

Minutes of the Great Lakes Deer Group Meeting

Isle Royale National Park

August 31 - September 2, 1965

The information is for members of the Great Lakes Deer Group and is not for publication or release. Errors and omissions are the fault of the secretary.

October 1, 1965

L.W. Krefting  
General Chairman

Minutes of Great Lakes Deer Group Meeting

Isle Royale National Park

August 31 - Sept. 2, 1965

Monday, August 31.

Afternoon session (2:00 to 4:00 P.M.)

1. The meeting was opened by L. W. Krefting, the general chairman for the gathering at Isle Royale National Park. Inclement flying weather prohibited Superintendent Johnson and Chief Naturalist Dumfire from attending the opening session. Instead, the welcome was given by District Ranger John Abrams.
2. The first informal discussion on the Vegetation of Isle Royale was headed by H. L. Hansen, School of Forestry, University of Minnesota. He showed the group a large scale colored map (2" = 1 mile) with the various forest cover type. The preparation of this map has been a cooperative project between the Bureau of Sport Fisheries & Wildlife and the School of Forestry. It was made from aerial photographs and checked in the field for accuracy. All types were based on plant succession as they related to the two climax forests - sugar maple-yellow birch and spruce-fir-birch. Hansen explained that the vegetation has been influenced by a history of forest fires. Many were set by prospectors as well as by lightning. The 210 square mile archipelago is covered by the swamp type (9.3%), sugar maple - yellow birch climax forest (7.4%), 1936 burn (20.9%), aspen - birch-conifer type (25.0%), and the spruce-fir climax type (16.3%). The rest of the island is covered by lakes (6.3%), rock outcrop openings, and a number of smaller types (jack pine etc.). Reference was made to the research effort of previous investigators including Charles C. Adams (1904-1906), William S. Cooper on the Climax Forests of Isle Royale (about 1910), the work of Potzger on the post Algonquin and post Nipissing forest history (1954), and more recently the research of Robert Linn on the spruce-fir and maple-birch transition in Isle Royale National Park.

Hansen and Krefting feel the browse supply in the 1936 burn is growing out of reach of moose and there will be a food problem in this area before too long. Future research will be centered on the importance of the biomass as it relates to dynamics of wildlife populations. The research effort on the vegetation of Isle Royale and other islands in Lake Superior as it relates to wildlife production will be a joint effort by the University of Minnesota and the U. S. Bureau of Sport Fisheries and Wildlife.

3. The second discussion was led by L.W. Krefting, U. S. Bureau of Sport Fisheries and Wildlife on Moose Range Relationships (1944-1965). He showed a number of colored slides that dealt with past browsing, forest cover types, general scenery, moose exclosures and the past die-offs of the moose, beaver and coyote. Also, a lengthy discussion centered on past and current relationships. Black and white graphs were shown as a basis for the discussion. Also, black and white enlargements of moose licks and browsing taken by Ilo Bartlett in the 1930's were passed around. Krefting made reference to previous investigators such as Charles C. Adams, Adolph Murie, and Paul Hickie. Also, he pointed out that the Fish and Wildlife Service was requested to make a study of the moose and beaver by former Superintendent Baggley and the Washington Office of the National Park Service. The Isle Royale staff has given excellent cooperation during the span of 21 years.

In summary Krefting pointed out that the Isle Royale moose herd suffered a drastic reduction from an estimated several thousand (Murie) in the late 20's and early 30's to a low of about 200 in 1936 due to a depleted food supply. That year about one-fourth of the island burned and created an abundant supply of browse several years later. Without effective predators, the herd increased to an estimated 500 animals in 1945 (aerial count), 600 in 1947 (aerial count), and to about 800 in 1948. The moose irruption was stopped when a second die-off took place and the herd was reduced to an estimated 500 animals in 1950. The die-off took place during two winters and dead moose of all ages were found in all parts of the island. That year (1950) there was positive evidence that the timber wolf, an effective predator, had reached the island. The coyote had been numerous but was on the decline and became extinct about 1958. In spite of the wolf depredations, the population was estimated at 600 in 1960 but it could be as high as 800 in 1965. The data gathered on numerous range surveys, pellet counts, and exclosures indicate significant plant ecological changes have taken place that have a direct bearing on the future of the herd. The findings varied widely for the transects located in different parts of the island. On some of the transects the browsing was excessive but this was not true all over. Recovery of woody vegetation within the exclosures has been remarkable, especially for yew, mt. ash, aspen, and paper birch. The amount of available browse decreased since 1945 in four study areas. In 1965 there was a slight increase since 1961 in the McCargoe Cove area, about the same in the Houghton Ridge area, a slight reduction in the Huginnin Cove area and about the same in the 1936 burn area. The most drastic reduction in the browse supply since 1945 has taken place in the 1936 burn area. Much of the browse, previously furnished by aspen and birch, has grown out of reach of moose. Also, the average degree of browsing on these two species has shown a steady decrease since 1945. Krefting concluded that the 1965 data have not been subjected to analysis and his statements must be regarded as tentative. He plans to

publish his long term study on the range, possibly in 1966. After that the research effort will center on biomass studies with the University of Minnesota.

Evening session (8:00 to 10:00 P.M.).

This session was centered on a slide talk by Phil Goodrum, research biologist for the U. S. Bureau of Sport Fisheries and Wildlife, Nacogdoches, Texas. He was the out of region guest speaker and featured "Deer in the South." Phil has worked on deer browse studies in the south for fourteen years in Texas, Louisiana, and the Southern Appalachians. He reported east Texas is just beginning to have a problem with excessive populations of deer. At Eggin A.F.B. the rut is in January but in most areas of the south it is in November. Phil thinks this is due to overcrowding and hunting with dogs. Unlike the north, the critical period for wildlife in the south is in summer. He felt the deer had a loss in weight because of heat stress. In winter there is practically no mortality. An average adult deer will average 100-125 pounds. Restocking of deer is underway, especially in east Texas. Some of the more important browse species in the south are: smilax, summer grape, yopon, ti-ti, and red bay. Cattle compete with the deer for food. Unlike some parts of the north, the deer are not a problem for pine regeneration. Goodrum felt that some of each species of plants should be conserved on National Forests in the South. He does not agree with the policy of even-aged management and feels that strips of hardwoods should be left with pine reproduction. Also, he favored the idea of setting aside 25 percent of National Forest land for wildlife and recreation purposes. The oaks should not be eliminated on public and private lands in favor of pine. Mr. Goodrum has had wide experience in this subject. He will receive the 1965 American Motors Award for his contribution to wildlife in the south.

Tuesday, September 1.

Field trip to Huginnin Cove (9:00 A.M. - 3:00 P.M.)

Krefting headed up the discussion on the field trip and was assisted by Hansen. The first stop was at the moose enclosure near Windigo along the trail to Huginnin Cove. Krefting explained the enclosure was established in October 1943. Both the enclosure and control plot had about the same vegetation. The highly preferred moose browse plants are juneberry, mt. ash, paper birch, balsam fir, aspen and ground hemlock (yew). Several years ago beaver forced entrance to the enclosure and cut down

almost all of the aspen and mt. ash and some of the paper birch. The colored slides, taken several years apart, demonstrated striking differences between the control and exclosure. The number of stems of the highly preferred browse species was about the same in 1965 (80-89) but on a feet of height growth basis the exclosure much more (206 vs 418). When all species of woody plants are considered, the exclosure had about 1.5 times more stems and about twice more feet of height growth.

Along the trail to Huginnin Cove stops were made at the Windigo Mine Site and several other places to discuss browsing. Hansen pointed out that old aspen stands end up with small holes in the canopy and permit root suckers to become established. If the moose population is held in check the young trees will gradually grow out of reach of the moose.

Evening session (8:00 to 10:00 P.M.)

1. Panel discussion on 1964 hunting seasons - Vern Gunvalson, Chairman

\* Report by States: (Each state passed out summaries of their kill data).

Michigan - Bartlett

The 1964 kill was 143,000 and amounted to 38 deer per square mile in southern Michigan. The carrying capacity for the state is about 600,000 deer. He noted Michigan now has an army of 500,000 hunters. Also, about 500,000 fawns are born and about 200,000 deer are available for hunting in the fall. About 20-60 thousand deer are wasted each year. A total of 228,000 antlerless permits are available. The 1965 kill was estimated at 150,000 deer. The Upper Peninsula has about 110,000 hunters and the Lower Peninsula about 450,000 hunters.

Ontario - Dawson

He reported the Ft. Francis Area in western Ontario had the best hunting in the Province of Ontario and that hunting was improving in the Lake Nipigon area. The annual kill ranges from 20 to 30 thousand animals each year. The population ranges from 5 to 6 deer per square mile to as high as 10 deer. Success ranges from 25 to 30 percent. Last year Ontario checked 7,000 deer and aged 6,000. Dawson noted the deer range is shrinking and the spruce budworm devastations have helped in maintaining range for both deer and moose. The best deer distribution and abundance in the province was in 1944.

Ontario sold 41,000 moose licenses in 1964 and the kill was 11,000 animals (30% success). The best moose range is in western Ontario.

#### Wisconsin - Hartman

The 1964 deer kill in Wisconsin was 100,000 (93,400 guns, 3,100 bow and arrow, and 8,000 other deer). A total of 75 to 80 thousand can be harvested each year. The 1955 kill has been estimated at 115,000. The pre-season population is about 700,000 animals and the loss amounts to 50,000 animals. About half of the deer are taken south of State Highway 29. About 383,000 hunting licenses are sold and about 350-360 thousand hunt deer during the nine day season.

#### Minnesota - Gunvalson

A total of 292,718 hunters bagged 123,005 deer, an all time record. The number of resident firearm hunters was 278,032 and they bagged 121,788 deer. Hunter success was 44%, the same as it was in 1963. Eighty three-percent of the kill was in Zone 1, the major deer range. Sex composition of the kill was 48% bucks, 31% does, and 21% fawns. A sample of 1100 hunters reported wounding 405 deer. Hunting conditions in general ranged from poor in the south to mediocre in the north. Fog persisted over extensive areas on the first day, especially in the south. It was warmer than normal and only traces of snow appeared towards the end of the season.

#### 2. Panel discussion on range measurements Bill Creed, Chairman.

Panel members - Forrest Stearns, Louis Verme, Blair Dawson, Don Thompson, and Vern Gunvalson.

Forrest Stearns discussed the browse production work he is doing on National Forests in Wisconsin. This is a cooperative project between the Lake States Forest Experiment Station and the Wisconsin Conservation Dept. He reported information had been obtained on about 30 stands. Annual growth production ranges from one tenth to 350 pounds per acre. The average stand produces about 20 pounds per acre. Louis Verme stated Michigan is not evaluating deer range in a quantitative sense. Some winter reconnaissance is done using the "eye-ball" method.

Blair Dawson noted Ontario is using the method developed by Passmore and Hepburn. Ontario feels the method fits their needs.

Don Thompson reported on a technique used on management units in Wisconsin. Eight hundred mil-acre plots are taken on each unit-year survey. Information is gathered on stems per acre, percent by preference, and current browse for hardwoods and conifers. Preference rating classes are: 1(1-33% of twigs browsed); 2(34-66%); and 3(67-100% of twigs browsed).

Vern Gunvalson of Minnesota reported no range surveys were being made in Minnesota. However, Krefling noted, in past years intensive surveys have been made on special areas using the Aldous method. The technique was used to appraise the range on the Tamarac and Mud Lake Refuge, Itasca State Park, St. Croix State Park, and deer yarding areas on the Superior National Forest. Also, the U. S. Bureau of Sport Fisheries and Wildlife is terminating a special study on browse production on the Tamarac Refuge. Information on pounds of browse has been gathered in four cover types: aspen, jack pine, oak, and upland brush. On plots sprayed with 2,4-D in 1958, the fresh weight of browse (annual growth) ranges from 60 pounds per acre in the jack pine type to 226 pounds in the aspen type. On nearby control plots in each cover type, production ranges from 50 pounds in the jack pine type to 134 pounds in the aspen type.

Vern Gunvalson discussed objectives and philosophies of range measurements. He felt the data is needed when we first go into management and questioned whether the information is needed later. The information we can get from range measurement is average range condition, and areas of high and low density. He felt the information can be used for public relations or education. Other questions raised were: how specific are our answers for a given time and area; what are the objectives of range analysis; what are the recreational programs; and what effect do forestry practices have on browse production. Someone suggested we should devise new techniques of measuring range and in getting the information we should talk to the deer, not about them. Other suggestions were to study the deer themselves, make an analysis of the pellets, or study the fatty acids. Another comment was that we should collect range data now and at periodic intervals in order to measure long term change. One of the big problems is in the interpretation of range data.

The group felt that a committee should be formed to look into the possibility of writing up the techniques now used. The final decision was to be made at the business meeting.

Wednesday, September 1.

Morning session

The morning was open to do what everyone liked: informal discussions, picture taking, or hiking.

Afternoon session (2:00 to 4:00 P.M.)

1. Moose population dynamics and predator-prey studies at Isle Royale - Pete Jordan.

Pete noted some fundamental changes have taken place since the wolf pack arrived. He commented that many moose are not vulnerable in winter. The condition of the animal was cited as the controlling factor. He felt that the moose produce more young now than before the wolf pack arrived. The rate of twinning was lower. It is 50% now (129 calves per 100 cows). Yearlings can be bred one year. Calves following cows is good for getting data on twinning rate. He felt that this herd was one of the most productive in North America. There is much variation in reproduction success in different years. So far 326 moose have been taken by wolves. Now the average age of a kill is lower. The wolf pack had an increase of 4 pups in 1965. The total number of wolves for the island is 28. The 1965 moose population estimate was 848 (573-1123).

2. Panel discussion on snow and weather stations - Blair Dawson, Chairman.

Panel members - Louis Verme, Milton Stenlund, and Lester Magnus.

Stenlund reported 18 inches of snow for 12 weeks or more will result in deer mortality. Snow that falls in late winter has a more adverse effect than it does for a similar amount earlier. According to his index losses were as follows: 1949-50, heavy loss; 1950-51, lowest temperature and heavy loss; 1955-56, heavy loss; 1956-57, isolated losses; and 1964-65, fawn losses. Deer start to concentrate at 12 inch snow depth and fawns have trouble moving at 18 inches. Verme has a winter severity index which contains snow depth with heat loss. Heat loss plus snow equals chill factor. Depth of snow is not so important. If it is powdery, the deer can move. A general comment was that heat loss or chill factor was very important for winter survival. Verme also demonstrated a pan and electrical devise used to gather information on heat loss at various locations in winter.

Evening session - free time.

Thursday, September 2.

Morning session (8:00 A.M. - 12:00 Noon).

1. Panel discussion on management demonstration areas - Herman Olson, Chairman.

Panel members - Ilo Bartlett, George Hartman, Milton Stenlund, and Blair Dawson.



There was a great deal of interest in this topic although nothing definite was settled. In Michigan there are several large areas that can be used, particularly in Lower Michigan. Wisconsin also has several management unit areas that have possibilities. Hartman felt the unit near Black River Falls would be good. Ontario felt an area was needed and would like to establish one where habitat improvement practices would be used.

In the publication, "Research for Deer Management in the Great Lakes Region," management demonstration areas was listed as one of 16 priority research needs. On page 72 and 73 of the publication this topic is discussed in some detail. Small areas have been used for this purpose in the past, but the public and some technicians, are nearly always skeptical that the same results would not be obtained when applied to regular, large segments of deer hunting territory. What is needed is an area sufficiently large (300-500 square miles). It should be located to include various range factors and conditions to constitute a typical segment of deer range and deer hunting territory. It would be a practical deer area and range management area which could and would stand on its own general management and production record but which, if necessary, could be backed by the full complement of research data.

2. Business meeting, L.W. Krefting - General Chairman.

Superintendent Johnson said he felt we had a very productive meeting. He noted ours was a working type of group that had direction. He welcomed our group back to Isle Royale National Park anytime we wished to come. Krefting also thanked him and his staff for co-hosting the meeting.

Krefting asked the group how well our publication on deer research needs was being received in the states. Everyone felt that it was well received and doing much good. Also, there was some discussion about range techniques and the need for reviewing and evaluating those now in use. Forrest Stearns was voted in as chairman of a committee to be picked by him to do the job. If the information is published, it will be a contribution from the Great Lakes Deer Group and not a publication by any single agency.

1965 attendance - 33.

The group also expressed thanks to Krefting for lining up the meeting. Phil Goodrum thanked the group for asking him to participate and invited members to come to Texas. The 1966 meeting will be held somewhere in Michigan.

October 1, 1965

L.W. Krefting, General Chairman  
Great Lakes Deer Group Meeting  
at Isle Royale National Park

Registration - 1965 Deer Group MeetingMichigan

Ilo Bartlett	Dept. of Conservation	Lansing, Mich.
Leland Queal	" "	" "
L.A. Davenport	" "	" "
Louis Verme	" "	Shingleton, Mich.
John Byelich	" "	Mio, Mich.

Minnesota

B.A. Fashingbauer	St. Paul Science Museum	St. Paul, Minn.
D.B. Vesall	Minn. Div. of Game & Fish	" "
Vern Guhvalson	" "	Bemidji, Minn.
Milt Stenlund	" "	Grand Rapids, Minn.
Pat Karns	" "	Ely, Minn.

Ontario

Blair Dawson	Dept. of Lands & Forests	Maple, Ontario
William Charlton	" "	Kenora, Ontario
Tim Timmermann	" "	Port Arthur, Ontario

Wisconsin

B.L. Dahlberg	Wis. Conser. Dept.	Spoooner, Wis.
George Hartman	" "	Madison, Wis.
William Creed	" "	Rhineland, Wis.
Don Thompson	" "	Madison, Wis.
Keith McCaffery	" "	Rhineland, Wis.

U. S. Forest Service

Herman Olson	U. S. Forest Service	Milwaukee, Wis.
Forrest Stearns	" "	Rhineland, Wis.
Lester Magnus	" "	Duluth, Minn.

National Park Service

C. Johnson	Isle Royale National Park	Houghton, Mich.
William Dunmire	" "	" "
John Abrams	" "	" "
Merle Stitt	National Park Service	Wash. D.C.

University of Minnesota

H.L. Hansen	St. Paul Campus	St. Paul, Minn.
-------------	-----------------	-----------------

Purdue University

Pete Jordan      Dept. of Forestry & Conservation      Lafayette, Ind.

U. S. Bureau of Sport Fisheries and Wildlife

Wm. Aultfather	Regional Office	Minneapolis, Minn.
R.J. Fischer	" "	" "
John Winship	" "	" "
Roger Swanson	St. Paul Campus	St. Paul, Minn.
Phil Goodrum	Stephen Austin College	Nacogdoches, Texas
L.W. Krefting	St. Paul Campus	St. Paul, Minn.