. Useable trap composition was 38.04 percent Conibear or killer type, 61.10 percent leg-hold, and 0.86 percent cage type. The majority of effective muskrat trappers (61.13 percent) caught 20 or fewer muskrats during the season. Most effective raccoon trappers (88.48 percent) harvested from 1 to 15 raccoons for the entire season while 94.56 percent trapped 25 or less. Trappers sold 98.60 percent of their 1977-78 catch of which 2.60 percent was sold out of state. An accidental catch rate of 3.12 percent was reported. Approximately one-fifth (20.41 percent) of the trappers also hunted furbearers, primarily raccoons. The harvest of pelts by hunting amounted to 8.31 percent of the total trapped catch in the sample.

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JOB COMPLETION REPORT

SURVEYS AND INVESTIGATIONS PROJECTS

STATE OF ILLINOIS

PROJECT NO.: W-49-R(25)

STUDY II

JOB NO. 4

STUDY II: Wildlife Harvests

JOB NO. 4: Trapper harvest survey, 1977-78

OBJECTIVE: To determine the annual trapper harvest of all open season furbearers in Illinois, relate this parameter to population trends and characteristics, habitat conditions, and other factors which may influence trapper harvest, and develop annual statewide trapping regulations.

PROCEDURES: A stratified random mail survey of individuals who purchased trapping licenses was the basic technique employed. Mail survey address cards were filled out by license vendors for the first license sold in each book of 5 resident trapping licenses in the 1977 series (total sales estimate 17,400 - 1 July 1978) (Fig. 1). At the same time, the person purchasing the license was provided with an information card which requested him to keep a record of his activities since he might be contacted after the close of the season (Fig. 2). The survey address cards were returned to the Division of Wildlife Resources via business reply mail and were filed according to the licensee's county of residence.

Prior to the close of the muskrat trapping season, a random sub-sample based on the distribution of the 1971-75 trapping license sales was drawn. The size of the sub-sample was set at 1,200 since this amount would result in 900 to 1,000 useable replies for adequate reliability at the statewide level. Address cards in the drawn sample were manually marked with serial numbers to provide for removal of respondents and undeliverables from the initial and first follow-up mailings.

An initial and two follow-up mailings to non-respondents were made with a different letter of transmittal for each mailing (Figs. 3, 4, 5). Questionnaire cards were numbered to correspond with appropriate address cards and included with each transmittal letter (Fig. 6). First class postage (13.0¢) was used for all mailings.

Questionnaires were returned via business reply permit printed on the back of the form. Those received were checked for useableness, and the respondents were initially placed into one of two categories: inactive - those that did not set traps for furbearers during the 1977-78 seasons; active -

those that did set one or more traps for furbearers during the 1977-78 seasons. Active trappers were further classified as: effective - those who caught one or more furbearers of the species in question, or ineffective - those who did not catch any furbearers. Next, the county trapped in, non-target catches, and species hunted were numerically coded. Reply data were transferred directly to computer tape at the University of Illinois Coordinated Sciences Laboratory (CSL), Urbana, using remote terminals and stored for subsequent analyses. Mr. Paul Smedinghoff, an assistant at the CSL, prepared the data entry and analysis programs and obtained output.

Reply data for each species surveyed were compiled for the 10 wildlife management units in Illinois (Fig. 7). In addition, confidence limits at the 95 percent level were calculated by species for the number of effective trappers, average season catch, and total trapper harvest on a state-wide basis. The formulas used were described by Cochran (1953) and Snedecor and Cochran (1967). These are as follows:

a. Number of effective trappers for species:

where N = total license sales

n = number of licensees
in sample

p = portion of licensees
in sample who effectively
trapped species in question

q = 1-p

$$\pm 2N \sqrt{\frac{pq}{n}}$$

b. Average season catch per effective trapper for species in question:

where n_1 = number of licensees in
sample who effectively
trapped species in
question

x_1 = reported season catch
for species in question

$$\pm \frac{1.96 \sqrt{\frac{\sum (x_i - \bar{x})^2}{n_1 - 1}}}{\sqrt{n_1}}$$

c. Total trapper harvest:

where x = reported season catch for
all licensees responding
to survey

$$\pm 2N \left(\frac{\sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}}{\sqrt{n}} \right)$$

All calculations assumed there were no differences between the activities of the licensees who returned the questionnaire and those who did not.

FINDINGS AND ANALYSIS:

1977-78 Trapping Seasons

The 1977-78 fur-bearing mammal trapping seasons varied from 30 to 75 days in length (Table 1). The seasons for all species except beaver, red fox, gray fox, and coyote were 45 days long with the northern management zone opening 10 days before the southern zone (Fig. 8). Beaver trapping season was 60 days in length and opened simultaneously with all other species except fox and coyote. Red fox and gray fox could be legally trapped for 30 days statewide. The coyote season was split and totaled 75 days. No bag limits were in effect for any furbearer. Special regulations prohibited beaver trapping in Cook County.

1977-78 Trapper Mail Survey

The initial mailing of 1,200 questionnaires was made on 13 January 1978. The two follow-up mailings to non-respondents were made on 26 February (676) and on 9 March (344) and closed out on 10 April. Approximately two days preparation was required for each mailing.

A total of 1,186 (98.83 percent) licensees in the 1977-78 survey sample was reached by the Postal Service via first class mail. The remaining 14 questionnaires were returned as undeliverable. There were 985 useable replies received from the licensees contacted, representing an 83.05 percent response on the number delivered. Of these respondents, 831 (84.37 percent) reported that they set one or more traps for furbearers during the season and were classified as active. A total of 796 (95.79 percent) active trappers were effective, i.e. caught one or more furbearers, and the remaining 35 (4.21 percent) were ineffective, i.e. caught nothing.

a. Number of days trapped

Active trappers had traps set an average of 25.48 days (or nights) during the 1977-78 season (Fig. 9). The maximum number of days a trapper could have legally trapped was 105. However, only 1.99 percent of the respondents stated they had traps set for over 45 days. The vast majority of trapping activity seems to be concentrated during the muskrat and raccoon seasons. In 1972-73, Missouri trappers had traps set an average of 30.66 days during a 67 day season (Sampson 1973).

b. Number and types of traps used

The average active trapper used 26.48 traps during 1977-78 (Fig. 10). In spite of the fact that there were no restrictions on the number of

traps that could be set, 91.94 percent of all active trappers employed between 1 and 50. Only 0.96 percent used more than 100. The respondents stated their useable trap composition was an average of 38.04 percent Conibear or killer type traps, 61.10 percent steel jaw leg-hold traps, and 0.86 percent cage type live traps (N = 805). In comparison, the average Missouri trapper used 32.93 traps (22.7 percent Conibear, 76.8 percent leg-hold, and 0.5 percent cage type) in 1972-73 (Sampson 1973).

c. Trapper harvest summary

A statewide summary for the 10 species of furbearers surveyed in 1977-78 is presented in Table 2. The data for each species include the estimated number of effective trappers and their percent of all licensees, average season catch per effective trapper, estimated total trapper harvest, and estimated percent and total sold. Similar information for each of the 10 species plus the estimated density of effective trappers and pelts harvested in each of the 10 wildlife management units is provided in Tables 3 to 12. The original sample sizes from which these data were derived are presented in Table 13 which also provides the percent of effective trappers for each species (season catch of one or more).

Statewide confidence intervals at the 95 percent level for number of effective trappers, average season catch per effective trapper, and total harvest for each furbearer are given in Table 14. In most instances, those species with the greater number of effective trappers in the sample have smaller limits of variability which result in greater confidence in the projections. In 1977-78, effective raccoon trappers were the most numerous and their projected number varied by only ± 4.84 percent. The 95 percent confidence interval projections for less numerous opossum trappers vary ± 7.63 percent and uncommon weasel trappers by ± 42.27 percent.

d. Distribution of harvest among effective trappers

Muskrat and raccoon were the two most important furbearers trapped during the 1977-78 season in terms of number of effective trappers, average season catch, and total harvest (Table 2). The reported number of muskrats harvested by 620 effective muskrat trappers varied from 1 to 430 and averaged 26.65 (Tables 2, 13, 14). Approximately 68 percent of these trappers took less than the average catch while 61.13 percent harvested 20 or fewer muskrats during the season and 96.13 percent caught 100 or less (Fig. 11). Relatively few trappers are extremely successful at catching muskrats. Of the effective trappers who responded, 100 (16.13 percent) stated their catch averaged one or more muskrats per day for the entire season.

The distribution of harvest among effective raccoon trappers was similar to that for muskrat. The number of raccoons caught by the 625 effective raccoon trappers who reported, averaged 7.86 and ranged from 1 to 138 (Tables 2, 13, 14). Less than the average season catch was taken by 69.60 percent of these trappers (Fig. 12). For the entire season, 88.48 percent harvested 15 or fewer raccoons and 94.56 percent trapped 25 or less. Only 11 (1.76 percent) of the effective raccoon trappers reported making an average daily catch of one or more raccoons throughout the season.

The harvest of the other eight open season furbearers was distributed among effective trappers much like the muskrat and raccoon harvests (Table 15). For seven of these species, less than 9 percent of the effective trappers made season catches exceeding five pelts. The only exception was effective opossum trappers; 23.46 percent of these individuals trapped more than five opossums during the season.

The above data emphasize the inapplicability of bag limits (both daily and seasonal) to furbearer trapping. Few trappers are successful in making large seasonal catches. The ones who do are active throughout the season over extensive areas. Reductions in season length offer the most potential for reducing the furbearer harvest by these highly successful individuals.

e. Pelt sales

Trappers sold an estimated 98.60 percent of their catch during 1977-78. The portion of each species sold ranged from a low of 51.13 percent for striped skunk to a high of 99.78 percent for muskrat (Table 2). The fraction of pelts sold in Illinois and out of state also varied among species (Table 16). Overall, 97.40 percent of the marketed portion of the trapped catch was sold in Illinois and 2.60 percent out of state. Sampson (1973) found that Missouri trappers sold 10.39 percent of their pelts outside the state.

f. Non-target catches

Accidental catches were reported by 255 (25.94 percent) of all trappers who responded to the 1977-78 survey (Table 17). In comparison, 30.76 percent of the active trappers made non-target catches. Trappers making accidental catches averaged 3.10 for the year. The estimated total number of non-target animals caught by trappers during the season was 13,990. As stated earlier, the estimated total furbearer catch by trappers was 448,728 (Table 2). Therefore, the accidental catch rate was 3.12 percent or 1 accidental catch for every 32.1 furbearers trapped. If rats and mice were excluded from the accidental catch list, the non-target catch rate would have been 2.86 percent. Many respondents indicated that some or all of the animals they accidentally captured were released unharmed. An accidental catch of 1.49 percent for Missouri trappers in 1972-73 was reported by Sampson (1973).

g. Fur hunting by trappers

A total of 201 (20.41 percent) trappers reported that they hunted furbearers with gun and/or dogs in 1977-78 (Table 18). Their total harvest was 2,111 pelts for an average of 10.50 per hunting trapper. This amounts to 8.31 percent of the total trapped catch in the sample. The raccoon was hunted by more trappers than any other species. Next in popularity were red and gray foxes. In Missouri, 33.6 percent of the trappers hunted furbearers during the 1972-73 season (Sampson 1973).

RECOMMENDATIONS:

A mail survey of this type probably realizes its best use and reliability for furbearer management as an indicator of trends in trapping pressure, trapper success, trapper harvest, and trapping recreation. In addition, this particular survey provides the only regional harvest data available for the trapped portion of the annual fur catch. It is recommended that the survey be continued in essentially the same form except that a somewhat greater percentage of licensed trappers be contacted.

LITERATURE CITED:

- Cochran, W. G. 1953. Sampling techniques, 2nd ed. Wiley and Sons, New York. 413 pp.
- Sampson, F. W. 1973. Fur harvest survey, 1972-73. Missouri Dept. of Conservation P-R Proj. Rep. W-13-R-28, Study X, Job 1. 16pp.
- Snedecor, G. W., and W. G. Cochran. 1967. Statistical methods, 6th ed. Iowa State Univ. Press, Ames. 593 pp.

DATA AND REPORTS:

Original data and 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.
Furbearer Biologist
Div. of Wildl. Resources

APPROVED BY: T. B. Miller
Supervisor
Div. of Wildl. Resources

DATE: 18 August 1978

GH:jmm

TO THE TRAPPER:

We need your cooperation and assistance to determine the harvest of furbearers in Illinois for this trapping season. Please keep an accurate record of the number of days you had traps set, the average number and kinds of traps you used during the season, the number of furbearers you caught in traps, what county you trapped in most, the number and kinds of pelts you sold in Illinois and Out of State, and the amount you received.

You may be one of the selected trappers contacted at the close of the trapping season and provided a form to return to the Department of Conservation. This information will assist the Department in proper management of our fur resources. Thanks for your cooperation.

Illinois Department of Conservation
 Division of Wildlife Resources
 Furbearer Section
 Springfield, Illinois 62706

THE BACK SIDE OF THIS CARD MAY BE USED FOR RECORD KEEPING.

Number of TRAPS I had set: _____

Number of DAYS I had traps set: _____

FURBEARERS I CAUGHT IN TRAPS: _____

Species	Total No. Caught	Number Sold	Amount Received
Muskrat			
Mink			
Raccoon			
Opossum			
Beaver			
Red Fox			
Gray Fox			
Coyote			
Striped Skunk			
Weasel			

Other Animals Caught: _____

Figure 2. Information and activity record card issued to trappers in 1977-78 post-season trapper mail survey.



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605 STATE OFFICE BUILDING • 400 SOUTH SPRING STREET • SPRINGFIELD 62706
CHICAGO OFFICE - ROOM 100 , 180 NO. LASALLE 60601

1977-78

Dear Illinois Trapper:

The harvest of fur-bearing animals is one of the few field and stream sports that is tied to our economy through a return from the crop. In the 1976-77 season, there were 520,032 pelts sold by Illinois fur-takers for a value to them of \$5,179,650. We need information on the trapped portion of the catch for the 1977-78 season.

You can make an important contribution to the future management of Illinois' fur harvests and trapping activity by completing the enclosed questionnaire. The questionnaire is self-explanatory. If you did not trap, simply check questions #1 and #8 and return the questionnaire. If you did trap, please fill out the questionnaire completely.

The information requested from you and other trappers is used in determining catch, trapping success, trapping pressure, and trapper characteristics on a statewide basis. These facts are necessary for a better understanding of how regulations affect your trapping and the welfare of the furbearer populations. Also, with your help, the future of sport trapping will be assured.

Please take a few minutes and fill out the questionnaire. If you do not remember exact figures, please give your best estimate. Also, if you trapped in partnership with another person, list only your half of the catch. Drop the completed questionnaire in the mail; no postage is required. Please reply even if you did not trap this season or were not successful.

Yours for better trapping.

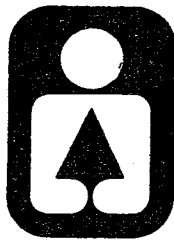
Sincerely,

George Hubert, Jr.
Furbearer Biologist

GH:gh

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Figure 3. Letter of transmittal sent with initial mailing in 1977-78 post-season trapper mail survey.



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CHICAGO OFFICE - ROOM 100, 160 NO. LASALLE 60601

Dear Illinois Trapper:

Recently we mailed to you a Trapping Survey Questionnaire and requested that you fill out and return the completed form. We have not received your form at this time - perhaps because you have misplaced the questionnaire card or haven't found time to complete it and return it to us.

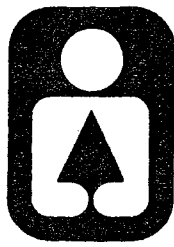
We are enclosing another questionnaire card which we hope you will complete and return as soon as possible. If you have already returned a questionnaire, please destroy this one. The information supplied by you and other trappers being sampled will be of great value to the Conservation Department in better directing the management of the Illinois furbearer resource.

Please fill out the form completely and return it even if you did not trap or were not successful. If you trapped in partnership with another person, please list only your half of the catch. No postage is required to return the completed questionnaire. Simply fill it out and drop it in the mail.

Your prompt attention will be greatly appreciated. Thank you.

Sincerely,

George Hubert, Jr.
Furbearer Biologist
Division of Wildlife Resources



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605 STATE OFFICE BUILDING • 400 SOUTH SPRING STREET • SPRINGFIELD 62706
CHICAGO OFFICE - ROOM 100, 160 NO. LASALLE 60601

Dear Illinois Trapper:

This is to remind you that we still would like to receive an answer to the questionnaire concerning your trapping activity this past season. We don't like to keep bothering you, but this is very important information which only you can supply.

Another copy of the questionnaire card is enclosed. We hope you will complete and return it as soon as possible. If you have already returned a questionnaire, simply destroy this one. We are making a final effort to obtain a complete response so that we may compile the information received from all co-operating trappers and prepare a report of our findings. Remember, your response is needed - even though you did not trap or had an unsuccessful season. Also, if you trapped in partnership with another person, kindly list only your half of the catch.

No postage is required to return the completed questionnaire card. Just fill it out and drop it in the mail. Please help us complete this survey by sending it in now!

Sincerely,

A handwritten signature in cursive script that reads "George Hubert, Jr.".

George Hubert, Jr.
Furbearer Biologist
Division of Wildlife Resources

3

Figure 5. Letter of transmittal sent with second follow-up mailing in 1977-78 post-season trapper mail survey.



BUSINESS REPLY MAIL
First Class Permit No. 2032, Springfield, Ill.

Illinois Department of Conservation
Division of Wildlife Resources
Furbearer Section
First and Washington
Springfield, Illinois 62706



FURBEARER TRAPPING SURVEY 1977-78 SEASON

1. Did you trap for furbearers in Illinois during the 1977-78 season? Yes No
2. In what COUNTY did you do MOST of your trapping? _____
3. How many days (or nights) did you have traps set? _____
4. What was the average number of traps checked during the season? _____
5. Indicate the number of each of the following types of traps you use:
 Coonbear or killer type traps _____
 Steel jaw leg-hold traps _____
 Cage type live traps _____
6. Please fill in all three blanks for each kind of furbearer you trapped in Illinois during the 1977-78 season:

	Number Caught In Traps	Number Sold In Illinois	Number Sold Out of State
Muskrat	_____	_____	_____
Mink	_____	_____	_____
Raccoon	_____	_____	_____
Opossum	_____	_____	_____
Red Fox	_____	_____	_____
Gray Fox	_____	_____	_____
Beaver	_____	_____	_____
Skunk	_____	_____	_____
Weasel	_____	_____	_____
Coyote	_____	_____	_____

7. Did you have any accidental catches last season (birds, dogs, cats, etc.)? Yes No
If so, please list what kind and how many: _____
8. If you also HUNT furbearers with guns, please give the number of each kind taken: _____

**THANK YOU FOR YOUR COOPERATION!
NO POSTAGE REQUIRED**

Figure 6. Questionnaire form for post-season mail survey of Illinois resident trappers, 1977-78 season.

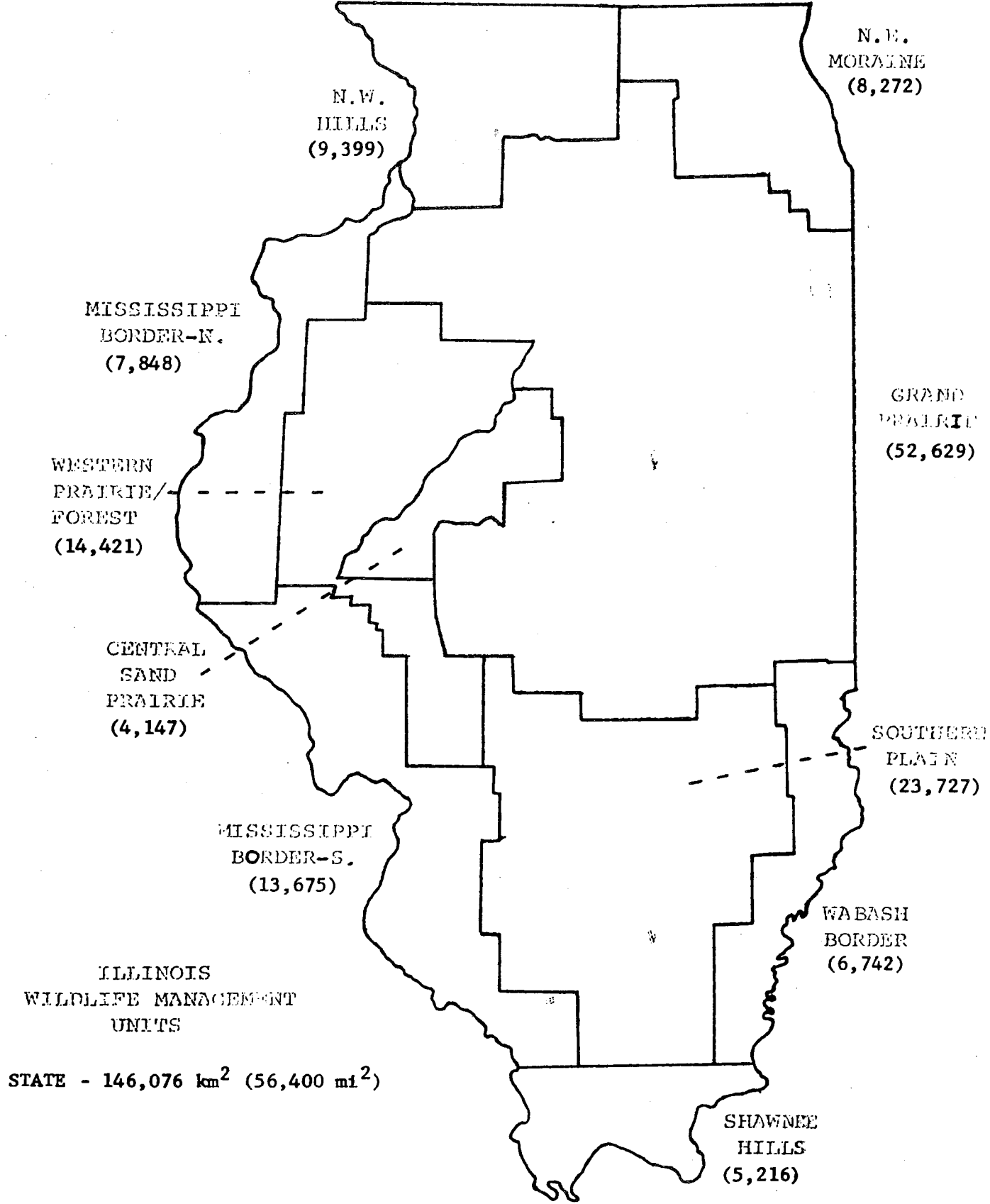


Figure 7. Area (km²) of wildlife management units in Illinois.

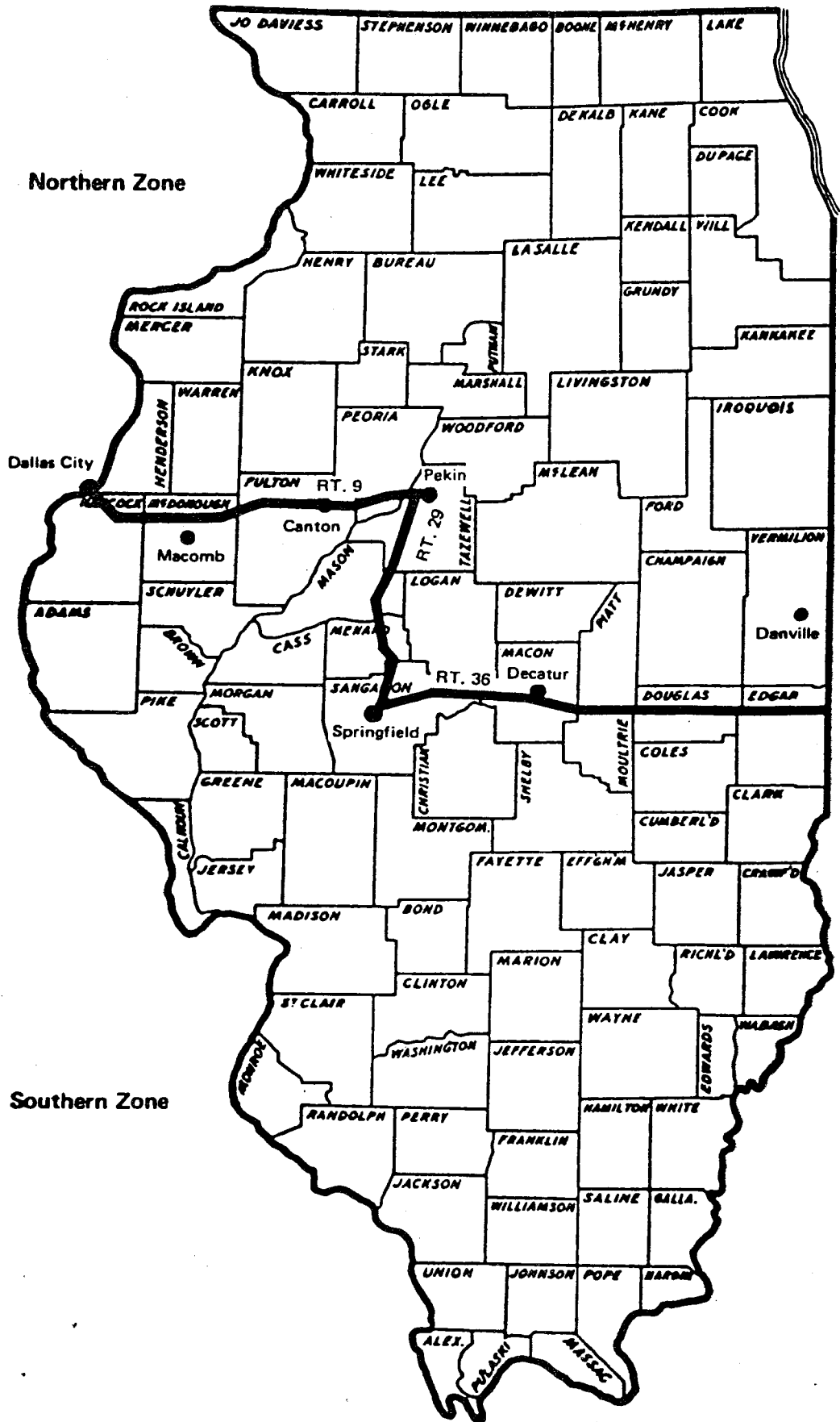


Figure 8. Furbearer management zones for the 1977-78 season.

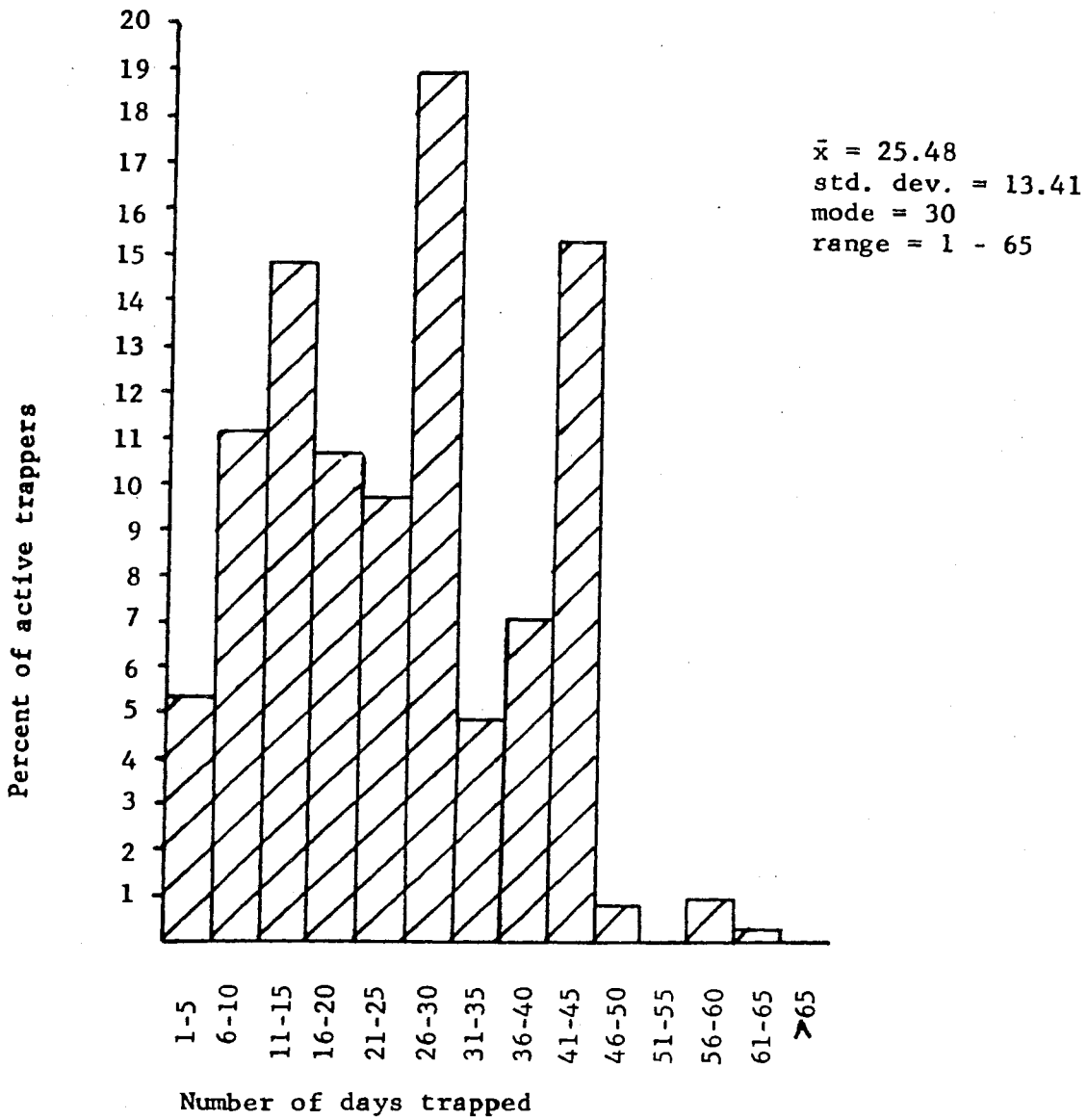


Figure 9. Distribution of number of days trapped per active trapper in Illinois, 1977-78 season. (N = 754).

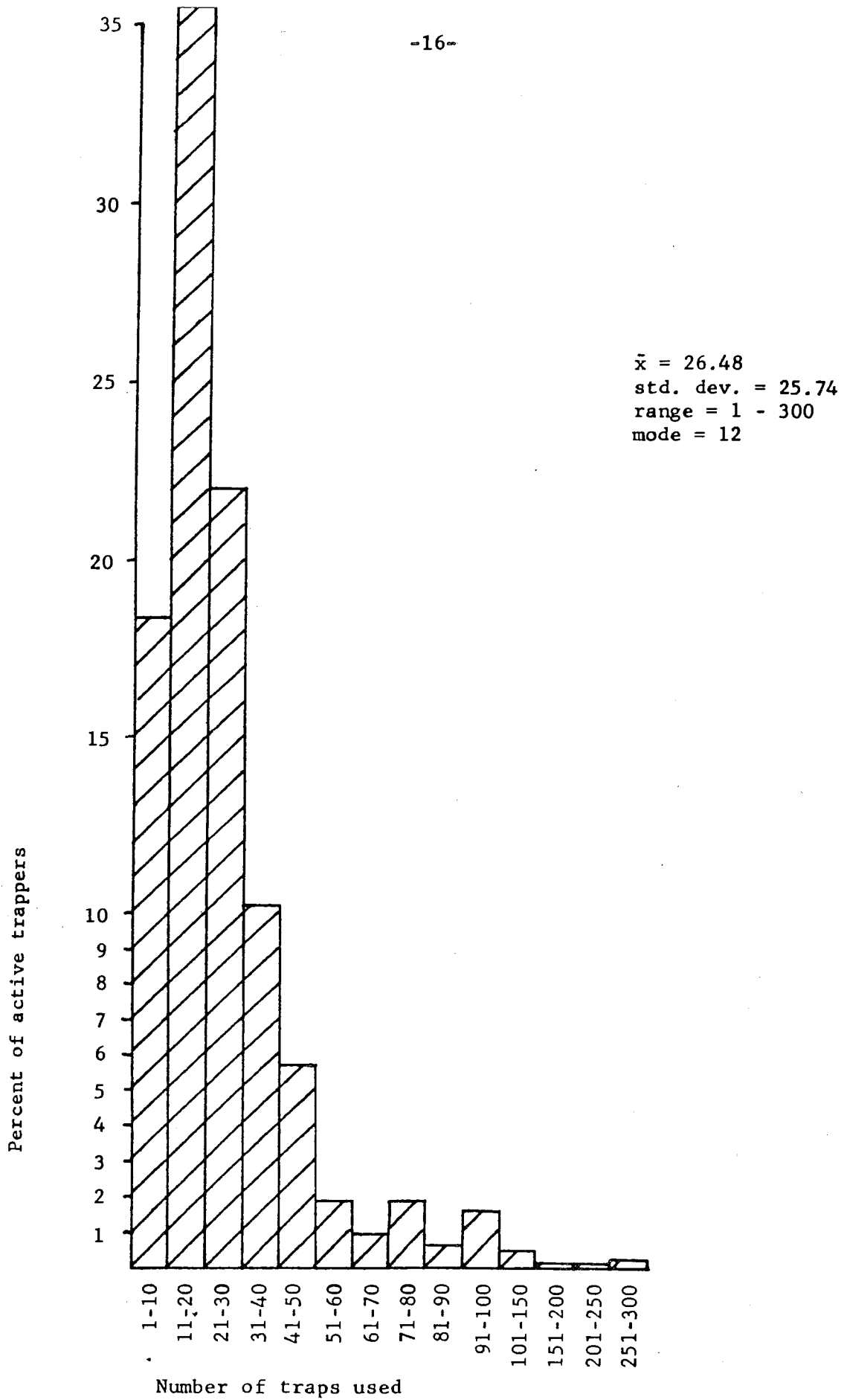


Figure 10. Distribution of number of traps used per active trapper in Illinois, 1977-78 season. (N = 831).

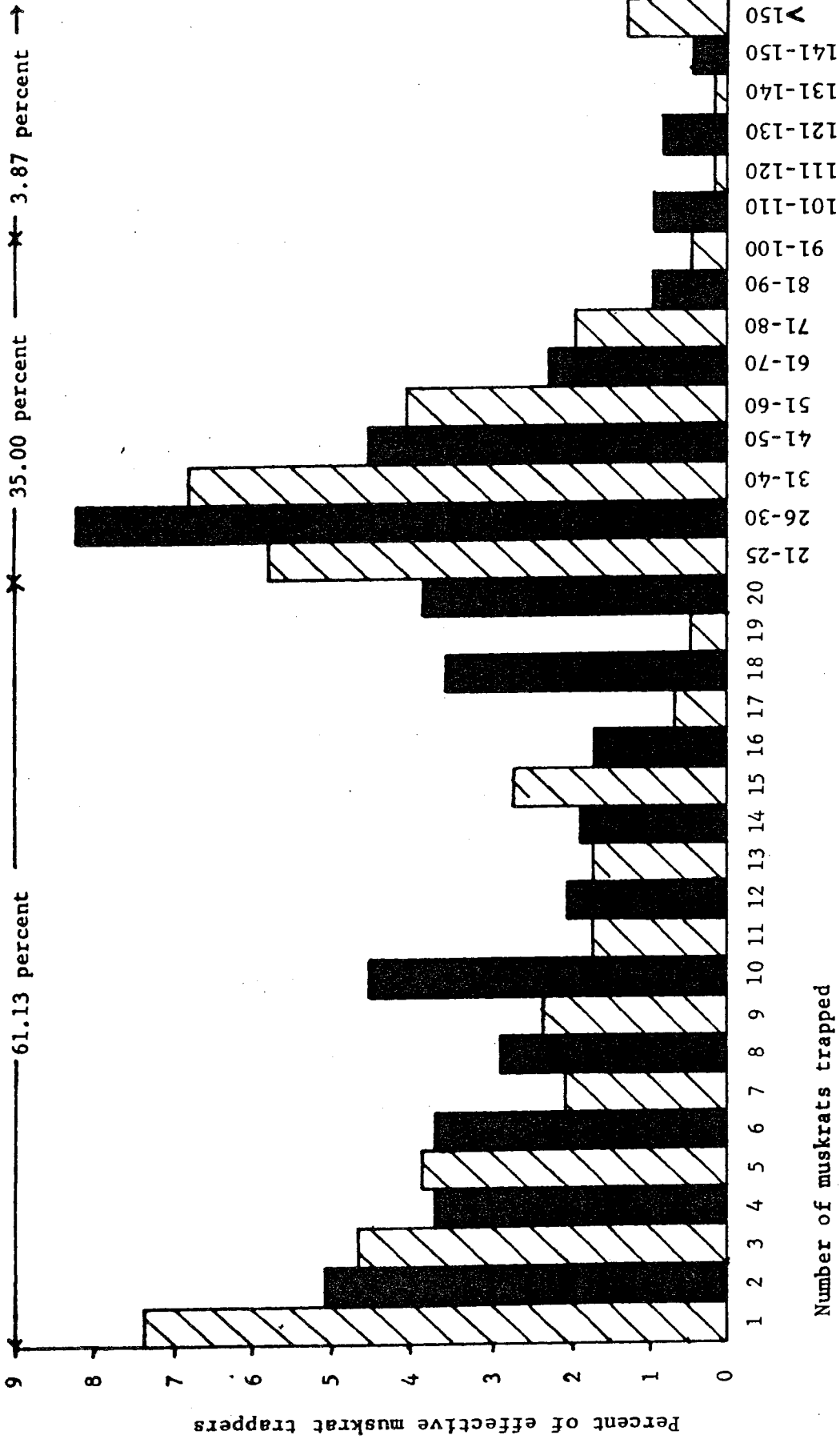


Figure 11. Distribution of number of muskrats trapped per effective muskrat trapper in Illinois, 1977-78 season. (N = 620).

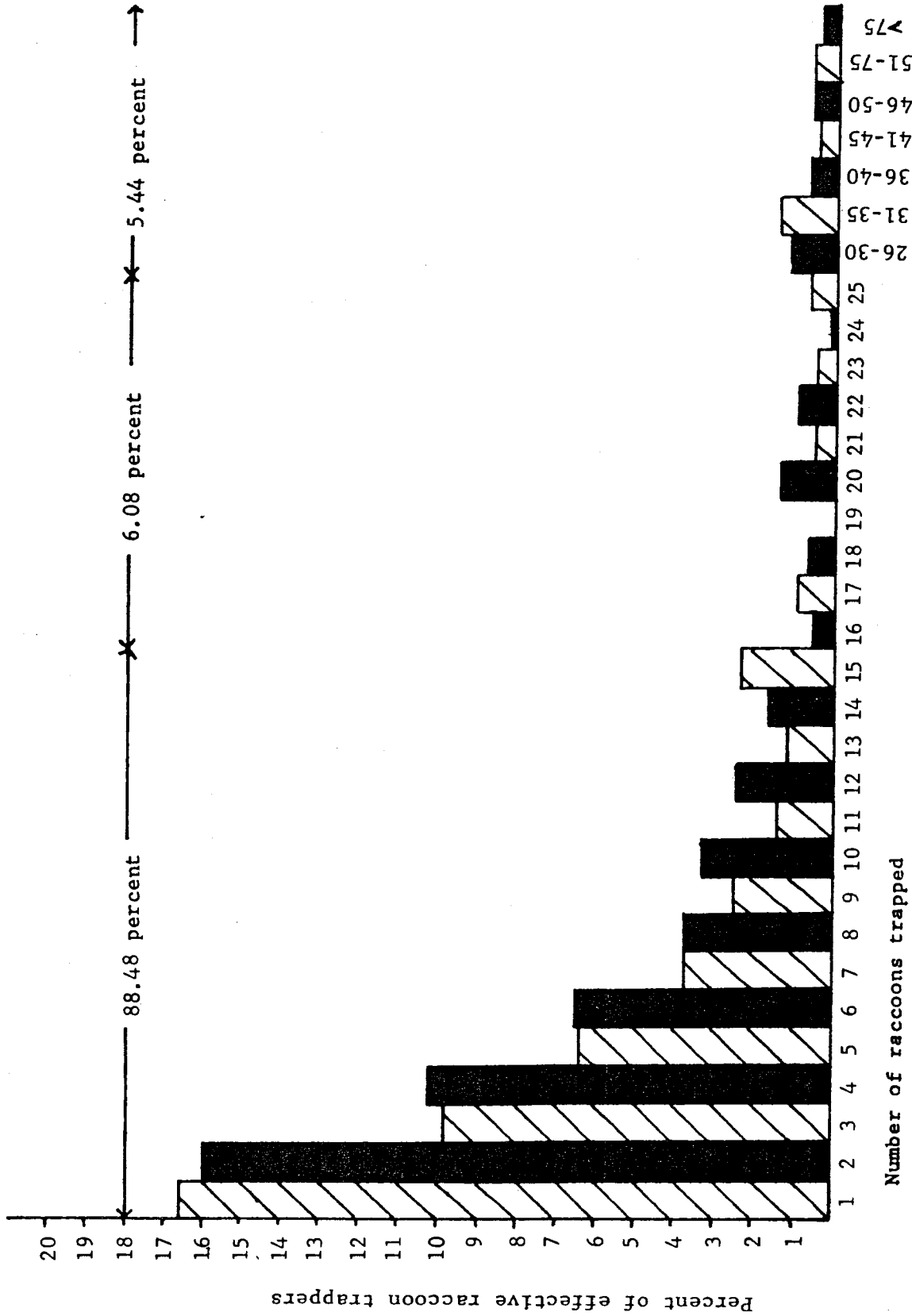


Figure 12. Distribution of number of raccoons trapped per effective raccoon trapper in Illinois, 1977-78 season. (N = 625).

Table 1. Illinois fur-bearing mammal trapping seasons for 1977-78.

Species	Trapping season	
	Northern zone	Southern zone
Muskrat, Mink, Raccoon, Opossum, Striped Skunk, Weasel	15 Nov-29 Dec (45) ^a	25 Nov- 8 Jan (45)
Beaver	15 Nov-13 Jan (60)	25 Nov-23 Jan (60)
Red Fox, Gray Fox	30 Nov-29 Dec (30)	30 Nov-29 Dec (30)
Coyote	1 Sep-15 Oct (45) ^b 30 Nov-29 Dec (30)	1 Sep-15 Oct (45) ^b 30 Nov-29 Dec (30)

^a Numbers in parentheses are season lengths in days.

^b Split season; total days = 75.

Table 2. Summary of statewide data from post-season mail survey of Illinois resident trappers, 1977-78 season. (N = 985).

Species	Estimated number of effective trappers	Percent of total licensees	Average season catch	Estimated total trapper harvest	Estimated percent sold ^a	Estimated total sold
Muskrat	10,952	62.94	26.65	291,906	99.78	291,264
Mink	5,759	33.10	2.48	14,256	99.33	14,160
Raccoon	11,040	63.45	7.86	86,783	99.59	86,427
Opossum	7,155	41.12	4.65	33,249	94.48	31,414
Red fox	2,596	14.92	2.18	5,651	97.79	5,526
Gray fox	2,366	13.60	2.08	4,926	99.57	4,905
Beaver	1,307	7.51	2.24	2,932	89.21	2,616
Striped skunk	2,544	14.62	2.09	5,318	51.13	2,719
Weasel	388	2.23	1.14	441	65.22	288
Coyote	1,430	8.22	2.28	3,266	93.21	3,044

^a N = 908.

Table 3. Summary of muskrat trapper and harvest data for wildlife management units in Illinois, 1977-78, from post-season resident trapper mail survey. (N = 620).

Wildlife management unit	Estimated number of effective trappers	Estimated number of effective trappers/100 km ²	Average season catch	Estimated total trapper harvest ^a	Estimated trapper harvest/100 km ²
Northwest Hills	1,236(11.29) ^b	13.15	34.86	43,087(14.76) ^b	458.42
Northeast Moraine	813 (7.42)	9.83	32.28	26,244 (8.99)	317.26
Mississippi Border-North	459 (4.19)	5.85	17.04	7,821 (2.68)	99.66
Mississippi Border-South	1,113(10.16)	8.14	26.40	29,383(10.07)	214.87
Western Prairie/Forest	954 (8.71)	6.62	30.13	28,744 (9.85)	199.32
Central Sand Prairie	389 (3.55)	9.38	26.64	10,363 (3.55)	249.89
Grand Prairie	3,498(31.94)	6.65	28.00	97,944(33.55)	186.10
Southern Plain	1,713(15.64)	7.22	20.11	34,448(11.80)	145.18
Wabash Border	424 (3.87)	6.29	16.54	7,013 (2.40)	104.02
Shawnee Hills	353 (3.23)	6.77	19.45	6,866 (2.35)	131.63
Statewide	10,952(100.00)	7.50	26.65	291,906(100.00)	199.83

^a Sum of wildlife management unit totals may not equal statewide total due to rounding error.

^b Numbers in parentheses are percentages of statewide total.

Table 4. Summary of mink trapper and harvest data for wildlife management units in Illinois, 1977-78, from post-season resident trapper mail survey. (N = 326).

Wildlife management unit	Estimated number of effective trappers	Estimated number of effective trappers/100 km ²	Average season catch	Estimated total trapper harvest ^a	Estimated trapper harvest/100 km ²
Northwest Hills	477 (8.28) ^b	5.08	1.56	744 (5.22) ^b	7.92
Northeast Moraine	495 (8.59)	5.98	3.14	1,554 (10.90)	18.79
Mississippi Border-North	212 (3.68)	2.70	1.58	335 (2.35)	4.27
Mississippi Border-South	689 (11.96)	5.04	3.05	2,101 (14.73)	15.36
Western Prairie/Forest	548 (9.51)	3.80	2.77	1,518 (10.65)	10.53
Central Sand Prairie	141 (2.46)	3.40	1.62	228 (1.60)	5.50
Grand Prairie	1,784 (30.98)	3.39	2.24	3,996 (28.03)	7.59
Southern Plain	971 (16.87)	4.09	2.82	2,738 (19.20)	11.54
Wabash Border	212 (3.68)	3.14	1.67	354 (2.48)	5.25
Shawnee Hills	230 (3.99)	4.41	3.00	690 (4.84)	13.23
Statewide	5,759 (100.00)	3.94	2.48	14,256 (100.00)	9.76

^a Sum of wildlife management unit totals may not equal statewide total due to rounding error.

^b Numbers in parentheses are percentages of statewide total.

Table 5. Summary of raccoon trapper and harvest data for wildlife management units in Illinois, 1977-78, from post-season resident trapper mail survey. (N = 625).

Wildlife management unit	Estimated number of effective trappers	Estimated number of effective trappers/100 km ²	Average season catch	Estimated total trapper harvest ^a	Estimated trapper harvest/100 km ²
Northwest Hills	1,130(10.24) ^b	12.02	6.55	7,402 (8.53) ^b	78.75
Northeast Moraine	689 (6.24)	8.33	7.15	4,926 (5.68)	59.55
Mississippi Border-North	760 (6.88)	9.68	8.23	6,255 (7.21)	79.70
Mississippi Border-South	1,166(10.56)	8.53	9.74	11,357(13.09)	83.05
Western Prairie/Forest	1,042 (9.44)	7.23	11.98	12,483(14.38)	86.56
Central Sand Prairie	3,374 (2.88)	7.67	6.22	1,978 (2.28)	47.70
Grand Prairie	3,374(30.56)	6.41	6.54	22,066(25.43)	41.93
Southern Plain	1,660(15.04)	7.00	6.56	10,890(12.55)	45.90
Wabash Border	459 (4.16)	6.81	14.54	6,674 (7.69)	98.99
Shawnee Hills	442 (4.00)	8.47	6.20	2,740 (3.16)	52.53
Statewide	11,040(100.00)	7.56	7.86	86,783(100.00)	59.41

^a Sum of wildlife management unit totals may not equal statewide total due to rounding error.

^b Numbers in parentheses are percentages of statewide total.

Table 6. Summary of opossum trapper and harvest data for wildlife management units in Illinois, 1977-78, from post-season resident trapper mail survey. (N = 405).

Wildlife management unit	Estimated number of effective trappers	Estimated number of effective trappers/100 km ²	Average season catch	Estimated total trapper harvest ^a	Estimated trapper harvest/100 km ²
Northwest Hills	548 (7.65) ^b	5.83	2.77	1,518 (4.57) ^b	16.15
Northeast Moraine	424 (5.93)	5.13	3.46	1,467 (4.41)	17.73
Mississippi Border-North	530 (7.41)	6.75	4.23	2,242 (6.75)	28.57
Mississippi Border-South	901(12.59)	6.59	5.45	4,910(14.77)	35.90
Western Prairie/Forest	530 (7.41)	3.68	4.30	2,279 (6.86)	15.80
Central Sand Prairie	212 (2.96)	5.11	2.92	619 (1.86)	14.93
Grand Prairie	2,102(29.38)	3.99	3.56	7,483(22.51)	14.22
Southern Plain	1,201(16.79)	5.06	5.34	6,413(19.30)	27.03
Wabash Border	371 (5.19)	5.50	10.95	4,062(12.22)	60.25
Shawnee Hills	336 (4.69)	6.44	6.68	2,244 (6.75)	43.02
Statewide	7,155(100.00)	4.90	4.65	33,249(100.00)	22.76

^a Sum of wildlife management unit totals may not equal statewide total due to rounding error.

^b Numbers in parentheses are percentages of statewide total.

Table 7. Summary of red fox trapper and harvest data for wildlife management units in Illinois, 1977-78, from post-season resident trapper mail survey. (N = 147).

Wildlife management unit	Estimated number of effective trappers	Estimated number of effective trappers/100 km ²	Average season catch	Estimated total trapper harvest ^a	Estimated trapper harvest/100 km ²
Northwest Hills	265(10.21) ^b	2.82	1.47	390 (6.90) ^b	4.15
Northeast Moraine	265(10.21)	3.20	2.73	723(12.80)	8.74
Mississippi Border-North	71 (2.72)	0.90	2.00	142 (2.51)	1.81
Mississippi Border-South	230 (8.84)	1.68	2.62	603(10.67)	4.41
Western Prairie/Forest	194 (7.48)	1.35	2.91	565(10.00)	3.92
Central Sand Prairie	106 (4.08)	2.56	1.33	141 (2.50)	3.40
Grand Prairie	795(30.61)	1.51	2.04	1,622(28.71)	3.08
Southern Plain	388(14.97)	1.64	1.91	741(13.12)	3.12
Wabash Border	88 (3.40)	1.31	2.00	176 (3.11)	2.61
Shawnee Hills	194 (7.48)	3.72	2.82	547 (9.68)	10.49
Statewide	2,596(100.00)	1.78	2.18	5,651(100.00)	3.87

^a Sum of wildlife management unit totals may not equal statewide total due to rounding error.

^b Numbers in parentheses are percentages of statewide total.

Table 8. Summary of gray fox trapper and harvest data for wildlife management units in Illinois, 1977-78, from post-season resident trapper mail survey. (N = 134).

Wildlife management unit	Estimated number of effective trappers	Estimated number of effective trappers/100 km ²	Average season catch	Estimated total trapper harvest ^a	Estimated trapper harvest/100 km ²
Northwest Hills	159 (6.72) ^b	1.69	1.78	283 (5.74) ^b	3.01
Northeast Moraine	124 (5.22)	1.50	1.57	195 (3.96)	2.36
Mississippi Border-North	53 (2.24)	0.68	1.33	70 (1.42)	0.89
Mississippi Border-South	300(12.69)	2.19	2.35	705(14.31)	5.16
Western Prairie/Forest	106 (4.48)	0.74	1.83	194 (3.94)	1.35
Central Sand Prairie	88 (3.73)	2.12	3.40	299 (6.07)	7.21
Grand Prairie	706(29.85)	1.34	1.48	1,045(21.20)	1.99
Southern Plain	459(19.40)	1.93	2.42	1,111(22.54)	4.68
Wabash Border	194 (8.21)	2.88	1.82	353 (7.16)	5.24
Shawnee Hills	177 (7.46)	3.39	3.80	673(13.66)	12.90
Statewide	2,366(100.00)	1.62	2.08	4,926(100.00)	3.37

^a Sum of wildlife management unit totals may not equal statewide total due to rounding error.

^b Numbers in parentheses are percentages of statewide total.

Table 9. Summary of beaver trapper and harvest data for wildlife management units in Illinois, 1977-78, from post-season resident trapper mail survey. (N = 74).

Wildlife management unit	Estimated number of effective trappers	Estimated number of effective trappers/100 km ²	Average season catch	Estimated total trapper harvest ^a	Estimated trapper harvest/100 km ²
Northwest Hills	159(12.16) ^b	1.69	2.00	318(10.85) ^b	3.38
Northeast Moraine	124 (9.46)	1.50	2.86	355(12.11)	4.29
Mississippi Border-North	18 (1.35)	0.23	1.00	18 (0.61)	0.23
Mississippi Border-South	194(14.87)	1.42	1.27	246 (8.39)	1.80
Western Prairie/Forest	141(10.81)	0.98	2.88	406(13.85)	2.82
Central Sand Prairie	35 (2.70)	0.84	1.00	35 (1.19)	0.84
Grand Prairie	442(33.79)	0.84	2.04	902(30.76)	1.71
Southern Plain	88 (6.76)	0.37	4.20	370(12.62)	1.56
Wabash Border	53 (4.05)	0.79	3.33	176 (6.00)	2.61
Shawnee Hills	53 (4.05)	1.02	2.00	106 (3.62)	2.03
Statewide	1,307(100.00)	0.89	2.24	2,932(100.00)	2.01

^a Sum of wildlife management unit totals may not equal statewide total due to rounding error.

^b Numbers in parentheses are percentages of statewide total.

Table 10. Summary of striped skunk trapper and harvest data for wildlife management units in Illinois, 1977-78, from post-season resident trapper mail survey. (N = 144).

Wildlife management unit	Estimated number of effective trappers	Estimated number of effective trappers/100 km ²	Average season catch	Estimated total trapper harvesta	Estimated trapper harvest/100 km ²
Northwest Hills	336(13.19) ^b	3.57	2.47	830(15.62) ^b	8.83
Northeast Moraine	194 (7.64)	2.35	1.45	281 (5.29)	3.40
Mississippi Border-North	159 (6.25)	2.03	3.11	494 (9.30)	6.29
Mississippi Border-South	212 (8.33)	1.55	2.92	619(11.65)	4.53
Western Prairie/Forest	265(10.42)	1.84	2.20	583(10.98)	4.04
Central Sand Prairie	53 (2.08)	1.28	1.67	89 (1.68)	2.15
Grand Prairie	830(32.64)	1.58	1.57	1,303(24.53)	2.48
Southern Plain	301(11.81)	1.27	2.41	725(13.65)	3.06
Wabash Border	106 (4.17)	1.57	1.50	159 (2.99)	2.36
Shawnee Hills	88 (3.47)	1.69	2.60	229 (4.31)	4.39
Statewide	2,544(100.00)	1.74	2.09	5,318(100.00)	3.64

^a Sum of wildlife management unit totals may not equal statewide total due to rounding error.

^b Numbers in parentheses are percentages of statewide total.

Table 11. Summary of weasel trapper and harvest data for wildlife management units in Illinois, 1977-78, from post-season resident trapper mail survey. (N = 22).

Wildlife management unit	Estimated number of effective trappers	Estimated number of effective trappers/100 km ²	Average season catch	Estimated total trapper harvest ^a	Estimated trapper harvest/100 km ²
Northwest Hills	53(13.64) ^b	0.56	1.00	53(11.99) ^b	0.56
Northeast Moraine	-	-	-	-	-
Mississippi Border-North	18 (4.54)	0.23	1.00	18 (4.07)	0.23
Mississippi Border-South	70(18.18)	0.51	1.25	88(19.91)	0.64
Western Prairie/Forest	35 (9.09)	0.24	1.00	35 (7.92)	0.24
Central Sand Prairie	18 (4.54)	0.43	1.00	18 (4.07)	0.43
Grand Prairie	123(31.82)	0.23	1.29	159(35.98)	0.30
Southern Plain	35 (9.09)	0.15	1.00	35 (7.92)	0.15
Wabash Border	18 (4.55)	0.27	1.00	18 (4.07)	0.27
Shawnee Hills	18 (4.55)	0.35	1.00	18 (4.07)	0.35
Statewide	388(100.00)	0.27	1.14	441(100.00)	0.30

^a Sum of wildlife management unit totals may not equal statewide total due to rounding error.

^b Numbers in parentheses are percentages of statewide total.

Table 12. Summary of coyote trapper and harvest data for wildlife management units in Illinois, 1977-78, from post-season resident trapper mail survey. (N = 81).

Wildlife management unit	Estimated number of effective trappers	Estimated number of effective trappers/100 km ²	Average season catch	Estimated total trapper harvest ^a	Estimated trapper harvest/100 km ²
Northwest Hills	53 (3.70) ^b	0.56	1.33	70 (2.14) ^b	0.74
Northeast Moraine	71 (4.94)	0.86	4.50	320 (9.79)	3.87
Mississippi Border-North	53 (3.70)	0.68	1.33	70 (2.14)	0.89
Mississippi Border-South	230(16.05)	1.68	1.31	301 (9.21)	2.20
Western Prairie/Forest	141 (9.88)	0.98	3.38	477(14.60)	3.31
Central Sand Prairie	35 (2.47)	0.84	1.50	52 (1.59)	1.25
Grand Prairie	282(19.75)	0.54	1.88	530(16.22)	1.01
Southern Plain	353(24.69)	1.49	2.40	847(25.92)	3.57
Wabash Border	106 (7.41)	1.57	4.00	424(12.97)	6.29
Shawnee Hills	106 (7.41)	2.03	1.67	177 (5.42)	3.39
Statewide	1,430(100.00)	0.98	2.28	3,266(100.00)	2.24

^a Sum of wildlife management unit totals may not equal statewide total due to rounding error.

^b Numbers in parentheses are percentages of statewide total.

Table 13. Statewide sample sizes for 1977-78 post-season mail survey of Illinois resident trappers. (N = 985).

Species	Total effective trappers	Percent effective trappers	Total season catch
Muskrat	620	62.94	16,525
Mink	326	33.10	807
Raccoon	625	63.45	4,913
Opossum	405	41.12	1,882
Red fox	147	14.92	320
Gray fox	134	13.60	279
Beaver	74	7.51	166
Striped skunk	144	14.62	301
Weasel	22	2.23	25
Coyote	81	8.22	185

Table 14. Estimated number of effective trappers, average season catch, and total trapper harvest by species in Illinois for 1977-78 season based on post-season trapper mail survey. (N = 985).

Species	Estimated number of effective trappers	Estimated average season catch	Estimated total harvest
Muskrat	10,952 ± 536 ^a	26.65 ± 3.18 ^a	291,906 ± 38,254 ^a
Mink	5,759 ± 522	2.48 ± 0.29	14,256 ± 2,135
Raccoon	11,040 ± 534	7.86 ± 0.88	86,783 ± 10,721
Opossum	7,155 ± 546	4.65 ± 0.56	33,249 ± 4,776
Red fox	2,596 ± 395	2.18 ± 0.39	5,651 ± 1,337
Gray fox	2,366 ± 380	2.08 ± 0.37	4,926 ± 1,186
Beaver	1,307 ± 292	2.24 ± 0.41	2,932 ± 850
Striped skunk	2,544 ± 392	2.09 ± 0.27	5,318 ± 1,077
Weasel	388 ± 164	1.13 ± 0.15	441 ± 195
Coyote	1,430 ± 304	2.28 ± 0.59	3,266 ± 1,108

^a 95% confidence interval.

Table 5. Distribution of harvest among effective trappers for eight species of furbearers in Illinois, -78, from post-season resident trapper mail survey.

Total season catch	Percentage of effective trappers for species							
	Mink (326) ^a	Opossum (405)	Red fox (147)	Gray fox (134)	Beaver (74)	Striped skunk(144)	Weasel (22)	Coyote (81)
1	50.31	25.93	56.46	56.71	48.65	52.08	86.36	59.26
2	23.01	20.49	21.09	19.40	20.27	22.22	13.64	20.99
3	8.90	12.59	8.17	14.92	12.16	10.42	-	6.17
4	4.29	10.86	4.08	2.24	9.46	6.95	-	3.70
5	3.68	6.67	2.72	0.75	4.06	2.78	-	1.24
6	2.45	4.44	4.08	1.49	2.70	2.78	-	1.24
7	1.84	2.96	0.68	1.49	1.35	1.39	-	-
8	2.15	2.96	-	0.75	-	-	-	2.47
9	0.92	1.48	1.36	-	-	0.69	-	1.24
10	0.31	3.21	-	-	-	0.69	-	-
11	0.31	0.49	-	-	1.35	-	-	-
12	-	1.24	-	0.75	-	-	-	1.23
13	-	0.49	-	0.75	-	-	-	1.23
14	0.61	-	0.68	-	-	-	-	-
15	0.61	1.24	-	0.75	-	-	-	1.23
16-20	0.61	1.98	0.68	-	-	-	-	-
21-25	-	1.24	-	-	-	-	-	-
>25	-	1.73	-	-	-	-	-	-

Table 16. Distribution of pelt sales by trappers for 10 species of furbearers in Illinois, 1977-78 season, from post-season resident trapper mail survey. (N = 938).

Species	Total number of pelts sold	Total number of pelts sold in Illinois	Percent sold in Illinois	Total number of pelts sold outside of Illinois	Percent sold outside of Illinois
Muskrat	15,256	14,891	97.61	365	2.39
Mink	766	736	96.08	30	3.92
Raccoon	4,562	4,460	97.76	102	2.24
Opossum	1,648	1,584	96.12	64	3.88
Red fox	286	278	97.20	8	2.80
Gray fox	253	245	96.84	8	3.16
Beaver	133	131	98.50	2	1.50
Striped skunk	142	138	97.18	4	2.82
Weasel	15	14	93.33	1	6.67
Coyote	155	135	87.10	20	12.90
Totals	23,216	22,612	97.40	604	2.60

Table 17. Summary of non-target catches by trappers in Illinois, 1977-78 season, from post-season resident trapper mail survey. (N = 983).

Species	Number of trappers catching species	Total number caught	Average number caught	Estimated percent of all trappers catching species	Estimated total caught by all trappers
Cat	120	282	2.35	12.21	4,993
Dog	63	103	1.63	6.41	1,818
Squirrel	26	42	1.62	2.64	744
Rabbit	33	77	2.33	3.36	1,362
Rat	13	56	4.31	1.32	990
Mouse	6	10	1.67	0.61	177
Crow	21	41	1.95	2.14	726
Blue jay	14	33	2.36	1.42	583
Hawk	6	8	1.33	0.61	141
Owl	2	2	1.00	0.20	35
Bird-Unspecified	62	115	1.85	6.31	2,031
Other (e.g. Groundhog, badger, fish)	19	22	1.16	1.93	390
Totals	255	792	3.10	25.94	13,990

Table 18. Summary of fur hunting activities of trappers in Illinois, 1977-78 season, from post-season resident trapper mail survey. (N = 985).

Species	Number of trappers hunting species	Total number harvested by hunting	Average number harvested by hunting	Estimated percent of all trappers hunting species	Estimated total harvest by all trappers hunting species
Raccoon	160	1,844	11.52	16.24	32,553
Opossum	34	108	3.18	3.45	1,909
Red fox	29	63	2.17	2.94	1,110
Gray fox	10	27	2.70	1.02	479
Striped skunk	2	2	1.00	0.02 0.20	348 35
Coyote	22	67	3.05	2.23	1,183
Totals	201	2,111	10.50	20.41	37,582 37,269

