



North Carolina  
Forest Service

# FORESTRY

## Leaflets

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### **Managing and Regenerating Timber in Bottomland Swamps**

#### **History**

North Carolina has prime examples of high-quality and productive bottomland hardwood and cypress swamps. These swamps have provided a sustainable source of timber products and wood fiber for more than 200 years, and served as a foundation for the creation of the forest products industry in much of North Carolina. The forests of North Carolina, including hard-to-access bottomland swamps, have been harvested in multiple cycles since the settlement of the state in colonial times. Practically-speaking, it is inconceivable that any appreciable amount of “old growth” or “virgin” timber remains in North Carolina’s swamps, simply due to the numerous harvest cycles that have been conducted through history.

#### **The Basics of Bottomland Swamp Forests**

A diversity of forest tree species are adapted to grow in bottomland swamps. Tree species that are most frequently found in North Carolina’s swamps include (*alphabetically*):

- Baldcypress
- Black willow
- Cherrybark oak
- Green ash
- Red maple
- River birch
- Swamp blackgum / Water tupelo
- Swamp chestnut oak
- Sweetgum
- Sycamore
- Yellow-poplar

However, that is not to say that you should expect to see all of these species in every bottomland swamp. On the contrary, the trees in some bottomland swamps can be predominately comprised of only a few species. In addition, North Carolina’s diversity of soils and topography promotes a diverse range in the types of bottomland swamps. The types of bottomland swamps most often found in North Carolina include (*alphabetically*):

- Black River Bottom: Bottomland areas of major river systems that originate in the coastal plain.
- Branch Bottom: Relatively flat areas along small river systems that remain boggy throughout the year.
- Muck Swamp: Broad, expansive and very-poorly drained areas often with standing water, usually with lots of organic matter in the soil.
- Piedmont Bottomland: Upstream bottomlands of a Red River Bottom.
- Red River Bottom: Bottomland areas of major river systems that originate in the piedmont or mountains.

#### **Forest Management of Swamps**

Management of a bottomland swamp forest is relatively passive and occurs over a much longer timeframe when compared with pine or upland hardwood forest areas. This long timeframe is mainly due to the relatively slower growth cycle of timber in a swamp. Once the new stand of trees has successfully regenerated in the swamp, there is usually little need to conduct intermediate stand treatments (such as thinning or burning) that might otherwise be suitable on pine or upland hardwood forests. Implementing a carefully planned and executed swamp timber harvest in a manner that minimizes soil and water impacts has shown to be the practical and viable prescription for forest management in bottomland/cypress swamps. Forest owners are strongly encouraged to keep all records, paperwork, plans, photos and other documentation related to the ownership and management of their forestland, especially for the bottomland swamp areas. Because managing bottomlands occurs over such a long period of time, an individual or outside observer may never actually see management being done, even though the forestland is continuing to be owned and managed for the purposes of sustainable forestry.

## **Tree Regeneration in Swamps**

Some swamp tree species regenerate by seed and others primarily by sprouting from severed stumps. Nearly all swamp-adapted tree species require full sunlight to adequately regenerate, thus demanding a removal of the shading overstory. Due to natural fluctuations of the water table and the obvious difficulty of site access, the planting of tree seedlings to regenerate a swamp after a timber harvest is not commonly implemented as a suitable or viable forestry (“silviculture”) practice. Considerations for tree regeneration in swamps:

- To promote stump sprouting (called “coppicing”) for regeneration, and to take advantage of a new flush of tree seed, timber harvests should ideally occur from October through March. However, this period of the year often produces flooded conditions, so you must balance the benefits of enhanced regeneration with the benefits of harvesting when soil conditions are more favorable, with no standing water.
- Stump heights should be 12-inches or less to improve the quality of the stump sprout and subsequent quality of the resulting tree. Coppicing from tall stumps are more prone to infection by fungus, insects and other organisms that result in rapid wood decay in the tree’s interior, thereby significantly reducing the timber value of the tree.

## **Harvesting Timber in a Swamp**

Above all else, it is vital to comply with the numerous state and federal water-quality regulations that govern forestry activities in swamps and wetlands. These regulations are too numerous to outline in this leaflet. You should seek advice and technical assistance from the nearest N.C. Forest Service district office; contact information is available at [www.ncforestservice.gov](http://www.ncforestservice.gov), or by calling the central office in Raleigh at (919) 857-4801.

When harvesting timber in a bottomland swamp, there are some general approaches to consider:

- In addition to complying with the water quality rules, there are specific Best Management Practices (BMPs) for timber harvesting and forestry operations in wetland areas. Generally, most bottomland swamps are also wetlands. BMPs developed for wetlands should be applied in bottomland swamps.
- Identify and clearly mark Streamside Management Zones (SMZs). The North Carolina state rules entitled “*Forest Practices Guidelines Related to Water Quality*” (FPGs) require that a SMZ be established along certain types of streams and bodies of water.
- SMZs can serve multiple-purposes: protection of water quality, visual screens, wildlife/bird habitat corridors and additional sources of tree seed to enhance regeneration.
- Remove as much of the shading overstory as possible within the harvest area to allow full sunlight and enhanced spreading of seed across the harvested area. However, dead trees (“snags”) may be left standing as habitat for small animals and perch trees for birds, as long as the snags are not a safety hazard.

Much of the text in this Forestry Leaflet was adapted from the information booklet “Regenerating and Managing Natural Stands of Bottomland Hardwoods.” Kellison, R.C., et al. Published 1988 by the Bottomland Hardwood Management Taskforce of the American Pulpwood Association. Publication number APA-88-A-6.



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