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Beaver studies, 1982 (special supplement by P. C. Shelton)

Recent fluctuations in beaver numbers at Isle Royale suggest an important influence of wolf predation in beaver population dynamics. The recent history of beaver roughly parallels that of moose. Beaver increased during the 1950's and '60's after a reduction that may have been caused by a tularemia epizootic. A total count in 1974 revealed 286 colonies with food piles (Table 2). By this time the incidence of beaver in the summer wolf diet had increased and the wolf population was expanding rapidly. Subsequent counts in 1978 and 1980 revealed a steady decline to 45% and finally 29% of the 1974 level, respectively. The decline was most significant for stream-dwelling beaver, and we have hypothesized that the increase in wolf predation caused the decline. ~~Total counts of beaver colonies are now conducted~~ biennially. The 1982 aerial count was of special interest since it was the first since the wolf population crash.

During the periods 25 May - 3 June and 12-18 October, 1982, Philip C. Shelton surveyed beaver activity and populations. Charles R. Davis assisted in the spring trip, which consisted of reconnaissance by small boat, canoe, and on foot of 27 active sites located from the northeast end of the island to the southwest end of Siskiwit Lake. The October trip included live-trapping 5 beavers, ground visits to 9 active sites, and most importantly, the aerial survey of the entire island, counting colonies with fresh food piles or other signs of current activity. Fred Stroble of Shawano Flying Service piloted the float-equipped Super-Cub for the aerial count, which was done during 13 hours flying time, 14-16 October. Since 1962 all aerial surveys of Isle Royale beaver have been done by Shelton, with no changes in pilot since 1974.

Table 2. Aerial counts of beaver colonies, Isle Royale National Park.

Year	Total Number	Colonies with Food Piles				1936 burn	Sites with Fresh Cutting or Fresh Mud on House or Dam	Total Sites with any Sign of Activity
		Number (%) by Habitat*						
		Stream	Lake	Harbor				
1962	125	84(67)	26(21)	15(12)	43(34)	-	-	
1974	286	251(88)	24(08)	11(04)	102(36)	30	316	
1978	129	99(77)	19(15)	11(08)	48(37)	27	156	
1980	83	58(70)	17(20)	08(10)	18(22)	39	122	
1982	125	93(74)	24(19)	08(06)	31(25)	28	153	

*Stream, lake, and harbor proportions add to 100.

-Taken from 1982 Wolf/Moose Report

The 1982 results indicated a recovery of beaver colony numbers to approximately the same level as 1978 and 1962. Favorable weather conditions and sufficient leaf fall for good visibility allowed a satisfactory aerial count. Examination of the data by habitat reveals that the number of harbor colonies remained the same as in 1980 (8 sites). Intensive continuous use for 3 to 5 decades has resulted in extreme depletion of food resources in some of these sites, and at two long-established colonies in Rock Harbor (Dollar Bay and Mott Island) human activities may have discouraged beaver reoccupation. Lake colonies increased in the same proportion as the total, and stream colonies increased slightly in percent of the total. The slight increase in percentage of colonies in the 1936 (22 to 25%) suggests that food depletion at these sites may be more complete than in the older forest types.

The number of sites with signs of activity other than a food pile dropped back to the 1978 level from the high number of 1980, when it was suspected that such sites represented colonies broken up by intensive wolf predation. The subsequent decline in wolves may have allowed scattered beavers to find mates and establish larger colonies.

Live-trapping was more successful in 1982 than in 1980. Five beavers were captured in 14 trap-nights at two colonies, Lake Ojibway and Baker Point. Only two beavers were caught in 26 trap-nights in 1980. Four of the beavers caught in 1982 were kits, three at Baker Point and one at Lake Ojibway, and an adult female was handled at Lake Ojibway. All were in good health and of normal weight. Two of the Baker Point kits had parasitic beetles on their rumps (6 and 1); no beetles were found in combing the rumps of the other three animals. There is no reason to infer any change in parasite load from these observations.

During the May-June trip 21 sites which were active in 1980 were visited; 18 of these were still active. During this period 9 sites were found active that were not known to have been active in 1980. The ratio of active sites in 1980 to 1982 from these figures (1:1.3) is close to the ratio shown from the aerial counts (1:1.5).

No extensive data were obtained on beaver-food relationships, but aspen (preferred food) was being used at 14 of 27 active sites in May and June and at 5 of 9 active sites visited in October. In most of these cases only one or a few trees were cut. Availability of aspen, both old growth and also younger trees in the 1936 burn, continues to decline. Birch was used at 18 of 27 sites in May and June and at 5 of 9 sites visited in October. Although observations were not quantified, cutting was also noted at several sites observed during the aerial survey in October.