

Landscape Strategy

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Overview

The Grandfather Project Area is among the most important landscapes for conservation and ecological restoration in the U.S. The Grandfather Project Area includes a portion of the Blue Ridge Parkway, which totals over 1400 species of vascular plants, 250 breeding bird species, 50 species of fish (42 native), 35 reptiles, 42 species of amphibians, and over 50 species of mammals; a large subset of those species and several additional species can be found in the project area.

The Blue Ridge Escarpment is extremely biodiverse for the temperate zone and has an abundance of vegetation types. The North Carolina Natural Heritage Program lists 41 natural communities that potentially occur in the Grandfather Project Area (Schafale & Weakley 1990). NatureServe lists 67 vegetation alliances and 116 vegetation associations as occurring in Nantahala and Pisgah National Forests, the majority of which can be found in the Grandfather Project Area (NatureServe 2002).

The Grandfather Project Area includes several of the most important conservation areas in the Blue Ridge Mountains: Linville Gorge, Grandfather Mountain and Wilson Creek. Grandfather Mountain supports more Threatened and Endangered species (6) than any other site of comparable size in the North Carolina Mountains. Linville Gorge Wilderness is a popular recreation area, is home to endemic fire adapted species, and is threatened by fire suppression and non-native invasive species. Wilson Creek is a Wild and Scenic River and is one of the most popular trout streams and outdoor recreation sites in North Carolina.

The Grandfather Project Area is also among the most fire adapted landscapes in the Blue Ridge Mountains. According to Ecological Zone modeling, 64% of the project area, including 69% of Forest Service land, is fire adapted (Simon 2008). Like many areas under forest ownership, these fire adapted forests are severely fire suppressed with very high fuel loads. Fire associated wildlife species that are management targets are declining across the region and require management action to reverse that trend.

Like much of the Blue Ridge Province, the geology of the Grandfather Project Area is complex and includes metamorphosed rock of sedimentary, igneous, and uncertain origins. One of the most unique geologic formations in North Carolina is the Grandfather Window, which occupies the central portion of the Project Area and includes calcareous minerals like dolomite and greenstone that are rare in the Blue Ridge.

The Grandfather Project Area is very important to the local economy. According to a study commissioned by collaborating partner Wild South, tourism dependent on outdoor

recreation such as hunting, fishing, hiking, mountain biking and scenic driving accounted for over \$312 million of economic activity and 4,190 jobs in the portion of the project area including Avery, Caldwell and Watauga counties. A 2006 study by the North Carolina Wildlife Resources Commission reinforces these findings, noting that 19% of frequent hunters and 52% of trout anglers in North Carolina frequent Pisgah National Forest.

In addition to its commercial importance, the project area encompasses the headwaters of the Catawba River, the most densely populated river basin in North Carolina. Over 1.4 million people live in the Catawba Watershed in North Carolina. The Catawba feeds eight hydroelectric reservoirs in North and South Carolina and provides water for hundreds of thousands of Carolinians.

Strategy

The Landscape Strategy for the Grandfather Project is based on three years of collaboration by local stake holders to develop restoration priorities for Nantahala-Pisgah National Forests. The priorities of the Nantahala-Pisgah Restoration Working Group are:

- Restoring rare natural communities and rare species
- Restoring native plant communities by controlling invasive species
- Restoring stream systems and watersheds
- Restoring fire-dependent and fire-adapted ecosystems
- Restoring diversity in low-diversity forest stands
- Restoring wildlife habitat

In order to accomplish measurable results in each of the above categories, the Grandfather Restoration Collaborative has a clear strategy for success:

- 1) Identify conservation threats and rank their urgency
- 2) Identify methods for responding to threats
- 3) Deploy the most effective and affordable methods to address the most urgent threats

Several threats have been identified by the Grandfather Collaborative thus far, including climate change, fire exclusion/suppression, non-native invasive plants, hemlock woolly adelgid, and lack of high-quality early successional habitat. Of these threats, lack of fire, hemlock woolly adelgid, and non-native invasive plants have been identified as having consensus for action and methods for achieving results.

Through the Blue Ridge Fire Learning Network, a controlled burn prioritization model was created for the Grandfather Ranger District, which is the centerpiece of the Central Escarpment Demonstration Landscape. The model prioritizes potential controlled burn areas with existing or planned fire control lines using ecological criteria. Criteria included in the model are acreage of yellow pine forest, acreage of oak forest, rare fire-adapted species, quality examples of fire adapted vegetation identified by the NC Natural Heritage Program, and managed wildlife openings that could be maintained with fire.

Pine forest is given three times the weight of oak forest in the model because of dendrochronological data supporting more frequent fire in pine forests and because of the broader range of site conditions occupied by oak forests (Flatley & Lafon 2010; Natureserve 2002).

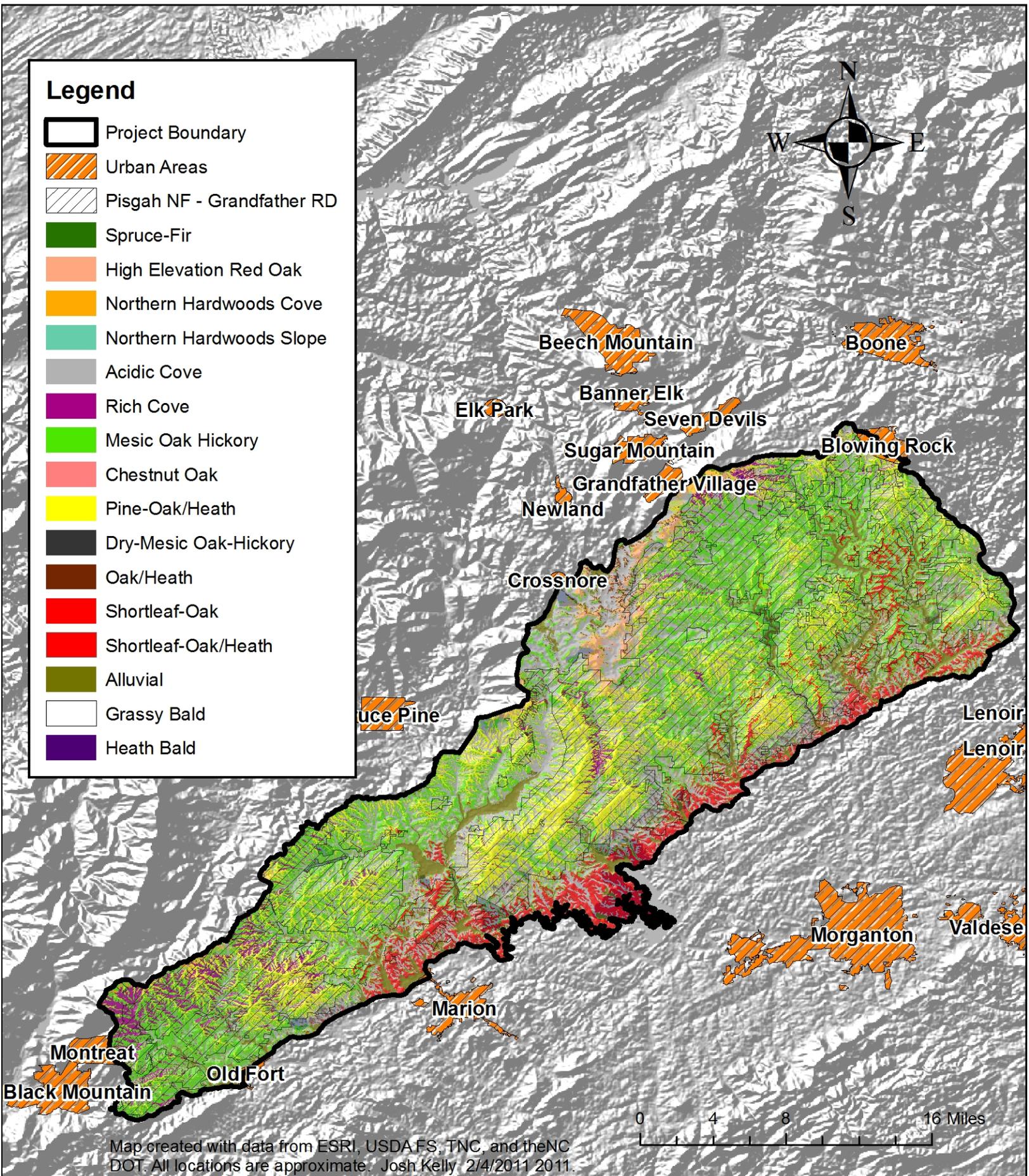
The result of the controlled fire prioritization model is that 42 potential burn units totaling 95,133 acres have an ecological score that, when combined with logistical considerations, allows the areas most deserving of fire from an ecological standpoint to be burned, rather than the most convenient areas. Three of the top four scoring burn units overlap Linville Gorge Wilderness. Examining the ecological scores and weighing human values, it was determined that the Grandfather Ranger District needed to average at least 6507 acres of controlled burning annually to reduce fuel loads in the Wildland Urban Interface, restore habitat for globally and locally rare species, and maintain the highest priority fire adapted natural communities. Within the budget of the Grandfather CFLR Proposal is the funding to increase prescribed burning from its current level of nearly 2000 acres annually to over 6500 acres annually. CFLR funding would allow the Grandfather Ranger District to restore over 30,000 acres of fire adapted vegetation in a 10 year period and be on a trajectory to restore nearly 70,000 acres using fire in the next 20 years.

In the case of non-native invasive plants (NNIPs), human values and conservation priorities have also been considered when identifying priorities for action, though no prioritization model has been created. As with the fire prioritization model, Linville Gorge Wilderness is among the highest priorities for treatment of non-native invasive plants because of the high-quality of the natural communities there and the concentration of rare species that are being impacted by NNIPs. Another high profile area for treatment is the riparian vegetation of Wilson Creek Wild and Scenic River. Wilson Creek is a beloved recreational stream and there are resources and relationships in place between State, Private and Federal land owners to take an all lands approach towards eradicating Japanese knotweed (*Reynoutria japonica*) from the watershed.

A prioritization model for saving hemlocks from hemlock woolly adelgid has recently been completed. The model prioritizes treatment based on the size, quality, rare species, species of hemlock (eastern or Carolina), distribution, and local significance of potential treatment areas. Because Carolina hemlock is weighted in this model and the Grandfather Project area is the center of distribution for Carolina hemlock, many of the highest priority areas for treatment occur in the Grandfather Project Area, including sites at Linville Falls, Hawkbill Mountain and Dobson Knob.

To further develop a conservation strategy for the project area, it is the intention of the Grandfather Restoration Collaborative to complete an Enhanced Conservation Action Plan (ECAP) that will identify further restoration needs and the most cost-effective methods for addressing those needs. The ECAP process uses the Vegetation Dynamics Development Tool to forecast management scenarios for each vegetation type in a conservation area and allows land managers to choose conservation strategies based on efficacy and return on investment. It is expected that the ECAP process would enhance the success of the treatment strategy for the Grandfather Restoration Project.

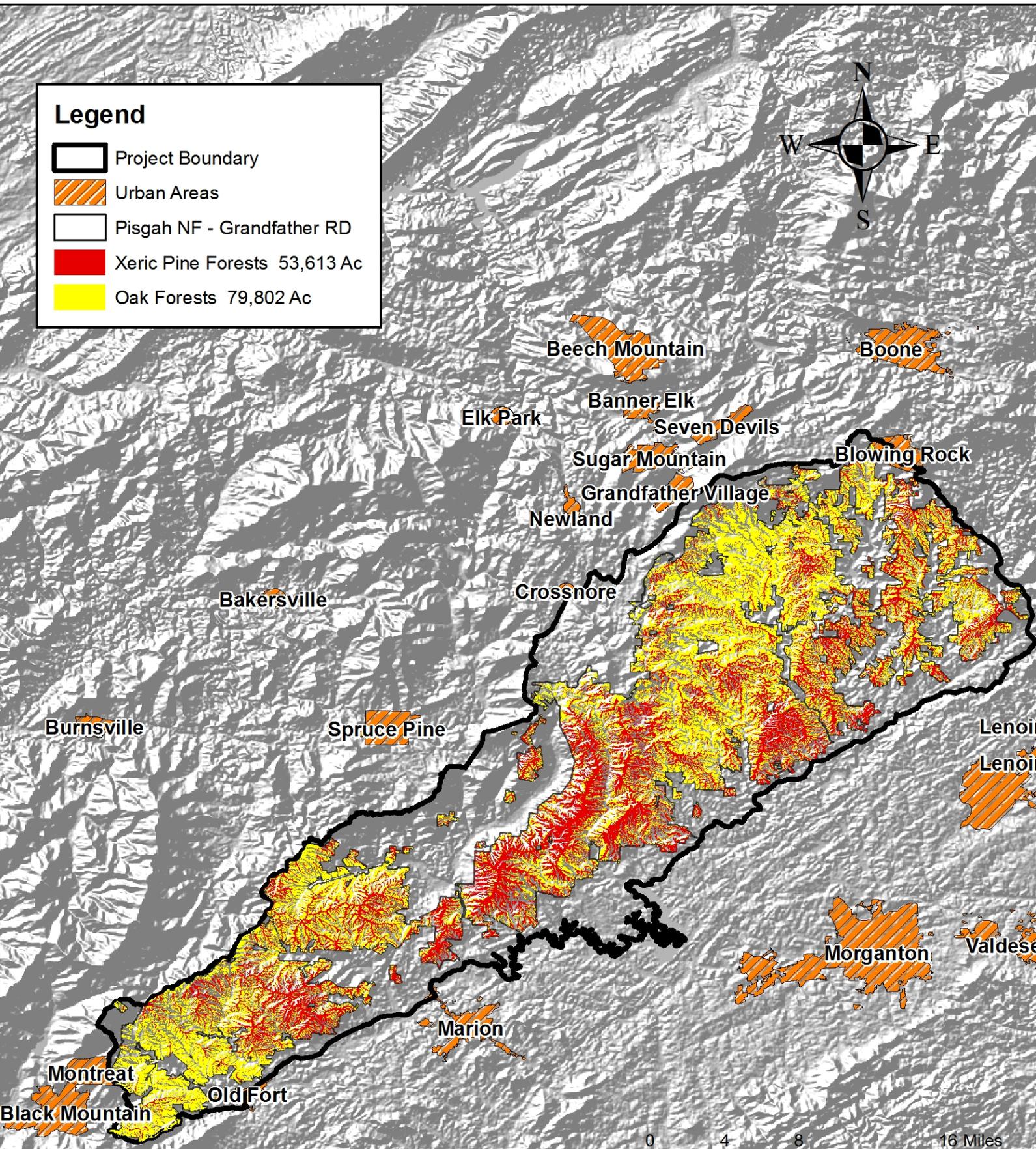
Grandfather Project: Vegetation Types



Grandfather Project: Fire Adapted Vegetation Types

Legend

- Project Boundary
- Urban Areas
- Pisgah NF - Grandfather RD
- Xeric Pine Forests 53,613 Ac
- Oak Forests 79,802 Ac

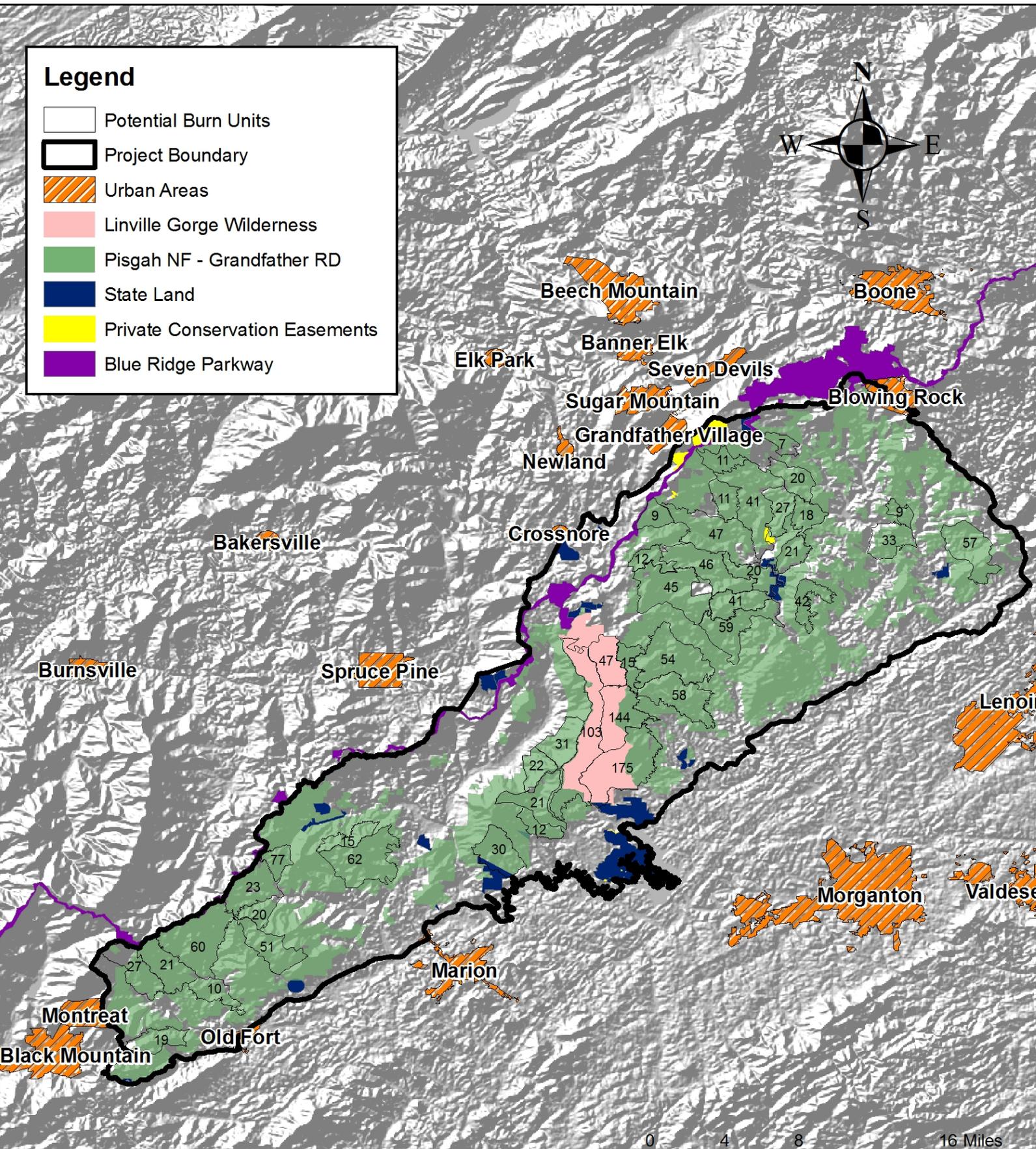


Map created with data from ESRI, USDA FS, TNC, and the NC DOT. All locations are approximate. Josh Kelly 2/4/2011 2011.

Grandfather Project: Potential Burn Units with Ecological Score

Legend

-  Potential Burn Units
-  Project Boundary
-  Urban Areas
-  Linville Gorge Wilderness
-  Pisgah NF - Grandfather RD
-  State Land
-  Private Conservation Easements
-  Blue Ridge Parkway



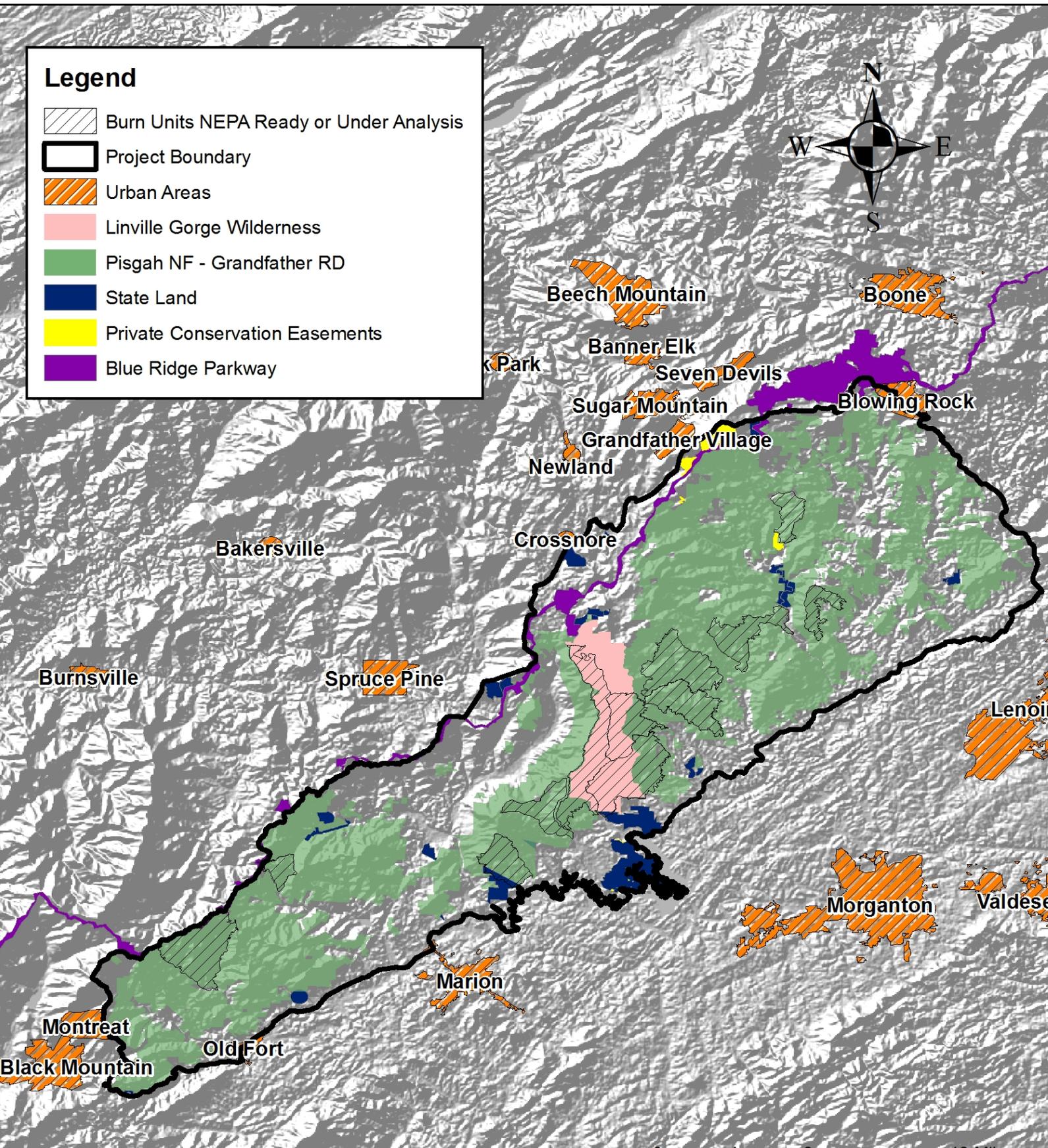
Map created with data from ESRI, USDAFS, TNC, and the NC DOT. All locations are approximate. Josh Kelly 2/4/2011 2011.

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Grandfather Project: Rx Fire Units NEPA Ready or Under Analysis

Legend

-  Burn Units NEPA Ready or Under Analysis
-  Project Boundary
-  Urban Areas
-  Linville Gorge Wilderness
-  Pisgah NF - Grandfather RD
-  State Land
-  Private Conservation Easements
-  Blue Ridge Parkway



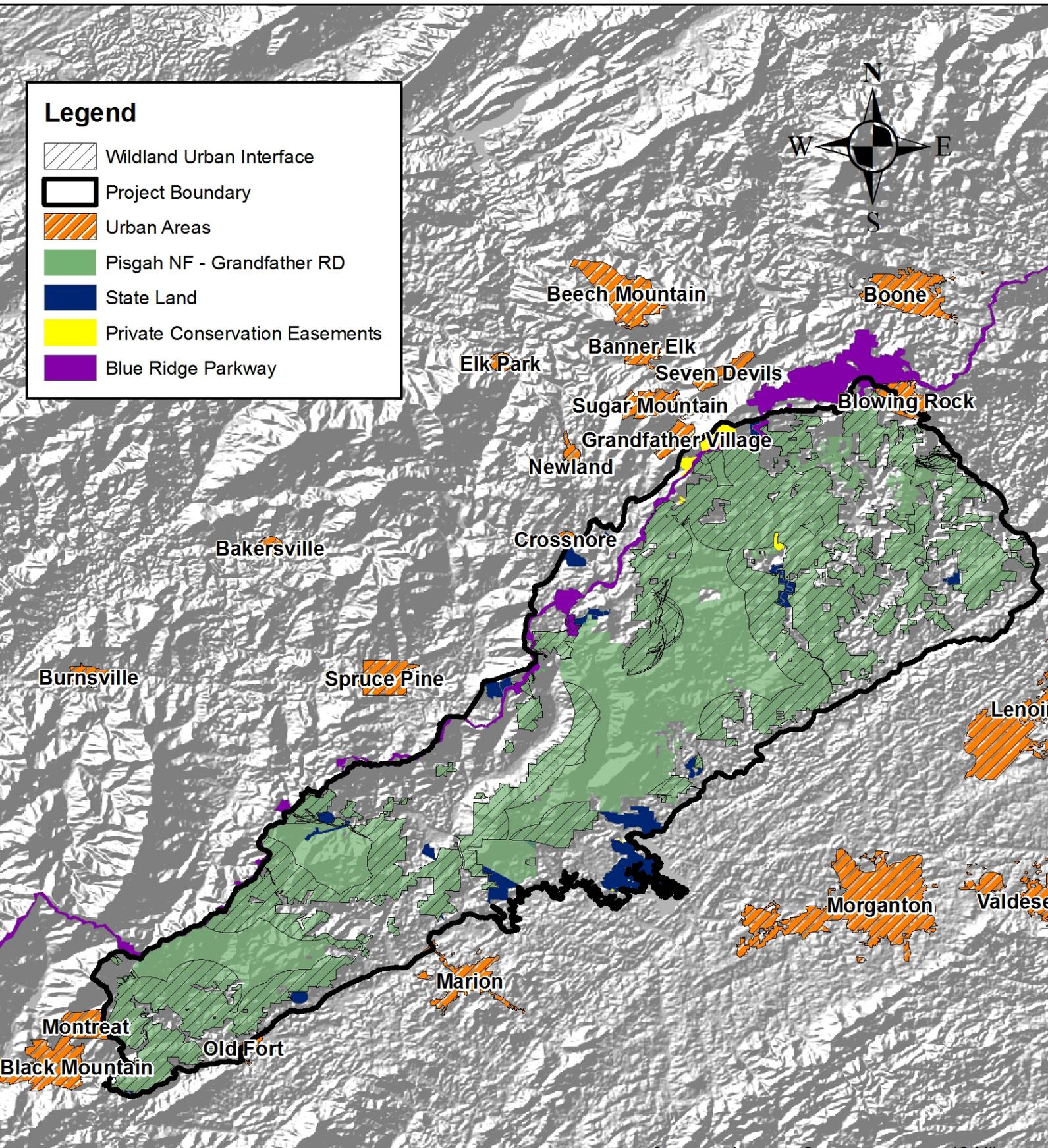
Map created with data from ESRI, USDAFS, TNC, and the NC DOT. All locations are approximate. Josh Kelly 2/4/2011 2011.

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Grandfather Project: WildLand Urban Interface

Legend

-  Wildland Urban Interface
-  Project Boundary
-  Urban Areas
-  Pisgah NF - Grandfather RD
-  State Land
-  Private Conservation Easements
-  Blue Ridge Parkway



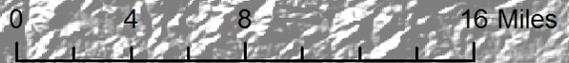
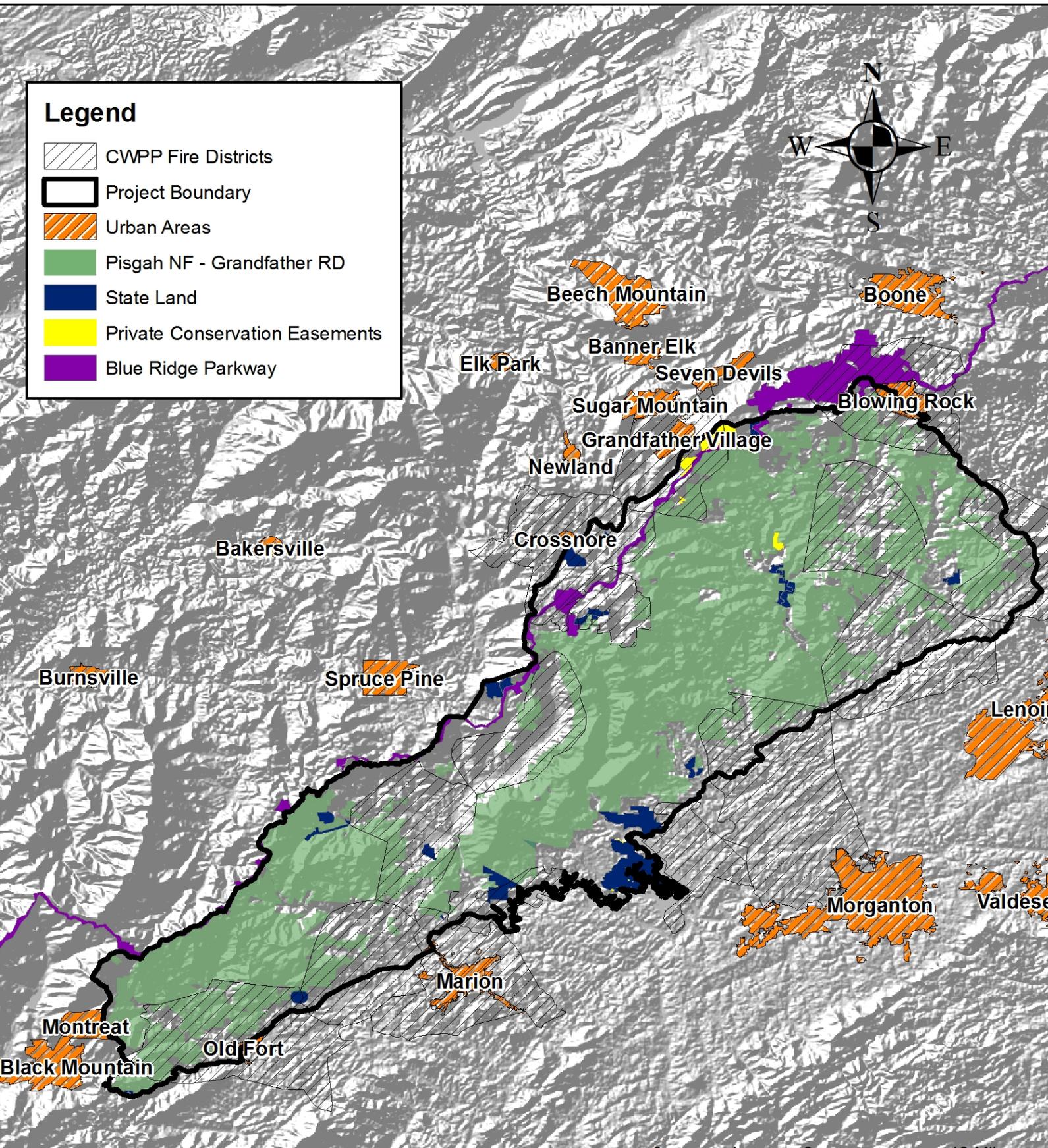
Map created with data from ESRI, USDAFS, TNC, and the NC DOT. All locations are approximate. Josh Kelly 2/4/2011 2011.

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Grandfather Project: Community Wildfire Protection Plan Districts

Legend

-  CWPP Fire Districts
-  Project Boundary
-  Urban Areas
-  Pisgah NF - Grandfather RD
-  State Land
-  Private Conservation Easements
-  Blue Ridge Parkway



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