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Union County, SC, is considering a plan to dam the Tyger River just north of its confluence with the lower Broad River, and to develop a lake-front residential community. The proposed dam would flood approximately 5,300 acres of piedmont forest and floodplain habitat along the Tyger River and Fairforest Creek, including over 3,000 acres of public land in Sumter National Forest. The purpose of our study was to describe the existing biotic communities in this area. Riparian plant assemblages and quality assessments of riparian habitats, along with the distribution, diversity and abundance of fish and aquatic insects, were compared at sites upstream, downstream and within the proposed lake area. Measurements of water chemistry (pH, temperature, dissolved oxygen, turbidity, and major anions and cations) also were made at each site. Quality of riparian habitat was generally highest in sites that would be flooded by the proposed dam. Multivariate analysis shows that biological and chemical data cluster into three groups: Fairforest Creek sites, Tyger River sites upstream of the confluence with Fairforest Creek, and Tyger River sites downstream of the confluence. While the insect communities in the Tyger River and Fairforest Creek are similar to those seen in nearby Enoree River drainages, the fish communities in the Tyger River and Fairforest Creek are significantly more diverse than those in the lower Enoree. Also, the chemical profile in Fairforest Creek indicates possible eutrophication from an upstream wastewater treatment plant. These results suggest dam construction may have negative consequences for local biota.