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CLAYTONIA

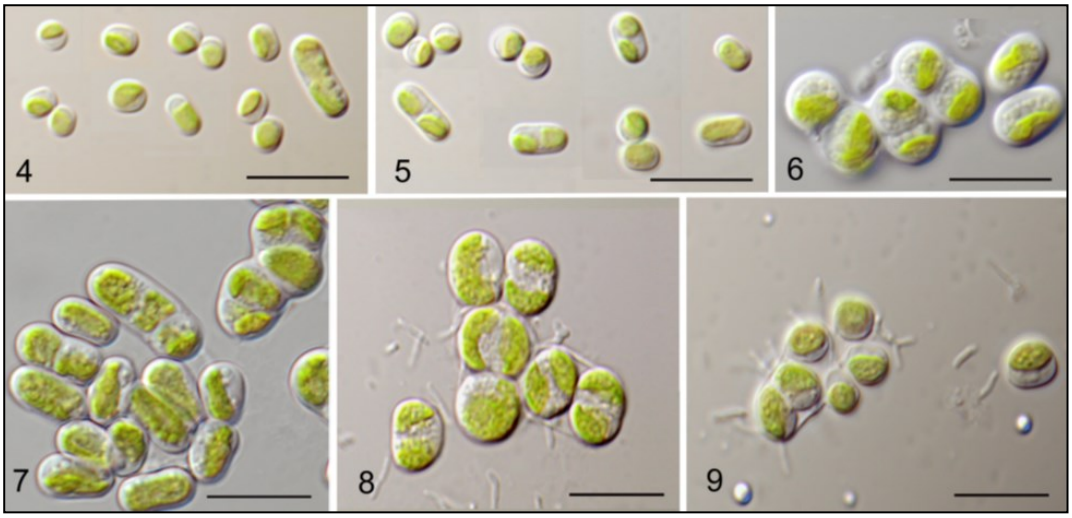
Newsletter of the Arkansas Native Plant Society

Introducing *Diplosphaera sundellii*

by Karen and Marvin Fawley

Eric Sundell, for whom this alga is named. Photo by Michael Weatherford.

Botanists Karen Fawley and Marvin Fawley at the University of the Ozarks recently described a new species of the green algal genus *Diplosphaera* in honor of Dr. Eric Sundell. The new species, *Diplosphaera sundellii*, was found in the sodic-saline slicks present in Warren Prairie Natural Area in Bradley and Drew Counties. The new species name recognizes Eric's extensive research work in Warren Prairie. Karen and Marvin worked with a University of the Ozarks student, Nedgee Thermozier, to characterize the new species based on morphology and DNA sequence analysis. *Diplosphaera sundellii* is a very tiny alga well adapted to the changing environment of the slicks in Warren Prairie, which can rapidly shift from very wet to extremely hot and dry, an environmental condition known as hydroxeric. The slicks also have an unusual soil chemistry with a high level of sodium ions. The edges of the slicks are home to the diminutive flowering plant, *Geocarpon minimum*, and Warren Prairie also harbors many other rare vascular plants. As it turns out, Warren Prairie also harbors many new species of algae!



Photos of the newly named Diplosphaera sundellii found on Warren Prairie and named after Eric Sundell. Scale bars are 10 micrometers. Photos by Karen and Marvin Fawley.

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Nedgee Thermozier, University of the Ozarks student who worked on the project.

The light microscopy images from the paper show the changing morphology of *Diplosphaera sundellii.* Figures 4 and 5 show cells grown in a liquid culture. The very small (about 2.5 micrometers in diameter) spherical cells enlarge to form elliptical cells (figure 5) that subsequently produce two new spherical cells by simple cell fission. These new cells are often seen in pairs; hence the genus name, *Diplosphaera*. The remaining figures, 6 through 9, show the very different morphology of the alga when it is grown on a solid substrate, in this case, an agar slant. Under these conditions, *Diplosphaera sundellii* produces much larger cells that have very thick cell walls and are often joined together in pairs or irregular packets. These features are adaptations to reduce water loss under very dry conditions such as those found on the sodic-saline slicks. Even more interesting is a complete switch in the asexual reproduction of this alga. When grown in liquid culture, the cells divide by fission, retaining the cell wall of the dividing cell. In contrast, cells grown on agar divide by the production of aplanospores. In this process, new cells are produced inside the cell wall of the mother cell and these aplanospores form new cell walls. The remnant mother cell walls are clearly visible in figures 8 and 9. When the alga is moved from agar to liquid, it undergoes a series of divisions (figure 9) that result in the reduction of cell size and return to the small, thin-walled form seen in figures 4 and 5. This life cycle allows for small cells with rapid reproduction during wet periods and large cells that can withstand very hot and dry conditions.

The University of the Ozarks student who worked on the project, Nedgee Thermozier, grew up in Haiti and received his undergraduate degree in Biology in 2023. He is presently living in Texas and is working with a pharmaceutical company that designs new drugs.

As for the soil algae of Warren Prairie, the Fawleys have a large collection of algal strains from the slicks and surrounding barrens grassland soils. Nedgee is only the first of several Ozarks students who have discovered new algal species in this collection.

Karen and Marvin Fawley collecting algae at Warren Prairie Natural Area. Photo by Brent Baker.

The full paper "A new terrestrial species of *Diplosphaera* (Trebouxiophyceae), *Diplosphaera sundellii*, from a sodic-saline slick in Warren Prairie Natural Area, Arkansas, USA" is available online at: https://www.researchgate.net/publication/378910457.

Open savanna and salt slicks of Warren Prairie. Photo by Michael Weatherford.

Floristic Inventory of Clifty Canyon

by *2024 Delzie Demaree Research Grant Recipient* Jack Looney

Clifty Canyon contains one of the most intact mesic oak-hickory forests in the Arkansas Ozarks. Nestled in the Ozark National Forest, it features deep gorges, limestone bluffs, and spring-fed streams that run cold year-round. The streams cut into the bedrock, forming a series of box canyons. Calcareous groundwater seepage along the bluffs and terraces creates perfect microhabitats for rare species, including several Appalachian disjuncts that thrive in the cool, moist conditions. In contrast, south- and west-facing slopes host high-quality glades where drought-adapted species thrive. The upper ridges support stands of towering *Pinus echinata* (shortleaf-pine). The heterogeneity of habitats within such a concentrated area makes Clifty Canyon a true botanical hotspot.

Clifty Canyon. Photo by Jack Looney.

The canopy is dominated by massive *Quercus alba* (white oak), *Quercus rubra* (northern red oak), and *Carya* spp. (hickories). Other large trees include *Nyssa sylvatica* (black-gum), *Platanus occidentalis* (sycamore), *Ulmus* spp. (elms), *Fraxinus* spp. (ashes), *Quercus stellata* (post oak), *Quercus velutina* (black oak), and *Pinus echinata* (shortleaf-pine). The shrub layer contains *Asimina triloba* (pawpaw), *Cornus florida* (flowering dogwood), *Cercis canadensis* (eastern redbud), *Hamamelis virginiana* (witch hazel), *Chionanthus virginicus* (fringe tree), and *Cotinus obovatus* (American smoke-tree). The understory is rich with *Panax quinquefolius* (ginseng), *Arisaema triphyllum* (Jack-in-the-pulpit), *Hydrastis canadensis* (goldenseal), *Adiantum pedatum* (northern maidenhair fern), and *Polystichum acrostichoides* (Christmas fern). The understory layer is particularly striking in the spring and summer, rich with a diverse array of flowers. The forest also has a variety of *Carex* (sedges), such as *Carex gracillima*, *Carex leptalea*, *Carex timida*, *Carex laevivaginata*, and *Carex sparganioides*. Grasses like *Brachyelytrum erectum* (shatter glass grass), *Elymus riparius* (riverbank wild rye), *Panicum virgatum* (switch grass), and *Chasmanthium latifolium* (river-oats) thrive here.

Access to the canyon is challenging, requiring a long bushwhack through dense forest, with multiple stream crossings and often navigating directly through the creek. The steep terrain, ranging from about 1,000 feet at the bluff tops to 700 feet in the streambed, means there are no easy approaches. However, this difficult access helps preserve the area's remarkable botanical diversity.

During my first full field season in Clifty Canyon, I collected and pressed over 300 plant specimens, including several county records. In a shaded sandstone gorge, I found *Huperzia lucidula* (shining clubmoss) and possibly *Crepidomanes intricatum* (weft fern). *Cypripedium reginae* (showy lady's-slipper) grew along calcareous seeps on the limestone bluffs. *Lilium superbum* (Turk's-cap lily) was a particularly exciting find, thriving in the moist, shaded understory. I documented *Gentiana alba* (pale gentian) along a sandy forest edge. In the glades, *Spiranthes magnicamporum* (Great Plains ladies'-tresses) and *Coreopsis grandiflora* var. *saxicola* were notable finds. Another interesting find was a mutated *Thalictrum thalictroides* (rue-anemone) with multiple sets of petals, which stood out among the typical forms of the species.

Beautifully mutated rue-anemone (Thalictrum thalictroides). Photo by Jack Looney.

I collected several Appalachian disjunct species, including *Anemone quinquefolia* (wood anemone), *Veratrum hybridum* [also known as *Veratrum latifolium*] (crisped bunchflower), *Waldsteinia fragari-*

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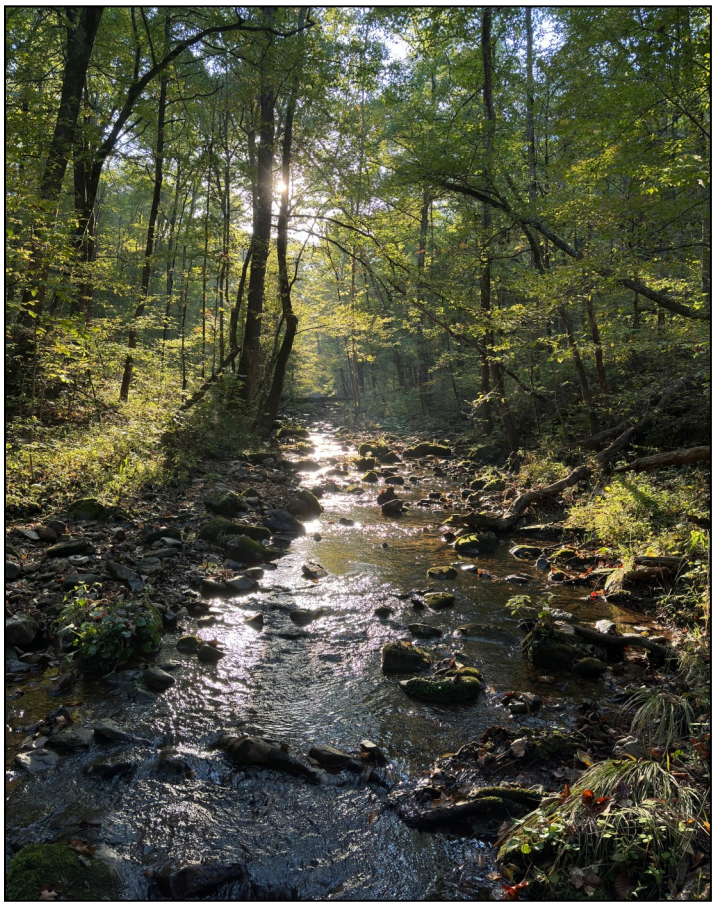
Nodding trillium (Trillium flexipes). Photo by Jack Looney.

oides (barren strawberry), *Lilium superbum* (Turk's-cap lily), and *Trillium flexipes* (nodding trillium). These species, more common in the Appalachian Mountains, thrive in Clifty Canyon's cool, moist microhabitats, making the canyon a key refuge for these plants.

The ecological importance of Clifty Canyon goes beyond its plant diversity. As one of the least disturbed mesic forests in the Ozarks, it provides a crucial reference for understanding regional plant distributions and habitat conservation. The persistence of rare species in these microhabitats underscores the importance of preserving such refuges.



Clifty Canyon. Photo by Jack Looney.

Clifty Canyon is full of wildlife. One morning, I spotted *Ursus americanus* (black bear) crossing the road. *Meleagris gallopavo* (Wild Turkeys) and *Colinus virginianus* (Northern Bobwhite) are common sights and sounds. The streams are home to crawdads and salamanders, often hiding under rocks and logs. *Agkistrodon piscivorus* (Northern cottonmouth) and *Crotalus horridus* (Timber rattlesnakes) are also found here, adding to the area's biodiversity.

Indian-paintbrush (Castilleja coccinea). Photo by Jack Looney.

The canyon remains a critical refuge for rare plants and wildlife, offering a glimpse into an ecosystem that has stayed largely undisturbed. In the next field season, I look forward to documenting even more plants.

I'd like to extend my gratitude to the Arkansas Native Plant Society for supporting the floristic inventory of Clifty Canyon. Their dedication to studying and conserving Arkansas's flora has been invaluable, and I'm grateful for the opportunity to contribute to understanding this unique botanical region.

Kentucky lady's slipper Orchid (Cypripedium parviflorum var. pubescens). Photo by Jack Looney.

Notes from Smith Creek Preserve

By Samantha Heller

The weekend began with a guided group hike out at Smith Creek Preserve near Boxley, Arkansas— just a hop and a skip away from the Buffalo River— which was jointly organized by the University of Arkansas Herbarium and the Arkansas Native Plant Society.

This >1,000 acre tract of public land, managed by The Nature Conservancy, is beautiful at any time of year, but especially in the present moment, on the cusp of the growing season. Salamanders and caddisflies crawl amongst the smooth stones of the creek beneath Elise Falls, the fragrant flowers of Ozark Witch-hazel (*Hamamelis vernalis*) shrubs emanate a smell of Juicy Fruit gum at the first— currently dry— creek crossing, and…

…in a few weeks, the waterfall will light up with several hundred blossoms of Sharp-lobe Hepatica (*Hepatica acutiloba*). We were just a smidge early this year for flowers.

Several of us noted that you could already see tons of one interesting plant from the parking lot: Shagbark Hickory (*Carya ovata*). It's fitting, since Smith Creek is home to the largest population of Indiana Bats in our state. The peeling bark of Shagbark Hickory flakes so strongly against the trunks that bats will actually roost underneath them in the summer heat, neglecting to travel all the way back to caves. Only a handful of other species of trees will create this bat habitat, like an occasional White Oak (*Quercus alba*) with more-peeling-than-usual bark.

Ozark witch-hazel (Hamamelis vernalis). Photo by Samantha Heller.

The trail begins in a small, muddy parking lot, and descends deeply right off the bat (pun intended). It keeps rolling down and down, eventually running into a stretch where the road has such deep erosional scars that you could fall into it. Most of the path, thankfully, is flat enough, and where it does cave in, you can see it well in advance.

With great steepness comes great variability. Smith Creek Preserve sits in the Boston Mountains, being just a smidge further west than other parts of the Buffalo River

Andrew Ruegsegger inspects a American witch-hazel (Hamamelis virginiana). Photo by Samantha Heller.

region that are fully in the heart of the Ozark Mountains. These hills are mostly sandstone with a few slivers of the Boone Formation shale mixed in, but some sections do contain limestone, which is far more common in the Springfield Plateau directly north of them.

The change in rock substrate affects soil acidity and a host of other factors that directly influence which species of plants can grow on them— as we keep climbing down, Jennifer Ogle and Andrew Ruegsegger point out that the hike begins with species like Blue Ash (*Fraxinus quadrangulata*) that indicate calcareous, basic soils but then shift towards those that are far more tolerant of acidic soils, such as Catbriar (*Smilax glauca*) vines and blueberry shrubs (*Vaccinium* spp.) that love to grow below pine stands throughout the state. The layers of sandstone give way to acidic soil, while the limestone layers are basic and rich in calcium; as our elevation declines, we see evidence of the changing soil types.

As foreshadowing for another related species to come, Andrew pointed out a small tree of American Witch-hazel (*Hamamelis virginiana*) that leans out over the

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The base of Elise Falls. Photo by Samantha Heller.

trail. Some remnants of their flowers are still holding on despite their blooming season being so long past. This species blooms at the beginning of autumn.

One of the many things that make ANPS hikes well worth going to is the constant presence of experts in the audience in addition to those who lead the trips. This day's hike was joined by Dr. Rick Noyes, a professor at UCA who teaches botany and directs the university herbarium. After relaying some interesting facts about hickories, he also pointed out that all of the American beech (*Fagus grandifolia*) trees we came across had not only various lichens growing on them, but also liverworts! I was surprised to see that they were a *Frullania* species, which are incredibly tiny, dark, and hard to see even when you're looking for them.

Blue Ash was a surprising find in its winter form. The species epithet refers to its habit of forming incredibly square branches and trunks, making it easily distinguished if you know what you're looking for. This species is much smaller than most of our other ash trees, and is thought to be somewhat resistant to the invasive Emerald Ash Borer that has decimated ash trees across North America and is currently spreading throughout Arkansas, Louisiana, and Texas. Being a smaller tree, it likes to grow on the edges of glades. As previously mentioned, it is a strong indicator of basic soils, and generally has limestone substrate beneath it.

As it turns out, you can identify some blackberries (*Rubus* sp.) even in the winter! This was news to me; the only thing I would be able to know in winter is the invasive Wineberry (*Rubus phoenicolasius*), which is a deep red and has so many spikes on it that it appears to be densely hairy at a distance. They're quite scary looking.

By contrast, one of our native brambles, the Black Raspberry (*Rubus occidentalis*) has canes that are a less saturated type of red, and have an interesting glaucousness to them. It has a distinctly uneven and mold-like look to it. Although still spiky, these are much less intimidating than Wineberry, and are at least indigenous to the area.

Jennifer explained the distinguishing factors for this species and also told us a wholesome anecdote about Dr. Johnnie Gentry. While they were writing the Trees, Shrubs, and Woody Vines of Arkansas book, they chose to include one of the common names that he had made up after hitting some literal snags with a different species of Rubus, the Southern Dewberry (*Rubus trivialis*) that grows so low to the ground and is quite easy to trip on: An Ankle-tangle Bramble!

Shortly after that, someone spotted the first fresh flower that we saw: a White Trout-lily (*Erythronium albidum*)!

Although there is some debate over their taxonomy in Arkansas due to interbreeding and other oddities, we probably have two species, White Trout-lily and Prairie Trout-lily (*E. mesochoreum)*. I can't find it at the moment, but I'm fairly certain this is the same trail that I once photographed several intermediate plants within inches of each other. One has to wonder, what's going on with them? Do we have a new species? Just an intergrade? Who knows?

The Buffalo River region at large is defined, at least in the common mind, by its marcescent American Beech understory, Jennifer stopped to point out some Sugar Maples (*Acer saccharum*) that also possess marcescent leaves, but whose range sprawls far beyond the Buffalo. They occur on basically every shady slope in the woods of my home on the far eastern edge of Benton County. Some of the other trees around still holding their leaves were members of the Birch family instead.

Morgan Russell suddenly produced a large fallen leaf of Cucumber Magnolia (*Magnolia acuminata*), handing it off to Jennifer, which has an unusual habit in our part of the state.

The vastly different twigs of Umbrella Magnolia (Magnolia tripetala) (left) and Cucumber Magnolia (Magnolia acuminata) (right). Photo by Samantha Heller.

In the more southerly regions of Arkansas, particularly towards the Ouachita Mountains, Cucumber Magnolia trees are really more of large shrubs than truly trees.

I remember seeing my mom point them out when, one summer as a child, she drove me to the Arkansas Audubon Society's Halberg Ecology Camp at Camp Clearfork, not far from Hot Springs. Down there, they are incredibly common and certainly much shorter.

Jennifer pointed out that they grow much, much taller in the Ozarks, generally reaching the height of the overall tree canopy, not the mid-story. In either form, of course, they're lovely trees. At this time of year, we could see fuzzy Magnolia buds in the sky.

Every now and then, another White Trout-lily would be in flower along the trail.

Mid-hike group photo. Photo by Deb O'Donnell.

An associate of acidic soils, or at least of the Short-leaf Pine (*Pinus echinata*) trees that love to grow in them, Andrew pointed out some Catbriar (*Smilax glauca*) vines in a tangle above several shrubs. It's hard to spend much time in the Boston Mountains without running into them.

American Beech is an inevitable sight anywhere near the Buffalo River. It holds onto its leaves all winter long, and has smooth bark not dissimilar to the skin of an elephant.

One of its interesting associates is a tiny parasitic plant called Beechdrops (*Epifagus virginiana*). Completely brown in color, this plant lacks green pigments from chlorophyll and instead relies entirely on feeding off of the comparatively gigantic beech trees that they grow underneath. At a glance, they resemble mushrooms far more than they seem to look like the average plant.

Many beech trees are hollowed out yet still standing and alive, and can provide entertainment.

After a long hike down the trail, we finally hit the smooth, bulky rocks of a dry creek.

Some of its edges had a small tangle of Ozark Witch-hazel (*Hamamelis vernalis*) shrubs growing in it; fortunately in flower even this late in the year. Most of the time, this species flowers in late January, although it is certainly dependent on how warm the weather gets.

At this time of year, there is little to no water at the base of the creek; what is present amounts to a few small ponds of turquoise water.

A narrow path leads towards Elise Falls, and you can walk quite a ways up to the waterfall itself, where a steady but weak stream of water flows.

The moisture of the waterfall creates a sudden shift in the plant life. Although they have not yet flowered this year, many evergreen leaves of Sharp-lobe Hepatica can be seen on the lower parts of the falls. The rocks lining the stream are lined with various mosses, including an adorable oat-like Pocket Moss (*Fissidens* sp.), and some ferns, such as Walking Fern (*Asplenium rhizophyllum*) and oddly the common Ebony Spleenwort (*Asplenium platyneuron*).

In contrast to the Cucumber Magnolia that we saw earlier in the trail, Morgan also found an Umbrella Magnolia (*Magnolia tripetala*). Although winter twig ID generally seems extraordinarily difficult for a beginner, sometimes similar species look so extraordinarily different that even a true novice could distinguish them. These two are a great example of that.

The hike back up to the parking lot was a bit brutal, with the day warming up quite a bit, but we all came out a little bit more knowledgeable and certainly with far greater enjoyment than we had at the start of the day.

ANPS Spring Meeting

May 2-4, 2025 in Monticello, Arkansas

Everybody is welcome to attend! Meeting registration is only $10 with no pre-registration required. Registration will begin at 5:00 PM on Friday, May 2, 2025. The meeting events wrap up on Sunday, May 4 around noon.

Date: May 2-4, 2025 in Monticello, Arkansas

Location: UAM Forestry Complex Building, Room A102
UAM School of Forest Resources
Weevil Drive, Monticello, AR 71655
Google maps link: https://maps.app.goo.gl/867bXLhNqD1fm1e67
On Google, the building will appear as the UAM School of Forest Resources.

Lodging: Holiday Inn Express
146 Dearman Drive, Monticello, AR 71655
Phone: (870) 460-0100

We have 20 rooms reserved, 15 doubles and 5 kings at a rate of $114.40 per room. Rooms will be held until April 18th. Complimentary breakfast, free WiFi, and parking is included. **To receive the group rate, you must call to make the reservation and mention you are with the Arkansas Native Plant Society.** Individuals are responsible for their own room and tax.

There are other hotels available nearby should you be unable to reserve a room at the Holiday Inn.

Dining Options: We will have a potluck meal Friday and Saturday evenings. Bring a dish or just come, eat, socialize, and learn! There are also some dining options (fast food and others) in Monticello.

Jennifer Ogle leads a trip to Columbus Prairie during the fall 2024 meeting. Photo by Virginia McDaniel.

Auction: The silent auction will begin at 6:00 PM on Friday and close at the end of the program on Saturday evening. Proceeds from the auction support the ANPS small grants program, student research grants, and student scholarships! Bring any donations you would like to include in the auction before 6:00 PM. Auction sheets will be provided. If your item doesn't sell, you must take it back with you at the end of the meeting.

Mary Hogle and other field trippers listen as Art Browning talks about the geology of Columbus Prairie. Photo by Jennifer Ogle.

Field trips:
Field trips to local areas of top botanical interest (e.g., Warren Prairie Natural Area) will be scheduled for Saturday 8:30 AM - 5:00 PM and Sunday 8:30 AM - 12:00 PM. You must sign up for field trips on Friday evening to allow for adequate logistical planning. Our field trips will offer both easy and more vigorous walks. We'll be in southern AR in the spring, so we advise bringing waterproof boots/shoes, bug spray, water, and a good hat! Dr. Richard Abbott, botany professor at UAM, will also lead a workshop in Plant Identification Saturday afternoon.

Prairie Gentian (Gentiana puberulenta) on Baker Prairie. Photo by Eric Hunt.

For complete and up-to-date details, go to www.anps.org or contact Andrew Ruegsegger at andrewruegsegger8@gmail.com; (870) 656-9705.

Welcome, New ANPS Members!

New Members to ANPS since the fall issue of *Claytonia* (between 10 August 2024 and 07 March 2025)

Holly & Elaine Adams (Springdale, AR)
Hannah Anderson (Little Rock, AR)
Erika Boswell (Cabot, AR)
Sydney Bowman (Bella Vista, AR)
Chrystal Boyd (Rogers, AR)
Dr. John Bracey (Little Rock, AR)
Jerrold Butler (Bella Vista, AR)
Kristin Netterstrom Higgins (Bryant, AR)
Alexis O'Callahan (Fayetteville, AR)
Caite Mae Ramos (Fayetteville, AR)
Sally Shroyer (Taylor, AR)
Laura Thompson (Alexander, AR)
Logan Young (Judsonia, AR)

New Lifetime Members

Carlee Adams (Arkadelphia, AR)
Jackman Corley (Siloam Springs, AR)
Sonnia Hill (Ben Wheeler, TX)
Mary and Carl McDaniel (Oberlin, OH)
Veronique Odekirk (Little Rock, AR)
Rand C. Retzloff (Little Rock, AR)
Sharon Roberts (Eureka Springs, AR)
Hope Shastri (North Little Rock, AR)
Cathy M. Shonk (Newark, AR)
James N. Wise (Hot Springs, AR)

Jennifer Ogle, Sarah Geurtz, and Greg Rajsky pose in their Fronds Forever tees with the shirt's creator, artist Caite Ramos (center without green t-shirt). Photo by Samantha Heller.

SAVE THE DATE!

FALL 2025 MEETING

SEPTEMBER 19 –21

Harrison & Buffalo

National River

Old Growth and Landowner Education

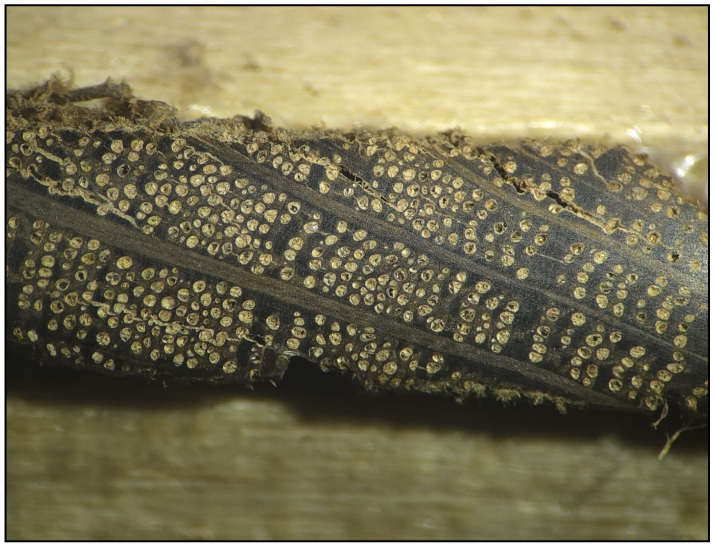
By Jon Webb

A new oldest-known post oak (*Quercus stellata)* was discovered last month in Osage County, Oklahoma. At a remarkable 442 years old, this tree once resided within Arkansas Territory from 1819 to 1836. Post oak grows throughout the eastern United States and prefers dry sites, including ridges, outcrops, and steep slopes. On these xeric sites post oak regularly reaches ages of 200 to 400 years old, as confirmed time and time again by the University of Arkansas's Tree-Ring Lab Director Dave Stahle. The tree, named PGE10, is just outside of Sand Springs, Oklahoma, on a 22,000-acre private ranch owned by The Charles Page Trust and was discovered by Dave Stahle and myself as part of a project aiming to survey, identify, and provide reports on areas of old growth forests to landowners. This finding rivals the oldest known white oak (*Quercus alba*, 464 years old) in the eastern United States from Virginia.

An ancient post oak from the Joseph H. Williams Tallgrass Prairie Preserve with physical characteristics of the oldest age class. Note the laterally twisted trunk, short stature, broken canopy, and generally gnarled form. This individual was not sampled as it was almost completely hollow, illustrating the difficulty of getting accurate age estimates out of the oldest post oaks and why PGE10 is so remarkable. This tree is very likely 300 years old or more, but we will never know. Photo by Jon Webb.

The largest refuge of these ancient post oaks is the Cross Timbers ecoregion that spans from central Texas through Oklahoma and into southeastern Kansas, with a little spur reaching into western Arkansas. The Cross Timbers represent the ecotone between the deciduous forests of the eastern United States and the grasslands of the southern Great Plains. The Cross Timbers also form an important link in the oak archipelago that spans from Central America to southeastern Canada and provide important habitat for migrating neotropical birds among many others. Due to the transitional nature of the ecoregion, the Cross Timbers are a complex mosaic of forest, woodlands, savanna, tallgrass prairie, and glades. Historically, wooded areas were limited to the steep ridges and valleys of the ecoregion, largely due to available soil moisture and fire regimes. These steep ridges and valleys have protected large tracts of original, mostly undisturbed old-growth forests, with an estimated 5% of original forests remaining, compared to the less than 1% found throughout a vast majority of the eastern U.S. The extreme climate present in the upland forests of the Cross Timbers results in stunted, gnarly trees that grow too slowly for commercial lumber harvesting, and the thin, rocky, and steep soils protect the trees from being cleared for pasture. The non-commercial nature of the ecoregion has not entirely protected the forests from eradication, but rather slowed the march of urbanization, logging, and pasture conversion. A vast majority of the Cross Timbers are held privately and much of the forests are cleared for conversion to pasture, using an aerially applied broadleaf herbicide to convert these woods into rangeland for cattle and hay production. Yet the stubborn oaks persist, sprouting from robust root stocks and creating dense, impenetrable coppice thickets that require repeated herbicide applications. The oaks fight the clearing of undisturbed old growth forests, just as we do.

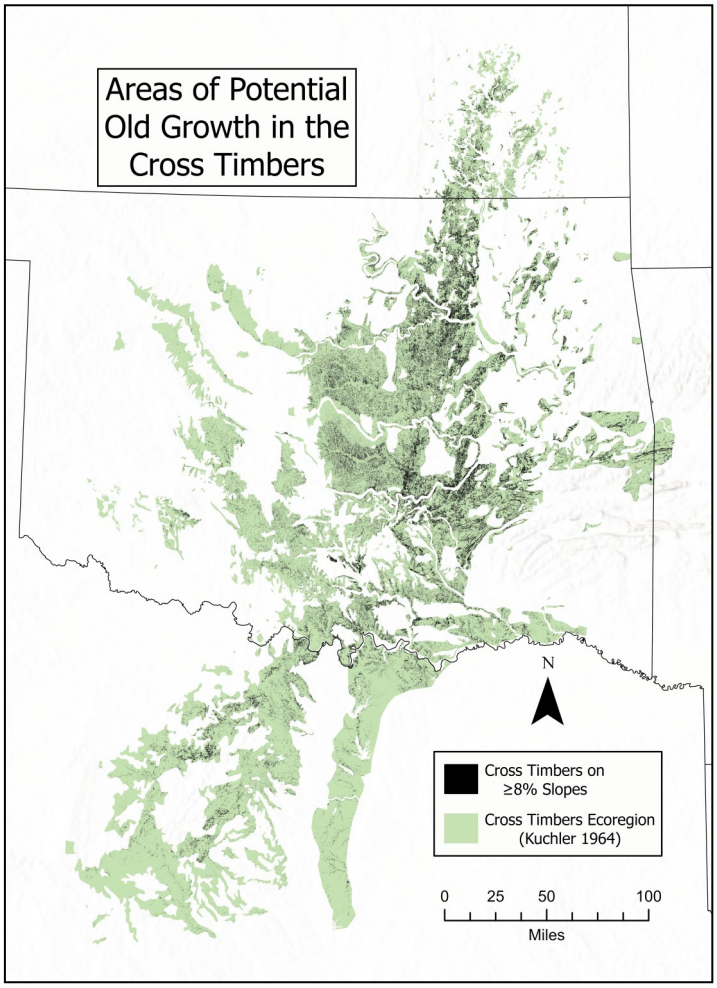
Ancient trees are able to be accurately dated to the exact



Inner rings of PGE10 formed in the late 1500s. The average ring width of PGE10 is less than half a millimeter, exhibiting the extremely slow growth of the oldest post oaks in the Cross Timbers. Most oaks sampled are less than 60cm (24in) in diameter. Photo by Jon Webb.

calendar year through tree-ring dating, or dendrochronology, this is because climate imprints recognizable and unique patterns of wide and narrow rings onto the tree's yearly growth, allowing dendrochronologists to pattern match back in time. Dendrochronological estimates are conservative and operate on the idea of minimum ages, meaning we know a tree is at least a certain age, but it could be much older. This is for two reasons. For one, many old trees experience some level of heart rot, where the center of the tree starts to rot away, losing its centermost rings, thus obscuring the true age of the tree. The other reason lies in the fact that tree cores are taken from breast height, meaning the years the tree takes to grow to that height are lost as well. We can account for this by taking samples lower on the tree, but heart rot is more or less unavoidable. In the case of PGE10, a non-destructive core sample was taken from the tree and 18.5cm of rings were able to be extracted. But this tree has a diameter of roughly 46.5cm and a radius of 23.25cm, meaning there are up to 4.75cm left between the center of the tree and the end of the core. If we do some simple interpolation based on years per centimeter on the core, the tree could have an absolutely mind-blowing age of 562-years. This is likely an overestimate, as post oaks tend to grow faster when young—wider rings towards the center of the tree could skew the average years per centimeter lower. Still, the tree is likely at least 500 years old. There are likely thousands and thousands of 450+ year-old post oaks in the Cross Timbers, but it is remarkably difficult to confirm due to heart rot. PGE10 is unique in the sense that it is very difficult to find a tree this old and be able to prove it due to the prominence of heart rot in most post oaks of this age class.

We know that PGE10 is not alone in the 400+ year age class, because external growth characteristics of trees provide fantastic insight into the vintage of any individual tree. Old trees have a gnarl factor and generally show their age, just like old people. Heavy upper limbs, broken canopies, lateral twisting of trunks, and root collar exposure all provide important clues to the true age of a tree. PGE10 does not stand out in this sense. Although obviously very old, we have come across hundreds of similar looking trees in our studies that do not reveal their true ages to us mostly due to heart rot. This is somewhat frustrating, of course, but also poetic and inspiring. Our current times are so information-rich that the impossibil-



A predictive map of remaining areas of old growth (black) over a potential natural vegetation map by Kuchler, (1964) (green). A simple model of still forested areas on steep slopes (≥8%) was used to model potential areas of old growth. Many areas of uncut old growth remain in the Cross Timbers due to the non-commercial nature of the stunted, twisted oaks and steep, rocky hillsides. The Cross Timbers likely hold a higher percentage of remaining old growth than any ecoregion in the eastern U.S.

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ity of knowing the true age of these druid trees helps me slow down and appreciate the trees for what they are rather than the information they may represent. Every moment I am surrounded by these remarkable individuals is a moment I'll keep with me forever.

A mature post oak nestled among the rugged slopes of the Cross Timbers. Most of the well preserved tracts of old-growth forests are protected by their habitat, the oldest post oaks are often among boulders on steep slopes with thin soil. Note the stunted nature of the forest, which protects these trees. Photo by UAF Tree-Ring Lab.

The Cross Timbers also represent an opportunity for conservation and education. Many see the Cross Timbers as brush—stunted, gnarly trees that pose an inconvenience instead of the remarkable natural accomplishment that they are. People like trees, and most can appreciate old trees as evidenced by a common fascination with redwoods, bristlecone pines, and bald-cypress. Most that reside in the Cross Timbers are unaware of the ancient woods growing literally in their front yards. This project aims not only to identify areas of undisturbed old-growth, but to educate landowners on the true age of their scrubby forests, and the dangers threatening the trees comprising them. There have been conservation successes in the Cross Timbers, including the Pearl Jackson Crosstimbers Preserve, a number of wildlife management areas and state parks, and Keystone Ancient Forest (KAF). KAF establishes an important precedent, as it was once private property and was identified as potentially having old growth Cross Timbers. KAF was then visited in person, confirmed to have pristine old growth post oak and eastern red-cedar (*Juniperus virginiana*), and a report was provided to the landowner. Turns out the landowner was conservation minded, and with his generosity and the help of The Nature Conservancy and the City of Sand Springs, a nature preserve was founded with the purpose of protection and education. As with most conservation success stories, these represent only a drop in the bucket and clearing continues to this day, which is why landowner outreach and education is one of the most important tools we have as conservationists.

Fall Business Meeting Minutes

Arkansas Native Plant Society Business Meeting Minutes
October 5, 2024
University of Arkansas, Hempstead Hall
2500 South Main Street, Hope, Arkansas 71801

The Arkansas Native Plant Society (ANPS) held its Fall 2024 Business Meeting at the University of Arkansas' Hempstead Hall in Hope, Arkansas. President Eric Fuselier called the meeting to order at 6:07 p.m.

Field Trips. Eric Fuselier thanked everyone for coming to the meeting and he reminded them of the remaining field trips to be conducted the following morning. Eric reported that the Saturday morning and afternoon field trips were well received, thanking the field trip leaders for conducting the hikes and inviting them to describe highlights of those excursions.

Diana Soteropoulos summarized the outing to the Saratoga Blackland Prairie Natural Area, noting that the associated calcareous woodland supported nutmeg hickory (*Carya myristiciformis*) and that the chalk/marl prairie featured three species of blazing star (*Liatris spp*.), along with *Gaillardia* and blue sage (*Salvia aurea*).

Virginia McDaniel reported that, because the Grandview Prairie site was open to hunting, it was decided to tour instead the nearby Columbus Prairie, approximately half of which had been burned a month earlier. Plant species of note included *Agalinis auriculata* and *Oenothera glaucifolia*. The afternoon walk at Millwood State Park showcased *Stachys tenuifolia* in flower and *Tripsacum dactyloides* in fruit.

Greg Rajsky noted that the tour of White Cliffs Natural Area revealed lance-leaf greenbrier (*Smilax smallii*), along with toothache tree (*Zanthoxylum clava-herculis*), bastard oak (*Quercus sinuata*), and—likely—shingle oak

(*Quercus imbricaria*).

Webinars. Eric Fuselier reminded those present that the ANPS YouTube channel features webinars covering botanical topics. He noted that the evening's featured speaker, Dr. Richard Abbott, had spoken in July on the subject of opposite-leaved woody plants and that Brendan Kosnik had presented Experiencing Botany through the Eyes of an Arkansas Traveler, also in July. As for future webinars, Eric reported that Ben Benton would be presenting on November 2 (Untangling the Biotic and Abiotic Factors that Structure Prairie Pimple Mound Plant Communities) and that Justin Thomas would be presenting on November 16 (The Amazing World of Wild Plant-Soil Interactions).

Election of Officers. Nominating Committee Chair Joe Ledvina reported that Leslie Patrick would be stepping down from her role as Treasurer. Members applauded her efforts and thanked her for her service. Joe introduced Samantha Heller as the nominee to fill the Treasurer's position, noting that Samantha had an accounting background in addition to her botanical expertise. Joe reported that a candidate had also been nominated to enter the presidential track: Art Browning, a retired geologist who had previously served in a board position for the Sierra Club. The following slate was presented to the members, with the nominees duly elected by unanimous assent:

Samantha Heller, Treasurer

Art Browning, Vice President

Eric Fuselier thanked Sarah Geurtz for all her work in planning and organizing the fall meeting and shared that today was her birthday. Members applauded in celebration of her birthday—and in appreciation for her efforts.

Treasurer's Report. Leslie Patrick presented the fall Treasurer's Report as included in the fall edition of the *Claytonia* newsletter, with a fund balance of $9,366 as of August 9. She explained that expenses outpaced revenue during the past year, in large part because ANPS had been intentionally generous with grant awards and scholarships. Noting that print and distribution costs ($2,489 for *Claytonia* and $1,436 for the directory) make up a significant portion of ANPS expenses, she encouraged the members to accept electronic distribution of these publications rather than opting to continue to receive paper copies in the mail. Members were also encouraged to recruit others to join the organization. Leslie reported that the prior evening's auction brought in $900 of revenue and reminded the members that ANPS merchandise is available online through Bonfire (https://www.bonfire.com/results/arkansas+native+plant+society), with proceeds deposited directly into ANPS' bank account.

Withdrawal of Grant. It was noted that a year ago (September 2023) the membership had approved issuing a grant of $1,000 to All Saints Lutheran School in Jonesboro for a native plant garden, to be issued as reimbursement for submittal of receipts for purchase of approved plant species. However, the school had not submitted receipts and apparently had not pursued the project, so it was suggested that the Society withdraw the grant. During the subsequent discussion, Karen Seale asked about donations tied explicitly to specific projects or purposes; in response it was noted that such donations are to be treated as "restricted" funds or "board-designated" funds and accounted for separately from the organization's general fund. In the past, ANPS has had to adopt additional accounting procedures to accommodate such designations. Following discussion, Susan Schulte moved to withdraw the grant award 30 days after issuing notice to that effect via email to our contact at the school. The motion was seconded by Greg Rajsky and subsequently passed.

Sundell Award. Eric Fuselier noted that the Eric and Milanne Sundell award for lifetime achievement, including a $1,000 cash contribution, had been presented to Mary Ann King during the prior evening's program. Jackie Leatherman asked how the board had arrived at the specific dollar amount associated with the award and it was explained that the board had sought to strike a balance between making it affordable for the organization and meaningful to the recipient. Further discussion suggested that, because this is a lifetime achievement award, it would not be expected to be given on a prescribed schedule (e.g., annually), but as deserving recipients are identified. Jennifer Ogle noted that she would like to see more of our early/charter members so honored.

Budget. The Board of Directors recommended adoption of the 2025 budget as proposed by the Treasurer. Jennifer Ogle moved to adopt the budget as presented by the Board; Joe Ledvina seconded. Motion passed.

Eric Fuselier announced that, after adjourning the business meeting, there would be a short break followed by the introduction of our featured speaker, Dr. Richard Abbott. There being no further business, the meeting was adjourned at 6:41 PM.

Respectfully submitted,

Greg Rajsky, Secretary

Early Arkansas Botanists: Jessica Holleman

By Jennifer Ogle and Susan Young

As we're hot on the heels of Women's History Month, now is a good time to shine a light on Jessica Holleman, who holds the distinction of being the first woman of record to collect specimens for the University of Arkansas Herbarium (UARK).

Born in Arkansas in 1855, she was the oldest of eight children born to Harmon Holleman and Clemenza Handfield Holleman. The first record we have of Jessica is the 1860 census, where the Hollemans are found in Sebastian County. By 1870, a teenaged Jessica and her family were living in Van Buren (Crawford County). At some point between 1870 and 1880, the Holleman family made their home in Fayetteville. Perhaps the move was precipitated by 21-year-old Jessica's enrollment in preparatory school at the Arkansas Industrial University (AIU; today's University of Arkansas) in 1876.

Looking at a closeup of the flawless pressing work on this specimen of hairy mountain-mint (Pycnanthemum pilosum), collected by Jessica on August 16, 1878, it's no surprise she took home Professor Harvey's top botanical prize the year she was enrolled in his classes. Photo by Jennifer Ogle.

Jessica is listed as a student at AIU from September 1876 through June 1881. In her sophomore year of 1878–1879, she was likely a student of Francis LeRoy Harvey, AIU's professor of natural sciences and chemistry and founder of UARK. Both he and Cuthbert Powell Conrad are listed as biology instructors that year, offering botany coursework as described in the AIU catalog:

> *BOTANY begins with the Spring term of the Freshman year, and is continued through the first term of the Sophomore year. Classical and Engineering students do not study Botany. The first term is devoted to a consideration of the structure and uses of the organs of plants: together with analysis, classification, and study of the prominent orders of flowering plants. Students do laboratory work and prepare one hundred species of plants. The second term is devoted to a study of the Compositae, Graminae, Cyperaceae, and other difficult orders, together with a course in Cryptogamic and Economic Botany.*

During the 1878–1879 academic year, Prof. Harvey offered "a copy of *Sach's Text Book of Botany*, valued at $15.50, to the student who will add the largest collection of new State plants, exceeding 100 species, to the College Herbarium." You guessed it—the winner was sophomore Jessica Holleman—who collected 150 plants from Arkansas. Clearly, she had a passion for botanizing!

In the early days of the UARK Herbarium, Prof. Harvey increased the collection's holdings by several methods. Primarily, he traveled widely within Arkansas using a free pass from the railroad, a perk enjoyed by all AIU faculty, making collecting trips to the far reaches of the state. He also purchased specimens from other institutions, a common practice of the time. But most relevant, to this article anyway, was his small, rotating army of botany students, many of whom were women, who collected plants as part of their academic experience.

Of the 150 plants Jessica collected, we know we still have 16 of them in the herbarium. More are likely hiding in the folders of cultivated specimens, which we are still in the process of digitizing. But these 16 specimens tell at least part of Jessica's academic story. We can't say definitively if she stayed in and around Fayetteville or traveled further afield, as that information was not included in her label data. But we know that four of them were collected from cultivated plants, likely in gardens around campus and town: bleeding hearts (*Dicentra spectabilis*), poet's daffodil (*Narcissus poeticus*), catnip

(*Nepeta cataria*) around "dwellings and gardens," and common hollyhock (*Alcea rosea*) in "old gardens."

Ho-hum, not very exciting. But aren't these just the types of collections you would expect from a Victorian-era female student?

If you responded with a yes, then TSK-TSK! Read on!

Jessica botanized in wild places too! She collected marginal wood fern (*Dryopteris marginalis*) on "rocky hillsides in rich woods," ebony spleenwort (*Asplenium platyneuron*) in "rocky open woods," purple-stem cliffbrake (*Pellaea atropurpurea*) on "dry calcareous rocks," Christmas fern (*Polystichum acrostichoides*) in "hillsides and ravines," and northern dewberry (*Rubus flagellaris*) in "thickets." Think of what she must have been wearing as she traversed rocky hillsides and scrambled down into ravines — a dress with a fitted bodice and layered skirts that caught all the briars, tick-trefoil seeds, and actual ticks, and shoes not at all suited for wilderness adventures. Thinking back on all the ill-fitting, uncomfortable clothing and boots we endured during the awful 'shrink it and pink it' era of women's outdoor clothing design, it's hard to complain when you see photos of late 20th century women doing field work.

Jessica's specimens were carefully processed, as well. Each was pressed and mounted with great care and attention to detail. Of note are her expertly pressed yellow pimpernel (*Taenidia integerrima*) and hairy mountain-mint (*Pycnanthemum pilosum*) specimens.

When one considers the common collecting tools of the day, her high-quality specimens are even more impressive. Today, botanists typically use ziptop plastic bags or thick trash bags to store plants while in the field, and we add a few drops of water to help keep plants fresh until

UARK's two styles of vascula on display in the herbarium. The vasculum on the right is smaller, lighter, and was more carefully crafted than the heavy, clunky vasculum on the left. We don't know the history of either of these collecting boxes, but they were likely used for many decades by UARK's professional and student botanists before they began their current life as historical herbarium curiosities. Photo by Jennifer Ogle.

Jessica collected this Polystichum acrostichoides (Christmas fern) from "hillsides and ravines." Photo by Jennifer Ogle.

they can be pressed. Of course, plastic bags were not a thing in the late 19th century, so Jessica likely used a metal case, called a vasculum, to store plants while in the field. This must have made it difficult to keep specimens from wilting in the field, especially on hot, summer days. UARK has several vascula in the collection, of two types: one is thick, heavy metal with sharp edges and unsightly spot welds. The other is much smaller, well crafted, and of a lightweight tin that was stamped with an abstract but decidedly feminine pattern. We asked Dr. Gary Tucker if he knew the history of UARK's vascula, and he responded:

> *In late Victorian days, on into the '20s or so, botany was practiced by lots of female students. It was seemingly part of "finishing" for young females. Many herbaria have collections made by female students in those earlier days. I am thinking that female students of that time would possibly have been provided with a smaller light-weight vasculum. Purely conjecture on my part!*

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He also shared this article about women in science and the role a vasculum served to aid in their work. We agree with Dr. Tucker; it seems reasonable to think that a smaller, lighter vasculum would have been used by UARK's women collectors.

What became of Jessica Holleman? Well, she didn't finish college. In 1881 she married John Holleman. (Yep, same last name. We haven't figured out if John and Jessica were related.) They moved to Stilwell, IT (Indian Territory; present-day Oklahoma), where John enjoyed successful careers as a mechanic, blacksmith, miller, carpenter, and sewing machine salesman. Jessica found her calling in the work of Stilwell's First Christian Church, where she served as Sunday School superintendent, president of the Aid Society, and member of the church council. She and John raised three nephews and two nieces.

Jessica Holleman died in 1939; John had passed away three years earlier, in 1936. Both are buried in Fayetteville's Evergreen Cemetery. "Evergreen" strikes us as a lovely and appropriately named final resting place for Jessica Holleman—someone who had their day in the sun as a prize-winning collector of herbarium specimens.

Two unidentified 19th Century botanists heading into the field, with their slim, lightweight vascula in tow. Photo from 19thcenturyladynaturalist.blogspot.com.

National Forests: Sources for Native Seed

By Jennifer Ogle and Maribeth Latvis

Native seed is essential for restoring degraded areas across the southeast, but a lack of availability of locally adapted native seed is a limiting factor. The Ouachita and Ozark-St. Francis National Forests and the University of Arkansas Herbarium (UARK) are working to address this issue in parts of Arkansas through a project funded by the Bipartisan Infrastructure Law (BIL).

The Ouachita and Ozark-St. Francis National Forests encompass much of the Ouachita Mountains and Boston Mountains ecoregions in Arkansas. Both forests have successful woodland restoration programs that use fire and thinning to promote the growth of native plants. Thus, both have large swaths of land with significant populations of native species that will provide genetically diverse seed for both ecoregions.

This project is part of a larger program involving government agencies and nonprofit organizations in Arkansas. The Arkansas Native Seed Coalition (ANSC) is working to facilitate the availability of genetically appropriate, ecoregion-specific native seed for large-scale habitat restoration and enhancement projects throughout the state.

Since establishing the ANSC in 2016, partners have made progress toward developing a native seed industry in Arkansas, following guidance from the National Seed Strategy and incorporating actions from other major national and state initiatives, including the Northern Bobwhite Conservation Initiative, the Monarch Butterfly Conservation Initiative, the Department of the Interior Secretarial Order 13112 on invasive species, and the Arkansas Monarch and Pollinator Conservation Plan.

Program accomplishments to date include 1) developing seed transfer zones for the state, 2) assessing the demand for native seed, 3) creating a target species list, and 4) determining genetic research needs. One partner, Audubon Delta, is working with Arkansas farmers to

grow and harvest seed collected from remnant grasslands within four ecoregions through their Audubon NATIVE Project.

For this most recent BIL funded program, the Ozark-St. Francis and Ouachita National Forests have entered into an agreement with UARK to begin the process of collecting seed. First, UARK staff worked with Forest Service employee Virginia McDaniel to develop a list of 20 desirable understory species from the ANSC Target Species List that occur within both forests and could be used in upland oak-pine woodland restorations in the Ouachita Mountains and Boston Mountains ecoregions.

Next, UARK hired two students, ANPS award recipient and President-Elect Andrew Ruegsegger and ANPS award recipient Jack Looney, as field technicians. They are in the process of identifying and documenting 10-20 populations of each of the target species. When they find a population with at least 50 individuals, they map the population, collect a voucher specimen for deposit at UARK, and collect leaf material that will be used to assess genetic compatibility of seeds and inform seed mixing strategies.

Many widespread "workhorse" plant species commonly used for restoration are known to have infraspecific variation in base chromosome number (or infraspecific ploidy variation; IPV). Plants with different ploidy levels are generally not compatible, and so if seed of such plants are combined, the result could be low seed set. Thus, a critical step of this program is to test the compatibility of seed collected from within and between populations located by UARK's field staff. Plants with different ploidy levels can still be used by farmers to increase seed, but they should not be mixed together before planting.

UARK staff will also develop a program for seed collection, processing, and storage of seed collected on the Ouachita and Ozark-St. Francis National Forests. They will work in coordination with staff at the Mount Ida Seed Orchard, Ouachita and Ozark-St. Francis National Forest, and Southern Research Station to begin collecting seed from identified populations and prepare seed for storage. Seed will ultimately be used by the ANSC to develop ecoregion-specific seed mixes for the Ouachita Mountain and Boston Mountain ecoregions and will be used to restore degraded areas on National Forest lands and elsewhere.

Restored short-leaf pine woodland with a rich herbaceous understory on the Ouachita National Forest. Photo by Virginia McDaniel.

Having a reliable supply of seeds adapted to local conditions will inform a variety of seed mixing strategies to enhance both genetic variability and adaptive potential in the face of projected climate changes. To have ready seed mixes will be a game changer in terms of increasing the success of re-seeding projects.

OCANPS News

by Sue Hubbard

Burnetta Hinterthuer at Harmony Mountain, fall 2024. Photo by OCANPS member.

Burnetta Hinterthuer was a founder of the Ozark Chapter of the Arkansas Native Plant Society. She has served as President and more recently, Newsletter Editor. She has also been the chief botanist and field trip leader for the entire time our chapter has been in existence. She stepped down as Newsletter Editor at our retreat at Harmony Mountain this past fall.

Long time member and current Vice President, Sandy Tedder, had this to say about Burnetta:

> *Burnetta has always gone to the top and way beyond in the hours she has given to OCANPS. Her energy and dedication have always been outstanding. I wish we knew the count for both the hours she has put in and the number of field trips she has led. I personally have learned so much from Bur both in meetings and in the field. I am also thankful for all the good times we have enjoyed together!*

Thank you Burnetta. Even though you are no longer an officer we look forward to seeing you on our field trips and hanging out with you at Harmony Mountain.

Harmony Mountain Retreat 2024

OCANPS held its Harmony Mountain Retreat November 8-10. It rained on and off throughout the weekend. However, this did not impede our ability to feast on great food, make music, play games, and enjoy each others company. Many of the participants managed to dodge the rain and make trips to hike to 2 different waterfalls. On Saturday we went to Hudson Shelter Falls and on Sunday it was to Fern Falls. Others explored the neighborhood around the cabin.

OCANPS members hanging out. Photo by OCANPS member.

The big news is that Burnetta announced her decision to step down as Newsletter Editor. Cat Donnell was elected as the new Secretary/Newsletter Editor. All other officers were re-elected to the positions they currently held.

The auction and some additional donations collected during the weekend totaled $760. It was not determined where to donate this money during the weekend, but a poll of those who did attend conducted by email shortly afterwards decided to give $450 to the Halberg Ecology Camp, $425 to the ANPS botany scholarship fund and $125 to the Writers Colony in Eureka Springs for their native plant project.

OCANPS members at Fern Falls. Photo by OCANPS member.

Member Spotlight: Brent Baker

Brent Baker is a long-time member of ANPS, former ANPS President, former state botanist, and extraordinary ANPS field trip leader. I caught up with him on a stormy day in April.

How did you become interested in plants?
I'd say it was inherited. I had a lot of family members that were into plants whether they were house plants, flower gardens, or vegetable gardens. I started my own house plant collection with starts from my mother's plants when I was a small child. I had an outdoorsy family, so I was always outside around plants and in nature. As a kid, I would also dig up and transplant random plants on our property to my little "garden" area (a tiny section of the field behind our house I commandeered and encircled with rocks). I didn't even know what most of those plants were at the time. I've just always had a fascination with plants for as long as I can remember.

Brent Baker (in black coat) leads a tour on Cherokee Prairie in 2013. Photo by Bruno Hanke.

How did you become involved with the ANPS?
I took Plant Taxonomy my sophomore year in college at the University of Central Arkansas under Dr. Donald Culwell, who is a founding member of ANPS. So, I first learned about it through him but didn't get involved right away. After I graduated with my bachelor's, I started working for MaryAnn King at the native plant nursery Pine Ridge Gardens and she happened to be president of ANPS at that time, so of course she made sure I went to the next meeting! And the rest is history.

What is your favorite ANPS memory?
Whew, I'm starting to get a lot of years piling up…lots of memories. I guess for an early one: We were at a meeting up at Heber Springs just my second or third year in the Society. I was still a grad student. I was having dinner with Dr. Culwell, who had become my mentor and already like a second father, before the Saturday evening meeting when I was approached and asked to accept nomination to be an ANPS officer and go through the presidential track. I was floored. I thought: "Are you serious? I'm just a student." And I still felt so new to the Society. I was extremely overwhelmed and honored but very apprehensive. After some encouragement from Dr. Culwell, I accepted, and I will always remember the look of pride on his face.

Do you have a favorite plant?
I don't like that question. I have been asked that question more times than I could count, but it feels kind of like asking someone: "Who's your favorite child?"

Do you have a favorite place in Arkansas?
I guess I have two favorite places. My property at Dardanelle is one. It's a beautiful location and I love living and now working there. Plus, I have cherished childhood memories of helping my grandparents on the farm, and of playing in and exploring the woods, creeks, and fields (which I suppose I'm still doing!). I also love the Ouachita Mountains, where I spent a lot of vacations growing up, but have really developed an affinity for the Cossatot River area, specifically, as an adult. There are a lot of spectacular natural areas in Arkansas, many of which are more widely known and visited, but the Cossatot area is a stunning gem. Of course, I'm also biased because of the family connection to the area, some of my ancestors having settled there in the early 1800s. Baker Creek, Baker Springs, Baker Crossing, and Baker community being a few of their legacies.

What are you doing with native plants now?
Like I said, I've always been a plant person so one of my earliest childhood career dreams was having a nursery. Of course, at the time I didn't know anything about native plants. After being trained as a field botanist, being involved with Arkansas Vascular Flora Project, and serving as a botanist with the Arkansas Natural Heritage Commission for 12 years, the opportunity arose to purchase the native plant nursery Pine Ridge Gardens from MaryAnn King and finally fulfill that childhood dream. It just seemed like fate and the perfect fit because I love growing plants and have developed a great appreciation for native plants and conservation through my education and career. It's an honor to carry on MaryAnn's legacy of growing and providing Arkansas and regional native plants.

Master Naturalists Revive Land with Native Seeds

by Larry Price

The need to revegetate abandoned areas with locally sourced native plants is every present. The resources to do the work is where our local master naturalist organizations come up big. The Foothills Arkansas Master Naturalists (FAMN) worked with the US Army Corps of Engineers to seed an abandoned baseball field at both the US Army Corps of Engineers (Corps) Russellville Old Post Park.

Arkansas Master Naturalist President Reed Green informed us of the project that Cherrie-Lee Phillip, a Conservation Biologist for the Corps, Little Rock District was working. She had applied for a grant through the National Environmental Education Foundation to support a "shovel -ready pollinator enhancement project on America's public lands".

We (FAMN members) were well equipped to take on this project after getting experience with Project Wingspan in 2020—2021, an effort by Pollinator Partnerships to train volunteers in plant ID, proper seed collection techniques, and seed cleaning. We used this knowledge to collect seeds for a 1.7-acre site at Camp Robinson Special Use Area (CRSUA) with the Arkansas Game and Fish Commission (AGFC). We collected approximately 70 species for that project with about 70% coming from AGFC property and most of the remainder from Arkansas Department of Transit Rights-of-way (AR-DOT ROW) up and down the River Valley.

The area at Old Post Park was an 8,100 ft^2 baseball diamond and 14,000 ft^2 infield. The total size of the project was initially 3 acres, but Corps field crew decided to enlarge it to 6 acres to allow it to cover all the grass space within the area and avoid "the chance for unwanted invasive plants to enter." We would need approximately 7.5 million seeds (250,000 square feet at 30 seeds/square foot). A project of this size was going to tax us, but we were up for the challenge.

Foothills Arkansas Master Naturalists collect seed at Camp Robinson Special Use Area. Photo by FAMN member.

Seed cleaning event at Robert's house. Photo by FAMN member.

Our seeds for this project came from AGFC's CRSUA, TNC's Kirsch Preserve, Central Arkansas Water Properties, the Price meadows, and AR-DOT ROWs. Cherrie-Lee Phillip purchased some seeds from the Arkansas NATIVE Project through Roundstone Native Seed Nursery and some butterfly and common milkweed seeds from Roundstone. Additionally, Pope County Master Gardeners brought some seed from their native plant garden at Reflection Point in Washburn Park and Sid Vogelpohl collected several species of seed from his Know Your Natives (KYN) Garden. Many of us worked many hours collecting, drying, cleaning and storing seeds. Some were organized seed collection events, but many of us were out there collecting alone any time circumstances permitted. We were able to collectively obtain 95 species.

The primary goal of the collection was to provide a pollinator meadow with at least 3 locally collected species blooming at any one time from mid-May to early November. We felt local seed would make the longevity of the project much more likely. We wanted more locally collected milkweed species than we were able to provide. I had expected a good crop of Green Milkweed (*Asclepias viridis)* on our Price meadows, but it was not a good year for that species. We did get a moderate amount of local ecotype Butterfly Weed (*Asclepias tuberosa)* seed for the project. The majority of our milkweed seed was purchased from Roundstone Native Seed.

Initially, Cherrie-Lee Phillip was wary about planting any grass seeds. She felt they might become competitive with the wildflowers. I encouraged her to consider a small amount of grass seed, around 5% by weight. This would provide structure for birds and small mammals and host plants for many species. It would also provide fuel for fire, as pure stands of wildflowers are very difficult to burn. She was ultimately agreeable to this and we collected 12 species of native grasses, including Big Bluestem (*Andropogon gerardi*), Little Bluestem (*Schizachyrium scoparium*), Split-Beard Bluestem (*Andropogon ternarius*) and Indian Grass (*Sorghastrum nutans*). We avoided Switch grass (*Panicum virgatum*) because of its potential to grow aggressively on the silty soil.

Planting crew at Dardanelle Lock and Dam. Photo by FAMN member.

Because of these localized collections, we were able to obtain seed of species you do not often see in commercial seed mixes including: Naked-stem Sunflower (*Helianthus occidentalis*) from plants on the Price property whose seeds were collected from AR-DOT ROW several years ago; Illinois Bundleflower (*Desmanthus illinoensis*) from TNC's Kirsch Preserve; Sampson's-snakeroot (*Orbexilum pedunculatum*) one of our more astute FAMN members found in a ditch north of Conway; Narrowleaf Obedient Plant (*Physostegia angustifolia*) from a large colony growing on the Price property; Hairy Blazing-star (*Liatris hirsuta*) from Sid Vogelpohl's KYN Garden; Barbara's Buttons (*Marshallia caespitosa*) from Cen AR Water; Yellow-flower Beebalm (*Monarda luteola*) from a colony resulting from a plant purchased through an ANPS plant sale many years ago; and American Bluehearts (*Buchnera americana*) from CRSUA.

The Corps used glyphosate with a surfactant in a tank sprayer twice during the active growing season; then once more in the fall, as enough rainfall finally had fallen to encourage a major germination of winter annuals. This was generally quite effective except for the persistent Bermuda over the septic field lines. Corps personnel burned off all the dead plant material that would burn the day before planting. We planted the area in December 2024.

We used three chain-type drag harrows on the early AM of planting day to prepare the seedbed. We dumped all our seeds (except for the baseball diamond) into a large pile on concrete in the Corps equipment shop, stirred them with shovels and dumped them into bags. AGFC was very helpful with this project and brought a pendulum spreader that was permanently mounted on a UTV. The bags of seed were added one at a time. The machine was calibrated, and the seeds were dispersed.

For the extended baseball diamond area, we had a special seed mix for sandy soils. This was dispersed by manually throwing out a moist sand-seed mix. The septic field was covered with the seed mix through the pendulum spreader. We decided to plant about 150 Jerusalem Artichokes (tubers) in the field. It is not a tap-rooted plant (all its roots but the tubers die back each year), but it does prefer more moisture and fertility.

We had grown approximately 300 plants for the project, most of them representing species for which we had collected seeds. These were in pot sizes of one quart to 3 gallons. This was the real on-site work. Fortunately, we had many volunteers from FAMN, CAMN and Pope County Master Gardeners (they also provided help collecting seeds on the Price property). We had a volunteer from Friends of Mount Nebo State Park, as well. We had 19 volunteers and 3 Corps employees planting potted plants that afternoon. Pope County Cooperative Extension Agent Brandon Yarbery worked all day.

I was over there the week of April 4th and germination looks very good. I saw multiple specimens of Beebalm (*Monarda fistulosa)*, Gumweed (*Grindelia lanceolata)*, Sunflowers (*Helianthus* spp.), and others. The potted plants have popped up and most of those should bloom. It looks like it will be as successful as our project at Camp Robinson that was planted in 2021.

Spring Field Trips

Wildflower Hike at Lake Wilson, Fayetteville
Saturday, April 19th—8:00-11:00 AM
Leader: Andrew Ruegsegger (870-656-9705)

Directions: Lake Wilson can be reached from Fayetteville by turning south off of 15th St onto Morningside Dr. Follow this road for about 1.8 mi before turning left onto Wilson Hollow Rd. This can be followed all the way to Lake Wilson (do not turn right when reaching a fork in the dirt road). There will be two parking lots. When you first arrive at the lake, you'll have the option of turning left to park at a dirt lot used for launching boats. If you continue forward you'll reach another parking lot near a pavilion. We'll meet there by the pavilion. The early meet time is because the pavilion parking lot will likely fill up later in the morning.

Andrew Ruegsegger of the UARK Herbarium and President-Elect of the Arkansas Native Plant Society will lead this field trip to take in the spring-flowering plants at Lake Wilson, a 320-acre park owned by the City of Fayetteville and previously used as Lafayette's main water supply before Beaver Lake was dammed in the 1960s. We should see a good number of spring wildflowers in flower, such as beaked trout lily, wild indigo, mayapple, and some different kinds of violets. We should also see plenty of our native trees in flower, like black locust and redbud.

Level of difficulty: Easy, a fairly level trail about 2 miles long.

Rob and Melani Walton Preserve, Garfield
Thursday, May 8th—10:00 A.M.
Leader: Ginny Masullo

Directions: From Hwy 62 in Garfield turn south on Hwy 127. Cross the railroad tracks and travel 0.6 miles. Turn left onto Ford Road and travel a short distance. When Ford Road makes a turn to the left continue straight through the rock pillar gate into the preserve parking lot.

Ginny Masullo and The Nature Conservancy (TNC) staff will lead this trip. In 1974 this area was listed as a priority for conservation in the Arkansas Natural Area Plan, which helps guide efforts to preserve our state's native landscapes, plants, and animals. The dozens of known rare plants in the area make conserving this property important. TNC staff will share information on habitat improvement efforts including reclaiming 12 acres of pollinator habitat from invasive blackberries and how we use prescribed fire and other management tools to improve the land for wildlife and water quality. The hike will be approximately 2 miles and include an easy stroll along mowed paths through grassland habitat and a moderate stroll along a gravel access road through the forest that has a moderate incline in some sections. Along the way we will observe a variety of flowering species that are in bloom which we will work together to identify.

Arkansas River Valley Field Trip: Bona Dea Trails & Sanctuary – Washburn Park Trailhead (Russellville) and Pine Ridge Gardens (Dardanelle)
Saturday, May 24th—10:00 A.M.
Leader: Brent Baker (479-970-9143)

Directions: Meet in Russellville at the Bona Dea Trailhead at Washburn Park (On Lake Front Dr. near the intersection of Lake Front Dr./W. Parkway Dr./Hwy 64/W. Main St. Please note that this is the western trailhead, NOT the one closest to I-40 Exit 81…input 'Washburn Park' into your GPS rather than 'Bona Dea'.)

Join Brent for a leisurely stroll along gentle paved trails through bottomland woods and wetlands at Bona Dea Trails & Sanctuary adjacent to Lake Dardanelle. We'll also check out Reflection Point, a Pope County Master Gardener project at Washburn Park, which incorporates numerous native plants into the planting. Bring a sack lunch and we'll have a quick bite to eat at the park before heading to Dardanelle. After lunch, we'll caravan to the new home of Pine Ridge Gardens native plant nursery at 10989 Fulton Rd., south of Dardanelle. Brent will give a quick tour of the new nursery facilities and then you'll be free to browse the native plant inventory and head back to Northwest Arkansas when you're ready.

Wildflower & Woodland Restoration—Ouachita National Forest, Waldron
Wednesday, May 28th—10:00 A.M.-2:00 P.M.
Leaders: Virginia McDaniel (828-545-2062) and Jennifer Ogle. Please RSVP to Virginia.

Directions: Meet at the USDA Forest Service office in Waldron, at the junction of Hwy 71 & 248 (address: 1541 Hwy 248W, Waldron, AR). We will carpool from here to the woodlands.

Join Virginia McDaniel, Forestry Technician with the U.S. Forest Service, and Jennifer Ogle, botanist and Collections Manager at the UARK Herbarium, for a tour of the Pine-

Bluestem Woodland Restoration area on the Ouachita National Forest. We will see a variety of grassland species including little bluestem, panic grasses, sunflowers, wild petunias, coneflowers, and milkweeds. Bring water and snacks/lunch, and wear sturdy boots.

Level of Difficulty: Easy to moderate; we will primarily be walking off-trail through an open shortleaf pine woodland with a carpet of mostly native forbs and grasses in the understory.

Baker Prairie Natural Area, Harrison
Saturday, May 31st—9:30-11:30 A.M.
Leader: Jennifer Ogle (jogle@uark.edu) and Deb O'Donnell

Directions: Follow U.S. Highway 65 through Harrison. At the intersection of Highway 65, Highway 65B (North Main), and Industrial Park Road, head west on Industrial Park Road and follow for 0.9 mi., then turn left on Goblin Drive. Continue for 0.2 mi. then turn left on W. Burls Way and park in the Harrison Middle School parking lot.

Meeting Location: We'll gather at the pavilion on the eastern portion of the prairie, just north of the Harrison Middle School parking lot near the intersection of Goblin Dr. and W. Burls Way. Link to google maps https://maps.app.goo.gl/JBJbJDFoMThsnr1UA

Join Jennifer Ogle, botanist and collections manager at the University of Arkansas Herbarium (UARK), and Deb O'Donnell, amateur botanist and UARK volunteer, for a tour of Baker Prairie Natural Area, a high-quality chert prairie remnant managed by the Arkansas Natural Heritage Commission and The Nature Conservancy. During the walk we expect to see an abundance of native wildflowers, including green-eyes, winecups, Carolina larkspur, pale purple coneflower, goat's-rue, and Ohio spiderwort, to name just a few. We'll also see and hear many birds, so bring binoculars if you have them!

Level of Difficulty: Easy to moderate; we will primarily be walking on a mowed path through the prairie, in full sun. Water, sun protection, and sturdy shoes are strongly recommended.

2025 Spring Treasurer's Report

2025 Spring Treasurer's Report

	2024 Actual	2025 Budget	2025 Actual (as of 6 March)	Σ	Proposed 2026 Budget
			2025 through 6 March Cash, 1 January 2025 →	***$ 12,117.12***	
Income					
Membership Dues	$5,720.00	$4,500.00	$610.00		$4,500.00
Meeting Registration	$2,222.56	$1,500.00	-		$1,500.00
Silent Auction	$1,116.00	$1,000.00	-		$1,000.00
Merchandise Sales	$435.00	$1,000.00	-		$1,000.00
Contributions & Grants	$2,254.94	$2,000.00	$16.10		$2,000.00
	$11,748.50	$10,000.00	$626.10 →	***$626.10***	$10,000.00
Expenditures					
ANPS.Org	$99.00	$190.00	-		$99.00
Bulk Mail*	$320.00	$320.00	$350.00		-
Claytonia	$2,448.85	$2,400.00	-		$200.00
Directory	$1,435.61	$1,500.00	-		-
Memorial Awards, Grants, and Scholarships	$10,500.00	$10,000.00	-		$8,000.00
Garden Grants	$1,007.85	$1,000.00	-		$1,000.00
Meeting Expenses	$1,430.18	$1,000.00	-		$1,000.00
Tabling Events	-	-	-		-
Webinar Series	$159.90	$163.00	-		$163.00
Merchandise Purchases	-	$500.00	-		$500.00
Supplies (Postage, PayPal fees, Etc.)	$271.50	$300.00	$30.85		$300.00
	$17,672.89	$17,373.00	$380.85 →	***$380.85***	$11,262.00
			Cash, 6 March 2025 →	***$12,362.37***	

**This fee is in the process of being refunded by USPS, as ANPS will no longer be mailing Claytonia in bulk quantities.*

Respectfully submitted by Samantha Heller, Treasurer

President's Message

Sarah Geurtz, ANPS President.

I believe it was Lance Reynald who wrote, "True friends stay with you no matter the distance or time that separates you from them."

I know it can't just be me who feels a strong bond between our ANPS members. Some of us are in touch between meetings and some are not—but when we get together twice a year, I feel such happiness to see my friends again! We all have much in common and those similarities bring us together regardless of age or where we live.

I'm therefore, like always, truly looking forward to seeing each and every one of you at the Spring meeting. All of you are kind and intelligent and so interesting! Good company, a plant auction, speakers who will teach us interesting new things, and good food!

Andrew Ruegsegger is our new president-elect and has done a wonderful job planning our Spring ANPS meeting in Monticello and the speakers he has lined up are going to be great! Art Browning is now our vice president and he is already applying his energetic self to learning the ropes.

As you know, Leslie Patrick did a wonderful job as our treasurer and has now handed the torch to Samantha Heller. Samantha is already doing a very thorough job—her accounting background makes her perfect for the position!

Thank you to all the board members who selflessly donate their time—AND thank you to all the members who make our close-knit ANPS group successful and feel like family.

Warmly,

Sarah Geurtz

ANPS President

ANPS group at Columbus Prairie during the Fall 2024 meeting. Photo by Virginia McDaniel.

Arkansas Native Plant Society Membership Application

Membership Categories

_____ $10 Student
_____ $15 Individual
_____ $20 Supporting
_____ $25 Family
_____ $30 Contributing
_____ $150 Lifetime (age 55+)
_____ $300 Lifetime (under age 55)

_____ New Member
_____ Renewal
_____ Address Change

_____ Opt in to receive paper *Claytonia*

Name(s) _____

Address _____

City _____ **State** _____ **Zip** _____

Phone _____ **Email**_____

Mail this completed form with a check made payable to the Arkansas Native Plant Society to:

Samantha Heller, Treasurer
8461 Apple Glen
Rogers, Arkansas 72756

JOIN OR RENEW ONLINE INSTEAD! Details at anps.org/join.

Claytonia

Virginia McDaniel | Editor
virginiamcd31@yahoo.com

Please don't forget to renew your membership!
The calendar year is the membership year.

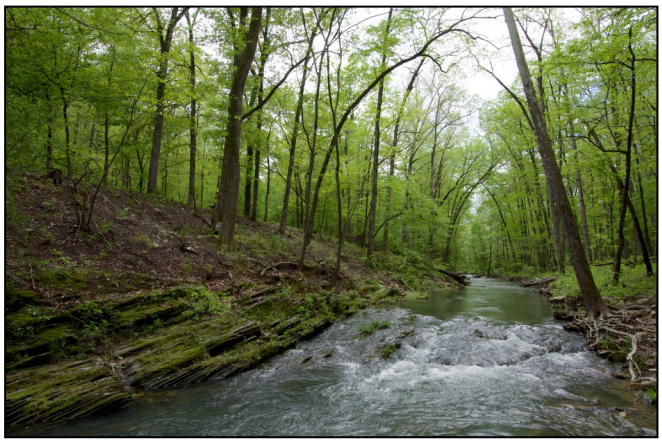
To renew your membership, fill out the application for membership on page 24 and mail it to the address on the form.
Or renew online at **anps.org/join**.

POETRY CORNER

When I am among the trees

by Mary Oliver

When I am among the trees,
especially the willows and the honey locust
equally the beech, the oaks and the pines,
they give off such hints of gladness.
I would almost say that they save me, and daily.
I am so distant from the hope of myself,
in which I have goodness, and discernment,
and never hurry through the world
but walk slowly, and bow often.
Around me the trees stir in their leaves
and call out, "Stay awhile."
The light flows from their branches.
And they call again, "It's simple," they say,
"and you too have come
into the world to do this, to go easy, to be filled
with light, and to shine."



Rich hardwood forest along Walnut Creek on the Ouachita National Forest. Photo by Eric Hunt.

2025 ANPS OFFICERS

President
Sarah Geurtz
sgeurtz.anps@gmail.com

President-Elect
Andrew Ruegsegger
andrewruegsegger8@gmail.com

Vice President
Art Browning
art.browning@gmail.com

Nominating Committee Chair
Eric Fuselier
anps.programs@gmail.com

Secretary
Greg Rajsky
anps.secretary@gmail.com

Treasurer
Samantha Heller
anps.treasurer@gmail.com

Internet and Social Media Officer
vacant

Memorial Awards Officer
Jennifer Ogle
anps.memorialawards@gmail.com

Membership Officer
Molly Robinson
anps.membership@gmail.com

Publisher
Joe Ledvina
anps.publisher@gmail.com

Editor
Virginia McDaniel
virginiamcd31@yahoo.com

ARKANSAS NATIVE PLANT SOCIETY
Membership, Molly Robinson
2014 Scott St. APT 3
Little Rock, AR 72206

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