MACRO-SNAIL SURVEYS FOR CATAWBA-WATEREE RELICENSING

Prepared for

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Introduction

The Catawba River originates on the eastern side of the Blue Ridge Mountains in western North Carolina, with the resulting river initially flowing east, then south through the Piedmont of North and South Carolina. South of Great Falls, South Carolina, the Catawba River merges with several creeks to form the Wateree River, which flows through the Sandhills and upper Coastal Plain of South Carolina until it joins the Congaree River. The resulting Cooper/Santee rivers enter the Atlantic Ocean near Charleston, South Carolina.

Land use in the Catawba River Basin (12,266 km^2) transitions from forest in the mountainous Blue Ridge escarpment headwaters region to increasingly agricultural and urban as the river flows south. Population growth in the watershed is rapidly expanding; the 2000 census numbers totaled 1,494,485. Charlotte Metropolitan Area, the major urban area in the watershed, is the second fastest growing region in the country behind only Las Vegas, Nevada.

Land use in the Wateree River Basin is dominated by silviculture and agriculture with limited urbanization.

Beginning with Lake Wylie in 1904 and concluding with Lake Norman in 1963, Duke Power Company (hereafter referred to as Duke) constructed eleven reservoirs and thirteen powerhouses on the Catawba River. In North Carolina, these reservoirs are, from north to south: Lake James, Lake Rhodhiss, Lake Hickory, Lookout Shoals Lake, Lake

Norman, Mountain Island Lake, and a part of Lake Wylie in North Carolina. The South Carolina Catawba River reservoirs are a section of Lake Wylie, Fishing Creek Reservoir, Great Falls-Dearborn Reservoir, Cedar Creek Reservoir, and Lake Wateree (Figure 1). These reservoirs and their associated tailwaters exhibit a wide range of morphometric, hydrological, and water quality characteristics, especially in such characteristics as elevation, surface area, depth, morphology, retention time, and trophic status.

Clearly, the Catawba-Wateree River Basin is a working landscape. Urbanization, agriculture, silviculture, and reservoirs are dominant landscape features. Within this working landscape, native species continue to exist, some successfully and some with great difficulty. To assess potential impacts from hydroelectric facilities on freshwater macro-snails, Duke contracted with Alderman Environmental Services, Inc. to report on macro-snails collected during aquatic surveys within the Catawba and Wateree rivers and selected tributaries.

Methods

Macro-snails were collected and field identified during freshwater mussel surveys. In general, snails were collected by hand. Specimens of the Chinese mystery snail were provided by Duke Power Company employees from Lake Hickory, Lake Norman, and Fishing Creek Reservoir.

Results and Discussion

Five native freshwater macro-snail species were documented as extant within the areas surveyed for this project: *Elimia catenaria, Elimia proxima, Campeloma decisum, Helisoma anceps, and Leptoxis carinata*. Table 1 provides a list of species collected at the various survey sites, and figure 2 documents collection locations for each species. None of these species is considered rare or state listed in North Carolina or South Carolina (NCWRC 2004, SCDNR 2004). Site specific data are provided within Appendix 2 of the associated mussel survey report (Alderman 2005).

During previous surveys of the Catawba River Basin, North Carolina Wildlife Resources Commission biologists and other contracted biologists (NCWRC 2003) found 2 additional native species in North Carolina's Catawba River Basin: *Pseudosuccinea columella* and *Physella* sp. Both species are considered common in North Carolina.

One non-native macro-snail was documented during these surveys: *Cipangopaludina chinensis*. It was documented from Lake Hickory, Lake Norman, and within and below Fishing Creek Reservoir. This species, the Chinese mystery snail, is extremely abundant below the Fishing Creek Reservoir. The effects on native species are unknown.

Acknowledgements

Gene Vaughan provided invaluable assistance with all surveys. I appreciate the specimens of the Chinese mystery snail provided by Duke Power Company employees.

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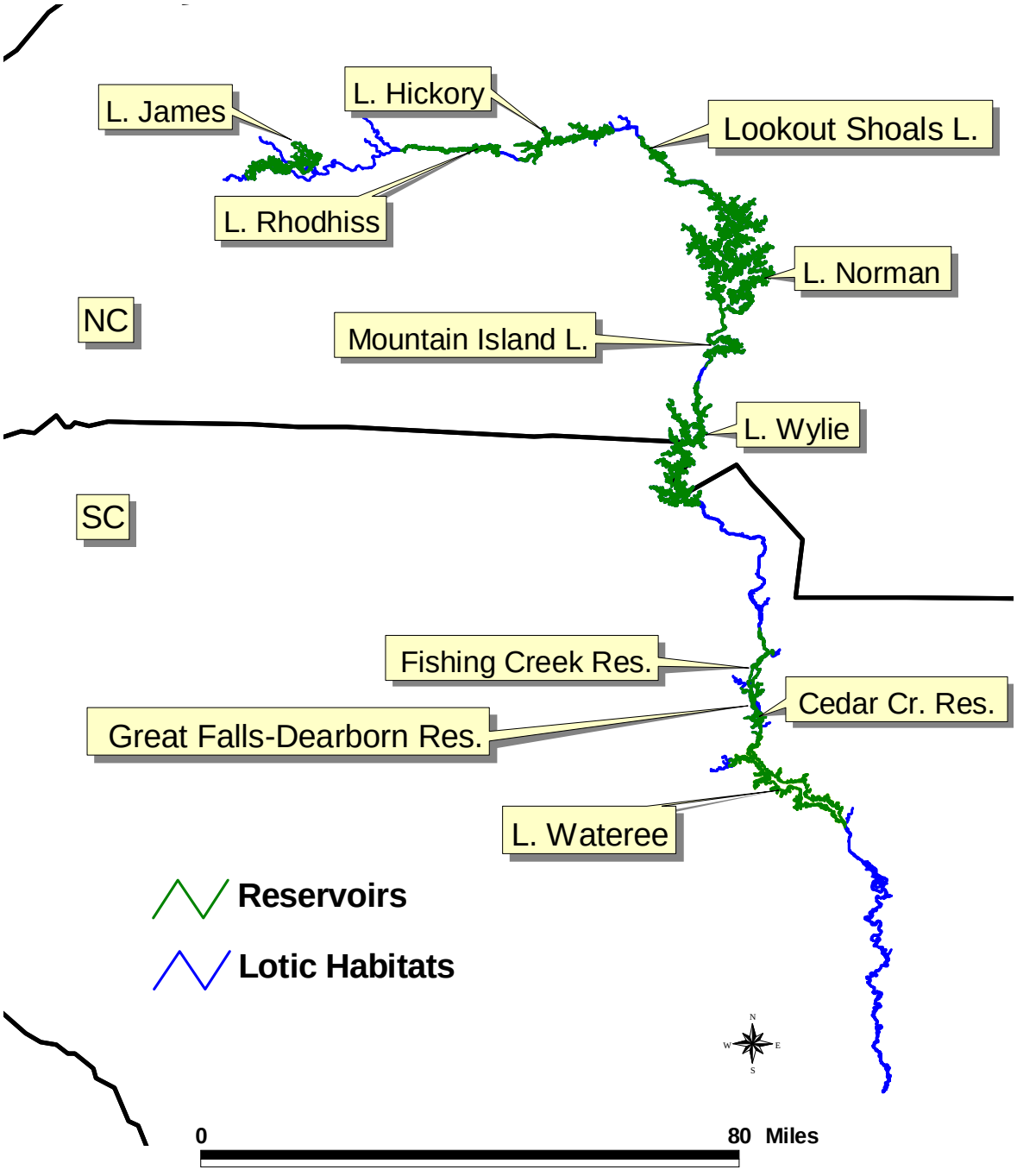

Figure 1. Lakes and reservoirs in the North and South Carolina study area

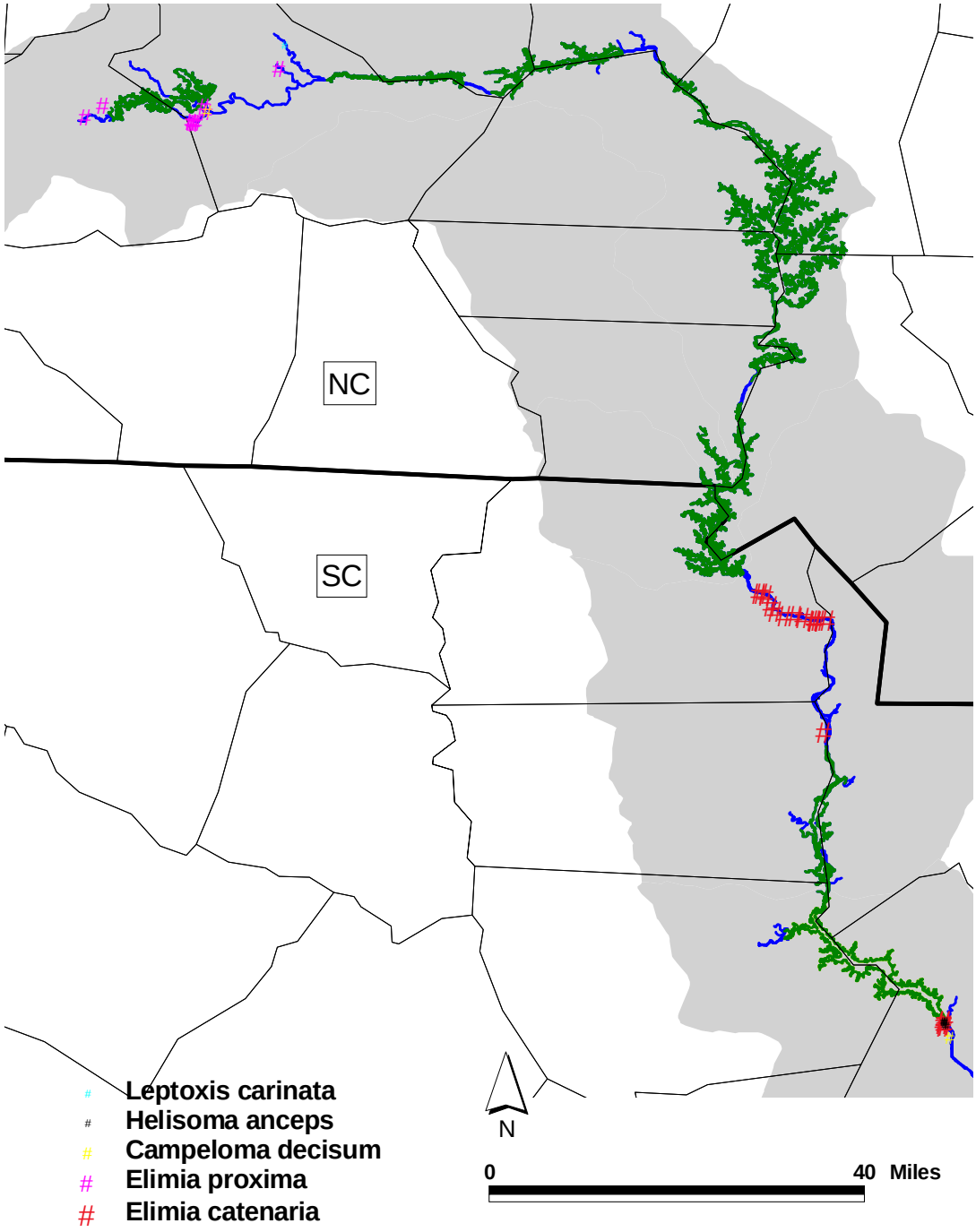

Figure 2. Native macro-snails collected within the North and South Carolina study area

Table 1. Native macro-snail survey results

Date	**Stream Name**	**County**	**State**	**River Mile**	**Species**
20040308	Catawba R.	McDowell	NC	296	*Elimia proxima*
20040308	N. Fk. Catawba R.	McDowell	NC	1.5	*Elimia proxima*
20031002 & 20041011	Catawba River Bypassed Reach	Burke	NC	~2.8	*Elimia proxima*
20040325	Bridgewater Tailrace	Burke	NC	277.6	*Campeloma decisum*
20040325	Bridgewater Tailrace	Burke	NC	278.3 to 277.6	*Elimia proxima*
20040309	Warriors Fk.	Burke	NC	3	*Elimia proxima*
20041012	Johns R.	Burke	NC	7.4	*Leptoxis carinata*
Several during 2004	Wylie Tailwater at 13 sites	York	SC	132-138	*Elimia catenaria*
20031001	Wylie Tailwater	Chester/Lancaster	SC	118.2	*Elimia catenaria*
20040706	Wateree River	Kershaw	SC	75-76	*Helisoma anceps*
20040706	Wateree River	Kershaw		75-76	*Elimia catenaria*
20041028	Wateree River	Kershaw	SC	74	*Campeloma decisum*