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Resource Use and Management by Large Private Hunting and Fishing Clubs in Northern Lower Michigan

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David M. Baumgartner and Victor J. Rudolph



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INTRODUCTION

Northern Lower Michigan's plentiful forests and lakes make it a popular vacationland. The region, once known as the "Northern Cut-Over Area," is now more appropriately called the "Northern Forest-Recreation Area" (12). The population is low; only 5% of the state's people live there (4). A good highway system makes the area easily accessible to densely populated southern Michigan and adjoining states. The area has 7 million acres of commercial forest land (14). Two-thirds of this area is owned by more than 25,000 private landowners (21).

Private hunting and fishing clubs are numerous. And the Lower Peninsula's northeast section is commonly known as "Michigan's Club Country." However, little is known about the clubs or the characteristics of their forest resource use and management.

Because these clubs control a large area and our growing population is making increased demands on all forms of land use, it is important to evaluate activities of such clubs and their role in the region's socioeconomic well-being, progress and development. Private forest landownerships represent a significant source of raw material for wood industries in the region. Also, game management activities on these private holdings, including large club ownerships, affect game populations in surrounding areas.

Hunting and fishing clubs are not new in this country. The oldest fishing club in the world, the

Fishing Company of the State in Schuylkill, was founded in 1732 in Philadelphia (9). In 1844, the New York Sportsmen's Club was started "by a few prominent New York Gentlemen interested in field sports" (8).

After the Civil War, a general increase in wealth and leisure brought increased interest in sport shooting. Guns were better and cheaper. Railroad travel improved and became cheaper, allowing people to travel greater distances to hunt. During this time, sportsmen, concerned over the decline of game, began buying land for their own private hunting (19).

In 1893, it was said that: "During the last ten years the increase and development of the sportsmen have been phenomenal. A decade ago (1880) only the large cities had a gun club. Today it is a small town indeed that does not boast of its fine team" (11).

Although there was some public uneasiness about having the good hunting land held in private ownership, the prevailing opinion was that this was better than the complete disappearance of hunting. As early as 1888, the best duck hunting areas on the east coast and tidal rivers were said to be controlled

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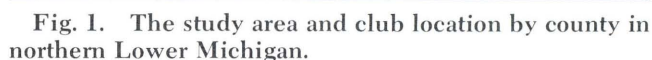
The first club in Michigan was Lake St. Clair Fishing and Shooting Club started in 1873 on Lake St. Clair in southeastern Michigan. Other local clubs followed, but as population grew, the quality of local hunting and fishing declined, and many sportsmen looked to northern Michigan for new club areas.

There were 200 hunting and fishing clubs listed on the 1931 tax rolls in northern Lower Michigan (7). Hunting and fishing clubs were defined as properties whose members get recreation by pursuing game and fish. These 200 clubs were concentrated in the northeast corner of the Lower Peninsula. In total, they occupied 169,613 acres. Thirty-two clubs were over 1,000 acres in size. The Turtle Lake Club, organized in 1884 in Alpena and neighboring counties, was the oldest and largest, totaling 25,000 acres.

Summer resort and hunting and fishing clubs came to be considered different from simple hunting and fishing clubs since they receive considerable summer activity and may include summer recreation facilities. There were five combined summer resort and hunting and fishing clubs over 1,000 acres in size in 1934 (7).

The study area included the northern 31 counties of Lower Michigan (Fig. 1). Economic and physiographic characteristics of this region make it a natural study area because it is more heavily forested than the farmland and industrial areas to the south and has a much lower resident population.

A study of fragmentation, absentee ownership, and forest land turnover in northern Lower Michigan showed privately owned forest properties are getting smaller (16). In 1946, the average size of contiguous forest tracts was 182 acres; the average in 1962 was 156 acres. Acreage of absentee ownership increased 45% between 1946 and 1962. Fragmentation and property turnover likely restrict the economic supply of timber; however, absentee ownership could increase as well as decrease it.



Many absentee owners are interested in deer hunting, and cutting usually improves browse conditions and deer habitat.

PROCEDURES

This study defines a club as a formally organized group using and managing property for non-profit hunting and fishing, and/or other related outdoor activities. Club organization gives members a voice in property management and use through direct vote or elected directors or trustees. A club also provides for new membership, and for present members to leave the club, thereby perpetuating the organization regardless of death or disinterest of one or more members. Land owned and managed by only one person is not a club, no matter how many persons use the land or how they use it.

A 640-acre size minimum best serves the objectives of the study and makes best use of available time and funds. Also, 640 acres (one section) is an important land unit in the public land survey system.

The ownership list was based on information obtained from county plat books. All properties 640 acres and larger were initially listed from these books. County treasurers and township supervisors responded to questionnaires to clarify the nature of these ownerships and to obtain owners' addresses. Researchers visited county treasurers' offices in the 11 counties thought to contain the most clubs, and took information directly from the tax rolls. Many knowledgeable individuals employed by public and private sectors were contacted regarding club ownerships. Finally, those associated with properties considered as possible club ownerships were contacted to ascertain the status of their land.

The dynamic nature of property ownership and the exclusiveness of many private ownerships complicated the compilation of the list. In the study area, many large individual absentee ownerships are used in much the same manner as the clubs; however, use and management of these properties is determined by only one person, the owner. Although these properties are not controlled by clubs, they might appear to be club properties to the casual observer. Thus, many people consider all large absentee ownerships clubs, so clubs are often assumed to control more land than they actually do.

Interviews were conducted with one member from as many clubs as possible. For this study, we assumed one member could adequately represent his club. Since each club's address was obtained from the tax rolls, the interviewed member was usually the club secretary or another officer. Interviews were set up by telephone and conducted at

the interviewee's home or business. A questionnaire was used during the interviews. Priority in selecting interviewees was given to the larger clubs. Interviews were conducted from September 1 to November 15, 1968.

RESULTS

Club Size and Organization

There are 84 clubs 640 acres and larger in the study area (Table 1). Their locations, by county, are shown in Fig. 1. If a club extended into more than one county, it was listed in the county containing its largest area. Clubs were located in 16 of the 31 counties in the study area. The highest concentration occurs in the northeast portion of the study area; this section of the state is known as "Club Country." Alcona County has the most large clubs, with 16. Interviews were completed with 61% of the clubs in the study area.

About three-fourths of the clubs were started between 1920 and 1949. Many existing clubs were established in the 1920's. The land had essentially all been logged and much of it had been burned. For those who had money during this period, land was cheap. Also, forests recovering from the fires were very brushy and provided excellent deer habitat. Transportation was no longer a limiting factor, since the railroad network was good and automobiles and roads were also improving. Thus, cheap land, good hunting, and adequate transportation apparently were the major reasons for the location and origin of many clubs.

The 84 large clubs in the study area control 184,559 acres or about 288 square miles. The average size of clubs 640 acres or larger is 2,197 acres; the median size is 960 acres. The mean and the median differ because many clubs are in the smaller size classes (Table 1), and only a few clubs are in the largest size classes. The largest club is 25,000 acres; the next largest is 18,080 acres.

Table 1. The number of large private hunting and fishing clubs in northern Lower Michigan in 1968, and the proportion sampled in this study

Size Class	Total Clubs	Clubs Interviewed	
Acres	Number	Number	Percent
640 - 999	45	19	42
1000 - 1999	23	18	78
2000 - 4999	9	9	100
5000+	7	5	71
Totals	84	51	61

Total membership for the 84 clubs is estimated at 5,288. Typically, memberships are owned by men whose wives and children also use club properties; therefore, each membership generally represents a family rather than an individual.

By dividing the total club acreage by the total estimated number of club memberships, an average area of 35 acres per membership is obtained. Considered in this manner, the clubs come into focus as groups of people with similar interests pooling relatively small land areas together to form a larger unit for their common usage. Individual absentee ownerships of about 35 acres are common in the region. (More than 1,000 Detroit-area people own parcels of 40 acres or more in a four-county area in the region (13).)

Table 2 shows the area per membership in each club by size class. Fifty-five percent of the clubs have less than 80 acres per membership and 45% have between 40 and 79 acres per membership. Since each membership generally represents a family, the area per person is considerably smaller than the average area per membership.

Table 2. Average area per club membership

Area per Membership	Percent of Clubs
Acres	Percent
39 or less	10
40 - 79	45
80 - 119	19
120 - 159	18
160 or more	8
Total	100

Although most club members take part in varied activities, clubs tend to identify themselves with one primary activity, either hunting or fishing. Eighty-two percent consider themselves deer hunting clubs, while 14% are fishing clubs, and 4% are duck hunting clubs.

Ninety-six percent of the clubs are organized as corporations, with the remaining 4% jointly owned by their members. Eighty-four percent are non-profit corporations, 4% are profit corporations, and 6% are trustee corporations. These clubs come under the General Corporation Laws of the State of Michigan. To become a member, a person must become a shareholder in the corporation. Every corporation is managed by a board of directors of at least three persons, who select a president, a secretary, and a treasurer, and may select other officers. When

a club dissolves, members receive their proportionate shares of the corporation's value.

All clubs limit memberships. To join, a person must be cleared through procedures set by the club. Often, the applicant must be well-known by the members, perhaps having hunted or fished with them. In 59% of the clubs, once accepted, a person buys his membership from an individual wishing to leave the club or from the family of a deceased member. In the other 41% of the clubs, all memberships being vacated must be sold to the club, which resells them to new members. Many clubs have lengthy waiting lists of prospective members.

The membership price is negotiated by the buyer and seller in just over one-half the clubs. Thus, the value of the membership tends to approximate the value of the membership's share in the property. In a little less than half the clubs, the price is set by the club. Often this price is considerably below market value of the equity represented by the membership because these clubs want people to join as active members, not investors. By keeping the membership fee low, it is not a determining factor in who can or cannot join, and real estate speculation by prospective members is discouraged.

At the time of the interviews, 37% of the clubs had membership fees under \$2,000, 32% had membership costs from \$2,000 to \$5,999, and 31% were valued at over \$6,000.

The annual dues for each club generally equal expenses minus any income (from pulpwood sale, etc.) divided by the number of memberships. Thirty-five percent of the clubs paid dues of less than \$100 per year, 30% paid dues from \$100 to \$199, and 35% paid dues of over \$200.

Club memberships are relatively stable. Seventy percent of the clubs reported less than 20% of their memberships changed hands during the 5-year period from 1964-1968.

Operating Facilities

Three-fourths of the clubs have a main lodge or clubhouse in which all or part of their members can stay when using the club property (Fig 2). Community living is very important in some clubs because it promotes comradeship, especially during deer season. Objectives of the club are furthered because members get to know each other better. Also, when many clubs started, a single living facility was more economical than individual housing units. The number of people that each clubhouse will accommodate at one time is often a critical factor in determining the number of people who hunt on the club during deer season, especially where members do not have individual cabins.



Fig. 2. The clubhouse or main lodge is an important living facility and activity center for many clubs.

Members have their own cabins in 41% of the clubs (Fig 3). Clubs with lodges often do not need cabins. Also, some clubs prohibit individual cabins because they fear communication between the members would be reduced, and that cabin owners would become more interested in their own cabin than the club activities. However, according to various interviewees, clubs with cabins have not suffered from these problems.

Mobile homes are used in only 14% of the clubs. However, with recent improvements in mobile homes, their use will probably become more common. Six percent of the clubs provide separate areas for mobile home locations.

Only 14% of the clubs do not have electricity on their property, but 73% do not have telephone service. Lack of telephone service is often due to the remote locations of the clubs, but interviewees commonly remarked that they did not want phones or had had them taken out.



Fig. 3. The individually owned cabin serves as a woodland retreat for many club members.

Eight percent of the clubs reported some members reside year-round on the property. Twenty-five percent have members using their clubs as summer homes, and spending their winters elsewhere. Members using their clubs either for year-round residences or for summer homes are mostly retired people. This use appears to be growing, and some clubs seem destined to become at least partially retirement colonies.

An important reason for belonging to a club is that the use of an area is restricted to members and friends. Fences, gates and posting insure privacy and limit use (Fig. 4). Ninety-eight percent of the clubs have a partial fence defining their boundaries. The fence is often just a single strand of wire nailed to trees along the club boundary, and serves as much to keep members on the club property as it does to keep non-members off. Eighty-four percent have gates with locks, and 84% have their boundaries posted against hunting or trespassing.

The caretaker or manager, an important person in many clubs, maintains facilities and checks on resource use activities. Caretakers' duties often in-

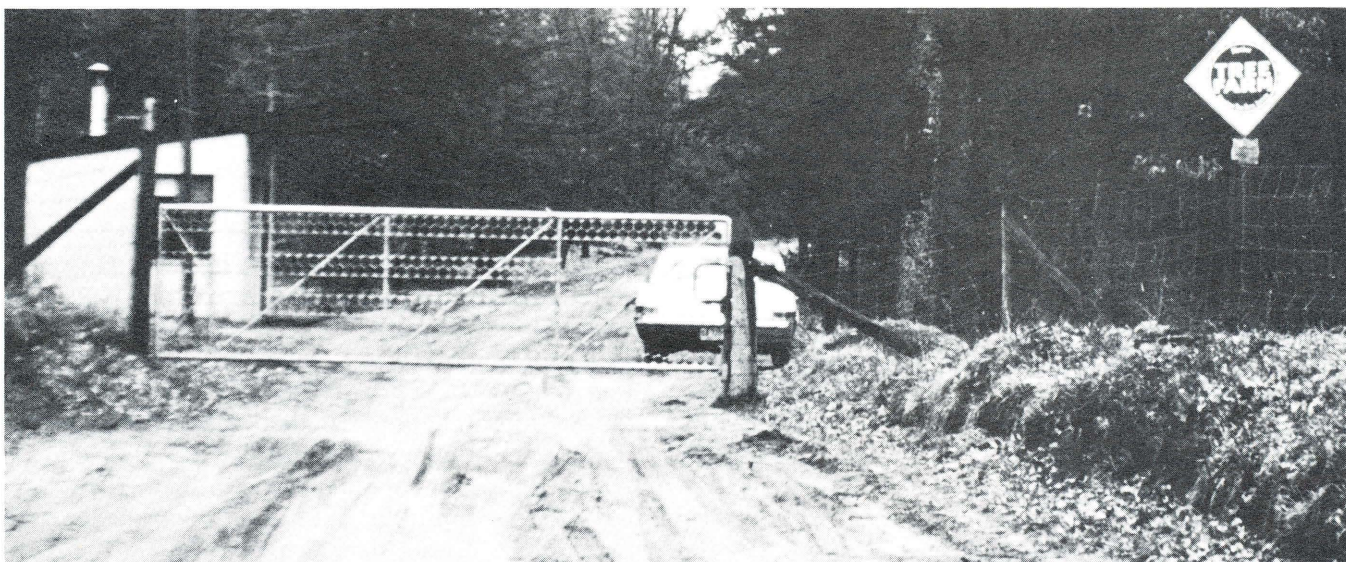


Fig. 4. Access to most club properties is restricted to members only.

clude lodge operation and maintenance, fence and road maintenance, wildlife feeding programs, patrolling against trespassers, and miscellaneous functions. Twenty-eight percent of the clubs have a full-time caretaker; an additional 31% have a part-time caretaker. A caretaker's salary can be a major expense in a club's budget. Therefore, generally only the larger clubs or those with the most members can afford a caretaker.

Recreation Facilities

The most important recreation facilities the clubs have are forests, streams and lakes (Fig. 5). These resources, along with the wildlife that inhabit them, were of primary importance in founding the clubs, and remain their primary sources of recreation. Elaborate man-made recreation facilities, such as tennis courts, golf courses and similar items, are found in only 6% of the clubs. Such facilities are in clubs with larger, more family-oriented memberships. Many interviewees said man-made recreation facilities would become more common in their clubs in the future.

Recreation Activities

As one might expect, in areas with few elaborate recreation facilities most club members hunt and fish for outdoor recreation. Table 3 shows the percent of members taking part in selected recreation activities on their club properties.

Generally, deer hunting clubs, fishing clubs, and duck hunting clubs have the highest percent of

members taking part in the activity by which the club is categorized. Other activities find varying degrees of participation among these three types of clubs.

Table 3. Activity participation by club members

Activity	Percent of Members Participating						
	0	1-19	20-39	40-59	60-79	80-99	100
	Percent of Clubs						
Deer hunting	4	6	0	12	18	25	35
Upland game bird hunting	20	12	47	15	4	0	2
Duck hunting	71	14	10	2	0	2	2
Small game hunting	45	22	16	12	0	4	2
Trout fishing	41	14	14	12	2	10	8
Other fishing	65	10	8	10	4	4	0
Skiing	92	6	2	0	0	0	0
Snowmobiling	37	33	14	6	6	0	4
Mushroom hunting	57	24	14	4	2	0	0
Bird watching	61	27	10	2	0	0	0
Camping	86	10	2	2	0	0	0
Riding in auto to see wildlife	10	2	2	12	14	29	31
Swimming	63	16	6	8	2	0	6
Water skiing	94	4	2	0	0	0	0
Trap or skeet	65	14	12	6	2	2	0

Seventy-eight percent of the clubs reported that 60% or more of their members are active deer hunters. In 35% of the clubs, all members are active deer hunters. Deer hunting is not allowed in only 4% of the clubs. These latter clubs are primarily fishing clubs.

The duck hunting clubs, aggregating 4% of the total, reported that 80% or more of their members are active duck hunters. Among all clubs, only 29% reported that any members hunt ducks.

Upland game bird hunting and small game hunting receive some attention in many clubs. In 80% of the clubs, at least some members hunt upland game birds, and in 55% of the clubs there is some small game hunting.

Fishing is popular in many clubs, with trout the leading fish species (Fig. 6). Eighteen percent of the clubs report that over 80% of their members are active trout fishermen, while in 59%, at least a few members do some trout fishing. In only 35% do some of the members fish for species other than trout.

Winter activity has been somewhat limited in the clubs in the past. Snow accumulation on club roads prevented access to the clubhouse or cabins on many properties, and even if members were able to get on their properties, there was not much to do in the winter.



Fig. 5. The most important recreation facilities the clubs have are their forests, streams and lakes.



Fig. 6. Fishing is popular in many clubs.

The recent advent of the snowmobile has changed things (Fig. 7). As of 1968, some members in 63% of the clubs used snowmobiles. With the recent snowmobile boom in Michigan, snowmobile ownership and use by members is much higher now. Main roads and logging roads in many club areas make ideal snowmobile trails. Interviewees often mentioned several members in a club were planning to buy snowmobiles.



Fig. 7. The snowmobile provides winter recreation opportunities on club lands that would otherwise be inaccessible.

Ice fishing is practiced by some members in 30% of the clubs; this number may grow with improved winter mobility provided by snowmobiles.

About 40% of the clubs report some members active in mushroom hunting and bird watching. Only 14% have members camping on club properties.

Riding about a club in an automobile rivals deer hunting in popularity. In 74% of the clubs, this is popular with more than 60% of their members. This is primarily a summertime activity when a family is visiting a club. Typically a family will venture out in the early evening when the deer are starting to feed. At this time of year, deer are relatively unafraid of autos and a family can often see them from close distances.

Swimming is not very popular, with 63% of the clubs having no swimming activity. Many lakes and streams on club property are too weedy, mucky or cold for swimming. In only 6% is there any water skiing. Some clubs prohibit boats with motors to maintain a more natural atmosphere.

Trap or skeet shooting is done by some members in 35% of the clubs.

The Forest Resource

Lower Michigan's forests were once known for their extensive stands of red and white pine. During



Fig. 8. The forests of northern Lower Michigan were once known for their extensive stands of red and white pine. Today hardwood types suitable for pulpwood predominate in the region.

the latter part of the 19th century, heavy logging removed the virgin pine from the area (Fig. 8). Following the logging, large fires were common, sweeping through the slash and brush that had resulted from the logging. Generally, the fires ceased 40-50 years ago, and much of the present forest cover in the area dates from that time.

Hardwood types suitable for pulpwood predominate in this region. Aspen-paper birch covers 32% of the commercial forest area. Maple-beech-yellow birch and oak-hickory each occupy 19%; white-red-jack pine, 13%; and elm-ash-cottonwood and spruce-fir each 9%(14).

Eighty percent of the growing stock volume is in hardwoods; softwoods make up the balance. The largest volume is in aspen, with 20% of the total; the next largest volume is in oak, with 15% of the total (5).

Total pulpwood production in the area in 1967 was 495,691 cords (15). Aspen was 52% of the total; pine, 23%; oak, 17%; and miscellaneous species, 8%. More than 98% of the pulpwood produced in the Lower Peninsula comes from its northern half. Pulpwood production from private lands reached a

high of 61.7% of the total in 1962, and declined to 39.2% in 1967. Private ownership of commercial forest area in the northern half of the Lower Peninsula makes up about two-thirds of the total, but produced only 39% of the total pulpwood in 1967. Pulpwood production from private forest lands is expected to decline because management on these lands is usually at a low level, and wood production is less and less frequently an objective on small forest ownerships (15).

Commercial Cutting

When asked if there had been any commercial timber cutting on the club property within the past 10 years, 82% of the interviewees said yes and 18% said no (Fig. 9). Within the past 5 years, 76% have had commercial cutting and 24% have not (Table 4).

Although wood volume production data are not available from club lands, it appears that based on the high percentage engaged in recent commercial cutting, these lands have added considerably to

Table 4. Reasons for commercial cutting and for not cutting on club lands, 1964-1968

Reason for Cutting	Percent of Clubs
Mature or overmature forest stands	13
Improve wildlife habitat	60
Under former ownership	2
Don't know	1
Total	76
Reason for Not Cutting	
No demand for forest products	2
Better for wildlife not to cut	8
Don't trust pulp company	2
Previous cutting unsatisfactory	10
Don't know	2
Total	24



Fig. 9. Commercial timber harvesting provides revenue and wildlife benefits to many clubs while providing raw materials to the region's pulp and paper industry.

pulpwood production from private forest ownership in the region.

The two primary reasons given for commercial cutting were wildlife habitat improvement and harvesting overmature forest stands (Table 4, Fig. 10). Obviously, these two reasons are closely related. It is because the forests are mature or overmature that they provide poor wildlife habitat, especially for deer, because they produce little browse. The idea



Fig. 10. This stand of aspen trees provides very little deer browse. If harvested, new aspen sprouts would grow quickly, thus providing deer browse.

that deer are brushland creatures and that the best habitat for them includes considerable area of young forest has been impressed on club members by various public natural resource management agencies and the pulp and paper companies of the region. Fortunately, many clubs have large areas of aspen which, when clearcut, sprouts prolifically, providing excellent deer browse.

Two reasons predominated for not cutting among those clubs with no commercial cutting over the past 5 years. Ten percent reported that previous cutting had been unsatisfactory, and 8% said it was better for wildlife not to cut (Table 4). Cutting had been unsatisfactory for two reasons. Some clubs did not like clear cutting techniques because of ugly slashing and lack of reproduction. Others objected because reproduction following cutting was too dense and interfered with hunting.

Note that in the reasons given for cutting or not cutting, economic motives were generally absent. Those clubs that had commercial cutting were asked to rate the importance revenue had in affecting their decision to cut. None rated revenue as very important in affecting its decision to cut. Eighteen percent said that it was important, and 82% said it was unimportant. This does not mean these clubs are willing to give timber away, but that economic motivation has little influence on whether they have timber cut or not. For these clubs to remain interested in cutting, and for others to become interested, they will have to have continued and improved understanding of noneconomic benefits, such as wildlife habitat improvement, or see the possibility of high economic returns.

While commercial cutting of aspen for wildlife habitat improvement is readily accepted by most clubs, there is considerable reluctance to harvest oak (Fig. 11). Among the clubs engaged in commercial cutting, 50% are unwilling to harvest oak, 14% are willing to cut it only when necessary in harvesting other forest types, and 36% have no reluctance to harvest oak. The opposition to harvesting oak is based on the value of acorns for deer food. The statement was frequently made that if you cut the oaks, you lose the acorns, and thus the deer.

However, acorn crops are erratic with good crops often several years apart, and clearcutting oak will result in abundant browse production (6). If club properties are to increase their oak pulpwood production in the future, their members must be convinced the deer will benefit from increased browse that will follow oak harvesting, perhaps even more than from an intermittent acorn crop from uncut stands.



Fig. 11. Although oak stands such as this provide very little deer browse, many clubs are unwilling to harvest oak for fear of losing acorn crops. If harvested, these trees would sprout prolifically from the stumps and provide increased browse.

Forest-Wildlife Management Plans

Discussions with representatives from the pulp and paper industry had indicated that many clubs engaged in commercial cutting were doing so under the guidance of industrial foresters, and were following formal written management plans (20). Forty-five percent of the clubs reported they were following a management plan, 20% had used a plan, and 35% said they had no management plan. Under usual management, professional foresters set up a long-term cutting program for the club, and make forest and wildlife management recommendations in return for the right to buy pulpwood. Thus, much of the cutting on club lands has been supervised by professional foresters. Private forests with the best management were managed by professional foresters (21). Therefore, most clubs operating cutting programs under an industry-sponsored plan are under good forest management.

Of the clubs following a management plan in 1968, 13% had been under a plan for less than 5 years, 48% from 5 to 9 years and 39% for 10 years or more. Apparently, most clubs following management plans were under contract to the pulp and paper industry over 5 years ago. Increased wood supplies from public ownerships in the region appear to have slowed industry's desire to recruit additional clubs into their cutting programs. All clubs now under management agreements with the pulp

and paper industry believe their programs have been successful in that additional browse has been provided for the deer. Relationships between the industry and the clubs were viewed as good by the interviewees.

Clubs that once used a management plan and stopped had followed their plans for an average of 3 years. The major reason for discontinuance was disagreement with the pulp and paper industry over the attainment of management objectives. Apparently, pulp and paper companies were unable to adequately convey the objectives of the management programs to club members, and the problems involved in meeting those objectives. This led to a misunderstanding of the programs by some clubs and disenchantment with the plans.

Clubs seemed aware that previous difficulties they may have had with their management programs might be resolved in the future. Seventy-eight percent of the clubs said they foresaw a time when it would be to their advantage to go into some management program again.

Seventy-two percent of the clubs that never had a management plan said they had been contacted by industry to have a plan prepared. The reason for not adopting a timber cutting plan included: cutting arrangements with someone else, or lack of merchantable timber, 31%; the belief that cutting would destroy the beauty of their property, 38%; the idea that uncut timber was better for deer, 23%; and distrust of pulp and paper companies, 8%. Apparently pulp and paper companies were not very successful in explaining their programs to these clubs. About two-thirds of these clubs reported that, if approached again, they might reconsider their position. Half the clubs that had not been contacted by industry regarding a management program said they would be interested if contacted.

Tree Planting

Clubs have commonly planted trees in the past (Fig. 12). Eighty-two percent of them said they had land suitable for tree planting. Of these, 83% said they had planted trees at one time or another. Wildlife habitat and aesthetics were primary reasons for planting trees by 84% of the clubs; production of timber or Christmas trees was important to only 16%. This further shows that these ownerships apply forestry practices for other than economic motives.

Of the clubs that planted trees in the past, 39% planned to plant more trees in the future. Of the 61% not planning to plant more trees, lack of suitable planting sites and lack of interest were primary reasons given.



Fig. 12. Tree planting has been a common practice by the clubs.

Deer Habitat and Deer Management

During no single equivalent period of the year do Michigan's forests receive as much use as during the last 2 weeks of November, the traditional deer season. In 1967, 576,523 deer hunters bought licenses and 96% of them actually hunted (3). Deer hunting results in more intensive club use than any other activity. Because deer hunting is so important to clubs, the interrelationships between deer management and forest practices on club lands were examined.

To the typical hunter, the objective of deer management is plentiful deer; the more deer he sees, the better. But there are limits to the number of deer an area can support without significant damage to habitat. Effective deer management is a compromise between deer numbers, hunter density and the habitat. The goal is to maintain as many deer on an area as possible without habitat deterioration. It calls for a delicate balance between the forest, the deer, and the hunter. A practical deer management plan (1) includes: 1) maintaining the best deer range possible through habitat management, and 2) harvesting bucks plus a controlled number of antlerless deer every year (Fig. 13).

The best tool the clubs have for habitat management is commercial timber cutting. When done continuously, it keeps some forest area young, producing adequate browse for deer. Also, instead of adding a financial burden to the club, it results in revenue. Other feasible habitat management methods include noncommercial cuttings, planting annual crops for deer food, and establishing winter deer feeding programs.

Food is most critical for deer in late winter, when available browse is limited. Trees and plants differ in nutritional quality and desirability as deer food. In Michigan, northern white cedar is an important winter food (17). It has high food value (18) and its

thick canopy provides winter shelter for deer. In severe winters, deer often yard in stands of white cedar. Because of tree age and size, and previous frequent overbrowsing, foliage in most white cedar stands is too high for deer to reach. Some clubs fortunate enough to have white cedar make noncommercial cuttings in the winter when the deer are yarding. The trees are simply cut and left, making foliage and branches available for browsing by deer. Twenty-one percent of the clubs have engaged in noncommercial cutting within the past 3 years.

To provide more food for deer, 69% of the clubs planted some type of annual crops in 1968 (Fig. 14). Of these, 97% planted rye, 4% planted corn, and another 4% planted turnips. The rye was usually planted on a few acres scattered about club property. Rye has about the same nutritive value as June grass, and deer generally feed on it in the fall and spring (17). Rye provides some food for deer, but its greatest benefit is attracting deer into open areas where they may be easily viewed by club members and their families during non-hunting portions of the year.

To counteract winter food shortages, some clubs feed shelled corn and alfalfa hay to deer (Fig. 15). Sixty-nine percent of the clubs have fed deer at some time or another. Only 33% provided feed during the mild 1967 winter. Thus, one-third of the clubs apparently believe that even in a mild winter, the habitat cannot support the deer herd adequately. Of those providing winter feeding, 77% used corn and hay; others used apples, sugar beets and oats.



Fig. 13. A substantial deer harvest is taken on some of the clubs each year.



Fig. 14. To provide more food for deer, many clubs plant annual crops like rye and turnips.

To be effective, a feeding program must continue throughout the winter. Even when hay and grain are available to deer in large quantities over the winter, the value of such a practice is questionable. Problems of deer herd size and habitat adequacy are not solved, and many hungry deer may still become concentrated in a small area, adding additional burden to the habitat. The solution is to control the size of the deer herd so its demands will not exceed the carrying capacity of the habitat.

Of the clubs feeding deer, 82% continued the program throughout the winter; the remainder provided food only when they thought weather conditions warranted it. Feeding was generally spread over several locations about each club.

Deer are naturally attracted to salt. Seventy-five percent of the clubs make block salt available to

deer. The salt is usually placed in an open area where members can see deer using it.

Deer are very prolific breeders. Under ideal conditions, one buck and five does could increase to 1,000 animals in 10 years (17). For proper deer management, the population must be controlled. To do this, both bucks and antlerless deer must be harvested. One buck can service many does, so the population obviously cannot be controlled by buck kill alone. The Michigan Department of Natural Resources annually divides the state into areas and allots a limited number of permits to hunters to harvest antlerless deer in each area.

When the deer population is properly controlled, the habitat prospers and the deer grow larger, healthier, and reproduce more. It is by harvesting excess deer, therefore, that the condition of the



Fig. 15. To counteract winter food shortages, some clubs feed shelled corn and alfalfa hay to the deer.

herd, on the whole, is enhanced. An uncontrolled deer population will inevitably damage its own habitat; the herd, in turn, will ultimately suffer declining quality and quantity (Fig. 16).

There are two types of deer hunting in northern Lower Michigan — archery hunting and rifle hunting. Archery hunting is usually legal for several weeks prior to and following the usual two-week rifle season. The archery hunter is allowed to harvest one deer of either sex. Since only one deer may be taken each year by a hunter in Michigan, success in either the archery or rifle season eliminates the sportsman from further hunting. In 1967, 56,740 archery licenses were sold and 54,950 archers hunted in Michigan. Archers killed an estimated 2,590 deer — about a 5% hunter success (3).

In the 1967 rifle season, 576,523 licenses were sold, and 533,440 people actually hunted. An estimated 104,500 deer were killed, for about a 19% hunter success. In the study area, 64,800 deer were harvested (3). Of these, 40,800 were bucks, about 63% of the region's total harvest. The antlerless deer numbered 24,000 or about 37% of the region's total harvest (2).

The 1967 season followed a relatively mild winter and had generally good deer hunting weather. It was a fairly typical hunting season and deer harvest for Michigan.



Fig. 16. Tall, dense aspen sprouts within a fenced deer enclosure in an area where aspen had been clearcut contrast sharply with the total elimination of aspen sprouts outside the enclosure by an excessive deer population.

Deer Hunting on Club Lands

Not all clubs allow archery hunting, nor do all those that permit it have archery hunting on them. Thirty-one percent of the clubs do not allow archery hunting. Archery hunting is usually not allowed because too many deer might be wounded, escape the hunter, and die. As only 5% of the state's archery hunters were successful in 1967 it is likely that some deer escape after being mortally wounded by an arrow; 19% of the rifle hunters met success. Archery hunting is also more difficult than rifle hunting because deer must be much closer for a successful shot.

Fifty-seven percent of the clubs not allowing archery hunting cited too many wounded deer as the reason, while 25% reported that archery hunting scared deer, lessening rifle hunters' chances of harvesting a deer. In 18% of the clubs members had no interest in archery hunting. Although 69% of the clubs allowed archery hunting, only 55% had any in 1967.

An estimated 408 archery hunters used club lands in 1967. Only 11% of the clubs with archery hunting had over 5 hunters per square mile for the season, while over 70% had fewer than 3 archery hunters per square mile.

The total archery kill for club lands in 1967 was estimated at 41 deer. One-third were bucks and two-thirds were antlerless deer. Thus, archery hunting in club areas does not significantly reduce the deer herd. Only 7% of the clubs that had archery hunting reported a kill of over 1 deer per square mile; 67% reported no deer killed at all.

In spite of the low deer kill, archery hunters on club lands were twice as successful as all archery hunters in the state. For the entire state, archery hunter success was about 5%, while on club areas, 10% of the archery hunters were successful. Hunters on two-thirds of the clubs with archery hunting had no success at all, so all deer killed during the archery season came from one-third (18%) of these clubs.

During the 1967 rifle season, 96% of the clubs had some deer hunting on them by an estimated 3,650 rifle hunters. Seventy-six percent of the clubs had less than 15 rifle hunters per square mile (Table 5).

Another approach to examining hunter density is the average area per hunter. In 1967, this ranged from 20 to 79 acres per hunter on two-thirds of the clubs.

The number of deer hunters on each club is controlled by club rules and the number of members.

Table 5. Rifle hunter density per square mile on club areas, 1967

Hunters Per Square Mile	Percent of Clubs
Under 5.0	8
5.0 to 9.9	29
10.0 to 14.9	39
15.0 to 19.9	14
20.0 or more	10
Total	100

Forty-eight percent of the clubs will allow part of a member's family to hunt, and 82% will also allow some guests. In about half the clubs, no women are allowed during deer season, mainly because all available sleeping facilities are taken by male hunters.

For the 1967 rifle deer season, the total kill on club lands was estimated at 1,690 deer; about 80% were bucks, and 20 percent were antlerless deer. For the northern half of the Lower Peninsula, the total kill that year was estimated by the Michigan Department of Natural Resources at 64,800 deer (2); 63% were bucks and 37% were antlerless deer. The private hunting and fishing clubs accounted for less than 3% of the total deer kill in the study area in 1967.

The kill per square mile by rifle hunters was eight or more deer in over one-half of the clubs (Table 6).

Table 6. Deer kill per square mile by rifle hunters on club lands, 1967

Deer Kill Per Square Mile	Percent of Clubs
Under 4.0	14
4.0 to 7.9	33
8.0 to 11.9	31
12 or more	22
Total	100

In only 14% of the clubs were there less than four deer killed per square mile.

Rifle hunters on club lands had nearly two and one-half times the success that all rifle hunters in the state had in 1967 (Fig. 17). Average hunter success on club areas was about 46%, while average hunter success for the state was about 19%. Only 4% of the clubs reported no hunter success in 1967, while 47% had 60% or better success (Table 7). Fourteen percent of the clubs had 100% hunter success.



Fig. 17. Many club members are dedicated, experienced deer hunters, and have hunted the same area for many years.

Table 7. Rifle hunter success on club lands, 1967

Percent of Rifle Hunters Successful	Percent of Clubs
0	4
1 to 19	10
20 to 39	16
40 to 59	24
60 to 79	16
80 to 99	16
100	14
Total	100

The total harvest by all clubs in 1967 was estimated at 1,731 deer. Rifle hunting accounted for 98% of the total kill, and archery hunting accounted for only 2%. Bucks made up 79% of the kill, and 21% were antlerless deer.

Antlerless deer hunting has long been an emotional issue in Michigan. Many sportsmen, understanding neither the ecological implications of an uncontrolled deer herd nor the relationship between deer and habitat, are opposed to harvesting antlerless deer. Some hunters are reluctant to kill an antlerless deer because they believe that the act does not carry the social prestige nor provide the test of manhood that killing a buck does. Other sportsmen organize for the purpose of "saving" antlerless deer through political lobbying.

In 60% of the clubs with deer hunting in 1967, hunters with antlerless deer permits could shoot antlerless deer if they wanted to, but only 40% of the clubs actually had antlerless deer killed that year. Reluctance to harvest antlerless deer is prevalent in many clubs.

The antlerless deer kill accounted for 21% of the total in 1967. For both archery and rifle seasons on all clubs, just over one-half had no antlerless deer kill, and only about one-fifth had a total antlerless deer kill amounting to more than 30% of the total kill.

Other Wildlife Management Practices

Other habitat modification work by the clubs has generally concentrated on fish and duck habitats. Efforts to improve lakes, ponds and streams for fish have been made by 31% of the clubs. Twenty percent of the clubs have tried to improve conditions for ducks through floodings, planting foods desirable to ducks, or constructing artificial duck nests.

Clubs do not generally stock wildlife. Planting trout is most common, with 31% of the clubs having planted some trout from 1964-68. A few clubs stocked fish other than trout; and a few stocked wild turkeys.

INTERVIEWEE CHARACTERISTICS AS AN INSIGHT TO CLUB POWER STRUCTURE

During each interview, information about the interviewee was collected. Eighty-one percent of the persons interviewed were officers of their respective clubs, and the remaining 19% were either former officers or persons recommended by club officers. The information is obviously not representative of all club members, but it gives some insight as to the kinds of people responsible for governing and managing the clubs.

All interviewees were males over 30 years old. Sixty-three percent were from 40 to 59 years of age, and 26% were 60 years or older. Ninety-four percent of the interviewees were married, 4% were widowers, and 2% were single.

Most persons interviewed were well educated; 94% had graduated from high school, 70% had some study beyond high school, 50% had graduated from college and 24% had studied beyond 4 years of college. The educational level of the interviewees is reflected in their occupations, with three-fourths of them business owners, executives, or in professions. Over 80% had gross family incomes of \$12,000 or more.

Nearly two-thirds of the interviewees had been members of their clubs for less than 20 years.

About one-third of the interviewees own a personal cabin on their club property, while the rest use only the club's lodge.

Most interviewees are familiar with their clubs, and use them often. In 1967, more than one-fourth of the interviewees visited their clubs 20 or more times, while three-fourths of them visited their clubs 5 or more times.

The longest visit any of the interviewees made to his club in 1967 was 14 days. Only 17% visited their clubs longer than 12 days, but 88% visited more than 2 days in that year.

Fall was the favorite season for two-thirds of the interviewees to make their longest visit to their clubs in 1967; 55% made their longest visit in that season, which includes the deer hunting season. The summer months of June, July and August totaled 27% of the longest visits. These are not only popular months for fishing but also for various family activities.

The two most popular activities of the interviewees when they are at their clubs are deer hunting (44%) and fishing (20%). A total of 71% said their favorite activity is either hunting or fishing. It is significant that the favorite activity of 29% of the interviewees was neither hunting nor fishing, but

included walking, game watching, and similar activities. Hunting and fishing were the second favorite activity among 45% of the interviewees.

Current Problems and Future Prospects

Each interviewee was asked if there are any current club problems or problems that he could foresee which might affect the continued existence of his club. More than half said they could not think of any problems. Twenty percent thought that increasing population might influence the government to either tax clubs out of existence or simply condemn them in the future when large parcels of land are needed for public use.

Approximately one-fourth of the persons interviewed saw more immediate problems. Twelve percent believe their members may want to sell the club property for a profit, and 10% think increasingly serious trespassing and vandalism may force their clubs to close.

All problems appear to be related to population growth and increased demands on land use. The remaining 4% of those interviewed were concerned over personality clashes among the members over alleged undesirable resource management.

Each interviewee was asked if he could think of any current or future club problems which state or federal agencies could help solve. Fifty-seven percent of those interviewed said that their club either did not need or did not want governmental help. Many who responded this way added they were afraid public help would have strings attached which would eventually force the club to allow public use of its property.

Sixteen percent of the interviewees believe there are activities in which technical advice from appropriate public agencies would help, while 10% believe that some governmental aid in resource management activities such as stocking wildlife, feeding deer, or prescribed burning would help their clubs. Eight percent saw a need for changes in hunting or fishing laws, and 6% want stronger action by law enforcement agencies against trespassers.

The question of each club's future was put to all interviewees. Their responses indicate that the clubs are stable, and most should exist for some time to come. Sixty-five percent believe their clubs will continue in the future much the same as they have operated in the past. Twenty-seven percent, perhaps having more foresight, believe use of their clubs will increase, become more diversified and have more family use. Only 4% foresaw the eventual sale of their clubs, and 4% more did not venture an opinion.

SUMMARY AND CONCLUSIONS

A study of resource use and management by large private hunting and fishing clubs 640 acres in size and larger in 31 counties of northern Lower Michigan (Michigan's Club Country) showed there are 84 such clubs and they own about 185,000 acres of land in the region.

The common impression that the large clubs control a much larger area is erroneous. Many people assume fenced or posted land in the region belongs to large clubs, while much of the property is actually in small absentee ownership.

About 5,000 families belong to the clubs. When the average area of about 35 acres per membership is considered, the clubs come into focus as groups of people with common interests, pooling relatively small land areas to form larger units for their common use. Club membership costs about what it would cost an individual to buy land equal to the membership share in the club, but, by joining a club, the member has the opportunity to use a much larger total land area.

The number of clubs appears to be relatively stable; less than one-fifth were started in the past two decades. Rising land costs and lack of available large land areas will most likely prohibit formation of new large clubs.

The most important recreation facilities that the large clubs have are their forests, lakes and streams. These resources, along with wildlife that inhabit them, are the primary sources of outdoor recreation in clubs today. Very few have elaborate man-made outdoor recreation facilities such as tennis courts and golf courses.

The most popular outdoor recreation activities in the clubs are hunting and fishing. Riding in an automobile to view wildlife is also popular. Winter activities are increasing with the rapid development of the snowmobile. Bird watching and mushroom hunting are popular with many club members.

Although many club members take part in outdoor recreation activities, many others do not, because clubs are important to many members simply as a retreat from urban living. As travel to clubs becomes easier, hunting and fishing may well decrease in importance to future club members, while the importance of clubs as a sanctuary from the pressures of modern life may well increase.

The future of commercial timber cutting and forest management on the large club lands appears bright. About three-fourths of the clubs have engaged in recent commercial cutting, and almost half are presently following forest-wildlife management plans prepared by foresters employed by the pulp

and paper industry. This industry is playing an important role by providing both a market for timber products and professional advice to the clubs. Industry's willingness to emphasize and manage for wildlife benefits has induced many clubs to enter into forest management agreements.

Most large clubs have been motivated to cut timber for wildlife habitat improvement rather than monetary gain. Perhaps other absentee forest landowners in the region can be induced into forest management agreements through similar non-economic motivation.

Deer hunters in large clubs enjoy twice the archery success, and two-and-one-half times the rifle success of hunters throughout the state. The fact that these people belong to clubs indicates many are dedicated, experienced deer hunters, they know the land, and have hunted the same area for many years. Much of the land is managed for deer, and the number of hunters is controlled.

Unless natural mortality and kill by trespassers or neighboring hunters accounts for a high number of deer on club lands, the herds cannot possibly be under control. Antlerless deer comprised only one fifth of the total deer harvest on club lands and in 60% of the clubs, no antlerless deer were killed in 1967. This cannot be adequate to control the deer population, and the present and future condition of the deer habitat must be in jeopardy.

Recent commercial timber cutting in some clubs has temporarily increased the carrying capacity of the habitat, but an uncontrolled deer herd will eventually destroy it. Therefore, the future of deer hunting and habitat maintenance on these lands must be questioned unless a more adequate deer harvest is made.

The total deer kill could be increased if large clubs would allow more people to hunt on their lands, but one of the main reasons for belonging to a club is to have limited hunting competition and a high chance for hunting success.

Many club members think they are defeating their purpose in belonging to a club by allowing more hunters on their lands. Increased hunter density

would likely decrease hunter safety. Sleeping accommodations limit the number of hunters that can use a club at one time. Also, many clubs have provisions in their constitutions or bylaws which limit the number of hunters. So, even if the clubs recognize the need for higher deer kill, it is not a simple matter for them to accomplish that objective.

Club officers are generally highly educated, successful men who visit their clubs often. Efforts by public and private agencies to communicate the problems and solutions of forest resource management must be directed at these officials, keeping in mind their high educational level, and their success in the professions and in the business world. Natural resource professionals dealing with the clubs should not undersell the complexities of forest resource management, and should present scientific documentation used within their natural resource professions. The people with authority in the clubs are capable of understanding the complexities of forest resource management, provided they are properly presented to them by the natural resource professionals.

Study results indicate clubs will continue for many years, but with more diversified and family use. Although clubs do not appear threatened by any serious immediate problems, there is some fear of the effects of increasing population. There is an air of independence regarding public agency assistance; part of this comes from fear by some clubs that public agency assistance would have strings attached.

The large private hunting and fishing clubs in northern Lower Michigan are comprised of groups of individuals providing forest-oriented recreation for themselves. The clubs are not single-use oriented; their members take part in a variety of activities. Forest resource management activities in many clubs are purposeful endeavors following professional advice. Some clubs face future problems with their forest resources and wildlife habitat unless they act to control the size of their deer herds. The clubs are also a fairly important source of raw material for the pulp and paper industry of the region.

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Outlying Field Research Stations

These research units bring the results of research to the users. They are geographically located in Michigan to help solve local problems, and develop a closeness of science and education to the producers. These 15 units are located in important producing areas, and are listed in the order they were established with brief descriptions of their roles.

- 1 Michigan Agricultural Experiment Station. Headquarters, 101 Agriculture Hall. Established 1888. Research work in all phases of Michigan agriculture and related fields.
- 2 South Haven Experiment Station, South Haven. Established 1890. Breeding peaches, blueberries, apricots. Small fruit management.
- 3 Upper Peninsula Experiment Station, Chatham. Established 1907. Beef, dairy, soils and crops. In addition to the station proper, there is the Jim Wells Forest.
- 4 Graham Horticultural Experiment Station, Grand Rapids. Established 1919. Varieties, orchard soil management, spray methods.
- 5 Dunbar Forest Experiment Station, Sault Ste. Marie. Established 1925. Forest management.
- 6 Lake City Experiment Station, Lake City. Established 1928. Breeding, feeding and management of beef cattle and fish pond production studies.
- 7 W. K. Kellogg Farm and Bird Sanctuary, Hickory Corners, and W. K. Kellogg Forest, Augusta. Established 1928. Forest management, wildlife studies, mink and dairy nutrition.
- 8 Muck Experimental Farm, Laingsburg. Plots established 1941. Crop production practices on organic soils.
- 9 Fred Russ Forest, Cassopolis. Established 1942. Hardwood forest management.
- 10 Sodus Horticultural Experiment Station, Sodus. Established 1954. Production of small fruit and vegetable crops. (land leased)
- 11 Montcalm Experimental Farm, Entran. Established 1966. Research on crops for processing, with special emphasis on potatoes. (land leased)
- 12 Trevor Nichols Experimental Farm, Fennville. Established 1967. Studies related to fruit crop production with emphasis on pesticides research.
- 13 Saginaw Valley Beet and Bean Research Farm, Saginaw. Established 1971. Studies related to production of sugar beets and dry edible beans in rotation programs.
- 14 Kalamazoo Orchard, Kalamazoo. Established 1974. Research on integrated pest control of fruit crops.
- 15 New Horticultural Field Station, Clarksville. Established 1974. Research on all types of tree fruits, vegetable crops, and ornamental plants. First research plots to be established during 1975.

