Chapter 10
Natural Resources

10.1 Ecological Significance of the Hiwassee River Basin

North Carolina's portion of the Hiwassee River basin is located entirely within the Blue Ridge physiographic province. The basin is home to a wide diversity of plants and animals with over 70 species considered endangered, threatened, special concern, or significantly rare by the NC Natural Heritage Program (NHP).

10.2 Rare Aquatic and Wetland-Dwelling Animal Species

Table 16 lists rare aquatic and wetlands-dwelling animals within the Hiwassee River basin. For more information on these and rare plant species, visit the NC Natural Heritage Program (NHP) website at www.ncnhp.org.

Considerable work is in progress regarding the life history of **sicklefin redhorse**, including movement and spawning habitat studies, which will soon lead to a formal species description. The Hiwassee basin contains six species of redhorse, an amazing diversity of these bottom-dwelling fish. The knotty elimia has changed names since the last basinwide plan to **Christy's elimia**, but is still a rare snail, endemic to the Hiwassee basin. There are also three endemic crayfish in the Hiwassee basin. **Littlewing pearlymussel** (*Pegias fabula*) was removed from the rare animal list since the last iteration of the basinwide plan because it is presumed to be extirpated from the basin. It is given a 'historical' status within NHP.

There are several rare freshwater mussels in the Hiwassee River basin. In general, freshwater mussels are declining throughout the Southeast, which is the area of greatest freshwater mussel diversity in the world. Mussels have a unique life cycle that depends on the availability of a proper fish host. Female mussels are fertilized and produce larval mussels, called glochidia, which are often packaged as a 'lure' to attract fish. The fish 'consumes' the lure and glochidia attach to its fins and gills. The glochidia remain attached to the fish for a maturation period, then drop into the substrate to begin growth to adulthood. The continued survival of freshwater mussels depends on water quality but also on the availability of appropriate habitat and host fish.

10.3 Significant Natural Heritage Areas in the Hiwassee River Basin

The NC NHP compiles a list of Significant Natural Heritage Areas as required by the Nature Preserves Act. The list is based on the program's inventory of natural diversity in the state. The terrestrial and aquatic natural heritage areas included on this list are the best representatives of the natural diversity of the state, and therefore, have priority for protection. Inclusion on the list does not imply that any protection or public access to the site exists. The identification of a significant natural heritage area conveys no protection; these lands are the responsibility of the landowner.

The Hiwassee River basin contains fourteen significant natural heritage areas (Figure 18) and six of those are aquatic habitats. The aquatic significant natural heritage areas include: Fires Creek, Hanging Dog Creek, Lower Hiwassee River, Tusquitee Creek/Big Tuni Creek, Upper Hiwassee

River, and Valley River. Additionally, the watersheds of Fires Creek and Gipp Creek are significant areas due to the inextricable link between water quality and the surrounding land quality. Maintaining good water quality in all of the above habitats is imperative to support the diversity of aquatic species contained within them.

The Natural Heritage Program has identified Die Bend/Crowder Bluff as a unique area because of the piedmont/mountain alluvial forest and floodplain pools found here that contain an unusual mixture of piedmont and coastal plain species not typically found in the mountains of the Blue Ridge. The Hiwassee Church Bluffs (sometimes called the Hiwassee River Bluffs) are rocky cliffs along the Hiwassee River that are not only scenic, but may represent migration corridors for plant species.

The Eller Seep, which is owned and managed by the Nature Conservancy, is a small yet very important Southern Appalachian bog. It is home to green pitcher plant (*Sarracenia oreophila*), a state and federally endangered carnivorous plant, and rough rush (*Juncus caesariensis*), a state endangered and federal species of concern plant.

Table 16 List of Rare Animals Associated with Aquatic and Wetland Habitats in the Hiwassee River Basin (May 2006)

Major Taxon	Scientific Name	Common Name	State Status	Federal Status
crustacean	*Cambarus parrishi*	Hiwassee headwaters crayfish	SC	FSC
invertebrate	*Matrioptila jeanae*	A caddisfly	SR	
invertebrate	*Micrasema burksi*	A caddisfly	SR	
invertebrate	*Rhyacophila mainensis*	A caddisfly	SR	
mollusk	*Elimia christyi*	Christy's elimia	E	FSC
mollusk	*Elliptio dilatata*	Spike	SC	
mollusk	*Fusconaia subrotunda*	Long-solid	SR	
mollusk	*Lampsilis fasciola*	Wavy-rayed lampmussel	SC	
mollusk	*Pleurobema oviforme*	Tennessee clubshell	E	FSC
mollusk	*Villosa iris*	Rainbow	SC	
mollusk	*Villosa trabalis*	Cumberland bean	SR	FE
mollusk	*Villosa vanuxemensis*	Mountain creekshell	T	
amphibian	*Ambystoma talpoideum*	Mole salamander	SC	
amphibian	*Cryptobranchus alleganiensis*	Hellbender	SC	FSC
amphibian	*Pseudacris brachyphona*	Mountain chorus frog	SC	
amphibian	*Desmognathus aeneus*	Seepage salamander	SR	FSC
amphibian	*Eurycea junaluska*	Junaluska salamander	T	FSC
fish	*Moxostoma sp. 2*	Sicklefin redhorse	SR	
fish	*Percina squamata*	Olive darter	SC	FSC
fish	*Sander canadensis*	Sauger	SR	
reptile	*Glyptemys muhlenbergii*	Bog turtle	T	FT (S/A)
reptile	*Sternotherus minor*	Loggerhead musk turtle	SC	

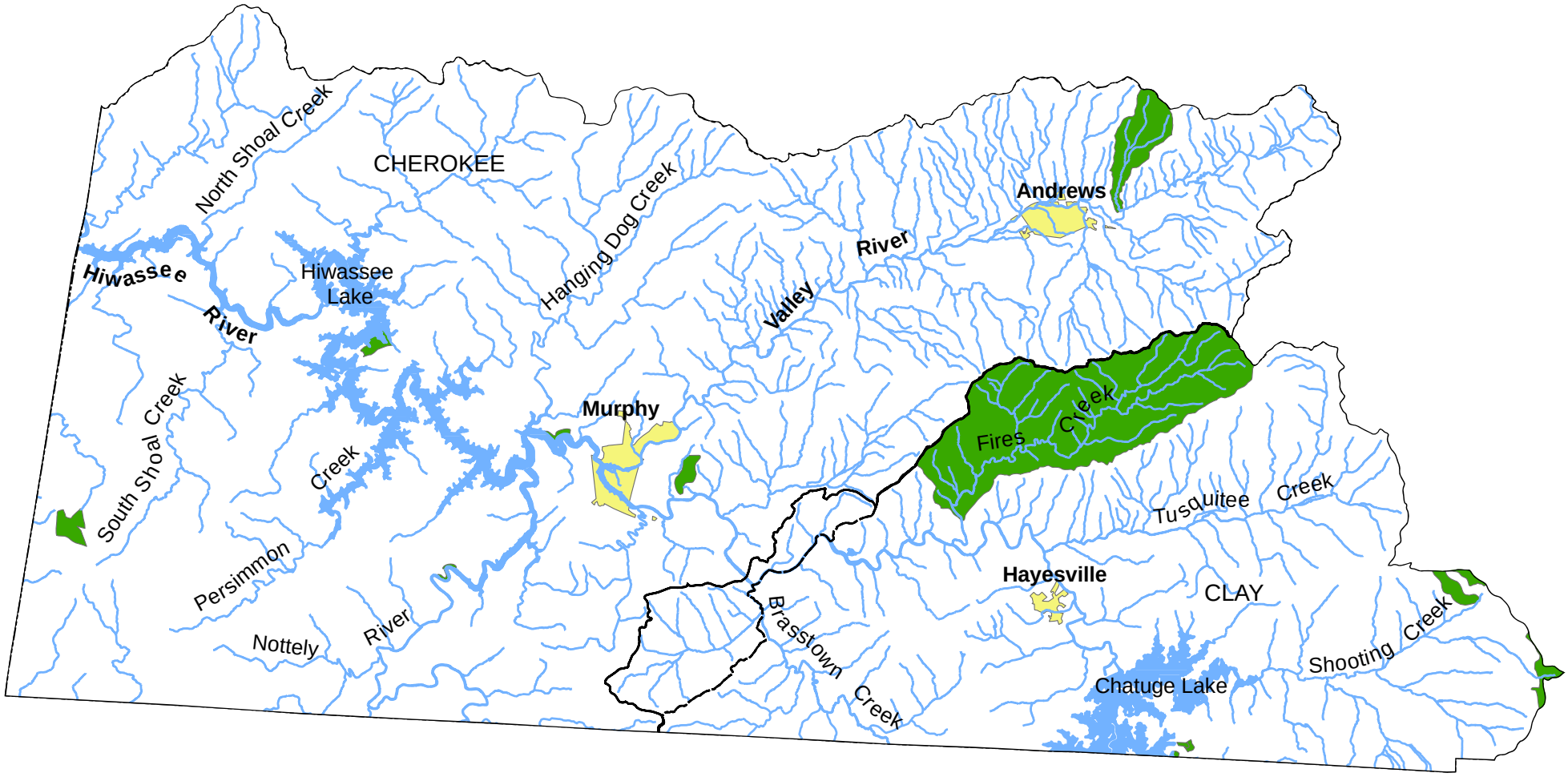
Rare Species Listing Criteria

E = Endangered (those species in danger of becoming extinct)
T = Threatened (considered likely to become endangered within the foreseeable future)
SR = Significantly Rare (those whose numbers are small and whose populations need monitoring)
SC = Species of Special Concern
FSC = Federal Species of Concern (those under consideration for listing under the Federal Endangered Species Act)
T(S/A) = Threatened due to similarity of appearance
EX = Extirpated

10.4 Public Lands

There are over 150,000 acres of land in the Hiwassee basin contained in the Nantahala National Forest and managed by the U.S. Forest Service (USFS). There are no state parks and no significant state land holdings in the basin. Forest Service land ownership is often fragmented and it is rare than any natural area falls under single ownership. The Fires Creek watershed is one of the exceptions and other than some private property near the mouth; the USDA Forest Service is the sole owner. Here, and in other significant natural areas that occur on U.S. Forest Service property, the USFS has been asked to manage in such a way to protect the natural features that make this area unique.

Figure 18 Significant Natural Heritage Areas in the Hiwassee River Basin



Planning Section
Basinwide Planning Unit
August 4, 2006