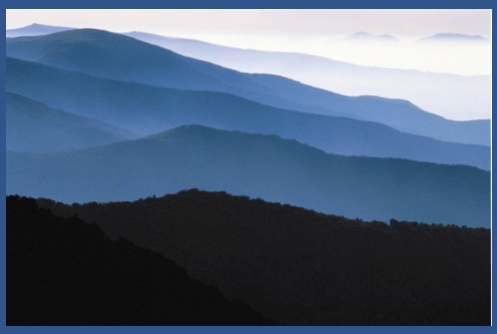
Open Space Institute

Southern Appalachian Conservation Assessment



Black Mountains
Photo by Kevin Adams

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Executive Summary and
Regional Overview

Executive Summary

The Southern Appalachian Mountains are one of the most ecologically significant regions on Earth, a 40 million-acre ecosystem that includes parts of North Carolina, Tennessee, South Carolina, Alabama and Georgia. The region contains globally significant biological diversity, including many species of plants and animals that are found nowhere else on the planet. Its watersheds – headwaters for many major rivers of the southeast – provide drinking water for 10 million people while its forests and parks – including most prominently Smoky National Park – provide recreational opportunities for millions more.

Although about two thirds of the region's lands are in public ownership, a significant amount of private land in high priority conservation areas remains unprotected. These lands include a mix of higher and lower elevation forests, riparian areas and wetlands that harbor both an astonishing array of plant and animal life and sustain a range of economic activities that include forestry, agriculture, mining and a growing recreational industry. A considerable amount of planning by public and nonprofit organizations has identified priority landscapes and specific projects.

Private lands in the Southern Appalachians are facing a growing array of threats that could undermine the region's natural heritage. As delineated in the Forest Service's comprehensive Southern Forestland Assessment, the greatest threat comes from subdivision and development and road building – activities that fragment wildlife habitat, disrupt ecological process, remove land from productive timber and agricultural use and, in some instances, alter the social fabric of communities. Timber harvesting represents another important threat as logging intensifies in the South, which has become the nation's wood basket and now accounts for more wood production than any other country outside the U.S. Invasive species and alien pests also pose a major threat in the region.

While several hundred thousands of acres of private land have been conserved in the Southern Appalachians in the last 10 years, the land trust leaders and public officials interviewed for this assessment recognize that the current rate of conservation is inadequate to meet the challenge of the coming decade. Instead, new approaches, increased capacity and additional capital – both permanent and interim – will be needed.

This assessment analyzed the demand for interim capital, potential borrowers, likely "take-out" financing, promising projects and geographic priorities of the region's land trusts. Its findings are based on analysis of conservation plans of public agencies and nonprofit organizations and interviews with more than 50 land trust leaders, public officials and other conservation figures.

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Roan Mountain
Photo by David A. Ramsey
Compliments of Southern Appalachians Highlands Conservancy

The report analyzed three primary focus areas within the Southern Appalachians: the Southern Blue Ridge, a nine-million-acre area principally in North and South Carolina that contains the highest, most biologically significant land with the greatest amount of public ownership; the Ridge and Valley (20 million acres), which stretches from West Virginia through Tennessee to Alabama and contains little conserved land and growing development; and the Cumberland Plateau (10 million acres), the most remote region located primarily in Tennessee with very little conserved land and a chronically poor economy long dominated by natural resource extraction, including coal mining and intensive forestry.

While there are still large blocks of land to be protected in the Cumberlands, there is very little public funding and land trust capacity. The Ridge and Valley contain important projects but less conserved land upon which to build and similarly less capacity. The Southern Blue Ridge offers the strong foundation for further protection, but the average parcel size is smaller and land prices are rising with growing second home development.

Key findings from the assessment include:

- There appears to be significant demand for loan capital for a range of current high priority conservation projects in North Carolina, Alabama, and Tennessee that would protect headwaters of major rivers, enhance, buffer or connect existing public lands or protect wetland systems.

- Yet outside of national groups, there is fairly limited capacity at regional land trusts, most of which are less than 10 years old and have operating budgets of less than $500,000. Of the 30 land trusts operating in the entire region, there are perhaps 10 capable right now of securing loans from OSI.

- There is demand for “secured” loans (usually via real estate because of lack of financial assets), but there likely would be many more borrowers were OSI to possess a more flexible source of capital, e.g., program related investments that OSI has raised in New Jersey.

- Demand for interim capital is almost always linked to the availability of public funding, which varies sharply from state to state. Federal funding is important, but state dollars tend to play a more important role.

- The Southern Blue Ridge is a likely initial focus because of the presence of significant public funding and greater land trust capacity, though projects of regional, even national significance exist in the other regions and could present OSI with high value loan opportunities.

- North Carolina represents a logical entry point because of major public funding (about $150 million annually, about $50 million for the mountains).

The assessment recommends that OSI establish a low-interest revolving loan fund either on its own or in partnership with an existing conservation organization and that it focus initially on the Blue Ridge but remain open to loan requests in the other two regions. In addition, the assessment recommended that OSI should:

- Consider raising more flexible PRI capital to augment loan capital available from use of OSI’s endowment and potentially reduce the need to “secure” every loan. Implicit is the need for

OSI, within reason, to assume greater risk in its underwriting criteria to help complete challenging projects.

- Investigate later on the feasibility of raising grants fund to regrant to other land trusts for permanent acquisition capital, as OSI has done in the Northern Forest. However, the assessment cautions that were OSI to pursue this option, it should focus on raising some portion of funding, both operating and capital, from national foundations so as not to siphon resources away from local groups.

- Become more involved in helping to strengthen regional land trusts by assisting in the structure and implementation of specific land acquisition projects. OSI should assist, if possible, regional land trusts in expanding the use of conservation buyers to help protect landscapes that may not be protected any other way.

An Overview of the Southern Appalachians: Three Subregions

Three distinctive subregions, the Blue Ridge province, the Ridge and Valley province, and the Cumberland Plateau province have different histories that have created distinctive differences. Differences in underlying geology and landforms have created distinct subregions of the Southern Appalachians, with disparate biological diversity, human history and current land uses, and conservation needs and opportunities. A discussion of these subregions will help tie all the pieces back together.

The Blue Ridge

Subregional natural history: The Blue Ridge Mountains are the oldest portion of the Southern Appalachians. They are composed largely of Paleozoic metamorphic and igneous rocks, thrust up in mountain-building events that pre-dated multicellular life forms. Now, the gneisses and schists, granites and quartzites have weathered to rounded mountains with relatively little exposed rock. Soils are highly weathered and are generally highly acidic, though areas of richer soil do occur. The Blue Ridge has the highest elevations in the Southern Appalachians (and indeed in eastern North America), topping out at 6686 feet on the summit of Mount Mitchell, the highest peak of the Black Mountain range. The Blue Ridge has the most rugged topography, the highest elevations, the highest rainfall, and a greater number of endemic plants and animals than the other subregions. Biological diversity is concentrated at the highest elevations, in scattered bogs, and in the escarpment gorges near the North Carolina/South Carolina/Georgia tricorner.

Subregional threats and conservation: Because of the rugged topography and the colder climates and acidic soils, the Blue Ridge escaped logging to a greater degree and to a later period than did the sedimentary rock subregions to the west, but eventually the great majority of the subregion was logged. Logging practices and concern about the scenery and timber resources of the region led to substantial acquisition of public lands in the 1910-s to 1930's, including by the National Park Service (Great Smoky Mountains National Park, Blue Ridge Parkway) and the U.S. Forest Service (Pisgah, Nantahala, Cherokee, Jefferson, Chattahoochee, and Sumter national forests). These public lands have helped conserve the region, and today the Blue Ridge has more land in conservation status than most regions of eastern North America.

Still, many conservation challenges remain. Wetlands are very poorly conserved, and are largely in valley bottoms and on private land where they are vulnerable to a wide variety of destructive forces.

New threats are challenging conservation in the region. Private lands are under new pressure for the development of second home and retirement communities. The construction of new interstates and 4-lane highways is making portions of the Blue Ridge much more accessible to population centers in the Piedmont, leading to development pressures, increases in tax valuations, and increased land prices. Invasive plant species and pests are threatening the integrity of forests. Introduced pests and pathogens are threatening to do to hemlocks, beeches, and dogwoods what they did in the first part of the 19th century to the American chestnut. Increasing fragmentation and recreational uses are introducing aggressive alien plants like garlic mustard, which can replace the diverse wildflower havens of the coves with monocultures.

Many meaningful land conservation opportunities remain in the Blue Ridge, but they consist primarily of filling gaps in a rather strong conservation network and completing ongoing conservation projects (the Roan Highlands, the Amphibolites, adding to the Blue Ridge Parkway corridor, the Appalachian Trail corridor, increasing the size of current preserves). Ongoing issues also remain with assuring the appropriate management of existing public lands (U.S. Forest Service, National Park Service, state wildlife management and game lands, etc.).

The Ridge and Valley

Subregional natural history: The Ridge and Valley (sometimes conversely known as the Valley and Ridge!) is the second oldest portion of the Southern Appalachians and lies in a northeast-southwest trending band immediately west of the Blue Ridge. The name is descriptive of the most obvious feature of the subregion: the alternating and parallel flat-bottomed valleys and sharp ridges. These valleys and ridges are the result of geologic folding of flat-lying sedimentary rocks (sandstone, limestone, siltstone, shale, and coal), followed by differential erosion. This means that the valleys consist primarily of the softer, more easily degraded limestones and shales, while the ridges are characteristically the more resistant sandstones.

The geologic diversity makes for a complex set of communities and species adapted to different rock types and soil conditions. The biological diversity of the subregion is concentrated in the rivers and streams, the caves and karst systems, and a variety of glades, barrens, prairies, and wetlands of relatively small extent.

Subregional threats and conservation: The Ridge and Valley presents a strikingly different picture in terms of threats and conservation than the Blue Ridge. The fertile farm lands of the valleys was cleared for crops and pasture in the late 1700's and early 1800's, and the linear valleys also served as transportation corridors from pre-European settlement to the present – an Indian path became the colonial Valley Turnpike, which later became and then Interstate 81. These transportation corridors have then attracted industrial and residential development.

The subregion has very little conservation land, and no large blocks conserved. The largest blocks are some isolated districts of the Chattahoochee National Forest in Georgia and the Talladega National Forest in Alabama. Few large-scale opportunities for landscape conservation are evident, but many important conservation goals remain to be met, including safeguarding some of the richest aquatic biological diversity sites on the plant, such as the Clinch-Holston system.

The Cumberlands

Subregional natural history: The Cumberlands consist of the relatively high and rugged Cumberland Mountains and the lower elevation Cumberland Plateau, a large sandstone table-land

dissected by rivers. This is the most remote and western subregion of the Southern Appalachians, with a chronically poor economy long dominated by natural resource extraction -- the iconic “Appalachia” of movies, novels, and sociology studies, with small communities of coal miners isolated in “hollers.”

The biological diversity is concentrated in the rivers and gorges, in the large landscape blocks of forest, and in specialized glades and barrens.

Subregional threats and conservation: Relatively little land is in conservation status. A few large blocks are conserved, including the Big South Fork National River and Recreation Area, on the Tennessee-Kentucky border, created in the early 1980’s and administered by the National Park Service, and the Bankhead National Forest in northwestern Alabama. Many large-scale conservation opportunities remain in the region (as well as an even greater number of small and medium scale projects), but the window is closing for conserving large landscapes. The rapid expansion of industrial forestry in the region is leading to wholesale conversion of plateau top forests, planting of regional exotics such as loblolly pine, and chipping of hardwood forests for export. It is perhaps in this subregion where the opportunity for dramatic conservation successes is greatest.