

PROGRESS REPORT

Observations on the Moose of Isle Royale National Park

May 18 - 30, 1947

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Introduction

Although a second moose browse survey of the Island had been planned for the first three weeks in May, curtailment of expenditures for hiring assistance made it necessary to change these plans. In its place a field trip was made to various parts of Isle Royale to make observations on the condition of the browse as well as the moose. Some browse plots were taken but most of the material included in this report is based on observation.

The party of observers was made up of the following: Dr. H. W. Hensley, In Charge, Section of Wildlife on Public Lands; James Cole, biologist with the National Park Service; and the writer.

We left Grand Marais, Minnesota, at 4 a.m. on the "MS Detroit" and arrived at Mott Island, the Park Service Headquarters at 5:30 p.m. on May 18. Enroute we made stops at Washington Harbor, Hay Bay, Chippewa Harbor and Rock Harbor. Messrs. Lahti and Markham, employees of the Park Service met us at the dock and arranged to haul our luggage and equipment to our quarters.

Headquarters for the field work were established at Mott Island for the eastern portion; at Crow Point for the central section; and at Siskiwit Camp for the southeastern portion of the Island. In addition we had planned to spend a few days at Windigo on Washington Harbor, but due to the uncertainty of the boat schedule it was omitted.

Our return trip started when we boarded the "MS Detroit" at Hay Bay on June 1 and arrived at Belle Isle at 7 p.m. that evening. We left Belle Isle at 3 a.m. the next day and arrived at Grand Marais at 3 p.m. after making one stop at Windigo.

Browse Areas Visited.

Since the density of the browse plants and the degree of utilization varies a great deal in the different parts of the island, each area visited will be discussed as a unit. From headquarters at Mott Island, Crow Point and Siskiwit Camp, the following browse areas were visited: Passage Island, McCargoe Cove Trail, Mt. Ojibway Trail, Mt. Franklin Area, Rock Harbor Trail, Lake Richie Trail, Siskiwit Lake, North shore Siskiwit Bay, Wright Island, Feldtman Tower Road, Hay Point, North of Hay Bay and Siskiwit Bay to Lake Desor. These areas have been indicated on a field map for the files, but it was felt that they are too well known to make it necessary to attach copies to this report.

Passage Island

The island was visited on May 30 primarily for the purpose of seeing browse in an area which has not been subjected to moose pressure. Here the ground hemlock in particular has a luxuriant growth compared to the main island (Figure 1). No moose sign is apparent at this date. Apparently this island, which lies approximately four miles from the northeast tip of Isle Royale, is too far for the moose to swim in summer and the ice is unsafe during most winters. At the present time it is the only outlying island that can be used as a natural enclosure for studying moose utilization of forage plants.

McCargoe Cove Trail

Although this trail is approximately ten miles long, starting at the Daisy Farm C.C.C. Camp on Rock Harbor and ending at the head of McCargoe Cove on the north side of the island, time did not permit covering the entire trail. Only about six miles were inspected since it was necessary to turn back in the vicinity of Chickenbone Lake.

Passage Island was the only outlying island visited, so it may or may not be the only island enclosure g.c.c.

*Except in pockets, all
trees are dwarfed on
this ridge due to the
lack of soil, etc.*

Moose foods were not very abundant in this section of the island, but they were browsed just as heavily depending on the species. Much of the browse along "Greenstone Ridge" was also quite dwarfed.

Aspen, the number one winter food of moose, was heavily browsed in practically every instance. In addition six down trees were partially barked but none had the bark entirely removed.

Balsam fir had heavy utilization in places between the Daisy Farm and the Mt. Ojibway Trail although there were some areas where only moderate browsing was noted. On the rest of the trail the utilization was also rather heavy.

Paper birch and red osier dogwood were not as common as aspen or balsam and they only had moderate browsing.

Mountain ash, sumac, juneberry, hazel, willow, elderberry, red maple, ground hemlock, mountain maple and mountain alder had poor distribution, but they were usually browsed moderately to heavily. Of these species mountain ash and sumac were usually hit the hardest.

Honeysuckle had about the same distribution as aspen and it was either left untouched or lightly browsed. White cedar was not eaten although there were many trees standing which had been hard hit by moose during the last peak population (Figure 2).

During the day six moose were seen in this area. Two of them were encountered swimming in Rock Harbor between Caribou Island and Isle Royale proper (Figure 3). One was a cow and the other a yearling calf, both were still quite gray in color, but from all appearances they were in good physical condition. Four more moose were seen in an aspen type along the trail. One was a yearling judging by size but the rest were not seen well enough to determine much about them.

Mt. Ojibway Trail

native of soil ??

The portion of the trail covered by our survey included the section between the Daisy Farm and Mt. Ojibway and from Mt. Ojibway to the McCargoe Cove Trail, a distance of about three miles. Like the McCargoe Cove area the browse was rather sparse and much of it was of a dwarfed nature, especially along "Greenstone Ridge". Many browse plants were dead and this apparently is the result of heavy browsing by moose. A total of 21 browse plots were taken at ten chain intervals and one chain to the right or left of the trail to avoid excessive browsing found on the trail proper.

Aspen and juneberry were found in a little less than half of the plots but they were still quite scarce. Browsing on both species was much more severe than it was when the survey was made two years ago. In a number of instances young aspen were found dead which apparently is the result of overbrowsing.

Balsam fir, willow and red osier dogwood did not have as good distribution as aspen but in most instances it received heavy utilization.

Mt. ash, fire cherry and mountain maple had quite poor distribution and received only light browsing. Hazel also had light utilization but a much wider distribution than the other species.

Other rather unimportant species found included red maple, honeysuckle and black ash.

No moose were seen in the area and there was not much recent sign.

Mt. Franklin Area

This area lies about three miles east of Mt. Ojibway and includes the territory between the Old Saginaw Mine on Rock Harbor and Mt. Franklin and the section just west of Tobins Harbor.

No moose were seen when the observations were made but browsing adjacent

to Rock Harbor and the west end of Tobina Harbor was quite heavy. With the exception of these two sections, the available browse on the upland was quite sparse, especially in the area surrounding Mt. Franklin.

Aspen was moderately browsed in most instances but it was by no means abundant. In addition, 14 down aspen trees were counted that had been barked by moose (Figure 4). Normally, aspen bark is chewed off the trunk and teeth marks remain, but in this area some down trees had been stripped so that very few teeth marks were in evidence.

Balsam was severely browsed whenever it was found and in the area adjacent to Rock Harbor it was more common than elsewhere.

Paper birch, mountain ash, highbush cranberry and red osier dogwood had only fair distribution and received moderate browsing.

Susac and willow had sparse distribution but both were usually heavily browsed. On the other hand, juneberry had good distribution and was utilized moderately while mountain alder was quite scarce and browsed lightly.

Rock Harbor Trail

Two and one quarter miles of trail adjacent to Rock Harbor were included in this survey which extended from the old Saginaw Mine to the Daisy Farm. Eighteen sample browse plots were taken at ten chain intervals and one chain to the right of the trail to get more representative sampling.

No moose were seen the day the survey was made, but there was plenty of evidence that they had been in the area during the past winter.

Aspen was found in about one third of the browse plots and was only moderately browsed in most instances.

Mt. ash and red osier dogwood were distributed in at least half the plots and both received moderate browsing.

Although willow was quite scarce it was heavily browsed in most instances. On the other hand balsam had good distribution and received heavy browsing as well (Figure 5).

Ground hemlock, mountain maple, juneberry and balsam poplar had either poor or fair distribution and were browsed moderately. Mountain alder and highbush cranberry had similar distribution and were only lightly browsed.

Although white cedar is usually not utilized, except during the population peak, one small tree was found which was broken off--much like moose do with aspen and balsam fir.

Lake Richie Trail

The inspection of browse along this trail was made by Superintendent Chevlin and District Ranger Nummerger in addition to the regular survey party. It is about two miles long and connects up the west end of Rock Harbor and Lake Richie.

In this section of the island, the moose feeds are more dense than elsewhere, especially the Mt. Ojibway and McCargoe Cove trails.

Two moose were observed, one was a cow and the other a yearling calf; both appeared to be in good physical condition.

Aspen and balsam fir made up the two principal browse species and both received heavy utilization. Eight down aspen were found barked. One balsam eight inches tall was cut down and found to be about 20 years old.

Paper birch, mountain ash, red osier dogwood, juneberry and willow had poor distribution, but in most instances they were hit hard during the past winter. The fact that the trail practically borders on the 1936 burn may account for the heavy utilization by moose.

Siskiwit Lake

The original plan was to cover the 1936 burn area along the north shore of this lake with a boat located on the south shore at Siskiwit Falls. However, plans had to be changed when it was determined that the boat was no longer serviceable. In its place the area about one mile west of the west end of Siskiwit Lake was covered on foot. Enroute to the burn from the shore of Lake Superior, the area around Mud Lake was examined first. Here particularly heavy browsing on aspen, mountain ash, paper birch and red osier dogwood was noted. Some of the aspen stems up to one half inch in diameter were found browsed.

About a half a mile north of Mud Lake we reached the edge of the 1936 burn. Here again some of the more important browse plants, especially aspen, paper birch and willow received heavy utilization. Much of the burn in this area has browse about five or six feet tall but there are also places where it is starting to grow out of reach (Figure 7).

We saw one moose about one fourth of a mile north of the edge of the burn. It appeared to be a yearling calf. Later on we observed another yearling feeding along the edge of the burn. It browsed on birch and also grazed on the ground where it fed on dandelion, grass and other vegetation.

North Shore Siskiwit Bay

This area, which extended from Crow Point to Mr. John Skadberg's home on the north side of Hay Bay (5 miles), was covered by Dr. Hesley and the writer. Arrangements were made to move our outfit from Crow Point (Figure 6) to Camp Siskiwit with his boat. Observations on the browse were made incidental to the trip.

No moose were seen and browsing and dropping signs were not very prevalent

for such a large area. For the most part the browse was rather sparse. Some heavy browsing was noted on aspen, birch, balsam fir, willow and highbush cranberry. A small amount of mountain maple and mountain alder were found and in most instances they had received moderate browsing. A few small sprigs of ground hemlock were noted but they were not browsed.

Wright Island

Wright Island, which is made up of two small islands separated by a narrow channel, is located near Crow Point about a half a mile from the main island. It is of particular interest because it still supports a growth of ground hemlock and moose have occupied it during the past few winters. At present it shows quite a contrast with browsing conditions on Isle Royale proper.

Ground hemlock is still pretty well distributed over most of the two islands, but it has been browsed so heavily during the past few years that many plants are starting to die. On the shore facing the main lake it was found to be particularly severe. The tallest ground hemlock is still found close to the residence of Ed. Holte.

Balsam fir has been hit just as hard as ground hemlock and in some areas the trees were starting to die. Two years ago there were a number of young balsam that had been browsed very little, but now most of them have received heavy utilization.

Mt. ash was still being browsed and barked as severely as it was when the 1945 browse survey was made.

Paper birch and red osier dogwood were also hit hard although they do not have very good distribution.

In conclusion it can be stated that this island is an excellent example of an area where the moose have exceeded the carrying capacity which is bad

for the moose and the vegetation as well.

Two moose were seen on the island, a cow and a yearling calf. The writer had an excellent opportunity to observe both animals at close range and from all appearances they were in good physical condition.

Hay Point

This point, which extends out into Biskiwit Bay, is about a mile long and less than an eighth of a mile wide. It is a winter yearling area for moose and at the present time is being browsed more severely than any other place on Isle Royale. The airplane count in February showed a total of seven animals but there could easily have been more since the point has patches of balsam which make counting difficult.

Aspen was not as abundant as balsam but in practically every instance it was heavily utilized. Two years ago no standing trees were barked but now approximately one fourth of them (2" to 4" in diameter) near the Sivert Anderson home had been barked during the past winter.

Paper birch had better distribution than aspen and it was also hit hard in most instances.

Balsam makes up the bulk of the browse on the point and has been hit the hardest of any of the browse plants. Two years ago it was badly overbrowsed, but now it has gone far past that stage. About one fourth of the young balsam have been broken off by moose from five to eight feet from the ground (Figures 8 and 9). The broken tops and the bottom sections are so severely browsed that it is questionable if the trees will be able to survive until fall. Some may live through the summer, but when winter browsing is resumed they will be stripped of the remaining small amount of browse. One stand of balsam was located near the tip of Hay Point where at least half of the trees were dead because of browsing. In a few instances balsam were found that were even barked.

Red osier dogwood was about as common as birch and it was severely utilized; much more than it was two years ago.

Ground hemlock was not very common two years ago, but now it is rather rare since only a few patches and sprigs were noted.

No moose were seen when the point was visited, although one was seen about two miles west of May Point along the north shore of Siskiwit Bay.

North of May Bay

Approximately one and one half miles of trail were covered in this area which extends from Mr. Skadbergs home on the north side of May Bay to the 1936 burn. No moose were seen but there was quite a bit of sign indicating fairly recent moose usage.

Aspen, although not very common, had heavy utilization everywhere. The same was true for paper birch but it was more abundant than aspen. Willow was in about the same category as paper birch.

Red osier dogwood was quite abundant and heavily browsed while hazel was very common and moderately browsed. Hazel was utilized more here than in any other area on the island.

In the 1936 burn browsing appeared to be about as heavy as it was in other parts of the burn that were visited.

Feldtman Tower Road

This road which is approximately four miles long, connects Siskiwit Camp with the Feldtman Lookout Tower which is located on Turkey Ridge. A spur road about half a mile long which leads to Halloran Lake was also inspected. The entire road passes through the 1936 burn which is an extremely important area for moose. Tracks, droppings, and browsing were in abundance everywhere which indicates that the area has had continued heavy moose usage. Three bulls were

seen along the road. One was near the tower, another was seen about a mile from the tower and still another was observed near the spur road leading to Halloran Lake.

Aspen was heavily browsed and in addition several small standing trees were barked.

Paper birch, which forms the bulk of the browse in the burn and has good regenerative powers, was browsed more severely than it was two years ago.

Although balsam fir is rather rare in the area, a few small trees about eighteen inches tall were found that were almost dead because of over-browsing.

Willow and mountain ash were fairly common and were usually browsed heavily.

Red osier dogwood and juneberry received moderate browsing but had only fair distribution. Fire cherry had about the same distribution and received only light browsing.

Siskiwit Bay to Lake Desor

The trail which connects Siskiwit Bay and Lake Desor is about eight miles long. The browse along it was inspected by Dr. Hosley and the writer while Mr. Cole made additional observations on the moose in the burn along the Feldtman Tower Road. Since the trail passes through two major forest cover types, the notes on the observations made were kept separate for the two areas. The first area, which is an aspen-birch type, extends from Siskiwit Bay to the Island Mine a distance of about two miles. The second area is a sugar maple type and extends all the way from the mine to Lake Desor and the edge of the 1936 burn, a distance of about six miles.

Siskiwit Bay to Island Mine: The browse in the area was quite sparse although utilization was quite severe on most browse plants.

Young aspen was not as abundant as one might expect in this cover type, but in most instances it received heavy browsing. In addition a total of 21 down trees were counted that had been partially barked during the past winter. One standing aspen about eight inches in diameter had been barked since the 1945 survey. Paper birch was also utilized about the same as aspen.

Balsam fir, juneberry, mountain ash and red osier dogwood received moderate browsing in most instances.

Hazel, fire cherry and sugar maple were rather sparse and usually received light browsing. Although willow was also rather scarce, it usually was browsed quite severely.

A few white pines were found along the trail and in some instances the moose browsed them heavily (Figure 10).

Five moose were seen along this section of the trail. Two of the bulls were seen feeding near the Island Mine. After watching them with the field glasses for about twenty minutes, we followed their feeding trail. The writer counted twelve hard maple stems and two round leaf dogwood stems that they had browsed (Figure 11). A glimpse of a third moose near the Island Mine was had but in this case sex could not be determined. On our return trip we saw two more bulls about one mile from Ziskiwit Bay. One was quite large and the other was medium size.

Island Mine to Lake Desor: Practically all of this area lies within the sugar maple type. Even under the dense shade of this mature maple forest, young reproduction is abundant but it is not as tall as most browse species elsewhere (Figure 12). It is an important area for moose although it apparently is used more in the spring, summer and fall than during the winter months.

Sugar maple makes up more than ninety percent of the browse but in most instances it received only light browsing. Yellow birch, balsam fir and mountain ash were scattered through the type and for the most part received moderate browsing.

Five moose were encountered in the area although only four were seen since one was heard crashing through the brush just ahead of us on the trail. Two bulls were seen near the junction of the Windigo and Lake Desor Trails. One appeared to be about a two year old and was partially shed while the older bull was already shed and looked much better in its dark brown coat. Both appeared to be in good physical condition.

Approximately two miles west of Lake Desore we encountered two more moose-- one was a cow and the other a bull. The cow had about two thirds of its past winter gray coat shed while the bull had most of its new dark brown hair. Of the two, the cow did not appear to be in as good physical condition as the bull. After watching the cow feed for about a half an hour, one hundred seventy seven hard maple stems, two mountain maple stems and two bellwort were counted that were browsed.

Conclusions

After reading over the observations made on the condition of the browse in the thirteen areas that were visited, it is clear that the browse utilization picture has grown steadily worse since the last browse survey was made in May of 1945. Aspen, paper birch, balsam fir, mountain ash, willow and red osier dogwood are still receiving most of the browsing pressure and for the most part are being utilized far in excess of their regenerative ability. In the Hay Point winter yarding area, standing aspen have been barked for the first time while the balsam fir has been practically destroyed beyond recovery. Elsewhere on the island

balsam fir and aspen are also dying as a result of overbrowsing.

To the writer these are important signs since they indicate that the population has far exceeded the carrying capacity of the island and that the moose herd is approaching another peak at a rapid rate. Although it is admitted that the 36 moose that were seen appeared to be in good physical condition, a severe winter will change this picture and severe losses are bound to occur.

Laurits W. Krefting
Laurits W. Krefting,
Regional Biologist.



Fig. 1 Luxuriant growth of ground hemlock on Passage Island without moose pressure.



Fig. 2 White cedar on McGargoe Cove Trail. Illustrates how cedar was browsed during the last peak population and how the browse is starting to grow back.



Fig. 3 Moose swimming in Rock Harbor.



Fig. 4 Aspen barking by moose.



Fig. 5 Heavy browsing on balsam fir
on Rock Harbor trail.

Fig. 6 Camp at Crow Point.
Hosley, Cole and Krefling with
moose antlers found in nearby
woods.





Fig. 7 1936 burn near Siskiwit Lake.



Fig. 8 Heavy browsing on balsam fir on Hay Point.



Fig. 9 Showing unusually heavy destruction of balsam fir on Hay Point.



Fig. 10 Heavy browsing on white pine
near Island Mine.



Fig. 11 Moose feeding in
the vicinity of the Island
Mine.



Fig. 12 Sugar maple type on
trail to Lake Desor.