Waterfowl Management for Montana Landowners

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Landowners who are fortunate enough to have wetlands, streams, lakes or ponds on their land can create conditions that enhance goose and duck habitat and populations. Improving waterfowl habitat is usually simple once you identify where efforts can be most effective. Although waterfowl can include cranes, swans, terns, plovers, shorebirds and numerous gulls, this chapter will concentrate on Canada geese and ducks.

Canada Geese

Because of their increasing numbers across North America, many landowners are concerned about having too many Canada geese. However, this section will help landowners who want to manage, not decrease, the Canada geese on their land.

Life History

Canada geese can vary in size tremendously. Adult Canada geese can weigh as little as three pounds, but there are records of the Giant Canada strain growing as large as 20 pounds. Males and females are identical in appearance, with their black heads and white cheek patches being characteristics that are easily recognized. Canadas will usually begin pairing their first year, but they do not nest typically until they are three years old. Canada geese are gene rally monogamous. A pair will usually remain together until one of the mates dies. The survivor will then select another mate the next season. Canada geese nest early. Nest initiation occurs in late March or April and it is not unusual for snow or ice to be problematic for them. They defend a territory of up to 2.5 acres. Nest locations include muskrat houses, cliffs, dikes, islands and artificial nest structures. Canada geese nest close to open water. Five to eight eggs are incubated for 28 days. All eggs hatch within hours of each other and hatchlings go to the water soon after. Both the male and female share in caring for the nest and rearing the young. The parents are very aggressive in defending the goslings and will readily attack intruders, hissing and repeatedly striking with their wings. The goslings feed heavily on insects for the first few weeks of life. After that, they gradually switch to the adult vegetarian diet. In June and July, adults molt, shedding their worn flight feathers. During this time, they are unable to fly. About the time the young can take flight, the adults have regrown their flight feathers. The family stays together throughout the summer and flies south together in the fall. In fact, some of the young return north with the parent s in spring. By late August, migration may begin and groups go to traditional wintering areas, only to return the next spring to traditional nesting areas. The V -shaped pattern of flocks allows each bird to fly in undisturbed air rather than in the turbulence of the bird ahead. Predation can be a concern when you’re managing Canada geese. Although adult geese are very aggressive, raccoons, foxes, ravens, coyotes and eagles take advantage of the times the parents leave the nest to feed. These predators take eggs and kill goslings when given the chance, but only the larger carnivores prey on adults.

Habitat Needs

Canada geese need three things: water, feeding areas and nest sites. In nesting areas, the water level must remain constant. Rising waters flood the nests while receding waters let predators get too near to the eggs and hatchlings. As the broods age, larger bodies of water are more attractive, especially when the adults molt. These large bodies of water allow the flightless birds to escape predators. Stock ponds will be used if sufficient vegetation is available along the shoreline. Because Canada geese are vegetarians, ample natural foods must be available. Spike rush, wild millet, sedges, bog rush, smartweeds, foxtail and sago pondweed are important parts of their diet. Clover and agricultural crops such as wheat, barley, milo, corn, oats and alfalfa are also used heavily. To be suitable, nest sites for Canadas need both adequate vegetation and elevation. When nesting on shorelines, geese like nest sites that are concealed yet allow the females to observe the surrounding area. When islands or elevated nest platforms are used, a concealed nest is not as important because most predators are unable to reach it.

Habitat Enhancement

If you would like to provide habitat for Canada geese, it is very important to develop ponds or other water sources. Any deep marsh or five- acre pond near agricultural crops has the potential to support hundreds of geese. The density of nesting and brood-rearing geese is relatively low and damage to crops unlikely during these times. However, congregations of large flocks during winter can harm winter wheat so you should be cautious about attracting Canada geese during winter if you're concerned about possible crop damage. As a landowner, your best efforts to enhance Canada geese habitat will focus on providing nesting opportunities. If you plan to develop nesting islands, they should be in five acre or larger ponds. Approximately 65 percent of the pond should be open water, while 5 percent should be islands and 30 percent emergent aquatic vegetation. Islands should be at least 100 feet from shore and 10 to 15 feet in diameter. Islands should also be at least 100 yards apart so territories do not overlap. Numerous designs for artificial nest structures have been developed. Most involve a platform attached to a pole or post. The nest itself is usually made from either a tire with the sidewall removed, a large washtub, half of a fifty-five gallon drum or a wooden box, which is then attached to the platform. Smooth metal should be wrapped around the post just above the waterline to prevent raccoons from climbing them. Nest structures should be spaced 70 to 100 yards apart and be filled with course nesting material such as straw or wood chips.

Ducks

Ducks are divided into two groups: dabblers and divers. Divers feed by going down into the water, and they are usually associated with lakes and large, deep waters. Dabblers, or puddle ducks, feed by tipping. They like shallow water where they can reach bottom vegetation from the surface. There is little landowners can do to enhance habitat for diving ducks. In fact, diving ducks have responded very little to national and statewide habitat management efforts. Therefore, this section is devoted to landowner management of dabbling ducks, including mallards, pintails, wood duck, gadwall, American widgeon, shoveler, blue- and green-winged teal and cinnamon teal.

Life History

Puddle ducks or dabbling ducks arrive on breeding grounds in March and April. Pairs begin forming on wintering grounds and the pairs bond until the nesting period. Most ducks nest close to water, but some species nest several hundred yards from the shoreline. Most ducks lay a single egg each day until the clutch is complete. Incubation periods are 21 to 27 days. After hatching, the hen leads the brood to a body of water for food and cover. About 20 percent of all duck broods are entirely destroyed and typically only about half of the ducklings in the remaining broods survive. The young begin to fly at about six weeks. Ducks go through a 20- to 30 -day process of feather replacement called "molting." While they're shedding worn flight feathers, ducks are flightless and seek out larger areas of open water. By early fall, ducks begin heading south to their wintering areas. Many duck nests are destroyed by predators that include skunks, raccoons, foxes, coyotes, crows, ravens and magpies. Controlling ground predators on some intensively managed waterfowl areas has increased nest survival. As with other predator control programs, landowners achieve the greatest benefits when these programs are done along with habitat enhancement.

Habitat Requirements

Dabbling ducks usually feed on the seeds or tubers of aquatic plants in shallow water. Food found in three to 12 inches of water is easily used by puddle ducks. However, they also feed readily in croplands or grain fields. The best habitat for ducks is wetlands. Some of these are permanent, but ducks will use temporary or seasonal wetlands as well. Areas that are dry enough to grow vegetation, produce seed, and then become flooded, can be excellent feeding habitat for puddle ducks. The best duck habitat is an irregular mixture of 50 percent open water, 40 percent emergent vegetation and 10 percent islands. The ideal water depth is two to 10 inches. Typical nesting habitat is in the uplands just next to wetlands.

Although some species, including pintails and mallards, may nest up to a mile from water, ideal nesting cover should be within ab out half a mile of brood cover. To minimize nest predation, it is best to have 40-acre blocks of nesting habitat. As long as sufficient cover is provided, almost any species of vegetation will provide nesting habitat. Basin wild rye, wheat grasses, switch grass, green needle grass, Indian rice grass and little bluestem are upland grasses that will provide nesting cover. Shrubs for nesting cover on islands could be Wood's rose, snowberry or willows. Be sure livestock grazing programs allow for the residual vegetation from the prior year that will provide cover to hide nests. Wood ducks nest in woodland areas along lakes, rivers and vegetated wetland areas. Natural tree cavities or manmade nesting boxes are required for successful nesting. These ducks prefer nest sites higher than 30 feet above the ground, but nest heights can vary from nearly ground level to 65 feet.

Optimal wood duck nesting habitat contains up to five suitable cavities per acre in close proximity to brood habitat. The ideal brood habitat for all dabbling ducks consists of irregularly shaped ponds with ample shoreline vegetation for hiding. During the first six weeks of life, young ducks primarily feed on insects and other invertebrates. They generally have no difficulty finding this food source in wetlands. Normally, 75 to 100 percent of the duckling's diet is composed of invertebrate foods, such as shrimp, clams and similar invertebrates. Dabbling duck broods usually prefer dense, emergent vegetation for escape cover. During winter, ducks congregate on rivers, reservoirs, sloughs and other wetlands that offer open water. In addition to aquatic invertebrates and vegetation, grains provide a high- energy food that dominates the winter diet of

many dabbling ducks. Twice- daily feed flights originate from roosting or loafing areas. Most ducks stay within five miles of the roost, but a 20- mile radius is not unusual.

Habitat Enhancement

Improving existing wetlands or creating new ponds and marshes are two of the best options to enhance habitat for dabbling ducks. If wetlands are larger than five acres, you can create dugouts where emergent vegetation, such as cattail, fills in. You can create more open water and more plant diversity by using heavy equipment such as a dragline, backhoe, tracked excavator or explosives to clear the area and remove some of the vegetation that extends out of the water. Sometimes, mowing cattails in late summer or early fall, and then flooding the area to a depth of at least two feet will control cattails. Plan to repeat this program every four to six years. Herbicides are also effective in opening up dense marsh vegetation. By treating areas in 40-foot strips, you will provide both feeding areas and cover areas. Burning will also open up dense marsh vegetation for ducks. Some areas that are only somewhat useful can be developed to improve duck habitat. Improve shallow or dry wetlands by damming the water outlet or dredging the bottom to increase water depth. You can create pits by blasting. Water depths greater than three feet are necessary to prevent emergent vegetation from choking out open water areas. Create one open water area for each acre of marsh. On larger areas, strive for one acre of open water for every five acres of marsh. An irregular pattern of open water and marsh provides the most benefits. A series of small ponds attract more ducks than one large pond. Islands can be made for nesting and loafing. For safety from nest predators, islands should be at least 100 feet into open water that is at least three feet de ep. The islands should be two to three feet above the water level with a minimum diameter of 20 feet. Islands can often be created using dredging spoils, but be sure to maintain a separation of 100 yards. Landowners can purchase artificial duck nests commercially or you can build them. For mallards, pintails, shovelers and teal, a nest basket can be made and mounted to a pipe along a marsh shoreline. Construct the cone- shaped basket out of hardware cloth, making it 12 inches deep with a 26- inch diameter open top. Secure the hardware cloth to a hoop rim made from an 82- inch long quarter-inch diameter rod with the ends welded together. Then weld four, 20- inch long one quarter -inch rods to the hoop rim. This will provide an attachment when mounted to the pipe sticking out of the water. Place straw or marsh vegetation in the nest basket for nest material. Nest boxes for wood ducks can be constructed from rough lumber. The box should be 12 inches by 15 inches by 4 inches and accessed by a three inch by four-inch oval hole. The boxes are put on trees or attached to poles near permanent water. Provide sawdust or wood chips as nest materials. Use aluminum flashing, cone- shaped predator guards or some other method to prevent raccoons from climbing trees or poles to gain access to nest baskets or boxes. You can find detailed plans for nest baskets or boxes online, from state wildlife agencies, the U.S. Fish and Wildlife Service or from your county extension office.

Managing Crops for Waterfowl

Crops planted specifically for ducks and geese, as well as waste grain left from commercial agricultural crops, represent food sources provided by landowners that may dictate the survival and behavior of many local waterfowl populations. Waste grain is a high- energy food that waterfowl can quickly consume. Modern harvesting equipment gathers only about 95 percent of a grain crop. This leaves 50 to 310 pounds of waste grain per acre. Some landowners plant crops specifically for waterfowl. If the landowner

is able to flood these crops, they are even more attractive to waterfowl. Some crops, such as millets, are very similar to wild plants used by waterfowl. Millets can be drilled or broadcast. They grow quickly, and other wildlife is not as likely to damage them as some crops.

Japanese millet produces an average of 2,227 pounds per acre. Millets should be left unharvested and, ideally, gradually flooded to a depth of eight inches. Flooding fields should be done progressively. That is, add water so waterfowl can feed on one area. Then, as the food is depleted, flood more of the field to cover new areas. This is especially important on crops that lose energy content the longer they are flooded. After 90 days of flooding, rice loses only 19 percent of its energy content, but corn loses 50 percent. Likewise, harvest fields progressively so that new sections attractive to waterfowl are made available at intervals. The new sections are added at intervals by cutting them down. Ducks and geese do not like to feed in standing crops. They use areas that are low and provide easy landing, movement and visibility of predators. Progressive harvesting ensures a constant supply of fresh food for ducks and geese.

Avoid using soybeans as a waterfowl food crop. When flooded, soybeans lose energy content rapidly, 86 percent after ninety days. But more importantly, soybeans may cause food to become fatally impacted in the esophagus of waterfowl. Consider the physical characteristics of grain when selecting waterfowl food. Large seeds, such as corn, are more quickly located and consumed by waterfowl. Seed head structure is also important. Ducks can more easily remove seeds from barley heads than from hard spring wheat. The way grain fields are cultivated after harvest determines how accessible grains are to waterfowl. As mentioned above, tall stubble may keep waterfowl from using a field. Some post-harvest treatments, such as plowing, may reduce grain residue. But if ground litter and stubble is reduced, there may be a net benefit to waterfowl because foraging efficiency is increased. After snowfall, standing grain crops may be the only foods above the snow.

Cattle grazing on harvested cornfields create openings in the snow and break up corn ears, increasing the kernel availability. In severe winter areas, wide swaths of unharvested crops may act like a snow fence that improves the availability of grain on the ground, and provides a reserve of food above the deepest snow.

Waterfowl Diseases

There are three major diseases that concern waterfowl managers: botulism, cholera and lead poisoning.

- Avian botulism is a paralyzing and often fatal disease caused by ingestion of a toxin that is produced by a bacterium (Clostridium botulinum). The toxin has two forms. One is a vegetative form of the bacteria, which is produced when dead organic matter occurs in the complete absence of oxygen. The other form is produced in bird and mammal carcasses. Outbreaks of avian botulism occur almost every year with extensive losses in the Rocky Mountain states. Field signs of the disease include finding healthy, sick and recently dead birds together. Lines of carcasses that match receding water levels are signs of major die -offs. Botulism is typically a disease found at the water’s edge. Because avian botulism affects nerves and results in muscle paralysis, the inability of waterfowl to sustain flight is an early sign of the disease. Later, ducks may be seen propelling themselves across the water with their wings. Two of the most recognizable signs of avian botulism are paralysis of the

inner eyelid and neck muscles. Birds sometimes drown because of the inability to hold their neck erect. It is important to note that botulism may occur during molt. Molting waterfowl are flightless and may be confused with waterfowl showing the symptoms of botulism. Molting birds are difficult to catch, but birds suffering from botulism are easily captured. If a landowner suspects botulism, state wildlife officials should be contacted so laboratory tests can confirm the presence of the disease. Preventing avian botulism is best done in the following ways.

1. Avoid rapidly lowering the water level in a pond or lake, which may kill aquatic life and leave behind carcasses; and
2. Promptly remove and dispose of all carcasses at the water's edge.

- Avian cholera outbreaks occur occasionally too infrequently in the Rocky Mountain states. Avian cholera is a highly infectious bacterial disease, which can result in death six to 12 hours after exposure. Sick birds appear lethargic and do not attempt escape until closely approached. When captured, they will often die within a few seconds or minutes. Birds sometime have convulsions, swim in circles or throw their heads back. If you suspect avian cholera, state wildlife biologists can send carcasses for laboratory confirmation of the disease. Little can be done to prevent avian cholera. Most management involves minimizing the spread of the disease. Dispersing birds, promptly removing carcasses, draining infected wetlands and diluting volumes of water are strategies to prevent the spread of the disease.
- Lead poisoning is a frequent cause of waterfowl mortality in the Rocky Mountain states. It usually occurs when waterfowl eat lead shot remaining from previous shot-gunning seasons. Lead- poisoned birds are reluctant to fly, fly erratically or land poorly. As the disease progresses, waterfowl become flightless and they hold their wings in a characteristic "roof -shaped" position. Lead- poisoned birds are easily captured during advanced stages. Their feces are bile colored. Preventing lead poisoning is difficult. It is often impossible to know which areas contain the lead, and efforts to keep waterfowl from using those areas are not practical. Tilling soil so lead shot is below the surface is an often- used management practice. The most logical preventive practice is the current legal requirement to use nontoxic shot on hunting areas.

Population Management

Because of their migratory nature and ability to fly great distances each day, a single landowner has little ability to influence population numbers of ducks and geese. When populations are low throughout the range of the birds, landowners can do their part to allow population recovery by limiting harvest. Federal and state harvest limits, however, are normally set to provide ample availability of birds for spring reproduction. Duck hunters should be encouraged to harvest specific species and males rather than females. This not only makes more females available for breeding, but it can also add to hunters' satisfaction as they learn to accurately identify their targets.

Most waterfowl population management on private land involves trying to increase the harvest. As the birds begin fall migrations, landowners can increase the harvest on their lands by trying to attract more birds. Because feeding areas are the primary attraction used to lure waterfowl to hunters, it is important for landowners to understand the difference between baiting and feeding waterfowl. Baiting waterfowl is illegal. Providing

feeding areas for waterfowl can be a recommended wildlife management practice. First, it is important to understand that there is no violation of the law if no one shoots at waterfowl attracted to a baited site.

A violation can occur if someone shoots at birds that are:

1. At the baited site
2. En route to the baited site
3. At or en route to a former baited site.

Second, if food is made available to waterfowl through "normal agricultural practices," it is legal to shoot them. Thus, if a mechanical combine leaves grain on the g round that attracts waterfowl, you can shoot over that acreage. The waste grain is the result of a normal agricultural practice. If, however, you roll down a bunch of grain to attract waterfowl, you are in violation of the law because rolling down grain is not a normal agricultural practice. Any time a landowner has a question about baiting regulations, the best procedure is to contact the state or federal game warden. There are several strategies you can use to attract waterfowl during hunting season. Providing food, flooding fields, creating refuge areas and establishing non- hunting periods will make your land more attractive to waterfowl during hunting season. Pre- migratory and migrating waterfowl are hungry. Finding enough food to deal with increasing energy demands related to temperature regulation and migration make feeding a primary concern at this time of year.

One way to attract waterfowl to your land is to follow the practice of "progressive grain harvest." This practice provides a constant supply of food. To begin, harvest a percentage of the grain or corn and leave the rest for a while. After ducks have picked the waste grain clean in the harvested area, harvest another percentage of the grain crop. You may attract geese to a field of picked corn by progressively cutting the stubble. Tall stubble makes it hard for geese to land and feed on waste corn. If you mow additional portions of the stubble field after the geese have picked the previous portion clean, you'll provide a continuous supply of food that will keep them returning to the field.

Some farmers dedicate parts of their crop to be left as food for waterfowl. This will often make the entire area attractive for the birds. Burning an area to time tender shoot regrowth with goose season can provide an attractive food source that will enhance hunting. An area flooded with one to six inches of water will attract waterfowl. In addition to the security and comfort provided by the water, seeds float to the surface and act like magnets to any ducks in the area. It is important to provide waterfowl with times and areas that give them relief from hunting. A heavily hunted area repels birds no matter how good the habitat. Each landowner should devise a strategy to ensure that waterfowl are not overly disturbed. Some landowners leave a large portion of their land totally unhunted.

Although it can be frustrating to see ducks in the closed area when none seem to be flying in the hunted area, the benefits of having ducks in the vicinity will eventually result in some being available to hunters. Keep in mind that the refuge area must be large enough to provide real security. Although ducks will pass a gauntlet to get from a loafing area to a secure feeding area, they will soon get educated and avoid the entire vicinity if the refuge area is insufficient. Spacing out hunting periods is another strategy

to consider. One day of hunting with two days of rest will usually ensure consistent waterfowl presence. Hunting only mornings one week and only afternoons the next week is another option to prevent the birds from abandoning your area.

Predator Control

Most predator control considerations related to waterfowl are associated with nest success. Because ducks and geese prefer to nest in areas close to water, predators quickly learn to concentrate their hunting efforts near shorelines. Waterfowl that select nest sites farther from water have a greater probability of hatch success, but their brood survival rate is lower because of the risks associated with getting the hatchlings to water. Predator control can improve the success of nests near water. Removing skunks, raccoons, fox and sometimes coyotes can result in higher hatching success if control efforts are concentrated in late winter and spring. Crows and magpies can be major nest predators but they are protected by federal law and cannot be controlled without a permit. Research and experience on federal refuges have shown that predator control can benefit waterfowl populations, but these control programs will have a much greater effect if they are done along with habitat enhancement.