



DEER BAITING ISSUES IN MICHIGAN

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ISSUES

The mission of the Wildlife Division of the Michigan Department of Natural Resources (DNR) is: *To enhance, restore, and conserve the State's wildlife resources, natural communities, and ecosystems for the benefit of Michigan's citizens, visitors, and future generations.* Implicit in this mission statement is the goal of maintaining viable populations of game species that provide recreational opportunities for people. An important function of the DNR is to make recommendations to the Natural Resources Commission (NRC) concerning methods and manner of take of species under Commission authority. All recommendations are established with consideration of the biological and social impacts of proposed changes and are based on the best available scientific information.

The DNR was asked to examine the issue of deer baiting and consider whether the practice should be regulated. Bait is a substance (except for decoys and scents, which are not considered bait) that is used to lure or attract deer during an open season for deer. There are no restrictions on the use of legal bait in Michigan, except in the Bovine Tuberculosis (TB) Management Area. The purpose of this paper is to review the biological and social implications of regulating or restricting deer baiting.

BACKGROUND AND DISCUSSION

BIOLOGICAL ISSUES

There are several biological issues to consider concerning baiting; however, research on the topic is limited because baiting deer is illegal in many states, not often practiced in others, and thus not widely viewed as a management issue (Dawson 1988). Although baiting has not been widely studied, some results from research done on supplemental feeding can be applied to baiting.



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CATEGORIES OF BAITING

The amount of bait used and the length of time that hunters bait vary widely. DeJong (1988) identified three primary categories of bait used by hunters as distracters, attractors, and concentrators.

Bait used as a distracter involves using just enough bait along a trail or the natural movement pattern to keep the deer busy as the shot is taken. The hunter still must select a suitable spot for a blind where deer are present naturally. An attractor draws deer into a desirable location and distance for the shot. The hunter picks an area where deer are present but draws them into a pattern of movement, which makes them accessible to the hunter. A concentrator moves deer into an area and holds them for an extended period of time. The practices of baiting and feeding may be difficult to distinguish especially when they occur on a large scale such as with a concentrator. Some feeding activities sometimes become baiting only because they are used for hunting purposes during the season on deer. Michigan hunters used an average 16.3 bushels of bait in 1984 (Langenau et al. 1985). By 1991, this had increased to an average of 40 bushels per hunter (Winterstein 1992). This would suggest that the average bait hunter in Michigan probably used bait as an attractor or concentrator, rather than a distracter.

DISEASE

The primary biological consideration of baiting deer is the increased potential for disease transmission whenever animals are concentrated (Leopold 1933). As part of the evaluation of the bovine TB eradication process in Michigan, research is being conducted to determine the effects of feeding and baiting on deer movement, migratory patterns, and behavior. Unregulated baiting can concentrate deer for a prolonged period of time, in contrast to the normal grazing or browsing practices of deer in the wild. Concentration leads to close animal-to-animal contact and stress that may facilitate transmission of diseases such as bovine TB. The strongest hypothesis proposed by scientists involved with the problem is that the maintenance of bovine TB in Michigan white-tailed deer is directly related to supplemental feeding/baiting and the increased focal densities these practices create (Schmitt et al. 1997). Under the unnatural circumstances of supplemental feeding, inhalation of the bovine TB bacteria or consumption of feed contaminated with bovine TB bacteria by coughing and exhalation is much more likely to occur (Schmitt et al. 1997). In response to the bovine TB outbreak, the Michigan Department of Agriculture (MDA) prohibited supplemental feeding practices within the Bovine TB Management Area except for the purposes of baiting during hunting seasons. The NRC then restricted the amount of bait that could be used in that area to reduce the occurrence of deer concentrations. These regulations limit the amount of bait that can be used at one time to five gallons and restrict baiting to a September-January 3 period. These measures were thought necessary to help eliminate bovine TB in the deer population in the northeastern Lower Peninsula by reducing large concentrations of deer at feeding and baiting sites within this area, while still allowing hunters the opportunity to harvest deer over the bait.

Another disease of deer that has been observed in free-ranging deer and elk in Colorado and Wyoming and captive deer and elk in South Dakota, Oklahoma and Nebraska is chronic wasting disease (CWD). Experimental and circumstantial evidence suggests infected deer and elk probably transmit the disease through animal-to-animal contact and/or contamination of food or water sources with saliva, urine, and/or

feces (Williams and Young 1980, Miller, Wild and Williams 1998). Chronic wasting disease seems more likely to occur in areas where deer or elk are crowded or where they congregate at man-made feed and water stations. Artificial feeding or baiting of deer and elk may compound the problem (Williams and Young 1980, Miller et al. 1998). This disease has not been reported in Michigan; however due to its spread in the western U.S., it remains a potential problem (T. Cooley, DNR, Rose Lake Wildlife Lab., East Lansing, MI, pers. comm.).

Other diseases of concern in white-tailed deer in North America are anthrax, blackleg, brucellosis, hemorrhagic disease, vesicular stomatitis, leptospirosis, listeriosis, tularemia, anaplasmosis, and brain worm (Hurley 1995). Blackleg has been reported in Michigan in association with deer that had been injured during capture. Hemorrhagic disease outbreaks have occurred in Michigan, although the effects were not widespread (T. Cooley, DNR, Rose Lake Wildlife Lab., East Lansing, MI, pers. comm.). Brain worm is present in Michigan deer but is of no public health significance since it is not infective to humans (T. Cooley, DNR, Rose Lake Wildlife Lab., East Lansing, MI, pers. comm.). Although it is difficult to attribute the spread of disease to deer density alone, it is true that some disease problems arise more commonly in areas of high density and are less frequent in low-density areas (Eve 1981). This can be attributed to several factors including poor nutrition, stress, and increased number of animal-to-animal contacts (Davidson 1981).

Enterotoxemia, a disease of overeating, affects yarded deer subjected to supplemented feeding. Hunters frequently use high-energy, high-carbohydrate foods such as corn as bait, which has been shown to affect the microflora in the deer rumen. The overeating of these food sources increases the fermentation (lower pH - more acidic) that occurs in the deer's rumen, which causes bloating and leads to diarrhea, enteritis, and possible death. Michigan deer also concentrate in winter yards and other areas even where bait is not present, although enterotoxemia has only been found in yarded deer, which are fed supplemental high-energy, high-carbohydrate food (Michigan DNR 1993). This disease occurs almost yearly in Michigan, although it is reported in relatively low numbers (T. Cooley, DNR, Rose Lake Wildlife Lab., East Lansing, MI, pers. comm.).

EFFECT ON MOVEMENT PATTERNS

There are other aspects of deer biology that could be negatively affected by unregulated baiting practices. For example, baiting may delay deer migration to winter habitats (Ozoga and Verme 1982). A delay in migration due to fall baiting may keep deer in areas lacking natural food sources and cause starvation when sources of supplemental feed are stopped.

Another behavioral change in deer frequently attributed to deer baiting is increased nocturnal activity (Charles 1993). Synatzke (1981) observed heavy nocturnal use of bait in Texas. Use of baited sites seemed to become more nocturnal as the hunts progressed, possibly reflecting increased wariness of deer due to continuous hunting pressure. This may suggest that human disturbance rather than the influence of bait may affect the nocturnal and diurnal behavior of deer. A Mississippi study reported that, as the number of hunters at bait sites increased, the daylight activity of the bucks at the sites decreased. That study noted that bucks used the bait stations during only 10 percent of the legal shooting hours. This suggests that human

disturbance affected deer activity more so than the use of bait (Wegner 1993, as cited in Michigan Dept. of Natural Resources 1993).

HABITAT

Deer baiting may also affect surrounding habitats. Any concentration of large herbivores can damage habitat, although one study suggested that deer browsing may increase smooth sumac production (Strauss 1991). Examples of negative habitat changes are the severe damages that have occurred on private club lands, resulting in changes in tree species composition, retarded forest regeneration, and delayed development of stands (Michigan DNR 1993). Ullrey observed that a food supplement block caused deer to concentrate in the vicinity of the block and speculated that this may increase deer damage to the natural vegetation in the area (D. Ullrey, MSU, Animal Science Dept., E. Lansing, MI, letter in DNR files, Jan. 26, 1993). Damage on public land is primarily localized and has not created severe damage, with the exception of cedar swamps. Northern white cedar is sensitive to browsing and long-term damage may result to stands due to deer browsing. Effects of baiting due to concentrating large numbers of deer may not be easily measured, especially when the deer population is growing concurrently. The increased amount of food available through baiting may also positively effect reproduction rates, especially when combined with supplemental feeding. This may raise population levels much higher than the natural habitat can support. Maintaining deer populations within limits of the habitat carrying capacity probably is the single-most effective means of reducing density dependent problems including infectious diseases (Davidson 1981).

INFLUENCE OF BAITING ON HUNTER SUCCESS

While a majority of respondents who used bait felt the use of bait increased their chance of harvesting a deer, most studies show baiting to be only slightly more effective in harvesting deer. A 1999 phone survey conducted by the DNR reported that in Deer Management Unit (DMU) 452, 44 percent were successful using bait, while 52 percent were successful without bait. Winterstein (1992) reported that hunters using bait were 20 percent more effective in harvesting deer (3.8 deer harvested per 100 days of hunting) than those who did not use bait (3.1 deer per 100 days of hunting). In the 1984 survey (Langenau et al. 1985), hunters who used bait were no more effective in harvesting deer (2.4 deer per 100 hunter days) than those who did not use bait (2.2 deer per 100 hunter days). A 1993 Wisconsin survey found that hunting with bait does not increase a hunter's success rate compared to those that did not use bait. In the survey, exactly one-half of the hunters who used bait during their 1992 gun hunts bagged a deer while 54 percent of the hunters who did not use bait bagged a deer (Wisconsin Bureau of Wildlife Management 1993). These findings are not consistent over all geographic areas, however. A Texas study reported higher success rates, reduced kill distances, more deer observed, and less time required to harvest a deer when hunting over bait (Synatzske 1981). These results should be interpreted with caution because they are not consistent with results of surveys conducted in the north, and they may not be applicable in Michigan.

Because of higher harvest rates over baited sites in Texas, Synatzske (1981) suggested that baiting was an effective tool for increasing the harvest of deer in areas where higher deer harvest is needed. A restriction on baiting in Michigan may affect the effectiveness of deer control in urban areas of the state. For example,

Oakland County parks uses deer “shooting stations” to control hunter movements. The stations allow specific shooting areas and distances that hunters may shoot deer to assure that shots are taken in a safe direction and to maximize the harvest. Bait is used to attract deer to the area in which it is safe to shoot (T. Payne, DNR Wildlife Division, Livonia, MI, pers. comm.). Any statewide ban on baiting may have an effect on how these programs are administered.

SOCIAL ISSUES

Deer baiting has always been legal in Michigan. Historically, there has been little controversy despite the lack of regulations and restrictions on the practice. However, the practice of using bait to attract deer for consumptive purposes has become an often-discussed issue in recent years. Because deer baiting has been a contentious issue, the DNR has monitored hunters’ attitudes and behaviors regarding deer baiting through a series of surveys implemented in 1984, 1987, 1992, and 1993.

At the series of public meetings held in 1995 by the DNR, 59 percent of those polled wanted baiting left as it was, 18 percent wanted baiting regulated in some way, and 20 percent wanted a ban on baiting. In letters to the NRC commenting on the issue, 55 percent wanted baiting left as it was, 12 percent wanted baiting regulated, and 33 percent wanted a ban on baiting (Michigan DNR, unpublished data). Based on this input, the NRC left baiting unchanged. The 1993 survey of a random sample of deer hunters indicated that only 26 percent of the respondents wanted baiting left as it was, 44 percent approved of some method to restrict baiting, and 28 percent wanted baiting banned in the state (unpublished data, B. Peyton, MSU, East Lansing, MI). However, opinions were divided on what manner of restriction to use. The most popular restriction found on the survey was to limit quantities of bait allowed on public lands.

Baiting has increased steadily among Michigan hunters. In 1984, only 29 percent of deer hunters reported using bait (Langenau et al. 1985); 41 percent reported using bait to hunt deer in 1991 (Winterstein 1992). In 1993, 56 percent of respondents reported using bait to hunt deer (Minnis and Peyton 1994). Archery hunters use bait at a higher rate than firearm hunters; 71 percent reported using bait during at least part of the season compared to 53 percent of firearm hunters (Minnis and Peyton 1994).

Just over half (53 percent) of the respondents in the 1993 survey believed that baiting in Michigan should remain legal, whereas 29 percent believed that deer baiting in Michigan should be banned (Minnis and Peyton 1994). People who had hunted deer over bait were asked to rate the importance of seven statements as reasons for hunting deer over bait. Nearly three-fourths of those who baited reported that baiting is more exciting because they can watch more deer and other wildlife, and 63 percent reported that they have a better chance to harvest a deer by baiting than with other methods. About one out of five (22 percent) deer baiters reported that the need to compete with other hunters using bait was a very important reason for deer baiting.

ETHICS

The primary basis for opposition to baiting seems to be one of ethical judgment. Respondents opposed to baiting were asked to rate the importance of six statements as reasons for opposition. Fifty percent of those who were opposed to baiting felt the statement “Baiting is unethical.” was a very important reason for their position. Forty-seven percent of this group felt the statement “Baiting threatens to decrease the quality of deer hunting in Michigan.” was a very important reason. A third statement, “Baiting increases interference and/or competition among deer hunters.” was rated as a very important reason by 39 percent of respondents supporting a ban on baiting (Minnis and Peyton 1994).

Another ethical concern is one of fair chase. Fair chase is a set of hunting conditions in which the individual decision-maker judges the taking of prey as acceptably uncertain and difficult for the hunter (Peyton 1998a). Some hunters and many non-hunters think that baiting deer is too easy and “unfair” to the deer. Fair chase issues may serve to draw non-hunters’ attention to a controversy, such as baiting deer. Non-hunter perceptions of “unsporting” behaviors can also create a poor image of those who participate in or allow the practice, and thus erode credibility of the agency and its hunting constituents (Peyton 1998b).

In a 1994 telephone survey of randomly dialed households, respondents were asked whether they found certain hunting practices to be acceptable or unacceptable. When respondents who oppose all forms of hunting (12 percent of sample) were dropped from the analysis, 33 percent of the remaining non-hunters found hunting deer with bait to be acceptable, 58 percent said it was unacceptable, and 9 percent were undecided (Peyton and Grise 1995). This public sentiment must be placed in context. It did not reflect a mandate to do away with deer baiting. Hunting bear with bait was also unacceptable to 63 percent of this group, and if anti-hunter opinions are added to this total, the proportion of the non-hunting public opposing bear baiting was over 70 percent. Yet Proposal D failed to pass in 1996. In part, this was likely because the opposition to baiting was not a strong attitude and other factors outweighed this in deciding the final vote. It appears that deer baiting is not a pleasant activity for many non-hunters, but it may not be one for which they will demand change unless some action is precipitated.

PERCEPTION

Among those opposed to baiting, an important reason given was that baiting increases hunter conflict and interference, yet only 17 percent of all respondents in this study felt that baiting had increased conflicts among hunters in the area they hunted (Minnis and Peyton 1994). Presumably, conflicts over bait piles would occur exclusively on public lands, and some surveys have attempted to address the use of bait on public versus private lands. In Wisconsin, 52 percent of respondents supported restricting baiting to private property. In Michigan, Minnis and Peyton (1994) reported that 52 percent of respondents approved of restricting the amount of bait a hunter can have on a hunting site at any one time on public land, while only 36 percent approved of restricting the amount on private lands. Enforcing baiting regulations may be more difficult on private land; however, of those who thought baiting should remain legal, only 33 percent thought that enforceability was an important reason to keep baiting legal (Minnis and Peyton 1994).

There is a trend toward increasing polarization among hunters regarding the acceptability of deer baiting in Michigan. While approval for baiting is increasing, it is equally noteworthy that the proportion that disapprove is also increasing—although at a lesser rate. Even though the anti-baiters are a minority within the deer hunting population, they are vocal and are motivated by a sense of ethics. The number of hunters opposed to baiting may be less important than their dedication to ending deer baiting practices.

Respondents of the 1993 study were presented with nine possible regulations on deer baiting and asked to rate them. Only one of the nine possible regulations—restrict the amount of bait a hunter can have on a hunting site at any one time on public land—received a favorable response from a majority of respondents, and even that regulation received approval from only 51 percent of the respondents. A slight majority (52 percent) of respondents disapproved of quantity restrictions on private land. Restrictions on the use of bait prior to or during archery, firearm, or muzzleloader seasons were not supported in this survey. Respondents also disapproved of removing bait at the end of the season or requiring a minimum distance between the hunter and the bait (Minnis and Peyton 1994).

SAFETY

During the time that use of bait has increased in Michigan, hunting accidents have declined steadily (R. Asher, DNR Law Enforcement Division, Lansing, MI, pers. comm.). It is believed that the increased use of bait is one reason for the decline in accidents (R. Asher, DNR Law Enforcement Division, Lansing, MI, pers. comm.). Hunting over bait is presumed to be safer than other hunting techniques because it allows hunters to remain stationary near their bait pile rather than moving about and encountering other hunters. Hunters frequently have a clear line of sight to their bait pile allowing them a better view of their target and reducing the chance of an accident (R. Asher, DNR Law Enforcement Division, Lansing, MI, pers. comm.). Minnis and Peyton (1994) reported that among those who thought baiting should remain legal, 47 percent thought it was important to keep baiting legal because they believed baiting was safer than other hunting methods.

ENFORCEMENT

Use of bait may also facilitate illegal activities such as shooting deer at night. Shooting deer at night over bait is perceived by DNR law enforcement to be a widespread problem and is probably more common than spotlighting deer from vehicles (R. Asher, DNR Law Enforcement Division, Lansing, MI, pers. comm.). Lighted bait piles occur primarily on private land, making it difficult to catch violators. If bait piles were illegal, it might be easier to prosecute violators who use them to poach deer at night. However, the public is often skeptical of laws that restrict legal behaviors to make it easier to catch violators. A ban on baiting may be easier for law enforcement personnel to enforce than a quantity restriction on bait. However, field personnel in DMU 452 reported good compliance with the five-gallon quantity restriction in place during the 1998 hunting season (H. Burns, DNR Law Enforcement Division, Lansing, MI, pers. comm.).

Baiting has the potential to create a litter problem if containers are not disposed of properly. Objections have been raised to the foul odors and unsightly views associated with large bait piles on public land (DNR unpublished data). However, in the 1993 survey, 72 percent of the respondents disagreed that baiting

created a litter problem in the area that they hunted compared to 13 percent that indicated that it was a problem (Minnis and Peyton 1994). Field staff for the DNR indicates that litter from bait materials is a relatively minor problem and is probably limited to public land (R. Shellenbarger, DNR, Wildlife Division, Gladwin, MI, and W. Mikula, DNR Law Enforcement Division, Mio, MI, pers. comm.).

A more widespread problem associated with baiting is illegal off-road vehicle (ORV) use. These machines are used to transport the bait back into the area that the hunter is using. Off-road vehicles are illegal on many public lands, and the perception of field staff is that baiting encourages their use. Another problem associated with illegal use of ORVs is the creation of new trails to access remote areas of forest to hunt. New trail creation frequently involves cutting trees illegally and crossing streams and creeks, which causes erosion (R. Shellenbarger, DNR, Wildlife Division, Gladwin, MI, and W. Mikula, DNR Law Enforcement Division, Mio, MI, pers. comm.).

ECONOMICS

Another social issue that should be considered is the economic effect of a ban or restriction on baiting. Winterstein (1992) reported that sugar beets, corn, and apples were the most common baits placed by hunters. The use of corn had increased from 10 percent in 1984 to 23 percent in 1992, while the use of apples and carrots had decreased. Sugar beet use remained about the same. The study estimated over 13 million bushels of bait were used in 1991, with a net value in excess of 50 million dollars. In 1991, the average hunter using bait placed about 40 bushels during the seasons. Minnis and Peyton (1994) reported that among those who thought baiting should remain legal, 51 percent thought that economic considerations were important. In 1995, Michigan Farm Bureau (MFB) suggested support for regulating baiting if it could be done early enough to allow farm producers to adjust their seed orders or locate additional markets for the deer bait. In 1998, MFB passed a resolution supporting a statewide bait limit of five gallons and approved of legislation to prohibit deer feeding statewide.

SUMMARY

Baiting involves a complex set of issues. Traditions, standards, and uses of bait vary greatly among sportsman and across time and area. The basis for support or opposition to baiting among hunters seems to be largely based on perception of ethical standards and hunter success. Baiting is an issue that arose largely from social and ethical concerns and has become a biological issue due to the potential for disease transmission.

Research data suggest that baiting has the potential to increase disease transmission through close animal contacts with food, feces, or urine. Strong evidence that supplemental feeding perpetuates bovine TB, and baiting has the potential to contribute to that problem. This is especially true when unregulated baiting concentrates animals for a prolonged period of time. Concentration leads to close animal-to-animal contact and stress that may facilitate transmission of diseases such as bovine TB.

There is a potential for other diseases to be involved elsewhere in the state if supplemental feeding creates appropriate conditions for pathogenic forms, and extensive baiting could contribute to this problem. There is good supportive evidence of relationships, but conclusive research is unavailable. Research is ongoing regarding the amount of bait used and method of bait distribution, but decision making would be enhanced if we had research in the areas of disease transmission to establish risks more accurately.

The effects of baiting on biological factors such as deer movements, habitat damage, and deer behavior have not been widely studied. Information on these topics is largely descriptive or anecdotal in nature. While these issues have the potential to be significant, they are not as well documented as the issue of disease. Other factors such as hunter success are often perceived as an issue, but research has documented little difference in harvest rates between hunters who use bait and those that do not. Baiting deer may affect hunting safety, illegal ORV use, and poaching, but it is not certain to what extent these factors would change with a change in baiting regulations.

Deer baiting issues such as ethics and fair chase have created conflicts among hunters and have the potential to create conflicts with the public. Non-hunter involvement in this issue can be expected to be detrimental to sport interests. No clear consensus regarding restrictions has emerged from our hunting constituents, although about half have supported a quantity restriction on public land in 1993 and half disapproved of a quantity restriction on private land. There are strong economic interests in the issue of baiting with its net value estimated at over 50 million dollars in 1991.

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Wildlife Division Contact Person: Scott Whitcomb, (517) 373-1263

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