

What Makes High Knob Special – Part IV

***Wayne Browning**

To celebrate the 12th Annual High Knob Naturalist Rally, and the 20th Anniversary of The Clinch Coalition, a series of articles throughout the month of September will describe and highlight the natural environment and biological diversity of the wondrous High Knob Massif.

A gush of wind blows through the high country forest as water drips from trees, leaves wet and soft, vegetation dimly visible through masses of ever-changing clouds.

Pops and cracks suddenly announce a menacing gust, a thunderous crash ensues. An old giant has succumb. A member fallen. But no tears are shed, even though the forest is acutely aware, for this event marks the beginning of life, not its end.

Filamentous fibers, strangely fuzzy and white, begin growing toward this old friend, and outward from its body, which in short time becomes transformed, like magic, into a giver of life. A mother log has been born!

Once connections reestablish, this intelligent forest begins directing movements of energy extracted from rays of sunlight more than a century ago toward those who need it most. The mother log becomes a hub of activity with countless species, many so small as to be invisible to the naked eye, interacting and competing for a treasure load of life sustaining nutrients and energy. There is no shame when an old tree falls in the forest, no waste, no loss, no carbon emission, only a recycling of stored nutrients and the opening of a light gap which allows this intelligent forest to direct and apply captured energy. These simply wondrous processes allow a forest ecosystem to become more sophisticated and complex, more interactive, and more connected through time. It becomes, to state it succinctly, more intelligent!

At upper elevations in the High Knob Massif these processes are slowed, decompositional rates are reduced by coolness, and life develops in extremely complex, but also fragile, ways within this sky island. More often than not since the arrival of humans, at least in large numbers, these amazing processes have been interrupted. The logging boom of the 1890-1930 period, in particular, changed this environment in such a radical way that it has not yet recovered. Yet, these forests are amazingly resilient. Especially where three-dimensional networks of exceedingly complex fibers are left intact (e.g., not removed by bulldozers and radical landscape changes).

Science is now beginning to show that a forest is not merely a grouping of separate trees, standing inanimately with no communications. This applies to all herbaceous species, not just trees. It can be strongly argued, in fact, that a forest ecosystem is capable of thinking and making important decisions. Could it even have feelings? This sounds simply insane. How could this ever be?

When you step into and walk through a forest it knows you are there. For beneath your feet is a network so intricate, so complex in form, that if it were to be extracted outward in a way that could maintain its complete shape one would be hard-pressed to tell the difference between it and the neuronal network of the human brain!

If all the computers comprising the world-wide web, which we call the internet, were mapped out by their connections it too would form a network eerily similar to that found within the human brain. This type of form, in fact, is also that which makes up more than 96 percent of the universe as vast networks of interconnected molecular threads of dark matter. It is the common form of intelligence.

I have been fascinated by such thoughts ever since my field work progressed enough that I first began to understand some of these processes in the High Knob Massif. Now, decades later, I am absolutely convinced that the forest is not only capable of thinking it is also able to make critical decisions!

The three-dimensional, filamentous network beneath your feet in a forest is mycological in nature, and is made of strands of mycelium. For those interested to learn more about this general subject I would highly recommend the book *Mycelium Running*, by mycologist Paul Stamets, which describes not only this aspect but also the benefit, and potential benefits, of mushrooms to natural ecosystems (which includes humans, since we are intimately connected to and dependent upon the natural world).

While mycology is a broad and rapidly changing discipline in the natural sciences, the portion that I am most interested in relates to how mycelium acts to connect everything within a forest together. All trees, all plants, mosses, liverworts, and so, so very much more. Climate, of course, being critical.

What most folks call mushrooms are only the transitory, fruiting, or visible stage of species which are mostly underground and within living tissues via their connecting fibers called mycelium. These fibers are inside trees and are often responsible for the appearance of various mushroom species, even after a tree falls. These fibers are also inside plants. In fact, every living plant so far studied has been found to contain an endophytic fungus species living inside it!

The largest single organism living within the 200 square mile domain of the High Knob Massif may very well be a fungus, not unlike the Humongous Fungus discovered by the USDA Forest Service in the Blue Mountains of eastern Oregon which covers more than 2,000 acres. The largest organism currently known on planet Earth.

So what does this have to do with biodiversity? This forms the foundation of biodiversity and in upper elevations of the High Knob Massif has become especially well developed. This is periodically exemplified by vast eruptions of diverse fungi (i.e., mushroom) species. I have a few examples shown now on the High Knob Landform website from the Big Cherry Lake and High Knob Lake basins where northern hardwoods help to enhance the types found (high basins holding Bark Camp Lake and the Norton Reservoirs are included). The complete array of species remains unknown in the massif.

Upper elevations in the High Knob Massif are of particular interest given this complex network helps support relationships with many species other than fungi, including some which are endemic and some which are living near the extreme limits of their life ranges as only briefly eluded to in the previous article of this series. This is a main reason I favor creation and preservation of unfragmented habitats, not to mention the potential benefit to humans (a cure for diseases and more) is simply outstanding.

Biodiversity of this type is important since it is the basis from which clean air, clean water, food and medicine originates. In other words, it is essential to human life and the lives of all living things. All places can not be protected and preserved, but it is my opinion, and the opinion of many scientists, that all locations (i.e., nations, states, counties) have a duty to set aside certain places for preservation of life sustaining biological diversity as other places are used for resources and for development.

In Wise County the choices are more clear cut, decisions having been made long ago, with major alterations of the landscape along Black Mountain and across the adjacent plateau terrain versus less disruptive actions within the High Knob Massif (in general). A tectonic mountain where coal is greatly limited, and often overturned in the stratigraphy where it may exist, essentially made these decisions long ago when coal resources of Wise County were being developed.

As actions continue toward transformation of this coal-based economy into one with a tourism base any major developments should logically be placed on already reclaimed (or to be reclaimed) strip mined lands, where biodiversity has already been disrupted and destroyed from its former condition and where roads can be designed to direct the flow of traffic entering such developments through the communities which will benefit most from them (e.g., Big Stone Gap, Appalachia, City of Norton, Wise, Coeburn, and Pound in Wise County).

If a summer or winter resort were to be placed at the summit level of High Knob it would not only be disastrous for biodiversity it would offer a view to the west and north of strip mine lands. If a resort were to be placed on strip mine land, by contrast, it would not destroy the type of complex life networks described in this article (that has already been done) and would also offer a sweeping view of beautiful mountains spreading across the horizon (the High Knob Massif).

Such strip mine land development would also have the best chance of qualifying for grants or assistance through programs directed toward the improvement of mined land. A major proposed development in the middle of a designated national biodiversity hotspot would, by stark contrast, involve environmental lawyers and groups from all over this nation.

If the model of Gatlinburg is followed, as some suggest, the key factor there has been to locate major developments near the towns while maintaining pristine mountain vistas.

In upcoming articles in this series more specific aspects of biodiversity will be highlighted and how it offers the best, and essentially the only presently known, way of sustainably supporting human life on this planet. Our local and nationally recognized biodiversity hotspot will, of course, continue to be the main focus of this series.

Meanwhile, plan to attend the 12th Annual High Knob Naturalist Rally to be held September 29 within majestic High Knob Lake Recreation Area. A family friendly event that welcomes everyone with open hands and a warm heart to celebrate our magnificent natural heritage.

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