CLUB NEWS
OCTOBER 2025

OCTOBER CLUB MEETING

Saturday, October 11 at 9 AM
Lake George Charter School

October Club Presentation:
Dinosaurs to Birds, Part II

Get ready for the exciting second part of Paul Combs' fascinating presentation: "Dinosaurs to Birds!" Paul will dive even deeper into the compelling links between theropod dinosaurs and modern birds.

If you attended the first part (or even if you didn't!), you know this is a presentation you won't want to miss. Last year, Paul showed us over 30 types of evidence illustrating this remarkable evolutionary connection, including discoveries from just a few years ago.

This year, Paul is back with an update, incorporating new evidence that further reinforces what we know about birds' dinosaurian origins! Come learn about the latest scientific findings that continue to solidify the link between creatures like T. rex and the birds we see today.

This presentation promises to be both informative and visually engaging. Mark your calendars and prepare to be amazed by the incredible journey from giant reptiles to feathered flyers!

Reclamation Field Trip
Dave Hits Hot Pocket

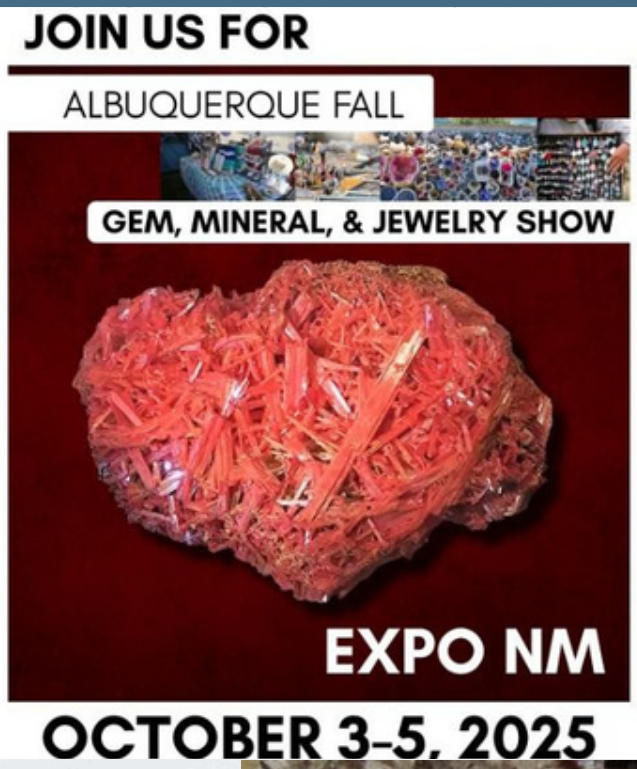
What a September for the LGGMC! On Saturday, September 27, President Dave Bruess led a joint field trip with the Denver Gem and Mineral Guild to our claim on a beautiful, leaf-peeping day. After filling in some holes, digging began, and Dave immediately struck a huge pocket of crystals. He was pulling out fantastic Smoky Quartz Clusters faster than a cat chases the hiss of a whipped cream can. Member Tristin jumped in, and between the two of them, they recovered at least a hundred crystals.

LGGMC Hosts USAFA

In September, the club was also honored to host a group of Air Force Academy cadets and instructors at the claim. Everyone had a great time learning to dig, and many left with some nice smokies of their own. We think we may have even gotten a few newbies hooked on crystal digging!

HAPPENING REAL QUICK!

ITS SHOW TIME!



Albuquerque Fall
Gem, Mineral & Jewelry Show

Location: Expo New Mexico -
300 San Pedro Dr NE, Albuquerque, NM

Admission: FREE

Follow the official Facebook page for updates, sneak peeks at featured vendors, and event details.

2025 Annual Mineral and Gem Show

Hosts by the

Oklahoma Mineral and Gem Society

Modern Living Building
OKC State Fair Park
608 Kiamichi Place,
Oklahoma City, OK 73107

October 24th, 9–6
October 25th, 9–6
October 26th, 10–5

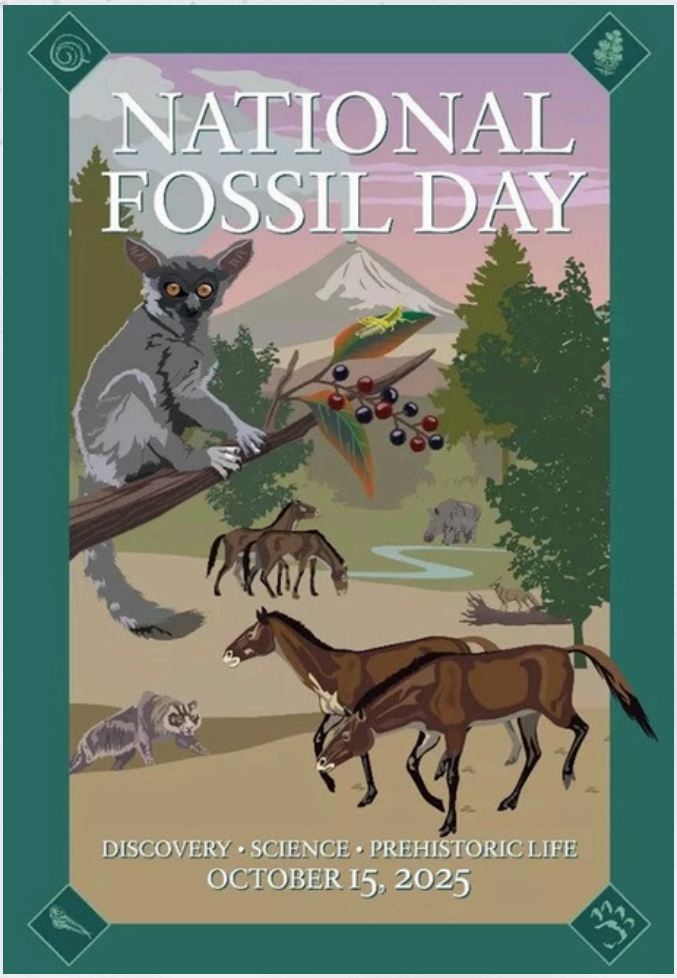
Daily Admission $8 Children under 12 free

Show Features:
Exhibits, Gemstones, Fossils, Earth Science Education, Tools, Rough Rock, Crystals, Fluorescent Room, Artisan Jewelry and Children's Activities

Selenite
Great Salt Plains, OK

Oklahoma Mineral and Gem Society
omgs-minerals.org
See Us on Facebook

READ ALL ABOUT IT!



Visit NPS.org

National Fossil Day
October 15, 2025

National Fossil Day is observed annually in October. Take this opportunity to learn about fossils or life on our planet from millions of years ago.

The National Park Service (NPS) has compiled a wealth of information for you to read and projects for you to work on to celebrate this day. This year, they are highlighting the John Day Fossil Beds National Monument in eastern and central Oregon. Visit the NPS website to learn about the diverse plants and animals that lived here for millions of years. The article will teach you about the past and transition you into today. You'll find it quite informative, full of similarities, and surprising. You'll also find links to other articles that will continue your learning experience of that time in Earth's history.

Breaking News! The Dallas Mineral Collecting Symposium Presentations are now available. Learn about a variety of mineral collecting related talks for FREE!

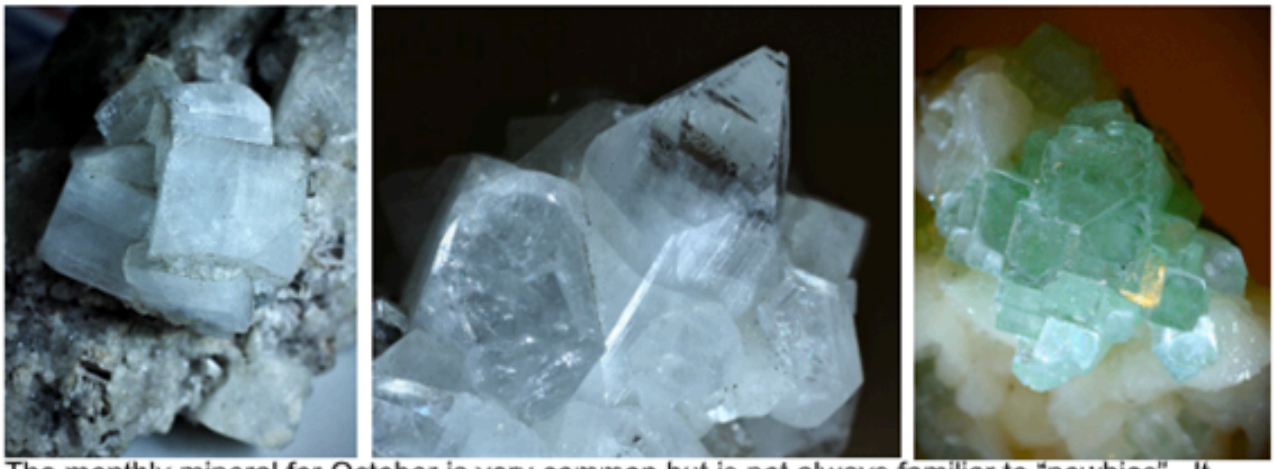
DMCS VIDEO Library

WHY ARE GEOLOGISTS SO GOOD IN SCHOOL?

THEY TAKE NOTHING FOR GRANITE

Monthly Mineral Quiz

Monthly Mineral for October, 2025 (Carnein photos and collection)



The monthly mineral for October is very common but is not always familiar to "newbies". It occurs mainly in cavities in basaltic lava flows, along with many zeolite minerals (chabazite, stilbite, etc.). Although it often occurs as transparent tetragonal crystals (middle photo), it isn't a good candidate for faceting because it has perfect cleavage, is quite brittle, and has a hardness of 4.5 to 5—too low to make a durable gemstone. Crystals are commonly striated parallel to their lengths, but they may be blocky, making it hard to tell which direction is the length. The only localities in Colorado listed in Mindat are near Golden. All of the specimens shown came from India. What is this common mineral?

Last Month's mineral: Topaz, $Al_2(SiO_4)(F,OH)_2$
Finally, one of our favorite local minerals shows up as a "monthly mineral". With a hardness of 8 and SG of 3.4 to 3.6, topaz is a good candidate for occurrence in placer deposits. Whether water-worn or euhedral, it's a favorite of mineral collectors and lapidaries. The crystals to the left are from Juab Co., Utah, but Colorado has dozens of notable localities, including the Crystal Peak, Crystal Creek, and Crystal Park districts. As a result, local localities are often confused with each other in old collections. World-wide, the color varies widely, but a common feature is that the color of topaz crystals fades in direct sunlight or can be modified by exposure to radiation. Remember that you can tell topaz and quartz apart by looking for vertical striations and one perfect cleavage (perpendicular to the striations) in topaz. Good luck finding some of your own!

What's This Rock?

This is a type of conglomerate rock, charmingly named for their resemblance to a traditional English pudding with fruits and nuts mixed into the batter. These stones are naturally occurring composites formed when smaller, rounded stones (often called clasts) become cemented together by a matrix of finer materials and minerals like quartz or calcite. This is a type of conglomerate rock, charmingly named for their resemblance to a traditional English pudding with fruits and nuts mixed into the batter. These stones are naturally occurring composites formed when smaller, rounded stones (often called clasts) become cemented together by a matrix of finer materials and minerals like quartz or calcite.

Do you know what it is? You can find out here.

READ ALL ABOUT IT!

A Look at Selected Fossils from the Pottsville Formation, Alabama

By Steven Wade Veatch and Sawyer Blizzard

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

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.

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.

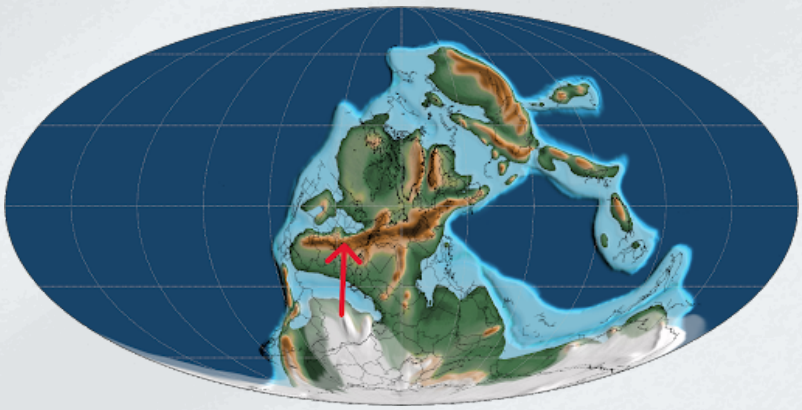


Figure 2. Earth 310 million years ago, overlayed by a black outline of present-day countries in their respective locations. The red arrow shows where the Pottsville Formation, in relation to the equator, was being formed during the Pennsylvanian Period. This image is licensed under the Creative Commons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

A Look at Selected Fossils from the Pottsville Formation, Alabama

Geological and Paleoenvironmental Context

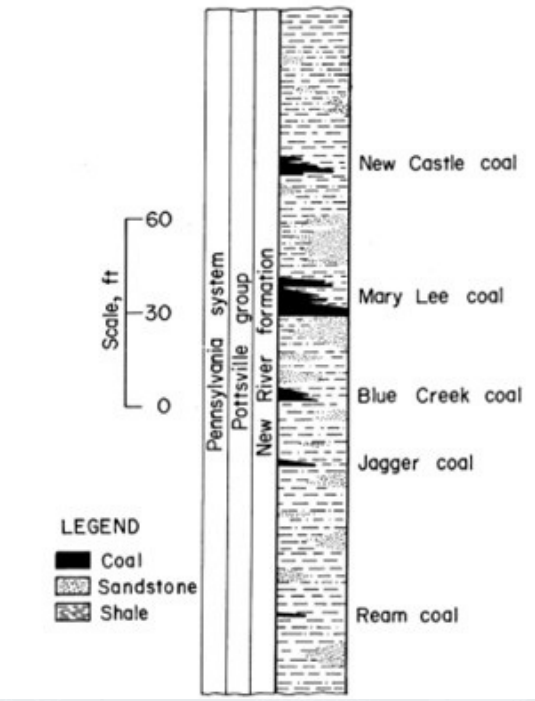


Figure 3. Generalized stratigraphic column showing the Mary Lee Group coalbeds and adjacent strata. From Murrie, Diamond, & Lambert, 1976.

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.

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).

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.

A Look at Selected Fossils from the Pottsville Formation, Alabama

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 was a plant that resembled bamboo but was 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.

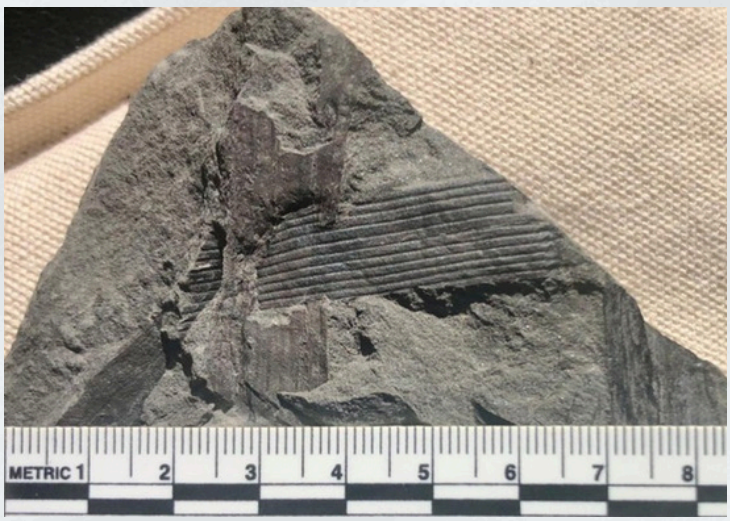


Figure 7. Sections of Calamites. (The reverse side of figure 11.) Photo date 2025 vy S.W. Veatch.

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.

A Look at Selected Fossils from the Pottsville Formation, Alabama

Representative Fossils from the Blue Creek Basin

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.

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 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. Vetch.

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.

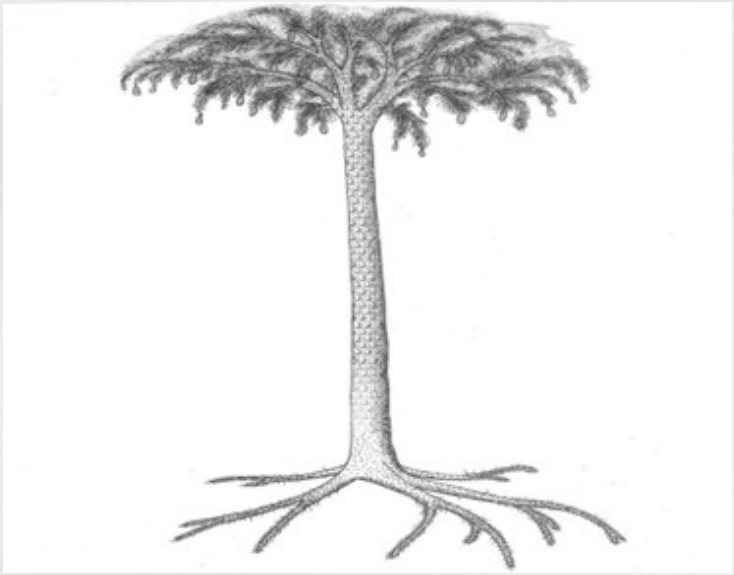
A Look at Selected Fossils from the Pottsville Formation, Alabama

Representative Fossils from the Blue Creek Basin

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.

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

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.

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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.

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

LAKE GEORGE GEM & MINERAL CLUB

About Us

The Lake George Gem and Mineral Club is a group of people interested in rocks and minerals, fossils, geology and history of the Pikes Peak/South Park area, Indian artifacts, and the great outdoors. The Club's informational programs and field trips provide opportunities to learn about Earth Science, rocks and minerals, fossils, lapidary work, jewelry making, and to share information and experiences with other members. Guests are welcome to attend, to see what we are about! The Club is geared primarily to amateur collectors and artisans, with programs of interest both to beginners and serious amateurs. The Club normally meets on the second Saturday of each month at the Lake George Charter School gym, located on the south side of US Highway 24 approaching the town of Lake George from Florissant. A link to a map of the meeting location is provided on the sidebar under "Contact Us". Between Oct – Mar, our meetings start at 10 AM. From Apr-Sep, our meetings start earlier, 9 AM, to allow for more time for any subsequent field trips.

Club Officers

President Dave Bruess david@bruess.me
Vice President Bart Zobel bezobel@gmail.com
Secretary Steve Kahler pipprophet@gmail.com
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Show Coordinator Carol Kinate kinatec@aol.com

"Found my first perfect baby smoky quartz." - Ang 9/27/25