Harvest and population status of river otter in Wisconsin. Report 129 [1984]

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DEPARTMENT OF NATURAL RESOURCES

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HARVEST AND POPULATION STATUS OF RIVER OTTER IN WISCONSIN

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ABSTRACT

Wisconsin's otter population, numbering approximately 6,500 animals, has been stable or slightly increasing since 1979 and its distribution has not changed significantly in the last 30 years. Highest populations occur in the Northwest and North Central districts. The average harvest of 1,100 otters per year from 1973-82 approached the allowable maximum for maintaining a stable population.

A close balance between the current supply and harvest of otters underscores the need for continuous monitoring of harvest and population trends. Should harvest exceed the allowable maximum, possible management recommendations include closing a portion of the otter season, prohibiting the use of Conibear traps, or employing quotas.

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INTRODUCTION

River otters (Lutra canadensis) were common throughout Wisconsin during the mid to early 1800's (Schorger 1970), but were nearly extirpated by the early 1900's. They were not protected at all until 1897 when a season was established (1 Oct - 30 Jun), and otter trapping was prohibited entirely from 1912 through 1926. The season was reopened in 1927 in a limited portion of the state, and trapping seasons have been continuous since then except for 1954.

Otter trapping is now permitted throughout Wisconsin with a season bag limit of 2 in the northern 1/3 of the state (north of State Highway 64) and 1 in the southern portion. The general otter trapping season runs from the first Saturday in December through the first Sunday in March, with extended seasons in specified areas. Annual otter harvests during the last 10 seasons (1973-82)* have averaged over 1,100 animals and produced an average annual total pelt value exceeding $51,000 (Bluett 1984). Further information on annual otter harvest statistics, pelt prices, and permits issued may be found in Bluett (1984a, b).

There have been several previous otter investigations in Wisconsin. Knudsen (1956) made a general study of otter population dynamics, distribution, and food habits. Knudsen and Hale (1968)

*In this report, 1973 refers to the 1973-74 season, 1974 refers to the 1974-75 season, etc.

studied the food habits of otters in Wisconsin, Minnesota, and Michigan. And, the Wisconsin Department of Natural Resources (DNR) Bureau of Wildlife Management sent questionnaires to otter trappers in 1974 and 1975 to determine the distribution of otters at that time (DNR files).

Otter trapping has been a consistent source of controversy in Wisconsin, based largely on emotional response to otters and some disagreement about trapping seasons. There is a definite need for information concerning the status, distribution, and exploitation rates of otters to justify and formulate management plans. The broad program goal for otter management in Wisconsin is to "meet the projected demand for otter trapping opportunities while monitoring the population for possible over-harvest" (Wis. Dep. Nat. Resour. 1984).

The objectives of this study were to determine the present status and distribution of otters in Wisconsin and to evaluate aerial track counts as a field index to their populations. Additional information was gathered on otter trapping methods and numbers of otters captured incidentally to the trapping of beaver.

METHODS

Registration

Mandatory registration of all otters trapped began in 1959. It is now illegal to possess raw pelts of otters more than 5 days after the close of the season unless they have been registered and tagged by an authorized DNR employe in the county where they were trapped or an adjoining county. And, it is illegal to transfer, give, trade, sell, or purchase any otter pelt unless it bears a DNR registration tag. Registration tags must be on pelts in order for them to be legally shipped out of the country.

The location (county and deer management unit) and date of kill, and the trapper's name and address were recorded when otters were registered. In addition, trappers were asked what type of trap (jaw or Conibear) was used and if the otter was caught accidentally or in a trap set specifically for otters. These data were summarized annually and evaluated for changes and trends.

Questionnaires

Wisconsin trappers were required to apply for their otter permit and carcass tags approximately 1 month before the trapping season started. A questionnaire consisting of a pre-paid, self-addressed return postcard separated by perforations from a letter of explanation (Append. A) was included with the carcass tags of the first 3,000 applicants in 1980 and 1981.

Trappers were asked: (1) if they had trapped for otter and/or beaver during the season, (2) the number of otters they caught, (3) the number of otters caught in sets made deliberately for otter, (4) the location in which they caught their otters, and (5) their general impressions on otter population trends in the past 5 years. These data were compared to similar data collected by Knudsen (1956) and the DNR Bureau of Wildlife Management in 1974 and 1975 (DNR files).

Mammal Observations and Track Counts

Results obtained from two additional DNR surveys were examined to see if they suggested any major changes in otter abundance. These included numbers of otters seen per year by DNR personnel (Lange and Rusch 1983) and winter track counts (Rusch 1983).

Each August since 1980, DNR field personnel have been asked to record their observations of a limited list of mammals during the preceding 12-month period, including otters. The species on the list were uncommon enough so that reporters could reliably recall such observations, and that comparisons over a period of time might show general population trends.

Furbearer and snowshoe hare track counts have been conducted along 23-35 10-mile transects in 17 counties in northern Wisconsin since 1977. The number of

transects run each year depended upon weather conditions and other work activities. Tracks were counted by 2 observers from a slow-moving vehicle usually 14 to 18 hours after a measurable snowfall. Multiple crossings of what were considered to be the same animal were counted as 1 crossing. Crossings not tallied were generally those less than 1/4 mile from the initial contact. Results from all transects run in a year were combined and compared to results from previous years.

Aerial Track Counts

Attempts were made to evaluate aerial otter track counts as a regional index to otter populations. The tracks were counted on snow-covered ice 3 days after snowfall along a 57.5-mile stretch of the Wisconsin River from Rhinelander to Lac Vieux Desert. The counts were made by the pilot and 1 observer from a small aircraft flying approximately 70 mph at 400 ft.

The number of tracks observed and the proportion of the river covered by ice were recorded for each of 11 easily identifiable segments constituting the transect. The date, observers, percent cloud cover, and type of plane used were also noted for each survey.

Carcass Collections and Necropsy

Trappers were requested to bring in their otter carcasses at the time they brought in pelts for registration. The request for carcasses and 2 manilla paper labels were included with their otter tags. Sex, county, and date of kill were recorded for each specimen. The carcasses were kept frozen until they could be picked up and examined.

Ovaries and uteri were collected and labelled from all female carcasses and stored in 10% formalin. These were examined later for the presence of corpora lutea, blastocysts, embryos, and placental scars. A canine tooth was extracted and labelled from all carcasses and sent to the University of Wisconsin - Stevens Point for processing, and ages were assigned by counting annuli in the cementum (Mowbray et al. 1979).

RESULTS AND DISCUSSION

Harvests

Statewide and District otter harvests fluctuated substantially during the last decade, but showed no major trends (Table 1, Fig. 1). Almost 80% (range: 75-84%) of the otters were taken in the Northwest and North Central districts each year. We feel that much of the fluctuation in annual otter harvests was due to changes in trapping effort for beavers. Bluett (1984) showed that Wisconsin otter and beaver harvests closely paralleled one another and that beaver harvests during this period had ranged from around 9,900 in 1977 up to around 29,500 in 1979. However, there is a complex relationship between otter harvest, the take of otter incidental to beaver, and otter pelt prices. In view of the fact that over three quarters of the otter harvested were taken by trappers trapping especially for otter

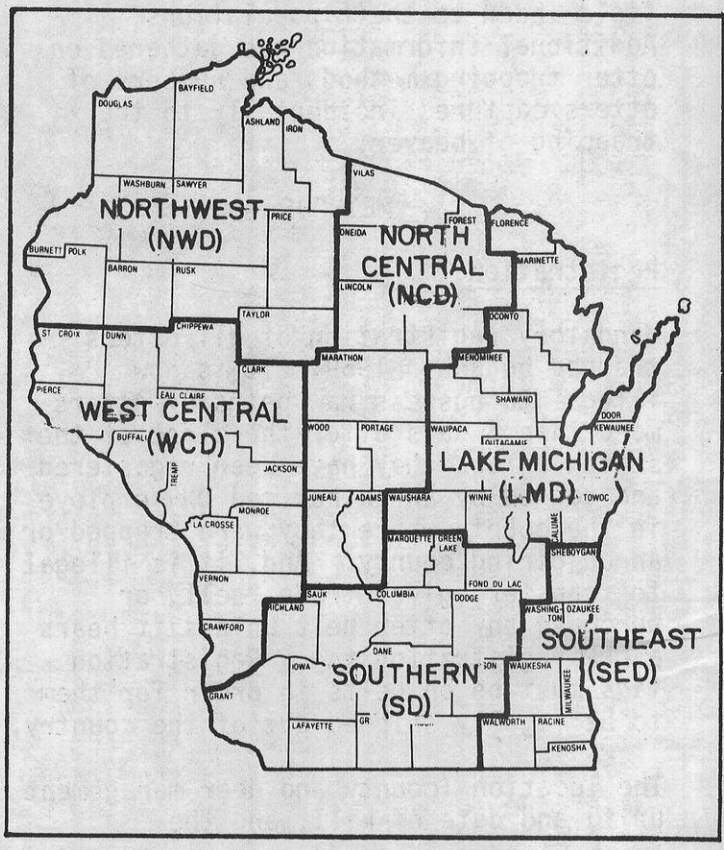

FIGURE 1. Administrative districts and counties used to compile otter harvest information.

TABLE 1. Otter harvests in Wisconsin, 1973-82.

Year	Harvest by District						
	NWD	NCD	LMD	WCD	SD	SED	State
1973-74	483	344	113	104	20	0	1,064
1974-75	612	376	137	122	22	0	1,269
1975-76	433	280	57	50	33	0	853
1976-77	711	296	112	111	41	0	1,271
1977-78	572	271	125	107	35	3	1,113
1978-79	436	298	119	73	35	1	962
1979-80	735	397	165	124	27	0	1,448
1980-81	495	369	137	90	31	0	1,122
1981-82	450	369	90	72	41	2	1,024
1982-83	468	250	93	109	40	0	960
1973-82 avg.							1,109

(Table 2), rising otter pelt prices could result in increased trapping effort and therefore increased harvest (Pils 1984 pers. comm.).

Iron, Lincoln, Oneida, Price, Sawyer, and Vilas counties have produced the highest otter harvests in recent years (Fig. 2). This undoubtedly reflects the great amount of water habitat in these counties. Oneida, Vilas, and Sawyer counties have more miles of streams and lakeshores than any other counties in the state, and Iron, Lincoln and Price counties rank in the top 12 (DNR files).

Trapper Success

Seventy-two percent of the respondents to the 1980-81 and 1981-82 trapper questionnaires had trapped for otter and/or beaver, and 62% of those who had trapped were successful (Table 2). Because of the low response rate, results obtained must be interpreted with caution. Data from the trappers that responded (average, 15%) show that 63% of the successful trappers caught 1 otter and 37% caught 2. Thirty-six percent of the otters were taken during the early beaver/otter season in the northern 1/3 of the state.

Twenty-six percent of the otters were taken accidentally in traps set for beaver. This is significantly higher ($z = 2.35$; $P < 0.05$) than the 20% accidental catch rate found by Knudsen (1956) and that reported (21%) on the 1974 and 1975 Bureau of Wildlife Management questionnaires (DNR files). The recent open water seasons and the increasing popularity of Conibear traps have undoubtedly contributed to the higher proportion of otters captured accidentally. David (1982) found that approximately 33% of Wisconsin trappers used only Conibear traps for otter and that another 1/3 used both Conibear and leg-hold traps.

Unfortunately, we were not able to determine the amount of trapping that occurred for otters in each county. This may have provided another measure of regional otter densities, or qualified the above measure.

Distribution

The average number of otters harvested annually per 100 miles of streams and lakeshores in each county was used to determine relative densities of otters within the available habitat (Fig. 3),

TABLE 2. Summary of otter trapper questionnaires.

Questionnaire Data	1980-81	1981-82	Both Years
Number of returns	572	365	937
Response rate	19%	12%	15%
Percentage of respondents who trapped for otter and/or beaver	76	67	72
Success rate of those who trapped	62%	63%	62%
Average number of otter registered per trapper	0.9	0.8	0.9
Percentage of otters taken accidentally in sets for other species	27	23	26
Percentage of otters taken during the early beaver season	*	36	36
Trappers' opinions on status of otter population compared to 5 years ago:			
Increased	52%	45%	47%
Stable	34%	43%	40%
Decreased	14%	12%	13%

*Question not asked on 1980-81 questionnaire.

and refines to some extent the raw harvest data presented in Figure 2. Nevertheless, these data also show relative otter densities to be generally highest in the north central and northwestern portions of the state, and lowest in the south and southeast.

Capture locations for 639 otters reported on the 1981 and 1982 questionnaires and 1,194 otters reported on the 1974 and 1975 Bureau of Wildlife Management questionnaires were plotted by township (Fig. 4), and provide another more detailed picture of otter distribution.

All of these sources of data (capture location and county harvest data) were used to map the current distribution and relative densities of otters in Wisconsin (Fig. 5).

Average annual harvests generally exceeded 2.5 otters/100 miles of streams and lakeshores in the area designated as "very common" and decreased by about 1/2 in each of the successive categories. There were no otters or fewer than 0.1 animal taken/100 miles of streams and lakeshores in the area designated "rare". The boundaries of the areas considered to have similar otter densities were subjectively drawn to follow watersheds and the distribution of capture locations.

High human population densities, intensive land use, and a limited amount of wetland areas account for the very

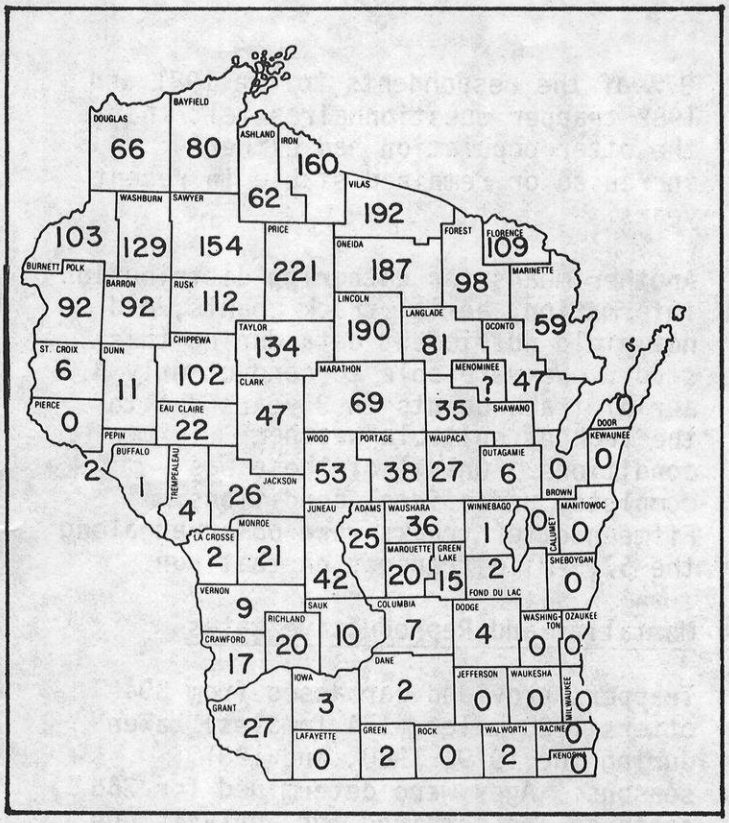

FIGURE 2. Cumulative harvests of otters by county, 1980-82 seasons.

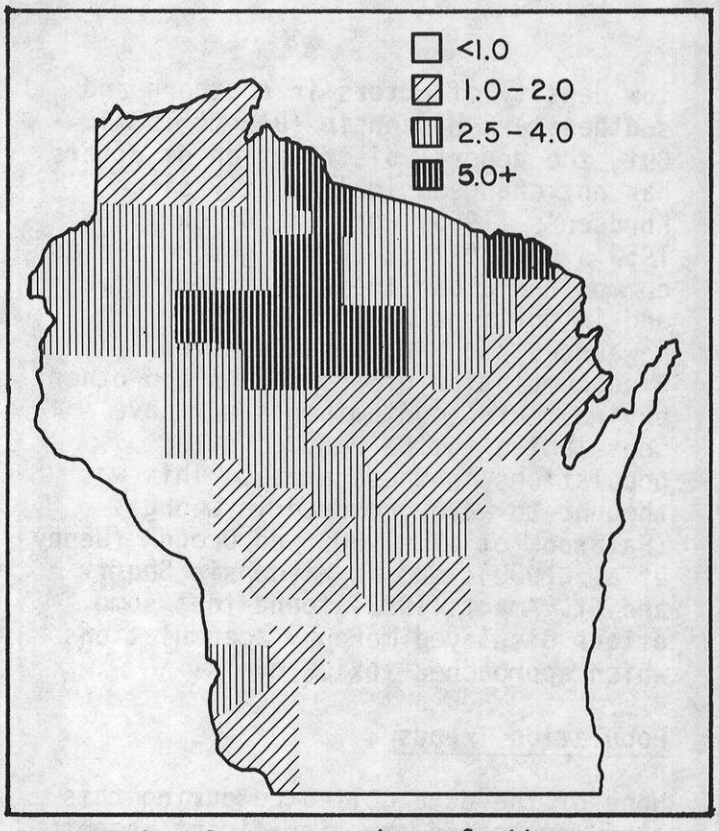

FIGURE 3. Average number of otters harvested annually per 100 miles of streams and lakeshores, 1980-82 seasons.

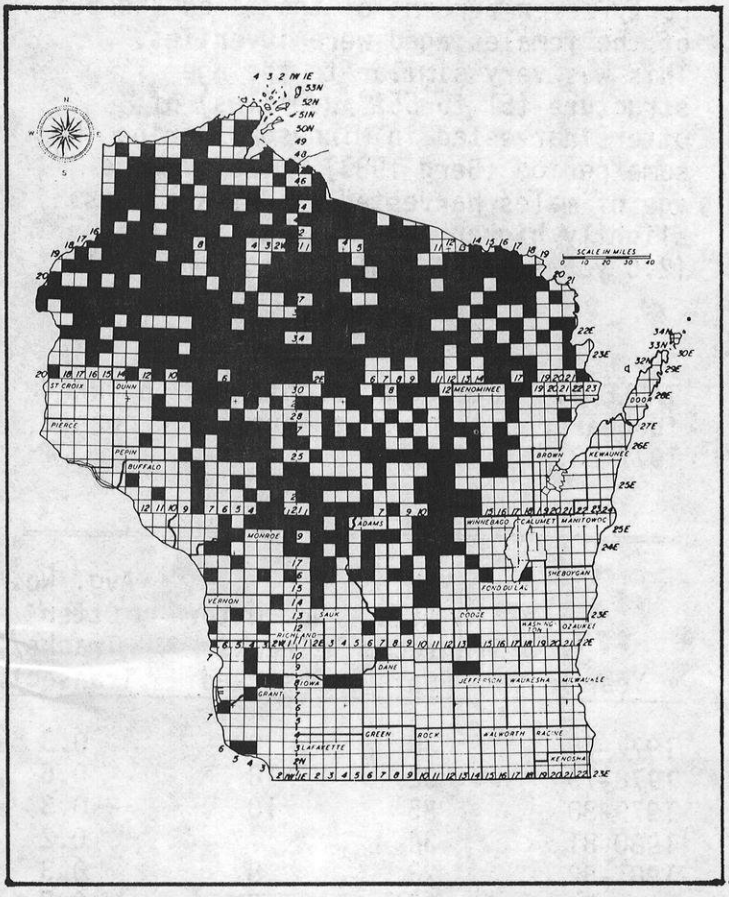

FIGURE 4. Distribution of otters harvested by township as reported on the 1974, 1975, 1981 and 1982 trapper questionnaires.

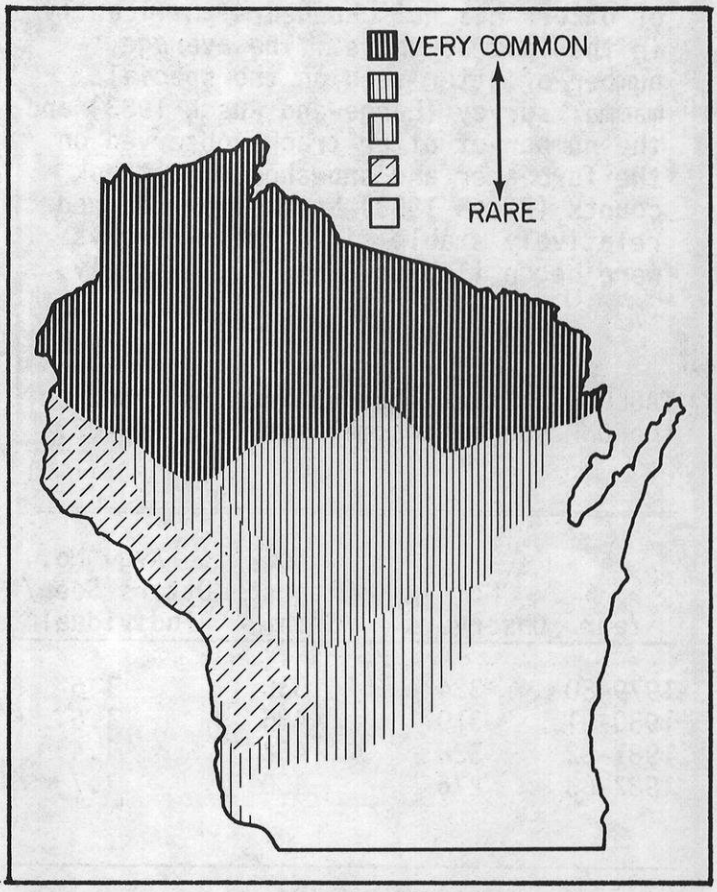

FIGURE 5. General distribution and relative densities of otters in Wisconsin, 1983.

low density of otters in southern and southeastern Wisconsin (Bluett 1984). But, the general distribution of otters has not changed significantly since Knudsen's (1956) work in the early 1950's except that they might not be as common now along the Mississippi River and in portions of Brown, Door, Kewaunee, and Manitowoc counties. Bioaccumulation of pesticides and other environmental contaminants may have contributed to the reduced otter populations in these areas. This was thought to have occurred in Georgia (Halbrook et al. 1980) and Oregon (Henny et al. 1980), and in Wisconsin Sheffy and St. Amant (1982) found that some otters displayed mercury accumulations which approached toxic levels.

Population Trends

None of the data collected during this study suggested any significant recent changes in the otter population. Annual harvests have not shown any major trends in the last decade, and the distribution of otters has not changed significantly in the last 30 years. The average number of otter seen on the special mammal survey (Lange and Rusch 1983) and the number of otter tracks observed on the furbearer and snowshoe hare track counts (Rusch 1983) have also remained relatively stable since these surveys were begun (Tables 3 and 4). Finally, 87% of the respondents to the 1981 and 1982 trapper questionnaires felt that the otter population had either increased or remained stable in recent years.

Another means for gathering distribution information, aerial track counts, did not yield sufficient data during this study. We were able to conduct only 4 aerial track counts in 3 years due to the lack of suitable weather conditions. Only 1 of these was completed under ideal conditions. Fifteen otter tracks were observed along the 57.5-mile transect on that run.

Mortality and Reproductive Rates

Trappers provided carcasses from 394 otters (220 males; 174 females) taken during the 1979, 1980, and 1981 seasons. Ages were determined for 366 of these and combined for analysis due to the relatively small sample sizes involved (Table 5).

Forty-seven percent of the males and 55% of the females aged were juveniles. This was very similar to the age structure (51 to 55% juveniles) of otters harvested in Minnesota during the same period (Berg 1983). The average age of males harvested (2.7 years) was slightly higher than that of females (2.5 years), and adults ranged up to 11

TABLE 3. Otter observations reported on the DNR special mammal survey, 1979-82.

Year	No. Observers	No. Otters Seen	Avg. No. Otters Seen/ Individual
1979-80	334	530	1.6
1980-81	310	486	1.6
1981-82	328	468	1.4
1982-83	276	480	1.7

TABLE 4. Otter tracks observed on DNR furbearer and snowshoe hare track counts, 1977-83.

Year	No. 10-mile Transects Run	No. Otter Tracks Observed	Avg. No. Otter Tracks/ Transect
1977-78	30	9	0.3
1978-79	32	18	0.6
1979-80	35	10	0.3
1980-81	34	7	0.2
1981-82	23	8	0.3
1982-83	25	7	0.3

TABLE 5. Ages of otters harvested in Wisconsin, 1979-81.

Age Class	Number (Percent in Age Class) 1979-80 Males	1979-80 Females	1980-81 Males	1980-81 Females	1981-82 Males	1981-82 Females	All Years Males	All Years Females
<1	21(57)	13(59)	60(50)	58(57)	14(31)	19(46)	95(47)	90(55)
1	4(11)	1(5)	14(12)	9(9)	14(31)	4(10)	32(16)	14(9)
2	4(11)	2(9)	7(6)	4(4)	6(13)	7(17)	17(9)	13(8)
3	3(8)	1(5)	8(7)	6(6)	4(9)	4(10)	15(7)	11(7)
4	2(5)	4(18)	4(3)	8(8)	6(13)	2(5)	12(6)	14(9)
5	1(3)	- -	4(3)	1(1)	- -	4(10)	5(3)	5(3)
6	- -	- -	6(5)	4(4)	- -	1(2)	6(3)	5(3)
7	- -	- -	3(3)	4(4)	- -	- -	3(1)	4(2)
8	- -	1(5)	6(5)	3(3)	1(2)	- -	7(3)	4(2)
9	1(3)	- -	1(1)	1(1)	- -	- -	2(1)	1(1)
10	- -	- -	4(3)	4(4)	- -	- -	4(2)	4(2)
11	1(3)	- -	2(2)	- -	- -	- -	3(1)	- -
Totals	37	22	119	102	45	41	201	165
Average age (yrs.)							2.7	2.5
Average mortality rate (%)							34	36

years old. Average annual mortality rates calculated by life table analyses from the age samples were 34% for males and 36% for females.

Reproductive tracts were examined from 142 females (Table 6). The presence and numbers of corpora lutea and embryos were used to determine pregnancy rates and litter size. No blastocysts or placental scars were observed.

None of the juveniles examined were pregnant and only one 1-year-old contained corpora lutea. Eighty-three percent of the adults (2 years or older) were pregnant. This was higher than Berg (1983) reported for otters in Minnesota (61%) and Mowbray et al. (1979) reported in Maryland (65%).

The mean numbers of corpora lutea (2.3) and embryos (2.4) were very similar. Therefore, a mean litter size of 2.3 was used in the population model. This was very similar to the average litter sizes reported by Hamilton and Eadie (1964) in New York (2.1), Berg (1983) in Minnesota (2.2), and Melquist and Hornocker (1983) in Idaho (2.4) but somewhat lower than found in Maryland (2.7) by Mowbray et al. (1979) and in Oregon (3.0) by Tabor and Wight (1977).

Fourteen of the tracts examined contained both corpora lutea and embryos. Three (8%) of the 39 corpora lutea in these tracts had either failed to implant or had been resorbed before becoming visible embryos. Tabor and Wight (1977) believed that intrauterine mortality was low in Oregon otter. Mowbray et al. (1979) found 9% intrauterine mortality for otters in Maryland, and Hill and Lauhachinda (1980) reported 9% in the southern United States.

Population Status

Knudsen (1956) concluded that there were "at least a few thousand otters in Wisconsin" at that time, and that the population was increasing. The status of the otter population during 1979-81 was determined through the use of a population model.

TABLE 6. Age and reproductive rates for female otters collected in Wisconsin, 1979-81.

Age Class	Percent Pregnant	Mean Number of Corpora Lutea ± SD	Mean Number of of Embryos ± SD
<1	0(80)*	- -	- -
1	11(9)	1.0(1)	- -
2	85(13)	2.3(10)	2.8(5)
3	86(7)	1.8(6)	- -
4	78(9)	2.7(6)	2.5(2)
5	83(6)	2.2(5)	2.3(3)
6	80(5)	1.8(4)	- -
7	75(4)	3.0(3)	2.0(1)
8	100(5)	2.6(5)	2.0(3)
9	100(1)	2.0(1)	- -
10	67(3)	2.5(2)	- -
Females ≥ 2 yrs.	83(53)	2.3±0.81(42)	2.4±0.51(14)

* Number in parentheses is sample size.

The Minnesota DNR Forest Wildlife Populations and Research Group generously agreed to simulate Wisconsin's otter population with their Furbearer Population Model. The data and assumptions used in this model were: (1) a relatively stable otter population from 1979 through 1982, (2) the sex and age structure, pregnancy rate, and average litter size values determined from the carcasses, (3) the numbers and sex ratios of otters harvested from 1979 through 1982, (4) a "poaching" factor (otters caught out of season, discarded, not registered, etc.) equal to 10% of the registered harvest, and (5) natural mortality rates of 20%, 10%, and 10% for pups, juveniles, and adults, respectively, during the summer and 15%, 10%, and 10% in winter.

Since none of the data collected during this study suggested any significant recent changes in the otter population, starting (1979) populations ranging from 4,000 to 7,000 otters were modeled to determine by deduction the number of otters necessary to maintain a relatively stable population in spite of the harvests during the period.

A pre-birth population of 6,000 otters in 1979 appeared to best duplicate the situation in Wisconsin (Fig. 6). That model showed a 5% decrease in the population following the high harvest in 1979 (1,449) and then a gradual increase to the present (1984) population of about 6,500 otters.

Modeled populations either decreased or increased rapidly when starting (1979) populations much less or greater than 6,000 were tested. And, testing showed that modeled populations were negatively affected when the registered harvest plus "poaching" exceeded 16-17% of the fall population.

An annual harvest of 1,100 otters from 1983 through 1986 was used to project future populations. This showed an increase of 2-3%/year in the population. When "poaching" was increased to 20% of the legal harvest, the projected population stabilized.

Seasonally the spring population of 6,500 produces 4,500 young or a post-birth population of 10,000 (Fig. 7). Natural mortality during the summer

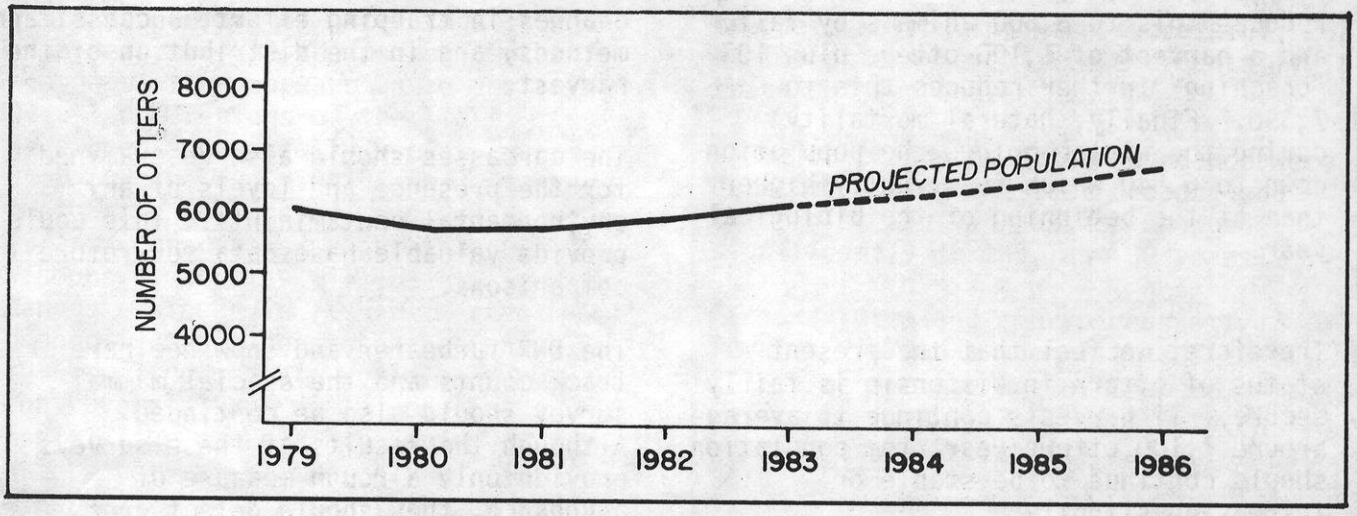

FIGURE 6. Otter populations in Wisconsin as determined by the furbearer population model.

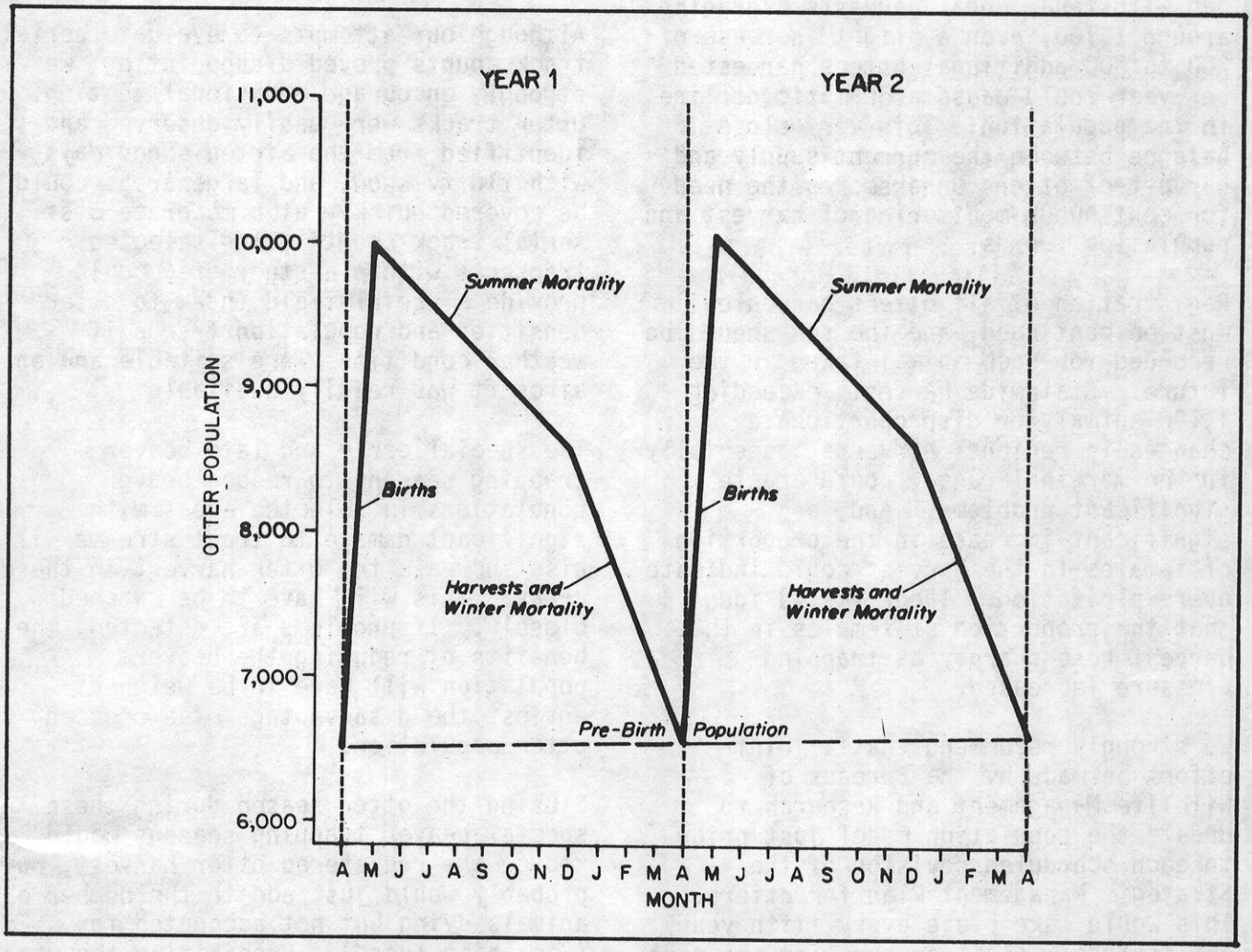

FIGURE 7. Seasonal changes in otter numbers as determined in the model.

reduces this to 8,600 animals by fall, and a harvest of 1,100 otters plus 10% "poaching" further reduces this to 7,390. Finally, natural mortality during the winter brings the population down to 6,540 which is slightly higher than at the beginning of the biological year.

Therefore, we feel that the present status of otters in Wisconsin is fairly secure. If harvests continue to average around 1,100 otters/year, the population should continue to be stable or increasing slightly.

MANAGEMENT AND RESEARCH CONSIDERATIONS

Although the present otter population can withstand annual harvests averaging around 1,100, even a slight increase of 200 to 300 additional otters harvested per year could cause a dramatic decline in the population. This very close balance between the current supply and harvest of otters underscores the need for continuous monitoring of harvest and population trends.

Registration of all otters harvested must be continued, and the sex should be recorded for each animal taken in the future. Statewide harvests exceeding 1,100 animals or disproportionate changes in regional harvests, especially in the marginal range, could create significant problems. And, a significant increase in the proportion of females in the harvest could indicate overexploitation. Tabor (1974) found that the proportion of females in the harvest rose sharply as trapping pressure increased.

We strongly recommend that a joint effort be made by the Bureaus of Wildlife Management and Research to update the population model just prior to each scheduled revision of the Strategic Management Plan for otters. This would take place every fifth year and include: (1) incorporating the most recent harvest information in the model, (2) carcass collections and analysis to detect changes that may occur in reproductive and mortality rates, and (3) questionnaires to document any changes in trapping effort, success, and methods, and in the distribution of the harvest.

The carcasses should also be examined for the presence and levels of any environmental contaminants. This could provide valuable base data for future comparisons.

The DNR furbearer and snowshoe hare track counts and the special mammal survey should also be continued. Although the results of these surveys provide only a rough measure of abundance, they should detect gross population trends. And, new field indices that show potential for monitoring otter populations should be tested and evaluated.

Although our attempts to evaluate aerial track counts proved disappointing, we strongly encourage additional testing. Otter tracks were easily observed and identified from the air on sunny days with fluffy snow, and large areas could be covered quickly at a moderate cost. Aerial track counts along selected transects within a study area could provide a useful field index to otter densities and population trends if weather conditions were suitable and an aircraft was readily available.

The special early and late beaver trapping seasons to reduce beaver populations in selected areas with significant damage to trout streams will also increase the otter harvest in these areas. This will have to be watched closely. If problems are detected, the benefits of reducing the beaver population will have to be weighed against the disadvantage of a reduced otter population.

Closing the otter season during these special beaver trapping seasons would reduce the registered otter harvest, but probably would just add to the number of animals dying but not accounted for ("poaching loss"). Prohibiting the use of Conibear traps during these seasons could significantly reduce the incidental capture rate of otters.

Eventually, it may become necessary to

limit the number of otter tags issued each year through the use of quotas if the population appears to be declining over large regions of the state. Quotas have been successfully used to manage deer (Odocoileus virginianus), turkey (Meleagris gallopavo), and Canada goose (Branta canadensis) populations in Wisconsin. Quotas will be utilized to manage a Wisconsin fisher (Martes pennanti) trapping season beginning in 1985. Although this would be very controversial and would require legislative approval to implement for otters, it may be the only viable alternative available if the demand for otters greatly exceeds the productive capability of the population.

SUMMARY

The status of Wisconsin's otter population was analyzed using harvest trends, trapper questionnaires, observation and track count surveys, and the development of a population model.

The annual harvest of otters in Wisconsin averaged 1,109 from 1973-82, with almost 80% occurring in the Northwest and North Central districts. Although there was a low response to trapper questionnaires, 62% of the otter trappers responding were successful; 26% of the otters were taken accidentally in traps set for beaver.

No major trends in otter abundance were detected during the last decade, and their distribution has not changed significantly in the last 30 years.

Corpora lutea and embryo counts from 174 females yielded a mean litter size of 2.3. The average age of trapped otters was approximately 2.5 years with an average annual mortality rate of about 35%.

The population model showed a stable or slightly increasing population of 6,500 otters in the state with recent harvests (averaging 1,100 per year) near the allowable maximum.

Research and management recommendations include continued monitoring of the otter population, periodic updating of the population model, and investigating the levels of environmental contaminants in the population. Closing a portion of the special beaver season to otter trapping, prohibiting Conibear traps, and the use of quotas could be implemented if problems arise in the status of the population.

APPENDIX A

Sample of 1980-81 Otter Trapper Questionnaire

State of Wisconsin
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

Dear Otter Trapper:

The Wisconsin Department of Natural Resources has a research program to get more information on the status of the otter population. This project involves: (1) The questionnaire below which is being enclosed with each trapper's otter tag, and (2) The collection of carcasses from otters taken by trappers.

Please complete and return the questionnaire at the end of the 1981-82 otter season or earlier if you do not plan to trap this year. And, we would also like you to turn in the carcasses from any otter you trap when you bring in the pelts to register them. Just fill in the county, sex, and date trapped on the enclosed cards and tie them to the carcass. Your cooperation will be greatly appreciated.

Sincerely,

John Keener
Bureau of Wildlife Management

(detach or fold here)

DEPARTMENT OF NATURAL RESOURCES

OTTER QUESTIONNAIRE

1. Did you deliberately make sets for otter and/or beaver during the 1981-82 season? ☐ Yes ☐ No
2. How many otter did you register during the 1981-82 season? ☐ None ☐ One ☐ Two
3. How many of these were taken in sets made deliberately for otter? ☐ None ☐ One ☐ Two
4. How many of these were taken during the special (early) season? ☐ None ☐ One ☐ Two
5. Please give the location of each otter you trapped during the 1981-82 season. The actual section location would be most helpful to us, but if you can't show that, designate the county, township, and the name of lake or river or nearest highway junction.

   county _____ township _____ range _____ section _____ lake/river/ highway jctn: _____

   county _____ township _____ range _____ section _____ lake/river/ highway jctn: _____

6. Do you feel the otter population has: ☐ increased ☐ remained stable ☐ decreased in the past 5 years.
7. General comments: _____

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