HAWLEY, JOANNA E. AND DENNIS C. HANEY. Furman University—Fish health in rural and urban streams within the Enoree and Saluda River basins, South Carolina.

The biological impacts of expanding urban land cover on streams are expected to intensify in the future. The loss of riparian vegetation, altered hydrological patterns, decreased channel stability, and increased levels of contaminants have been associated with degradation of stream communities in urban landscapes. Stream fishes may be especially susceptible to stresses imposed by urban land cover. Damage at the biochemical and physiological levels in fishes have been used by some previous studies as indicators of the quality of stream habitats and water quality. In this study, we measured a number of bioindicators at twelve stream sites in the upper piedmont of South Carolina, a region in which urban land cover is expanding rapidly. Locales selected were located downstream of primarily rural, residential, or commercial land covers and were chosen to detect potential effects of increasing levels of urbanization on fish health. Parameters measured included condition factor, erythrocyte count, hematocrit, hemoglobin concentration, and somatic indices. We also measured EROD activity and levels of acid phosphatase and lactate dehydrogenase in liver and muscle tissues. Erythrocyte counts, condition factor, liver somatic indices, acid phosphatase activity, mean corpuscular hematocrit, and mean corpuscular volume were significantly lower in fishes collected from commercial and residential sites than in fishes from rural sites. These differences demonstrate that urban land cover influences fish health negatively and point out the need for improved management of urban streams.