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THE ECOFORESTER

SUMMER 2019 NEWSLETTER

FIRE & WATER EDITION

What's the Future of Appalachian Forests with Climate Change?

Climate change is predicted to increase extreme weather on both ends of the spectrum, leading to clear significant changes in our forests. The recent wildfires that burned over 30,000 acres in western North Carolina in the fall of 2016 are juxtaposed with localized extreme flooding in May 2018. According to the recent National Climate Assessment, severe drought, wildfires, storms, flooding, and other related forest health issues will be increasingly common. Our forests are becoming more stressed, and past forest mismanagement has worsened the problem.

Appalachian forests experiencing more extreme heat and drought, along with increased fuels from a century of fire suppression, has led to an increased risk of destructive wildfires. Fire suppression has also changed the species composition of local forests such that they are more susceptible to drought. Fire-intolerant species like maples and poplars, as well as highly flammable rhododendron, have greatly increased in the past decades while keystone wildlife species, oaks and hickories, have decreased. Not only are oaks more fire-tolerant, but they are also much more drought-tolerant as they need only one-fourth of the water poplars and maples do. Fire suppression has thus left a forest less adapted to a future with climate change.

(Continued on Page 3)

Beer City Needs Healthy Forests

Western North Carolina and the Appalachian Mountains are known for their clean, pure water flowing through beautiful hardwood forests. If you have spent a hot day hiking through the mountains only to dip your water bottle into a cold mountain spring, you've tasted some of the best water in the world. Most of us love this region in large part because of its awesome water resources, for drinking water, aesthetic beauty, and recreation. But increasingly we also love it here for the quality beer. Quality beer depends on clean water. Clean water depends on healthy forests.

(Continued on Page 2)

STAFF

Andy Tait

Director of EcoForestry | Asheville Area

Ian Anderson

Director of Ecoforestry | Boone Area

Wade Johnston

Director of Mapping & Technology

Lang Hornthal

Director of Development & Communications

Jon Shaffer

Forest Carbon Consultant

Mary Vann Johnston

Forestry Associate

Gabby Hovis

GIS & Conservation Technician

Armin Weise

Forestry Associate

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Letter From The Director, Rob Lamb

As you can tell from the newsletter theme, we are focused on driving home the importance of forest stewardship and why it should matter to everyone. While the subject matter might be a little heavy at times, even daunting, don't be discouraged. EcoForesters sees this as an opportunity to start a discussion with family, neighbors, and friends on why intentional forest planning is so important.



As you read about how our region has been shaped by fire and water, take time to reflect on your own values and what legacy you hope to leave to children and grandchildren. Whether or not you have a forest to manage, you can still play a role in helping keep forests healthy and resilient. Thank you to all who have used our services or made a donation in support of our advocacy. We could not do it without you!

(Continued from front page)

In a technical sense, our high-quality water is soft, meaning low mineral content, and pH-balanced. Once dechlorinated, its perfect for brewing beer. This, and a healthy population of beer drinkers, is one of the main reasons the region has over 40 breweries using approximately 20 million gallons of water per year and employing upwards of 300 people. Beer and breweries are one of many examples of how our economy depends on clean water and healthy forests.

The Breweries of Asheville obtain some of the cleanest, purest water in America from the city's 20,000-acre watershed on the southern slopes of Mount Mitchell. In 2014, EcoForesters staff had the privilege of writing the watershed's Forest Stewardship Plan. After an entire summer of field work, we concluded the city's high-quality water depends on its healthy forest. However, the forest faces threats from over 70 documented populations of 8 different invasive plants, tree die-offs from insects and disease, and ongoing and increasing stress from global warming. In the face of these threats, to ensure ongoing forest health and water quality our plan established a network of over 200 permanent forest monitoring plots that we will use to guide forest stewardship.

Beyond municipal watersheds, clean water we all benefit from is sourced from both public and private landowners. While most public forestland is well maintained by governments, private forest landowners maintaining a healthy forest are the unsung heroes for sustaining the region's water quality. But these landowners need help. At EcoForesters our mission is to ensure that all landowners have the tools and resources to sustain a healthy forest. The sustenance of our water quality, and our tasty brews, depends on it.



(Continued from front page)

Higher temperatures also threaten uncommon species that are relics from the last ice age. Habitats and species at risk include high-elevation Spruce-Fir Forests, the endangered Carolina northern flying squirrel, and native brook trout, which are dependent on clean, cold water.

While severe droughts increase, so will flooding events with potential runoff, erosion, and even landslides. Forests play a major role in controlling flooding by intercepting rainfall and stopping its direct impact on the land. Furthermore, tree roots hold the soil securely in place even during most flood events and take up a gallon of water per day for every inch in diameter. For any forest management it's essential that best management practices (BMP's – see North Carolina's Best Management Practices below) for water quality are met or exceeded to maintain high quality water as well as to stop erosion.

With stresses on our forests increasing from climate change, it's more important than ever that we are good stewards of our forests. At EcoForesters we are committed to making Appalachian forests healthy, vibrant and diverse, and that Appalachian forests will literally be able to weather the weather.

North Carolina's Best Management Practices

Best Management Practices (BMPs) prescribe a minimum of a 25-foot buffer on each side of a perennial or intermittent stream or body of water. EcoForesters recommends a minimum of a 50 foot buffer and have recommended a 100 foot buffer for many landowners around perennial, intermittent, and ephemeral streams.

The width of a streamside management zone is dependent on many variables including slope, soil stability, and vegetative ground cover. You as a landowner can request a larger buffer around your streams. Talk to your forester about your options!



© John Causton 2016

2016 Party Rock Fire, Lake Lure, North Carolina

Make Your Forest More Resilient!

Extreme weather is becoming all too common these days and seems to vary season to season. Unhealthy forests are more prone to extreme weather events, as well as other stresses like invasive pests and disease. While individual landowners can't singlehandedly stop climate change and invasive pests, there are things that you can do to mitigate extreme weather's impact on your forestland.

Because drought exacerbates wildfire conditions, removing weedy underbrush and dead wood can help reduce the risk of wildfire. In some instances, well planned, controlled, prescribed burns can be used to reduce fuel loads and create more fire and drought tolerant forests. Overcrowding can stress a water supply, so thinning to reduce tree density can help remaining trees have adequate water. When planting new trees, consider drought-resistant species and those native to your local environment.

Removing invasive plants can help restore balance and valuable nutrients to local ecosystems. After floods occur, be sure to carefully walk your property and take stock of any damage. Continue to keep an eye on your trees for root damage, discolored leaves or dying limbs as insect infestation or latent damage could occur from drought, flooding, or invasive pests. In any instance, a well-written and implemented forest stewardship plan will make your forest healthier and more resistant to stress. Feel free to call EcoForesters for help!



FROM FOREST...



EcoForesters has a special relationship with the Asheville beer scene. No, we are not brewers, but many of our staff were involved with writing the current forest stewardship plan for the 20,000 acres that make up the Asheville watershed.

A watershed is an area of land that catches the water as it makes its way towards the ocean via streams, rivers, and lakes. If an area is hit with a heavy rainfall or flash flooding, even more common now with a warming climate, having trees helps mitigate the damage caused as forested watersheds absorb a large part of the rainfall. The trees will then release water back into the earth and atmosphere over time rather than all at once.

...TO PINT



The Wedge is committed to clean water. Owner Tim Schaller notes, "One of our responsibilities is to take care of the assets we have, including our forests."

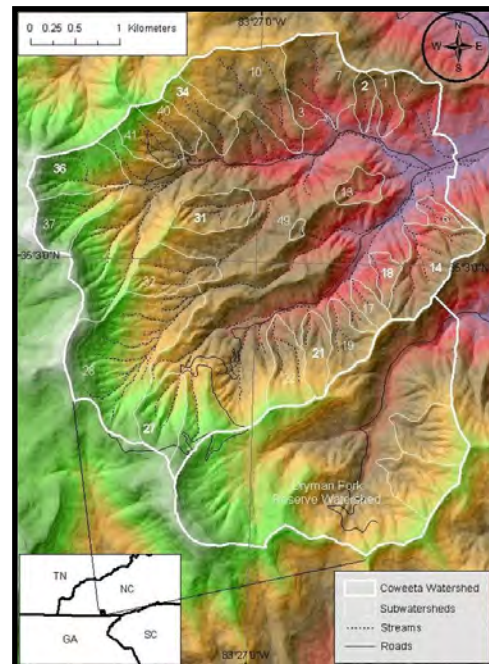
Trees are made up of more than 50 percent water and need a steady source of it in order to grow and stay healthy. A healthy 100 foot tall tree can pull about 11,000 gallons of water from the soil in a single growing season. River guides often talk of watching water levels drop as trees come back to life in the spring. Trees serve as natural sponges, collecting and filtering rainfall and releasing it slowly into streams and rivers, and are the most effective land cover for maintenance of water quality. The ability of forests to aid in the filtration of water doesn't only provide benefits to our health and the health of an ecosystem, but also to our pocketbooks. Forest cover has been directly linked to drinking water treatment costs, so the more forest in a source water watershed, the lower the cost to treat that water.

So the next time you are in Asheville and raise a pint, say a toast to healthy forests and all they do making our water clean and beer tasty!

Coweeta Hydrological Laboratory: Land Use Change and Water Quality

Western North Carolina is fortunate to have over one million acres of public lands that contribute to the water quality in our region. Included in those acres are research areas that allow scientists to study man's impact on our forests. One of the best kept secrets is the 5,400 acre research station that make up the Coweeta Hydrological Laboratory. Since its inception in 1934, continuous data has been collected measuring rainfall, streamflow, climate, and forest growth. Continuous data collection of 85 years is hard to come by, making this outdoor laboratory one of a kind and available to the public. Without this expansive dataset, it would be tough to understand the connection between forest management and water quality.

The Coweeta Laboratory has also done extensive research on prescribed burning and how forested ecosystems respond. While we know that prescribed fire has been used historically in our region, there is less data on how reintroducing fire will impact ecosystem properties. Therefore, there is a need to investigate prescribed fire's effects on forest types, ecosystem structure and function and overall ecosystem response. This research helps inform the management techniques that EcoForesters will use when advising landowners and provides scientific data that is relevant to our own backyard.



Map of Coweeta Hydrological Laboratory

Burn Baby Burn: The History of Fire-Adapted Species in the Appalachian Mountains

Imagine seeing a fire in the forest: is your immediate reaction sadness for the burning trees, fear for property and life, and the desire to extinguish the flames? Though this is a natural instinctive reaction to forest fire, the truth is that for thousands of years our forests benefited from regular fire. Both natural and intentionally set by Native Americans, fire played an integral role maintaining forest health and shaping our flora and fauna. Today, after nearly a century of Smoky the Bear and fire suppression policies, our forests are drastically altered and in need of restoration.

Oak forests are tantamount to Appalachian forests, and oaks depend on regular fire. Fire suppression has led to a decline of oaks in favor of more fire intolerant species such as red maple. This in turn has led to declining plant and animal species that live in oak forests. Much of our wildlife depends on acorn crops from oak trees, and numerous other plants and fungi crucial for wildlife live primarily in oak forests. And of course, oak trees are also very valuable to people as timber trees and as some of the largest, oldest, and most aesthetically beautiful trees of Appalachian forests.

Historically, fires would burn in oak forests every 5-20 years. At this interval, fuels in the forest did not accumulate, and fires burned relatively cool on the forest floor, maintaining an open and grassy understory beneath the canopy of oak trees. These conditions attracted more deer, birds, and small mammals as well as their predators. After years of fire suppression, many oak forests have lost this diversity in exchange for thickets of shrubs and small trees. This understory decreases forest health by usurping limited soil moisture resources, as well as providing an increased source of fuel that can lead to catastrophic fires, threatening a landowner's home and property.

Today, restoring Appalachian oak forests and reducing the risk of catastrophic wildfire necessitates active stewardship. Where appropriate, EcoForesters recommends landowners work with qualified professionals to implement prescribed burns and other management that mimics historic fire regimes. Call us for more information about prescribed burning and the use of fire in restoring our Appalachian forests.

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EcoForesters needs a truck!

Our new invasive species crew is in need of a work truck. Please contact us about this tax deductible opportunity!

We express deep gratitude to our donors for your continued support. Donations fuel our mission to conserve and restore our Appalachian forests.

We couldn't do it without you!



Repeat Donors •

ECOFORESTERS NEEDS YOUR HELP SHARING OUR MESSAGE

The story of forest management is a complicated one as the value of private forests means different things to different landowners. One common denominator rings true in that most landowners want to leave a positive legacy to the next generation of forest owners. This is achievable by practicing ecologically beneficial forestry and EcoForesters is leading the way. Please support our efforts as your donations will help us expand our educational efforts, implement positive stewardship practices on conservation properties, and realize large scale forest restoration. Here's how:

TO MAKE YOUR TAX DEDUCTIBLE DONATION, GO TO ECOFORESTERS.ORG & CLICK "DONATE NOW" TO MAKE A SECURE ONLINE GIFT, OR YOU MAY SEND A CHECK TO:
PO BOX 16007 ASHEVILLE, NC 28816

THANKS FOR YOUR SUPPORT!

Mitigating Catastrophic Wildfires on Your Southern Appalachian Woodlot

Low intensity wildfires are a natural part of the Southern Appalachians and actually benefit forest ecosystems; however, large high intensity catastrophic fires can be devastating to mountain communities and the forests that surround them. Many people think that large catastrophic wildfires only occur in the western US, however large wildfires are a threat to life and property in the Southern Appalachians. The 2016 Gatlinburg fires that killed 14 people, destroyed more than 2400 buildings, and burned almost 18,000 acres serve as a reminder that these mountains are not fire proof.

What can you do to protect yourself and your forest from wildfire? Removing fuels from around structures before a fire occurs is the best way to protect your home. The North Carolina FireWise program empowers neighbors to work together towards reducing wildfire risk and preparing their communities against the threat of wildfire.

There are many helpful resources online, including the above suggestions for making your home Firewise safe. Visit www.ncfirewise.org for more information.



Prioritizing Prescribed Fire Areas: A Mapping Project for Eastern Band of Cherokee Indians

While prescribed fire is an important tool towards restoring fire adapted Appalachian forests, it certainly is not appropriate in many instances. So how do we know where the ideal places are to conduct a controlled burn? EcoForesters' Mapping and Technology Director, Wade Johnston, has been answering that very question for Eastern Band of Cherokee Indians (EBCI). Covering approximately 50,000 acres, EBCI forest lands cover a wide variety of ownerships, terrains, and forest types.

Using various data inputs, we have been able to model areas that are most likely to burn, areas that would benefit the most ecologically from a burn, and areas where fire would pose the highest risk to life and property. This model has allowed EBCI to prioritize areas



for prescribed fire. EcoForesters can now apply this same model for forested properties and landowners throughout western North Carolina.



Our Mission

EcoForesters is a 501(c)(3) non-profit professional forestry organization dedicated to conserving and restoring our Appalachian forests.

**Please contact us
with any questions
about your forest
or our mission!**

How To Reach Us

Mail: PO Box 16007
Asheville, NC 28816

Office: 167 Haywood Road
Asheville, NC 28806

Email: info@ecoforesters.org

Phone:
(828) 484-6842 | **Asheville**
(828) 263-6121 | **Boone**

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EcoForesters Hires Development & Communications Director



My name is Lang Hornthal and I am excited to be the new Director of Development and Communications for EcoForesters! The last 25 years of my life have been involved with trees in some capacity, culminating in this incredible chance to continue to tell a much needed story of the forests in our region. If you receive this newsletter, you are already aware of the many challenges our forests are facing. Years of neglect, an onslaught of invasive species, and increasing populations that are building where forests once were are stressing this critical infrastructure that we rely on for clean water, quality of life and economic prosperity.

We plan to tell a story that will inspire you to action. EcoForesters is the leader in ecologically beneficial forest management and we will continue to beat the drum with your support! I look forward to meeting and talking to all of you and sharing our commitment to the forests of our region. I would also like to hear more about your forests and why it holds a special place in your life. Feel free to reach out to me for any reason.

Email: lang@ecoforesters.org

