

**A Review of Wildlife Baiting and Feeding Practices
Pertaining to North Dakota
With Special Emphasis on Big Game
(Job No. C-I-1; Supplement Report No. A-160A)**



Photo: NDGFD

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Executive Summary

A review of wildlife baiting and feeding practices pertaining to North Dakota with special emphasis on big game.

Issues and events surrounding baiting and feeding of wildlife are generating increasing attention in North Dakota, the U.S. in general, and Canada. As the state wildlife agency, we are responsible for minimizing or eliminating the effects of risk factors or practices in an attempt to prevent negative ecological effects. This report was prepared by an internal working group for the purpose of gathering and reviewing available science-based information on biological and sociological effects of artificial feeding and baiting of wildlife. The working groups' intent is to provide this review to assist with answering questions and concerns within the agency. This document is also intended to guide subsequent decision-making with respect to feeding and baiting. The Department is responsible for minimizing or eliminating the effects of controllable artificial risk factors or practices to prevent negative ecological effects.

Perspectives and attitudes regarding baiting and feeding have changed over the years. Biologists have recognized the importance of managing populations rather than individual animals. In the last decade, concerns of overabundance and concentration of deer have shifted to interactions between deer and artificial feeding and baiting. Concerns of the transmission of disease, spread of noxious weeds, disruption of animal movements and spatial distribution and general degradation of habitat have followed. Significant biological and ecological effects of artificial feeding and baiting have been documented at the individual, population, and community levels.

In addition to biological impacts, baiting and feeding wildlife involve social issues and related impacts such as economics, human safety, and discord among hunters or landowners. Unfortunately, science can not determine whether hunting over bait is ethical. Such personal views are better resolved through education.

Although many information gaps and lack of research in specific areas exist, current information is sufficient to conclude that the potential for negative effects of feeding or baiting is high for many species of wildlife. Furthermore, we may not be able to fully understand the specific mechanism between cause (baiting or feeding) and effect to allow accurate predication of the magnitude of effect. For example, we may know that providing artificial feed has potential to increase disease transmission such as tuberculosis, but we may not know what influence the type, quantity, and distribution of food, or the timing and duration of feeding may have on disease transmission.

This report contains background information and a number of recommendations and guidelines for each major group of animals. Each chapter is dedicated to such a group, such as big game, migratory game birds, and upland game. The final chapter summarizes the recommendations.

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Chapter 1

INTRODUCTION

The issues of feeding and baiting of wildlife are rapidly growing on both a state and national level. Thus North Dakota Game and Fish Department (NDGFD) assigned an internal work group to review the issues surrounding feeding and baiting of all wildlife with special emphasis on big game due to growing concerns and confusion. Some of these concerns include spread of disease, hunting opportunity, harvest, manner of take, spread of noxious weeds, and other ecological and social effects. Specifically, disease outbreaks in neighboring states and provinces have drawn attention to potential negative consequences of feeding and baiting wild animals and have raised concern about the potential impact of these practices. There is also confusion about legalities and defining baiting and feeding. Although perspectives may differ between agencies or personnel within agencies, we have recognized a need to gather available science-based information on the impacts of feeding and baiting of wildlife.

Peer-reviewed scientific literature was the primary source of information for this report. However, “non-scientific” information from varied sources (e.g., government websites, expert personal opinion, and the popular press) was also reviewed. Although a many sources were reviewed, information gaps and lack of research continue to exist.

Statement of Report Objective

The purpose of this report is to provide a review of the issues and potential issues associated with feeding and baiting of wildlife in North Dakota and to provide recommendations for addressing these issues. This document is intended to assist with answering questions and concerns within the Game and Fish Department. It is intended to guide subsequent decision-making concerning management and research pertaining to feeding and baiting.

Definitions

For the purpose of this document, feeding is defined broadly as the placement of food, minerals, and water into the environment for consumption by wildlife. Artificial feeding supplements the food source contained naturally within the home range of any given species. Artificial feeding may be done for a variety of reasons including the following:

- *Supplemental feeding*: providing food to enhance individual and population features, such as antler size, number and survival of young, etc.
- *Emergency or winter feeding*: providing food when natural food sources become inaccessible or severely restricted, e.g., severe winter weather, snow depth, snow cover.
- *Intercept or shortstop feeding*: providing food to reduce damage to agricultural crops, livestock, or other property; this is not a regular feeding program.
- *Recreational feeding*: providing food to enhance wildlife viewing opportunities.

Artificial feeding may occur intentionally (as described above) or unintentionally. These potential food sources may be garbage dumps, compost heaps, standing or stored agricultural crops, and artificial environments such as golf courses.

Baiting is a component of feeding and is defined as the placement or use of bait to attract or habituate animals to a specific location for any purpose. Baits include but are not limited to grains, minerals, salts, fruits, vegetables, hay, or other natural or manufactured foods. However, for the purpose of this document baiting does not apply to the use of scents and lures, standing crops, or livestock feeds being used in standard farming practices. The purposes of baiting differ from feeding. Baiting is used as a technique to:

- Aid hunters
- Aid furbearer trappers
- Vaccinate wild populations against disease
- Poison nuisance wildlife
- Capture wildlife for management or research purposes.

Chapter 2

BAITING AND FEEDING OF BIG GAME

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Section I. An Historical Perspective on Big Game in North Dakota

Dwindling Game Populations and the Need to Do Something

In 1800 wildlife populations, in what is now North Dakota, differed greatly from what we find today. Bison, elk, and pronghorn were found in abundance while white-tailed deer and moose were far less common (Jensen 2001). Within 100 years of opening up the west, unregulated shooting, market hunting, and disease had decimated game populations throughout the western United States. Big game had been particularly hard hit by the cavalier attitude of commercial hide and meat hunters. By the late 1800s some influential citizens realized that our natural heritage was rapidly slipping away. As a result, state, federal and private groups started to take a number of steps to reestablish wildlife populations. Despite predator control and closing hunting seasons, limited enforcement of game regulations offered little hope for a speedy recovery.

In 1903 an era of intensive management began whereby animals reared on refuges and game preserves, through an established National Wildlife Refuge system, would be subsequently used to repopulate former habitat. North Dakota got its first National Game Preserve in 1905 near Devils Lake. The state followed by establishing the North Dakota Big Game Park near St. Johns in 1928. In 1930 the park held six buffalo, six elk, and four white-tailed deer (Knue 1991). Despite these efforts, many state officials held out little hope that these postage stamp sized preserves would make a significant difference for big game populations in the state.

In the early 1930s efforts were redirected toward fish hatcheries and game farms where the propagation of upland game birds, such as pheasants and Hungarian partridge, could be conducted (Knue 1991). During the drought and depression years (1933 to 1939) the Civilian Conservation Corps constructed conservation projects throughout the country. Among these were a number of waterfowl refuges; several of which were constructed in North Dakota. Among the largest national wildlife refuges in the state were the Des Lacs, J. Clark Salyer and Upper Souris in McHenry, Renville and Ward counties, respectively. Federal protection and control of the land surrounding the water

impoundments allowed white-tailed deer to quickly rebound on these refuges. The deer wandering in, presumably from provincial refuges in Canada, soon restocked the forested portions of the Turtle Mountains. By the mid 1930s the forested margins of the Missouri River, Upper and Lower Souris NWR, and the Turtle Mountains supported huntable deer populations.

Managing Individual Animals versus Managing Populations

After the hard fought battles to establish refuges and protect dwindling game populations, coupled with the costs of rearing game farm animals, it is easy to understand why game managers in the 1930s through the 1950s felt it necessary to try and preserve each and every animal. This husbandry of game animals naturally resulted in the attitude by many that predator control and artificial feeding were required management tools. As a result, North Dakota and many other states initiated supplemental feeding programs, particularly where snow and severe winter weather impinged upon deer and pheasant survival.

In retrospect, it was not supplemental feeding or transplants of animals that led to the recovery of deer and pronghorn in North Dakota and throughout the west. Populations of deer rebounded once harvest restrictions could be enforced. In the case of pronghorn it was research that demonstrated pronghorn feed primarily on forbs and shrubs, and that they were not carriers of Bang's disease or brucellosis (Cadieux 1987). These findings slowly changed traditional attitudes among ranchers that pronghorn were an impediment to profitable livestock operations; thus reducing indiscriminant shooting of pronghorn. White-tailed deer numbers now exceed pre-settlement populations, due primarily to agricultural practices, human induced habitat changes, and enforcement of hunting regulations.

Changing Perspectives

As with every field of science, perspectives and paradigms change over the course of time; wildlife management is no different. Research has shown that when deer have been artificially maintained at high numbers by supplemental feeding, deer can dramatically reduce the availability of natural forage (e.g., Leopold et al. 1947; Jensen 1982, Doenier et al. 1994). However, when deer numbers are kept in proper balance with available winter forage, and not provided supplemental feed, deer suffer only slightly higher than average winter mortality (Robinette et al. 1952). There is an extensive body of literature showing that high deer populations can dramatically alter forest communities (Bowles and Campbell 1994; deCalesta et al. 1997), threaten rare plant species (Allison 1990; Anderson 1994; Miller et al. 1992), and subsequently impact other native vertebrates such as Neotropical migrants (Casey and Hein 1983). Additionally, providing artificial feed increases the likelihood of introducing seeds from exotic and noxious plant species (Spurrier and Drees 2000). Even processing plant materials into pellets, through crushing and steaming, does not completely eliminate the presence of viable weed seeds (Cash et al. 1998). The introduction of exotic weeds can be costly to control and have devastating consequences to the natural community processes (Dunkley and Cattet 2003).

In the last decade concerns about overabundance and concentrations of deer have shifted to the links between deer baiting and feeding and the transmission of diseases such as bovine Tuberculosis and Chronic Wasting Disease (CWD) (Miller et al. 2003; Miller and Williams 2003). As a part of the North Dakota Game and Fish Department's Chronic Wasting Disease Prevention and Contingency Plan (Gerads et al. 2002) one of the action items identified to reduce the potential for spread of CWD into or within the state of North Dakota was to "Develop regulations prohibiting the baiting and artificial feeding of cervid wildlife, which will aid in reducing artificial concentration of cervids and reduce the likelihood of direct and indirect transmission of disease between individuals".

Changing Public Attitudes

Despite all the rational arguments against artificial feeding, public sentiment for feeding is easily rallied when pictures of dead and dying animals are presented in the media. It is at these times when "the long-term obligation to the population is seldom considered by those who initially undertake feeding to *save the animals*" (Robinson and Bolen 1984). In a state such as North Dakota, which is subject to severe winters and has 95 % of the land in private ownership and under intensive agricultural management, the general public will be confronted periodically with images of dead and dying animals during hard winters. Americans are accustomed to immediate solutions to problems. Management of public sentiment requires an informed, consistent, and timely response by the responsible agency. If not, authority is abdicated to the group or groups that can best rally the most support. The intent of this chapter is to provide information to fully inform department staff, regarding deer and other big game baiting and feeding issues, so that science-based management strategies can be developed. It will in turn allow for prudent, consistent, and timely responses to be made by department personnel.

Defining Baiting and Feeding

For the purposes of this chapter we are defining "baiting" as: the placement and or use of bait(s) for attracting big game and other wildlife to a specific location for the purpose of hunting. "Feeding" is the placement of food for deer and other big game animals in a specific location for any purpose (e.g., photographing or viewing, taming, providing nutritional supplements). Baits and feeds include but are not limited to grains, minerals, salts, fruits, vegetables, hay or any other natural or manufactured foods. This designation does not apply to the use of scents and lures, water, standing crops, or livestock feeds being used in standard farming practices.

Section II. National and State Surveys on Baiting and Feeding

A National Survey of Big Game Baiting and Feeding Regulations

A review of regulations governing baiting and feeding was conducted for all 50 states and the 13 Canadian provinces and territories. The results are as follows:

Baiting: As recently as 1999, only 18 states prohibited the use of bait while hunting deer. As of March 1, 2004, 24 states prohibit hunting deer over bait and another 8 states permit baiting with some restrictions. Additionally, 6 states have in the past year, or are currently reviewing changes to their baiting laws (i.e., Alabama, Kentucky, Mississippi, Vermont, West Virginia, and Wisconsin) (Table 1). In Canada, as of March 1, 2004, 8 of the 13 provinces and territories do not permit baiting (Table 2) (Dunkley and Cattet 2003) (Figure 1).

Feeding: As of March 1, 2004, 9 states prohibit feeding deer and another 7 states permit feeding with some restrictions. Additionally, 6 states have in the past year or are currently reviewing their laws in regard to feeding issues (i.e., Idaho, Minnesota, New Hampshire, Pennsylvania, West Virginia, Wisconsin) (Table 1) (Figure 2).

Based upon discussions with other big game biologists from around the United States and Canada regarding the recent surge in legislation to restrict baiting and feeding, the primary factor driving the debate is concern about the transmission and spread of diseases. The three diseases of particular concern are Chronic Wasting Disease (CWD), bovine tuberculosis, and brucellosis.

Table 1. Summary of baiting and feeding regulations for deer and elk in the United States. (Sources: State hunting guides, Deer and Deer Hunting Magazine, and personal communications). (Updated March 1, 2004; Wisconsin regulations updated August 2, 2004.)

State	May Food Bait Be Used?	May You Hunt Over Salt Blocks?	May You Hunt Over Mineral Blocks?	Is Feeding Allowed?	Comments
Alabama	Some restrictions	Yes	No	Yes	Unlawful to hunt in any area where feeding has taken place, until all the feed has been removed or consumed for at least 10 days prior to such hunt. Currently reviewing baiting restrictions.
Alaska	No	No	No	No	
Arizona	Yes	Yes	Yes	Yes	
Arkansas	Yes	Yes	Yes	Yes	
California	No	No	No	No	
Colorado	No	No	No	No	
Connecticut	No	No	No	Yes	
Delaware	Some restrictions	No	No	Yes	Unlawful to distribute bait or hunt any species, including deer over bait on Bombay Hook or Prime Hook NWR.
Florida	No	Yes	Yes	Yes	
Georgia	No	No	No	No	
Hawaii	Yes	Yes	Yes	Yes	Only two herds of deer on the Islands (about 1000 animals each). State strongly discourages feeding and baiting. One or two day hunting season.
Idaho	No	No	No	Yes, See Comments	Currently working on legislation to eliminate feeding.
Illinois	No	No	No	No	
Indiana	No	No	No	Yes	
Iowa	No	No	No	Yes	
Kansas	Yes	Yes	Yes	Yes	
Kentucky	Some restrictions	Yes	Yes	Yes	Banned baiting on WMA in 2003.

Table 1 (Continued)

State	May Food Bait Be Used?	May You Hunt Over Salt Blocks?	May You Hunt Over Mineral Blocks?	Is Feeding Allowed?	Comments
Louisiana	Yes	Yes	Yes	Yes	
Maine	No	No	No	Yes	As a disease prevention measure, public discouraged from feeding.
Maryland	Some restrictions	Yes	Yes	Yes	Baiting is not permitted on state-owned or state-controlled properties. Liquid scents may be used.
Massachusetts	No	No	No	Yes	
Michigan	Some restrictions	No	No	Some restrictions	
Minnesota	No	Yes	Yes	Yes	State legislature currently reviews whether or not to restrict feeding.
Mississippi	No	No	No	Yes	Currently two legislative bills circulating (one allowing permitted feeders and another "hunting over grain").
Missouri	No	Yes	Yes	Yes	Scents and minerals, including salt, not considered bait.
Montana	No	No	No	No	
Nebraska	Some restrictions	Yes	Yes	Yes	
Nevada	Yes	Yes	Yes	Yes	
New Hampshire	Not NWR Lands	No	No	Some restrictions	Encouraging people not to feed deer. Attempts in legislature to limit feeding defeated. Require written permission from landowner and put on file w/ local warden.
New Jersey	Not NWR Lands	Yes	Yes	Yes	
New Mexico	No	No	No	Yes	
New York	No	No	No	No	
North Carolina	Yes	Yes	Yes	Yes	

Table 1. (Continued)

State	May Food Bait Be Used?	May You Hunt Over Salt Blocks?	May You Hunt Over Mineral Blocks?	Is Feeding Allowed?	Comments
North Dakota	Yes	Yes	Yes	Yes	
Ohio	Yes	Yes	Yes	Yes	
Oklahoma	Yes	Yes	Yes	Yes	
Oregon	Yes	Yes	Yes	Yes	
Pennsylvania	No	No	No	Some restrictions	No hunting over bait [34 PA. C.S. 2308 (1) (8)]. Feeding of elk is banned. Banning the feeding of deer is under consideration.
Rhode Island	No	No	No	Some restrictions	No person shall feed cervids at anytime in the state of RI (except under 5 provisions).
South Carolina	Some restrictions	Yes	Yes	Yes	
South Dakota	No	No	No	Yes	
Tennessee	No	Yes	Yes	Yes	
Texas	Yes	Yes	Yes	Yes	
Utah	Yes	Yes	Yes	No	
Vermont	Some restrictions	No	No	Yes	Salt licks not permitted (10 U.S.A. 4747) Legislature currently considering stronger restrictions.
Virginia	No	No	No	Some restrictions	Ban of feeding only on Nat'l Forest Lands and department owned lands.
Washington	Yes	Yes	Yes	No	
West Virginia	Not on Public Land	Yes	Yes	Yes	Feeding and baiting issue debated in State Legislature 2003.
Wisconsin*	Prohibited	Prohibited	Prohibited	Prohibited	All baiting and feeding prohibited in 24 southern counties. Use of scents restricted to two ounces. Otherwise, baiting (except bears) and feeding of birds and small mammals restricted in the remainder of the state.
Wyoming	No	No	No	Some restrictions	Illegal to feed ungulates and carnivores in Teton Co.

Table 2. Summary of baiting and feeding regulations for deer and elk in Canada. (Sources: Dunkley and Cattet. 2003 A comprehensive review of the ecological and human social effects of artificial feeding and baiting of wildlife. Also, personal communications with biologists). (updated March 1, 2004).

Canadian Territory/Province	May Food Bait Be Used?	Comments
Yukon Territory	No	
Northwest Territory	No	
Nunavut	No	
British Columbia	No	
Alberta	No	
Saskatchewan	Some restrictions	
Manitoba	No	Manitoba has gone so far as to outlaw the use of deer scents made from urine, feces, saliva and scent glands.
Ontario	No	
Quebec	Yes	
New Brunswick	Yes	
Nova Scotia	Yes	
Prince Edward Island	No	
Newfoundland and Labrador	Yes	

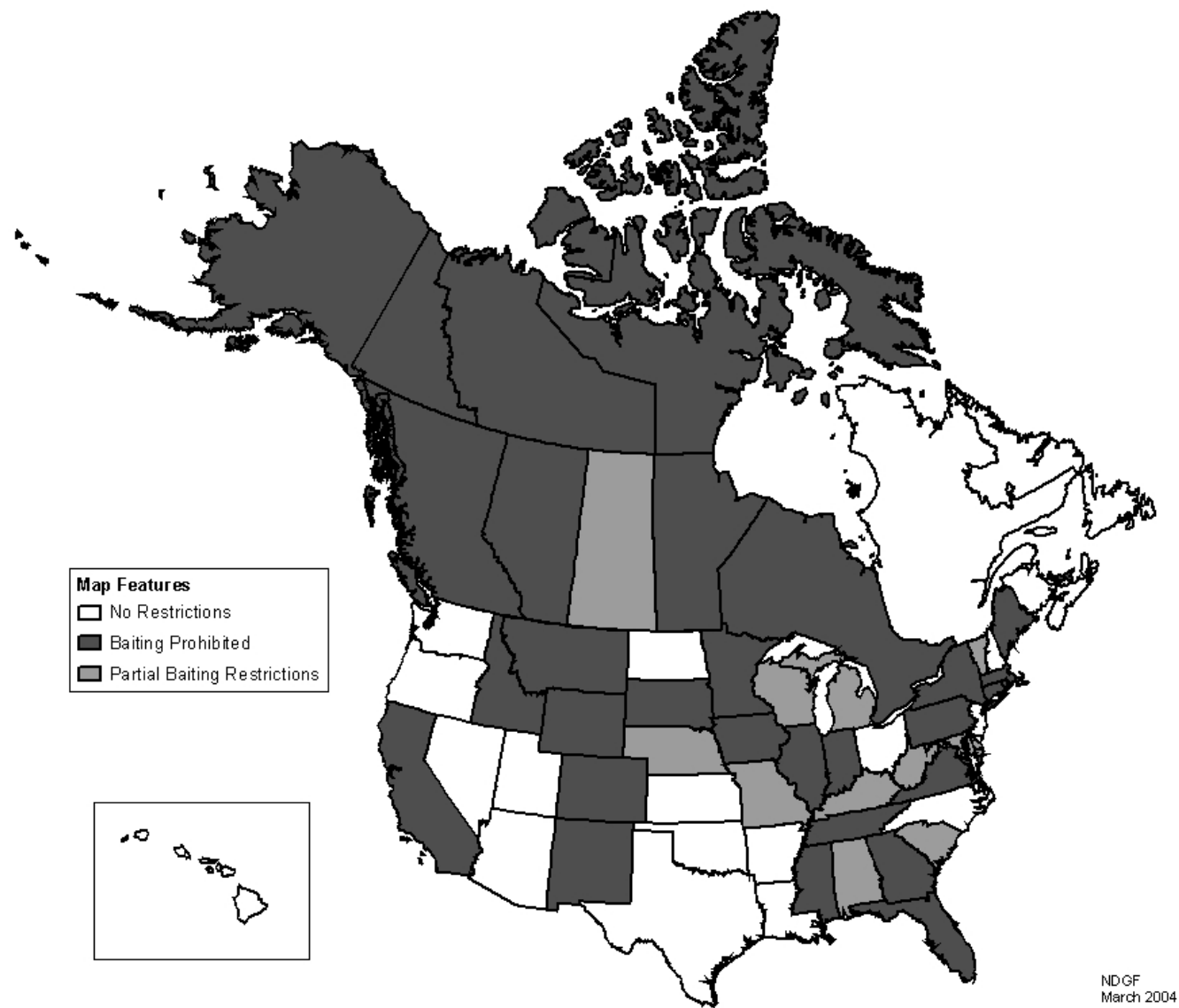


Figure 1. Map summarizing the distribution of baiting regulations in the United States and Canada.

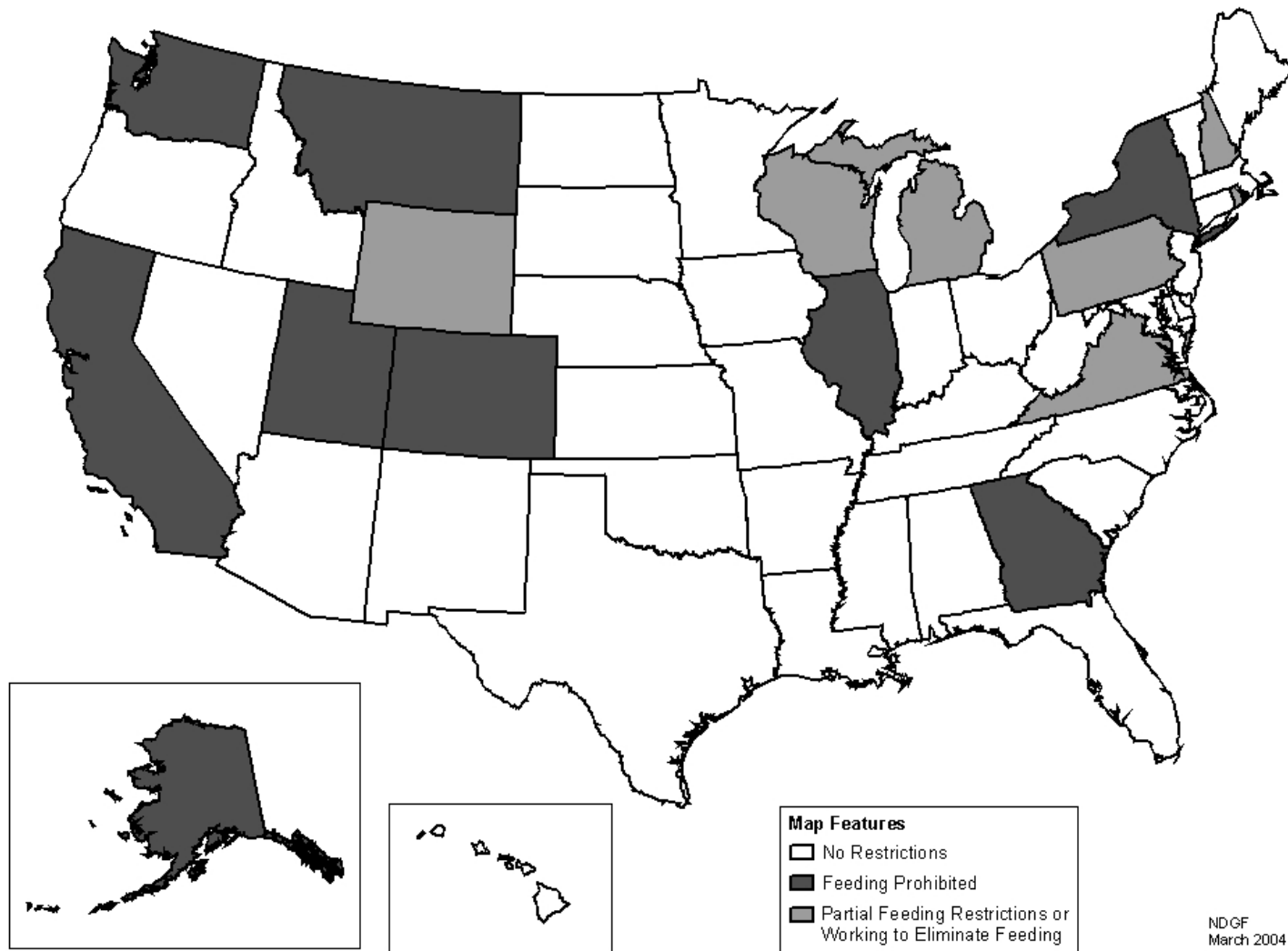


Figure 2. Map summarizing the distribution of feeding regulations in the United States.

North Dakota Deer-Gun and Deer-Bow Hunter Baiting Questionnaire

Methodology

In October 2003, a questionnaire on baiting was sent to a random sample of 1,000 North Dakota deer-gun hunters (n=997 deliverable questionnaires). A total of 507 useable questionnaires were returned (51% response rate). Figures 3 and 4 are copies of the questionnaire sent to resident deer-gun hunters and deer-bow hunters, respectively. Questionnaires were also sent to non-resident deer-bow hunters. In March 2004, a questionnaire on baiting was sent to a random sample of 1,000 North Dakota deer-bow hunters and 315 nonresident deer-bow hunters (n= 914 and 289 deliverable questionnaires, respectively). A total of 467 resident and 118 nonresident useable deer-bow hunter questionnaires were returned (51% and 41% response rates, respectively). Additionally, as part of a cooperative regional human dimensions survey issued by Colorado State University, a pre-test questionnaire regarding "Hunter's Response to Chronic Wasting Disease" was sent out in October 2003 to a random sample of 400 North Dakota deer-gun hunters and 400 nonresident deer-gun hunters. This pre-test included many of the same baiting questions as our previously mentioned state issued baiting questionnaire. A total of 31 residents and 30 nonresidents responded to this pre-test questionnaire.

What portion of the hunters uses bait?

Statewide, 5.1% (26 of 507) of the deer-gun hunters reported that they hunt deer over bait. However, when asked what type of bait they used, 8.8% (45 of 507) reported a specific type of bait. It is presumed that this additional 3.7% of the hunters that reported type of bait were confused by the questionnaire and were referring to baits used during bow season. Based upon the limited returns from the CWD pre-test, about 7% (4 of 61) of the resident and nonresident gun hunters used bait. Based upon the deer-bow hunter questionnaire, statewide 28% (129 of 462) of the deer-bow hunters reported hunting deer over bait. Based upon staff experiences with other questionnaires and familiarity with the human dimensions of hunters and hunter comments (e.g., the fear that they have or are doing something wrong) it may be assumed that the percentage of hunters using bait reported below are minimums. The portion of hunters using bait to hunt deer is believed to be higher.



Deer Baiting Questionnaire: Gun

Hunters:

The intent of this questionnaire is to determine the relative frequency and distribution of deer baiting in North Dakota. All information is confidential and will be used only for management purposes. This survey is only sent to a few hunters, so it is important that all surveys are returned.

For the purposes of this questionnaire, we are defining "baiting" as: the placement and or use of bait for attracting deer to a specific location for the purpose of hunting. Baits include but are not limited to grains, minerals, salts, fruits, vegetables, hay or any other natural or manufactured foods. This designation does not apply to the use of scents and lures, standing crops, or livestock feeds being used in standard farming practices. Your assistance in filling out this questionnaire is greatly appreciated.

1. In which hunting unit have you most frequently hunted deer (see map on back)? _____
2. When hunting with a gun, do you hunt near feeders or bait piles (See definition of baiting given above, circle one)? YES NO
3. How many years have you hunted deer in North Dakota? _____
4. How many years have you used bait while deer hunting? _____
5. Have you ever deer hunted at a paid hunting operation that used bait? YES NO
6. What type(s) of bait have you used while deer hunting in North Dakota? (Circle)
Grain Grain Screenings Fruit Vegetables Hay Salt/Mineral
Others: _____
7. Do you feel baiting increases your hunting success? YES NO
8. How much bait do you put out at one time?
Less than 1 bushel 1-5 bushels 6-10 bushels more than 10 bushels
9. What is the estimated total amount of bait used per year?
1-5 bushels 6-10 bushels 11-25 bushels more than 25 bushels

Comments:

Figure 3. Questionnaire sent to resident 2003 deer-gun hunters in North Dakota.

How long have you hunted and how long have you used bait?

Among gun hunters, the average number of years of hunting experience in North Dakota that the non-baiting (n=477) and baiting (n=24) gun hunters reported was 19.9 and 15.1 years, respectively. When asked: “How many years have you used bait while hunting deer?” the average number of years reported by those said they used bait was 4 years (n=21; range 1 to 15 years).

Among resident bow hunters, the average number of years of hunting experience in North Dakota that the non-baiting (n=331) and baiting (n=129) bow hunters reported was 15.9 and 17.1 years, respectively. When those that baited were asked: “How many years have you used bait while hunting deer?” the average number of years reported by those who said they used bait was 4.6 years (n= 129: range 1 to 35 years). Seventy-six percent (96 of 126) of the bow hunters have used bait for 5 years or less, and 93% (117 of 126) have used bait for 10 years or less.

Among non-resident bow hunters, the average number of years of hunting experience in North Dakota that the non-baiting (n=96) and baiting (n=20) bow hunters reported was 15.9 and 17.1 years, respectively. When those that baited were asked: “How many years have you used bait while hunting deer?” the average number of years reported by those who said they used bait was 3.6 years (n= 20: range 1 to 20 years).

How many hunters use bait?

In July 2003, 86,267 North Dakota residents applied for a license during the first deer-gun lottery. Using this number as the basis for determining the total number of resident deer-gun hunters in the state, and assuming the number of deer-gun hunters that use bait is about 5.1 %, approximately 4,400 deer-gun hunters in the state use bait. In 2003, 13,944 residents and 1,609 non-residents purchased bow licenses for deer. Using the statewide rates for baiting by resident and non-resident bow hunters (i.e., 28 % and 17 %, respectively), we estimate at least 3,900 resident and 280 non-resident deer-bow hunters in the state hunted over bait during 2003.

When does baiting occur?

It appears that most of those using bait are primarily bow hunters. In North Dakota, the bow season runs from Labor Day weekend (i.e., last weekend in August or first weekend in September) to the first weekend in January. Therefore, hunting over bait in North Dakota could occur for about a 4 month period from late summer to early winter. It is unknown how much pre-baiting is for deer is done.

Where is bait used?

Deer-Gun Hunters: A total of 504 deer-gun hunters provided a location as to the unit where they hunted. Sample sizes are too small for meaningful analysis on a unit-by-unit basis. However, there does appear to be a south to north gradient. Of the 190 gun hunters that reported hunting in units that are at least in part south of Interstate-94, none

(0.0%) reported using bait. Of the 153 gun hunters that reported hunting in units that are at least in part north of Highway 2, 13 (8.5%) reported using bait. The two most forested hunting units are 1 and 2D. A total of 15 hunters reported units 1 and 2D as their primary hunting units, with 4 (~27%) responding that they used bait during the deer-gun season.

Deer-Bow Hunters: A total of 462 deer-bow hunters provided a location as to the unit where they hunted. Sample sizes are too small for meaningful analysis on a unit-by-unit basis. However, there also appears to be a south to north gradient among bow hunters. Of the 171 bow hunters who reported hunting in units that are at least in part south of Interstate-94, 35 reported using bait (20.5%). Of the 119 deer-bow hunters that reported hunting in units that are at least in part north of Highway 2, 52 reported using bait (43.7%). Again, sample sizes are too small for meaningful unit-by-unit analysis; however those units with more forested land appear to have a higher use of baiting during the deer-bow season. A total of 18 hunters reported units 1 and 2D as their primary hunting unit, with 8 (~44%) responding that they used bait during the deer-bow season. Of the three Missouri River hunting units north of Interstate 94, a total of 37 hunters reported units 3B1, 3B2, and 3B3 as their primary hunting unit, with 12 (~32%) responding that they use bait during the deer-bow season. These hunting units along the upper Missouri River also contain a substantial proportion of forested river bottom land. Proximity to urban areas also appears to play a factor in the use of bait by bow hunters. Hunting units near the larger cities and towns (Grand Forks: 2C; Williston: 3A1; Minot: 3A2, 3A3, 3A4; and Bismarck: 3B3, 3C) have among the highest rates of bait use.

Have you ever hunted at a paid hunting operation in North Dakota that used bait?

Interpretation of the responses to this question are problematic, however, 4 of 504 resident gun (~1 %), 8 of the 461 resident bow (~2 %), and 14 of the 118 non-resident bow (~12 %) hunters paid someone else to put bait out for them to hunt over. Of the 14 non-resident bow hunters that paid to hunt over bait, 7 hunted in badlands units, 3 hunted in unit 3A4 (i.e., Souris Des Lacs area), 2 hunted in the Turtle Mountains, 1 in unit 3A1 (northwestern Coteau), and 1 in unit 3D1 (northwestern Slope area).

How much and what type(s) of bait do you use?

Twenty-one deer-gun hunters reported the volume of bait put out at one time; of which eight used less than a bushel, seven used 1-5 bushels, two used 6-10 bushels, and four used more than 10 bushels. Of the eight hunters that reported using less than one bushel of bait, six reported using grain. Of the four hunters that reported using more than 10 bushels of bait, two used grain screenings, one grain, and one used hay.

Twenty-two deer-gun hunters reported the total volume of bait put out during the year; of which six used 1-5 bushels, four used 6-10 bushels, four used 11-25 bushels, and eight used more than 25 bushels. Of the six hunters that reported using 1-5 bushels of bait; fruit, grain, screenings, and vegetables were each reported used by two hunters. Of the

eight hunters that reported using more than 25 bushels of bait in a year, six used grain, three used screenings and three used hay.

Of the 126 deer-bow hunters that reported volume of bait put out at one time, 58 used less than one bushel, 45 used 1-5 bushels, seven used 6-10 bushels, and 16 used more than 10 bushels. Of the 58 hunters that reported using less than one bushel of bait, 30 used grain and 25 reported using fruit. Of the 16 hunters that reported using more than 10 bushels of bait, seven used grain screenings, six used grain, and three used fruit.

Of the 123 resident deer-bow hunters that reported the total volume of bait put out during the year; 47 used 1-5 bushels, 19 used 6-10 bushels, 29 used 11-25 bushels, and 28 used more than 25 bushels. Of the 47 bow hunters that reported using 1-5 bushels of bait; 24 used grain, 22 used fruit, and 10 used grain screenings. Of the 29 hunters that reported using more than 25 bushels of bait in a year, 19 used grain screenings, and eight used grain. Three hunters commented that they used large amounts (i.e., 250, 300, and 500 bushels, respectively) of grain screenings and grain for baiting deer.

Why bait, and is it effective?

When those that used bait were asked: “Do you feel baiting increases your hunting success?” 19 of the 24 (79%) that hunted deer with a gun, and 103 of the 127 (81%) that hunted deer with a bow, answered “yes” it improved my success.



Photo: anonymous

Figure 5. Example of large bait pile being used by a number of different species (pictured are deer and porcupine on the right and turkey in the far left corner).

Comments Section of Questionnaire

Of the 507 respondents to the gun hunter baiting questionnaire, 234 wrote comments in the space provided. Of the 234 respondent comments, six thought baiting was illegal, 59 said they do not bait, 83 were opposed to or strongly opposed to baiting deer, 43 expressed comments that were either neutral or noncommittal, and 29 were in favor or strongly in favor of baiting. The remaining 14 comments were unrelated to baiting issues.

Of the 467 respondents to the resident bow hunter baiting questionnaire, 243 wrote comments in the space provided. Of the 243 respondent comments, seven thought baiting was illegal, 10 said they do not bait, 101 were opposed to strongly opposed to baiting deer, 25 expressed comments that were either neutral or noncommittal, and 90 were in favor or strongly in favor of baiting. The remaining 10 comments were unrelated to baiting issues.

Of the 118 respondents to the non-resident bow hunter baiting questionnaire, 78 wrote comments in the space provided. Of the 78 respondent comments, six thought baiting was illegal, eight said they do not bait, 30 were opposed to strongly opposed to baiting deer, three expressed comments that were either neutral or noncommittal, and 13 were in favor or strongly in favor of baiting. The remaining 18 comments were unrelated to baiting issues.

Section III. The Biological, Ecological, and Social Pros of Private and Agency Directed Big Game Baiting and Feeding Programs

The following is a summary of the potentially positive biological, ecological, and social consequences of baiting and feeding big game. These include:

1. Feeding wildlife provides an avenue for interested members of the public to actively participate in general conservation programs.
2. By using intercept or short-stop feeding, privately owned livestock forage may be protected from wildlife damages.
3. A timely response by the agency (e.g., providing short-stop feeding within days of a complaint) may preclude legislative involvement that would mandate inappropriate measures to be implemented. In the past, mandated feeding programs have caused injuries to both the wildlife (i.e., deer) and the range (Doman and Rasmussen 1944; Leopold et al. 1947; Jensen 1982).

4. Artificial feeding has been shown to increase fecundity (reproductive potential) of ungulates (e.g., Verme 1965, Ozoga and Verme 1982, Carpenter et al. 1984). However, there have been exceptions to this trend (e.g., elk, Smith 2001), and results appear to depend upon a variety of conditions (Tara and Perkins 2002).
5. Big game and other mammals in a given location may, at times, be held for a specific purpose such as hunting or protection by providing them with extra food in the winter (Trippensee 1948).
6. Big game and other mammals that otherwise might perish are sometimes carried through the winter by artificial feeding (Trippensee 1948). Lewis and Rongstad (1998) reported that supplemental winter feeding had a slightly positive impact on survival rates, but that summer-fed does had a lower survival rate due to increased vulnerability to hunting.
7. Species of special concern may warrant extraordinary efforts to ensure their survival (McCollough et al. 1994; Wilber et al. 1974) (e.g., providing food to bighorns being raised for a “soft release” into the wild).
8. Greater losses to deer populations may be avoided by agency directed feeding programs than could occur with an ad hoc feeding program carried out by private groups and individuals (Carhart 1948; Wobeser and Runge 1975; Woolf and Kradel 1977).

Section IV. The Biological, Ecological, and Social Cons of Private and Agency Directed Big Game Baiting and Feeding Programs

The following is a summary of the potentially adverse biological, ecological, and social consequences of deer baiting and feeding. These include:

1. Concentration of animals around feeders can facilitate the spread of diseases through lateral transmission. Researchers in Michigan have determined that the primary factors that allow TB to be maintained in free ranging deer populations are high deer densities resulting from human activities and associated land ownership patterns, deer feeding, and dispersal of bucks (Hickling 2002, O'Brien et al. 2002). Researchers in Michigan monitored deer feeding at baiting sites for two years. This study included sites using various quantities of bait, types of bait, and different methods of feeding (e.g., bait in piles, spread in lines, and bait dispersed by mechanical feeders). They found that face-to-face deer contact was highest at 5 gallon piles of corn. They also noted that up to 35 different animals may visit a 5 gallon bait site within a one hour period (Garner 2001). USDA research has shown that the bacteria responsible for causing bovine TB can remain infectious for up to 16 weeks in frozen feed (Whipple and Palmer 2000 *in Toso* 2002). The conclusion from this research was that any amount of bait can be expected to

sustain and spread diseases like bovine TB, but smaller quantities of certain foods (e.g., corn) tended to aggravate the problem (Garner 2001). More recent work, by Miller et al. (2003) in a retrospective study, concluded that prevalence of TB in Michigan deer was primarily associated with sites in forested cover, other large scale feeding sites in the area, the number of deer fed per year, the numbers of feeding sites spreading grain, the quantity of the grain, and the quantity of fruits and vegetables provided. When feeding sites provided more desirable feed (e.g., apples, carrots, sugar beets) more deer were attracted to the site and prevalence of TB increased. Larger fruits and vegetables (sugar beets, carrots, potatoes, and pumpkins) are of a size that can not be consumed in a single bite. "In situations like this an infected deer could partially consume a single sugar beet and contaminate it with saliva or nasal secretions, providing a source of infection for an uninfected deer" (Miller et al. 2003). Again, regarding the spread of diseases, there seems to be no "safe" way to bait deer. Since the initiation of feeding/baiting restrictions and increased hunting pressure in the region since 1999, the prevalence of TB has dropped (Miller et al. 2003).

Dr. Davidson, assistant director of Southeastern Center for Wildlife Disease Study (SCWDS) at the University of Georgia has stated "... science knows more than enough about transmissible diseases to realize we must not artificially concentrate wildlife." "A key to prevention is to reduce or eliminate those risk factors that are controllable and live animal importation, supplemental feeding, baiting, and other highly artificial practices are controllable risk factors." "Based on experience gained over several decades of work in the wildlife disease field at SCWDS, we believe that such actions are imperative if wildlife, domestic livestock and poultry, and human populations are to be safeguarded from unnecessary disease risks" (Davidson and Fischer 2003).

In a January 29, 1998 press release Michigan DNR Director, K.L. Cool, stated, "The viability of the disease [bovine tuberculosis] and its continued existence is directly linked to unnaturally high numbers of deer resulting from artificial feeding. The key to eradicating the disease is a mandatory ban on feeding which concentrates the deer – voluntary requests just haven't been enough." In Wyoming about one-third of the elk on supplemental winter feeding grounds, including the National Elk Refuge, tested positive for exposure to brucellosis. In contrast, only 2.5% of free-ranging elk showed exposure to brucellosis (Huntington 2003). Dr. Mike Miller, Colorado state Division of Wildlife veterinarian, has stated, "We know artificial feeding concentrates animals and accelerates the spread of diseases like brucellosis and tuberculosis, and all evidence indicates it is the same with CWD" (Gerhardt 2003). Research has demonstrated that gathering deer together during the winter may foster the spread of chronic wasting disease, and that ... "concentrating deer in captivity or by feeding them artificially may facilitate transmission." "The efficiency of horizontal transmission, exacerbated by behavioral ecology, might explain the high probability of chronic wasting disease becoming established in deer populations once it has been introduced either by natural spread or by the commercial movement of infected animals" (Miller and Williams 2003).

Diseases of concern range from chronic wasting disease, bovine tuberculosis, and brucellosis among members of the deer family (Smith 2001). Additionally, endemic

diseases that would otherwise be of minor concern among populations can spread rapidly and become exacerbated and a major concern when animals are clustered around feeding stations. These diseases include contagious ecthyma, malignant catarrhal fever, and sarcoptic mange. Parasites that may be tolerated at low infection rates (e.g., lung worms in bighorn sheep lambs), can reach fatal infection rates under artificial feeding conditions. There is some evidence of this in North Dakota when attempts to treat bighorns for lungworm were thwarted due to changes in the weather conditions. For additional information regarding the disease issues, the reader is directed to a series of case histories provided in Dunkley and Cattet (2003).

2. Poorly conducted deer feeding operations may actually kill more deer than are helped (Carhart 1943; Wobeser and Runge 1975; Woolf and Kradel 1977). There is a danger for the feed being too high in starch or sugars (i.e., grain overload), thus resulting in acidosis or rumenitis and ultimately death in one to three days. This situation usually results when shelled corn or other grains are made available to starving deer or other wild ruminants (Wobeser and Runge 1975; Woolf and Kradel 1977), and can result in the death of more animals than the feeding program could ever hoped to have saved. It is estimated that as little as 2.5 quarts of grain may produce clinical rumenitis in an average sized 80-pound fawn (Wobeser and Runge 1975).

Grain overloading is not only affected by the composition of the feed, but also particle size. "If transition from forage to a concentrated diet is too abrupt or if the particle size is too small, the microbial population [of the rumen] may become unstable. Under these conditions lactic acid accumulates in the rumen and acid tolerant bacteria predominate. The pH of the rumen drops below 5.0 and the ruminant suffers from lactic acidosis. Additionally, the rumen contents become viscous with the formation of stable foam in the rumen. The foam prevents eructation, gas accumulates in the rumen and feedlot bloat develops. These conditions are largely avoided if coarse particle size concentrates are fed and microorganisms are given time to adapt to concentrate of a 3 to 4 week period during which increasing amounts of concentrates are substituted for forage at 5- to 7-day intervals." (McAllister 2000). Use of grain screenings, a concentrate feed with a small particle size, as bait may be particularly problematic for deer.

3. Concerns regarding grain overloading may be even more of an issue with moose. The digestive system of the moose evolved to handle a high fiber diet. As a result, the mean retention time for digestion is the longest documented for cervids and tabled values are only surpassed by one other member of the order Artiodactyla (i.e., Asian water buffalo) (Stevens 1998). Until recently moose were rarely exhibited in zoos due to the lack of a commercially available feed high enough in fiber content (i.e., pellets made from alfalfa and aspen wood chips; Terry Lincoln, Director, Dakota Zoo, Bismarck, Pers. Comm.). The digestive systems of cervids are not fully understood (Hofmann 1998), however, a large bait pile of a concentrate feed source such as grain screenings, coupled with the small particle size of the screenings, would make it particularly problematic for moose.

Although very difficult to clinically document in a free ranging animals, grain overloading has been reported in free ranging moose (Vince Crichton, Manitoba Conservation, Pers. Comm.). In recent years necropsy reports on at least one moose from North Dakota, as well as a number of suspect animals, have documented moose succumbing to acute rumenitis/grain overloading (Unpublished data, B. Jensen and Jason Scott, Warden, NDGFD, Pers. Comm.). The impacts of various baits and baiting on our resident moose populations warrant additional investigation.

4. From time to time grain elevators want to get rid of “bad grain” infected with aflatoxin or ergot toxins produced by molds and fungi (Williamson 2000). It is often felt that although these feeds are unfit as human or livestock foodstuffs, they would still suffice as supplemental wildlife foods. Additionally, large bait piles, when placed out in the environment, can quickly become infected with *Aspergillus* molds that produce the disease-causing aflatoxins (Dr. William Davidson, Assistant Director of SCWDS, University of Georgia, Pers. Comm.). These toxins may cause lameness, reduce reproductive performance, and even death in a wide variety of wild birds and mammals.

5. Feeding and baiting deer with grain screenings provides a direct threat to agricultural interests concerned with the spread of noxious weeds. Although total numbers and response rates of hunters are small, of those that used bait in North Dakota 30% of the deer-gun hunters and 39% of the deer-bow hunters used grain screens. Additionally, of the hunters that tended to use the most bait (i.e., more than 25 bushels during the season), grain screenings were used by three of eight (~37%) of the deer-gun hunters and 65% (19 of 29) of the deer-bow hunters.

6. Feeding programs that maintain artificially high deer numbers will result in the localized destruction of understory browse vegetation (Leopold et al. 1947; Jensen 1982; Alverson and Waller 1997; Bower 1997; Healy 1997; Smith 2001). This habitat destruction may have an impact on birds and other animals that are dependent upon this structural component of the habitat for nesting sites and escape cover (McShea and Rappole 1997).

7. Artificial feeding stations often do not permit distribution of food to the members of the targeted animal population that are most needy. For example, a pecking order is quickly established at deer feeding stations. Dominant adult bucks and does feed first, and continue to feed until no longer hungry. Fawns, the most vulnerable segment of the deer population to winter starvation, are the lowest in the pecking order and the most often to go without at feeding stations (Ozoga 1972; Fanter 1977). As a result, mortality among fawns may still occur even when considerable feed is provided.

8. Baiting and winter-feeding may inhibit wildlife from dispersing from areas subject to unusual winter severity as a result of extensive winter-feeding by human (Trippensee 1948). Under certain conditions, substantial numbers of deer will concentrate near feeding sites. Traditional seasonal movements of deer may be disrupted by feeding, however, recent work by Lewis and Rongstad (1998) found that “all summer fed deer were migratory (n=59), control deer were more likely to migrate (70%, 33 of 47) than

winter-fed deer ((42%, 38 of 91) ($Z=2.378$, $P=0.0174$). Summer-fed deer migrated later in the autumn than other deer in the study”, and thus were more vulnerable to hunting mortality. Overall, supplemental feeding of deer in northern Wisconsin was found to have a slightly positive impact on survival and a marginal effect on migration (Lewis and Rongstad 1998).

9. Feeding and baiting on private land may concentrate large numbers of deer during the fall hunting season and prevent an adequate harvest. In turn this creates conflicts between hunters and depredation problems for neighboring landowners. Along J. Clark Salyer National Wildlife Refuge bow hunters have complained of private landowners, engaged in fee hunting operations, dumping large quantities of grain that attract most of the deer off public land during the hunting season. These same landowners have requested and received hay yards to deal with depredation problems created by their baiting operation (Dan Halstead, Wildlife Resource Manager, and Riverdale District Office Staff, NDGFD, Pers. Comm.). These practices lead to “baiting wars” between landowners. Recently, wardens reported that deer baiting was being carried out throughout the state of North Dakota (Daryl Kleyer, Warden Supervisor, NDGFD, Pers. Comm.). In Wisconsin, many hunters that were once opposed to baiting feel compelled to bait because of others baiting in the area. This has led to an endless spiral of more and more baiting that negatively affects hunting for everyone (Toso 2002).

10. Overall hunter harvest success can be reduced by baiting. Although some hunters that bait may be more successful, there appears to be a point at which baiting becomes so ubiquitous that the overall effect is counter-productive to hunter success. In states such as Wisconsin and Michigan, where baiting is common, hunter success rates indicate that there is no distinct advantage (Petchenik 1993; Frawley 2000). Toso (2002) has suggested that the large volumes of feed provided by bait piles dramatically improve feeding efficiency, thus reducing the amount of time needed to feed. With the reduced movement and feeding activity demands upon the deer, they are less vulnerable to hunting in general.

11. Poorly located feeding stations may result in attracting predators and increased predation (Trippensee 1948). Deer may be inhibited from escaping coyotes and dogs if feeding stations are positioned too close to woven wire fences.

12. Feeding and baiting on public land may create situations where one hunter will attempt to preempt the hunting rights of another. Conflicts have arisen in North Dakota where hunters on public land have gotten into arguments over who can hunt near a bait station (Kent Luttschwager, Wildlife Resource Manager, NDGFD, Pers. Comm.). Wisconsin DNR wardens now cite deer baiting as one of their most common complaints, with most of the complaints coming from other hunters (2001 Gun Season Report, WI DNR Memo *in* Toso 2002).

13. Concentration of animals around feeders can facilitate the spread of laterally transmitted diseases (See # 1 above). Once established, the costs of dealing with disease for both the hunter and general tax payer quickly escalate. In 2003, the state of

Wisconsin spent more than \$7 million for CWD monitoring alone. As of 2002, Michigan has spent in excess of \$250 million in an effort to control bovine Tuberculosis (TB) in their deer herd. The cost of (TB) to the Michigan's agriculture industry has been about \$15 million per year (Toso 2002). Despite these huge expenditures of public funds Michigan and Wisconsin have not eliminated TB and CWD from their respective states.

14. Feeding programs are inherently inefficient to implement. "It is nearly impossible to conduct large-scale feeding operations during severe winter weather and impractical in view of the small percentage of the total population benefited" (Trippensee 1948). The cost of feeding a mule deer was estimated to be \$183.37 (US) per deer saved (Baker and Hobbs 1985).

15. Although winter feeding of starving animals may provide a politically expedient means of dealing with overabundance of wildlife challenges, feeding may only delay confronting the core of the problem: too many animals. If delays are made in response to overabundance, public confidence is lost in the responsible agencies, and ultimately more animals will suffer and die from starvation (Jensen 1982).

16. "Inefficiency is characteristic of feeding programs, as large portions of the food are oftentimes utilized by animals less desirable than the species for which the food is intended" (Trippensee 1948; Ozoga and Verme 1982; Schmitz 1990). Examples of less desirable animals that may take advantage of artificial feeding stations are Norway rats, skunks and raccoons. Additionally, feeding one species may create public health problems with another species and waste agency funds. In the past, feeders put out for turkeys have resulted in unwanted concentrations of deer (C.G. James, NDGFD [retired], Pers. Comm.). Thus, putting out feeders for one species of wildlife may have unintended consequences on another species of wildlife.

17. Use of ATVs for putting out bait has led to an increased number of complaints regarding ATV off-trail use on unauthorized land in Wisconsin (Toso 2002).

18. Poorly planned artificial feeding programs may jeopardize human safety. Attraction of deer and other big game species to feeding stations in residential areas or near major highways can increase the risk of deer-vehicle collisions. If black bears, raccoons, and skunks become frequent visitors to supplemental feeding sites near residential homes, bites and physical attacks may become an issue. These animals may also be carriers of rabies and other diseases.

19. Feeding stations tend to reduce the "wariness or wildness" of game animals, thus reducing the sporting value and element of fair chase from hunting (Trippensee 1948, Lewis and Rongstad 1998, Williamson 2000). Additionally, feeding programs may give the perception that animals are simply being fed to produce future "targets" for hunters. This public perception may erode support for hunting and wildlife management in general (Williamson 2000; Smith 2001).

Section V. Overall Summary of Frequently Asked Questions Regarding Department Sponsored Deer Feeding Programs

Why Do Wildlife Managers Feed Wintering Wildlife?

The issues surrounding feeding wintering wildlife often quickly lead into the morass of sociobiology and biopolitics. The NDGFD does not have the autonomy to prohibit all feeding of wintering wildlife. However, one of its responsibilities is to inform people as to the risks and monitor feeding programs to ensure that additional problems are not created. The following is a summary of frequently asked questions about department sponsored feeding programs.

Are food plots just big baiting and feeding sites?

Research has shown that food plots do not present the disease concerns that bait piles represent (Toso 2002). Even within areas with bovine TB infected deer populations, Michigan DNR recommends food plots (Michigan Department of Natural Resources Web Site: www.midnr.com).

Why do we need to act now, why not wait until we really have a disease problem?

As noted by Toso (2002), the rationalization that current regulations regarding disease are sufficient, and that states can quickly react are based upon the assumptions that: (1) the diseased animals can and will be quickly detected, (2) that established diseases can be eliminated, and (3) free ranging big game will respect political boundaries. As seen with the spread of diseases such as CWD and bovine TB among deer and elk in Alberta, Colorado, Michigan, Nebraska, Saskatchewan, South Dakota, Wisconsin, and Wyoming; trust in these assumptions is misplaced. We believe being proactive on this issue now will save the state a tremendous amount of money and time, when compared to resources spent trying to eradicate a disease once it becomes established.

Should NDGFD sponsored feeding of wintering wildlife be limited too?

In regard to emergency protection of livestock forage for private individuals. If feeding is the only alternative, it should not start before hunting seasons have ended (i.e., ca. 1 January), and under the guidelines provided as follows: (1) Areas with chronic depredation complaints need to be aggressively managed by hunting. Landowners should be offered hay yards to eliminate the need for long-term feeding program, (2) Baiting animals into an area to facilitate the treatment of diseases with drugs (e.g., bighorn sheep and lungworm treatments), or capture for research purposes (e.g., radio-collaring), and (3) Encourage rare or unique species of wildlife needing special management consideration.

When Do Wildlife Managers Feed Wintering Wildlife?

Feeding of wintering wildlife should be used as a tool of last resort when all other management strategies are deemed ineffective. Feeding should not occur while hunting seasons are open for the species in question. Feeding should not occur before January 1st, or after April 1st. Feeding for delivery of vaccines or other drugs may occur in December.

When the department receives a depredation complaint, a follow-up phone call will be made within 24 hours, and an on-the-ground visit will be conducted within 48 hours. Shortstop or intercept feeding should occur only after other depredation management tools have been used.



Photo: NDGFD

Figure 6. Example of damage to hay stacks that were not properly stacked or wrapped to prevent damage by deer.



Photo: NDGFD

Figure 7. Example of hay that is properly stacked and wrapped with deer proof fencing to prevent damage caused by deer.

Where Do Wildlife Managers Feed Wintering Wildlife?

When winter feeding is deemed appropriate, consideration should be given to the placement of feeders and feeding stations. These considerations should include:

1. Placement away from roads and so that the route between bedding sites and feeding station does not cross major highways.
2. If feeding is being done to prevent damage to livestock forage, placement of the feed should be such that it will short-stop travel between bedding sites and the livestock forage.
3. Feeding sites should be at some distance (e.g., 100 yards) from fences that may inhibit escape from predators.
4. If feeders are being put out for turkeys, modifications should be made so that they are not accessible by deer.
5. If feeding is being conducted in the same area year-after-year, feeding sites (e.g., location of alfalfa bales) should be moved so that animals are not continuously being fed on fecal contaminated ground.
6. At least one feeder should be operated for every 50 deer (Ozoga and Verme 1982).
7. Feed sites should be spaced 100 yards from each other (Ozoga and Verme 1982).
8. Human disturbance in and around feeders and bedding sites should be discouraged so as not to disrupt the organized feeding rhythms of deer (Ozoga and Verme 1982).

What Wildlife Managers Should and Should Not Feed Wintering Wildlife?

Grain overloading is a major concern regarding supplemental feeding of ungulates. If deer feeding is being conducted out of feeders, pelleted soy hulls offer a safer alternative to feeding grain (Schmitz 2000). Deer have been successfully fed grain without problems, but this sort of supplemental feeding needs to be phased in gradually. Alfalfa and grain screenings offer safer and less expensive alternative feeding options. It should be noted that screenings would also bring in a wide variety of weed seeds to the area. If grain is going to be provided to deer or other big game, alfalfa or quality hay must also be made available. It should be understood that if deer have been on a starvation diet for some time, the rumen microflora may already be dead, and the animals may already be doomed (Nagy et al. 1967).

Feeding wildlife, particularly ungulates, is expensive and requires forethought (Baker and Hobbs 1985; Ozoga and Verme 1982; Smith 2001). The following are issues that should be taken into consideration:

1. Some feeds such as moldy grain (Williamson 2000) and canola (Boag et al. 1989; Sibbald et al. 1995; Tapper 1989) may be toxic to wildlife and should not be fed to either birds or mammals.
2. Vitamin and mineral deficiencies do not appear to be a problem in North Dakota. Selenium toxicity, however, appears to be a localized concern in some portions of North Dakota where selenium accumulator plants are common on selenium rich soils (Robbins 1993). With this in mind, in addition to concern about disease, it is believed that mineral salt blocks are not necessary and may result in some trace minerals being ingested at toxic levels if inappropriate types of salt blocks are set out for wildlife.

Additional or Extended Hunting Seasons?

The choice as to whether to extend the deer hunting season, or not, is always a difficult one. If early November snows dramatically impede hunter success, and heavy snows persist through mid December, extended season in late December and early January may be warranted. This season should be limited to antlerless animals only, with emphasis being placed on harvesting fawns with unfilled licenses. Decisions regarding an extended season need to be decisive and not delayed past 15 December. Once supplemental feeding has begun, public opinion will quickly shift from a “harvest mindset” to a “protectionist mindset”. Hunting should not be allowed over supplemental feeding sites.

Section VI. Recommendations Regarding Baiting and Feeding of Big Game

In a March 12, 2003 letter to member state wildlife agencies, the Southeastern Cooperative Wildlife Disease Study Director John Fischer and Deputy Director William Davidson identified four highly artificial management activities that have "... demonstrated on one or more occasions to be the root cause or a significant contributing factor in disease problems involving wild cervids." "The activities categorized as "highly artificial" include: 1) translocation of captive cervids, including both native and exotics, 2) supplemental feeding of deer, 3) use of bait during hunting, and 4) construction of and hunting within fenced enclosures." As an agency we cannot unilaterally deal with factors 1 and 4. We do however, through state century code and hunting proclamations, hold the responsibility and the management tools to address some of the concerns surrounding factors 2 and 3. It is our belief that baiting will continue to grow in prevalence in North Dakota and create serious management problems by increasing the threat of serious diseases, limiting the departments' ability to achieve an adequate harvest, increase conflicts among deer hunters and between neighboring landowners, and have a negative economic impact on landowners and public agencies. Therefore we recommend that, as an agency, we take the following steps towards reducing the risks of diseases and management concerns within our big game species by:

- a. Eliminating the use of big game grain feeders on our Wildlife Management Areas, except when it provides the only alternative to short-stop feeding to protect private livestock supplies. Currently, the Department has 15 active feeders in District IV, 2 in District III, and 5 in District I. According to district biologists, most of these feeders are being used to prevent depredation problems on adjacent private land. Obviously, alternative methods need to be sought to resolve deer/turkey depredation problems.
- b. Investigate methods to modify the environment to reduce crowding or concentrations of wild ungulates; landscape management to improve and enhance the land's capability to benefit many species and accommodate compatible land uses. The effects of habitat manipulation are not immediate, but the effects are likely to be long-lasting.
- c. Prohibiting the use of bait to hunt big game on our Wildlife Management Areas.
- d. Prohibiting the use of bait to hunt big game through our big game hunting proclamations.
- e. Setting department guidelines on the use of feed to shortstop deer causing depredation problems on livestock feed.
- f. Developing a strategy, timetable (e.g., March 2005), and an informational program plan to educate the public as to the dangers baiting and artificial feeding poses for deer and big game management. For example, these strategies may include but are not limited to topics at our public advisory meetings, articles in the Outdoors, topics on our radio and video shows,

press releases and newspaper articles, and presentations to wildlife clubs and sports shows.

- g. Reviewing the restrictions regarding hunting big game over bait that have been adopted by the 32 states and the 8 Canadian provinces and territories that have already dealt with this issue. From these models develop the legislative format that best meets the needs of North Dakota in dealing with the issues of baiting and feeding deer.

In short, it is the opinion of the North Dakota Game and Fish Department big game staff that based upon the body of evidence presented above, hunting big game over bait should be banned by the North Dakota Game and Fish Department through our hunting proclamations. Further, we believe the issues and concerns surrounding the recreational feeding of big game should be presented to the state legislature, and legislation be drafted to severely restrict the recreational feeding of big game in North Dakota.

The types of feeding restrictions we would suggest are:

1. Placement of feeding sites must be 0.25 miles away from roads and positioned so that the route between bedding sites and feeding site(s) do not cross major highways.
2. Feed used for big game should be limited to hay or alfalfa.
3. If feeding is done to prevent damage to livestock forage, it should be such that it will short-stop deer travel between bedding sites and the livestock forage.
4. Feeding sites should be at some distance (e.g., 100 yards) from fences that may inhibit escape from predators.
5. If feeders are being put out for turkeys, modifications should be made so that they are not accessible by deer.
6. Situations that involve standard farming practices are not considered feeding.
7. If feeding is being conducted in the same area year-after-year, feeding sites (e.g., location of alfalfa bales) should be moved so that animals are not continuously being fed on fecal contaminated ground.
8. At least one feed site should be operated for every 50 deer.
9. Feed sites should be spaced 100 yards from each other.
10. Human disturbance in and around feeders and bedding sites should be discouraged so as not to disrupt the organized feeding rhythms of deer.

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Chapter 3

BAITING AND FEEDING MIGRATORY GAME BIRDS

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Section I. Introduction

Baiting and feeding wildlife has been an issue for wildlife managers for nearly a century. It has become a problem due to a complexity of issues which include fair chase, wildlife health, distribution of hunting opportunities, legal and ethical considerations, harvest management, weed control, cost, and other related issues. This chapter discusses the issue of baiting and feeding migratory game birds in North Dakota.

The vast majority of birds in North America are considered “migratory birds,” that exhibit annual migrations, generally from breeding grounds in the north to wintering grounds in the south. Non-migratory birds or “resident birds” are generally considered to be species such as upland game birds (e.g. pheasants, grouse, partridge and turkey) or other exotic or introduced species such as house sparrows, starlings, rock doves (common pigeons), etc. All migratory birds are protected by federal law, which is based on migratory bird conventions (treaties) with other countries and the federal enabling acts. The first convention was the Migratory Bird Treaty with Great Britain (for Canada) in 1916 (last amended in 1999) and the U.S. legislation which enabled this Treaty, the Migratory Bird Treaty Act of 1918. The United States has entered into four international migratory bird conventions (with Canada, Mexico, Japan, and Russia). Each of these conventions provides protection to a select group of migratory bird species.

“Migratory Game Birds” are those federally protected migratory birds that were designated as “game” (they were considered as huntable or having a tradition of being hunted) in the Migratory Bird Treaty and Migratory Bird Treaty Act. The following information quoted from the Final Supplemental Environmental Impact Statement: Issuance of Annual Regulations Permitting the Sport Hunting of Migratory Birds (SEIS 88), U.S. Fish and Wildlife Service (USFWS), describes classification of “migratory game birds:

“Birds Protected By The Migratory Bird Treaty Act: Game Birds and Hunted Species

The migratory bird conventions with Canada and Mexico define "game birds" as those species belonging to the following families: Anatidae (swans, geese, and ducks), Rallidae (rails, gallinules, and coots), Gruidae (cranes), Charadriidae (plovers and lapwings), Haematopodidae (oystercatchers), Recurvirostridae (stilts and avocets), Scolopacidae (sandpipers, phalaropes, and allies), and Columbidae (pigeons and doves).

The Migratory Bird Treaty Act, which implements the conventions, grants the Secretary of the Interior the authority to establish hunting seasons for any of the migratory game bird species listed below. In actuality, the Fish and Wildlife Service has determined that hunting is appropriate only for those species for which there is a long tradition of hunting, and for which hunting is consistent with their population status and their long-term conservation. It is inconceivable, for example, that we will ever see legalized hunting of plovers, curlews, or the many other species of shorebirds whose populations were devastated by market gunners in the last decades of the 19th century.

Although the Migratory Bird Treaty Act considers some 170 species to be "game birds," less than 60 species are typically hunted each year. The Fish and Wildlife Service publishes migratory game bird regulations in the Federal Register.”

The North Dakota Century code (20.1-01-02) provides the following definition of game birds which includes both migratory and non-migratory (resident) species:

“15. "Game birds" includes all varieties of geese, brant, swans, ducks, plovers, snipes, woodcocks, grouse, sagehens, pheasants, Hungarian partridges, quails, partridges, cranes, rails, coots, wild turkeys, mourning doves, and crows.”

States manage and provide for the hunting of migratory game birds in a cooperative partnership with the Federal government, the other states and with other countries. States may set migratory game bird hunting regulations that are more restrictive than Federal law, but not more liberal. Migratory game birds that are currently hunted in North Dakota include ducks, geese, swans, coots, snipe, mourning doves, woodcock and sandhill cranes. Crows are considered a “game bird” under North Dakota law and are hunted within the state. However, under federal law, crows are considered a "migratory bird", but not a "migratory game bird." Hunting of crows is provided for by regulations that are separate from those for migratory game bird hunting within seasons prescribed by states under federal regulation guidelines. In addition, federal law also allows the killing of crows, without a permit, "when found committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock or wildlife..."

Despite these definitions, there are some notable exceptions of birds that may be defined and protected as migratory birds even though they may not migrate, such as some raptor species. Additionally, a recent court decision has granted migratory bird protection status to the introduced mute swan even though they are considered to be a nuisance exotic species (that compete with native species and destroy native species' habitats), similar to house sparrows and rock doves. At this time it is not known how this court decision affects the status and management of other introduced bird species.

Section II. Baiting of Migratory Game Birds

Generally speaking, the term “baiting” refers to placing or using bait to attract or habituate animals to a specific location for any purpose, primarily for hunting or harvesting animals. Baits include but are not limited to grains, minerals, salt, fruits, vegetables, hay, or other natural or manufactured foods. (Note: there is a formal legal definition of baiting in Federal Regulations that more specifically defines “baiting” for enforcement purposes.)

There are no state laws that prohibit the use of bait for taking migratory game birds in North Dakota. However, Federal law prohibits the use of bait to aid in the taking of any migratory game bird species, although the regulations for doves are slightly different than those for waterfowl.

There are numerous federal regulations that deal with baiting of migratory game birds as it pertains to hunting (Appendices A and B)

Baiting and waterfowl hunting.

The use of bait for hunting waterfowl was fairly common in the early part of the 1900s. Havera (1999) presents an excellent history of baiting, its use and problems in Illinois. He points out that baiting apparently became common when water diversions reduced waterfowl foods making duck hunting difficult. Baiting for waterfowl hunting (and the use of live decoys) was prohibited by the federal government in 1935. Illegal baiting activities for waterfowl hunting are still encountered by enforcement agents across the country, but this activity seems especially prevalent in the more southern hunting areas of the U.S. Baiting in North Dakota probably occurs but does not appear to be a rampant problem.

Rich Grosz (Special Agent, USFWS, Bismarck, ND, Pers. Comm. 2004) reports that, to his knowledge, there has never been a law enforcement case made for illegally hunting migratory game birds over bait in North Dakota. He is quick to point out, however, that this does not mean that baiting of migratory game birds for hunting does not occur in the state. He has documented instances of hunters admitting to illegally hunting baited waterfowl. In these cases, charges were never filed because of other violations that were being prosecuted. Additionally, the USFWS maintains that some farming practices in North Dakota could create situations they consider to be baiting and would be illegal to

hunt over. Examples include leaving wind-rowed grain in fields for an extended time period to improve hunting, or manipulating unharvested grains, such as burning unharvested grain that is too poor of a quality to harvest. However, at this point the Service has not pursued charges in any of these instances (Rich Grosz, Special Agent, USFWS, Pers. Comm. January 2004).

Some have expressed concerns that increasing numbers of non-resident hunters coming to North Dakota could increase the incidence of illegal baiting in the state. Illegal baiting is much more common in other states, especially in the south, where waterfowl hunting is highly commercialized. Hunters coming from these states may be more likely to bring these illegal behaviors with them and attempt to use them in North Dakota.

Excerpts of Federal Regulations on baiting of waterfowl and some interpretative explanations are presented in Appendix A.

Baiting and dove hunting

Baiting regulations for dove hunting are different than for waterfowl hunting. Appendix B contains an explanation of what is legal and what is not legal relative to bait and hunting for doves.

Baiting as a management tool

Despite the federal prohibitions on baiting, the use of bait for attracting birds to hunters has been discussed as a potential management tool to increase the harvest of overabundant light geese (Johnson 2003):

“Like the use of live decoys, hunting over bait, or using grain to lure migratory birds to hunters was once a traditional waterfowling technique. Bait was often used in combination with live decoys to lure ducks to hunters in Illinois (Havera 1999). Most historic descriptions of baiting relate to its use for duck hunting. However, geese also are likely to be attracted to baited areas. The lack of attention to geese in historical descriptions is probably due, at least in part, to the relative scarcity of geese compared to ducks during the early part of the twentieth century. The government of the United States banned baiting of waterfowl in 1935. It was outlawed because it was thought to lead to over-harvest of ducks and because of the concern for depressed waterfowl populations resulting from the drought of the 1930's.

It is unknown how effective baiting would be for increasing harvest of light geese. It may be difficult to attract light geese to bait in areas rich in residual agricultural grains. Baiting may be more effective in the northern part of the prairies where geese become hyperphagic (have increased drive to eat) just prior to migrating to the breeding grounds (Alisauskas and Ankney 1992).

However, under a situation requiring direct control of the light geese, the use of bait may be justifiable. This is especially true during a light goose only special conservation harvest. Because of the large numbers of birds involved and their behavior, it seems that baiting would be an expensive endeavor. Nonetheless, there likely are situations in both the United States and Canada where bait could attract birds and provide additional harvest opportunities. Crop manipulation has been used to lure and alter the distribution of geese and cranes in Illinois and New Mexico (D. Sharp, personal communication). Baiting is currently allowed during the special conservation measures for greater snow geese in Quebec. It is conceivable that large blocks of cropland could be managed to lure light geese into situations specifically managed to allow a high harvest by hunters. Such situations have been developed in private hunting situations (both legally and illegally) for hunting Canada geese and other waterfowl. The application of baiting deserves additional research.

In some states, especially the mid-latitude states, wildlife agencies manage crops to provide foods for birds during winter and spring migration. Under current baiting laws, these areas cannot be hunted during the special conservation harvests. This means that either (1) agencies must stop providing these important foods, or (2) if the food sources remain, birds cannot be hunted over the foods and they become sanctuaries for light geese during the special conservation harvests. The Central Flyway Council has forwarded a recommendation to the U.S. Fish and Wildlife Service to permit light goose hunting over such wildlife food plots during the light goose Conservation Order (Central Flyway Council Recommendation Number 4, July 28, 2000, Memphis Tennessee). Implementing the recommendation would provide additional harvest opportunities and reduce confusion and conflicts between wildlife habitat management programs and light goose population reduction.”

Section III. Feeding of Migratory Game Birds.

“Feeding” for the purposes of this discussion, is considered as the placement or distribution of food or other substances to be consumed by migratory game bird species for recreational or purposes other than hunting. Feeding migratory birds, either game or non-game species, is not regulated by either state or federal law.

Spring and fall migration periods and winter periods can be a time of high natural mortality for some species. This is normal, and part of the natural processes which helps maintain bird populations at levels within the carrying capacity of the landscape to support them. Providing winter food, especially in a state like North Dakota, can entice birds to attempt to winter further north than normal. This could decrease survival of these individuals, or result in cross-seasonal effects that could reduce reproductive potential.

The problem can be especially serious when severe weather strikes causing extreme stress on birds that do not normally winter in the north. Additional problems occur when bird feeding enthusiasts let food supplies dwindle or become exhausted during especially severe weather (because they are unable to maintain the feeders due to deep snow or extreme weather), because they cease to maintain food supplies when they leave for extended periods such as winter or holiday vacations, or because feeding has become too expensive to maintain. Migratory game birds that are not enticed by supplemental feeding will generally migrate to normal wintering areas as they have for millennia. Additionally, bird feeding activities can increase disease transmission and disease caused mortality. Feeding sites create unnaturally crowded conditions for birds, which increases bird-to-bird and bird-to-feces contact, increasing transmission of diseases such as mycoplasmosis (Friend and Franson 1999).

Problems with nuisance Canada geese in urban environments are common throughout the U.S. and Canada and many other parts of the world. Such problems are exacerbated when well meaning individuals feed urban Canada geese, further domesticating these birds and encouraging them to congregate in certain areas. One of the first management strategies to deal with these situations is to eliminate feeding and remove or make food sources unavailable (Oetting 1987, Laycock 1982, Conover and Chasko 1985, Gosser et al. 1997, and Smith et al. 1999).

Summer feeding of waterfowl

Ducks and geese are fed by people wanting to keep the birds available for viewing. People often appreciate having waterfowl nearby for viewing and enjoyment. This is considered, by many, to be “close to nature” and thus an improvement in life style. However, problems frequently develop as numbers of “fed” waterfowl increase to the point they cause property damage, create a nuisance through accumulation of droppings, or, in the case of geese, become aggressive and refuse to leave or even attack humans. Such problems are frequent on public areas, such as parks and golf courses, or around homes that are built near waterfowl habitats such as ponds and rivers. Additional problems and concerns that apply to the summer feeding of waterfowl are covered under “winter feeding of waterfowl.”

Winter feeding of waterfowl

Winter feeding of waterfowl, generally mallards and Canada geese, is one problem that has required attention by the Department in the past. In urban areas, some people have provided feed and/or open water for waterfowl, for recreational and/or perceived conservation reasons. These activities can entice birds to remain further north longer or even spend the winter further north than normal (Cooper and Johnson 1977). These birds, usually in large and annually increasing numbers, then concentrate in the feeding area and their open-water roosting areas. Large numbers of waterfowl can keep small areas of water ice-free through all but the most severe weather. Many problems are created by related feeding activities including congregating large numbers of artificially attracted waterfowl that destroy lawns, and other horticultural landscaping around homes

and urban developments such as condominiums, apartments, businesses, golf courses, and public parks and associated facilities. This damage can be expensive to repair. Not all residents in these areas are happy with the concentrations of waterfowl and the damage caused by them (See Appendices C and D).

Another problem caused by feeding waterfowl is related to vehicle traffic obstruction and human safety issues. Often birds are attracted by recreational feeding in parks or on other public or private lands. Feeding activities cause birds to congregate which attracts additional birds exacerbating the problem. The birds can congregate on or along roads, hindering or stopping traffic, causing accidents or simply creating a nuisance. All of these problems can also occur with feeding during the summertime.

Section IV. Conclusions and Recommendations

Baiting of migratory game birds in North Dakota is not illegal under North Dakota state law, but is strictly forbidden under federal law.

Feeding of migratory game birds has no real benefits to their populations and has many negative aspects for both the migratory game bird resource and humans.

Legalized baiting may have potential as a management tool that could be used to increase the harvest of overabundant migratory game bird populations.

The department should discourage the feeding of migratory game birds.

Information and education should be provided through all normal communication channels with the public to point out the problems and concerns with feeding migratory game birds.

The department should continue to work with local governments, organizations, housing associations, and similar groups to help them eliminate feeding of migratory game birds on properties they control.

Department law enforcement should continue to coordinate with Federal law enforcement personnel on federal migratory game bird baiting violations.

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Appendix A.

Information and Regulations on Waterfowl Hunting and Baiting

Source: www.le.fws.gov/pdffiles/Waterfowl_hunting_baiting.pdf

Waterfowl Hunting and Baiting

This web page reviews Federal regulations on baiting, incorporates current U.S. Fish and Wildlife Service enforcement policy, and summarizes other Federal regulations for waterfowl hunting. Federal baiting regulations define key terms for hunters and land managers, and clarify conditions under which you may legally hunt waterfowl and other migratory game birds. As a waterfowl hunter or land manager, it is your responsibility to know and obey all Federal and State laws that govern the sport. Rules that affect waterfowl hunting also apply to hunting coots and cranes, and all references to waterfowl in this material encompass these birds as well. Federal regulations are more restrictive for waterfowl hunting than for dove hunting. For information on dove hunting, carefully review the Federal regulations and visit the companion web page on dove hunting and baiting.

Definitions from Title 50, Code of Federal Regulations, Part 20.11

Normal agricultural planting, harvesting, or post-harvest manipulation means a planting or harvesting undertaken for the purpose of producing and gathering a crop, or manipulation after such harvest and removal of grain, that is conducted in accordance with official recommendations of State Extension Specialists of the Cooperative State Research, Education, and Extension Service of the U.S. Department of Agriculture.

(Note: By policy, the Service does not make a distinction between agricultural fields planted with the intent to harvest and those planted without such intent so long as the planting is in accordance with Cooperative Extension Service recommendations.)

Normal agricultural operation means a normal agricultural planting, harvesting, post-harvest manipulation, or agricultural practice that is conducted in accordance with official recommendations of State Extension Specialists of the Cooperative State Research, Education, and Extension Service of the U.S. Department of Agriculture. *(Note: By policy, the Service recognizes pasture lands and wildlife food plots planted for enhancement of wildlife as normal agricultural operations provided they are planted in accordance with Cooperative Extension Service recommendations for production of a crop.)*

Normal soil stabilization practice means a planting for agricultural soil erosion control or post-mining land reclamation conducted in accordance with official recommendations of State Extension Specialists of the Cooperative State Research, Education, and Extension Service of the U.S. Department of Agriculture for agricultural soil erosion control.

Baited area means any area on which salt, grain, or other feed has been placed, exposed, deposited, distributed, or scattered, if that salt, grain, or other feed could serve as a lure or attraction for migratory game birds to, on, or over areas where hunters are attempting to

take them. Any such area will remain a baited area for 10 days following the complete removal of all such salt, grain, or other feed.

Baiting means the direct or indirect placing, exposing, depositing, distributing, or scattering of salt, grain, or other feed that could serve as a lure or attraction for migratory game birds to, on, or over any areas where hunters are attempting to take them.

Manipulation means the alteration of natural vegetation or agricultural crops by activities that include but are not limited to mowing, shredding, discing, rolling, chopping, trampling, flattening, burning, or herbicide treatments. The term manipulation does not include the distributing or scattering of grain, seed, or other feed after removal from or storage on the field where grown. *Natural vegetation* means any non-agricultural, native, or naturalized plant species that grows at a site in response to planting or from existing seeds or other propagules. The term natural vegetation does not include planted millet. However, planted millet that grows on its own in subsequent years after the year of planting is considered natural vegetation.

Excerpts from Title 50, Code of Federal Regulations, Part 20.21(i)

No persons shall take migratory game birds:

(i) By the aid of baiting, or on or over any baited area, where a person knows or reasonably should know that the area is or has been baited. However, nothing in this paragraph prohibits:

(1) The taking of any migratory game bird, including waterfowl, coots, and cranes, on or over the following lands or areas that are not otherwise baited areas-

(i) Standing crops or flooded standing crops (including aquatics); standing, flooded, or manipulated natural vegetation; flooded harvested croplands; or lands or areas where seeds or grains have been scattered solely as the result of a normal agricultural planting, harvesting, post-harvest manipulation or normal soil stabilization practice;

(ii) From a blind or other place of concealment camouflaged with natural vegetation;

(iii) From a blind or other place of concealment camouflaged with vegetation from agricultural crops, as long as such camouflaging does not result in the exposing, depositing, distributing or scattering of grain or other feed; or (iv) Standing or flooded standing agricultural crops where grain is inadvertently scattered solely as a result of a hunter entering or exiting a hunting area, placing decoys, or retrieving downed birds.

(2) The taking of any migratory game bird, except waterfowl, coots and cranes, on or over lands or areas that are not otherwise baited areas, and where grain or other feed has been distributed or scattered solely as the result of manipulation of an agricultural crop or other feed on the land where grown, or solely as the result of a normal agricultural operation.

What This Means

You cannot hunt waterfowl or any other migratory game bird by the aid of baiting or on or over any baited area where you know or reasonably should know that the area is or has been baited. Baiting is the direct or indirect placing, exposing, depositing, distributing, or scattering of salt, grain, or other feed that could lure or attract migratory game birds to, on, or over any areas where hunters are attempting to take them. A baited area is any area on which salt, grain, or other feed has been placed, exposed, deposited, distributed, or scattered, if that salt, grain, or feed could serve as a lure or attraction for migratory game birds.

The 10-Day Rule

A baited area remains off limits to hunting for 10 days after all salt, grain, or other feed has been completely removed. Waterfowl will habitually still be attracted to the same area even after the bait is gone. The 10-day rule recognizes that removing bait does not remove the lure created and that waterfowl will still be attracted to the area.

What is Legal?

You can hunt migratory game birds, including waterfowl, on, over, or from:

- Standing crops or flooded standing crops, including aquatic plants.
- Standing, flooded, or manipulated natural vegetation.
- Flooded harvested croplands.
- Lands or areas where grains have been scattered solely as the result of a normal agricultural harvesting or normal agricultural post-harvest manipulation.
- Lands or areas where top-sown seeds have been scattered solely as the result of a normal agricultural planting, or a planting for agricultural soil erosion control or post-mining land reclamation.
- From a blind or other place of concealment camouflaged with natural vegetation.
- From a blind or other place of concealment camouflaged with vegetation from agricultural crops, provided your use of such vegetation does not expose, deposit, distribute or scatter grain or other feed. You should be aware that seeds or grains from such vegetation could create a baited area.
- On or over standing or flooded standing agricultural crops where grain is inadvertently scattered solely as the result of hunters entering or leaving the area, placing decoys, or retrieving downed birds. Hunters are cautioned that while conducting these activities, any intentional scattering of grains will create a baited area.

Waterfowl Hunting on Agricultural Lands

Agricultural lands offer prime waterfowl hunting opportunities. You can hunt waterfowl in fields of unharvested standing crops. You can also hunt over standing crops that have been flooded. You can flood fields after crops are harvested and use these areas for waterfowl hunting. The presence of seed or grain in an agricultural area rules out waterfowl hunting unless the seed or grain is scattered solely as the result of a normal agricultural planting, normal agricultural harvesting, normal agricultural post-harvest manipulation, or normal agricultural soil stabilization practice. A normal agricultural planting, normal agricultural harvesting, or normal agricultural post-harvest manipulation means a planting or harvesting undertaken to produce or gather a crop, or manipulation after such harvest and removal of grain. These activities must be conducted in accordance with recommendations of the State Extension Specialists of the Cooperative State Research, Education, and Extension Service.

Planting and Harvesting

A normal agricultural planting is undertaken for the purpose of producing or gathering a crop. Normal agricultural plantings do not involve the placement of seeds in piles or other concentrations. Relevant factors include recommended planting dates, proper seed distribution, seed bed preparation, application rate, and seed viability. A normal soil stabilization practice means a planting for agricultural soil erosion control or post-mining land reclamation conducted in accordance with recommendations of State Extension Specialists. Lands planted by means of top sowing or aerial seeding can only be hunted if seeds are present solely as the result of a normal agricultural planting or normal soil stabilization practice. Wildlife food plots and "goose fields" should be planted early enough to ensure that the seeds germinate prior to 10 days before being hunted over. If the seeds have not germinated by at least 10 days prior to being hunted over, the areas must have been planted in a manner consistent with Cooperative Extension Service recommendations for production of a crop or the area will be considered baited. A normal agricultural harvest is undertaken for the purpose of gathering a crop. The arrangement of harvested grain in long rows or piles should raise questions about the legality of the area for waterfowl hunting. A normal post-harvest manipulation first requires a normal agricultural harvest and removal of grain before any manipulation of remaining agricultural vegetation, such as corn stubble or rice stubble. You should be aware that although you can hunt doves over manipulated agricultural crops, you cannot hunt waterfowl over manipulated agricultural crops except after the field has been subject to a normal harvest and removal of grain (i.e., post-harvest manipulation). If, for whatever reason, an agricultural crop or a portion of an agricultural crop has not been harvested (i.e., equipment failure, weather, insect infestation, disease, etc.) and the crop or remaining portion of the crop has been manipulated, then the area is a baited area and cannot be hunted for waterfowl. For example, no hunting could occur on or over a field of sweet corn that has been partially harvested and the remainder manipulated. To be considered normal, an agricultural planting, agricultural harvesting, and agricultural post-harvest manipulation must be conducted in accordance with recommendations of State

Extension Specialists. However, the Service will continue to make final determinations about whether recommendations were followed.

Hunting over Natural Vegetation

Natural vegetation is any non-agricultural, native, or naturalized plant species that grows at a site in response to planting or from existing seeds or other propagules. Natural vegetation does not include planted millet because of its use as both an agricultural crop and a species of natural vegetation for moist soil management. However, planted millet that grows on its own in subsequent years is considered natural vegetation. If you restore and manage wetlands as habitat for waterfowl and other migratory birds, you can manipulate the natural vegetation in these areas and make them available for hunting. Activities that fall within the definition of "manipulation" include mowing, shredding, discing, rolling, chopping, trampling, flattening, burning, and herbicide treatments. Natural vegetation is not intended to include plants grown as agricultural crops.

Problem Areas

Feeding waterfowl. Many people feed waterfowl for the pleasure of bird watching. It is illegal to hunt migratory game birds in an area where such feeding has occurred that could lure or attract birds to, on, or over any area where hunters are attempting to take them. The 10-day rule applies to such areas, and any salt, grain, or feed must be gone 10 days before hunting. The use of sand, shell grit, and artificial corn is not prohibited.

Distance. How close to bait can you hunt without breaking the law? There is no set distance. Court rulings vary depending on the circumstances. The influence of bait will increase or decrease depending on such factors as topography, weather, and waterfowl flight patterns. The question of distance can only be answered on a case-by-case basis. Remember, however, that the law prohibits hunting if bait is present that could lure or attract birds "to, on, or over areas where hunters are attempting to take them."

Manipulation of crops and other agricultural practices. Although you can hunt waterfowl over natural vegetation that has been manipulated, you cannot hunt waterfowl over any manipulations of agricultural crops that occur before harvest and removal of grain. You cannot hunt waterfowl on or over areas where farmers feed grain to livestock, store grain, or engage in other normal agricultural practices.

The Hunter's Responsibility

As a hunter, you are responsible for determining whether your proposed hunting area is baited. Before hunting, you should:

- Familiarize yourself with Federal and State migratory game bird hunting regulations.
- Ask the landowner, your host or guide, and your hunting partners if the area has been baited.
- Suspect the presence of bait if you see waterfowl feeding in a particular area in unusual concentrations or displaying a lack of caution.

- Look for grain or other feed in the water, along the shore, and on the field. Pay particular attention to the presence of spilled grain on harvested fields and seeds planted by means of top-sowing.
- Confirm that scattered seeds or grains on agricultural lands are present solely as the result of a normal agricultural planting, normal agricultural harvesting, normal agricultural post-harvest manipulation, or normal soil stabilization practice by consulting with State Extension Specialists.
- Abandon the hunting site if you find grain or feed in an area and are uncertain about why it is there.

Other Responsibilities

If you prepare lands for hunting, participate in such preparations, or direct such preparations, it is important for you to know and understand what practices constitute baiting. You should know prior to hunting what activities constitute baiting and when lands or other areas would be considered baited. If you bait or direct that an area be baited and allow hunting to proceed, you risk being charged with an offense that carries significant penalties.

Appendix B.

Baiting Regulations and Dove Hunting

Source: <http://www.le.fws.gov/WhatisLegal.htm>

What is Legal?

You can hunt doves on, over, or from:

- Lands or areas where seeds or grains have been scattered solely as the result of normal agricultural operations, which include normal agricultural harvestings, normal agricultural post-harvest manipulations, or normal agricultural practices.
- Lands planted by means of top-sowing or aerial seeding where seeds have been scattered solely as the result of a normal agricultural planting, a planting for agricultural soil erosion control, or a planting for post-mining land reclamation.
- Lands or areas where grain or feed has been distributed or scattered solely as the result of the manipulation of an agricultural crop or other feed on the land where grown.
- Standing crops.
- Lands planted as wildlife food plots, provided the seed is planted in a manner consistent with Cooperative State Research, Education, and Extension Service recommendations for the planting of wildlife food plots. In states without Cooperative Extension Service recommendations for the planting of food plots, the seed must be planted in accordance with Extension Service guidelines for producing a crop.
- Lands planted as pasture improvements or for the purpose of grazing livestock. (The Fish and Wildlife Service will not make a distinction between agricultural fields planted with the intent to gather a crop and those planted without such intent provided the planting is carried out in a manner consistent with the recommendations of State Extension Specialists).
- Standing or manipulated natural vegetation.
- A blind or other place of concealment camouflaged with natural vegetation.
- A blind or other place of concealment camouflaged with vegetation from agricultural crops, provided your use of such vegetation does not expose, deposit, distribute or scatter grain or other feed. You should be aware that seeds or grains from such vegetation could create a baited area.

Dove Hunting on Agricultural Lands

Agricultural lands offer good dove hunting. You can hunt doves in fields where grain has been distributed or scattered solely as the result of a normal agricultural operation. A normal agricultural operation includes normal agricultural plantings, harvestings, or post-harvest manipulations as well as other normal agricultural practices if they are conducted in accordance with recommendations of State Extension Specialists of the Cooperative State Research, Education, and Extension Service.

You can also hunt doves over lands planted by means of top sowing or aerial seeding where seeds have been scattered solely as the result of a normal agricultural planting or a normal soil stabilization practice.

Planting and Harvesting

Planted seeds and grains that have not sprouted are very attractive to doves. Lands planted by means of top-sowing or aerial seeding can be hunted where seeds are present solely as the result of a normal agricultural planting or normal soil stabilization practice.

A normal agricultural planting is a planting undertaken for the purpose of producing or gathering a crop. Normal plantings do not involve the placement of grain in piles or other concentrations. Plantings must follow Cooperative State Research, Education, and Extension Service recommendations. Relevant factors include recommended planting dates, proper seed distribution, seed bed preparation, application rate, and seed viability.

A normal soil stabilization practice is a planting for agricultural soil erosion control or post-mining land reclamation conducted in accordance with recommendations of State Extension Specialists.

The planting of wildlife food plots is considered a normal agricultural operation in many areas of the country. In many states, State Extension Specialists provide recommendations for the planting of wildlife food plots. Doves may be hunted over wildlife food plots planted in accordance with these recommendations. In those states where the Cooperative State Research, Education, and Extension Service does not issue recommendations for the planting of wildlife food plots, doves may be hunted over these plots where seed has been planted in a manner consistent with the guidelines for producing a crop. However, seeds freshly planted or otherwise distributed for the purpose of luring, attracting, or enticing doves within gun range will be considered baiting. To avoid any question, planting of wildlife food plots should occur early enough to allow time for the seeds to germinate.

You may hunt doves over manipulated grain crops, such as corn, wheat, milo, sorghum, millet, sunflower, and buckwheat.

Other Agricultural Practices

Agricultural activities other than planting or harvesting also scatter grain or other feed in agricultural areas. You can hunt doves in such areas provided the agricultural operation involved is a normal agricultural practice (i.e., one that produces livestock or a crop) and follows recommendations of State Extension Specialists. Examples include "hogged down" fields (where livestock have been allowed to enter fields and feed on standing crops) and feedlots (small enclosed areas where farmers feed livestock to increase their weight). You cannot, however, hunt in an area where grain, salt, or other feed has been placed to improve

dove hunting.

Pasture Lands

Doves may be hunted over lands planted for the purpose of developing pasture as well as over lands planted for the purpose of pasture improvements. In both cases, the planting must be carried out in a manner consistent with recommendations of State Extension Specialists.

Manipulation of Crops and Other Vegetation

Agricultural crops, other feed, and natural vegetation may be manipulated to improve dove hunting. Manipulation means the alteration of natural vegetation or agricultural crops by activities such as mowing, shredding, discing, rolling, chopping, trampling, flattening, burning, or herbicide treatments. Manipulation does not include the distributing or scattering of seeds, grains, or other feed after removal from or storage on the field where grown. You should be aware that although you can hunt doves over manipulated agricultural crops, you cannot hunt waterfowl over manipulated agricultural crops except after the field has been subject to a normal harvest and removal of grain (i.e., post-harvest manipulation).

For More Information

The Federal migratory game bird hunting regulations can be found in [50 CFR Part 20](#). If you have additional questions about dove hunting and the law, contact the nearest U.S. Fish and Wildlife Service law enforcement office or one of the [Service regional law enforcement offices](#). You should also consult State fish and wildlife agencies to determine what State regulations apply.

Appendix C.
Article from Bismarck Tribune: 10 December 1988

DAKOTA Page 2B □

Large flock isn't ducky for Fargo

FARGO (AP) — Residents of a south Fargo neighborhood who fed a flock of ducks at the development's three lakes are complaining that the birds, apparently reluctant to leave the bountiful food supply, are fouling yards and sidewalks.

Sonja Kosler, a member of the board of the Bluemont Lakes Association, said a migratory waterfowl specialist at the state Game and Fish Department had advised residents to quit feeding the ducks.

"We're hoping that will make them fly south, and end up down in Nebraska or somewhere," Kosler said.

Not only do the ducks' droppings pose a problem, but the birds frequently cluster in the middle of streets and refuse to yield to vehicles, Kosler said.

"People stop when ducks are in the road," she said. "If they would keep on driving, the ducks would move out of the way."

Three years ago, the lakes association brought in 24 mallards to populate the three lakes in the development. The flock has since grown to about 80 birds, residents say.

Bluemont Lakes residents, and some of their neighbors, feed the ducks during the summer, and this year the feedings have carried over into the fall and early winter.

Goodwin Hoff, a sanitarian with the Fargo Environmental Health Department, said he had been fielding calls from homeowners weary of cleaning up duck droppings.

"They're questioning the advisability of having that many ducks around," Hoff said.

There are alternate plans to round up the ducks if they ignore hints that they have worn out their welcome, Hoff said.

"There's been some talk about wildlife specialists being called in in due time if they don't migrate, to help round them up and transport them out of the area," Hoff said.

Appendix D. Article from Fargo Forum: December 1988

Ducks drive Bluemont residents quackers

By Betsy Gerboth
STAFF WRITER

There's a flock of ducks in south Fargo that obviously knows a good thing when it sees one.

There's a flock of homeowners in the same area who would prefer that the ducks looked for a good thing in another neighborhood — preferably one much farther south.

Three years ago, the Bluemont Lakes Association brought in 24 mallard ducks to populate three lakes in its development, which is located west of 25th Street South, south of 25th Avenue and north of 30th Avenue.

As all creatures do, the ducks multiplied. The flock now numbers about 80.

During the summer, the residents of Bluemont Lakes feed the ducks. This year, the feeding continued into the fall and early winter, courtesy of not only the Bluemont Lakes folks but some of their neighbors.

The ducks apparently decided that migrating south and leaving such a smorgasbord would be foolish.

And that's why Goodwin Hoff, a sanitarian with the Fargo Environmental Health Department, has been getting calls from disgruntled homeowners who are tired of cleaning up duck droppings.

"They're questioning the advisability of having that many ducks around," Hoff said Thursday.

They are indeed.

And the only solution to the overabundance of ducks, according to Sonja Kosler, a board member of the Bluemont Lakes Association, is to quit feeding the ducks and let nature take its course.

"We're advising people not to feed them," Kosler said. "We're hoping that will make them fly south and end up down in Nebraska or somewhere."

The Bluemont Lakes Association sought the advice of a migratory waterfowl specialist with the North Dakota Game and Fish Department when the ducks showed no signs of moving on for the winter.



DAVE WALLIS/THE FORUM

Part of the flock of ducks roaming the area around 21st Street and 30th Avenue South in Fargo takes flight.

His advice, Kosler said, was to remove the ducks' meal ticket.

The association is attempting to spread the word about the no-food edict, even though, Kosler says, the ducks technically are no longer in the Bluemont Lakes area.

"It's not really a Bluemont issue

anymore," she said. "But we feel a responsibility to the community to get this message out."

Not only do the ducks mess up yards and sidewalks, but they frequently cluster in the middle of streets and refuse to yield the right-of-way to vehicles.

"People stop when the ducks are in the road," Kosler said. "If they would keep on driving, the ducks would move out of the way."

If the ducks resist the current scheme and continue to show no signs of flying south, Hoff said, there are alternative plans.

"There's been some talk about wildlife specialists being called in in due time if they don't migrate, to help round them up and transport them out of the area," he said.

Imagine: the first-ever duck roundup in Fargo.

Chapter 4

BAITING AND FEEDING UPLAND GAME BIRDS

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Section I. Introduction

In North Dakota, upland game birds include pheasants, sharp-tailed grouse, sage grouse, Hungarian partridge, ruffed grouse, prairie chicken and wild turkey. There is limited literature available on feeding or baiting of upland game birds in the Northern Great Plains. Most articles reviewed were written by state game and fish agencies and focus on the economic aspects of feeding pheasants. Numerous studies have been done on feeding bobwhite quail in the southern United States. Some conclusions from bobwhite quail studies may be applicable to upland game birds in North Dakota and will be discussed later in this chapter.

For the purposes of this document, feeding is defined as the placement of food or other nutritional provisions for consumption by wildlife. Baiting is a component of feeding with a more specific purpose, which is to attract or habituate animals to a particular area for hunting purposes, trapping, photography, or to reduce depredation. At this time there are no laws or regulations prohibiting feeding or baiting of upland game birds in North Dakota. Baiting of migratory game birds is prohibited under federal law.

Most of the discussion in this paper will focus on feeding but may also be applied to baiting situations. There appears to be very few instances of baiting game birds for hunting in North Dakota. Hunting of wild turkeys near supplemental feed sources is occurring in the southeast portion of the state, but is associated with long term turkey feeding situations rather than baiting specifically for hunting purposes (Tim Phalen, Warden, NDGFD, Pers. Comm.). Supplemental feeding of wild turkeys had been a long-standing Department policy in early years of turkey introductions and transplants.

Section II. Social vs. Biological Issues

Rural landowners and wildlife clubs are most commonly involved in feeding game birds, although just about anyone who has an interest in wildlife has probably contemplated feeding birds or other animals during harsh winter months. There are several reasons people feed upland birds, but most individuals feed birds because they enjoy it and it makes them “feel good” or because it enhances their ability to view them. Other people believe they are benefiting birds by feeding them and are actually unaware or

unconcerned with the potential negative consequences feeding may have on birds, such as increased predation risk and increased potential for spread of disease. In some cases, livestock producers may intentionally place feed away from their livestock operation to lure birds away. The North Dakota Game and Fish Department (the Department) occasionally uses strategically placed feed, usually grain, to lure wild turkeys into an area to facilitate trap and relocation efforts.

In North Dakota, it is not uncommon for rural landowners, wildlife club members, hunters, and other interested individuals to put out feed for pheasants during harsh winter weather. This supplemental feeding usually occurs during the time when birds congregate around farmsteads, along roadways and in other areas where they are highly visible. Department staff, while addressing turkey depredation complaints, have found it is also common for rural and urban residents to feed wild turkeys during the winter months. In urban areas, wild turkeys have discovered sources of food around bird feeders intended for song birds. Unfortunately, whether intentional or incidental, these feeding situations have often led to turkey depredation and nuisance complaints. In addition, standard livestock operations often attract game birds to cattle feed supplies during the winter. This is an unintentional consequence of feed storage situations that leave grain or chopped hay piled on the ground and thus available to wildlife. It is particularly difficult to protect grain and/or cattle food sources from upland game birds since traditional fencing has little effect. Most depredation complaints in North Dakota involving game birds have been due to wild turkeys using livestock feed supplies during the winter months (Robert Miller, Wildlife Technician, NDGFD, Pers. Comm.). Complaints involving urban turkey situations are also fairly common.

Supplemental Foods

Typical winter food provided to game birds consists of grain screenings, corn, sunflowers, wheat or other small grains. Grain screenings are very popular, being much cheaper than grain. Some wildlife clubs bale small grains and then distribute the bales during the winter months. More sophisticated operations use automatic feeders to distribute the grain periodically throughout the day. Observations from the winter of 2003-2004 indicated feeding along roads should be avoided as it dramatically increases losses due to roadkill (Arvid Anderson, Wildlife Biologist, NDGFD, Pers. Comm.). Planting wildlife food plots is the preferred alternative and is encouraged by the Department and other natural resource agencies and wildlife organizations.

Economic Considerations

The cost of conducting an effective feeding program is enormous (Williamson 2000). For example, Morgan (1950) stated a pheasant eats approximately 1/3 pound of feed per day. If the statewide population of pheasants was 3,000,000 birds, it would take 1,000,000 pounds of feed per day, if every bird was to be fed. At \$45.00 per ton for grain screenings, the cheapest food source, that equates to approximately \$22,500 per day plus distribution costs which could easily double or triple total costs. Because grain screenings are generally cheapest, using other types of grain would substantially increase

the cost of a feeding program. For example, the current price of a bushel of corn (\$2.70) is more than double the cost of grain screenings. Without a doubt, any wide scale program to feed upland game birds in North Dakota would be prohibitive in both money and manpower.

Boyer and Kane (2004) reported on several studies of feeding programs bobwhite quail in Texas. Results have been variable but indicate supplemental feeders and feeding will not correct or compensate for poor habitat. Artificial feeders can provide feed in smaller areas, thus landowners would not have to sacrifice farmland acreage. They can also provide feed in or near good cover areas where natural food is limited or lacking. While feeding quail may be effective during periods of drought, economic benefits from feeding quail remain questionable. Providing an additional quail in the hunter's bag through supplemental feeding can cost from \$24 to \$60 per bird.

Diseases

Poultry diseases such as Histomoniasis (Blackhead), Avian Pox, Infectious Sinusitis, Avian Cholera and Aspergillosis can affect both wild and domestic game birds. Many diseases have the potential to spread rapidly when birds are concentrated. A disease can be transmitted by ingestion of the causative organism via infected feed, water or the environment (Mississippi State University 1997). There is limited documentation of specific disease transmission cases among wild game birds that are being artificially fed. If a contagious disease is present in a population of game birds, concentrating those birds would facilitate transmission of the pathogen. Boyer and Kane (2004) recommended feeders be washed, disinfected and moved regularly to reduce the possibility of disease transmission. Knowledge of disease transmission in domestic poultry indicates that any feeding situation that artificially concentrates game birds is likely to increase the risk of disease transmission. Researchers have concluded there is a direct link between artificial feeding of ungulates and increased incidence of diseases such as brucellosis and tuberculosis.

Toxins

Poisoning of birds through contaminated grain has also occurred during feeding operations. Aflatoxins are extremely toxic chemicals produced by two molds, *Aspergillus flavus* and *A. parasiticus*, which are widely associated with moldy corn. Aflatoxins can lower reproduction in deer and cause mortality of wild turkey, quail, songbirds and mourning doves (Williamson 2000). Friend and Franson (1999) reported mortality from exposure to aflatoxins in free-ranging birds including ducks, snow geese, Canada geese and sandhill cranes. Ergot is a disease of cereal grains caused by a parasitic fungus that grows in dense black masses. Ergot bodies contain nearly 40 types of poisonous alkaloids and can cause nervousness, depressed growth, poor feathering, lack of coordination and inability to stand in poultry (The Western Producer 1999). Ergot poisoning can affect poultry and many other classes of animals. Contaminated feed, although put out with good intentions, may actually lead to increased mortality in game birds.

Starvation

Klett (1956) reported that the examination of thousands of winter-killed pheasants in North Dakota prior to 1956 revealed the birds did not die of starvation. The direct cause of death in most cases was freezing and suffocating. It is actually rare that pheasants die from lack of available food. Rather, they are much more likely to succumb to the combination of severe weather and lack of adequate winter habitat. Bever (1962) indicated that in the 55-year history of pheasants in South Dakota, winter starvation had never been a critical factor in the next years fall hunting population. In contrast to pheasants (an exotic species), sharp-tailed grouse are native to North Dakota and have adaptations such as feathers on the legs, feet, and nostrils to provide protection and prevent suffocation. Due to its adaptations, sharp-tailed grouse usually fair much better in periods of severe winter weather than non-native ring-necked pheasants.



Photo: anonymous

Figure 1. Example of a bait pile being used by turkeys and deer simultaneously.

Section III. Feeding Alternatives (Food Plots)

Studies done in South Dakota found food plot use had a positive effect on winter survival of female ring-necked pheasants. These studies also concluded that female ring-necked pheasants feeding in food plots likely had lower susceptibility to predation than pheasants feeding in harvested fields because of protective cover provided by standing crops (Gabbert et al 2001). A common assumption is that feeding can substitute for planting food plots provided feeders are placed in locations with adequate overhead cover and are maintained throughout the winter. In most cases, artificial feeding concentrates birds

more than food plots and does not mimic natural feeding behavior in harvested crop fields or food plots. Feeding behavior in the latter two is very similar. Effects of concentrating birds may lead to higher predation rates and increased risk of disease, but more research is probably warranted before making any definitive conclusions. Most biologists agree that if you are going to feed, spreading grain is better than using stationary feeders (Thurmond 2000).

Experience gained from the Department's food plot program has demonstrated that in areas with high deer densities, the grain is often consumed by deer before it becomes needed by game birds and other wildlife in late winter. It is important for food plots to be large enough to provide food throughout the winter, even with use by deer, and must be placed near good escape cover.

Grain screenings may contain noxious weed seeds and could contribute to the spread of those weeds, resulting in a substantial increase in the cost of weed control for landowners and public agencies. A cursory exam of grain screenings from a baiting site in Mountrail County revealed a large number of Canada thistle seeds in the sample (North Dakota Weed Control Association 2004). The North Dakota Weed Control Association recently passed a resolution to support educational efforts to discourage the use of grain screenings as wildlife food.

Williamson (2000) concluded that supplemental feeding violates a number of basic tenets of wildlife management: 1) Most supplemental feeding efforts by private citizens focus on individual animals, not populations; 2) Supplemental feeding is not a natural process and, in fact, can disrupt existing natural processes; and 3) Supplemental feeding can reduce wild animals to a semi-domestic state with their inherent wildness compromised and their value to society decreased. Supplemental feeding programs can blur the distinction of wild versus domestic and free-ranging versus private.

Section IV. Summary

A review of the available literature on feeding pheasants and other upland game birds points out that during any winter feeding situation there needs to be adequate habitat available. Without adequate cover, even birds with full crops can succumb to exposure or simply be buried by deep snow during severe winter weather. If started, feeding must be continued through the entire winter and should be done in areas with adequate winter cover that will not fill with snow. Concentrations of birds in exposed places can result in heavy losses during winter storms.

For over 50 years, biologists in North Dakota have concluded artificial feeding of game birds is impractical and might actually add to loss of birds. Several articles published by state wildlife agencies, primarily the Department and South Dakota Game, Fish and Parks, describe how it would be economically unfeasible to provide a large scale winter feeding program for pheasants and other upland game birds in the Northern Great Plains. The agencies also state it would be logistically impossible to reach enough birds to be

effective. Furthermore, Trautman (1982) noted that pheasants become dependent upon easily accessible food and if feeding is not continued throughout the entire critical period, survival will likely be poorer than if feeding were never initiated.

Regardless of the cost and potential negative consequences, people enjoy feeding wildlife and the practice will likely continue in North Dakota. If game bird feeding is to be done, it is likely best accomplished on a local scale by wildlife clubs and other interested individuals or groups using volunteer labor. However, development of adequate winter cover will likely save more birds than supplemental feeding efforts. Establishment of wildlife food plots is suggested as an alternative to supplemental feeding.

Section V. Recommendations

- The Department should not engage in upland game bird feeding programs.
- The Department should continue to promote food plot development as an alternative to supplemental feeding of game birds. Food plots need to be large enough to persist through the winter months even in areas of high deer use.
- The Department should continue to promote wildlife habitat development and enhancement rather than supplemental feeding programs.

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Chapter 5

BAITING AND FEEDING NONGAME

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Section I. Introduction

This chapter contains information about feeding nongame wildlife.

For purposes of this discussion nongame species are intended to mean all species of fish and wildlife not commonly taken for recreation or commercial purposes. The vast majority of nongame species that people feed are birds, particularly passerines. To a lesser degree, other bird species (i.e., woodpeckers) and nongame such as ground squirrels, mice and rabbits can be attracted to feeders as well as game species (i.e. tree squirrels, pheasants, deer). Most of the discussion in this section will focus on passerines.

The practice of feeding wildlife, particularly nongame species is centuries old. However, in the last few decades, this practice, in combination with watching birds, has become a popular hobby or pastime. By one estimate, the number of Americans who watch birds increased from just 4% in 1970 to 56% by 1985. It is further estimated that Americans spend \$12 billion annually on birdseed and feeding equipment (The Backyard Birder 2004). The economic implications are considerable even in North Dakota where most hardware stores or landscaping businesses now provide an array of bird feeding products.

Much of the increase in bird feeding popularity can probably be attributed to efforts over the past two decades by natural resource agencies (e.g., state game and fish departments and federal agencies), birding enthusiasts and retailers. Many agencies, including the North Dakota Game and Fish Department, have promoted or encouraged feeding of nongame species by developing programs that provided feed/feeders to the public, developing instructions for building feeders and giving presentations that provide information on a variety of nongame feeding or backyard wildlife issues. These efforts were initiated in large part to raise awareness of nongame species and to build support for funding programs. For example, the State Wildlife Grants Program that provides funds for nongame species probably would not have occurred without first building public support through the various state game and fish agency's nongame and watchable wildlife programs, which educated citizens about nongame wildlife species and promoted the feeding of birds in backyards (Chris Grondahl, Outreach Supervisor, NDGFD, Pers. Comm.).

Individuals feed birds for different reasons. The primary reason people put out feeders is to attract birds to a location where they can be observed. Many of the passerines have colorful markings and often exhibit or engage in behavioral displays at feeders that are interesting to watch. People often remark that observing such behavior and beauty up close in their yard is educational, entertaining and provides them with an aesthetically pleasing experience. Second, because food and water can be in short supply during certain times of the year, individuals believe that providing these resources contributes to the well being of birds. Most people feel good about providing an animal with a source of food or water during times of need. Feeders also provide a setting that allows photographers to more easily take pictures of both nongame and game species.

People feed or provide water for birds in a variety of ways during both winter and summer. Typically this is done by placing one or several feeders either in a tree or on an elevated perch in their yard and filling it with a variety of food. The more common types of food include but are not limited to sunflower seeds, niger thistle seed, a mixed seed variety (consisting primarily of millet), suet and nectar. There are many different types of feeders varying from elaborate commercial designs to empty pop bottles or milk cartons. Generally, most commercial feeders hold somewhere between a quart and a gallon of seeds. Water sources range from small pet bowls to large backyard ponds. Winter water sources are sometimes provided and require the use of heated containers.

Section II. Discussion

With respect to the biological aspects of feeding, it has been generally assumed by most people that the benefits of feeding greatly outweigh the negative aspects even though there are few long-term studies that validate the merits of backyard bird feeding. This is particularly true for wintertime feeding. Several studies have suggested that winter-feeding of some species such as black-capped chickadees and blue jays may contribute to higher winter survival rates in suburban areas than in areas without feeders (Hickey and Brittingham 1991, Brittingham and Temple 1992). However, such studies are limited and the body of scientific evidence documenting the benefits of feeding particular species, or passerines in general, is lacking or inconclusive.

We do know that most animals need four basic components to live. They include food, water, cover and space. Providing only one or two of these components such as food or water will not ensure or guarantee a bird's survival. A classic example of the limits or shortcomings of bird feeding is during the severe winters of 1976-77 and 1977-78 in Ohio, where dead birds were found at feeders everywhere. The birds were not poisoned or starving. Instead, they lacked adequate shelter and simply could not eat enough food to offset the energy draining wind chills (Ohio Department of Natural Resources 2003).

There are concerns being voiced by resource professionals about the merits of feeding backyard birds (Sterba 2002). They include facilitating the spread of diseases, altering natural migration patterns, increasing predation, causing higher collision rates of birds

with artificial structures and attracting unwanted or unintended species. However, much like the purported benefits of feeding, most of the concerns related to feeding are not supported by scientific literature. The concern that feeding birds may facilitate the spread of diseases is worth noting. The concern stems from the belief that feeders provide a setting that promotes the spread of diseases not normally found in a natural setting. For example, when large concentrations of birds repeatedly use the same feeders over time, it creates a crowded environment with a build up of fecal material. Because diseases are frequently spread through infected feces and/or direct contact with infected individuals, feeders appear to create an atmosphere in which organisms that cause diseases thrive and spread (Brittingham and Temple 1986). Currently, there are four diseases that commonly affect bird species that typically use feeders (USGS 2003). These diseases include Salmonellosis, Trichomoniasis, Aspergillosis and Avian Pox. A fifth disease, House Finch Disease first reported in 1994 in the Washington DC area, has become more widespread and is of increasing concern due to its severe impact on finch populations (Cornell Lab of Ornithology 2003). These diseases may cause direct mortality, or weakened health in individuals that may lead to starvation, exposure or predation.

Section III. Summary

The social implications of feeding nongame wildlife are considerable and well entrenched. As a result of 20-plus years of encouraging the public to feed nongame wildlife, a multi-billion dollar industry has developed in the United States that provides commercial products for nongame feeding enthusiasts (Kosack 2003). Even within North Dakota there is considerable interest in bird feeding programs and related activities.

Because a large percentage of our population lives in urban settings, it's conceivable that many people get their primary exposure to wildlife by putting up backyard bird feeders and observing the species that frequent them over time. Bird feeding and related activities could then provide mechanisms to increase the public's awareness, interest and enjoyment of wildlife, and generate positive human-wildlife interactions. As awareness, interest and knowledge increase, people may be more likely to participate in, and contribute to programs that involve and benefit all wildlife (including game species). This is particularly important as bird feeding programs may involve people who are not reached with other Department efforts or programs.

There is a continuing need to demonstrate that feeding will not contribute to the survival of any species (nongame included) in situations where other habitat requirements such as space, cover and water are lacking. When discussing the issue of feeding birds via Department sponsored brochures, news releases, presentations etc., the message should be very clear. While providing food for birds is thought to be beneficial, these species often have other habitat needs that are as important as food. Consequently, efforts to improve backyard bird habitat should be encouraged where possible. Such enhancements include, but are not necessarily limited to information on improving nesting places, perching sites, planting natural food sources for winter and summer, and establishing good winter cover.

The types of food, amounts of food, types of feeders used, and their arrangements and locations are all important considerations in reducing waste, keeping birds from congesting (Geis 2004) and attracting unwanted species such as mice, raccoons, rabbits and deer (NRCS 2004). We should continue to stress the importance of using proper feeding and hygiene practices. For example, feeders or water sources should be cleaned and disinfected frequently, ideally once a week, to reduce the threat of disease (Kasper 1996). Uneaten food beneath feeders and debris such as hulls should be cleaned up at regular intervals and the area disinfected to the extent that it will not harm existing vegetation. Advocating clean feeders and providing the four basic habitat requirements should be a primary component of any Department program that promotes backyard feeding. Additionally we should discourage backyard birders from conducting feeding practices that intentionally attract and supply food to game species such turkeys, pheasants and deer.

At this time there doesn't appear to be sufficient cause to discourage most bird feeding. The social benefits derived by the general public through bird feeding activities are substantial and widespread. This is not to say that biological concerns over bird feeding should be discounted. The Department should continue to review the merits of bird feeding on a regular basis and reassess its stance if needed. Further, any bird feeding related information we dispense through brochures, presentations, videos etc, should be periodically reviewed and updated to include findings from new studies or surveys.

Section IV. Recommendations

1. The Department should conduct a review of its bird feeding programs and update them as needed so that they are providing information that is consistent with other recommendations in this report. Specific attention should be given to not promoting or condoning backyard bird feeding activities where game species are an intended target. While some game species will invariably be attracted to bird feeders, we should distribute information that will seek to minimize the degree and magnitude of such attractions.
2. The Department should continue to broaden its approach when developing public information on bird feeding activities. We should focus on habitat requirements of bird populations as a whole, rather than just one aspect of their needs such as food.

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Chapter 6

BAITING AND FEEDING FURBEARERS

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Section I. Introduction

According to the North Dakota Century Code 20.1-01-02 furbearers are defined as the following: “*Fur-bearers*” includes *mink, muskrats, weasels, wolverines, otters, martens, fishers, kit or swift foxes, beavers, raccoons, badgers, wolves, coyotes, bobcats, lynx, mountain lions, black bears, and red or gray foxes.*

In North Dakota, a harvest season (hunting and trapping) currently exists for the following furbearers: coyotes, red and gray foxes, raccoons, badgers, bobcats, mink, muskrats, weasels, and beavers. The season is closed for the other furbearers: lynx, wolves, swift foxes, black bears, wolverines, martens, otters, fishers, and mountain lions.

Little, if any, scientific or popular literature exists on feeding of wild furbearers, with the exception of bears, which is not exhaustive by any means. Numerous publications exist on the making and use of baits and lures for trapping furbearers, however, little information exists on the ecological or social effects of baiting furbearers. Some research has been conducted on the effects of using toxic baits for killing nuisance furbearers.

For the purpose of this chapter, artificial feeding is placing natural or artificial food into the environment that supplements the food source contained naturally in the home range of a given wild species. Baiting is placing or using bait for attracting or habituating animals to a specific location for any purpose, particularly harvesting. In the case of furbearers, baits are generally used at a trap site. Baits include but are not limited to grains, minerals, salt, fruit, vegetables, aspen or other tree branches, hay, or other natural or manufactured foods. This does not include scents or lures. However, in the case of furbearers, most bait consists of meat, fish, carrion, or scent lures. Although the objectives for feeding and baiting may differ, in essence they both provide natural or artificial food for wildlife at specific locations.

Generally in North Dakota, people do not directly feed furbearing animals for purposes of supplemental feeding, emergency feeding, winter feeding or intercept feeding. However, raccoons may be a small exception. Although it is illegal to possess raccoons as pets in North Dakota, some people believe they are “cute and sociable” and mistakenly think raccoons would make great pets and proceed to feed them. Feeding of black bears is

sometimes done in other states or provinces to intercept or alleviate damage and human safety concerns, but to our knowledge this has not occurred in North Dakota.

Artificial feeding of furbearers may occur unintentionally or indirectly, such as raccoons feeding in garbage dumpsters/dumps or coyotes feeding on livestock carrion. From a biological perspective, there is likely little difference between a garbage dump, a garden plot, an intercept feeder, round bales, or a bait site.

Baiting for furbearers is more common than feeding of furbearers due to trapping as a means of harvesting. Baiting for furbearers is generally done by trappers, hunters, researchers, wildlife managers, and animal control specialists. It's used for vaccination programs, to poison or capture problem animals, or to capture live animals for management or research purposes (e.g., biomarkers, population surveys, fit radio collars). Several state and federal agencies are currently involved in a major rabies vaccination program using a bait-delivery system.

The type of bait used can be anything from peanut butter, jelly, oils, marshmallows, fish (sardines), chunks of meat or deer carrion, and many others. Toxic bait is sometimes used to remove nuisance furbearers. Bait is sometimes used in urban areas to capture nuisance animals, for example, beavers damaging or blocking culverts/roadways or coyotes wandering into cities. Vaccine baits may also be used to control disease in certain species.

Correct selection and placement of baits is important for minimizing capture of non-target species. Currently the only game and fish law regarding baiting makes it illegal to place traps or snares within 25 feet of any sight-exposed bait. Sight-exposed bait is defined as any bait weighing in excess of one pound, composed of animal flesh, fur, hide, entrails, or feathers placed in a manner that it can be seen by any soaring hawk, owl, or eagle.

Using bait for trapping is usually regulated separately from other uses of bait. For instance, Wisconsin proposed that baits used while trapping are exempted from the deer baiting prohibition because baits used in trapping normally would not attract deer. Using bait to hunt bears is also regulated separately in most states. North Dakota does not currently have a harvest season on bears, thus baiting has not been an issue for bears. Of the 27 states that allow bear hunting, only 9 permit baiting, including on federal lands. These states include Alaska, Idaho, Maine, Michigan, Minnesota, New Hampshire, Utah, Wisconsin, and Wyoming (Scheick 2002). Furthermore, of the 13 Canadian provinces and territories, 11 allow some form of baiting for hunting bears, wolves, coyotes, or red fox (Dunkley and Cattet 2003).

Section II. Ecological and Biological Issues

The threat of ecological effects of artificial feeding and baiting (e.g., disease, physical condition and reproductive success, population processes, altered community structure, wildlife mortality by hunting) may impact directly upon the ecological integrity of the land.

Disease

Food supplied or made available to wildlife has been implicated widely as a causative factor that increases the occurrence of infectious and non-infectious disease. In general, animals are attracted to artificial sources of feed in higher density than normally occurs under natural conditions (Thorne and Herriges 1992; Williams et al. 1993; Fischer et al. 1997). However, little evidence exists at this time to suggest that furbearers are directly affected by diseases due specifically to baiting and feeding. Nonetheless, they can be indirectly affected as predators. If one or more animals are harboring an infectious organism, its transmission to uninfected individuals is facilitated by the increased frequency of contact among animals congregating at a feeding site (Miller et al. 1998; Michigan Bovine TB Eradication Project 2002). Furthermore, coyotes and raccoons have been diagnosed with TB in Michigan in addition to deer.

Evidence suggests that predators of deer, e.g., coyotes within the endemic bovine tuberculosis (TB) area of northern Lower Peninsula of Michigan are known to contract TB (Michigan Bovine TB Eradication Project 2002). Other animals also may be indirectly affected by sharing the same portion of food or infected carrion. If one or more animals are harboring an infectious organism, its transmission to uninfected individuals is facilitated by the increased frequency of contact among animals congregating at the feeding site. Non-infectious diseases also can transpire when furbearers are fed spoiled food that has become toxic, food incompatible with their digestive tracts, or foods of poor nutritional quality.

Mange (e.g., sarcoptic, psoroptic, and demodectic mange) is spread through contact, thus concentrated animals may easily spread the mite to other animals or leave mites behind at feeding sites for other animals to pick up.

Raccoons that are provided artificial food may become not only a nuisance but a potential human and pet health hazard if fed near or in residential areas. Raccoons are carriers of numerous diseases and parasites, several of which are harmful and even deadly to humans or pets. Three such parasites and diseases are raccoon roundworm, distemper, and rabies.

Unintentional feeding of coyotes may also exist on individual ranches and farms if dead livestock or offal is improperly disposed of such as allowing carcasses to decay in the pasture where coyotes may have easy access to the carrion. This may be of concern because an increase in coyote contact with domestic livestock may cause an increase in the probability of the risk of transmission of a parasite known as *Neospora caninum*

(Barling et al. 2000). After dogs, coyotes are the second discovered definitive host for this parasite, which causes abortion in cattle.

Although feeding and baiting wildlife is more commonly associated with increasing the occurrence or risk of disease, it has also been used effectively in some circumstances to prevent disease or reduce prevalence. For example, widespread dispersal of bait containing vaccine has been an effective and feasible method of preventing the spread of rabies in areas of Ontario, Texas, and northeastern United States (Farry et al. 1998a; Farry et al. 1998b; Rosatte et al. 2001; www.aphis.usda.gov/ws/nwrc/research/mammal_diseases/rabies.html; www.aphis.usda.gov/lpa/news/2003/11/rabialga.ws.html.) Since 1995, over 13.25 million individual doses of oral rabies vaccine have been distributed over 196,000 square miles of south and westcentral Texas for control of rabies strains in coyotes and gray foxes. Furthermore, raccoon rabies has been prevented from invading Cape Cod since 1995 through the use of intensive baiting efforts (Robbins et al. 1998). More research is needed, however, on vaccine bait consumption and its effects on non-target species.

Population and Community Processes

Feeding and baiting may negatively impact populations of neighboring wildlife by concentrating potential nest predators such as raccoons and skunks near feeders (Cooper and Ginnett 2000). Furthermore, feeding wildlife such as deer will inadvertently attract their natural predators (e.g., coyotes, mountain lions); predators follow prey. Unwanted predators or animals in an area are likely to increase where wildlife is fed. Raccoons and other small carnivores are attracted to deer feeders. Any feeder used should be placed and built to discourage unwanted animals from feeding. Attracting raccoons and skunks, especially in areas of optimal nesting habitat, can be harmful to surrounding wildlife because they are predators of ground-nesting birds such as wild turkeys.

Providing supplemental food for wildlife at focal locations has been demonstrated to affect numerous processes at the population level, however, most data relates to ungulates. As animals converge toward focal food sources, their normal daily or seasonal movements can be disrupted as shown with bears (Paquet 1991, Fersterer et al. 2001). As density of animals increases around a food source, competition among individuals can also increase. Survival may be enhanced or reduced depending on the purpose for providing food, the manner in which food is distributed, and the level of competition or interaction among individuals. Density of bears is greater at the periphery of the Riding Mountain National Park close to bait sites located on adjacent agricultural lands (Paquet 1991). Furthermore, the home ranges of female bears in the Park are larger than home ranges in other parks where baiting does not occur.

Although not used in North Dakota to date, agencies sometimes use artificial feed to intercept bears that may potentially be dangerous or cause damage to property. In Canada, intercept feeding is sometimes used to alter movements of black bears in the spring to reduce damage to saplings (Fersterer et al. 2001). This method was successful in altering the movements of bears, however, as the number of bears attracted to the feeding sites increased, the effectiveness of intercept feeding decreased.

Mortality by Hunting/Trapping

Considerable debate and differing opinion remain on exactly how or if wildlife mortality by hunting is affected by providing food (bait and feed), as in the case of bear baiting. Furthermore, significant ecological effects of providing artificial food to wildlife have been documented through observation and experimentation at the individual, population, and community levels. Furbearer trapping success is highly dependent on use of baits and lures to attract targeted furbearing animals to a specific site. Removal of nuisance animals and maintaining sustainable and tolerable population of furbearers is possible through the use of trapping and hunting.

Although no harvest currently exists for black bears in North Dakota, we should at least be familiar with the potential issues of baiting for bear, as seen in other states and provinces. Hunting black bears over bait can potentially enable hunters to better discriminate target animals and avoid killing of sensitive sex and age classes, e.g., lactating females (Obbard 2001). However, based on hunter survey data from Ontario, Lamport (1996) concluded that the ability of the average hunter to correctly determine the sex of a bear over bait is poor.

Hunting bear with bait was prohibited in 1993 in Colorado. Beck (1997) found neither the geographic distribution of bear killed nor the size or growth rate of the Colorado bear population changed after the prohibition. Furthermore, after the prohibition, the annual harvest rate changed little, hunter success rate decreased, and hunter participation increased (Beck 1997). Hunter success decreased from 15% before to 6% after prohibition, whereas number of hunters per year increased 86% over the same period.

After the prohibition of hunting black bears with bait or dogs came into effect in Oregon in 1995, the annual harvest rate decreased (993 bears harvested before and averaged 804 bears after), hunter success rate decreased (8% before to 4% after), harvest efficiency increased, and hunter participation increased (Boulay 1997). Washington also banned the hunting of black bears with bait or dogs in 1997 and hunter success rates were approximately 3% in 1999 and 2000 as compared to success rates of 10% or higher prior to 1997. In Saskatchewan, (bear baiting is allowed), hunter success rates for black bear averaged more than 50% from 1994 to 1998 (Arsenault 2001).

Section III. Social Issues

Human social effects of baiting and feeding furbearers are not well studied or known. Social effects tend to reflect the perceptions of different people. Examples of social effects are economics, human safety, hunter success, regulations, and wildlife ownership. Research cannot determine whether the short-term economic gains of feeding/baiting wildlife will outweigh the potential long-term costs of ecological change or whether hunting over bait is ethical or not.

Economics

Cost of supplies and services are set prices and the consumer knowingly pays it. In general, the cost of maintaining artificial feeding programs or dealing with the negative ecological effects of providing food to wildlife (e.g., disease containment, habitat degradation) are often obscure, but generally considerable, long term, and born by society as a whole. With regards to trapping, numerous bait and lure businesses cater to furbearer trappers and exist nationwide. There are also many trappers who save money by making their own lures and baits out of unused parts from previously harvested animals. There are also many companies who sell liquid scents and baits for bear hunting and there are many bakery or pastry shops that just give away expired goods to use as bear bait.

Although bear hunting currently is closed in North Dakota, large sums of money are spent baiting and feeding bears in other states or provinces that allow bear hunting. For example, in 1993, approximately \$13 million (\$CAN) was spent in Ontario for supplies and services associated with the spring and fall black bear hunting season, much of which was done over bait (Lampton 1996). In 1997, the cost of feeding bears to protect trees in western Washington was \$300,000 (Partridge et al. 2001).

Human Safety

Human safety has been identified in association with providing artificial food to wildlife. Many federal and state policies point out that providing food to animals can lead to dangerous human-wildlife interactions or damage to property. It may cause animals, especially bears and raccoons, to become a nuisance and to become conditioned or habituated to obtaining their food from artificial sources.

Wild animals conditioned to human food sources may lose their natural wariness of people and become aggressive toward people or become a nuisance, e.g. camp food, garbage (<http://www.hsus.org/ace/12810>, The Humane Society of the United States). Black bears conditioned to human food sources have been associated with injury to humans, particularly inside national parks (Herrero 1970, Herrero 1985). Humans interpret a bear's natural desire to approach food as meaning they are tame, which is false. Although few published data demonstrate a causal relationship between feeding and the creation of nuisance bears, the circumstantial evidence has been broad enough to convince many government agencies to develop policies on the feeding of bears, particularly for human safety. For example, the U.S. Forest Service, the Bureau of Land Management, the U.S. Fish and Wildlife Service, the National Park Service, and several Canadian agencies all publish materials informing the public not to feed bears, materials that warn: "Do Not Feed Bears!," "Bears Are Dangerous!," and "A Fed Bear Is A Dead Bear." Examples of these can be found at <http://www.fw.fed.us/r4/sc/yankeefork/Bear.html>, <http://www.or.blm.gov/Rogueriver/WildRogueOnly/Bears.htm>, <http://www.r6.fws.gov/endspp/grizzly/factsheets/grizz%20foods.pdf>, <http://www2.nature.nps.gov/nps77/health.new.html>, <http://www.gov.ns.ca/natr/wildlife/conserva/20-01-1.htm>, <http://www.mnr.gov.on.ca/mnr/bears/index.html>,

<http://www.serm.gov.sk.ca/media/saskatchewan%20environmentnewsline/bears.htm>,
<http://www3.gov.ab.ca/srd/fw/bears/manage.html>,
www.gov.mb.ca/natres/wildlife/hunting/genera_information/notice.html.

As mentioned earlier in this report, some furbearers such as raccoons and skunks are carriers of numerous diseases (e.g., rabies) and parasites (e.g., raccoon roundworm) and can cause a human health risk or even a health risk to pets.

Hunter/Trapper Success

There is also much debate about the ethical consideration regarding hunting over bait, for example, the principle of “fair chase,” does baiting increase interference and competition among hunters, and is baiting an acceptable hunting technique. With respect to trapping, most of the arguments are against trapping in general, not specifically the use of baits for trapping.

Baiting bear in some states contradicts federal and possibly even state policies on the feeding of bears, i.e., feeding bears can lead to dangerous human-bear interactions or damage to human property, yet baiting is allowed to harvest bears. Many wildlife biologists advocate that hunting bear over bait is the only well-regulated management tool for keeping an “out of control black bear population at a safe and sustainable size” (http://www.biggamehunt.net/sections/Politics/Congressman_Announces_Plan_to_End_Bear_Baiting_01060312.html). A committee was established with the Ontario Ministry of Natural Resources to undertake an independent review of scientific information related to the nuisance bear issue in the province (<http://nuisancebear.mnr.gov.on.ca/index.html>).

Discord among Hunters/Trappers

Using bait for hunting/trapping bears has been a controversial topic in numerous states. Regardless of current state laws, this topic will likely continue to be controversial. Some hunters and many non-hunters have been opposed to the practice due to what they believe comes down to fairness, cruelty, and ethics. Animal rights activists have effectively used the public forum and government policy processes to affect changes in hunting regulation, e.g., cancellation of the Ontario spring black bear hunt in 1999 (Dunkley and Cattet 2003).

Others argue that using bait for bear hunting is a consistent and efficient method of harvesting bears in some regions, especially in forested habitats. Bear hunting in thick forests can be inconsistent and chances of finding a bear are usually small. Bear baiting is also a specific method of harvesting bears that allows the hunter a steady and accurate shot. 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 (Michigan Department of Natural Resources, 1999).

www.michigandnr.com/publications/pdfs.huntingwildlifehabitat/Issue_Review/99baiting.pdf.

Hunter opinion for baiting as an acceptable hunting technique varies widely among states and regions. In Saskatchewan, a survey of hunters indicated 59% of those surveyed supported the use of bait for hunting bear, while 26% did not (Saskatchewan Environment 2002; <http://www.se.gov.sk.ca/fishwild/MarketResearchStrat.pdf>).

Section IV. Summary

The threat of ecological effects of artificial feeding and baiting (e.g., disease, physical condition and reproductive success, population processes, altered community structure, wildlife mortality by hunting) may impact directly upon the ecological authenticity of the ecosystem. Although significant effects have been documented through observation and experimentation at individual, population, and community levels, little information is available on the effects of furbearers, with a small exception of black bears. Even though gaps exist in scientific research, current information is sufficient to indicate the potential for negative ecological effects as a result of feeding and baiting is high, although we may not be able to predict the nature or magnitude of effect. Human social effects of feeding and baiting involve numerous issues including economics, human safety, hunter/trapper success, discord among hunters/trappers and jurisdictions).

Resolution of conflicting social views will likely only be found through broad education and meaningful discourse due to the underlying philosophical differences and the fact that social effects tend to reflect the perceptions of different people.

Section V. Recommendations

1. Baiting furbearers, including scents and lures as used for trapping furbearers, should remain legal.
2. Artificial feeding of furbearers should be discouraged at all times.
3. To minimize attraction of predators, livestock carrion and garbage dumpsters should be properly handled and secured.
4. If North Dakota is ever able to sustain a bear population and if bear hunting becomes legal in North Dakota in the future, bear baiting may be an issue. Bear baiting should be evaluated with the best information available at the time.
5. The use of baits and baiting procedures for furbearers should take into consideration potential conflicts with other species of wildlife, such as inadvertently attracting nontargeted species.

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Chapter 7

BAITING AND FEEDING REGULATIONS, ENFORCEMENT AND COMPLIANCE

**Tim Phalen
District Game Warden**

North Dakota Game and Fish Department
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Until recently, baiting of wildlife other than migratory birds has not been a major Game and Fish Department or public concern, and feeding of wildlife has generally been an accepted practice. As such, the Department currently has few legal restrictions concerning baiting or feeding of wildlife.

NDCC chapter 20.1-01 discusses unauthorized methods of taking game birds and game animals, but does not address baiting, nor is baiting defined.

Game and Fish laws are enacted by either the legislature or in the form of a governor's proclamation. In North Dakota the legislature meets once every two years. With yearly changes in wildlife numbers and the need to address hunting seasons annually, the legislature gave the governor the authority, by order of proclamation, to establish a force of law.

The legislature limited the proclamations to: the manner in which wildlife may be taken; the number that may be taken and possessed; in what places they may be taken and the time that wildlife may be taken and possessed. If regulated by proclamation, the baiting issue could be addressed by manner of take or place of take. The Department would be able to regulate baiting more easily than the feeding of wildlife.

The Game and Fish Department can also adopt Administrative Rules (Title 30) that regulate specific statutes. For example, the director can adopt rules concerning the use of state wildlife management areas. Currently, no rules have been adopted for baiting wildlife on these areas, so baiting of wildlife on game and fish management areas is legal. However, regulation changes are pending to make it illegal to bait on wildlife management areas.

The U.S. Forest Service and the U.S. Army Corp of Engineers adopt state and local laws and ordinances to their lands and water, but retain the authority to regulate their lands if they feel state laws do not adequately protect their resources for hunting, fishing and

trapping. The U.S. Forest Service under 36CFR261.8 prohibits the violation of state law for hunting, trapping and fishing on Forest Service property (Appendix A). The Forest Service in a news release dated March 17, 1995 clarified its policy on baiting. The policy covers all baiting connected with hunting, but was prompted by baiting of black bears. Their policy recognizes state fish and wildlife agencies as having the primary responsibility for protection and management of wildlife populations on National Forest System lands. In addition, the policy acknowledges the adoption of state fish and wildlife laws and regulations affecting the taking of resident species. It also provides for Federal regulation through closure on a case-by-case needed basis (U.S. Forest Service News Release, March 17, 1995). The U.S. Army Corp of Engineers under 36CFR327.26(2) adopts state laws governing hunting, fishing and trapping and those laws shall apply on project lands and water (Appendix B).

The U.S Fish and Wildlife Service under 50CFR32.2(h), prohibits distribution of bait and hunting over bait on wildlife refuge areas and waterfowl production areas (Appendix C). In addition, hunting of migratory game birds over bait is prohibited by federal regulations (50CFR20.21(i) (see “Chapter 3, Baiting and Feeding of Migratory Game Birds” for additional information).

Enforcement of baiting wildlife in North Dakota has been limited. Cases of baiting migratory game birds are turned over to the U.S. Fish and Wildlife Service for investigation and prosecution. Otherwise state laws do not prohibit use of bait for hunting or trapping. There are, however, state laws that address how bait must be placed in order to legally trap. For example, it is illegal to place traps or snares within 25 feet of any sight-exposed bait. Sight-exposed bait is defined as any bait weighing in excess of one pound, composed of animal flesh, fur, hide, entrails, or feathers placed in a manner to be seen by soaring hawks, owls or eagles. The game and fish department also defines legal conibear sets in the upland setting where bait is used in a wood, metal or plastic cubby depending on time of year.

In its report, the Baiting and Feeding Committee has proposed an administrative rule change that would prohibit baiting on state-owned wildlife management areas. The proposed rule states: “No person shall place or use bait for attracting or habituating animals to a specific location for any purpose on any state wildlife management area at any time. Baits include but are not limited to grains, minerals, salt, fruit, vegetables, hay, or other natural or manufactured foods. This does not prohibit the use of lure or scents for hunting. This baiting restriction does not apply to furbearer trapping activities.”

It is important that any regulations concerning baiting must be as simple as possible with elements that can be enforced. Baiting regulations were reviewed from several states. Their regulations varied widely. Regulations in many states have elements that are difficult to prove such as hunting within 100yds (Florida), 200yds (Georgia) or 400yds (California) of bait. It is often difficult to locate where a hunter was upon taking an animal. California added the language “knowingly” to their feeding regulation, an often difficult element to prove. Other states allowed hunting over bait if the bait had met a time requirement (Florida). Again this is a difficult element to prove for enforcement

staff. Several states allow baiting with a limitation on quantity (Wisconsin, Michigan). This is a preferable alternative to a time requirement; however, it poses several problems also. How do you measure bait mixed with snow or dirt, scattered bait frozen into the ground, etc? Some states have complex language that maybe difficult for the recreational hunter to understand. The 2004 Wisconsin Deer Baiting and Wildlife Feeding Regulations (Appendix D) are an example. A good regulation needs to be written with the fewest elements possible to meet the needs of the regulation. The elements need to be direct and clear and measurable if necessary. An effective regulation on baiting will serve the department and the public fairly if it is understood by the public and enforceable by the department.

References

U.S. Forest Service News Release, March 17, 1995

2002-2003 Florida Hunting Regulations. www.myfwc.com

2003 Georgia Hunting Regulations. www.gadnr.org

2003 California Hunting Regulations www.dfg.ca.gov/fg

2003 Michigan Deer Hunting Regulations. www.michigan.gov/dnr

2003 Wisconsin Deer Hunting Regulations. www.dnr.state.wi.us

Appendix A.

[Code of Federal Regulations]
[Title 36, Volume 2]
[Revised as of July 1, 2002]
From the U.S. Government Printing Office via GPO Access
[CITE: 36CFR261.70]

[Page 340]

TITLE 36--PARKS, FORESTS, AND PUBLIC PROPERTY

CHAPTER II--FOREST SERVICE, DEPARTMENT OF AGRICULTURE

PART 261--PROHIBITIONS--Table of Contents

Subpart C--Prohibitions in Regions

Sec. 261.70 Issuance of regulations.

(a) Pursuant to 7 CFR 2.60, the Chief, and each Regional Forester, to whom the Chief has delegated authority, may issue regulations prohibiting acts or omissions within all or any part of the area over which he has jurisdiction, for one or more of the following purposes:

- (1) Fire prevention or control.
- (2) Disease prevention or control.
- (3) Protection of property, roads, or trails.
- (4) Protection of threatened, endangered, rare, unique, or vanishing species of plants, animals, birds or fish, or special biological communities.
- (5) Protection of objects or places of historical, archaeological, geological or paleontological interest.
- (6) Protection of scientific experiments or investigations.
- (7) Public safety.
- (8) Protection of health.
- (9) Establishing reasonable rules of public conduct.

(b) Regulations issued under this subpart shall not be contrary to or duplicate any prohibition which is established under existing regulations.

(c) In issuing any regulations under paragraph (a) of this section, the issuing officer shall follow 5 U.S.C. 553.

(d) In a situation when the issuing officer determines that a notice of proposed rule making and public participation thereon is impracticable, unnecessary, or contrary to the public interest, he shall issue, with the concurrence of the Chief, an interim regulation containing an expiration date.

(e) No interim regulation issued under paragraph (d) of this section will be effective for more than 90 days unless readopted as a permanent rule after a notice of proposed rule making under 5 U.S.C. 553 (b) and (c).

Appendix B.

[Code of Federal Regulations]
[Title 36, Volume 3]
[Revised as of July 1, 2002]
From the U.S. Government Printing Office via GPO Access
[CITE: 36CFR327.8]

[Page 9]

TITLE 36--PARKS, FORESTS, AND PUBLIC PROPERTY

CHAPTER III--CORPS OF ENGINEERS, DEPARTMENT OF THE ARMY

PART 327--RULES AND REGULATIONS GOVERNING PUBLIC USE OF WATER RESOURCE DEVELOPMENT PROJECTS ADMINISTERED BY THE CHIEF OF ENGINEERS--Table of Contents

Sec. 327.8 Hunting, fishing, and trapping.

(a) Hunting is permitted except in areas and during periods where prohibited by the District Commander.

(b) Trapping is permitted except in areas and during periods where prohibited by the District Commander.

(c) Fishing is permitted except in swimming areas, on boat ramps or other areas designated by the District Commander.

(d) Additional restrictions pertaining to these activities may be established by the District Commander.

(e) All applicable Federal, State and local laws regulating these activities apply on project lands and waters, and shall be regulated by authorized enforcement officials as prescribed in Sec. 327.26.

[65 FR 6900, Feb. 11, 2000]

Appendix C.

[Code of Federal Regulations]
[Title 50, Volume 5]
[Revised as of October 1, 2003]
From the U.S. Government Printing Office via GPO Access
[CITE: 50CFR32.2]

[Page 166-167]

TITLE 50--WILDLIFE AND FISHERIES

CHAPTER I--UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR--(Continued)

PART 32--HUNTING AND FISHING--Table of Contents

Subpart A--General Provisions

Sec. 32.2 What are the requirements for hunting on areas of the National Wildlife Refuge System?

The following provisions shall apply to each person while engaged in public hunting on areas of the National Wildlife Refuge System:

[[Page 167]]

- (a) Each person shall secure and possess the required State license.
- (b) Each person 16 years of age and older shall secure and possess a Migratory Bird Hunting Stamp while hunting migratory waterfowl.
- (c) Each person shall comply with the applicable provisions of Federal law and regulations including this subchapter and the current Federal Migratory Bird Regulations.
- (d) Each person shall comply with the applicable provisions of the laws and regulations of the State wherein any area is located unless further restricted by Federal law or regulation.
- (e) Each person shall comply with the terms and conditions authorizing access or use of wildlife refuges, including the terms and conditions under which hunting permits are issued.
- (f) Each person must comply with the provisions of any refuge-specific regulations governing hunting on the wildlife refuge area. Regulations, special conditions, and maps of the hunting areas for a particular wildlife refuge are available at that area's headquarters. In addition, refuge-specific hunting regulations for migratory game bird, upland game, and big game hunting appear in Sec. 32.20 through 32.72.
- (g) The use of any drug on any arrow for bow hunting on national wildlife refuges is prohibited. Archers may not have arrows employing such drugs in their possession on any national wildlife refuge.
- (h) The unauthorized distribution of bait and the hunting over bait is prohibited on wildlife refuge areas. (Baiting is authorized in accordance with State regulations on national wildlife refuges in Alaska).
- (i) The use of nails, wire, screws or bolts to attach a stand to a

tree, or hunting from a tree into which a metal object has been driven to support a hunter is prohibited on wildlife refuge areas.

(j) The use or possession of alcoholic beverages while hunting is prohibited.

(k) You may possess only approved nontoxic shot while in the field, which we identify in 50 CFR 20.21(j), while on Waterfowl Production Areas, or on certain other areas of the National Wildlife Refuge System as delineated on maps, leaflets and/or signs, available at each refuge headquarters or posted at each refuge, or as stated in refuge-specific regulations. Where we allow turkey and deer hunting, you may use slugs and shot containing lead to hunt these species unless prohibited by refuge-specific regulations and/or State law.

(l) The refuge-specific regulations (Sec. 32.20 through Sec. 32.72) may include the items discussed in Sec. 32.3(b). Refuge permits and brochures should also include those items and any special conditions allowed by paragraph (f) of this section.

[58 FR 5064, Jan. 19, 1993, as amended at 63 FR 46914, Sept. 3, 1998; 65 FR 30777, May 12, 2000; 67 FR 58943, Sept. 18, 2002]

Appendix D.

Wisconsin Deer Baiting and Wildlife Feeding Regulations

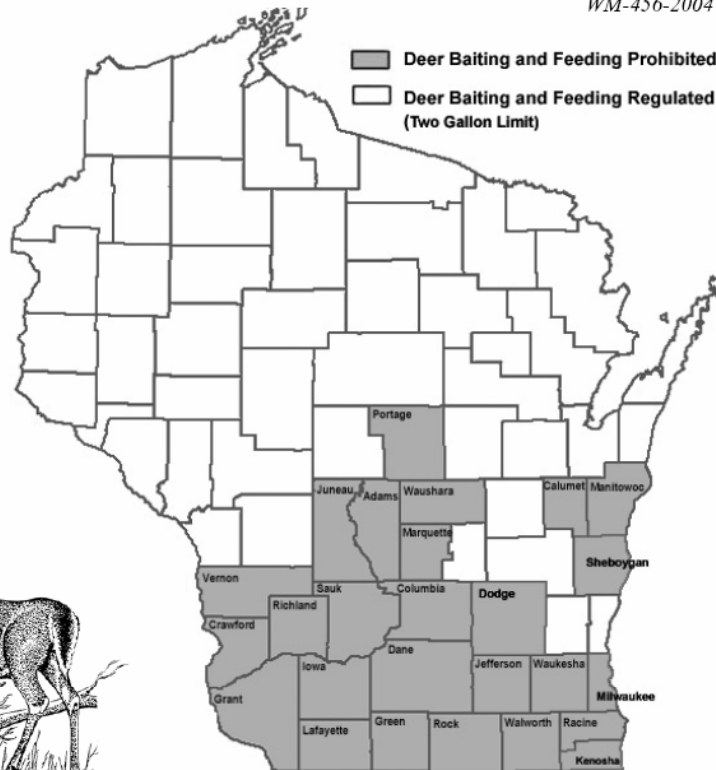
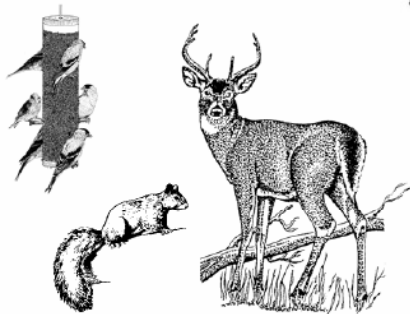
Effective June 10, 2004

WM-456-2004

Summary of Deer Baiting & Feeding Regulations...

- ❖ You may not feed deer for hunting OR non-hunting purposes in the shaded counties.
- ❖ In the non-shaded counties you may not place, use or hunt over more than 2 gallons of feed for hunting OR non-hunting purposes.

For additional restrictions see below.



I. Counties where deer baiting and feeding IS prohibited (shaded counties):

A prohibition on baiting and feeding is in effect in 26 southern Wisconsin counties (shaded). The counties included in the prohibition on include Adams, Calumet, Columbia, Crawford, Dane, Dodge, Grant, Green, Iowa, Jefferson, Juneau, Kenosha, Lafayette, Manitowoc, Marquette, Milwaukee, Portage, Racine, Richland, Rock, Sauk, Sheboygan, Vernon, Walworth, Waukesha, and Waushara Counties. (NOTE: Additional Counties may be included in the ban if: 1) A CWD eradication zone or herd reduction zone is established in the county or a portion of the county, or; 2) A new CWD or bovine tuberculosis positive captive or free-roaming, domestic or wild animal is confirmed in the county, or; 3) The county or portion of the county is within a 10 mile radius of a new captive or free-roaming, domestic or wild animal that has been tested and confirmed to be positive for CWD or bovine tuberculosis.)

Deer Baiting - For Hunting Purposes

Prohibition: No person may place, use or hunt over bait or feed material for the purpose of hunting wild animals (except bear, see pamphlet on bear baiting regulations) unless authorized by a special permit or license issued by the department.

Scents: Scent may be used for hunting deer or other wild animals, but the scent may not be placed or deposited in a manner that it is accessible for consumption by deer, and scents shall be removed daily at the end of hunting hours established for deer. *However*, two ounces or less of scent may be placed, used or deposited in any manner for hunting game and does not need to be removed daily at the end of hunting hours.

Natural Vegetation and Plantings: You may hunt with the aid of material deposited by natural vegetation or material found solely as a result of normal agricultural or gardening practices, or with the aid of crops planted and left standing as wildlife food plots.

Feeding - For Non-Hunting Purposes

Prohibition: No person may place, deposit or allow the placement of any material to feed or attract wild animals for non-hunting purposes including recreational and supplemental feeding, except as specifically authorized in a permit or license issued by the department or as allowed below for feeding birds and small mammals.

Feeding Birds and Small Mammals: Material may be placed solely for the purpose of attracting and feeding wild birds and small mammals when:

- ❖ Placed in bird feeding devices and structures at a sufficient height or design to prevent access by deer, and
- ❖ Only when the structures and devices are no further than 50 yards from a dwelling devoted to human occupancy.
- ❖ If wild deer are utilizing bird feeding devices or structures, the devices or structures shall be enclosed or elevated higher to prevent access by deer.
- ❖ The placement of plain water for drinking or for bird baths is allowed.

Feeding Animals by Hand: Feeding of wild animals, other than deer, elk or bear, by hand is not encouraged, but is allowed if:

- ❖ Feed is placed not more than 30 feet away from the person feeding, and
- ❖ The person feeding makes all reasonable attempts to clean up the unconsumed feed before moving a distance greater than 30 feet from the deposited feed.

Natural Vegetation and Plantings: Feed that is deposited by natural vegetation or found solely as a result of normal agricultural or gardening practices, and standing crops planted and left standing as wildlife food plots that may be used by wild animals is not considered feeding for the purposes of these regulations and is allowed statewide.

II. Remainder of the state – where baiting and feeding deer IS NOT prohibited (non-shaded counties):

In the remaining counties (non-shaded), there are restrictions on feeding and baiting. Please see below for an explanation of the regulations in place for your county.

Deer Baiting - For Hunting Purposes

Amount: No person may place, use or hunt over more than 2 gallons of bait or feed at any feeding site located on the same parcel of platted land.

Placement: No person may place, use or hunt over:

- ❖ More than one feeding site on each contiguous parcel of platted land that is less than 40 acres in size or on each full 40 acre quarter quarter section of platted land. (Note: Parcels of land that do not touch but are separated only by a town, county or state highway are considered contiguous.)
- ❖ Any feeding site that is located within 100 yards of any other feeding site located on the same parcel of platted land.
- ❖ Any feeding site if the person doing the hunting is within 100 yards of more than 2 gallons of bait or feed located on the same parcel of platted land.
- ❖ Any feeding site that is located within 50 yards of any trail, road or campsite used by the public, or within 100 yards from a roadway, having a posted speed limit of 45 miles per hour or more.

Timing: No person may:

- ❖ Place, use or hunt over bait or feed during the closed season for hunting deer, but may place bait for deer hunting up to 24 hours prior to the deer archery and the deer gun seasons. (Note: The 24-hour period is the period from 12:00am to 11:59 pm on the day immediately before the season.)
- ❖ Hunt over bait or a feeding site that is in violation of these regulations, unless the area is completely free of bait or feed material for at least 10 consecutive days prior to hunting, pursuing animals or dog training.

Content: No person may place use or hunt over any bait or feed material that:

- ❖ Contains any animal part or animal by-product.
- ❖ Is contained in or deposited by an automatic or elevated feeder that is designed to deposit bait or feed on the ground.
- ❖ Contains or is contained within, metal, paper, plastic, glass, wood or other similar processed materials. This does not apply to bait or feed placed in hollow logs or stumps (see *Wisconsin Bear Baiting Regulations*) or to scent materials.

License: No person may place, use or hunt over bait or feed material placed for deer without possessing an appropriate valid unused archery or gun deer license and carcass tag.

Feeding - For Non-Hunting Purposes

Prohibition: No person may place, deposit or allow the placement of any material to feed or attract wild animals for non-hunting purposes including recreational and supplemental feeding, except as specifically authorized in a permit or license issued by the department or as allowed below for feeding deer, birds and small mammals.

Feeding Deer:

Amount: No person may place or allow the placement of more than 2 gallons of feed material at any feeding site.

Placement: No person may place or allow the placement of:

- ❖ More than one deer feeding site for each owner-occupied residence or business.
- ❖ A deer feeding site more than 50 yards from an owner occupied residence or business.
- ❖ A deer feeding site within 100 yards from a roadway having a posted speed limit of 45 miles per hour or more.
- ❖ A deer feeding site without the approval of the owner of the owner-occupied residence or business.

Content: No person may place any bait or feed material for deer that:

- ❖ Contains any animal part or animal by-product.
- ❖ Is contained in or deposited by an automatic or elevated feeder that is designed to deposit bait or feed on the ground.
- ❖ Contains or is contained within, metal, paper, plastic, glass, wood or other similar processed materials. This does not apply to bait or feed placed in hollow logs or stumps (see *Wisconsin Bear Baiting Regulations*) or to scent materials.

Feeding Birds and Small Mammals: Material may be placed solely for the purpose of attracting and feeding wild birds and small mammals when:

- ❖ Placed in bird feeding devices and structures at a sufficient height or design to prevent access by deer, and
- ❖ Only when the structures and devices are no further than 50 yards from a dwelling devoted to human occupancy.
- ❖ If wild deer are utilizing bird feeding devices or structures, the devices or structures shall be enclosed or elevated higher to prevent access by deer.
- ❖ The placement of plain water for drinking or for bird baths is allowed.

III. Definitions:

Animal part or animal by-product means honey, bones, fish, meat, cheese, solid animal fat, animal carcass or parts of animal carcasses, but does not include liquid scents.

Bait means any material placed or used to attract wild animals, including liquid scent (includes salt and mineral blocks).

Bird feeding devices and structures means any device or structure that has the primary purpose of attracting or feeding birds or small mammals.

Business means a building used primarily to carry out commercial activities at which regular scheduled business hours are maintained for employees and the public such as restaurants and retail stores, but does not include associated lands, warehouses, outbuildings or other buildings that are not normally open to the public.

Feed means any material that may attract or be consumed by wild animals that is placed for any non-hunting purposes including recreational and supplemental feeding, but does not include plain drinking water.

Feeding site means any location or area in which bait or feed is placed or deposited or that contains bait or feed material used to attract wild animals for recreational and supplemental feeding or for hunting purposes.

Hunt over means hunting within 100 yards of any feeding site where a person knows or reasonably should know that the area contains a feeding site.

Owner-occupied residence means a dwelling or building devoted to human occupancy when used while feeding deer as a residence by the owner, members of the owners immediate family, or when used as a residence by individuals as a rental property while feeding deer.

Platted land means those lands that are shown in a published plat book where the owner or owners of record of all tracts of the land are identical.

Roadway means that portion of a highway between the regularly established curb lines or that portion which is improved, designed or ordinarily used for vehicular travel, excluding the berm or shoulder.

Scent means any material, except honey, used to attract wild animals solely by its odor.

Small mammal means all mammals other than bear, deer and elk.

The Wisconsin Department of Natural Resources provides equal opportunity in its employment, programs, services and functions under an Affirmative Action Plan. If you have any questions, please write to Equal Opportunity Office, Department of the Interior, Washington, D.C. 20240.



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Chapter 8 CONCLUSION AND RECOMMENDATIONS

Section I. Conclusion

The Department's mission is to protect, conserve and enhance fish and wildlife populations and their habitats for sustained public consumptive and nonconsumptive use. Many management tools are used to maintain and monitor wild populations; however, humans can intentionally or unintentionally add artificial risk factors or hazard to the system. Among the controllable risks that have been identified by the Southeastern Cooperative Wildlife Disease Study group are artificial feeding and baiting (Davidson and Fischer 2003). Our long-term goal is to minimize or eliminate the effects of such artificial risk factors or practices by using biologically sound management strategies. The Department must be responsible and take a preventative approach rather than a reactive approach. Most people will agree it is much easier to employ reasonable strategies or management tools prior to a population eruption or decline, disease outbreak, etc., than to spend large sums of money and time correcting or rectifying a catastrophe.

Based on available information, literature and personal communications with wildlife biologists, our short-term goal is to consider new findings and research, inform agency personnel, legislators, and the public, and to develop strategies and guidelines for minimizing artificial risk factors, e.g., feeding and baiting. Through state century code and hunting proclamations, we hold the responsibility and the management tools to address some of the concerns surrounding baiting and feeding. It is our belief that baiting and feeding will continue to grow in prevalence in North Dakota and create serious management problems by increasing the threat of spreading serious diseases, limiting our ability to achieve an adequate harvest, increasing the spread of noxious weeds, and increasing conflicts among hunters and between neighboring landowners.

Obviously, baiting and feeding wildlife also involve social issues and impacts such as economics, human safety, enforcement and compliance, hunter success, discord among hunters or landowners and wildlife viewing opportunities. Research likely will not determine whether short-term economic gain will outweigh potential long-term costs of disease outbreaks or introduction of noxious weeds. Furthermore, no amount of research will determine whether hunting over bait is ethical or not. Resolution of philosophical differences or conflicting views is most likely to occur through broad education and meaningful information gathered by scientific study.

For the purpose of this document, feeding is defined broadly as the placement of food, minerals, and water into the environment for consumption by wildlife. Artificial feeding supplements the food source contained naturally within the home range of any given species. Artificial feeding may be done for a variety of reasons including the following:

- *Supplemental feeding*: providing food to enhance individual and population features, such as antler size, number and survival of young, etc.

- *Emergency or winter feeding*: providing food when natural food sources become inaccessible or severely restricted, e.g., severe winter weather, snow depth, snow cover.
- *Intercept or shortstop feeding*: providing food to reduce damage to agricultural crops, livestock, or other property; this is not a regular feeding program.
- *Recreational feeding*: providing food to enhance wildlife viewing opportunities.

Artificial feeding may occur intentionally (as described above) or unintentionally. These potential food sources may be garbage dumps, compost heaps, standing or stored agricultural crops, and artificial environments such as golf courses.

Baiting is a component of feeding and is defined as the placement or use of bait to attract or habituate animals to a specific location for any purpose. Baits include but are not limited to grains, minerals, salts, fruits, vegetables, hay, or other natural or manufactured foods. However, for the purpose of this document baiting does not apply to the use of scents and lures, standing crops, or livestock feeds being used in standard farming practices. The purposes of baiting differ from feeding. Baiting is used as a technique to:

- Aid hunters
- Aid furbearer trappers
- Vaccinate wild populations against disease
- Poison nuisance wildlife
- Capture wildlife for management or research purposes.

Section II. Recommendations

Based on our findings and review of available literature we recommend the following actions:

Baiting:

Baiting will generate difficulties in setting and reaching management goals and strategies by increasing the threat of disease, increase spread of noxious weeds, limit the department's ability to achieve population management objectives, increase conflicts among hunters and between neighboring landowners, and have a negative economic impact on landowners and public agencies. However, baiting can be a useful management tool in specific instances such as trapping wildlife for research, and trap and transplant programs.

1. Prohibit the use of bait to hunt game animals (big game and small game) on state wildlife management areas; except the use of bait for furbearer trapping. (Baiting of migratory game birds is currently regulated by USFWS). The department should establish statewide regulations and develop a strategy that ultimately prohibits hunting over bait. This strategy may include prohibiting hunting over bait through proclamation for several years followed by permanent restrictions

- through legislation. Issues and concerns surrounding baiting should be presented and discussed with interested parties and stakeholders. Exceptions are the use of bait for furbearers. Note: bears are a furbearer in North Dakota. If North Dakota is ever able to sustain a bear population and if bear hunting becomes legal in North Dakota in the future, bear baiting may be an issue. Bear baiting should be evaluated with the best information available at the time.
2. Law enforcement should continue to coordinate with Federal law enforcement personnel on federal migratory game bird baiting violations and enforcement issues.
 3. Bait, scents and lures should remain legal for trapping furbearers in North Dakota with appropriate restrictions.

Feeding:

Artificial feeding of wildlife may provide some benefits such as protecting livestock forage from wildlife damage, increasing winter survival of individual animals, and providing an avenue for public involvement and viewing enjoyment. However, we believe in many instances the negative aspects of artificial feeding outweigh the positive. Such adverse consequences include the spread of diseases, grain overloading which causes acidosis or rumenitis, mortality from aflatoxins produced by moldy food/grain and ergot, and the spread of noxious weeds. Additional negative effects include impediment of natural distribution of animals, increased predation, increased discord among hunters and neighbors, inefficient and costly programs, and increased urban depredation and wildlife nuisance issues. Feeding of nongame, for instance backyard feeders for song birds has become a popular mechanism for increasing awareness and exposure to wildlife in an urban setting. However, backyard bird feeding also is not without consequences, such as disease caused by unclean feeders, increase risk of predation, and attracting unwanted wildlife to the back yard. There is a continuing need for public education to remind people that feeding will not help survival of any species in situations where other habitat requirements such as space, cover, and water are lacking. In other words, no amount of artificial feeding will replace the need for adequate habitat, which is essential for survival of wildlife.

1. The Department should eliminate wildlife feeders on state wildlife management areas and should establish and provide guidelines for alternatives to minimize depredation problems. Currently the Department has 15 active feeders in District IV, 2 in District III, and 5 in District I.
2. The Department must establish guidelines on its use of feed to intercept/shortstop deer causing depredation problems (see recommendations in Chapter 2).
3. Feeding should be controlled prior to any disease outbreak such as bovine tuberculosis, brucellosis, or chronic wasting disease. In order to do this the Department must develop strategies to inform the public and legislators about the concerns regarding feeding of wildlife and must draft potential regulations or guidelines to control or minimize feeding of wildlife.

4. The Department should discourage the artificial feeding of big game, small game, migratory game birds and furbearers and should re-evaluate its cost-share program (hay bales) with wildlife clubs.
5. The Department should continue to promote habitat and food plot development rather than artificial feeding programs for wildlife. The Department needs to continue to promote the benefits of preserving and managing habitats such as native prairie on a large scale to improve and enhance the land's capability to benefit many species and accommodate compatible land uses. The Department should also periodically re-evaluate the use and benefits of its existing food plots.
6. The Department should continue to work with local governments, organizations, housing associations, and similar groups to help eliminate feeding of wildlife that are causing or are related to nuisance, human health and safety and depredation issues.
7. The Department currently does not and should not provide food and materials for wildlife feeding. However, this does not preclude the Department's depredation policy.
8. The Department should conduct a review of its watchable wildlife and backyard habitat programs and update them as needed so that the programs are providing information that is consistent with other recommendations in this report and Department policies.
9. Internally, the Wildlife Division and the Conservation and Communication Division should develop a consistent message and philosophy regarding the values and concerns related to backyard feeding.
10. The Department should provide information on how to minimize attraction of unwanted animals to backyards and also how to properly handle and secure livestock carrion, garbage, or food items to reduce incidental feeding opportunities. Examples of such cases are coyotes feeding on dead cattle near farmyards, raccoons raiding garbage cans, or bears breaking into cabins or feeders trying to obtain food.

Baiting and Feeding:

1. The Department must develop an informational and educational plan, complete with implementation schedule, by March 2005 and implement this plan summer 2005 to educate the public about the dangers and problems that supplemental feeding and baiting poses for wildlife management.
2. Any regulations enacted by the Department or the Legislature concerning baiting or feeding need to be direct, clear and measurable for effective enforcement.