

7 Wetland Management



A wetland is an area of land containing high soil moisture during at least part of the year and supporting water-tolerant vegetation. Wetlands come in many shapes and sizes and include wooded swamps, flowing brooks, salt marshes, beaver ponds, or *pocosins*.

Wetlands serve an important function as biological filters that remove sediments and pollutants from surface waters. They also act as natural sponges reducing flood severity by slowly discharging excess water back into streams or the groundwater table. Wetlands are biologically rich and often contain a greater diversity of plants and animals than is found in drier habitats. They are excellent habitat for many kinds of waterfowl, shorebirds, and songbirds and are important as amphibian- and fish-spawning and rearing areas.

Historically, natural wetlands dominated floodplains and river deltas, and most level or nearly level lands in the Coastal Plain were wetlands. From the time development of our state began, wetlands have been drained for agriculture, forestry, and flood control. We now realize how important it is to conserve our few remaining natural wetlands, restore those that have been drained, and develop new wetlands wherever possible.

Many of today's wetlands were developed by human engineering. That is, they were constructed on previously dry or seasonally flooded land and are maintained by levees and water-control devices. Construction and development of private wetlands should be approached cautiously and only after consulting with regulatory agencies and experienced engineers. NCWRC Division of Wildlife Management biologists can assist with initial site inspections.

Most wetland management today is directed toward creating and improving waterfowl habitat. In this type of management, production of food for waterfowl is a primary concern.

Diverse groups of important food plants grow naturally on moist or wet soil. These soil conditions also provide excellent growing conditions for invertebrates, such as small snails, clams and insects, which are good waterfowl foods. Wetland-management techniques can encourage the growth of these moist-soil plants, or domestic grains can be planted and then flooded for supplemental food.

Flooded Fields and Cropland

On developed wetlands, moist-soil plants are encouraged by drawing the water from the fields during the growing season. This allows germination of the seeds that are present or for seeds to be planted. The timing and rate of the drawdown are important for good plant growth. Although there is no set method for determining the best time to draw down a wetland, a general recommendation is that the water be held on the wetland until early summer (May-June), if managing for native plants, and removed earlier, if agricultural



JOE FULLER/NCWRC

Waterfowl impoundments will be more productive when located in close proximity to other wetlands that offer alternate feeding and resting sites.

crops are planted. If managing for natural revegetation, the rate of the drawdown should be slow enough to prevent rapid drying of the soil. This will discourage undesirable species while stimulating desirable moist-soil plants. The wetland is then reflooded to make these foods available for waterfowl. A slow, progressive reflooding is best starting around the first of September for migrating teal or the first of October for many other waterfowl species.

Flooded grain crops can be beneficial for waterfowl, especially late in the winter when the weather is extremely cold. Corn or grain sorghum should be flooded from Oct. 15-March 30. Crops planted specifically for waterfowl need not be clean-tilled because the weeds will provide additional food. Japanese millet also can be sown (15 pounds per acre) to supplement the cultivated crops.

Impoundments constructed near waterfowl resting areas will be most productive for waterfowl management. Study potential water sources for flooding your impoundment because pumping can be expensive and surface sources may not be dependable.

Flooded Timber

Bottomland forests are an important wetland habitat type. A low dike can sometimes be constructed to seasonally flood bottomland hardwoods. The management plan for a bottomland forest should protect the health of the trees; therefore, no flooding should occur during the growing season. Flooding dates, depths, and duration should vary from year to year to maintain the productivity of the forest. A forested wetland usually can be flooded from mid-October to late-February. The water should be drained before the trees leaf out. A slow drawdown is better than a rapid one because more preferred plants will be produced. Open areas in the forest can be planted in Japanese millet or managed for natural foods.

Temporary Pools

Because of our diverse landscape, geologic history, and climate, North Carolina supports a tremendous diversity of amphibians. Temporary or ephemeral pools are important breeding sites for frogs and salamanders. These pools may also be used by reptiles, migrating shorebirds, waterfowl, and songbirds. Ephemeral wetlands are important to many amphibians because they do not support fish populations. Fish prey upon eggs, young, and adult amphibians and compete with them for food. Some of the species that use these areas are upland chorus frogs; spring peepers; southern leopard frogs; narrow-mouthed toads; eastern spadefoot toads; and spotted, mole, and marbled salamanders.



Temporary pools are important breeding sites for frogs and salamanders.

The first consideration should be to recognize and protect existing ephemeral wetlands. These wetlands can be located by sight during wet periods or, frequently, they are found by listening for a congregation of breeding frogs. If you have a temporary wetland on your property, protect it from drainage and maintain a buffer of upland habitat around the site since most of the amphibians that breed there spend a good portion of their life cycle in adjacent uplands.

Successfully constructing a temporary wetland is not an exact science. But if you wish to give it a shot, first do some research to determine the year-round habitat needs of the amphibian species that occur in your area. Next, study the landscape to locate an appropriate site. Look for old ditches, natural low spots, or dips in the landscape. These sites can occur almost anywhere on flood plains, uplands, forests, fields, or pastures. Areas on flood plains are especially attractive because they fill up during floods. If the site holds water for two or three months, there is a good chance it is already being used by breeding amphibians and shouldn't be disturbed.

If the soil type on the site will hold water, a small pool can be constructed in less than a day using a small bulldozer or a tractor and blade. A depth of one to two feet is ideal, and the pool should have gently sloping sides. Pools can be of

almost any size or shape depending on the site. Once the pool is constructed, there is usually no need to introduce aquatic plants or animals. The soil in a seasonally wet area will frequently have a seed bank of wetland plants, and animals are good at finding wetlands on their own. If plants are introduced, care should be taken not to use aggressive species such as cattails.

If constructed correctly, your pool will dry up during the hottest part of the summer and fill up again in the fall or spring just in time for the next breeding season. Soils with good clay content are easier to work with and usually hold water better than loamy or sandy soils.

Care should be taken to avoid jurisdictional wetlands (wetlands protected under the Clean Water Act and requiring a permit prior to disturbance) and sites likely to be exposed to excessive flooding. Flooding can flush the pond's amphibians into adjacent streams and allow the introduction of unwanted fish. Many cattle water holes that failed to hold water year round have turned out to be productive ephemeral ponds for amphibians.

Small Ponds

Most farm ponds are managed for fishing with the goal of maintaining water level year-round. However, if aquatic weeds are a problem, landowners can use winter draw-downs of one to three feet to discourage aquatic weeds.

When managing a small pond for waterfowl and wildlife takes priority over fishing, it should be drawn down one to two feet in early June to encourage beneficial plants, then allowed to refill with rainfall and runoff in the fall. Mudflats around ponds can be seeded to Japanese millet, but most moist sites will grow native plants that produce good wildlife foods.

If water control is possible, sloughs can be managed as described above.

Beaver Ponds

Beavers are a *keystone wildlife species*. The habitat that they create is important to many other species of fish and wildlife. Beaver ponds often require little management. However, on small streams, habitat for waterfowl can be enhanced by lowering water levels one to two feet during the growing season and planting foods or allowing natural foods to develop. For information on controlling water levels and managing problem beavers, see *Beaver Management in North Carolina* (North Carolina Wildlife Resources Commission).



STEVE MASLOWSKI

Wetlands created and maintained by beavers provide habitats for a variety of wildlife.

Springs, Seeps and Bogs

Springs, seeps and bogs (bogs are upland marshes dominated by sedge, grass and shrub communities) are not common, but can be found scattered throughout the state. These habitats are valuable watering areas for wildlife, as well as home to many rare wildlife species and plants. Bogs in western North Carolina are critical habitat for the endangered bog turtle. Livestock should be excluded from springs and seeps, but managed grazing is sometimes used as a tool to set back succession in mountain bogs.

Wetland Restoration

Restoring water to previously drained wetlands is beneficial to many species of wildlife. Drained wetlands may have surface drainage (ditches) or internal drainage (drain tiles). Considerable planning and expertise is normally required to obtain the desired results and to avoid legal aspects of placing fill in wetlands. Before attempting wetland-restoration projects, consult your local office of the Natural Resources Conservation Service located in the USDA Service Center for technical assistance and to determine if technical or financial assistance is available.

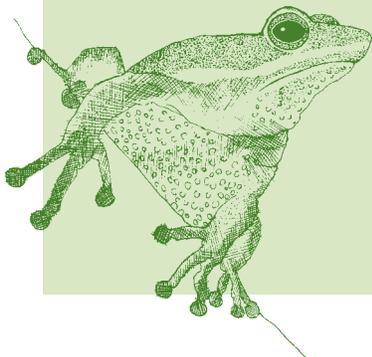


STEVE MASLOWSKI

Beaver ponds provide high-quality habitat for wood ducks.

Wetland Wildlife Management Tips

- If the site holds water for a month or more during most years, protect it and adjacent uplands.
- Fence stream banks to exclude livestock.
- Study the landscape and soils to locate a suitable site for impoundment or pool construction.
 - Place nesting structures for wood ducks in ponds and wetlands.
 - Learn the habitat needs of amphibians that live in your area.



Major funding for this publication was provided by the U.S. Fish & Wildlife Service's Landowner Incentive Program. The goal of the Landowner Incentive Program is to protect and restore habitats on private lands, and benefit federally listed, proposed or candidate species or other species determined to be at-risk.



Produced by the Division of Wildlife Management and the Division of Conservation Education
N.C. Wildlife Resources Commission,
1722 Mail Service Center
Raleigh, NC 27699-1722

The Wildlife Resources Commission is an Equal Opportunity Employer, and all wildlife programs are administered for the benefit of all North Carolina citizens without prejudice toward age, sex, race, religion or national origin. Violations of this pledge may be reported to the N.C. Wildlife Resources Commission, Equal Employment Officer, Personnel Office, 1751 Varsity Drive, Raleigh, NC 27606. Telephone (919) 707-0101.