

### Fur Bearers in Michigan's Forest Areas

The carnivorous fur bearers found in Michigan's forest areas range so widely, their numbers vary so much from year to year, and there seems to be so few of the limiting factors under the control of the forest management that revenues from such fur are not easily made an important part of the forest income.

Herbivorous fur bearers such as the muskrat and beaver are more restricted as to their habitats. Muskrats and beavers are not hunted for sport or so violently accused of destroying desirable species of animal life as are the carnivores so that their management and control would appear to offer better opportunities.

Open marsh lands in the forest area may in many places pay a part of the costs of forest management. Dry marshes, timbered swamps, leather leaf bogs, and deep open water areas support comparatively few muskrats. Lily pad areas may supply a crop of 4-5 muskrats per acre each season. Cattail stands, rice beds, arrow head beds, and sedge areas with some water deep enough for winter use of the 'rats may maintain a sufficient stock so that a surplus of 6-8 muskrats per acre may be removed each year. According to reliable data the catches sometimes go as high as an average of 10-12 muskrats per acre.

On well stocked areas, trappers will usually catch the 'rats and care for the pelts for half of the crop so that average net returns to the land-owner of \$3-\$5 per acre per year from muskrat furs are often practicable.

Areas suitable for muskrats are usually satisfactory for waterfowl, and the waterfowl hunting rights often rent for as much as \$1-\$2 per acre per year.

Beavers are increasing and extending their range in most of the wild land counties of the Lower Peninsula. As they increase, the number and variety

of places where damage to timber, roads, railroads, culverts, drains, water supplies, and farm crops increase. The annual costs of this "nuisance beaver control" are increasing so that Michigan now has another wild life problem.

If there is no open season for trapping beavers, and if the present policy of live-trapping nuisance beavers and removing them to other waters is continued for a few years more, most of the waters in the larger forest tracts of Michigan will contain beavers.

The best available estimates are that more than 10,000 miles of streams, rivers, and inland lake shores in the wild land areas of Michigan are for the most part suitable for beavers. It is not to be expected that beavers will, at any one time, occupy or use all of this water but it is believed that this is a conservative estimate of the water on which beavers may locate. Unless adequate methods of restricting beavers to definite areas are developed and put into practice, it may be expected that any or all of this area may eventually be used by beavers.

Studies of beaver habits indicate that beaver dams usually raise the water level less than four feet and that heads of more than five feet are the exception. It is also known that in regions where food supplies are plentiful beavers seldom cut large numbers of trees farther than 300 feet from the edge of lakes and streams or from the water in their ponds or canals.

It is therefore fairly easy for the forester to study the contours of the land along the streams and to roughly approximate the areas likely to be flooded by beaver dams and as to what areas are likely to be "logged" by beavers.

Only very rough estimates as to the total area of Michigan which may be flooded and logged by beavers are possible but it is probably conservative to estimate the potential beaver pastures at three-quarters of a million acres.



In October, 1928, two adult beavers were released on a small lake within a stone's throw of the keeper's residence on the Gladwin Game Refuge so they could be observed under natural conditions. The cover around this lake was scattered but there had been no beaver there for about 35 years. A tally in the fall of 1930 showed that there were 4 beavers approximately 1½ years old and 6 kit beavers in addition to the original pair. At the present low fur prices, and after the cost of trapping has been deducted, the estimated net fur values which have accrued would be something over \$100.00.

Although no dams were constructed, I found that these two beavers, with little or no help from their four young of the year, had cut 345 trees between October 30, 1928 and June 13, 1929, a period of about 7½ months.

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Beaver Cuttings, House Lake, Gladwin Game Refuge - October 30, 1928 - June 13, 1929.

Diameter of the stump left by the beavers, usually 8-18 inches above ground.	Number of poplar trees cut.	Number of oaks cut.	Number of alders cut.	Total of all species.
0-1	99	4	18	121
1-2	70	5	7	82
2-3	58		3	61
3-4	49			49
4-5	21			21
5-6	5			5
6-7	2			2
7-8	2			2
8-9	1			1
9-10	1			1
Total	308	9	28	345

In cooperation with the Department of Conservation, G. W. Bradt, Department of Zoology, Michigan State College, made a detailed survey during 1930 of the 1928 beaver plantings made on State Game Refuges.

When he tallied the cuttings on this same area on May 29, 1930, about 11½ months later, he found 1,040 additional trees had been cut by the beavers.

Beaver cuttings, House Lake, Gladwin Game Refuge - June 13, 1929 - May 29, 1930

Diameter in inches.	Number of poplars.	Number of oaks.	Number of alders.	Number of white birches	Number of cherry birches	Number of maples	Total
0-1	94	16	73	0	0	0	183
1-2	166	39	103	5	8	0	321
2-3	216	64	32	10	19	0	341
3-4	83	28	10	5	3	0	129
4-5	33	5	0	0	0	1	39
5-6	7	0	0	0	0	0	7
6-7	6	0	0	0	0	0	6
7-8	4	0	0	0	0	0	4
8-9	5	0	0	0	0	0	5
9-10	3	0	0	0	0	0	3
10-11	2	0	0	0	0	0	2
Total	619	152	218	20	30	1	1040

While detailed tallies were not made late in the fall of 1930, observation showed that the proportion of oak cut had increased and that these beavers were beginning to clean out the available food supplies around the lake.

Beaver cuttings, House Lake, Gladwin Game Refuge - Oct. 30, 1928 - May 29, 1930

Percentages based on number of trees.

	poplars	oaks	alders	white birches	cherry birches	maples
Oct. 30, 1928 )						
June 13, 1929 )	89.3-	2.6+	8.1+	0	0	0
June 13, 1929 )						
May 29, 1930 )	59.5+	14.6+	21.0-	1.9+	2.9-	0.1-

These tables show something as to the food preferences of these beavers and as to the total number of trees which a given number of beavers may cut. Additional tallies are being made in other places as opportunities occur to tabulate the number of trees a known number of beavers will cut under given conditions.

These trees were cut within 300 feet of the lake shore and no dams had been built. It is expected that all or part of this colony of beavers will move during 1931.



The interest shown by citizens in these beavers since they were released would seem to outweigh any wild life or recreational values destroyed.

From the standpoint of timber supplies, markets, cover for other wild life, etc., has it been a good investment to allow these trees to be turned into fur? If no fires occur near this lake, how long before the area will become stocked, by natural reproduction, so that another crop of beavers may be produced? What, if anything, might be done profitably to hasten the recovery of beaver pastures? These and many other questions can and must be answered before any consistent and permanent policy as to beaver management in our forest areas can be applied.

While beaver cutting usually is more or less selective, and in many places may materially assist forest reproduction by thinning out the weed trees, there can be no assurance that desirable trees will be left uncut, particularly where dam or lodge material is needed.

Since permanent flooding kills most kinds of timber this may often be more serious. Stands of cedar around lakes or <sup>along</sup> streams may often have considerable timber values as well as being desirable habitats for deer, grouse, snowshoe hares, and other species.

If an intelligent and permanent plan for control and management of beavers is to be instituted, certain decisions must be made. Are foresters, as the professional guardians of the state and national timber supplies, concerned with this part of the forest or are foresters faced with so many other pressing problems that they are willing to let it go by default? Are the zoologists and conservationists to settle such problems on the basis of wild life and recreational values and with little or no consideration of present or potential timber values?

If foresters are unwilling to forget about this part of the forest or <sup>unwilling</sup> to decide that beavers have no general place in the forest areas, what formulas as to timber and cover equities shall be applied in deciding where beaver control is desirable?