



Office: 167-C Haywood Rd. Asheville NC 28806 (828)484-6842 info@ecoforesters.org  
Mail: PO Box 16007, Asheville NC 28816 www.ecoforesters.org

## INITIAL FOREST ASSESSMENT OF HIGH ROCK ACRES PROPERTY

May 11<sup>th</sup> 2020

Prepared for: Better Places Forests

Prepared by: Armin Weise

### Access

The property is composed of two opposing slopes that flank the drainage of Toms Creek and include several drainages coming in from the slopes on the eastern portion of the property. While most of the property is mild to moderately sloped, there are a few steeper portions (yellow and orange on the Slope Map) primarily located near the eastern bank of Toms creek and a few of the drainages as well as some portions of the east-facing slope in the western portion of the property.

Very few old logging roads or trails were observed on property (including the steep area) except for a few old roads (one still in use) in the northern portion of the property. The latter road is mostly drivable with a 4-wheel-drive vehicle and enters the property on its northern corner near the Tom's Creek. The other present roads are either in severe disrepair or are overgrown by vegetation. All are located in the northwestern portion of the property.

Building Site: There are three potential sites that may be conducive to building a 2000sqft 'visitor center' with lessened impact to the surrounding forest. One is located down the small 4x4 road in the flatter portion of the property (near the current location of the bench or a little further, Site #1). This, however, could be too close to the wetland. Another location could be down the same road but further into the forest up the small cove in the northwestern portion of the property (Site #2). Though care must be taken to keep an appropriate distance from the wetland to not disturb its hydrology, these sites would have the best access to a potential trail system as they easily connect to the flatter portions of the property. A third location, significantly safer in terms of the wetland, is on the western ridge near the road in the very north-western corner of the property (Site #3). Here, the slopes are mild and minimal road building (due to its proximity to the road) would ensure less disturbance to the surrounding forest ecosystem (and a safe distance to the wetland). As the slopes here are somewhat steeper to reach the flatter cove-portions of the property, appropriate trails would need to be constructed to overcome the small section of steep slope. A very old road (now eroded into a large ditch) gradually follows the slope down into the cove to meet the previously mentioned road. This road could also be rehabilitated. Site #3, as it is located in a drier forest type, also is a little more exposed to the potential of fire. However, if appropriate measures such as following FireWise guidelines, fuel reduction measure, and other appropriate management actions are taken (as suggested below), this risk can be mitigated.

Trail System: There is potential to access the property with an integrated trail system. Trails would most easily follow gently sloped areas (green on the map) though some trails may also be constructed into the moderately sloped portions (yellow on the map) of the property to access desired areas. One main trail could follow the cove, near Tom's Creek as this area is richest in large and healthy trees. Branching trails from there could enter the coves east of Tom's Creek (also some larger trees), the associated gentler slopes (abundant in mostly small trees but with high future potential), as well as up to some of the more moderate slopes in the western portion of the property to access stands of large

trees. Additionally, one trail could follow the western ridge though most of the large trees there are damaged by fire (see discussions below), the smaller trees there, however, have good potential vitality for the future. This ridge also harbors one population of Appalachian lily-of-the-valley (*Convallaria pseudomajalis*), an uncommon to rare plant associated with such habitats that could be a nice feature in the spring when it flowers.

## History

Much of the flat to gently sloped areas of the property (possibly including a some of the ridges) were likely used for agriculture and grazing many decades ago. Much of the rest of the property was likely harvest around the turn of the 20<sup>th</sup> century and around the time of the chestnut blight some years later. Within the last 20-50 years, some of the more gently sloped areas and most accessible areas may have again seen some logging that removed much of the most valuable overstory trees such as oaks, though a significant amount of these trees have re-grown then in some areas.

The oak and yellow pine dominated forest types on this property are fire-adapted systems. They were regularly burned for thousands of years by both Native Americans and naturally occurring fires. This process reduced competition for fire-adapted oak and yellow pine species from non-fire-adapted shade-tolerant species such as red maple, sourwood (when young), and white pine that often crowd the understory's advanced regeneration as well as a thick mountain laurel or rhododendron shrub layer. Some hotter fires also created small canopy gaps by killing fire-intolerant species in the overstory such as red maple which in turn allowed the surviving fire-tolerant oak and others to establish into advanced regeneration and thrive in better light conditions. This process also forced advanced regeneration and shrubs to regularly re-sprout while increasing berry production and the abundance of grass on the forest floor that improved the wildlife value of the property and gave the forest a more park-like appearance. Through the decades of fire suppression, many of these characteristics have mostly disappeared from these forests.

Likely a few to several years after the last harvests decades ago, a wildfire swept through this area and damaged much of the then present overstory trees affecting primarily the higher and drier forest types like the Chestnut Oak Forest, the Pine-Oak Heath Forest, and the upper Montane Oak-Hickory Forest slopes. The fire intensity was likely increased by the decades of prior fire suppression in this region that allowed the shrub layer to thicken and fuels to increase. This may then have catalyzed a spurt of oak regeneration (though little yellow pine regeneration) that are now within the 8 to 12-inch diameter range in primarily the Chestnut Oak and Pine-Oak Heath Forest Types. The larger trees present in the canopies today, were likely left from the last harvest and also survived the wildfire. The magnitude of the wildfire may have been increased in some sections by the thick shrub layer and abundant fuel that had built up over years of the widespread fire suppression policies. The fire likely entered the property from the lower slopes and gained momentum and intensity when racing up the slopes damaging trees on the upper parts of steeper slopes the most. Though the shrub layer was reduced as a result, it quickly grew back with the continued fire suppression which makes it difficult for oaks and pine to regenerate in those conditions to this day.

## Forest Conditions & Health

Five main forest types were observed on the property including Chestnut Oak Forest, Montane Oak-Hickory Forest, Acidic Cove Forest, Pine-Oak Heath Forest, and a Wetland. The general forest health

is good. This is mainly true, thanks to the general lack of non-native invasive species, the abundance of oak in the overstory, and the plethora of very large trees across the majority of the property (if scattered or clustered). Still, some forest health issues were observed such as, in places, a thick shrub layer preventing trees from properly regenerating and decreasing wildlife value as well as some larger overstory trees that were damaged by fire. The only section of the forest, where the health can be characterized as less than 'good', is the portion of the forest is the steeper western section of the forest due to large fire damaged tree trunks, broken crowns of some of the smaller trees, and a poorly formed midstory. However, this may be outweighed by the general widespread presence of young and healthy well adapted tree species. With proper management action many of these health concerns can be rectified and the vitality of the forest greatly improved. For details, see specific descriptions for each natural community below.

The Chestnut Oak Forest is located on the slopes of the eastern portion of the property and the upper slopes and ridges of the western portion of the property. It is dominated by scarlet oak, chestnut oak but also as other species such as hickory, red maple, sourwood, and magnolia present. More scattered are pitch pine, blackgum, white oak, and Virginia pine. Because much of this forest was impacted by a harvest and/or the wildfire, the majority of it is still rather young though some very large and mature trees exist. Diameters for these range between 4 to 24 inches in diameter though the average diameter is around 11 inches. The shrub layer is either dominated by thick mountain laurel and scattered rhododendron or more open in a few places where the shrub layer is dominated by blueberries, deerberry, and buffalo nut. Some azalea and sweetshrub are also present.

The Montane Oak Hickory Forest is located primarily on the broad east-facing slope in the western portion of the property and in the gentler sloped bottoms in the northern part of the property. Though the latter section of this forest type is typically oak-dominated, the factors from historic management (either pasture or timber harvest) have allowed this area to develop into a stand full of large yellow-poplars (diameter range of 12-24+ inches but averaging around 19 inches in diameter) that compete best in high-light conditions. The understory, however, has abundant oak regeneration present of various species which indicates that this area may once have been a Montane Oak-Hickory Forest that is beginning to show the regeneration of transitioning back to such. The broad western slope, on the other hand, is composed of a greater mix of species including yellow-poplar, red maple, northern red oak, white oak, scarlet oak, chestnut oak, and a few scattered others. While the diameters range between 4 and 24+ inches (averaging around 12-16 inches), the trees with the biggest diameters (20+ inches) are yellow-poplar, northern red oak, white oak, and chestnut oak (larger yellow-poplar are generally located on the lower parts of the slopes). This area was heavily impacted by the wildfire that swept through the area 20-40 years ago and likely a more recent snow or ice storm. While the wildfire scarred many of the then present trees (which are now the largest) on the uphill side of the stem (some worse than others) it also caused an abundance of regeneration from the forest floor which includes a plethora of oaks that have since grown up to be 8-10 inches in diameter. Unfortunately, many of the smaller trees also have damaged canopies; some of the leaders are broken out which likely is a result of the snow or ice storm (another clue for this is numerous younger stems of a similar diameter that are bent over and have lost their apical dominance).

Acidic Cove Forest is located in center of the property in a varying narrow band surrounding Tom's Creek and is gently sloped. This area is the most pristine with many large trees of different species

still present in the overstory that, together with some fallen old logs, display occasional characteristics of an old-growth forest. The species present are primarily yellow-poplar, red maple, sweet birch but also some scattered hemlock, northern red oak, ash, white oak, buckeye, and chestnut oak. The diameter distribution for these species is wide, ranging from 8 to 24+ inches at breast height with an average likely around 16 inches. The species with the biggest diameters are yellow-poplar, hemlock, red maple, northern red oak, and white oak. Unfortunately, many of the once present hemlocks have died due to the hemlock woolly adelgid and are now lending themselves to the old-growth characteristics of the forest as standing deadwood or fallen coarse woody material. The few ash present are also dying due to the Emerald Ash Borer. The shrub layer of this forest is mostly thick in rhododendron with scattered witch hazel as well.

Pine-Oak Heath Forests are currently located primarily in the northwestern corner of the property on both sides of the ridges. This forest type is characterized by significant yellow-pine component in the canopy but otherwise rather similar to a Chestnut Oak Forest Composition. While Pine-Oak Heath is still present in a small area of the property, it is likely that this forest type encompassed much greater swaths of this property (mainly in the area described now as Chestnut Oak Forest). However, it has declined to almost disappeared over the decades due to fire suppression as pitch pines generally require fire to regenerate and compete against the mountain laurel shrub layer. This is evidenced by a scattered number of pitch pine individuals across the chestnut oak forest and some fallen pines in their vicinity.

The Wetland is located in the nearly flat northern portion of the property mainly west of the stream. Its sparse overstory is composed of yellow-poplar and white oak around the margins and primarily red maple, sourwood, black cherry, and buckeye within. Though the diameter range is from 8 to 20 inches, most of the larger diameter trees are located around the wetland margin. As the canopy is rather open, the shrub layer is thick with wetland obligate alders, as well as some sweetshrub, huckleberry, elderberry, grape, and spicebush. The herbaceous layer is also dominated by a diverse mix of grasses, sedges, and rushes, as well as an abundance of ferns and wildflowers such as violets, wild carrot relatives, painted trillium, great white trillium, yellow star-grass, cardinal flowers, and many more. Numerous crawdad holes are present throughout this area as well. This natural mountain wetland was a truly special and uncommon natural community to find and should be diligently protected.

### **Invasive Species**

Only four non-native invasive plant species were observed on the property: tree-of-heaven, Oriental bittersweet, multiflora rose, and Chinese silvergrass. All species were found in very low numbers in individual locations. The tree-of-heaven is seeding onto the property from mature trees on neighboring properties in the eastern portion of the property. Only one seedling of Oriental bittersweet was found on the steep east-facing western section of the property but likely more are present in that area. The multiflora rose is seeding into the northern portion of the property from the road and powerline right of way. One small clump of Chinese silvergrass was found in the wetland.

Non-native invasive insects have damaged and killed some of the hemlocks and ash trees on the property: Though most of the hemlocks have already died as a result from the Hemlock Woolly Adelgid, as mentioned above, and are now still present as important wildlife habitat, some of the hemlocks are still in relatively good health and could be treated if it is desired to retain the species for the future. It may lend an aesthetically pleasing component to the otherwise broad-leaved acidic cove forest. The

very few ash trees observed already looked impacted from the Emerald Ash Borer and it unfortunately might be too late for their treatment to save the species in the current overstory.

### **Brief Management Recommendations**

Below we list the four major management actions that would highly benefit the overall health, resilience, and beauty of the forests on this property.

Invasive Species Control: It is a priority to treat these occasional to mild infestations before they spread and become much harder to control. It is always easier, and cheaper, to control non-native plants earlier than to wait to respond to increasingly worse infestations. For sustainable forest management, it is also essential to control these non-native invasive plants well before *and* after any disturbance is planned. The longer ahead of any disturbance that invasive plants are controlled, the more it will help reduce invasive species population growth and establishment. It is of particular note that the species observed are very low in severity and it might be beneficial to try to eradicate these species and potentially discuss control of seed sources on neighboring properties in coordination with neighboring landowners (such as the tree-of-heaven).

Prescribed Fire & Fuel Reduction: Controlled burns in the dryer forest types, to reduce red maple, sourwood, and blackgum regeneration and the thick mountain laurel shrub layer (where present), would be highly beneficial. This practice would also promote oaks and prepare the forest floor for their regeneration and advancement towards the canopy.

For the purpose of fuel reduction, alternative mechanical treatment such as understory mulching could be considered if prescribed burns are impractical. While different in outcome and lower in overall benefit to wildlife, aesthetics, and biodiversity, such treatments will have some positive ecological impact on these forests. These fuel reduction treatments could potentially find support (financial or otherwise) by the neighboring property owners as it would help reduce fuel loading around their property as well. As the property is likely within 10 air-miles of US Forest Service land, the cost and liability of a controlled burn might even be absorbed by the NC Forest Service through the Community Protection Plan ([https://www.ncforestservice.gov/fire\\_control/fc\\_cpp.htm](https://www.ncforestservice.gov/fire_control/fc_cpp.htm)). Likewise, other fuel reduction treatments, such as the aforementioned understory mulching, can be paid for by the NC Forest Service. Funding for controlled burns is also available through the NRCS Environmental Quality Incentive Program (EQIP).

Forest Stand Improvement: As mentioned in the section about the Montane Oak-Hickory Forest areas above, the yellow-poplar-dominated forest in the gently sloped areas in the northern portion of the property may once have been dominated by more Oak and Hickory in the canopy as is suggested by the abundant oak and hickory regeneration on the forest floor. We would recommend helping these areas transition back towards their historic oak-hickory composition by removing some of the yellow-poplar overstory and midstory. This would increase the light penetrating onto the advanced regeneration and allow it to grow into the midstory and towards the overstory. This could be achieved by felling some of the less vigorous and poorer quality yellow-poplar in strategic locations while retaining the bigger and more vital yellow-poplars.



Office: 167-C Haywood Rd. Asheville NC 28806 (828)484-6842 [info@ecoforesters.org](mailto:info@ecoforesters.org)  
Mail: PO Box 16007, Asheville NC 28816 [www.ecoforesters.org](http://www.ecoforesters.org)

Wetland Protection & Further Assessment: The wetland should be conserved and protected from any unnatural runoff which could damage this fragile ecosystem. Further assessment of its flora and fauna could potentially reveal rare species . Furthermore, if desired, actions could be taken to maintain or improve habitat for such species on this small but special site. This rare natural community in the mountains adds to the conservation value of the property.

The report from the North Carolina Natural Heritage Program about Natural Heritage areas and protected species on and around the property is attached.

---

Armin Weise  
Forestry Associate

---

Andy Tait  
Director of EcoForestry  
NC Registered Forester #1791