

Lakes and Reservoirs

Piedmont Ecoregion

There are no natural lakes in the Piedmont. However, reservoirs, mill ponds, farm ponds and other water bodies provide habitat for a variety of fully- and semi-aquatic species. These areas are also important areas for many bird species (nesting, roosting, and feeding sites) and provide habitat for fish, reptiles, amphibians, and aquatic mammals. In addition, these water bodies are popular destinations for human recreation. Table 1 provides a list of priority species associated with this habitat for which there are conservation concerns.

Table 1. Priority species associated with piedmont lakes and reservoirs.

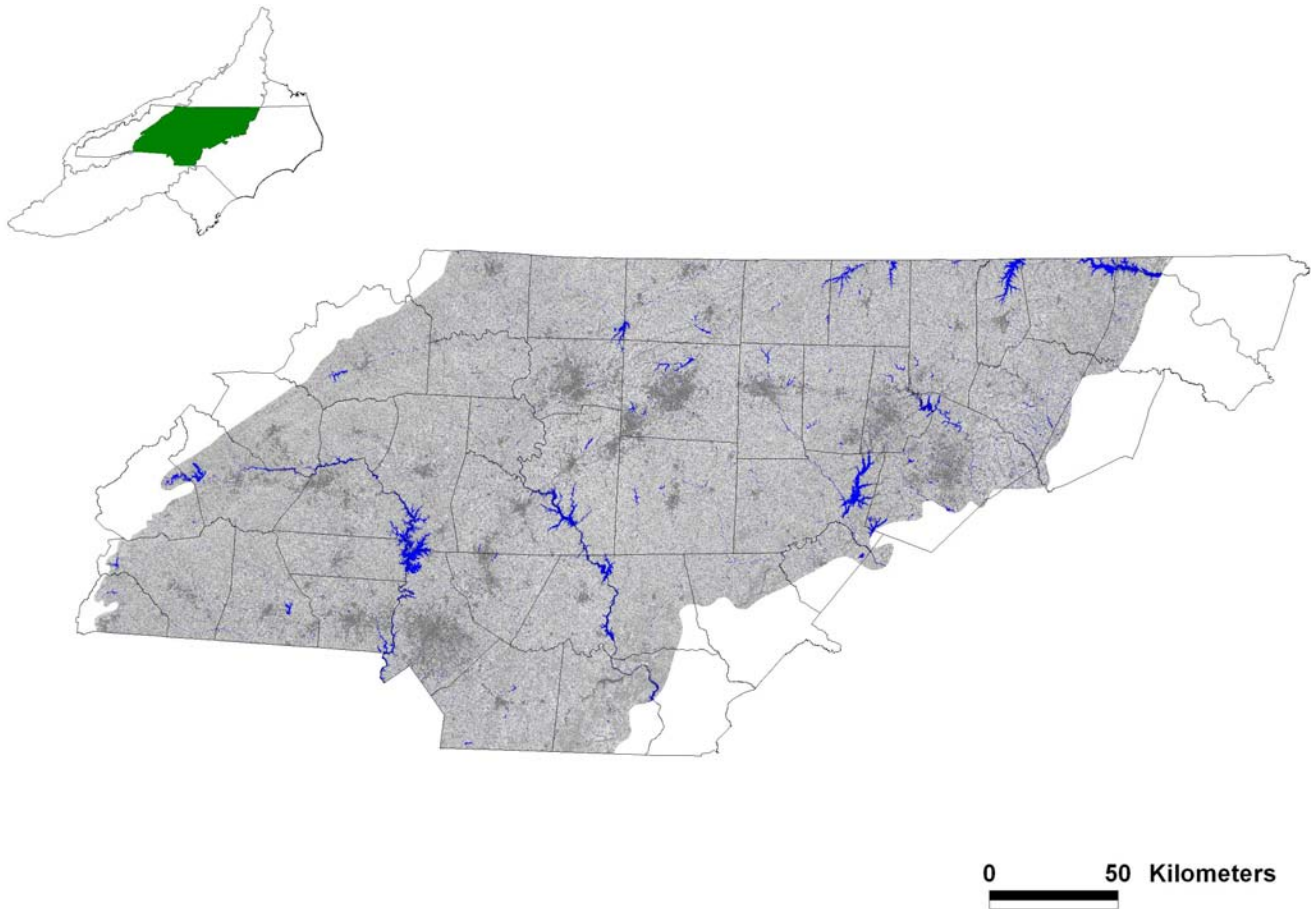
Group	Scientific name	Common name	State status* (Federal status)
Birds	<i>Haliaeetus leucocephalus</i>	Bald Eagle	T
	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	
	<i>Nyctanassa violacea</i>	Yellow-crowned Night-heron	
Reptiles	<i>Apalone spinifera aspera</i>	Gulf Coast Spiny Softshell	
	<i>Thamnophis sauritus sauritus</i>	Common Ribbonsnake	
*Abbreviations T Threatened			

Beaver ponds are discussed in the 'Small wetland communities' section. Other fully aquatic taxa (fish, mussels, crayfish, and snails) are referenced in the river basins descriptions. See the Roanoke, Tar-Pamlico, Neuse, Cape Fear, Lumber, White Oak, Chowan, and Pasquotank River basin sections or Chapter 5B of the Wildlife Action Plan for more detailed information on aquatic species and habitats, by basin.

Location And Condition Of Habitat

The major impoundments in the Piedmont include W. Kerr Scott Reservoir, High Rock Lake, Tuckertown Reservoir, Badin Lake, Lake Tillery, and Blewett Falls Lake along the Yadkin/Pee Dee rivers; Lake James, Lake Rhodhiss, Lake Hickory, Lookout Shoals Lake, Lake Norman, Mountain Island Lake, and Lake Wylie along the Catawba River; Belews Lake, Townsend Lake, Farmer Lake, Hyco Lake, and Mayo Reservoir along the Dan River drainage; John H. Kerr Reservoir and Lake Gaston on the Roanoke River; B. Everett Jordan Lake and Harris Reservoir along the Haw/Cape Fear rivers; Falls Lake along the Neuse River; as well as Oak Hollow Lake, Kings Mountain Reservoir, and Coddle Creek Reservoir. Map 1 depicts locations of lakes and reservoirs in the Piedmont ecoregion.

Map. 1 Lakes and reservoirs in the Piedmont ecoregion of North Carolina (in blue).



Data source: NC GAP, 1992

In addition, many smaller reservoirs and farm ponds are scattered throughout the Piedmont. All of these sites provide key habitat for many species of waterfowl, wading birds and other waterbirds throughout the year. Impoundments vary with age, water depth and disturbance history; the isolation of these ponds may be an important factors in the flora and fauna present (Schafale and Weakley 1990).

Problems Affecting Species And Habitats

Problems affecting species and habitats include development and land use activities. A brief discussion of these issues, as well as others that affect small wetland communities, follows.

- *Human development and use* - Development of lake shores causes loss and fragmentation of riparian habitat. Excessive human use of lake shores can cause

- *Water quality* - Pollution can cause problems for many aquatic organisms and their predators. Heavy metals can be a particular concern because of their ability to bioaccumulate. Smaller water bodies near agricultural or residential areas can suffer from excess nutrient run-off, leading to algal blooms and low dissolved oxygen levels.
- *Sedimentation* - Sediments build up behind an impoundment and over time can cause a degradation of underwater habitat quality above the dam. Plant diversity suffers due to sediment pollution.
- *Exotic species* - *Hydrilla* sp., *Corbicula malinensis*, *Ludwigia uruguayensis* and carp are among the exotics that can cause problems in water bodies.
- *Mowing of shoreline vegetation* - Reduction in submergent, emergent, and shoreline vegetation can lead to increased trampling and erosion. Many species associated with lakes and aquatic habitats rely on shoreline vegetation for shelter, foraging, breeding, and nesting.

Species And Habitat Conservation Actions and Priorities For Implementation

When considering conservation actions for large reservoirs, the conservation needs of flowing river habitat and floodplain forest habitat should generally trump the needs of reservoir habitat. Needed conservation actions for lakes, reservoirs, and other impoundments include:

- Maintain natural shoreline vegetation and structure of adjacent terrestrial habitats if possible (many wetland-related amphibian and reptile species rely on both aquatic and drier upland sites for their life history and seasonal migrations).
- Retain or create snags, logs, rocks and other structures used by basking reptiles.
- Reduce disturbance and development along raceways and near bald eagle nest trees.
- Identify invasive and exotic species, their impacts on native wildlife, and practical methods for removal or control.
- Limit lakeshore development at sites where there is not protected buffer land.
- Acquire lakeshore buffer lands (e.g., as was done at Jordan and Falls reservoirs so as to exclude development).

Priority Research, Survey, And Monitoring

• Surveys

- Determine the status and distribution of reservoir-associated birds (e.g., osprey, herons, swallows, possibly rails) and help identify threats to populations.
- Survey for shorebird migration activity on large reservoirs (e.g., Falls Lake, Kerr Lake) in spring, summer and fall.

- Initiate volunteer frog call surveys (a frog call CD is currently being developed by the Commission and NC Partners in Amphibian and Reptile Conservation, 2005).
- **Monitoring**
 - Continue bald eagle breeding activity monitoring.
 - Establish long-term surveys for waterbirds and rails to help determine population trends.
 - Monitor pond turtles and common ribbonsnake to track population trends.
- **Research**
 - Track and identify problems associated with avian vacuolar myelinopathy that cause mortality in American coots, other waterfowl and bald eagles (following up on recent research; Augspurger *et al.* 2003).
 - Assess the impacts of Federal Energy Regulatory Commission-mandated changes in water releases at hydro electric dams on high priority species.
 - Study the impacts of commercial collecting of turtles on population dynamics, and the impact that the 2004 turtle law may have on the trade.

Supporting References

Augspurger T., J.R. Fischer, N.J. Thomas, L. Sileo, R.E. Brannian, K.J.G. Miller, and T.E. Rocke. 2003. Vacuolar myelinopathy in waterfowl from a North Carolina impoundment. *Journal of Wildlife Diseases* 39: 412-417.

Bailey, M. A., J. N. Holmes, and K. A. Buhlmann. 2004. Habitat management guidelines for amphibians and reptiles of the southeastern United States (DRAFT). Partners in Amphibian and Reptile Conservation.

Schafale, M. P., and A. S. Weakley. 1990. Classification of the natural communities of North Carolina, third approximation. N.C. Department of Environment and Natural Resources, Natural Heritage Program, Raleigh, NC.