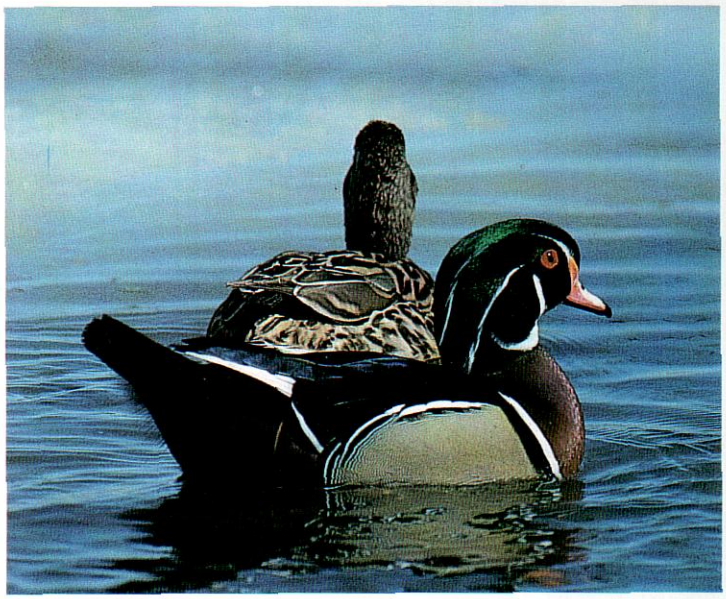
Duck Habitat Needs and Development

Habitat Extension Bulletin No. 4

The sight and sound of ducks rising from a pond or marsh are exciting to the hunter and birdwatcher alike. We in Wyoming are privileged to live in a region of excellent duck habitat; however, much of Wyoming's wetland habitat is not attracting or producing ducks at full potential. Degradation of wetland and adjacent upland habitat due to urbanization, intensive agricultural practices, and excessive cattle grazing has frequently limited the capability of wetlands to support nesting ducks. Landowners can often increase duck production locally in an economically feasible and straightforward manner by understanding duck habitat requirements and implementing better management practices.



Wood duck drake

Habitat Requirements

Ducks which inhabit Wyoming wetlands can be categorized as either "puddle ducks" or "diving ducks." Puddle ducks frequent shallow water areas such as marshes, ponds, and creeks but nest on adjacent dry uplands. Nest sites occur in grain stubble, hayfields, idle areas, or in lightly to moderately grazed pastures. Puddle ducks generally feed in shallow water on the seeds and tubers of aquatic plants, grass, and insects by tipping up in a display of their tails at the water surface. However, they may also feed in croplands and grainfields. The most abundant puddle ducks in Wyoming are mallard, pintail, American widgeon, gadwall, shoveler, and green-winged, blue-winged, and cinnamon teal.

Diving ducks are primarily observed on the larger and deeper lakes and rivers. Some species nest in tree cavities while others nest over water among aquatic emergent plants or along the marsh shore. Redheads, canvasbacks, goldeneyes, and buffleheads are common diving ducks in Wyoming that feed by diving for a variety of aquatic animals and plants.

Duck pairs begin arriving to nest on Wyoming breeding grounds in March and April. After their eggs hatch, adult hens lead their broods to more open, permanent water in search of adequate food and cover. Hens may lead their broods through a series of ponds and marshes during growth and development. Ducklings are able to fly in about one and a half months. Adult ducks become flightless in late summer after brood rearing during the molting period when worn flight feathers are shed. During this period of feather replacement, they congregate in open water for protection from predators. After three to five weeks, ducks are ready to begin their southward migration to wintering areas.

Wetland Development

Two ways of increasing habitat suitability for Wyoming ducks are to improve existing wetlands or create new ponds and marshes. In Wyoming, the best habitat for ducks is wetlands with open water during early spring, summer, and fall.

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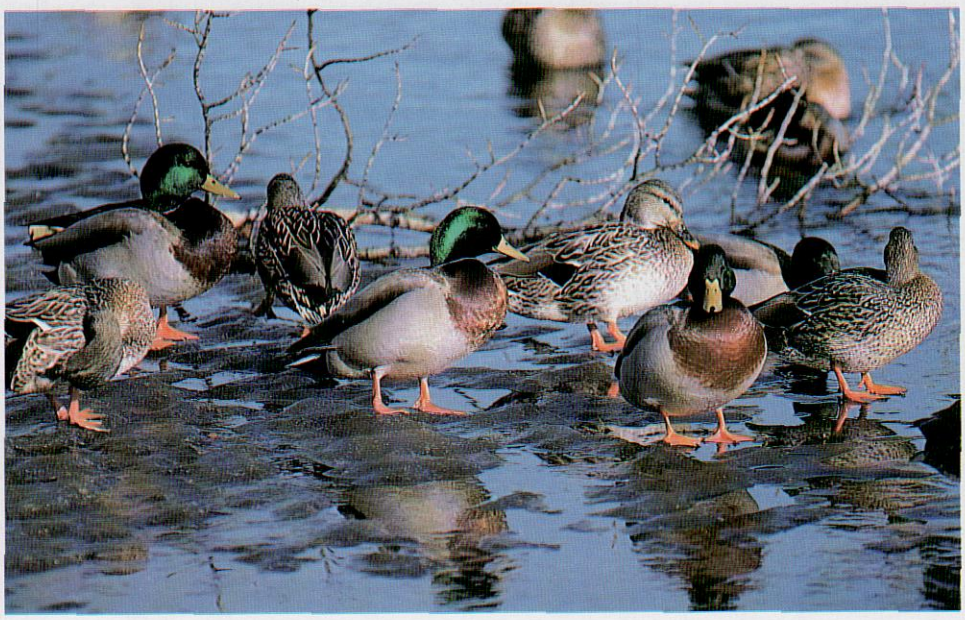


A summer visitor, this drake cinnamon teal (top) loafs on a crane nest. Mallards (above) are hardy and may overwinter in Wyoming where they find grain and open water. Good brood habitat (next page) includes lots of vegetation for concealment and open water for protection from land-bound predators.

These include temporary, seasonal, and permanent wetland types. These areas are valuable not only as stopover sites during the spring and fall migration but also for nesting during the spring breeding season and brood rearing during summer. The most useful ponds are at least one and one-half acres, with irregular habitat characteristics consisting of 65 percent open water, 30 percent emergent vegetation, and five percent islands.

Shallow wetlands that dry up during summer can be improved to increase duck production by increasing water depth and water surface area. This can be accomplished by damming the water outlet and/or dredging the marsh bottom to increase water depth to at least two to three feet. Pits created by blasting the bottom of a drained wetland should be 500 to 5,000 square feet in area (the larger the better) with gently sloping, irregular shorelines. One pit should be created for each one to five acres of marsh. A series of small ponds created near larger ponds or marshes will attract more ducks and encourage better production.

Island Development

Spoil from larger pits, ponds, or bays may be used to build islands for nesting and loafing. The islands should be at least 20 feet wide and approximately one quarter acre in size when conditions allow (50 feet by 200 feet is optimal). Linear islands with irregular shoreline contours provide better nesting opportunities compared to round, symmetrical islands. Islands should be constructed in a minimum of two feet of water with a height of two feet above the water surface and have a flat surface for proper drainage. The windward side of an island should be bench-like for protection from erosion and to promote the establishment of emergent vegetation. The leeward side should have a minimum of four to one slope to allow easy access. Islands should be constructed at a rate of one per four acres of surface water and located at least 100 feet apart and 200 feet from shore. To prevent excessive wave and ice erosion, islands should be constructed in protected upwind areas of the wetland. Stone riprapping may be necessary on islands with high erosion potential. Planting with shrubs such as Wood's rose or a mixture of sweet clover

alfalfa, and tall and intermediate wheatgrass will also prevent erosion while promoting nesting cover.

Other structures attractive to ducks include floating logs or rafts (four feet by four feet), piles of stones, and bales of straw and/or hay. Alternatives to nesting islands include the installation of nesting baskets along the shoreline. These are described in the Wyoming Game and Fish Department habitat extension bulletin number 6b, "Design, placement, and maintenance of duck nesting structures."

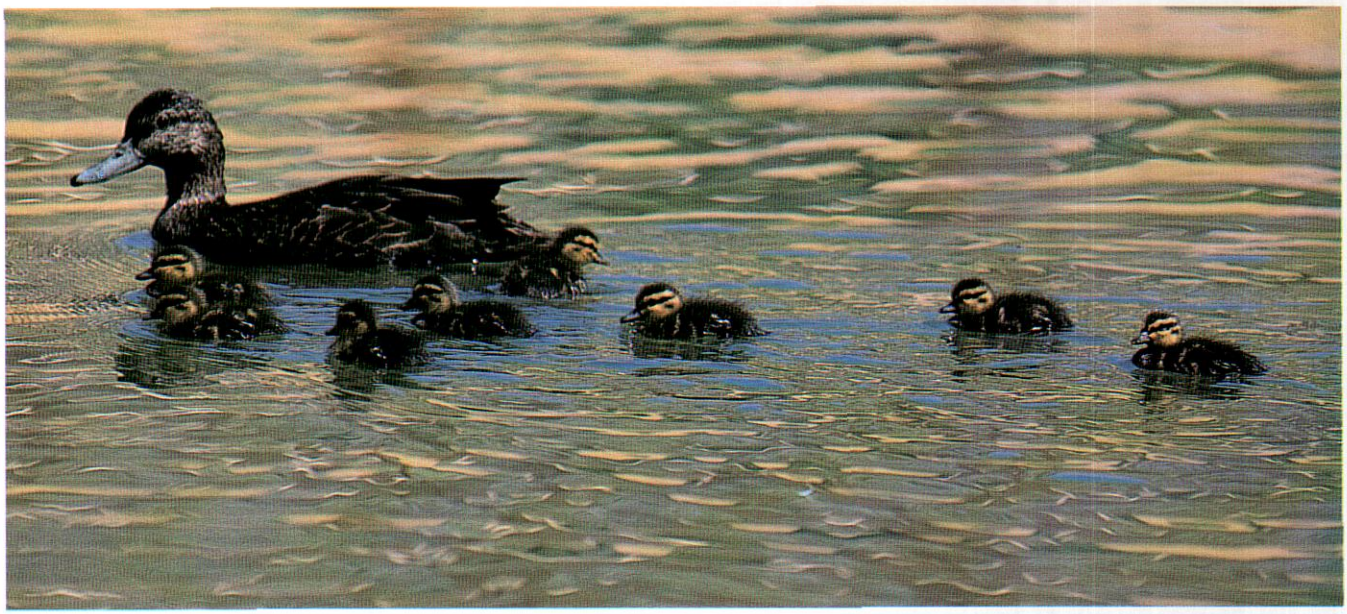
Aquatic Vegetation Control

Wetlands that are overgrown with emergent vegetation such as cattails provide poor food and cover for ducks. Vegetation control techniques should be planned to provide the proper combination of open water to emergent vegetative cover. Because cattails generally grow in shallow water, increasing the water depth to three and one-half feet by digging, blasting, or flooding will often control this plant. Disking, mowing, or crushing during the dry periods provides satisfactory control of many excessively abundant plants within marshes that will support the mechanized equipment. Ideally, the marsh should be mowed in late June or early July during the fruiting stage of the vegetation, then mowed again a month later. A late summer or early fall mowing of cattails followed by re-flooding with two or more feet of water before freeze-up is also effective if repeated every four to six years. However, temporary control of cattails can be achieved with a late fall mowing and re-flooding prior to freeze-up or winter scraping over ice. An alternative to mowing cattails is to bale with a large round or square baler and leave the bales in the marsh for nesting structures. Herbicides such as two,4-D, Dalapon, or Roundup are also effective for opening up dense marsh vegetation. The chemicals should be sprayed in alternating 40-foot wide strips across the marsh to provide open water for feeding as well as protective cover. Consult your local extension specialist for the proper herbicide and rate of application. Controlled burning can also be employed to control emergent vegetation and create open water. Combinations of these vegetation control techniques are particularly effective for improving duck habitat.

Nesting Habits

Although ducks may use unvegetated shorelines for daytime loafing and resting, these areas are generally considered poor nesting habitat. Barren soils can result from poor soil conditions, heavy wave action, or cattle trampling. Cattle trampling is the easiest of these problems to remedy by fencing an area at least 40 feet from the marsh or pond to promote a grassy shoreline. However, puddle ducks will often nest up to one-half a mile from the pond or marsh. Therefore, no grazing or only light to moderate grazing adjacent to wetlands is recommended for increasing duck production.

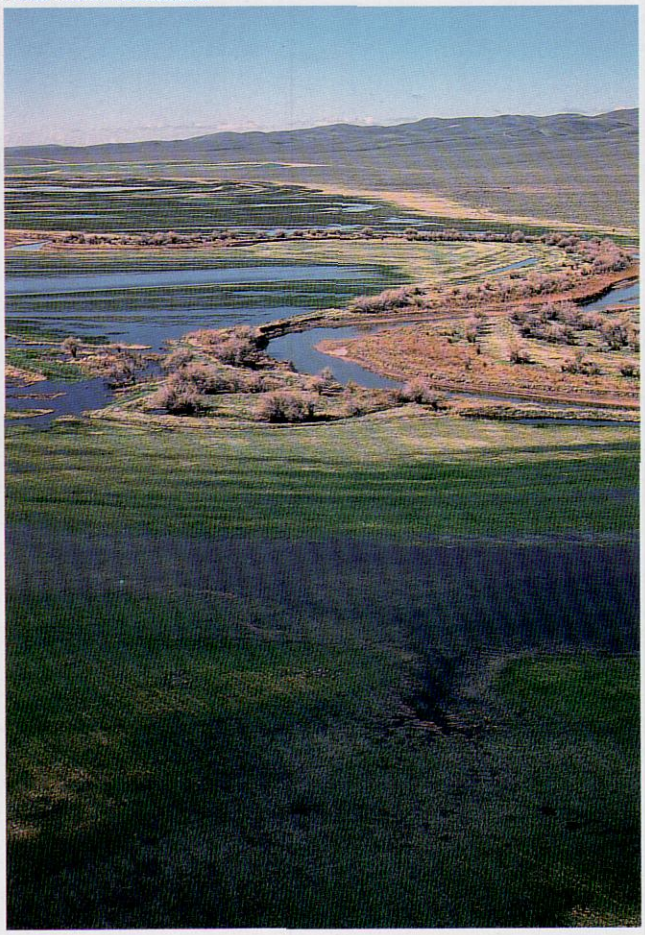
Conversely, a shoreline entirely overgrown with vegetation is also not desirable. For puddle ducks, 20- to 40-foot intervals of open and vegetated shoreline can be achieved by cutting or spraying, then planting these intervals with low-growth species such as bluegrass, blue grama, or buffalo grass. For diving ducks, the shore vegetation cover should be left intact except for a few scattered openings. With herbicides, extreme caution needs to accompany their



use to avoid over-application and possible long-term damage to the wetland.

Duck production can also be increased by the creation and management of manmade wetlands. The simplest technique involves damming an uncontrolled waterway so that 50 to 75 percent of the newly created pond is two to four feet deep. Before building any dam, check with state and federal agencies for proper permits. The deeper areas will prohibit the growth of emergent vegetation and the shallower areas will promote food and cover plants. Bare or muddy shores can be disked and planted with favorite waterfowl foods such as, wild millet, smartweed, alkali bulrush, bushy pondweed, wildcelery, eelgrass, sago pondweed, and coontail. Islands can be constructed with a bulldozer prior to flooding the area.

Bear River wetlands



Water Level Control

By modifying water levels with control structures, wetlands can be effectively managed for ducks. The water levels can be raised three and one-half feet to drown undesirable plants, or lowered to promote naturally occurring duck food plants such as smart weed. Seasonal drawdowns may improve the fertility of the soil by increasing aerobic decomposition of litter, nutrient availability, and soil aeration. Late fall and early winter drawdowns followed by early spring reflooding are highly desirable. Corn, wheat, oats, or barley fields can be flooded to a depth of 15 inches after harvest to encourage use by puddle ducks in the spring and fall.

Stock ponds and pits can be improved for duck resting, breeding, and brood rearing. Pond size should be increased to two or more acres, and at least one shore should have a minimum of five to one slope. To provide nesting cover, maintain one foot high vegetation around the pond. Mowing after July 15, and constructing cattle fences 25 to 40 feet from the pond will also assist in duck production. Duck foods can be planted in early July on exposed shores as water levels drop.

Limiting Mortality

Increasing duck production may involve not only improving the habitat but also limiting duck mortality. Ducks are highly susceptible to toxic chemicals and disease. Ponds and marshes used by ducks should be free of chemical pollutants, especially petroleum products. Toxicants such as oil can cause duck mortality by drowning or overexposure from oil-matted feathers. In addition, poisoning may occur due to ingestion, inhalation, or absorption of the product. Lethal diseases such as botulism can best be averted by maintenance of constant water levels or continuous flow of water through the wetland. This procedure prevents the stranding and decaying of insects and fish (the medium for botulism growth) on stagnant, exposed mud flats. In wetlands where summer drawdowns or reflooding are necessary, prompt disposal of animal carcasses by burial or burning will remove the sources of botulism development.

Careful consideration of these guidelines to improve existing wetlands, to create new ponds and marshes, and to reduce duck mortality will allow your wetland to reach its full recreational potential as duck habitat. Additional information on improving duck production can be found in the 16 page, 1968 publication *Ponds and Marshes for Wild Ducks on Farms and Ranches in the Northern Plains* by Wade H. Hamor, Hans G. Uhlig, and Lawrence V. Compton, Farmers' Bulletin Number 2234, U.S. Department of Agriculture. This booklet is for sale by the superintendent of Documents, U.S. Government Printing office, Washington, DC 20402.

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This publication is one in a series of habitat extension bulletins produced by the Wyoming Game and Fish Department. Call 1-800-842-1934 for additional information or assistance.

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