We collaborate within Western Carolina University, as well as with Highlands Biological Station and other regional institutions, in education, research, and outreach focused on the ecology and biotic diversity of the Southern Appalachian region.

**CONTACT**

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www.wcu.edu/as/biology/

**MISSION**

to serve as a regional resource for education, research, and service focused on biodiversity and ecology of mountain ecosystems of western North Carolina and surrounding areas.

**ECOSYSTEM NATURAL CONSERVATION**

**Biodiversity**

**Plants**

**Animals**

**Conservation**

**Natural Resources**

**Ecosystems**

**Western Carolina University**

SABEC

Southern Appalachian Biodiversity & Ecology Center

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**SABEC**

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Our students take classes and conduct research to explore biodiversity of the western North Carolina region over scales from microscopic to the landscape. Recent research, highlighted below, includes diversity inventories; the ecology of threatened species; the interactions of exotic species and pathogens with native ecosystems; and the effects of changing land use on biodiversity.

**Diversity Inventories**
These studies include bacterial and archaean diversity in Great Smoky Mountains National Park, microbial diversity in the root zone of hemlock trees, and the Odonata of Panthertown Valley, which contains the largest remaining southern hemlock groves. Works across the increasingly fragmented western NC landscape; stream meiofauna and macro-invertebrate response to sedimentation; location and potential harvest effects on population structure of the medicinal plant fairy wand (Culastrum orbiculatus); comparative studies of native and hatchery-derived populations of brook trout; factors influencing fish communities in restored and unrestored reaches of a formerly polluted river; and habitat fragmentation effects on fishes in Southern Appalachian streams.

**Endangered Species**
Research includes pollinator diversity and pollination patterns in the endemic rock outcrop plant *Houstonia montana*; distribution limits and shoot plasticity of Appalachian violet, a species of concern in USFS region 8; and the foraging habitat of a disjunct population of the endangered northern flying squirrel.

**Exotic Species**
Studies include mycorrhizal fungi effects on the exotic invasive plant oriental bittersweet (*Celastrus orbiculatus*); the effect of roads on the distribution of the exotic grass *Microstegium vimineum*; changes in red oak (*Quercus rubra*) population genetic diversity associated with different management regimes and following the loss of chestnut (*Castanea dentata*); and effects of control for hemlock woolly adelgid on arthropod and bird communities.

**Land Use**
Studies include golf course effects on connectivity across the increasingly fragmented western NC landscape; stream meiofauna and macro-invertebrate response to sedimentation; location and potential harvest effects on population structure of the medicinal plant fairy wand (*Culastrum orbiculatus*); comparative studies of native and hatchery-derived populations of brook trout; factors influencing fish communities in restored and unrestored reaches of a formerly polluted river; and habitat fragmentation effects on fishes in Southern Appalachian streams.

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