

12

Minutes of the Great Lakes Deer Group  
Clam Lake, Wisconsin  
September 26-28, 1978

NOTES ON THE 1977 DEER SEASON AND PROSPECTS FOR 1978

Michigan - Larry Ryel and Joe Vogt

We had three types of deer seasons. The first, a split bow and arrow season where deer of either sex and any age were legal, ran from October 1 to November 14 statewide and again from December 1 to 31 in the Lower Peninsula and December 1 to 15 in the Upper Peninsula. The second was the traditional firearm hunting season for adult male deer with 3-inch or longer antlers. Seventy-six areas were also open to the taking of limited numbers of antlerless deer by those holding hunter's choice permits. The season dates were November 15-30 in the northern two-thirds of the state and November 15-21 in the southern Lower Peninsula. Finally, there was a season for hunters using muzzle-loading rifles from December 2 to 11 statewide. Hunters were restricted to using muzzle-loading rifles or shotguns, .44 caliber or larger, using a round ball and propelled by black powder. Only antlered bucks were legal.

Bowhunting continued its spectacular growth in 1977. For the first time, hunters could legally kill two deer, one with bow and arrow and one with a firearm. We not only surpassed Wisconsin, but for the first time archers killed more deer than automobiles did. Both the number of hunters (176,760) and the deer harvest (21,190) were all-time records. In Michigan, only archers can hunt deer from trees and the effect of this new law (1975), coupled with the greatly increased use of compound bows, has undoubtedly affected hunter success.

We issued 739,337 licenses which would allow a hunter to hunt deer with a gun. Of these, the second highest number of firearm deer hunters ever (693,380) actually hunted and bagged the third highest number of deer (136,260). Only the 1952 and 1964 seasons exceeded the take in 1977. In spite of fewer hunters, the buck harvest in the Upper Peninsula (16,140) was up about 3 percent from 1976, while the southern Lower Peninsula increased 13 percent to 19,560. The big news was in the northern Lower Peninsula where a record number of hunters killed a record number of bucks (71,080), a 23 percent jump from the previous year.

By way of comparison, the entire United States army, worldwide, has about 790,000 persons in uniform. With our "army" of 700,000 firearm deer hunters in the woods, we only had seven fatal deer hunting accidents in 1977 during four million hunter-days.

Some 3,400 hunter's choice permit holders harvested 1,180 antlerless deer in two Upper Peninsula areas, the first taken here since 1973. In the northern Lower Peninsula, 60,680 permittees took 22,000 antlerless deer in 46 areas, the largest take since 1969. In the southern Lower Peninsula, 37,980 hunters in 27 areas took 6,300 antlerless deer, a 16 percent drop from 1976. In the muzzle-loader season, 13,930 hunters took 570 antlered bucks.

Given favorable weather this fall, Michigan's deer hunters should enjoy another excellent season. But, the severity of last winter cancels the opportunity to duplicate the record 1977 season. Poor physical condition this spring has resulted in depressed fawn production and survival through much of northern Michigan. The year-and-a-half old animals, so important in the buck harvest, will be noticeably fewer than in 1977. Antler development is expected to be reduced as well, resulting in an increased number of "spikehorn" bucks.

Despite heavy overwinter losses in Michigan's north country, (53,000 in Region II), the deer herd continues at a fairly high level through much of the range. Deer crop damage complaints which have doubled each of the last two years, doubled again the first half of 1978. Car-deer collisions through May 1978 were only slightly below those of a year ago when a record 16,000+ deer were killed by cars. We may still have one million deer by October 1, 1978.

The somewhat reduced herd will be harvested more heavily in selected management units to remedy crop damages, highway accidents, and winter food shortages. An increased antlerless harvest (40,000) combined with a continued high-level take by archers should partly compensate for a reduced buck kill, thus producing a kill of well over 100,000 deer in 1978.

#### Minnesota - LeRoy Rutske

Our deer hunting regulations have gone through many changes in the past seven years. Each change has brought us a bit closer to what appears to be the best possible regulation system for the Minnesota situation.

There are several reasons for the slow and somewhat tortuous process that has brought us to this point. The Minnesota DNR has, within its ranks, a strong commitment to either-sex deer hunting. We also have a situation in which we cannot impose severe restrictions on the deer season for any large area of the northern range without shifting too much hunting pressure to the agricultural areas. Furthermore, while dealing with attempts to regulate a greatly reduced deer population toward higher levels, we perceived a public mandate to keep the regulations and licensing procedure as simple as possible or lose our deer hunt regulation authority to the legislature.

Our first attempt to increase the Minnesota deer population while preserving either-sex hunting was a system to spread deer hunter pressure over a longer period of time and thereby reduce total kill. This system had to be replaced because of continued severe winters, hunter preference for early November hunting, land-owner opposition to the long open period, and alleged high hunter non-compliance with provisions of the system.

The second phase of our effort involved a gradual movement toward statewide control of antlerless deer harvests through a combination buck-only and antlerless permit system. We are currently measuring the success of our deer seasons not so much on the size of our deer harvest as on public acceptance of the new form of regulating the harvest.

The Minnesota registered deer harvest in 1977 was 45,916 deer for 288,616 licensed gun hunters. This is an overall success of 16 percent. A total of 29,326 licensed bow hunters took a registered 2,600 deer for 9 percent success. Approximately 1,000 special-hunt muzzleloaders registered 32 deer. Roadkills totalled 5-6,000 deer.

The success of deer hunters during the 1978 season should be higher than last year. We have expanded the area of the state covered by antlerless permits and have 60,000 permits available this year compared to 35,000 last year. Last year only 11,404 permits were actually issued. In 1978 we have received 127,000 applications and will be issuing 55,000 permits.

### Ontario - Murray Smith

Deer license sales increased from 99,555 in 1976 to 106,007 in 1977. The results of the 1977 mail survey of deer hunters are not available yet, but we believe that the 1977 harvest was similar to the 1976 harvest of about 15,000 animals. About 40% of the harvested animals are antlered bucks and the remaining 60% are antlerless. About 50% of hunters use dogs. Deer densities range from 1-3 in the NW to 10-12 in the SW.

The winter of 1977-78 was one of the worst on record as measured by the Passmore-Hepburn Index. It was slightly less severe than the winter of 1970-71, but much more severe than 1958-59 and 1959-60 which resulted in massive die-offs. This past winter was unusual in that snow came early and stayed until the middle of April and there were no significant thaws. Snow depths of 24 to 30 inches were common in the Dryden-Kenora area, and most parts of Algonquin Region. The Parry Sound area which is usually affected by hard winters escaped with relatively little snow.

Some winter kill was reported from northwestern and south central Ontario. The hardest hit area was the Loring deer yard complex, just south of North Bay, where a spring dead deer survey documented a loss of 1,500 animals from the overwintering population of about 10,000 animals. Approximately 75% of the dead animals were fawns. Starvation and wolf predation each accounted for about 50% of the losses. Wolf predation continues to be a significant mortality factor in the northwest and Algonquin Region. Problems with dogs are increasing in eastern and southwestern Ontario.

The 1978 deer season is an either sex season, the same as past years. Season lengths are basically unchanged from 1977 with two month seasons in northwestern and north central Ontario, two week seasons in northeastern Ontario, one week seasons in the Algonquin and Eastern Regions and four day seasons on Manitoulin Island and the Bruce Peninsula area. Central and Southwestern Regions have a seven week archery-only season.

Two new things which we are trying in 1978 are a three day primitive weapons season in Elgin and Oxford counties and a landowner permission requirement on Manitoulin Island. In order for a deer hunter to hunt on Manitoulin Island, written permission of the landowner, on a form prescribed by the Ministry, must be attached to the deer license. If the properly completed form is not attached, the license is not valid. The primitive weapons seasons is an attempt to reestablish a gun season in an area where we have not had gun seasons for deer since the early 1960's.

We expect that the harvest in 1978 will be somewhat less than 15,000 animals and that hunter success, on a provincial basis, will remain in the 15 to 18% range.

### Wisconsin - Keith McCaffery

In 1977, we harvested the most deer tallied since registration began 26 years ago. We registered 131,910 gun kill (82,762 bucks). The basic season continued to be 9-day buck plus antlerless quota with some exceptions. Population goals (10-35 deer per mile<sup>2</sup> of range) have been established for all 95 numbered units based on carrying capacity and human tolerance. Antlerless quotas are prescribed for all units except any deer zones. Size of quota depends on herd status relative to the goal. Herd status is monitored by harvest trends, sex-age-kill population estimates, pellet group counts, production indices, winter severity index, and other methods.

Since 1972, the statewide herd has increased an average of 11% per year despite annual harvests exceeding 100,000. Buck kills in the northern forest doubled and total kill tripled. The northern herd increased 23% from 1976 to 1977 and the remainder of the state increased 10%. We are still underharvesting in most Districts and areas; so we anticipate continued herd increase this year.

We were miraculously spared of the 1976-77 winter. The 1978 fall herd is now estimated to over 850,000 deer with about half in the northern forest. We believe the current herd is at an all time record high. Our counted kill last year exceeded 163,000 when including car and bow kill. In 1977, 146,450 bow hunters tagged 16,790 deer. It was the first time they exceeded the reported road kill of 14,300. This is about 11½% archery success. The season runs for 83 days. All deer are legal. Hunting from trees is permitted.

Our Winter Severity Index (Kohn method) last winter was 66. All things being equal, we might expect a 10% increase in our northern buck kill. Statewide, our antlerless quota is up from 38,000 last year to 55,000 this year. We will be surprised if we shoot fewer than 150,000 this November.

Last year we aged 12,600 deer at 73 stations. Yearling percents indicated good production and recruitment to the yearling age class. Antler development was spectacular and may have contributed some to the high harvest. Even premolars were shed in greater proportions than previously observed. We anticipate good production.

#### Muzzle-loader Deer Hunt at Sandhill John Kubisiak

A controlled 3-day either-sex hunt was conducted November 12-14, 1977, to remove a harvest goal of 100 deer. Daily hunter quotas were set at 150, 12 hunters/square mile. Hunters were assigned to one of four marked hunting compartments to insure good distribution. Data collected from dead deer included sex, age, antler development, weights, hind-foot lengths, and time deer killed was killed. All hunters were interviewed to document hours hunted, deer seen, shots taken, and deer hit but unrecovered.

Hunters registered 195 deer including 57 adult bucks, 25 adult does, 15 buck fawns, and 8 doe fawns in three days. Dressed weights and antler development showed considerable improvement in 1977, in comparison with results reported from previous hunts when there were higher deer densities. Most hunters remained on the area throughout the day, averaging 8.2 hours afield per day out of a possible 10 hours. Hunters averaged 0.71 deer seen per hour and 5.8 deer seen per hunter-day. Eighty percent of the deer eventually bagged ran less than 50 yards after being shot, and 34 percent of the deer killed were hit in the chest, front shoulder, back, neck or head, suggesting most hunters were careful in selecting their targets, avoiding long shots, or attempting to bag running deer.

Hunters reported wounding 40 deer. However, many of these deer may have recovered from their injuries or were later bagged by other hunters. Only seven deer were subsequently found representing 6.2 percent unrecovered crippling losses. This low waste compares closely with 6.6 percent found in dead deer surveys following seven previous any-deer hunts (Kubisiak 1976). A similar any-deer hunt will be conducted in 1978 to gather additional data on hunter performance and unrecovered crippling losses using muzzle-loaders.

## Wisconsin's Quest for a Quality Deer Hunt Cliff Wiita

Despite a strong deer management program, Wisconsin's deer hunt is beset with some problems. The basic 9-day season format has remained relatively unchanged since 1941. Some problems associated with the hunt have been identified: crowding, poor hunter conduct, trespass, overexploitation of bucks, high hunter visibility, competition, poor harvest distribution, low harvest rates in the North and consequent loss of resource and hunting opportunity.

In 1974, the governor appointed a citizen hunting ethics committee. An outgrowth was a DNR deer hunt subcommittee. After an abortive attempt to sell a split-season zone-controlled hunt, the committee regrouped and identified and analyzed the effects of 14 possible alternatives. These 14 alternatives were boiled down to a package which included 2: A one-man either-sex permit, and an early-opening 16-day hunt for the North. Hunters choosing to hunt the early northern season would be prohibited from hunting the first 2 days of the traditional hunt in the southern 2/3 of the state. This compromise proposal does not solve the crowding and associated problems in central Wisconsin, but is a step toward improving the deer hunt. The proposal requires legislative action, but we are hopeful that it might be in place by 1979.

The Wisconsin Deer Hunter  
Tom Heberlein - University of Wisconsin, Madison

A survey of hunter attitudes and behaviour was made by sending 300 questionnaires to hunters immediately after the 1977 deer hunt. Hunters were asked for their reaction to aspects of each of the 14 alternatives developed by the Deer Hunt Subcommittee. Usable responses were received from 230 hunters.

Some findings were expected, but many were startling. Deer hunters were found to have a high commitment to their sport. Two-thirds indicated that if they could not hunt deer they would miss it more than most or all other interests they have now (and that includes alot!). Most of their closest friends also hunt deer. Deer hunters are highly committed psychologically, behaviourally and sociologically to deer hunting. The conclusion drawn is that deer hunting is on a par with religion. Any changes are going to be resisted, so it is not too surprising that most alternatives proposed for modifying the deer hunt were opposed by a majority. There was tremendous support for the status quo, and few recognized that there were any problems with the present system.

Perceived crowding was more closely related to the hunter's expectations than to actual hunter density or number of contacts. However, the interference index seemed to increase when hunters began having more than four contacts per day with other hunters. Contacts with members of their own party were not considered as interference.

Over 30% of Wisconsin males over the age of 12 hold a deer license. Therefore, the majority of people in the state must hunt or sleep with a deer hunter!

Trophy Deer Management  
Neil Payne - University of Wisconsin, Stevens Point

Studies on the Kerr Wildlife Management Area have demonstrated the effect of nutrition and genetics on antler development. Antler development is poorer as forage protein content drops below 13%. Bucks that are spikes as yearlings tend to sire fawns that will be spikes as yearlings. Given an equal diet containing 16% protein, bucks that were forks as yearlings produced antlers much larger than former spikes. Spike bucks are inferior animals. To increase trophies, mortality should be shifted to antlerless deer, spike bucks, and bucks older than 4½ years. For more information consult.

Baxter, et.al. 1977. Spike vs. forked-antlered bucks. Texas Parks and Wildl. 35(3):6-9.

Brothers, A., and M. E. Ray, Jr. 1975. Producing quality whitetails. A Wildlife Service publ., Box 2145, Laredo, Texas 78041. 244 p. \$12.50.

Michigan's Deer Habitat Research Project  
Richard J. Moran

A large-scale deer habitat research project was initiated in 1972 to study impact of four cutting-treatment levels on wildlife, vegetation, and user groups. Four cutting levels (3.5%/yr., 25%, 50%, 75%) were executed on four paired replicate quarter-town research units. The treatment phase was completed by 1975, an evaluation period will continue through 1980. Response of the deer population to habitat disturbance is monitored through spring pellet group surveys, summer roadside track counts, and annual hunting season performance checks. Overwinter populations on the 75% units are relatively low and stable (10-20 deer per square mile), while the 25 and 50% units have increased to 50-100 deer-per-square-mile. Although one of the 3.5% "controls" is similar to the latter units, the second, adjacent to an important yard, shows 130 deer per square mile. Track counts indicate summer populations are much more evenly distributed over the units showing an increase from 6-10 crossings per mile in 1972 to 20-30 in 1978. With regard to cutting levels, the 50% units are highest, the 25's intermediate, and the 75's lowest in summer density. Summer track count trends are associated with winter severity, mast supplies, and antler development, with peaks in 1974, 1977 and lows in 1975 and 1978. Fawn adult track ratios peaked in 1973 and 1977 (20-30 per 100 adults) and showed lower reproduction in 1975 and 1978 (6-13 per 100 adults). Significant changes in this ratio seem associated with time of break-up and upland units show higher productivity than those with lowland yard. The relationship between hunting pressure and cutting levels is inverse, with the 25% units absorbing twice that of the 75's. Hunting success per unit of effort is greatest on one of the 75's. Kill on the units has increased from 0.7 bucks per square mile in 1972 to 3.6 in 1977. There appears to be little or no correlation between kill and either cutting levels or other population indices. The kill has fluctuated greatly between units and years, depending upon the distribution and vulnerability of deer as dictated by the interaction of food supplies, stages of cutting and regrowth, movements, behavior, etc.



## Status of Habitat Programs

### Michigan - Bob Wood

Funding is tied to deer license sales. A \$1.50 is earmarked from each license sold. Sales have increased from 506,000 in 1971 to 781,000 in 1977. Total habitat revenue for these seven years approaches \$7 million. About \$5.3 million have been spent on management and acquisition (900 acres for \$140,000). Current budget is about \$1.5 million and we plan about 30,000 acres of treatment and 2,500 acres acquisition.

The program has four thrusts: timber stand improvement, deer yard management, acquisition, and openings (maintenance, development and enhancement). Priority is focused on winter range. Sportsmen are fairly impressed with activities. Meanwhile, deer herd has increased dramatically due mainly to mild winters.

### Minnesota - Jay Janacek

Minnesota has received deer habitat improvement funds sporadically since 1969. During 1974 to 1976, no funding was available. Since fiscal 1977, Minnesota has received \$300,000 annually. This is a direct appropriation by the legislature. The \$300,000 is currently divided, the forested deer range receives about \$265,000 and the agricultural range gets remainder. Most money in agricultural range is used for food plots; 453 acres were completed in fiscal 1978.

About 4,000 acres of browse regeneration, 740 acres of opening maintenance and 26 miles of timber access roads were completed in the forested range in fiscal 1978. The NE part of the state receives most funding. Costs per acre of various projects are as follows: Shearing \$36.77; Chemical (opening) \$28.56; Dozing \$63.42; Handcut \$35.86; Seeding \$25.70; Burning \$29.67; Roads and Trails \$837/mile. Over 60% of funding is used for shearing and road construction.

Most work is done on State and County lands. A forest-wildlife plan has been developed for most of the forested deer range and this plan is used on a forestry district level (lowest level in Minnesota) to establish a cutting budget and develop special projects for continuous habitat improvement. The outlook for the future is good and we expect that in 1980, \$600,000/year will be available. A private organization called "Save Minnesota Deer" works closely with the legislature and is the prime driving force that pushes for deer habitat appropriations.

Problems - Deer habitat accomplishments must hinge on the man in the field, the individual forester. If he is not interested in wildlife, not much can be done. Most forestry agencies in Minnesota including the counties are preparing plans for large scale hardwood conversion to softwoods. If this conversion comes about, it will be difficult, or in some cases, next to impossible to maintain a meaningful habitat improvement program.

### Ontario - Murray Smith

We have had similar problems to those of Minnesota, with regard to reorganization and habitat funding. Funding decreased from about \$250,000 in 1967 to about \$45,000 in 1974 after reorganization. Since that time, funding for deer range improvement has increased to about \$150,000 in 1978.

At present, most money is being spent on winter range projects such as browse cutting and trail marking. Some supplementary feed (oats, barley and corn) was supplied experimentally in an area where insufficient crown land was available for cutting of natural browse. Small piles of grain (less than one pint) were widely spaced. The deer readily used this supplement and rumenitis did not appear to be a problem.

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Seven sportmen's clubs worked with four Districts to improve winter habitat. They supplied all their own vehicles and equipment and assisted in such activities as browse cutting, clearcutting, trail making, enforcement assistance, and supplementary feeding. The Ministry found cooperation and quality of work performed to be excellent. We are planning to continue and expand this program during the upcoming winter.

Habitat deterioration is the largest single factor which is negatively affecting deer in Ontario. We are presently discussing a proposed deer management program. If accepted, it would deal extensively with habitat planning and manipulation.

U.S. Forest Service - Howard Sheldon, Tony Rinaldi, Karl Siderits

The Sikes Act precipitated funds for wildlife, not through the Act, but because of it. We can also use K-V funds for wildlife management. Funds currently are used for planning, surveys, type management, trail seeding and mowing, and openings work. Composition guides have helped maintain continuity of wildlife management on the Superior National Forest. Now they are going beyond type and age statistics and attempting to define inventory standards that will more closely measure wildlife requirements. The Chequamegon has 178,000 acres of aspen and hopes to maintain this amount or actually increase it some. Plans include planting some hybrid aspen. On the Nicolet, about 20,000 acres have been newly designated as wilderness areas which have a small effect on habitat programs on the 641,000-acre forest.

Wisconsin - John F. Olson

The Pittman-Robertson Forest Habitat Program in the 12-county Northwest District was established in 1969 to maintain and improve wildlife habitat on all classes of public forest lands and especially directed to maintain optimum deer and grouse populations for public hunting. Funding for this program is derived from a federal-state combination at a rate of 75%-25% respectively.

The bulk of our management activities are directed at 1.4 million acres of state and county forest cropland. Following are the various work items, accomplishments, and costs:

Aspen maintenance	35,500 acres @ \$18.54/acre
Openings maintenance	3,800 acres @ \$52.26/acre
Openings construction	140 acres @ \$211.18/acre
Timber management	450 acres @ \$17.60/acre
Road and trail development	94 miles @ \$249.04/mile
Trail maintenance	260 miles @ \$39.31/mile

In addition, prairie grouse management was included under the program in 1974 with subsequent work completed on firebreak development and maintenance, control burning, land clearing and contract farming.

Undoubtedly, aspen and openings maintenance programs have been the largest segments of our program. Wildlife and forest managers in conjunction with county forest administrators, have established a strong working relationship thus assuring continued success in the program.

The future holds some very exciting and important changes that will have an impact on our habitat program. It was recently announced that a new waferboard mill will be operational in our district by 1980 with an estimated annual need of 100,000 cords of "soft" hardwoods. Much of this need will be filled through harvest of overmature aspen stands which comprise approximately one-third (500,000 acres) of our total aspen acreage of 1.6 million acres. Depending on harvest technique and other postsale conditions, much of our aspen, openings and trail maintenance activities may be directed toward these sites.



Field Tour - 1977 Windstorm  
Cliff Wiita

On July 4, 1977, a windstorm characterized by what meteorologists described as "downburst phenomena" cut a swath 166 miles long and 16 miles wide through Wisconsin's northern forests. About 838,000 acres were flattened or severely damaged. A master plan was being written for the Flambeau River State Forest. This Forest took hundreds of years to develop. In minutes, 20 percent of the 88,000-acre forest was flattened, including a 2,000-acre old growth hardwood tract. The new plan can now be rewritten, as 86 timber sales attempt to salvage \$2 million worth of wood.

The tour examined some of the salvage operations and looked at the devastation in a 140-acre scientific area of old growth hemlock-hardwood which will not be salvaged. An interesting sidelight was a stop at the Navy's sophisticated global communication center (A/K/A Sanguine, A/K/A LLF, Seafarer) where we discovered that the intercom did not work!

Cusino (Michigan) Deer Enclosure Studies  
John J. Ozoga

The enclosure (630 acres) was built in 1952. The objective of the recent study was to evaluate the effects of artificially maintaining more deer than the habitat would naturally support. Measurements included costs, effects on habitat, productivity, and social stress. Pretreatment "carrying capacity" was 15-20 deer. Ad libitum feeding year-round with a pelletized ration from four livestock feeders increased the herd to 158 deer between 1972 and 1976. Neonatal losses were reduced by a third, productivity increased in all age classes except fawns (0), and body weights increased 20 to 35% in each age class.

All deer used feeders but only as a supplement to natural foods. They relied almost solely on feeders during winter. Peak consumption was in October and December. Lowest in May and June. Winter consumption is down because of energy conservation on the part of deer. Free-ranging deer can reduce energy requirements 30% over penned deer by seeking shelter.

If winter feeding is practiced, it should be done from the start of winter to the end to maintain deer in good condition and permit them to adjust socially and physiologically. At \$220/metric ton of feed, it will cost about \$40 per deer per winter for feed alone. Emergency feeding is bad because you have hungry deer, crowding, conflict, wasted energy, and poor social and physiological adjustment.

Observations of behaviour indicates struggle for sexual dominance among bucks begins shortly after velvet shedding. Rubs appear to be visual signs of dominance between bucks. The buck hierarchy is established before most breeding begins. Scrapes appear later coincident with breeding and appear to be communication between bucks and does. It seems that does may actually select a buck of their choice. Mature bucks (3+ years) did most breeding in Cusino while young bucks sparred among themselves and chased does.

Density stress appeared to delay breeding of yearling does and reduced their productivity. Young does are poorest mothers on the basis of fawn losses. High density reduced available fawning territories, increased mortality of fawns with young mothers, and interfered with imprinting of fawns of older does. Five of 20 yearling bucks produced sublegal antlers under the highest density. Density problems would no doubt be compounded where food resources are limited.

Minnesota Wolves  
LeRoy Rutske and Walt Rohl

Historically, 200 wolves per year were bountied in the Arrowhead region of Minnesota and in the western zone. Progressively, more protection has been given wolves: no airplane hunting (1951), no trapping (1956), no snaring (1960), no bounty (1965), and total protection under Endangered Species Act (1966).

Wolves are on a deer economy in Arrowhead and on smaller mammals in western zone. Deer starvation (higher pup survival) and wolf protection lead to population increase and greater conflict with human interests. Wolf management plans were developed and debated and rejected. Authorization was given for removal of specific animals killing livestock and later liberalized to allow wolf removal in areas having a history of predation.

On one farm 67 wolves were trapped 78 times in three years, 23 in 17 days! Many were relocated only 15 miles away for lack of places to put them. Wolves are now numerous, tracks are the rule; public goes out of way to kill them, wolves are killing fox and coyotes, state now pays on wolf damage.... If you want some wolves, contact LeRoy!

Other Notes

Bears: Michigan public has been upset by pack (dogs) hunting, so "six-pack" law was passed. All baits are legal, 800 were killed in 1977, 25% by dog, 30% by bait. A special archery season took 8% of kill. Minnesota permits biodegradable baits, but no dogs. No major complaints have been received into the St. Paul Office. Ontario kills about 4,000 bears with their spring and fall hunts. Baits and dogs are permitted. Bear are still vermin over much of Ontario. Wisconsin has adopted the 6-pack dog-rule, restricts baiting period and types. Has had considerably local controversy with sentimentalists and considerable correspondence with national "humane" organizations. There were a great number of bear nuisance complaints this year; most in 10 years. Perhaps due to frequent rain, reduced pollination, hence, few berries. Killed 631 in 1977.

Videotape cassette: On posting a mule deer. Color, 43 minutes, available in 1/2" or 3/4" tape. Copies costs \$120 from Department of Fish and Wildlife, Oregon State University, Corvallis. Preparation was P-R funded and a copy is available for previewing from Doug West (FWS-Aids) Twin Cities, phone 612-725-3596. This copy is 3/4", but a 1/2" may be arranged.

Pellet Dispenser: A backpack herbicide dispenser as displayed at the meeting may cost about \$125. Interested parties should contact John F. Olson, DNR, Box 309, Spooner, Wisconsin 54801, or call 715-635-2101.

Next Meeting: Ontario has invited the States to Northwestern Ontario. Details will be forthcoming.

Editor's Note: My apology to those participants whose comments are misconstrued in these minutes. However, you were warned that if abstracts were not received, that we would write what some of us thought we heard you say!

Minutes have been circulated to all listed below. Route your copy to others that you know may be interested!

Keith McCaffery

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