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Recent Status of the Beaver in Iowa

By GLEN C. SANDERSON

Many years prior to the settlement of Iowa her streams had been scoured by Indian hunters and white trappers for fur, principally beaver. The hunters and trappers had taken the cream of the beaver before the earliest settlements were established; however, remnants of the population were still present as is attested to by the fact that Iowa geography has many names alluding to the beaver. Beaver could not stand both persecution and civilization, so they disappeared from Iowa sometime after the seventies and in 1872 the legislature placed them on the "continuous closed season" list. By the late twenties there were rumors of beaver in Iowa again along the Missouri River in Woodbury County, and in 1930 their residence in the state was definitely established. By 1937 the appearance of colonies in unwelcome locations and the desire to aid the spread of this valuable furbearer caused the Conservation Commission to inaugurate a live trapping, stocking program (Anon., 1943).

Aitken (1937) reporting to the Iowa Academy of Sciences Meeting, showed beaver present in 15 Iowa counties by 1936. Except for Worth, all these counties were along the Missouri River. Aitken stated that the increase of beaver in Iowa may have been caused by the sustained drought periods that affected the region northwest of Iowa, with the resultant lower water levels forcing the beaver farther down the Missouri River; however, he seemed to put more credence in the fact that "where the habitat of these animals is left undisturbed and rigid protection is exercised the beaver abounds."

By 1943 the beaver had increased under the cloak of complete protection and with the aid of a live-trapping and stocking program to the point where nuisance animals had to be trapped under special permits to protect property. Observations based on cuttings, dams, lodges, and other sign along the principal waterways in the state appear to indicate that peak population levels were reached in the period 1946 to 1948. After this time there was a decline on at least some of the watercourses, especially the smaller streams, where the food supply was not adequate to sustain a beaver population permanently. The beaver continued to spread in some sections of the state so it is possible that the total state

population may have increased after the apparent peak levels in the period 1946 to 1948. In 1949, six years after the first special permits were issued to remove nuisance animals, the 53rd General Assembly removed this large rodent from the "continuous closed season" list and authorized the Conservation Commission to open a trapping season on it (Sanderson, 1950).

Thus, in the fall of 1949 there was an open season on beaver in Iowa for the first time in many decades. Dates set for the 7-day trapping season were from noon December 1 to midnight December 7 with five counties in northeastern Iowa, and 28 counties in northwestern and western Iowa open to trapping (Fig. 1). From the 1950 season to the present time (1952 season), the entire state has been open each year to beaver trapping. In 1950 there was a 15-day season, from noon November 25 to midnight December 9. In 1951 the 20-day season ran from noon November 20 to midnight December 9 with a special 30-day season set from noon November 20 until midnight December 19 on the Mississippi River from north of Muscatine to the Minnesota border, and east of the Milwaukee Railroad tracks. In 1952 a 30-day season was set from noon November 10 until midnight December 9, with a special 40-day season on part of the Mississippi River (Same as in 1951) from noon November 10 until midnight December 19.

Methods—There has been no continuous beaver project through the years in Iowa. During the period 1946-48, Mr. L. F. Faber, then game biologist, collected data from nuisance beaver which were trapped and pelted by state trappers under special permits. He obtained sex ratios, body weights, pelt sizes, embryo counts, and other information during his studies. In 1949, with the advent of the beaver trapping season, a special project was set up with the cooperation of the fur buyers throughout the state. On a special report form, the fur buyers were asked to report the size (small, medium, or large) of the beaver pelts they bought from trappers, and the county in which the animals were trapped. The writer makes personal visits to several fur houses each year to determine quality, preparation, value received, and other pertinent information on all Iowa furs. Finally, fur buyers are required by law to report all furs, including beaver of course, that they buy in the state. From these reports the total beaver harvest is determined. A selected number of the buyers report the amount they pay for pelts and from this information the average pelt value as well as the total value of the crop in the state is determined.

RESULTS

Sex Ratio—Swank (1949) reports a ratio of 93 males per 100 females in West Virginia (29 animals), while Osborn (1953) found a ratio of 101 males per 100 females in 181 beaver he examined in Wyoming. Bradt (1947) reports a ratio of 108 males per 100 females obtained from sexing 207 carcasses purchased from trappers during the trapping season of March-April, 1935 in Michigan. He further reports a ratio of 109 males per 100 females in 11 litters numbering 46 kits which he studied.

These ratios for Michigan are very close to the Iowa sex ratio of 110 males per 100 females computed from Faber's data. He examined 172 beaver of which 90 were males and 82 females. These beaver were trapped under special permits by state trappers in 18 Iowa counties, mostly in northwestern and western Iowa, from October, 1946 through May, 1947; and October, 1947 through April, 1948.

Body Weights—Faber weighed 90 male beavers which ranged from 10 to 69 pounds in weight and averaged 33.5 pounds each, and 82 females which ranged from 10 to 70 pounds in weight and averaged 34.3 pounds each (Table 1). Perhaps the slightly heavier average weights for the females may be explained by the fact that 12 of the 82 females were pregnant when weighed. Swank (1949) reports that of 20 animals weighed and sexed in West Virginia the males averaged 29 pounds and the females 28 pounds.

Embryo Counts—Twelve pregnant females were examined and the embryos counted during March-April, 1947; and February-April, 1949. Table 2 shows an average of 4.08 embryos per litter,

Table 1
Weight distribution of Iowa trapped beaver.

| Weight Class (lbs.) | Number of Occurrences | |
|---------------------|-----------------------|--------------|
| | Males (90) | Females (82) |
| 0-9 | 0 | 0 |
| 10-19 | 14 | 10 |
| 20-29 | 17 | 22 |
| 30-39 | 34 | 20 |
| 40-49 | 14 | 18 |
| 50-59 | 7 | 8 |
| 60-69 | 4 | 3 |
| 70-79 | 0 | 1 |
| Average Weight | 33.5 pounds | 34.3 pounds |

Table 2
Number of young per litter.

| Number of embryos per litter | Number of occurrences | Number of embryos per litter | Number of occurrences |
|------------------------------|-----------------------|------------------------------|-----------------------|
| 1 | 1 | 5 | 3 |
| 2 | 1 | 6 | 1 |
| 3 | 2 | 7 | 1 |
| 4 | 3 | | |

Twelve litters, 49 young; average of 4.08 per litter.

which is near the 3.72 young per litter reported by Bradt (1947) for Michigan beaver. Osborn (1953) found 3.12 young per litter in Wyoming Beaver.

Pelt Size—Size distribution of pelts taken by state trappers from 1946 through 1948, and by trappers after the season was opened in 1949 are shown in Table 3. For practical purposes the beaver trapped up to and including 1949, came from a non-harvested population. This is true to a large extent of those trapped in 1950, since only 33 of Iowa's 99 counties were open to legal beaver trapping in 1949 (Fig. 1).

Table 3
Size distribution of beaver pelts in Iowa.

| Year or season | Number pelts and percent of total | | | Remarks: |
|----------------------|-----------------------------------|---------------------|--------------------|--------------------------------|
| | LARGE ¹ | MEDIUM ¹ | SMALL ¹ | |
| 1946-48 ² | 60 (37%) | 33 (20%) | 70 (43%) | Trapped by state trappers |
| 1949 | 441 (34%) | 440 (34%) | 426 (32%) | Open season in 28 cos., 7 days |
| 1950 | 616 (38%) | 576 (35%) | 432 (27%) | Entire state open; 15 days |
| 1951 | 755 (42%) | 572 (31%) | 490 (27%) | Entire state open; 20 days |
| 1952 | 573 (28%) | 637 (32%) | 806 (40%) | Entire state open; 30 days |

¹Large includes large and blanket, medium includes large medium and medium, small includes small and kit sizes.

²Pelts measured by Faber—all others reported by fur buyers.

Harvest Information—Although only 33 counties were open to trapping in 1949, trappers showed much interest in Iowa's first beaver season in recent years. Lack of beaver trapping experience helped to keep the harvest at a comparatively low level, and the successful trapper's interest waned rapidly when he learned how much work it was to skin and stretch a beaver and how little he received for the pelt. The statewide 15-day open season in 1950

did not produce the number of pelts expected. At least a partial explanation may be found in the early freeze-up which reduced the numbers of beaver trapped, since many Iowa trappers do not know how to trap beaver through the ice. The weather during the 1951 trapping season was favorable for beaver trapping but the low market value of beaver pelts kept the number harvested lower than might have been expected with a good market. Again in 1952, weather conditions were favorable for beaver trapping throughout much of Iowa for a good portion of the open season; however, as was true for the previous year, low demand for beaver pelts and consequently low prices received by trappers again kept the total harvest low. In some cases trappers practically refused to trap for beaver, while farmers and others with damage problems found it difficult to get enough animals trapped during the liberal 30-day open season to reduce their damage problems.

Incomplete county by county returns, covering 52 to 79 per cent of the pelts harvested, show there were 24 counties that had 50 or more beaver pelts reported for at least one of the four seasons, 1949-52 (Fig. 1). While the number of animals trapped in the various counties is not an accurate index to the size of the population, it does show where the higher beaver populations in the state are located. As might be expected, the larger populations are found along the Mississippi River in northeastern Iowa and along the Missouri River in western Iowa. A few inland counties



Figure 1. Maximum number of beaver pelts reported per county for one season during the 1949-52 open seasons. Counties enclosed by heavy lines were open to trapping during the 1950 trapping season.

Table 4

Number of Iowa beaver pelts bought by fur buyers, average and total pelt value, 1943-44 to 1952.

| Season | Number of Pelts | Average Pelt Value | Total Value |
|----------------------|--------------------|--------------------|------------------------|
| 1943-44 ¹ | 235 | \$24.00 | \$ 5,640.00 |
| 1944-45 | 259 | 22.50 | 5,827.50 |
| 1945-46 | 623 | 35.73 | 22,259.79 |
| 1946-47 | 494 | 18.24 | 9,010.56 |
| 1947-48 | 210 | 32.23 | 6,768.30 |
| 1948-49 | 670 | 13.87 | 9,292.90 |
| 1949 ² | 2,449 | 12.20 | 29,877.80 |
| 1950 | 3,103 | 12.50 | 38,787.50 |
| 1951 | 2,465 | 7.42 | 18,290.30 |
| 1952 | 3,790 ³ | 5.85 ³ | 22,171.50 ³ |

¹None harvested prior to 1943-44.

²Beaver trapped under special permit system until 1949.

³Estimated from special report forms, all other information from fur reports.

along the Cedar, Iowa, and Wapsipinicon Rivers in eastern Iowa and western Iowa counties bordering the Missouri River counties have fairly high beaver populations.

Economic Values—Some farmers, who apparently were not well informed on the beaver market, asked fantastic prices from trappers for the beaver trapping rights on their property. Actually, property owners who have a beaver damage problem, and who do not wish to trap the beaver themselves during the open season, would do well to encourage trappers to remove the beaver. This encouragement could be accomplished by allowing the trapper free access rights or possibly other compensation.

Even the longer season set each year has failed to stimulate the beaver harvest in the face of the declining market (Table 4). The effort trappers expend, and consequently the size of the harvest, depends on pelt price to a great extent in beaver. This is true, because beavers are not hunted for sport as are raccoons. Sanderson (1951) reporting to the meeting of the Iowa Academy of Sciences two years ago, stated that pelt value had comparatively little effect on the raccoon harvest since 'coon hunting is a sport in its own right.

Some fur buyers report that the new techniques developed for shearing raccoon pelts and preparing them to where they closely

resemble beaver, has been responsible for the decline in the demand for beaver pelts.

Management—The objective of the beaver program in Iowa is not to exterminate the population, but to maintain it at such a level as to be compatible with the existing habitat. Few people will deny that when the beaver population is maintained at such a level, it is a valuable asset to the community. Under present economic conditions and market values of the pelts it is difficult to obtain a harvest large enough to reach our stated objective in beaver management. It should be pointed out, however, that should the market on this large fur bearer return to near its 1947-48 level the present trapping regulations would allow too many animals to be trapped to accomplish the management goal.

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SUMMARY

1. Iowa's beaver season was opened in 1949 for the first time in many decades.
2. Prior to the open season some nuisance animals were trapped by state trappers and under a special permit system to reduce beaver damage and to stock unpopulated areas.
3. Some of the beavers trapped by state trappers were weighed and examined to determine sex, breeding history, and other information.
4. After the season was opened to trapping, special beaver report forms were sent to all fur buyers in the state to obtain pelt and county distribution information relative to the harvest.
5. There was a ratio of 110 males per 100 females in the 172 beaver for which the sex was determined.
6. The ninety males ranged from 10 to 69 pounds in weight and averaged 33.5 pounds each, while the 82 females ranged from 10 to 70 pounds and averaged 34.3 pounds.
7. Forty-nine embryos were counted in 12 litters for an average of 4.08 young per litter.
8. The percentage each pelt size class contributed to the harvest remained relatively constant from 1949 through 1951; however, for some reason the percentage of large pelts showed a def-

inite decrease in 1952 with a corresponding increase in the percentage of small pelts.

9. In spite of various weather conditions during the trapping seasons, extending the open season from 33 counties to the entire state, and varying the length of the open season from 7 to 30 days, the harvest has varied comparatively little—from approximately 2,500 pelts to 3,800 pelts per season.

10. Most of the beaver are trapped along the Mississippi and Missouri Rivers, but some pelts are taken in practically every county in the state.

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