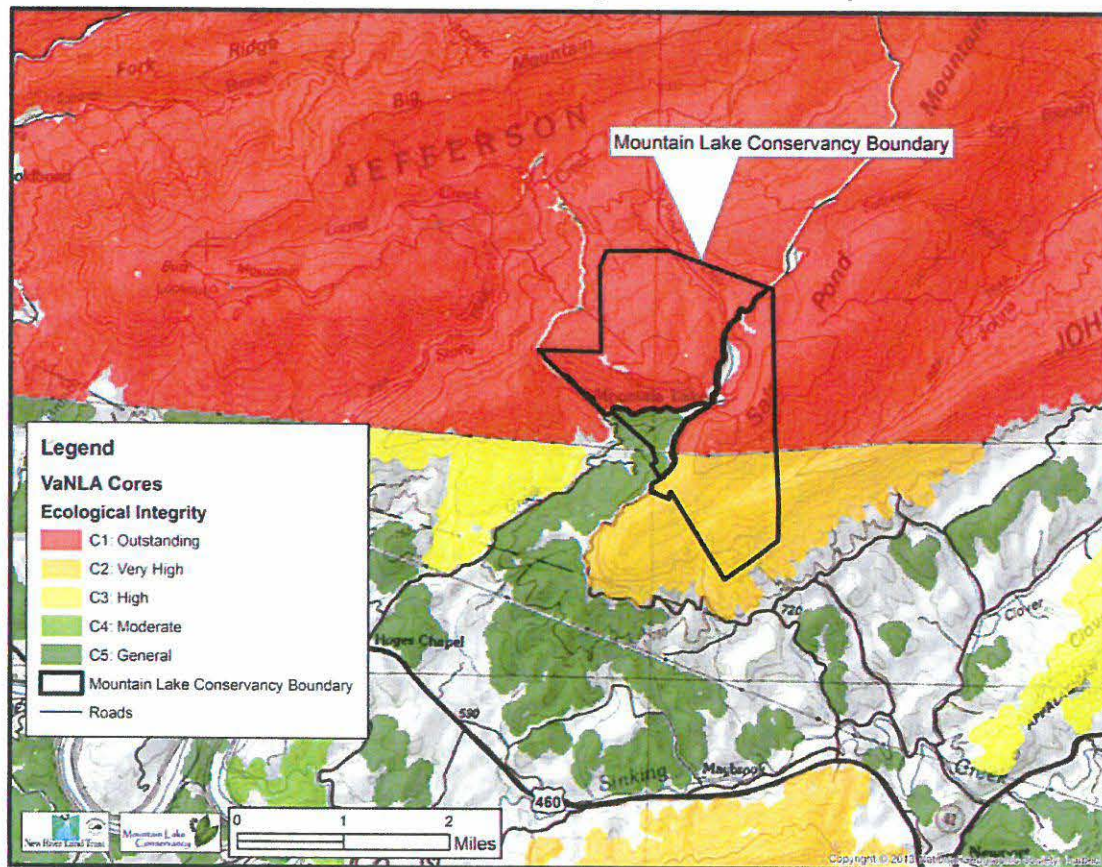


## Background and Ecological Significance

This section places the conservation value of the property in a state and regional context as well as describing the basic ecological characteristics of the property. The property stands out as important in both state and regional assessments. **The bulk of the property ranks as having outstanding and very high ecological integrity** based on the Virginia Department of Conservation and Recreation's (DCR) Virginia Natural Landscape Assessment (VNLA) (DCR, 2007). The ecological integrity map is shown below.

Virginia Natural Landscape Assessment Map

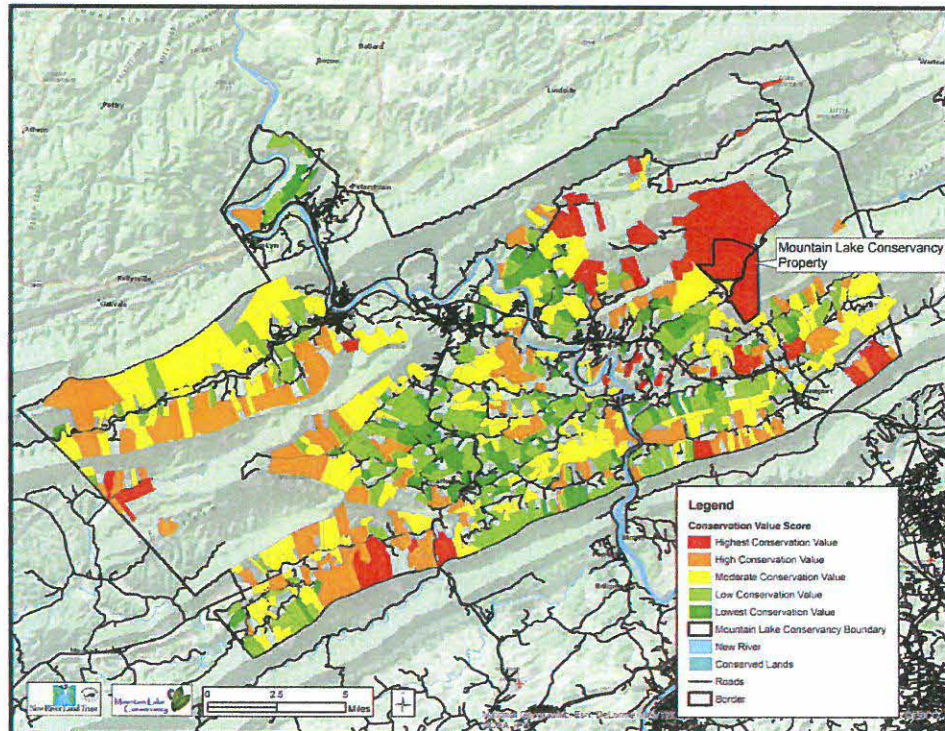


(DCR, 2007)



The property has multiple conservation resources and **ranks as a highest conservation priority for properties in the NRLT's seven county service area**. This ranking is based on the New River Land Trust's (NRLT) Prioritization and Green Infrastructure Demonstration Project funded by a grant from the Virginia Department of Forestry (NRLT, 2012). The project map for Giles County is shown below.

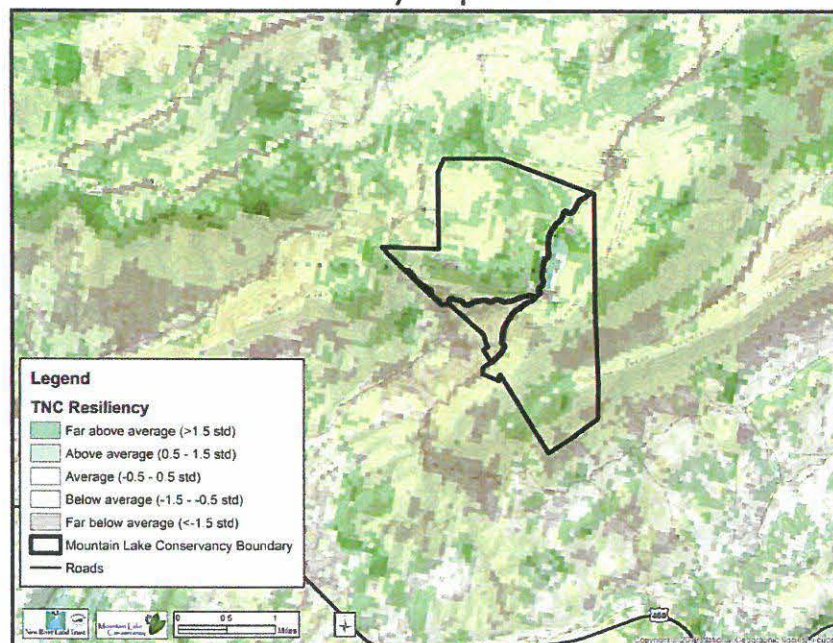
**Giles County Conservation Prioritization Map**



(NRLT, 2012)

According to a study by The Nature Conservancy, **portions of the property rank high to highest for resiliency to climate change and it is located in one of TNC's Central Appalachian focal areas**. (Anderson et al, 2012). The Resiliency Map is shown below.

**Resiliency Map 2012**





## Climate

As can be seen in the Topography Map below, the bulk of the property encompasses two 4000 foot high Appalachian mountains with the Lodge and Lake, sitting in a bowl area between these high points and high mountain ridge of Big Mountain to the north. This combination of high elevation and tight valley landform create a rare microclimate that tends to be distinct from the surrounding landscape.

The property tends to experience higher precipitation including snow in the winter, noticeably lower temperatures, high winds on the mountain tops, and low humidity. A Precipitation Map can be found in the Maps and Tables Appendix. This lends the property to being a great spot for outdoor recreation in the winter and an excellent mid-summer recreation destination in hot summer months. The microclimate also contributes to the presence of numerous rare species and habitat types.

## Geology

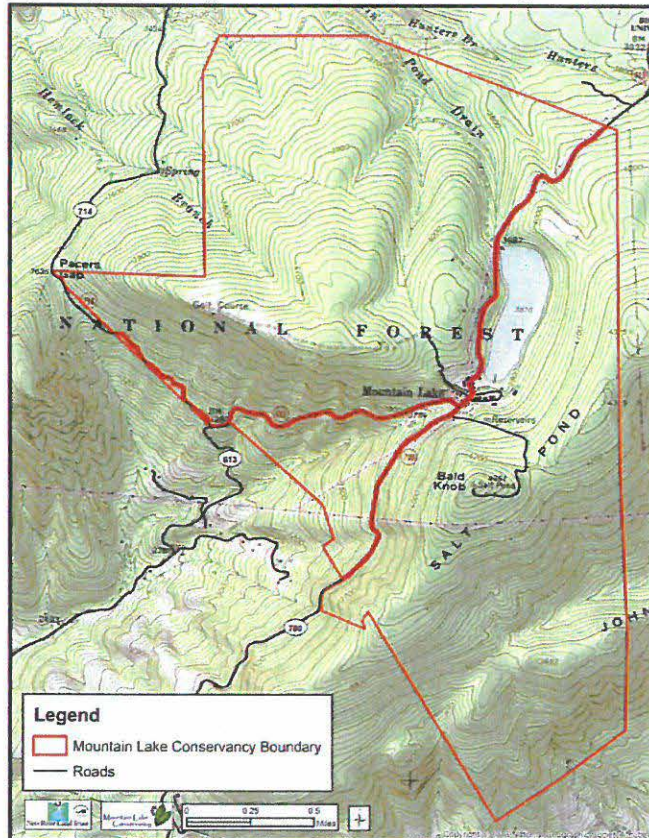
This geology summary is thanks to local geologist Phil Prince. Mountain Lake is underlain by sequences of sedimentary rocks (limestone and dolomite, shale, and sandstones) ranging in age from over 500 million years to approximately 380 million years. These rocks formed from thick (many kilometers) accumulations of varying types of sediment which were deposited on the ocean floor on the submerged edge of Laurentia, an ancient continent whose remnants make up much of modern-day North America. Compaction and other processes turned these sediments into sedimentary rock layers which would ultimately be folded, faulted, and uplifted during growth of the high Appalachians 350-290 million years ago. Subsequent erosion of these folded and faulted layers has produced the Valley and Ridge province, whose namesake topography is very distinct when viewed on topographic maps.

Central to understanding the development of this topography is an understanding of the various rock types present in the area. Their differing compositions, and thus differing resistance to erosion, permit the formation of ridges and valleys as folds are worn away by erosion (Prince, 2013). A Geology Map and Table can be found in the Maps and Tables Appendix.

## Orientation and Topography

The property is generally rectangular in shape, oriented north to south and bounded on all sides by forested land including the Jefferson National Forest. The topography of the property can be seen in the Topography Map to the right. The elevation of the property ranges from 2800 to 4361 feet above sea level. The topography is moderately steep to very steep; the summit of Bald Knob is in the approximate center of the property, and at 4361 feet it is the highest elevation found on the property.

**Topography and Property Boundary Map**



(NRLT, 2013)



The property is primarily upland slopes. Although it has a full range of slope aspects, the steepest slopes are primarily southeast and southwest facing slopes. A Slope Map can be found in the Maps and Tables Appendix.

Bald Knob overlooks the Lake providing visitors with a spectacular view of the New River Valley. On a clear day, Buffalo Mountain in Floyd County can be spotted from the Knob. Salt Pond Mountain and adjacent Butt Mountain are two of the area's most prominent ridges. Their shapes are easily distinguishable and provide landmarks for local residents who may view them from just about any high mountaintop in the New River Valley.

#### **Bald Knob Vista**



(NRLT, 2013)

#### **Butt Mountain Vista**



(NRLT, 2013)

### **Soils**

Soil characteristics significantly influence the property's forest stand types and understory vegetation. The Lily-Bailegap Complex soils comprise approximately 61% of the tract underlying the gentle to steep slopes adjacent to Mountain Lake and the upper slopes of Salt Pond Mountain. These soils are well drained, relatively deep, very stony in places, and have moderate to moderately high productivity for trees on north-facing slopes.

Jefferson Variant and Drall soils comprise approximately 20% of the property. These soils underlay the Johns Creek area and are on steep to very steep slopes, well to excessively well drained, very stony in places, and of moderately high to high productivity for trees on north-facing slopes.

The steep slopes in the Doe Creek subwatershed are of Nolichucky soils comprising approximately 13% of the property which are very deep, well drained, very stony in places (especially along the upper stream channels), and of moderately high productivity for trees. The remaining soils include Berks very stony silt loam, Faywood silt loam, Gilpin silt loam, Lily gravelly sandy loam, and Sequoia silt loam. A Soils Map and Table can be found in the Maps and Tables Appendix.