THE HIGH KNOB HERALD

SPRING EDITION

The Clinch Coalition Newsletter

MAY 2022, ISSUE 17

THIS ARTICLE IS PART OF OUR SERIES ABOUT HIGH KNOB, ONE OF THE MOST DIVERSE BIOSPHERES IN THE COUNTRY.

Breeding Birds of the High Knob Massif

Written by Wayne Browning

Spring is a season of rebirth and renewal. A time of glorious awakening. Perhaps no place on planet Earth does the pure majesty of this special season burst forth as dramatically as it does in the Appalachians. The climax of this eruption is a 30-day period from mid to late April into mid to late May when forests of the southern-central Appalachians grow increasingly loud with sound as new spring vegetation spreads upward from lower into upper elevations, amphibians and insects emerge, and birds take advantage to increase their genetic potential.

While natural sounds are part of the High Knob region during every season, April and May bring renewed vigor as billions of birds move across North America in what can only be described as one of the great spectacles of nature. Filled with drama, life and death struggles, there is an urgency and organization to this seeming chaos. A purpose. A proclamation of life and definitive declaration of being. This is a true miracle of the natural world with deep evolutionary roots and a fascinating natural history.

First, a personal story. I have always had a love for birds. From “Buddy-Joe,” my grandmother's parakeet, to those around my house. One experience, however, really touched me. A little Carolina Chickadee got caught in a backyard bird feeder and injured his leg. Upon being freed he would hop around on his good leg. A heavy rain soaked

Carolina Chickadee
Poecile carolinensis

him and he then had trouble getting off the ground. I caught and put him in a safe place to dry out, then let him go. After a few days I saw him being flogged by another chickadee, then attacked by a Blue Jay. This was concerning. Catching him again, I fixed a bird house with Canadian Hemlock for a perch and cover. I tried to feed him.

On 17 June 2001, I wrote the following in my nature journal:
“A little being could be seen when looking into his tiny, black eyes. A precious little being.”

Although he did pass, I felt a connection and strong sense for his inner spirit. His intelligence. I will always believe that animals have consciousness. Certainly they have intelligence, especially birds, and they communicate in ways that humans simply fail to understand.

The evolutionary history of birds is long and torturous. Thousands of new fossils discovered during the past 1-2 decades, in combination with phylogenetic and genomic data, indicate that birds developed between 150 to 200 Million years ago during the Jurassic. Yes, like in Jurassic Park!

Continued on Page 3

Wayne Browning M.S., Governing Board Member of The Clinch Coalition

Activities

What's New on High Knob?

May 21st: Fit Farmer 12K Trail Run at the Flag Rock Area Trails @9am.

Cost: $40 April 15-May 21

Details: The Norton Friends and Farmers Market's fifth annual Fit Farmer 12K Trail Run benefits the market's Senior Supplemental Nutrition Program. Race course predominantly single-track trails in Flag Rock Recreation Area. Part of High Knob Triple Crown series (www.highknobtriplecrown.wix.com/hktc).

Registration/Details: www.fitfarmertrailrun.wordpress.com, www.facebook.com/fitfarmertrailrun and https://ultrasignup.com/register. aspx?did=88686

Plant of the Month

Solomon's Seal
Polygonatum biflorum

This handsome woodland plant grows upright as an unbranched stalk of alternating, oval leaves. The leaf edges are smooth.

The flowers of Solomon's seal are born underneath the leaves, as seen in the photo on the right. The nodding, bell-shaped, white to greenish flowers dangle in groups from the axils of the leaves. It can be used medicinally for a variety of ailments. Solomon's seal is used to treat lung disorders, reduce inflammation, and as an astringent. Some people apply Solomon's seal directly to the skin for bruises, ulcers, or boils on the fingers, hemorrhoids, skin redness, and water retention (edema).

Solomon's Seal are frequently planted in flower gardens because they are shade tolerant, spreading– but not invasive, and the foliage is beautiful. So, consider putting this beautiful plant in your garden!

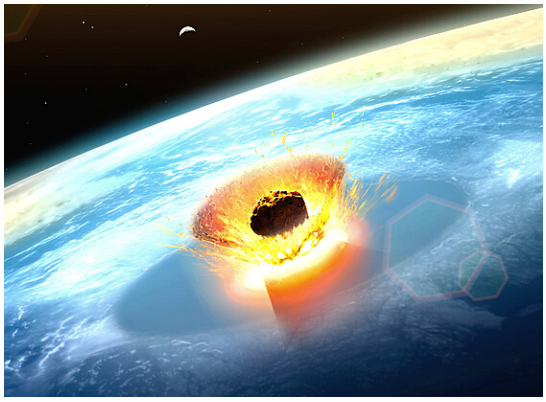
Bring Out the Pollinators!

June 1st, 2022 @9am

The Clinch Coalition is proud to announce we are aiding the United States Forest Service (USFS) with their pollinator gardens throughout High Knob this June. If any present members of our organization would like to get involved, please reach out to us at info@clinchcoalition.org.

If you would like to become a member or make a donation, please visit www.clinchcoalition.org.

The general consensus is that birds originated from theropod dinosaurs, specifically a group called Coelurosaurs that possess some well known representatives. Think *Tyranosaurus*, as in T-Rex, and Velociraptors. Bird evolution was apparently slow but progressive and spread across 100 Million years, with significant cumulative development and diversification up until a single dramatic event that changed the planet. Chicxulub!



All dinosaurs and most bird lines went extinct following the impactor that created a 93 mile diameter crater in the southern Gulf of Mexico. Amazingly, a few bird lines, likely coastal shore birds, survived. Prior to Chicxulub, birds had been undergoing a process called paedomorphosis which drove an accelerated rate of miniaturization in direct opposition to most dinosaurs which were getting bigger, not smaller. Being smaller was found to be advantageous and opened up many more niches that typical dinosaurs could not utilize and allowed birds to occupy trees, shrubs, and other vegetation types, as well as cavities and caves.

The bottom line, while most of the early bird lines went extinct a genetic blueprint was produced and retained by a few lineages of birds that survived the great impact. This blueprint was then used for explosive diversification of these surviving birds during a 15 million year period at the beginning of the Paleogene in a world of wide open niches. This marked the rise of modern bird lines.

What followed next during the Pleistocene is of particular importance to the many birds observed today across the High Knob Massif. Enhanced speciation occurred when up to 33 glacial-interglacial episodes restricted migratory ranges and isolated different populations of birds in different areas at various times to give rise to many new species. This included the Wood Warblers and Thrushes. Although continental glaciers did not reach south of the Ohio River, this is yet another example of their many impacts on the biodiversity observed today.

Most may not realize that spring bird migration is mainly nocturnal. On a moonlit night, in particular one featuring southerly air flow, it is often possible with a binocular to see birds passing in front of its reflected light! This amazing phenomenon, with hundreds of millions of birds flying overhead at any given moment during peak migration, explains how a breaking dawn can be greeted by new sounds as birds literally drop from the sky to rest and refuel by day. Weather conditions, the health of an individual bird and the local food supply all factor into how long a migrating bird visits any site.

Some migrants, of course, find suitable habitat and remain through the summer breeding season. Summer breeding birds are of particular interest with respect to the High Knob Massif, where diverse terrain and geology combine with significant elevation to generate climatic conditions which are able to support species that typically breed far to the north or only at highest elevations of the Appalachians. A few birds documented during Breeding Bird Surveys in Big Cherry Lake and High Knob Lake basins exemplify this:

Veery Thrush *(Catharus fuscescens)*
Common Raven *(Corvus corax)*
Black-throated Blue Warbler *(Setophaga caerulescens)*
Blackburnian Warbler *(Setophaga fusca)*
Magnolia Warbler *(Setophaga magnolia)*
Black-throated Green Warbler *(Setophaga virens)*
Least Flycatcher *(Empidonax minimus)*
Dark-eyed Junco *(Junco carolinensis)*
Black-capped Chickadee *(Parus atricapillus)*
Rose-breasted Grosbeak *(Pheucticus ludovicianus)*
Canada Warbler *(Wilsonia canadensis)*

Wayne Browning M.S., Governing Board Member of The Clinch Coalition

Red-breasted Nuthatch (*Sitta canadensis*) is another northern breeder recently observed, with Winter Wren (*Troglodytes troglodytes*) having been documented in past years. Swainson's Thrush (*Catharus ustulatus*) have also been documented singing several years in the High Knob Lake area. This species is generally found in spruce-fir along the Appalachians, mainly at elevations above 4500 feet. In the High Knob Massif they live within or along the interface between nocturnal cold air pooling basins and their overlying thermal belts at elevations lower than ever before reported in the southern Appalachians. Numerous other northern breeders may potentially exist or become attracted to this sprawling mountain top containing high elevation lakes, wetlands, and streams embedded within its complex terrain.

With diverse terrain and tumbling whitewater streams plunging downward through middle into lower elevations, there are too many other bird species of interest to list here.

For these reasons, plus many more, the dramatic increase in logging across the High Knob area is of great concern. Biomass cuts, in particular, are disastrous for biodiversity and breeding birds with even snags and downed woody debris being removed. Extensive road cuts sever the mycorrhizal network linking forest species together and will diminish future health, resilience, and slow down regeneration.

It may take more than a century for this complex system to recover its functionality, which may be different from what existed before given that biomass logging creates ecological conditions that have no historical equivalent. Biomass logging, for example, is radically different from the clear-cutting style used to log virgin forests in the 1800s to early 1900s. Virgin timber was extracted using oxen, mules, horses, and moved by flume and narrow-gage railroad. Many undesirable trees were left standing along with snags and woody debris. The forest floor was not hacked and gouged by dozers. Biomass cuts are much more detrimental. From this perspective, typical management practices being used today are not appropriate. Add to this the release of stored carbon and biomass cuts are a modern-day environmental disaster and are in direct opposition to their “green” label as touted by the logging industry.

From a breeding bird perspective, large biomass cuts not only remove habitat but also greatly increase breeding pressure on adjacent locations. Birds with no home must search for new places to reproduce, increasing competition in surrounding forests. This could diminish or completely displace sensitive species like Hermit Thrush which are already living on the fringe of their ecological niche within the massif (I define ecological niche as the functional role a species has in its environment).

Additionally, consider a bird like Canada Warbler that flies from South America to breed across the upper Great Lakes, New England, and Canada. It is a tremendous advantage for birds breeding in High Knob as they save an enormous amount of energy by remaining far to the south. They are then able to apply energy that would have been used in flight time toward reproduction. As climate continues to change, cold air pooling basins like Big Cherry could become premium refugia for northern species and contribute both energetically and genetically toward their ability to survive. **This is hugely important and must not be overlooked.**

Instead of cutting trees at elevations above 3000 feet, in particular, these special, mixed-mesophytic and northern hardwood forests need to be protected, preserved and allowed to become old growth to help counter widespread logging and other landscape disturbances across middle and lower elevations.

Allowing high elevation forests to stand and grow old would be a total win for all living things, including humans, and for planet Earth.

Let High Knob Forests Stand!

Wayne Browning M.S., Governing Board Member of The Clinch Coalition