



September 2025 issue

The next regular meeting will be on THURSDAY, September 18 at 6:30 p.m. at the VFW Post at 3400 Veterans Drive in Traverse City. The meeting will feature Steven Veatch speaking on "The Geology of Benzie County".

The next regular meeting of Pebble Pups will be in September at 5:30 p.m.

August Highlights

Approximately 40 people attended the club picnic on August 10 at the home of Dean and Sandie Bull. Thank you to the Bulls for hosting the picnic.

Food Pantry Donations

Lorna Coe and Jim and De Elder would like to thank all that have brought items for the food pantry and clothing donations. Due to the success of the program, it will continue at every meeting. Non-perishable food items, ***(Please check to make sure that there are no expired dates on the food items, they can't be accepted by the food banks if they are expired.)***, personal hygiene products, children's new underwear, sizes elementary to teens, toothbrushes and toothpaste. As an added incentive, every time you donate items, put your name in the hat for a drawing, which will take place at our Christmas dinner.

October Silversmithing Class

Janet Ryan and Pierre LaFoille will be teaching a silversmithing class on Sundays, October 12 and 19 from 9:00 am to 5:00 pm. The class may be full, but email scheduling@tcrockhounds.com to check and to express your interest in taking the class. Class size is limited so sign up right away. You must be a member of the club to participate and must attend both weeks' classes. After being accepted into the class, you will get information on what tools and materials are needed and the cost of the class.

Facebook Page

Visit the club's Facebook page at this web address. There is also a link on our club website. <https://www.facebook.com/TCRockhounds>

Upcoming Field Trip and Special Event Information

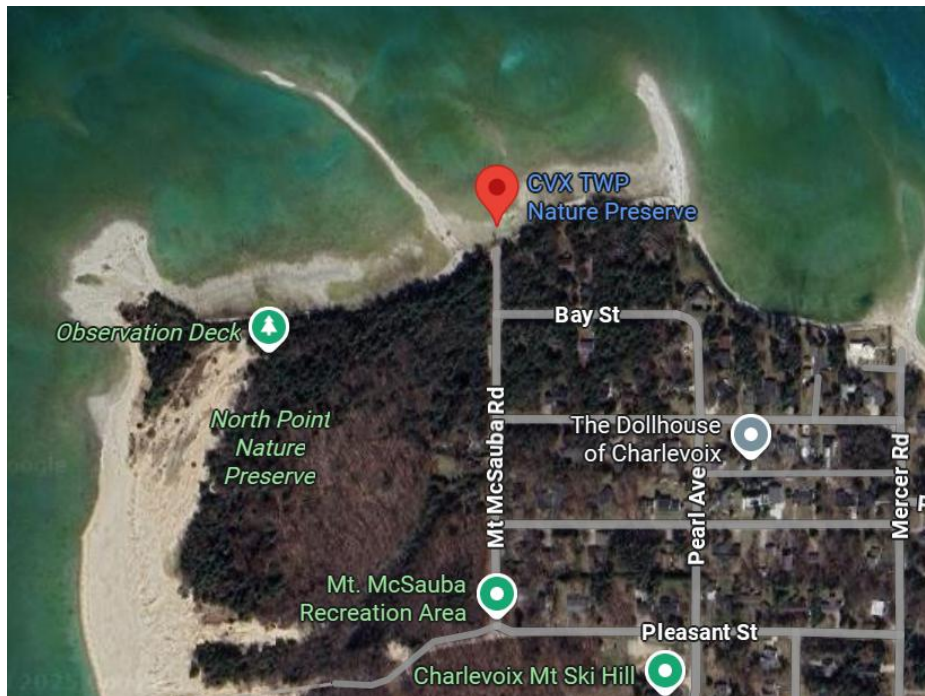
GTARMC Collecting Outings - Fall 2025 (Sept 21, Oct 25-26)

If you plan to participate in either/both outings, please sign up at the GTARMC September 18 meeting, and/or notify GTARMC Field Trip Coordinator Dave Regalbuto at:

E-mail: dregs9727@yahoo.com
Cell/text: 517-256-4716

Sunday Sept 21: Charlevoix Township (CVX TWP)/North Point Nature Preserves
Time: Assemble at 1:30 on Mt. McSauba Road at Lk. Michigan

[North Point Nature Preserve](#) | [Visit Charlevoix, Michigan](#) | [Charlevoix the Beautiful!](#)



Assemble at the turnaround at the north end of Mt. McSauba Road. I've not explored this portion of the big lake shoreline, but it looks like there are a couple of spits that could yield interesting specimens, just in time for the GTARMC show the next weekend. The west-adjacent North Point Nature Preserve has an observation deck overlooking the lake. I have seen that there is also collecting on the beach along the west side of the North Point preserve.

An optional stop along the way is Barnes County Park near Eastport.

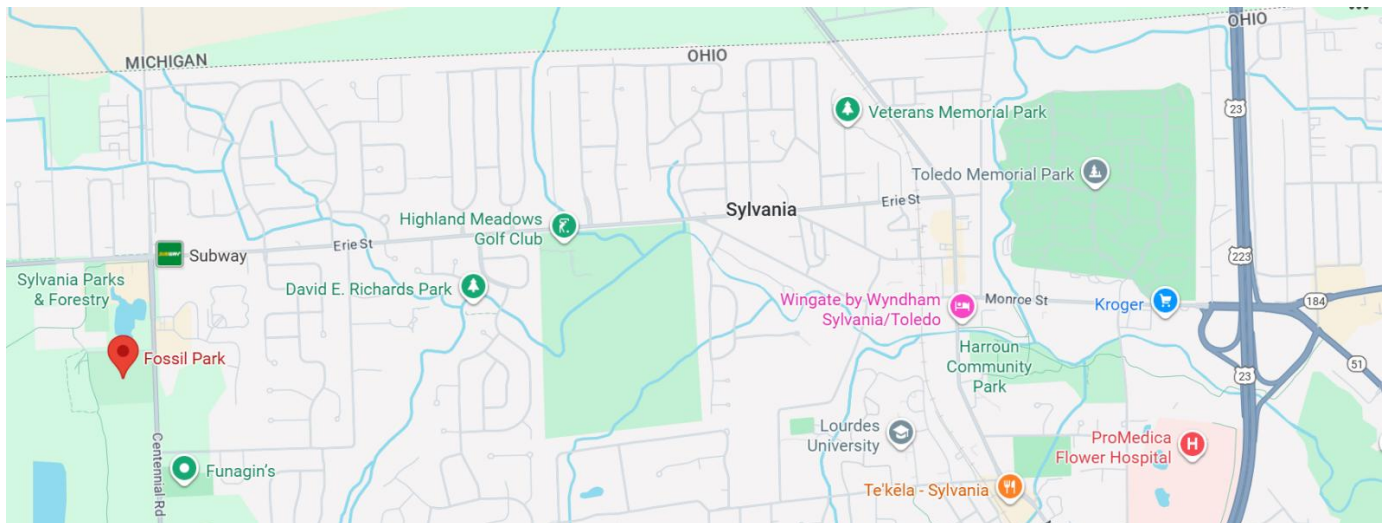
Bring your typical provisions - waders, boots, buckets, scoops. Dress for the weather, rain or shine.

Saturday October 25: Sylvania, OH Fossil Park
*****Open to GTARMC members & family*****

[Fossil Park | Outdoor Sylvania Community Parks](#)

5705 Centennial Road, Sylvania, Ohio (3 miles west of US-23)

Time: Park hours 8:30 - 5:30 (I will be there by around noon)



Fossil Park is rich in fossilized brachiopods, coral, trilobites, and more than 200 species of prehistoric life; keep whatever you find. Fossil Park's 5-acre, **ADA-accessible** rock quarry allows you to search for world-renowned fossils in a safe, controlled environment. The fossils come from Hanson Aggregate Midwest's large working quarries, located just a mile south of Fossil Park. The specimens are already in shale that is soft enough to break with your bare hands, making this an activity nearly anyone can enjoy. The digging pit is open from mid-April to the end of October. We'll collect rain or shine; dress for the weather.

Guidance/rules from Sylvania Community Parks:

- Parking, admission, and fossil hunting are free!
- **Tools are prohibited.** The shale is soft enough to break with your bare hands, so please leave hammers, picks, shovels, and similar items at home.
- Bring a brush to help clean your fossils and a container to transport your treasures home. We recommend an egg carton for smaller children or a milk jug with the top removed and the handle intact.
- Fossil hunting is allowed in designated areas only. Please do not cross the fence along the perimeter of the quarry.
- The fossil pit is an open area without trees or shade. If you visit on a sunny day, plan to bring a hat, sunscreen, and water.
- Make a day of it! Fossil Park also features a trail perfect for walking, running, and biking.
- The Quarry Ridge Bike Trail, parking lot, and bathrooms are open year-round.
- Pets are **not allowed** in the fossil pit, but they are allowed in the parking lot and on the trail that circles the pit. All pets must be on a leash.

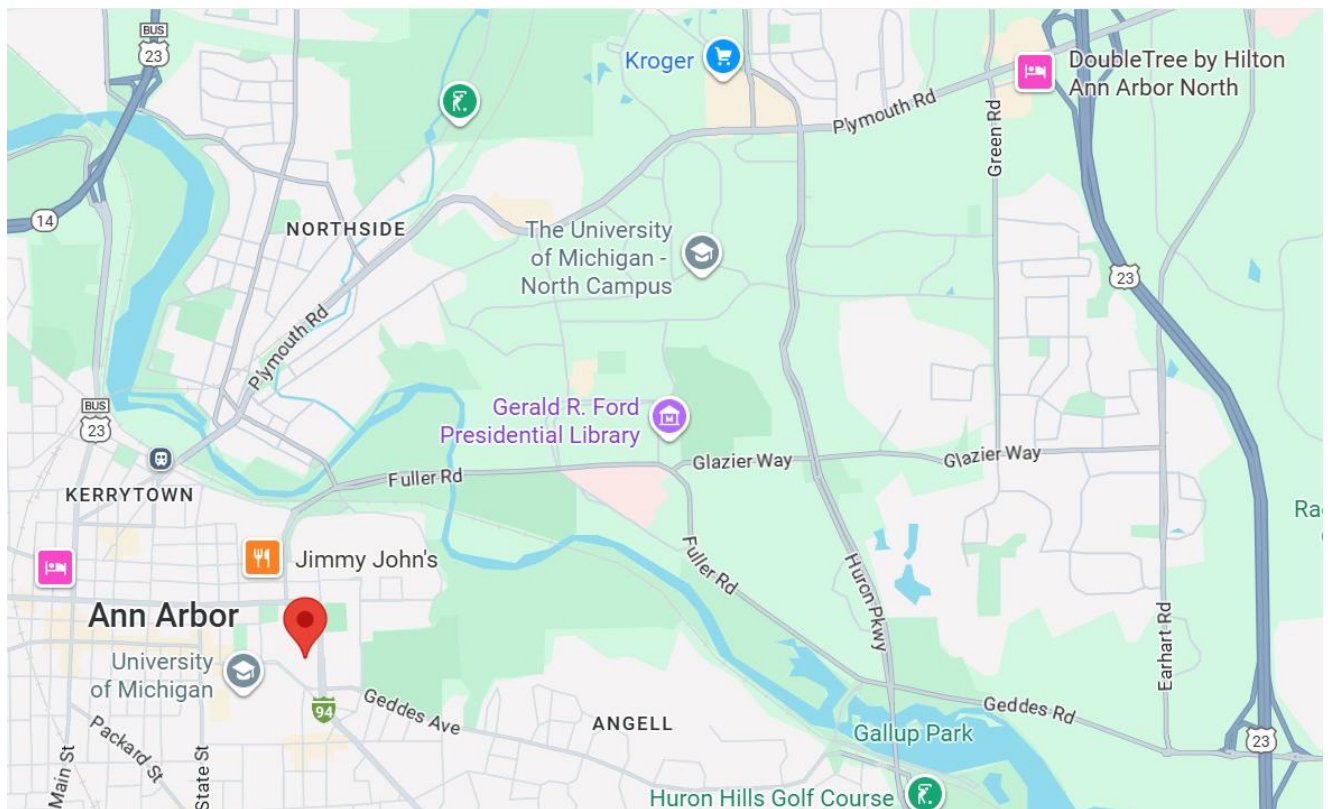
Sunday October 26 - Docent Tour of UM Natural History Museum: 10 AM - Noon *Open to GTARMC members & family*****

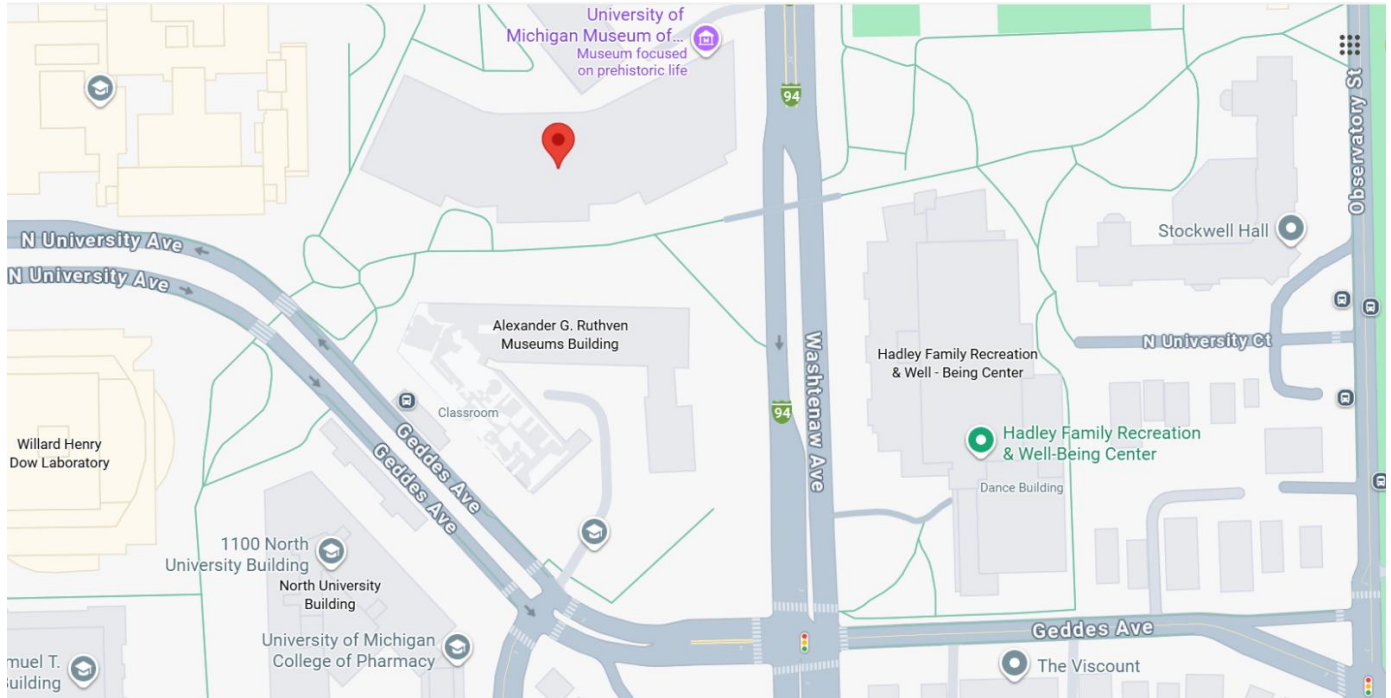
UM offers a 60-minute Museum Highlights Tours led by student docents. These tours typically cover permanent exhibits including *Evolution: Life Through Time*. We can tour up to 30 people at once in smaller groups of 10. The cost is \$8 per person, and we require a minimum of \$80. We typically can schedule between 10:00 - 12:00 pm on weekends.

I will reserve a tour on the morning of Sunday October 26, provided we have 10 members/family members signed up. This gives time to return to greater Traverse City by late afternoon.

[University of Michigan Museum of Natural History | U-M LSA University of Michigan Museum of Natural History](#)

Biological Sciences Building
1105 North University Avenue
Ann Arbor, MI 48109





Dave Regalbuto
GTARMC Field Trip Coordinator
517-256-4716

E-mail: dregs9727@yahoo.com

Please forward ideas for field trips to Dave Regalbuto. His contact information is listed above.

Club Show Information

As you know, the club's annual rock and mineral show is coming on September 27 and 28. Volunteers are needed for several positions to make the event a smooth-running event! I sent out an email on September 1 with an attached list of volunteers needed for the show. Sign-up sheets will be available at the September 18 meeting for any last-minute sign-ups.

If you would like to help with one or more of these positions, please email Lauren Vaughn at: maple2b@aol.com.

Membership Information

From Cathy Kowaleski, Membership Chair:

You must be a paid member to continue to receive club benefits (participation in classes, outings and receiving club newsletters.) The Executive Board voted at a June 19 Board Meeting to raise rates beginning with the 2026 dues cycle which begins with our club show in September. Dues will be \$20 per Adult, Students (8-17) \$5, and those under 8 are free with an adult membership. Name badges are \$8 per badge.
Thank you!

Make checks out to GTARMC.

Membership dues may be mailed to:

Cathy Kowaleski, Membership Chair
801 S. Garfield Avenue #241
Traverse City, MI 49686

Club Email Addresses

gtarmc@tcrockhounds.com(is our main club email address)

[To send a request for classes or workroom time, please send an email request to our club scheduler.](#)

scheduling@tcrockhounds.com

[If you have any photos that you would like to share of club events or members, those can be sent to:](#)

photos@tcrockhounds.com or noonanjohntc@gmail.com

[To view club photos on Flickr, enter the following web address:](#)

[GT Rock & Mineral | Flickr](#)

Page 8

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The above contact list will be included in each newsletter so that you know who to contact for various items.

Pebble Pups News

For more information about the Pebble Pups, check out their website.

<https://traversepebblepups.blogspot.com/>

Below is a request for a volunteer from Steven Veatch to help with a new Pebble Pup Merit Badge Program.

Pebble Pup volunteer needed.

When I had my pebble pup program in Colorado, we participated in the American Federation of Mineralogical Society's merit badge program. I would like to put that program into our pup program, but I need some help with that. The time commitment would be less than 2 hours per month. I need someone to explain the program to the kids in September, and stop by some of our meetings and remind them about earning merit badges. What I did in Colorado was to put the requirements for a merit badge on our website. Maybe I can do

that here with our group. Here is our pebble pup website: <https://traversepebblepups.blogspot.com/>

Below is the link to the merit badge program. There is a link to look at a quick guide to the program.

<https://www.juniors.amfed.org/fra-badge-program>

Thanks for considering doing this. Steve

Following is an article that Steven Veatch wrote with a former Colorado Pebble Pup, Sawyer Blizzard.

A Look at Selected Fossils from the Pottsville Formation, Alabama **By Steven Wade Veatch and Sawyer Blizzard**



Beneath the rolling hills west of Bessemer, Alabama (Figure 1), in the Blue Creek Basin—a minor syncline along the southeastern edge of the Warrior Basin coal field—paleontologists have uncovered an extraordinary record of Pennsylvanian plant life. The RJR Mining Company’s surface coal mine in Jefferson County mines the Mary Lee/Blue Creek group of coals in the Pottsville Formation, a 200-meter-thick sequence rich in both metallurgical and steam coal seams. These deposits formed more than 300 million years ago, when the basin lay within a vast tropical lowland of swamps and rivers.

Figure 1. Map of Alabama showing location of Bessemer. Source: Google Maps.

Dense vegetation—towering lycopods, sphenopsids, ferns, seed ferns, and *cordaites*—thrived in these humid wetlands. Over time, fallen branches, cones, fronds, and seeds accumulated in thick mats of peat, which were buried and compressed into coal. Today, well-preserved fossils from these seams, especially above the Mary Lee and at the Newcastle levels, offer a detailed glimpse into the “Coal Forests” that once blanketed North America, Europe, and Asia.

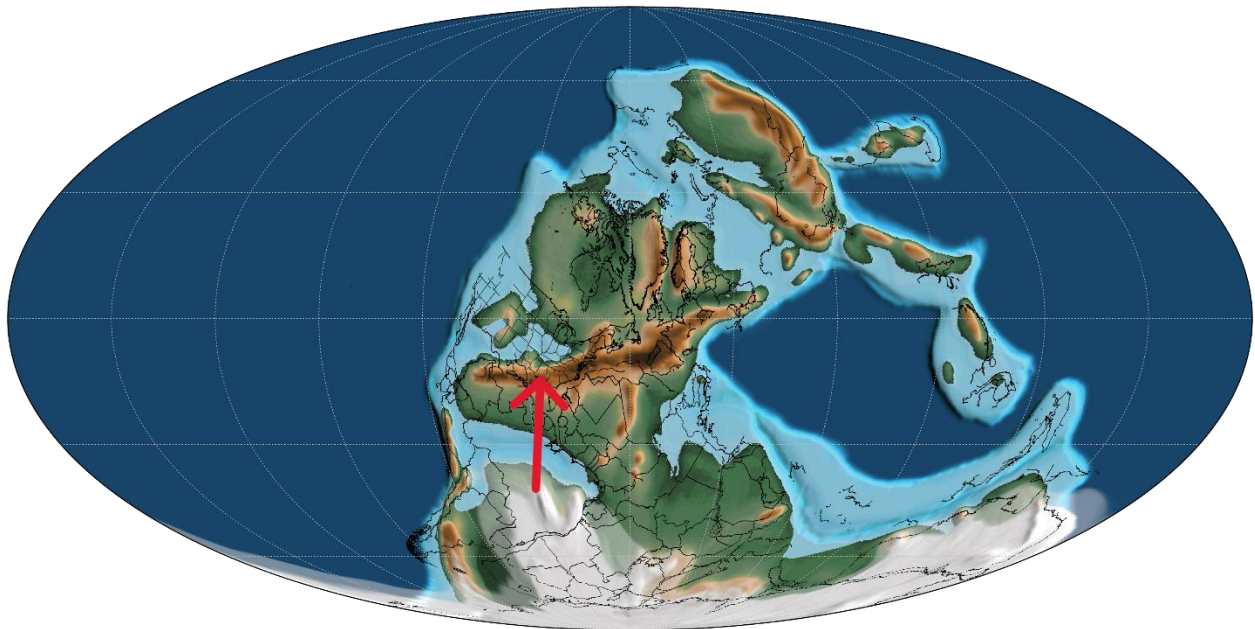
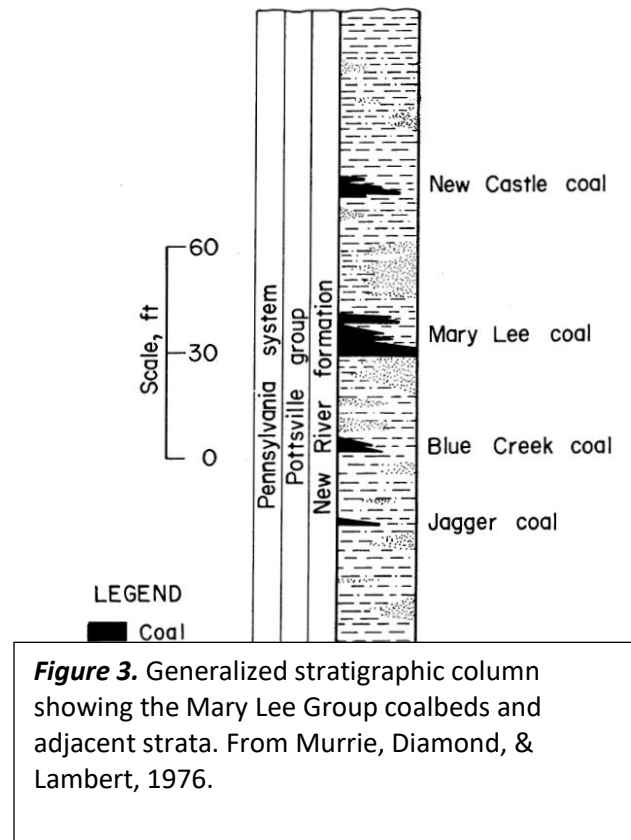


Figure 2. Earth 310 million years ago, overlaid by a black outline of present-day countries in their respective locations. The red arrow shows where the Pottsville Formation, in relation to the equator, was being formed during the Pennsylvanian Period. This image is licensed under the Creative Commons Attribution 4.0 International license.

Geological and Paleoenvironmental Context

The Mary Lee/Blue Creek group of coals is a major unit within the Pottsville Formation. All seams except the Newcastle are metallurgical coals, used in steel production after being processed into coke—a nearly pure carbon fuel. The Newcastle seams produce steam coal,

primarily for electricity generation. Fossils are distributed throughout the sequence, with notable concentrations above the Mary Lee seam and at the Newcastle levels.



During the Pennsylvanian Period, this region supported freshwater swamps and riparian forests. Plant material from these environments—much of it from tree-like lycopsids, sphenopsids, and seed ferns—was deposited in waterlogged settings, preserved as peat, and transformed over millions of years into coal (Gastaldo, 1990).



Figure 4. View of the coal seams at the RJR coal mine: from the bottom, Jagger, Blue Creek (the thick seam), Mary Lee, Lower Newcastle, and Upper Newcastle. Photo courtesy of Bill Lawrence.



Figure 5. This view shows the whole section of coal seams. From the bottom: Jagger, Blue Creek (the thick seam), Mary Lee, Lower Newcastle, and Upper Newcastle. Photo courtesy of Bill Lawrence.

This Pennsylvanian flora consisted primarily of lycopods (clubmosses, firmosses, spikemosses and quillworts), sphenopsids (the only living representatives this group today are horsetails), ferns, seed ferns, and *cordaites* (a genus of extinct gymnosperms, related to or actually representing the earliest conifers).

Today, examples of these major groups still exist, except for seed ferns and *cordaites*, whose relation to modern conifers is questionable. Long-extinct trees that once thrived in swamps make up much of this plant life. Cones, seeds, large branches, and other parts fell from abundant plants in these damp regions. Water and wind dispersed these materials throughout forests and swamps, as they do today.

Representative Fossils from the Blue Creek Basin

Calamites

Among the most striking fossils from the RJR mine are those of *Calamites*, towering sphenopsids that flourished during the Carboniferous (Figures 6,7). Resembling modern horsetails but vastly larger, these tree-like plants reached heights of up to 30 meters (100 feet) and formed dense stands in swampy lowlands. Their segmented trunks, sometimes hollow, often became filled with sediment over time, creating natural casts of their internal structure (Gastaldo et al., 1989). The specimens from Blue Creek include both a trunk section (Figure 6) and a rare example preserving foliage (Figure 8).

Calamites played a critical role in stabilizing wetland soils and contributing to the plant debris that became coal.

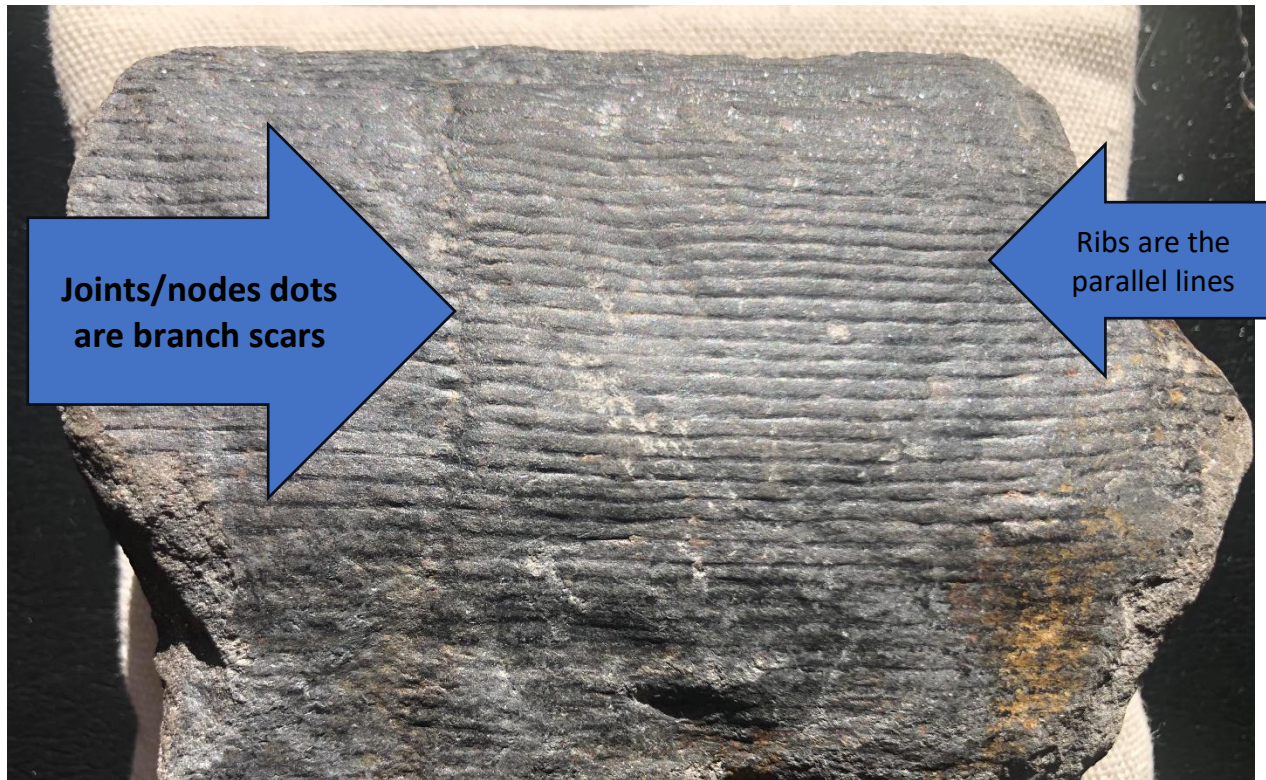


Figure 6. *Calamites* trunk fossil (Pennsylvanian age, about 300-million-year-old). *Calamites* which was a plant that resembled bamboo but is actually related to modern day rushes. This particular piece shows a somewhat flattened, full interior cast of a section of the plant along with some of the original plant material preserved by carbonization. This specimen is 12.7 cm x 10.16 cm x 2.54 cm (5" x 4" x 1"). Photo date 2025 by S. W. Veatch.

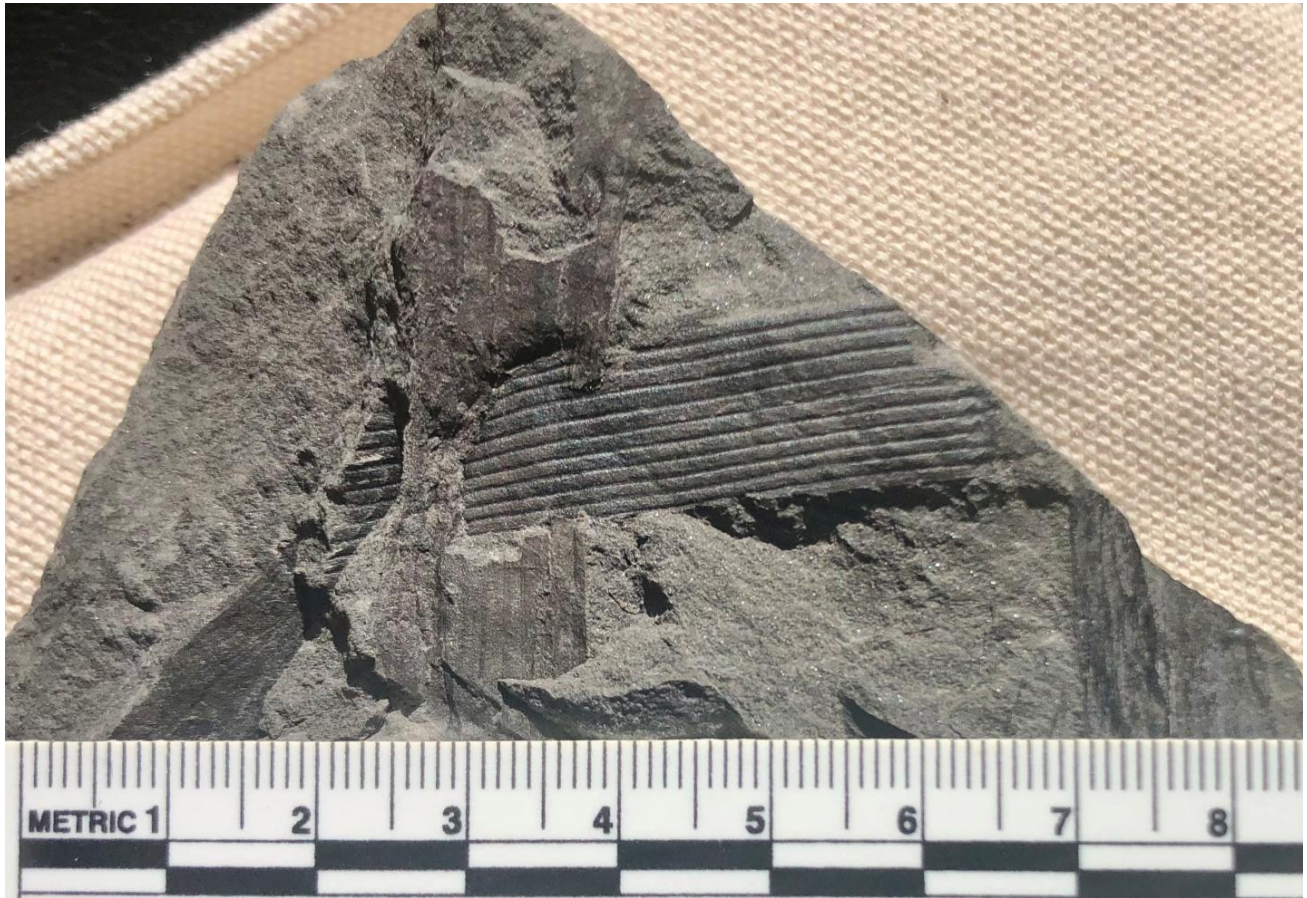


Figure 7. Sections of *Calamites*. (The reverse side of figure 11.) Photo date 2025 by S. W. Veatch.



Figure 8. *Calamites* leaves (*annularia*), stems, whorls. *Annularia* refers to a form taxon used for fossilized foliage associated with extinct plants of the genus *Calamites*. Photo date 2025 by S. W. Veatch.

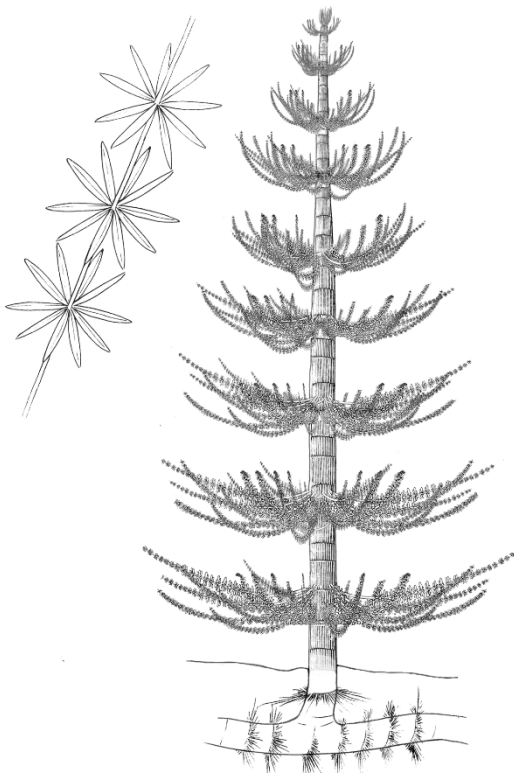


Figure 9. The reconstruction of an entire *Calamites* tree with *annularia*, a form taxon assigned to fossil foliage associated with extinct plants of the genus *Calamites*. Source: <https://commons.wikimedia.org/w/index.php?curid=56797814>.

Lyginopteris hoeninghausi

This extinct seed fern is recognized by its large, compound fronds and complex vascular structure (Figure 10). *Lyginopteris hoeninghausi* holds special importance in paleobotany as an early seed-bearing plant, offering insights into the evolutionary bridge between spore-bearing ferns and true seed plants. The Blue Creek specimens provide a rare window into the structural adaptations that allowed seed ferns to thrive in the humid, flood-prone environments of the Carboniferous.



Figure 10. *Lyginopteris hoeninghausi* is significant in the study of early seed-plant evolution. It has enabled scientists to examine the development of seeds and vascular systems, providing insights into the shift from spore-bearing to seed-bearing plants. Photo date 2025 by S. W. Veatch.

Neuralethopteris biformis

First described as *Neuropteris biformis* by Lesquereux (1880) and later reassigned to *Neuralethopteris* by Goubet et al. (2000), this species represents another distinctive seed fern of the Pottsville Formation (Figure 11). Its finely divided fronds and distinctive venation patterns make it easily recognizable in the fossil record. Well-preserved examples from Blue Creek help paleobotanists study the variation within Carboniferous seed ferns and their possible ecological niches within the coal forest canopy.

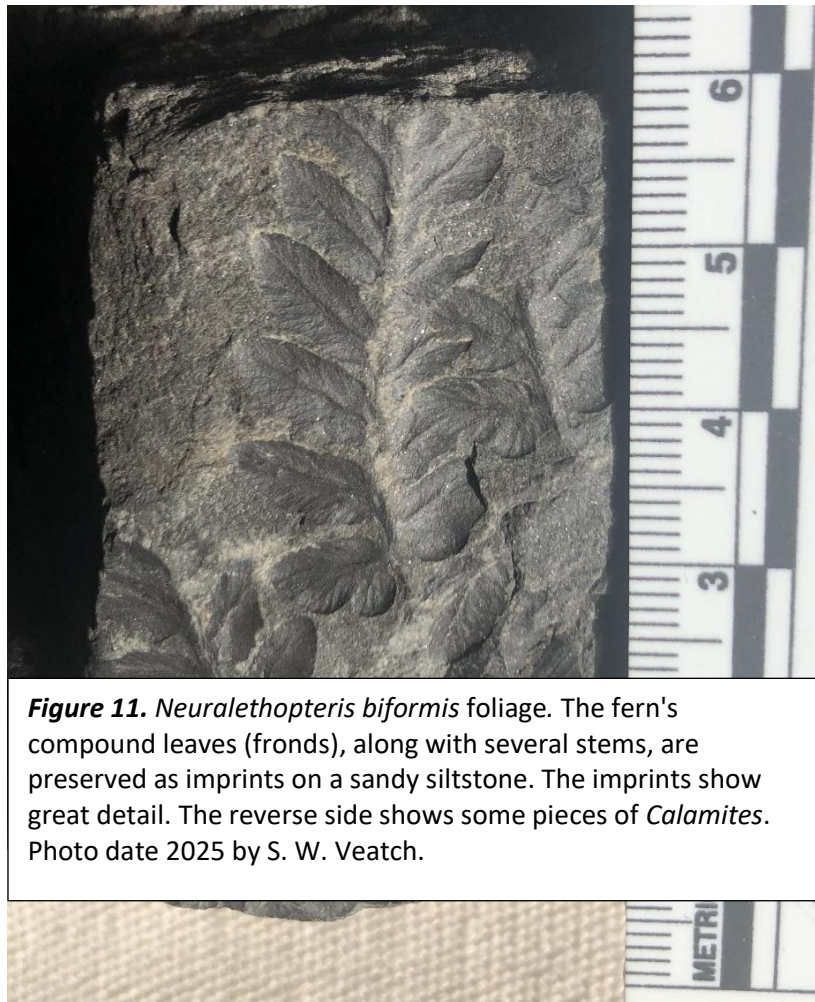


Figure 11. *Neuralethopteris biformis* foliage. The fern's compound leaves (fronds), along with several stems, are preserved as imprints on a sandy siltstone. The imprints show great detail. The reverse side shows some pieces of *Calamites*. Photo date 2025 by S. W. Veatch.

Lepidodendron

Perhaps the most iconic plant of the Carboniferous coal swamps, *Lepidodendron* belonged to the extinct lycopsids, relatives of modern clubmosses and quillworts (Figures 12,13). These trees, with trunks up to 2 meters (6.6 feet) wide and heights exceeding 50 meters (160 feet), were crowned with needle-like leaves. In youth, the trunks were sheathed in foliage; as the trees aged, the leaves fell away, leaving a pattern of diamond-shaped leaf scars that is distinctive in fossils. *Lepidodendron* forests dominated the swampy lowlands, their massive biomass driving the accumulation of peat and, eventually, coal.



Figure 12. *Lepidodendron obavatum*. The diamond shapes are leaf scars. Photo date 2025 by S. W. Veatch.

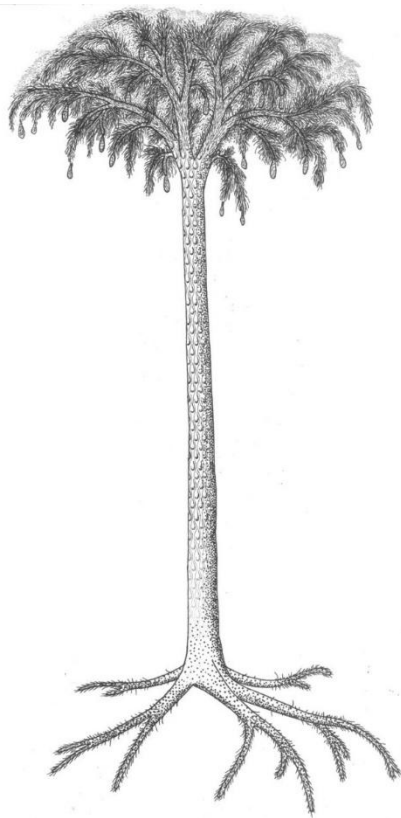


Figure 13. Reconstruction of a *Lepidodendron* plant from fossil remains. Creative Commons Attribution-Share Alike 3.0 license.

Conclusion

The Pennsylvanian plant fossils from the Blue Creek Basin’s RJR mine capture a vanished world: sprawling swamps where *Lepidodendron* forests towered above dense stands of *Calamites*, and seed ferns like *Lyginopteris* and *Neuralethopteris* spread broad fronds into the humid air. These ecosystems, so different from modern forests yet sharing familiar structural patterns, were engines of coal formation—turning ancient sunlight and plant matter into the mineral fuel that still shapes human industry today.

Though the “Coal Forests” have long since disappeared, their remains—preserved in stone and carbon—continue to reveal the complexity and resilience of life in deep time. Each fossil is both a remnant and a record, a fragment of an ancient landscape that reminds us how the framework of life endures, even as the cast of species changes.

Acknowledgments: We thank Bill Lawrence (employee of RJR Company's surface coal mine in Jefferson County, Alabama) for identifying the fossils presented in this paper. The authors express their sincere appreciation to Bob Carnein for his insightful feedback provided during the final stages of preparing this manuscript.

References and further reading:

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- Murrie, G. W., Diamond, W. P., & Lambert, S. W. (1976). *Geology of the Mary Lee Group of coalbeds, Black Warrior Coal Basin, Alabama* (Report of Investigations 8189). U.S. Department of the Interior, Bureau of Mines. p. 1-49.

Author bios:

Steven Wade Veatch is an Earth scientist with a focus on geology and paleoenvironments. He studies the interactions between ancient landscapes, fossil records, and sedimentary processes to better understand Earth's dynamic history. Passionate about field research, Steven combines meticulous observation with storytelling to illuminate the planet's deep past for both scientific and public audiences.

Sawyer Blizzard is a paleontology student at Fort Hayes State University and is passionate about uncovering Earth's ancient life. Specializing in dinosaurs and prehistoric ecosystems, Sawyer combines fieldwork with research to bring the distant past into focus. When not digging through rock layers, Sawyer is writing so he can share the stories of long-vanished creatures and landscapes.