# *Managing Iowa Wildlife*

## Wild Turkeys

### Introduction

Wild turkeys were found throughout Iowa when the European settlers first crossed the Mississippi River in the 1830s. Uncontrolled hunting and habitat loss were responsible for eliminating them from the state less than 80 years later. Early attempts to reintroduce game farm-raised birds began as early as the 1920s but were unsuccessful. It was not until the mid-1960s that the first attempts to reintroduce the wild turkey to Iowa were successful.

At that time, the Iowa Conservation Commission (now the Iowa Department of Natural Resources) released wild turkeys from Missouri in the Shimek and Stephens state forests in southern Iowa. In 1970, the ICC reported that the turkeys were breeding and expanding their range, but concluded that "...turkeys will probably never again be considered numerous..." in Iowa.

However, reintroduction efforts far exceeded biologists' expectations. The new populations expanded quickly, and by 1971, the populations were large enough that some turkeys were trapped and relocated to other parts of Iowa. Along with these "in-state" birds, several hundred more were obtained in trades with Missouri and released over the next few years.

By 1974, turkey numbers had increased sufficiently to allow a spring gobblers-only hunting season in south central Iowa. By 1989, the entire state was opened to spring hunting. Fall hunting started in two small zones in southern Iowa in 1981. In 1988, over 30,000 Iowans bought turkey licenses. Starting in the fall of 1989, a limited number of non-resident hunters were allowed to hunt turkeys in Iowa, some coming from as far away as Colorado and California.

Wild turkeys provide not only countless hours of recreation for Iowans but also have a significant positive economic impact. The average turkey hunter spends $122.09 pursuing the birds in Iowa, according to the Iowa DNR. The sport brings at least $3.5 million to the Iowa economy each year. In addition, thousands of birdwatcers, campers, and rural Iowa residents obtain hours of pleasure from just watching these large birds. Trades of Iowa turkeys to other states have also allowed other species, like river otters, to be restored to Iowa.

### Life History and Ecology

Wild turkeys are social animals and spend most of their time in flocks. Gobblers (males) tend to stay in small groups after the breeding season. Hens with broods may join the gobblers during the summer, while hens without broods may form flocks of their own. By fall, the young males, called *jakes*, are as large as the adult hens and leave their mother's flock to form their own groups. During winter, all flock types may congregate at particular feeding and roosting sites. In extremely harsh winters, flocks of 75-100 birds are not uncommon, and flocks approach-ing 200 individuals have been reported.

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## Reproduction

Male wild turkeys are well-known for their stunning spring courtship displays, which usually occur from mid-March to June. Males announce their presence to females with tail-fanning displays and characteristic gobbling calls. An individual male may mate with several females, but plays no part in incubation or brood-rearing.

Females nest on the ground in timber, usually under a bush or in a brushy spot. Hens lay 12 to 15 eggs, which they incubate for 28 days. Many eggs are lost to predators like raccoons and crows. Nesting hens also are disturbed by dogs, coyotes, hunters, hikers, and mushroom gatherers. Most hens abandon their nests if bothered, but some may return to continue incubation if the nests are left alone.

Each year, up to 90 percent of hens attempt to nest and 25 to 40 percent raise a brood. Not all of the newly hatched birds, called *poults*, survive. Several studies indicate that 23 to 37 percent of the poults survive to fall each year. Cold or wet weather, skunks, great horned owls, dogs, and coyotes take their toll on poults and sometimes on larger, adult turkeys as well.

## Habitat and Food Habits

Until recently, turkeys were thought to have five major habitat requirements: 5,000-15,000 acres of continuous forest; low human populations with protection from poaching; close proximity to water; timber management that resulted in high nut production; and 5-10 percent of the area as forest openings. However, research in Iowa and other Midwestern states shows that smaller forest tracts and a 50/50 ratio of openings (including crop fields) to forest may be better than large forest tracts with little open space. The open areas provide an abundance of insect-rich grass fields in spring and summer. The timber provides protection from predators and the weather, a place for nesting and roosting, and a source of food.

The typical turkey diet is 80 to 90 percent plant material, including nuts, grass, small fruits, corn, and oats. The remaining 10 to 20 percent consists of insects, earthworms, and occasionally small snails. Insects make up a large part of the diet in spring and summer, especially for poults. As with pheasants and quail, adult turkeys eat mainly plant material, while poults need protein from insects for growth. Turkeys scrounge for food in agricultural fields during the fall and winter. Food plots and waste grain left after harvest are often the only abundant and reliable food sources during harsh winters with deep snow. Vegetative matter in livestock manure spread on fields may be used when other food is unavailable.

## Management

All wildlife species have **four basic needs: space, food, water, and shelter.** Wildlife managers skillfully manipulate the locations, amounts, and types of these needs to encourage or discourage the proliferation of wildlife species. Landowners can do the same to enhance the survival of wild turkeys on their land.

As with many wildlife species, **variety** is the key word in management. This applies both to the types of habitat areas and the types of foods available.

One early study showed that wild turkeys consumed some 354 species of plants! Acorns are a highly preferred food. Turkeys also consume other plants, including cherry, dogwoods, plum, sumac, smilax, hackberry, grasses, pines, grape, blackberry, mulberry, roses, and hawthorns. Besides acorns from oaks, turkeys also eat nuts from hickories and hazelnut and seeds from elm and beech. They also eat common weeds like smartweed, poison ivy, burdock, and dandelion.

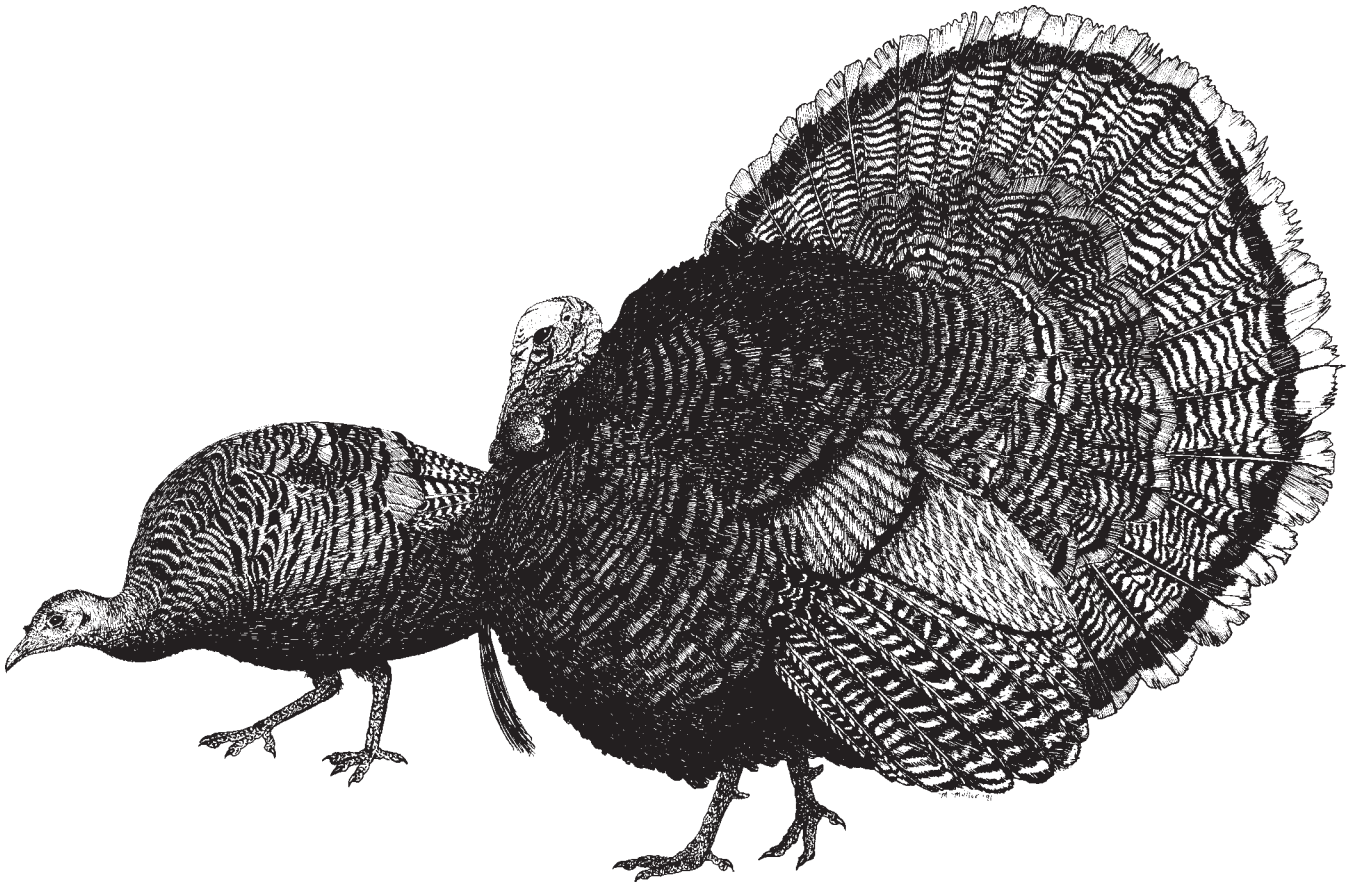
Woodland *monocultures* (plantation stands of a single tree species) provide little attraction for turkeys. On the other hand, a mixed oak-hickory woodland is potentially excellent turkey habitat. Studies indicate a woodland containing hardwood trees of all ages provides the best overall turkey habitat over the longest period of time. To achieve the ideal woodland, selectively harvest trees to create small and dispersed openings in the forest canopy. These openings encourage the growth of sun-loving herb and shrub plant species. Add other plant species, like those mentioned earlier, for variety.

Take care when harvesting hardwood woodlands; leave at least three to five nut-producing trees per acre. Leave a variety of oak and hickory species that are 60 to 80 years old. They provide food and roost sites. Large conifers provide both seeds for food and shelter from harsh winter storms. Do not burn brush piles after harvesting trees because the piles are ideal nest sites for hens. They will be even more valuable if located near thickets of shrubs like wild plum, red cedar, or hazelnut.

Keep livestock out of wooded areas. Research has shown grazing woodlands to be poor for livestock growth and to increase predation on some livestock. Grazing also does great damage to the woodland, eliminating important shrubs and trees and leaving only unwanted, weedy species. Woodland grazing is harmful to livestock, to the woodland, and to wildlife.

In open areas, landowners should avoid burning and mowing every year. While occasional burning (once every three to five years) promotes the growth of many plant species, annual burning or frequent mowing discourages the insect populations essential for poult growth and encourages the growth of weeds. Burning destroys plant litter, which provides habitat for many insects important to turkeys. Turkeys also need the cover and seeds of grasses and the plant variety that these open areas provide.

Well-managed natural areas will usually meet turkeys' needs. However, studies show that severe winters with persistent deep snow make it difficult for turkeys to find food. In the northern half of Iowa, winter food plots of standing corn will help turkeys survive through the winter. Local chapters of various hunting and fishing groups often provide seed for food plots and



***Wild turkey hen and gobbler***

cover crops. Where possible, provide several small food plots rather than one large one. This will make it more difficult for predators to prey on turkeys. Because corn and other row crops can be important winter food supplements for many species, farmers should avoid fall tillage of crop fields. Leaving crop residue on fields reduces soil losses to wind and water runoff along with supplying a valuable source of waste grain for wildlife.

As with food sources and types, a variety of water sources enhances turkey survival. Having more than one source of water minimizes predation on turkey flocks. Streams, rivers, small ponds, marshes, and other wetlands are important for turkeys, especially during the summer months. Where possible, locate them close to good cover. The costs of small ponds for fish and wildlife can be shared by the landowner and the Soil Conservation Service. To maintain water quality, keep livestock wastes from entering surface water and restrict livestock access.

Insecticides are often used to control crop pests. They affect the nervous systems of insects and may harm non-target wildlife as well. Limit insecticide use by rotating crops and using integrated pest management (IPM). Turkeys and their broods spend much time searching for insects and larvae in crop fields during spring and summer. Reduce the chances that wildlife will come into contact with insecticides by incorporating pesticides into the soil and using them only when necessary. If spraying insecticides or herbicides, minimize drift into wildlife habitat by spraying only when wind speeds are less than five miles per hour. If aerial sprays are necessary, instruct the pilot to avoid woodland, wetland, and other habitat areas. (See the brochure, *Agricultural Pesticides and Wildlife: A Balancing Act*, for more information. It is available at ISU Extension county offices.)

Predation is a natural part of life's cycles. However, landowners can perform a service to wildlife species by controlling predation by domestic dogs and cats. While wild turkeys do a good job of hiding their nests, dog and cat predation is a significant factor in nest loss. Restrict the movements of domestic animals, especially during the turkey nesting season. Neutering dogs and cats prevents them from wandering or producing unwanted offspring.

The number of wild turkeys can be increased by eliminating poaching. Cooperate with local authorities by reporting known or suspected poaching activities. The "Turn In Poachers" hotline is available to call free of charge and anonymously, if desired (1-800-532-2020). Landowners can control hunting with signs declaring "hunting by permission only." Challenge cards issued only to those who have requested such permission will assist hunters in patrolling the land and preventing poaching and trespassing.

**Management Summary**

- Manage woodland harvest with an all-age management scheme.
- Plant and maintain a variety of woody trees and shrubs.
- Maintain at least three to five nut-producing trees per acre of woodland.
- Build brush piles near thickets of shrubs.
- Plant and maintain some conifer stands.
- Keep livestock out of woodland areas.
- Burn or mow open areas only once every three to five years.
- Plant several small food plots for turkeys' winter use.
- Avoid fall tillage of row crop fields.
- Maintain a variety of quality water sources.
- Minimize wildlife contact with agricultural pesticides.
- Control dogs and cats to minimize predation.
- Eliminate poaching of turkeys and other wildlife species.

## Economic Importance

Wild turkeys as a game crop bring significant economic gain to the people of Iowa. As with all wildlife species, however, their presence also has potential negative economic consequences. Whenever wildlife and humans live close together, the potential exists for conflict. Turkeys, along with other wildlife, can inflict damage on crops. When damage occurs, it is important to **first identify the animal responsible** and then take measures appropriate to the damage and the situation.

As part of a recent study of turkey damage to crops in Iowa, a survey was mailed to 475 landowners in four northeastern Iowa counties. This area was chosen because of the high turkey densities in this mixed agricultural/forested area.

More than half of the 337 respondents felt turkeys damaged their crops to some degree. Fifty-two percent of all respondents reported some type of turkey damage to agricultural crops, but estimated dollar losses varied. Of those who reported turkeys on their land, 65 percent reported some crop loss. Corn, oats, and hay were the most frequently reported crops damaged by turkeys (Figure 1).

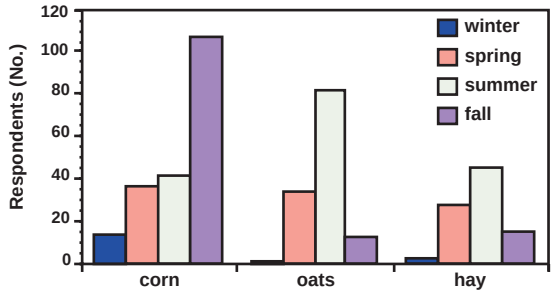



**Figure 1. Percent of survey respondents reporting damage to three crop types in northeastern Iowa, 1989.**

Sixty-two percent of the landowners estimated monetary losses from turkey damage at $1 to $250. Another 28 percent reported losses from $251 to $500, and 10 percent reported losses over $500.

All respondents were asked how they felt about the current numbers of turkeys. Thirty-two percent said there were too many, 62 percent said about the right number, and 6 percent said there were not enough.

In a similar survey in southwestern Wisconsin, 51 percent of the respondents felt that turkeys posed no problems, similar to the 48 percent in Iowa. Only 9 percent of the Wisconsin survey respondents felt turkeys were a big problem. The major problem indicated by the Wisconsin survey was damage to corn in the fall, as it was in Iowa. Fifty percent of the Wisconsin respondents estimated their economic loss to wild turkeys as $0 and only 3 percent said more than $500.

These surveys suggest that although many farmers perceive turkeys as a threat to crops and have suffered losses, severe economic loss to an individual landowner is rare.

A recent study of wild turkeys in northeastern Iowa confirms that actual crop damage from turkeys is minor. Turkey activities in newly planted crop fields were observed from blinds in the springs of 1989 and 1990. Turkeys did not dig or scratch for seeds or seedlings, but searched for insects and earthworms. Gray squirrels dug up several oat plants, and signs of squirrel digging were noticed in two of six corn fields. Deer occasionally grazed on both corn and oat seedlings. In both years, all wildlife species grazed less than 1.5 percent of all corn plants monitored. Less than 5 percent of these grazed plants (or about .05 percent of all plants monitored) died.

Less than 3 percent of all oat seedlings were injured within the first month after emergence, and most of the injured plants recovered. Deer grazed on seedlings, but turkeys did not.

Wild turkeys were not seen in mature oat fields during either summer until after July 15. However, a study of turkeys in southwestern Wisconsin found that turkeys do use oat fields in early summer. Fifteen 5- to 8-week-old poults had 87 percent animal matter (mostly grasshoppers) in their crops. The crop is the pouch in the turkey's neck used for temporary storage of food items before digestion. Their crops also contained 9 percent oats, 2 percent wild plants, and less than

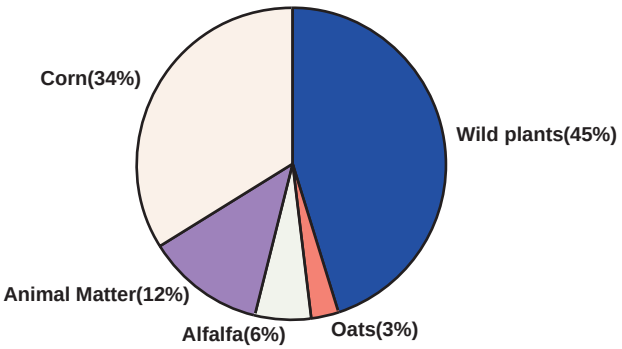



**Figure 2. Percent of crop contents from wild turkeys harvested in fall 1989 by hunters in southwestern Wisconsin.**

1 percent each of alfalfa and corn. Crops from three adult hens contained much higher amounts of oats and fewer insects.

Turkeys are often accused of knocking down mature oat or hay fields while searching for insects. Wind, rain, or runoff may also cause tunneling and should be separated from turkey damage if possible.

Wildlife damage to mature corn in fall also appears minimal. In northeastern Iowa, turkey damage was estimated at 1 percent over a two-year period. This figure represents only the number of ears damaged, not the amount of damage to each ear. Also, turkey damage is not easily discernable from other bird damage, so actual turkey damage is likely a fraction of 1 percent. Deer damage is easily identified and an average of 1.5 percent of the ears each year were damaged by deer. More ears were damaged by turkeys and other birds in the outer five rows than in the next five rows, 3.3 percent to 0.26 percent respectively for the two years. (See the chart on page 7 for tips on crop damage identification.)

Crops from wild turkeys shot by hunters in fall 1989 in southwestern Wisconsin contained a wide variety of plant and animal matter (Figure 2). Although corn was the single most important item, over 90 percent of the corn eaten by the turkeys was either dirty or weathered, indicating it was waste grain found on the ground. Wild turkeys were seen feeding along the edges of several cornfields in the Iowa study, and appeared to be feeding on ears that had already fallen on the ground.

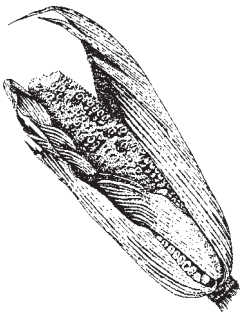
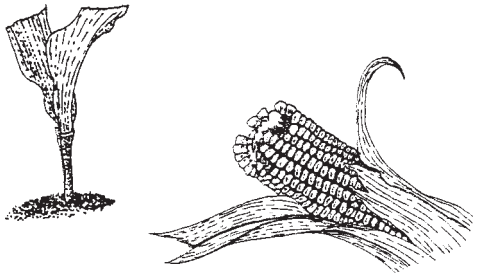
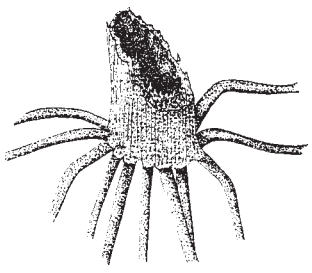
## Problem Control

Turkeys are protected under state law, and can be shot only during the legal seasons by a person with a valid permit. The local DNR conservation officer has information on seasons and fees. Before undertaking any turkey control measures, estimate how much of your crop is really lost to turkeys. As research indicates, their presence in a field does not mean that damage is taking place. And the best control methods are those that cost less than the damage caused. Following are several inexpensive alternatives to costly control measures.

***Encourage hunting on your land.*** Limit the number of hunters if you are concerned about vandalism or injuries. "Hunting by permission only" signs with a name, phone number, or directions to the house will encourage hunters to visit with you first. "No hunting" and "no trespassing" signs often bring more problems. By visiting with inquiring hunters, you can grant permission to those who will respect your property. You will quickly develop a group of repeat hunters who know your land and turkey flocks well and will protect your land from irresponsible trespassers.

***Plant taller varieties of corn that place the ear above the reach of the turkeys.*** Also, try varieties in which the ear is not exposed, making it harder for turkeys and other birds to reach the kernels. The tight husk also may lessen exposure to insects and diseases. Your ISU Extension county office or local seed dealers should have information on varieties with these characteristics.

# Wildlife Crop Damage Identification

| Species | | Damage Description |
|---|---|---|
| *Turkeys* |  | Spring—When scratching for food, turkeys may leave a "V" shaped mark on the surface or simply an area with plant litter scratched away; they do not dig or poke holes in the ground.<br><br>Fall—On mature ears of corn, turkeys will remove the individual whole kernels or rows of whole kernels. However, if the ear is 4 feet or more above the ground, turkeys cannot reach it. They will often feed on ears that have already fallen to the ground due to insects, wind, or other causes. |
| *Squirrrels* |  | Spring—Squirrels dig discrete holes 1.5-2 inches in diameter to reach newly planted seeds or seedlings. They may dig many holes in a row, bite off the seed remnant, and discard the rest. While tree squirrels are guilty of such behavior, much damage is done by the 13-lined ground squirrel.<br><br>Fall—Squirrels claw and bite through the husks and bite off the kernels. Cobs and scattered kernels on the ground indicate squirrel damage. |
| *Deer* |  | Spring—Deer graze sprouting plants in spring.<br><br>Summer—Deer damage young corn by pulling off the tassels, and by nipping kernels off the emerging cob. Ears damaged early may develop as short, smutty husks.<br><br>Fall—On mature ears, deer may bite off the end of an ear, cob and all. Often the husk may appear intact, but part of the inside ear is missing. Ears opened by deer are exposed to greater risk of disease, fungus, insects, and birds. Tracks are usually obvious. |
| *Raccoons* | | Raccoons usually damage summer corn in the milk stage. Like squirrels, they claw and bite through the husk and bite off the kernels. They may climb the stalks, (which fall over under the weight of the animal), and take a few bites from each ear. |
| *Beavers* |  | Corn planted near a river or stream may be subjected to beaver damage, particularly in fall. Beavers cut stalks to use in their dams and lodges; they may leave some stalks on the ground where they fall. Inspect the stalk for teeth marks to be sure beavers are responsible, and not wind, rain, or insects. |

***Leave the outer five or six rows as winter food plots for wildlife.*** Most turkey (and deer) damage seems restricted to these areas. Some local private conservation organizations may be willing to help financially. Also, harvest other areas as soon as possible, and, if possible, harvest the entire field at one time, so the inside rows are not exposed. Buffer strips of oats or grasses planted around field edges as set-aside may also reduce damage to the main crop.

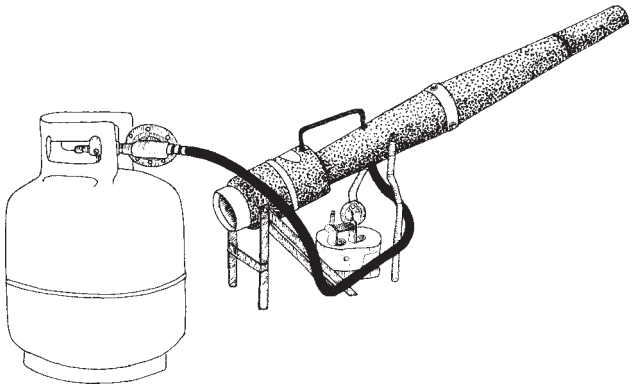


**Figure 3: Propane exploders are one way to keep unwanted animals off your land.**

***Direct hunters to fields damaged repeatedly year after year, or consider planting an alternative crop.*** These fields might be near a favorite roosting site or are attractive to turkeys for some other reason.

***Use a fine mesh wire*** around the lower 6 to 8 feet of corn cribs to keep out turkeys and deer.

***Use scare tactics.*** Propane exploders (Figure 3) may be useful for localized problems, but require much attention. They must be moved every few days, and the firing sequence frequently altered as the birds become accustomed to the noise. Exploders are available at many garden centers and farm equipment suppliers. Some DNR offices may have exploders to loan. Other scare devices such as scarecrows or firecrackers may be limited in usefulness.

## Who to call for more help

- Local DNR office/field headquarters, district DNR biologist, conservation officer.
- ISU Extension county agriculturist, or ISU Extension wildlife specialist.

## References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