

# CLAYTONIA

Newsletter of the Arkansas Native Plant Society

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## In Memoriam: Dr. Jewel E. Moore (1918 - 2022)

**OBITUARY:** Dr. Jewel Elizabeth Moore, born June 5, 1918, in Hot Springs, Arkansas, to Selma Smith Moore and Craven Harris Moore, met her Lord and Savior Jesus Christ face to face on February 25, 2022. She passed with the peace that surpasses all understanding, with her caregivers Carol & Ian McGrath, at her bedside. Jewel lived with her great niece Carol, her husband Ian, and their son Paul, since 2012 after suffering a debilitating illness. Jewel was a woman of few words, yet her silence spoke volumes as she taught her caregivers to read her body language when words failed her. She communicated the deepest of feelings and thoughts through her eyes. Her legacy continues speaking for her through lasting cherished memories.

Dr. Moore graduated Valedictorian from Hot Springs High School. She was an Honor Student at Henderson State University where she received an AB degree in biology. She received an MS degree in botany from the University of Arkansas at Fayetteville, and earned a Ph.D. from the University of Tennessee, Knoxville, in botany and ecology. She taught Math and Science at Mountain Pine High School 1940-1942, and at Beebe Jr. College 1942-1947. She also taught Biology and Ecology at Arkansas State Teachers College 1947-1983.

Dr. Moore received the Conservation Education award from the Arkansas and National Wildlife Federation. Dr. Moore served the American Association of University Women as state president from 1969-1971 and vice president for both the state and Conway organizations from 1967-1969. Dr. Moore was named the AAUW 1976-1977 contributor to the Educational Foundation Programs.



*Dr. Moore at the Jewel Moore Nature Reserve on the University of Central Arkansas campus in 1983. Photo by Sonny Rhodes. Courtesy of UCA Archives.*

(Continued from previous page)

She was an active member of First United Methodist Church, Conway. She served as President of American Association of University Life. She was a life member and President of the State of Arkansas Academy of Science. She helped organize and was a Charter and Life member of the Arkansas Audubon Society and Arkansas Mycological Society. In addition, Dr. Moore served as President of Faulkner County Council on Aging and was one of the original founders of the Faulkner County Senior Citizens Center.

The Jewel E. Moore Nature Reserve on the University of Central Arkansas campus was named in her honor. A U.C.A. Biology Department Field Scholarship was established in her name.

At the age of 103, Dr. Moore survived her brothers Granville, Clyde, Russell and Raymond Moore and sister Pauline Moore Hilliard. Surviving Dr. Moore are her Nephews, Paul (Carla) Hilliard and Mike (Sue) Hilliard and Nieces, Julia Buckelew, DAnn (Morton) Moore Thompson, and Carole Ann Hilliard Burns, 15 great nieces and nephews and their children plus countless colleagues, former students and

friends.

A spring memorial service will be announced at a later date. Memorials appreciated to Jewel E. Moore Nature Reserve: Dr. Brent Hill, UCA Biology Dept., 201 Donaghey Ave., Conway, AR 72035.

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**Dr. Moore teaching biology students at the then yet-to-be-named Jewel Moore Nature Reserve on the University of Central Arkansas campus in 1979. Photo by Don Culwell.**



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## Remembering Jewel Moore

Don Culwell

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Anyone who knew Jewel Moore rarely saw her without a smile; her pleasant disposition and personality were recognized by anyone in her presence, by all her friends, acquaintances, and many students. I first knew Jewel as cohort in the fall of 1970 when I came to State College of Arkansas (now UCA) to teach general biology and the botanical offerings of the department. Through the years we spent many times together on botanical excursions with classes out in the field identifying species and their ecosystems in the natural world. Jewel was quick to introduce me, a new faculty member, to life on the SCA campus, particularly involving groups of interested biology students.

Jewel was a charter member of the Arkansas Native Plant Society that was formed in 1980. She always attended meetings and joined field trips where her knowledge and love of plants was of interest.

For years Jewel had used an undesignated ten-acre tract of land on the southwest corner of campus close to the biology building as an “outdoor classroom” for her stu-

dents. This area was formally named the Jewel Moore Nature Reserve in 1980. Setting aside this area of surprisingly diverse flora and its associated fauna preserved in place close at hand where students would for years set up experiments for a variety of observations along with plant identification and ecosystem study.

Many outings of interest to Jewel found her picking up and taking friends that joined her in the intended activities; she was a friend whose company was always welcome. On one occasion Jewel included me on a jeep trip up into the Boston Mountains with a friend where we found a population of *Huperzia lucidulum*, a fern relative (formerly known as *Lycopodium lucidulum* and commonly known as a club-moss or ground pine). Checking out a number of plant populations in the area introduced me to a number of Arkansas taxa, some not easily located where we lived in Central Arkansas. And there were other plant outings, some lasting 3-4 days. For some years Jewel had taken students to Gatlinburg, TN, in April for the Annual Spring Wildflower Pilgrimage as well as the Gulf Coast Research Station in Ocean Springs, MS, for observa-

tions in a marine ecosystem. Both were study sites that the SCA students could not easily appreciate back home in Arkansas. Jewel was an able and competent teacher in these and other settings. For a number of years, she was a teacher on Petit Jean Mountain for the annual Weekend with Wildflowers, a weekend designed for the public to appreciate and learn about the local flora.

Perhaps one of the most unusual and well-noted campus activities of the Biology Club that Jewel sponsored was the Wild Foods Dinner, an annual affair for a number of years. The menu for the potluck evening was “everything was to have at least one wild, native ingredient.” There were dishes of venison, fish, bear, blackbird, squirrel, rabbit, etc., along with numerous vegetables seasoned with wild herbs or Jerusalem artichokes. Various teas of some herb (mint, sassafras, etc.) helped wash down pies and cobblers of blackberry or mulberry. The most unusual and excellent dish at one dinner was made and brought by Jimmy and Clea Driftwood from up at Timbo, AR: “possum and sweet potatoes!!” Billie Joe Tatum of Wild Foods Cookbook fame was also a guest from north Arkansas bringing pickled pokeberry stems. Those evenings with the Wild Foods Dinner were special events where Jewel was certainly in her element!

Activity on the more scholarly and long-term side found Jewel with her interest in mosses and fungi. She housed her collections of mosses in envelopes all labeled as to name, date, collection area and collector. Dried fungi were named with label information and affixed to herbarium paper in cellophane envelopes ready to be stored in cabinets.

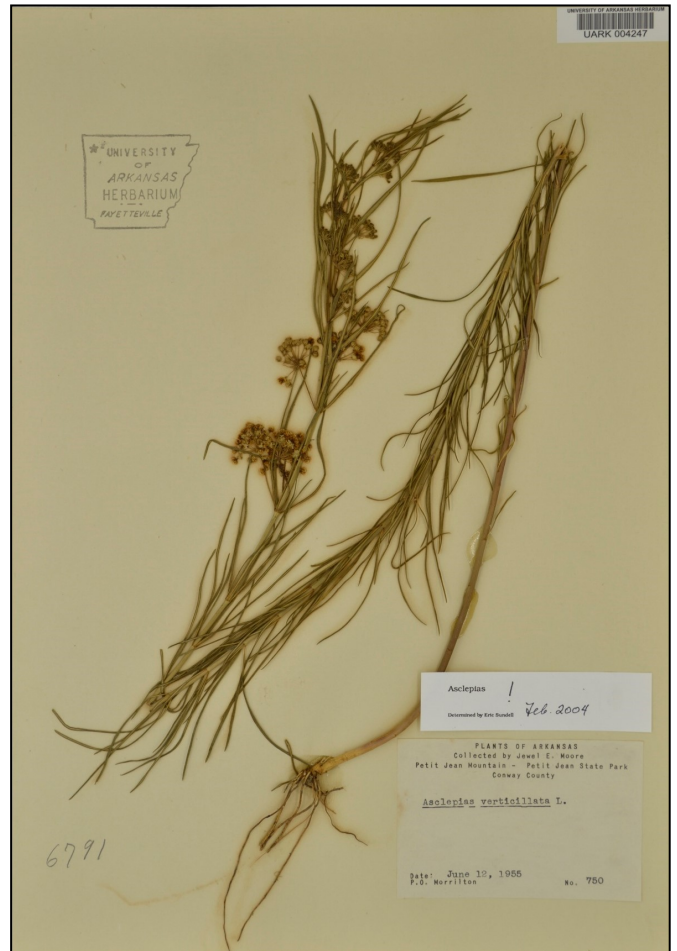
For those of us who knew her, Jewel Moore was one of those persons always eager for an outing and eager to provide interesting information. Her warm smile and pleasing personality made her the friend you hoped to find. Those of us who have known her have been blessed!

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**Nearly 1,200 of Dr. Moore’s plant specimens are housed at herbaria in Arkansas and Texas, preserving work conducted over a span of 50 years.**

**Top right: A specimen of Whorled Milkweed (*Asclepias verticillata*), collected by Dr. Moore in 1955 as part of her graduate research at the University of Arkansas, “A study of the vegetation of Petit Jean Mountain in Central Arkansas.” Photo courtesy of the UARK Herbarium.**

**Bottom right: A specimen of Maple-leaved Oak (*Quercus acerifolia*), an Arkansas endemic species, collected by Dr. Moore in 1948 from Magazine Mountain in Logan Co. Photo courtesy of the UCAC Herbarium.**



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# Remembering Steven Foster

ANPS members share memories of the renowned herbalist, author, photographer,  
and long-time friend of the society

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***Editor's Note: A memorial service for Steven will be held at Lake Leatherwood in Eureka Springs on May 22, 2022 from 2:00 to 5:00 pm. His wife, Donna, hopes all will come and share their memories.***

We lost a dear friend, world renowned medicinal plant expert, and a great field botanist in Steven Foster. His death was a shock to the NWA community. He was always willing to share his joy, seeking knowledge of plants all over the world and sharing that knowledge with those who were interested. His 19 publications include Peterson's Field Guides to Medicinal Plants.

We will miss being in the field with him, seeing the photos of his grandchildren and the plants he loved. We extend our condolences to his family and the plant lovers around the world who benefited by his life's work.

***Contributed by members of the Ozark Chapter of ANPS***

I first met Steven ten years ago when I was a graduate student searching for populations of the invasive plant garlic mustard (*Alliaria petiolata*) in the Ozarks. At that time, garlic mustard had been documented from several counties in northern Arkansas, but not yet from Carroll County. So, I went searching for it along its many rivers and streams at public access points, and at Lake Leatherwood in Eureka Springs. I did not find it at the lake and the city employee there told me that while she was not familiar with the plant, she knew someone who would be.

Steven later wrote that "serendipity struck" when I contacted him, because at the exact same time I was searching for populations of this obscure-in-Arkansas plant to complete the field portion of my graduate work, he was writing an account of it for the latest edition of his excellent *Field Guide to Medicinal Plants and Herbs*, written with James A. Duke.

We met and I soon learned that Steven not only knew every fact ever recorded about garlic mustard, he also happened to know where a population of it was growing in Carroll County. I was a bit surprised when the population turned out to be a small patch of 10 or so flowering plants growing in the middle of Eureka Springs, just outside his office door, a few feet down a dry, rocky, and very steep hillside.

I jokingly asked if he had planted seeds there so he could

study it and take photographs of it in flower for his book. He chuckled. I also asked if I could collect a sample to prepare a herbarium specimen, given that we were looking at a new county record, and then pull up and bag the rest of the plants so they would not have an opportunity to spread. Thinking back, I realize I may have had a *slightly* scolding tone in my voice when I mentioned the need to remove the plants. He immediately disappeared into his office and returned a couple of minutes later holding a long, bright yellow cargo strap. He told me to wrap one end around my forearm and hand and he promised to hold tight to the other end while I basically rappelled down the nearly vertical slope to pull the plants. I really couldn't refuse after the lecture I had just given him.

Thankfully, he kept his promise to hold tight to his end of the strap and I survived the ordeal without serious injury. When we were done, he seemed to forgive my earlier impudence with a tour of his extensive collection of rare botanical books (a big treat for me!). He later sent a photograph he had taken of garlic mustard and told me I was free to use it any way I wished. With that photo he somehow managed to make a widely despised weed look absolutely stunning. I made sure to use it selectively; I didn't want anyone falling in love with garlic mustard.

Here is what remember most about Steven from that first meeting and subsequent interactions we had over the next several years. He had a great sense of humor. He was incredibly intelligent - I have no doubt he could recall the details of every topic he had ever studied or read. He had a volunteer spirit - Steven gave freely of his time and knowledge, presenting entertaining and educational lectures and leading field trips for the ANPS and OCANPS and many other groups over the years. And he was kind - as a student and later as a fellow author, he offered me encouragement and generously promoted my work.

It was a terrible shock to learn of Steven's untimely passing early this year. We have lost a great botanist and herbalist, teacher, photographer, and friend.

***Contributed by Jennifer Ogle***

Everyone was aware of Steven's accomplishments in the realm of herbal medicine and photography, and most of us have at least one of his books in our collections. Despite his fame, Steven generously shared his knowledge and expertise locally.

One semester my honors biology class at the NorthWest Arkansas Community College chose to focus their class project on Searles Prairie Natural Area in Rogers. Steven mentored a student in that class who was interested in native prairie plants that had medicinal value. It was a wonderful project and of course, he shared his beautiful photographs. We all learned from Steven when the student made her final presentation. I remember thinking at the time how great it was that this well-known author and photographer was so giving with his time and expertise.

**Contributed by Ellen Turner**

When I first started studying botany in the mid-1990s it was a simpler time. The internet was new (and sparse with information by today's standards) and I bought a handful of field guides and reference books to guide me along. My budget was tight, so each book was carefully selected for what I thought it could teach me in terms of useful information about the flora. When it came to learning about medicinal plants, I chose a copy of the 1990 edition of the *Peterson Field Guide to Eastern/Central Medicinal Plants* by Steven Foster and James Duke. Being young and new to the field, I didn't know those names from anybody's, but I knew the Peterson guides were widely respected and it had great photos and illustrations and the information looked solid. I think I used it for a couple of years before I bothered to read the author bios and learned that Steven lived in Eureka Springs. I remember thinking that was cool, that the lead author of one of the top botanical references in the country was from Arkansas.

It was several years later when I finally met Steven. He was the main speaker at a meeting of the Arkansas Native Plant Society at Heber Springs and my friends Bob Clearwater, John Pelton, and I were brought on first to warm up the crowd with Bob and John's beautiful wildflower photos and me providing little anecdotes about each one. I remember Steven's talk was top notch – filled with good scientific information but presented in a way that resonated with a lay audience. And it was full of his amazing photographs (he was a gifted photographer). I also got out in the field with him and saw firsthand that he knew his stuff. This (proven field knowledge) cemented him as a bona fide authority in my book.

Our paths continued to cross from time to time over the next decade or so, as we were both active in Arkansas and regional botanical doings, but we really began to work together after I took an interest in Lake Leatherwood Park northwest of Eureka Springs. Steven was on the Board of the Eureka Springs Parks Commission, and I

was the botanist and ecologist with the Arkansas Natural Heritage Commission (ANHC). I had been exploring the park for a couple of years, studying its rich dolomite glades, which support many rare plant species in a protected setting. He was passionate about the park and its flora and wanted to be sure that the City was taking the rare biodiversity into consideration as they planned a trail system and other infrastructure development.

Steven was a strong advocate for biodiversity and helped get the ANHC involved in doing inventory work in the park to find and map significant species and habitats. We co-led a couple of public field trips in the park and I enjoyed having dinner with Steven when I was in town – sitting and listening to stories of his work and travels and learning about the science behind many of our medicinal plants. I have especially fond memories of some field work we did together, hunting for rare species (which we found!) in the Miner's Rock unit of the park.

Steven left us unexpectedly, and too soon, but he left a big legacy of botanical knowledge, packaged in his 18 books and countless articles and photographs. His work was global in scope and focused on the many, many ways that plants benefit humanity. I'll always remember him when I hike the trails at Lake Leatherwood or see any number of plant species we cataloged in those rugged hills and hollows.

He'll be missed.

**Contributed by Theo Witsell**



**Steven at Lake Leatherwood in Eureka Springs.**

**Photo by Theo Witsell.**

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# May is Arkansas Native Plant Month!

Learn about the proclamation's history and make plans to join ANPS in the monthlong celebration by attending a Spring "Mini-Meeting" in your area of the state

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*Indian Pink (Spigelia marilandica).*  
Photo by Eric Hunt.

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## The History of Arkansas Native Plant Month

Leslie Patrick with Ralph Weber

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Governor Asa Hutchinson has proclaimed May 2022 as Arkansas Native Plant Month. The purpose of the special naming is to draw statewide attention to the ecological, historical, and cultural value of our native plants. This is the fifth time an Arkansas Native Plant Month has been declared since 2017, thanks to Ralph Weber, a life member of ANPS. I asked Ralph how he came up with the idea and what steps he takes to get the proclamation from the Governor's Office each year.

In August 2016, while listening to a local radio station as he drove home from a native plant workshop, Ralph heard a public service announcement that August was proclaimed as "(something) Month." (You've probably heard these - Arkansas Rice Month, Campus Fire Safety Month, etc.) So, with thoughts of native plants still in his head from the workshop, he came up with the idea of Arkansas Native Plant Month. He contacted his state representative for information about how to petition to name a month. Soon after, he received an email from the Governor's Office explaining the application process.

Ralph believed the logical choice for the sponsoring organization of the petition was the Arkansas Native Plant Society. He contacted ANPS past president and longtime member Burnetta Hinterthuer, who agreed it was an

excellent idea. The ANPS board approved the sponsorship at its Fall 2016 meeting in Mena.

The proclamation application requires "sample wording", mainly a list of reasons why the proclamation should be issued. Ralph listed ecological, historical, and cultural reasons native plants are important. The proclamation request was approved, and Governor Hutchinson declared April 2017 as the first Arkansas Native Plant Month.

Proclamation archives are available at [governor.arkansas.gov/our-office/proclamations/archives](http://governor.arkansas.gov/our-office/proclamations/archives). See the first Arkansas Native Plant Month proclamation at [governor.arkansas.gov/images/uploads/proclamations/170401\\_2017\\_Arkansas\\_Native\\_Plant\\_Month.pdf](http://governor.arkansas.gov/images/uploads/proclamations/170401_2017_Arkansas_Native_Plant_Month.pdf).

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## Spring Brings "Mini Meetings" Throughout the State!

Joe Ledvina and Jennifer Ogle

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Earlier this year, when ANPS board members were having yet another discussion about whether we should resume in-person meetings, the Omicron variant of COVID-19 was running rampant through Arkansas and the future still seemed uncertain. So, we made the decision to cancel our traditional, three-day spring meeting once again. However, we all agreed that we should begin trying to return to normal by planning some type of in-person, all-outdoor meeting as a way to ease into getting together again. We are trying something new this spring, and we hope you will be on board with this idea!

We are planning a series of spring mini-meetings, one in a different region of the state on several Saturdays this spring. Each event will include a morning plant walk to a botanical area of interest, a potluck picnic, and an afternoon plant walk to another botanical area of interest.

Keep reading for all the details of each mini meeting. We are excited to get together again and hope you will be able to join us at an event in your area of the state next month!

# 2022 Spring Mini Meetings Schedule

At long last, let's get back together!

**NOTES FOR ALL WALKS:** Wear sturdy boots and bring a hat, sunscreen, bug spray, and water. Waterproof boots are recommended for the April 30 and May 14 trips.

**NOTES FOR THE POTLUCK:** Bring your own drink and a camp chair if you have one. If you contribute a potluck dish to share, please also bring a serving utensil. Plates, forks, & napkins will be provided.

**RSVP IS NOT REQUIRED.** Please contact the leader of each meeting if you have questions.

## SATURDAY, APRIL 30: LITTLE ROCK AREA EASTERN OUACHITAS & MISSISSIPPI ALLUVIAL PLAIN

Meeting & Trips Leader:

Eric Hunt (ANPS)

[ericinlr@gmail.com](mailto:ericinlr@gmail.com) or text/call 415-225-6561

**9:30 - 11:30 am: Fourche Bottoms Flatwoods.** Directions: There is no parking at the flatwoods site; meet at Interstate Park (3900 S. Arch Street, Little Rock, AR 72206) to carpool in one or two cars to the site. Habitat: Mesic hardwood flatwoods with a diverse herbaceous understory. Dominant trees of shagbark and water hickory with an understory of hawthorn, false indigo and red buckeye. Copper iris, spring spider lily, swamp leatherflower, green dragon, white wild indigo are some of the showy spring bloomers we expect to see. Level of difficulty: moderate; no trails but the ground is flat with some downed wood. Waterproof hiking boots are strongly recommended.

**12:00 - 1:00 pm: Potluck picnic at Vista Park.** Directions: head west on Cantrell/Highway 10 from Little Rock, and the park is on the north side of Cantrell/Highway 10 right before you cross over the last bridge over Lake Maumelle. GPS for the entrance is 34.8721, -92.6533.

**1:00 - 2:30 pm: Maumelle River WMA.** Directions: There is no parking at the site; meet at Vista Park (see above) and carpool in one or two cars to the WMA. Habitat: Mesic mixed oak-pine forest with the highly fragrant bigleaf snowbell dominating the understory. We hope to catch it in full bloom. There are also white fringetree that should be in bloom. Level of difficulty: Moderate to strenuous;

no trails and ground is gently rolling with some rocks and downed wood.



*Top: Bigleaf Snowbell (Styrax grandifolius). Bottom: Copper Iris (Iris fulva). Photos by Eric Hunt.*

## SATURDAY, MAY 7: NORTHEAST ARKANSAS CROWLEY'S RIDGE LAKE VILLAGE STATE PARK

Meeting & Trips Leader:

Travis Marsico (STAR Herbarium)

[tmarsico@astate.edu](mailto:tmarsico@astate.edu) or text/call 870-253-1410

**Address:** 201 Co. Rd. 754, Wynne, AR 72396

**Directions:** From Wynne, take AR-284 East to CR 754 (6.9 miles), then take a slight left on CR 754 and follow for 1.1 miles. Enter the park by taking a left on CR 756. Follow CR 756 to the Lake Austell pavilion and picnic area. Google

(Continued from previous page)

Maps: <https://goo.gl/maps/L3H9JH9xHAMP3aXP7>.

All activities will start from the Austell Trail pavilion and picnic area. Please meet there no later than 10 minutes before the start times of each walk.

Habitat: Highlights of both walks will include wildflowers associated with rich, mesic forests including Beech and Maple. We may see some of the western extent of natural Tulip-tree populations.

**9:00 am: Lake Austell Trail.** Level of difficulty: moderate with a few strenuous parts, but we'll take it slow.

**12:00 pm: Potluck picnic at the Lake Austell picnic area.**

**2:00 pm - 5:00 pm: Lake Austell Trail** (a different section). Level of difficulty: moderate with a few strenuous parts, but we'll take it slow.



*Tulip-tree (Liriodendron tulipifera). Photo by Eric Hunt.*

**SATURDAY, MAY 14: PINE BLUFF AREA  
MISSISSIPPI ALLUVIAL PLAIN &  
WEST GULF COASTAL PLAIN**

**Meeting & Trips Leader:**

**Richard Abbott (UAM Herbarium)**

**abbottjr@uamont.edu or text/call 217-549-9625**

**9:00 - 11:30 am: Part of the AGFC Cane Creek Lake Trail, north of Cane Creek State Park.** Location: Meet at the Star City baseball fields and we will carpool/caravan to the site. The ball field parking lot is on E. Arkansas Street, just west of the Southeast Arkansas Behavioral Healthcare System at 505 E. Arkansas. Directions: From Hwy 425 in Star City, head east on Hwy 114/E. Arkansas St. 0.4 miles. The parking lot is on the right. Level of difficulty: moderate – partly off-trail and potentially wet and

muddy, with minor elevation changes. Habitat: We will see beautiful bottomland hardwoods and upland woods off the beaten path, with the feeling of being in the middle of nowhere.

**12:00 - 1:00 pm: Potluck picnic at Bayou Bartholomew River Trail** (5401 S Olive St, Pine Bluff). Directions: From I-530, take exit 43 to 63 N (S. Olive St). Turn right at the stoplight, just north of Relyance Bank, take the second left toward Payless and then take the gravel road to the right.

**1:00 - 4:00 pm: Byrd Lake Natural Area.** Because parking is limited, we will meet at the lunch stop (see above) and carpool/caravan to the site. Level of difficulty: easy to moderate – much on ADA compliant trails. Habitat: We will see an oxbow lake with bald cypress surrounded by rich, alluvial bottomlands on the very edge of the Gulf Coastal Plain.



*Bald-cypress (Taxodium distichum). Photo by Eric Hunt.*

**SATURDAY, MAY 21: WEST-CENTRAL ARKANSAS  
OUACHITA MOUNTAINS  
CADDOWOMBLE RANGER DISTRICT**

**Meeting Leader:**

**Virginia McDaniel (US Forest Service)**

**virginiamcd31@yahoo.com or text/call 828-545-2062**

**Address:** 1523 Hwy 270E, Mount Ida, AR 71957

**Directions:** From Mt. Ida at the intersection of Hwy 275 and Hwy 270, take Hwy 270 E 1.2 miles and turn right into the office parking area.

All activities will start at the Caddo/Womble Ranger District office. Please meet there no later than 10 minutes before the start times of each trip.



**9:00 am - 12:00 pm:** Virginia McDaniel and Susan Hooks (USFS, retired) will give a tour of the USFS's Mt. Ida Seed Orchard, which features grasslands and open woodlands. They will also discuss the interesting history of one of the USFS's living seedbanks for Shortleaf Pine. Virginia will also demonstrate how to properly collect and press a plant to make a herbarium voucher specimen.

**12:15 - 1:30: Potluck picnic at the Caddo/Womble Ranger District office picnic area.**

**1:30 - 4:30 pm: Glade Restoration Project** in the Caddo/Womble district, led by Virginia and Susan. Expect to see winecup, pale purple coneflower, fameflower, widow's-cross, and Carolina larkspur in flower, to name just a few!



*Widow's-Cross (Sedum pulchellum). Photo by Eric Hunt.*

**SATURDAY, MAY 28: NORTHWEST ARKANSAS  
OZARK HIGHLANDS  
PEA RIDGE NATIONAL MILITARY PARK (PRNMP)**

**Meeting Leader:**

**Jennifer Ogle (UARK Herbarium)**

**jogle@uark.edu or text/call 479-957-6859**

**Address:** 15930 E Hwy 62, Garfield, AR 72732

**Directions:** From the intersection of Hwy 94 and Hwy 62 in Rogers, take Hwy 62 East for 7.8 miles then turn left on Pea Ridge Park Entrance and continue to the Visitor Center parking area.

All activities will start at the PRNMP Visitor Center. Please meet there no later than 10 minutes before the start times for each walk/trip.

**9:00 am - 12:15 pm: A driving and walking tour of habitat restoration projects at the park.** Trip Leaders: Nate Weston (ANPS President) and Nolan Moore (PRNMP Biologist). Level of difficulty: easy to moderate. We will be driving to each site and then walking off trail in flat to gently/moderately sloping grasslands and woodlands.

**12:30 - 1:45pm: Potluck picnic in the park.** We'll meet at the Visitor Center parking area and caravan to the picnic area in the park.

**2:00 - 5:00 pm: Black Maple Tour.** We will visit one of two known sites of the rare black maple in Arkansas, a mesic riparian forest in a scenic, narrow valley with several rock outcrops. We will meet at Visitor Center and carpool/caravan to the site. Along the way we'll stop to see wildflowers growing in a dry-mesic woodland and we will also stop to see Bowman's-root (*Gillenia trifoliata*), another rare species in Arkansas. Trip leaders: Jennifer Ogle and Nolan Moore. Level of difficulty: moderate; at the black maple site, we will be off trail and there is a short but steep slope to get into the site.



*Bowman's Root (Gillenia trifoliata). Photo by Jennifer Ogle.*

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# Board Member Spotlight: Katherine Lincourt, Treasurer

A conversation with Margaret Lincourt, Secretary



Kate (left, holding a wad of cash) and Mike Burns at the meeting registration table. Photo by Michael Weatherford.

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## What are the responsibilities of the Treasurer position?

It's really about what you would think. I take money in, I send money out, and I try to make sure the process is as transparent as possible so that the Board and the Membership know everything I do!

**What experience is needed to be successful?** Since almost everyone deals with money and bills, there's not anything too tricky here; but it helps if you like balancing your checkbook and filling out paperwork. I don't know that I'd normally describe myself this way, but there is something I like about putting things in order.

**What do you like best about being Treasurer?** I think the

thing I like best about it is that there's more ANPS sprinkled into my day-to-day life. When I send checks out to scholarship recipients and small grant recipients, get an email from the board, or memberships arrive in the mail – it reminds me of all the research that's happening, the landscape projects we're supporting, all the people I enjoy seeing and spending time with. It's a nice touchstone.

**What do you like least about being Treasurer?** Handling large sums of money after a meeting! I hate wandering around with that much cash on me!

**Generally, how much time do you spend taking care of routine Treasurer's activities monthly?** There's more work to do around the meetings, the publication of the Claytonia, and the start of the year. If you averaged it out, it probably wouldn't be a lot more than an hour a week.

**How much time do you spend preparing for, or participating in, Board and Membership meetings?** It really doesn't take too much time to prep for meetings – I'll update the Treasurer's Report, review other board business, give a once over the meeting supplies, sometimes I have to go to the bank for change. Counting the time in meetings it might be 8 hours.

**Is planning the annual budget complicated?** Since we do many of the same things each year it is usually pretty easy to spot trends and build a budget for the new year based on what has gone before.

**Is there anything else you would like to add?** Actually, I just want to give a big thank you to all the people I've worked with as Treasurer and to the members. It's been a lot of fun!

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## Catching Up With the ANPS Education Committee

Lissa Morrison and Michelle Wisdom

People are often attracted to those who share common interests. For the ANPS Education Committee, our journey began in 2017 when we connected over our love for native plants. We were a small group of professionals with careers in horticulture, botany, conservation biology, and landscape design. In the beginning, we spent time getting to know one another, exploring the strengths, weaknesses, and goals of our group (and whether we even wanted

to BE a group!).

Lively discussions ensued about how to make use of our combined experience and expertise. Collectively, we resolved to find ways to share our knowledge of native plants, to expand public understanding of the importance of healthy native ecosystems, and to potentially work with municipalities and organizations on establishing native habitats within urban areas. In 2019 we partnered

with ANPS to establish the ANPS Education Committee.

The goals of the committee are to educate city planners and urban foresters, horticulture and landscape architecture students, and the horticulture industry on the importance of native plants, work toward changing horticultural and landscaping practices, provide information



**The ANPS Education Committee (from left) Sarah Geurtz, Alan Ostner, Jennifer Ogle, Michelle Wisdom, and Lissa Morrison.**

about the practical landscape uses of native plants, and promote a larger native plant industry.

We recognized that the distinct yet related backgrounds of our five-member committee had the potential to be extremely dynamic and productive. Sarah Geurtz is a licensed landscape architect and co-owner of Earthplan Design Alternatives, PA. Jennifer Ogle, the ANPS board representative, is a botanist and the collections manager of the University of Arkansas Herbarium. Alan Ostner is a licensed, independent landscape architect who owns Drainage Doctor NWA, PLLC. Lissa Morrison, who is now retired, was the supervisor and garden designer at the Botanical Garden of the Ozarks, was the original owner of White River Nursery, and is a founding member of the Ozark Chapter of Wild Ones. She is also the chair of the ANPS Education Committee. Michelle Wisdom is an instructor in the Department of Horticulture at the Univer-

sity of Arkansas.

Each committee member has been active in spreading the word about native plants through their professional paths. Individually, we have given educational presentations, led field trips, participated in native plant rescues, and worked in native plant propagation. At home, we are obsessed with adding native plants to our landscapes – learning from our own successes and failures!

Since its formation, the committee has been focused on landscape codes and regulations in Northwest Arkansas municipalities to increase the use of native plants in these thriving urban centers. In 2020 we composed *Plants Native to Northwest Arkansas*, a list of recommendations for native trees, shrubs, grasses, and vines, to present to cities within the region. Additionally, we created a list of ANPS invasive plant species. Our intention was to guide municipalities, designers, and developers in native plant selections.

In August 2020, we gave a short zoom presentation to the Fayetteville Urban Forestry Advisory Board, presenting *A Case for Native Trees and Shrubs*, along with *Plants Native to Northwest Arkansas*. As a result, the City of Fayetteville updated their Recommended Tree List ([fayetteville-ar.gov/3979/List-of-Recommended-Native-Trees-and-Shr](http://fayetteville-ar.gov/3979/List-of-Recommended-Native-Trees-and-Shr)) to include nearly 100% Northwest Arkansas native trees and shrubs.

In February 2020, Sarah was asked by the City of Johnson to update their landscape code. Building on the success with Fayetteville, she utilized *Plants Native to Northwest Arkansas* and created the invasive plant list with input from the committee. The adopted code (February, 2021) now includes a list of prohibited invasive species and a 25% minimum Northwest Arkansas-native plant requirement of landscape plans requiring city approval.

Every step forward increases our determination. Recently, we drafted a letter for distribution to local nurseries and garden centers regarding these city code updates, encouraging businesses to grow and sell more native species, and pointing out that demand for native plants is outpacing supply. Our goal is to help the horticulture industry recognize the environmental and financial value of native plants.

The committee recognizes that change is slow, but the paradigm is shifting. We hope that with our continued efforts and commitment to our goals, we can be effective in helping with these positive changes.

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# Researching the Botanical Diversity of Lower Mississippi River Islands

Grace McCarthy and Caity Sims

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**Editor's Note: ANPS Research Grant recipients Grace and Caity will cover specific research results during webinars they each will give for ANPS later this year. See Page 19 for details.**

Lower Mississippi River islands are part of an interesting system of habitats that have not been well studied botanically. Some habitats within this system include willow woodlands, dense forests, sandy grassland dunes, swamps, mudflats, and sandy beaches. We are two master's students in Dr. Travis Marsico's lab at Arkansas State University in Jonesboro, studying the vascular plants on these islands. We completed a flora of six islands and found a total of 493 species! Some of our interesting finds include Bushy Cinquefoil (*Potentilla paradoxa*, pictured below), a state record found on four islands, and three new populations of Snow Squarestem (*Melanthera nivea*, pictured right), a state record first found by Virginia McDaniel. Unfortunately, many of the state records are nonnative species, including False Motherwort (*Chaiturus marrubiastrum*), first found on an island by Theo Witsell and found on three additional islands by us, and Water Chickweed (*Stellaria aquatica*). For a majority of the flora, we were accompanied by Dr. Richard Abbott from the University of Arkansas at Monticello. He is an expert botanist in the Southeast with a vast knowledge of botanical identification who helped us learn to identify the plants in our study system.



After the floristic inventory on six islands, we surveyed 59 10 x 10 m plots on the islands for Grace's second thesis chapter. She is interested in determining what factors (e.g., elevation, soil, latitude, canopy cover, etc.) are most influential in determining the different plant communities and habitats on the islands. For one of Caity's thesis chapters, we monitored the phenological changes in the reproductive period of six common species across one of the island's elevation gradients. The goal of her research project was to look for differences in reproductive period and fitness among plants found along the elevation gradient of Buck Island, just off the shore from Helena-West Helena.

Island field work brought many adventures and unique experiences, like wearing a head-to-toe mosquito suit while patiently counting individual fruits on a Yellowcress (*Rorippa* sp.) plant and troubleshooting a broken boat motor in the middle of the Mississippi River (more than once). In the latter part of summer after river levels receded, we were dodging many giant, flying Asian carp

spooked by the disturbance our boat engine caused. We also gained many trailering and four-wheel drive skills (to say the least), driving all over eastern Arkansas and western Mississippi to access boat ramps to the river. Walking through the islands was not always easy. We often dealt with the stinging sensation from nettles as tall as us while trying to climb over vine thickets and log jams. Eventually, both of us devel-



oped an allergy to poison ivy (it really is a matter of not if, but when!). We learned to be careful of where we stepped after discovering the long-lasting throb of yellow jacket stings.

Although the Lower Mississippi River can be brutal and unkind to its navigators at times, it can also be peaceful and welcoming. It provided us with beautiful sunset boat rides after long days of field work. We could always rely on it to cool us off with a quick jump in the river on hot days. And of course, we saw a lot of exciting plants on its islands! Some of our favorites include Groundcherries (*Physalis* spp.), Tumbleweed (*Cycloloma atriplicifolium*, pictured in the image above as balls of green), Indigo-bush (*Amorpha fruticosa*), Dutchman's-pipevine (*Aristolochia tomentosa*), Red Lovegrass (*Eragrostis secundiflora*), Cardinal Flower (*Lobelia cardinalis*), Witchgrass (*Panicum capillare*), and Lizard's Tail (*Saururus cernuus*).

We were not always looking at the botanical diversity of the islands, though, because we had some amazing wildlife encounters reminding us of the many animals that rely on these habitats for resources. One quiet morning we spotted a black bear at the base of a large Cottonwood tree (*Populus deltoides*), only to accidentally scare it away seconds after spotting it. We had many deer and cottonmouth sightings, saw coyotes on sandbars, and always kept an eye out for feral hogs. We saw hog tracks on almost every island, and one time a feral hog squeal scared Caity out of the woods, causing her to sprint across the muddy bank to safety. It was not uncommon to hear the croak of Herons and trill of Least Terns, Killdeer, and Belted Kingfishers in the midday in summer.

Island life was brutal and rewarding at the same time. We were secluded in some of the Delta's remaining floodplain habitats with the sounds of the birds, hum of the insects, fluttering of the Cottonwood leaves, and sweet smell of the Willow trees. Some days, the stillness and quiet of the river were only occasionally broken by lapping waves from passing barges. Other days, high winds and incoming storms created an entirely different, chaotic river. We grew to love our time on the river and the islands, regardless. We met many interesting locals and fellow river rats along the way, including guides of the Quapaw Canoe Company. We also had a lot of support from fellow students in our lab group. In the crew picture below are (from left to right) Ben Benton, Brendan Kosnik, Grace McCarthy, Mathew Jones, and Caity Sims.



# Arkansas Native Plants for Phytoremediation

## Part II: Using Native Plants to Improve Air Quality in Urban & Suburban Landscapes

Eric Fuselier

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One of the many ways plants help sustain life on this planet is by providing the oxygen we need to breathe. A by-product of photosynthesis, molecular oxygen (O<sub>2</sub>) is essential to the survival of most living organisms on Earth. But oxygen isn't the only molecule found in the atmosphere. Our modern industrial society releases pollutants into the atmosphere on a scale never before seen in human history. Exposure to these airborne pollutants is a risk factor for such adverse health effects as cardiovascular disease, lung disease, and lung cancer, among others. Suffice it to say that the quality of the air we breathe is just as important as the quality of the water we drink. In this article, we'll focus on how we can use native plants to improve air quality by controlling and transforming some of these contaminants.

### How it Works

Two main phytotechnological mechanisms can be used when trying to improve air quality:

- Phytoaccumulation refers to a process by which aerosol particles are deposited onto the solid surfaces of leaves, where they then accumulate, thereby decreasing their concentration in the air. Airborne particles can also carry a wide range of other contaminants, such as polycyclic aromatic hydrocarbons (PAHs), persistent organic pollutants (POPs), and heavy metals, which may be attached to these particles. Once deposited, some of these particles can be absorbed into the plant, though most are retained on the surface of the leaves. It is important to note that this detention of particles is only temporary, as the particles will later either become re-suspended into the atmosphere or deposited into the soil after being washed off by rain or from leaf abscission. Therefore, additional phytotechnology should be used below these plants to prevent these particles from contaminating stormwater runoff (see Part 1 in this series of article in the Fall 2021 issue of *Claytonia*).
- Phytometabolism is a process where organic contaminants are first broken down by plants through phyto-degradation (again, see Part 1) and then incorporated into the plant's biomass. For plants to grow, they need nutrients such as nitrogen (N), phosphorus (P), and potassium (K), which they use to carry out photosynthesis and to build biomass. These nutrients are inorganic elements, derived from the break down of organic molecules (or in this case, organic contaminants). The metab-

olites that are left over from this process are then "phytometabolized" and incorporated into the plant's biomass.

Specific air contaminants are discussed below, along with native plant species that can be used to remediate or control these contaminants using the two phytotechnological mechanisms discussed above.



*Rusty Blackhaw (Viburnum rufidulum).*

*Photo by Eric Hunt.*

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### Particulate Matter

Particulate matter refers to the mixture of solid particles and liquid droplets found suspended in the air. Common examples include dust, soot, and smoke. These particles can range in size, with some large enough or dark enough to be visible to the naked eye, while others are only detectable using an electron microscope. Particulate matter is generally divided into one of two categories, based on size: PM<sub>10</sub> includes inhalable particles with a diameter of 10 microns or smaller, and PM<sub>2.5</sub> are much finer inhalable particles with a diameter that is equal to or smaller than 2.5 microns. Common sources of particulate matter in the air we breathe include industrial activities, automobile emissions, construction sites, unpaved roads, smokestacks, and fires. Because of their small size, particulates can become lodged deeply into lung tissue. Smaller parti-

cles (PM2.5) pose an even greater danger, not only due to their ability to become lodged even more deeply into lung tissue than larger particles, but also due to their ability to travel greater distances in the air. Once lodged into the lung tissue, the particulates can cause irritation of the respiratory airways and reduce lung function. They have been linked to cardiac diseases and some cancers. Particulate matter can also carry heavy metals (including lead, a known neurotoxin) as well as other contaminants that become attached to the particulates.

Phytoaccumulation can offer an effective way to remove these particulates from the air before they enter our lungs or the lungs of other living creatures. Conifers have been shown to be more effective at collecting the ultrafine particles (PM2.5) than broad-leaved species. That’s not to say broad-leaved species are completely ineffective in remediating particulates, however. Research has also shown that broad-leaved species with waxy leaf coatings, leaf hairs, and a greater leaf area index can also be effective at removing particulates from the air. See Table 1 for a list of tree and shrub species native to Arkansas that meet one or more of these criteria.

ry airways and to the mucosa of the eyes and nose. Those already struggling with existing diseases of the airway (such as chronic obstructive pulmonary disease, or COPD) are especially susceptible to these adverse effects. Nitrogen oxides are also major contributors to acid rain and smog.

Plants take up nitrogen dioxide from the atmosphere and assimilate it into organic nitrogen-containing compounds, though species vary in their capability to do this. Black Locust (*Robinia pseudoacacia*) has been shown to have high resistance to damage in its tissue by nitrogen dioxide (NO<sub>2</sub>), as well as a high capability of assimilating this containment into its biomass. Because of this, Black Locust would make a good candidate for remediating urban air via phytometabolism where NO<sub>x</sub> emissions are high.

**Volatile Organic Compounds (VOCs)**

Volatile organic compounds (VOCs) are compounds that have a high vapor pressure and low water solubility. While VOCs are emitted from a variety of sources including paints, adhesives, and cleaning products, as well as from fuels and automobile emissions, about two-thirds of VOC emissions in the atmosphere are generated by the world’s

**Table 1: Native tree and shrub species for removal of particulate matter.**

Common Name	Scientific Name	Sunlight Requirements	Soil Moisture Requirements
Common Persimmon	<i>Diospyros virginiana</i>	Full sun to part shade	Dry to medium
Eastern Red Cedar	<i>Juniperus virginiana</i>	Full sun	Dry to medium
Ashe Juniper	<i>Juniperus ashei</i>	Full sun	Medium
Common Ninebark	<i>Physocarpus opulifolius</i>	Full sun to part shade	Dry to medium
Black cherry	<i>Prunus serotina</i>	Full sun to part shade	Medium
Shortleaf Pine	<i>Pinus echinata</i>	Full sun	Dry to medium
Shingle Oak	<i>Quercus imbricaria</i>	Full sun	Medium
Bur Oak	<i>Quercus macrocarpa</i>	Full sun	Dry to medium
Blackjack Oak	<i>Quercus marilandica</i>	Full sun	Dry to medium
Water Oak	<i>Quercus nigra</i>	Full sun	Medium to wet
Willow Oak	<i>Quercus phellos</i>	Full sun	Medium to wet
Northern Red Oak	<i>Quercus rubra</i>	Full sun	Dry to medium
Shumard Oak	<i>Quercus shumardii</i>	Full sun	Dry to medium
Post Oak	<i>Quercus stellata</i>	Full sun	Dry to medium
Black Oak	<i>Quercus velutina</i>	Full sun	Dry to medium
Winged Sumac	<i>Rhus copallinum</i>	Full sun to part shade	Dry to medium
Fragrant Sumac	<i>Rhus aromatica</i>	Full sun to part shade	Dry to medium
Bald Cypress	<i>Taxodium distichum</i>	Full sun	Medium to wet
Winged Elm	<i>Ulmus alata</i>	Full sun	Medium
Rusty Blackhaw	<i>Viburnum rufidulum</i>	Full sun to part shade	Dry to medium

**Nitrogen Oxide (NO<sub>x</sub>) Gases**

Nitrogen oxides are created by the combustion of fossil fuels. Sources of these gases in the atmosphere include power plants and emissions from automobile engines. Overexposure to NO<sub>x</sub> can cause irritation to the respirato-

vegetation. Once in the atmosphere, VOCs then combine with other elements in the air, such as NO<sub>2</sub>, to form ozone (O<sub>3</sub>). Exposure to many VOCs has also been linked to an increased risk of cancer. At low levels they can irritate tissues of the eyes, nose, and respiratory airways. VOCs also



**Blackjack Oak (*Quercus marilandica*).**

*Photo by Jennifer Ogle.*

have powerful neurological effects and can cause headaches, dizziness, and even memory impairment.

Some species of trees release lower amounts of VOCs than others. When we select these species for use in urban and industrial areas where nitrogen dioxide emissions are high, harmful reactions with airborne chemicals can be reduced. See Table 2 for a list of trees native to Arkansas which have been shown through research to release lower levels of VOCs than other species of trees commonly used in urban settings.

### Other Air Pollutants

Like nitrogen oxides, carbon dioxide (CO<sub>2</sub>) is produced by fossil fuel combustion. At low levels, adverse health effects from exposure to CO<sub>2</sub> are minimal; however, at extremely high levels CO<sub>2</sub> can inhibit the ability of the body to take in oxygen. Carbon dioxide is also a strong greenhouse gas that contributes to a rise in global temperatures and the resulting changes to climate. Urban trees sequester carbon from the atmosphere; in the United States they are estimated to store approximately 700 million tons of carbon. Carbon dioxide is also a contributor to acid rain when it becomes trapped within rain droplets as

they fall through the atmosphere. Once inside the rain droplets, CO<sub>2</sub> reacts with the water to create carbonic acid.

Sulfur oxides (SO<sub>x</sub>) are also released into the atmosphere from the combustion of fossil fuels where they contribute to acid rain and smog. Adverse health effects from exposure to SO<sub>x</sub> are similar to those of nitrogen oxides (NO<sub>x</sub>), causing inflammation of the respiratory airways and impaired lung function. Sulfur dioxide (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>2</sub>) emitted from automobiles, power plants, and industrial activities create complex chemical reactions that result in most of the forms of particulate matter in the atmosphere.

Ground-level O<sub>3</sub> is created by reactions between VOCs and NO<sub>x</sub> as they are exposed to sunlight. Inhaling O<sub>3</sub> can create a variety of health problems similar to that of NO<sub>x</sub> and SO<sub>x</sub>, mostly affecting the respiratory system. It can also exacerbate diseases of the airway such as asthma and bronchitis and can impair lung function. Common symptoms of O<sub>3</sub> overexposure include sore throat, coughing, shortness of breath, and pain or burning in the chest. Studies have revealed that planting urban trees, especially species that emit lower levels of VOCs, can be a viable strategy to help reduce urban O<sub>3</sub> levels.

Urban trees also provide additional benefits such as reducing air temperatures (and thus transpiration rates) by providing shade. This helps to reduce energy usage, and consequently reduces power plant emissions. A reduction in emissions from power plants can also help further reduce urban O<sub>3</sub> levels. A study conducted by Nowak et al. (2006) concluded that in the United States, the positive physical effects provided by urban trees were ultimately more beneficial despite their chemical release of VOCs.

### Design Techniques

A study conducted by Yang et al. (2008) illustrates the impact that different types of vegetation have on the reduction of the air contaminants discussed above, with larger plants and those with a greater leaf surface being better overall at reducing these contaminants (Table 3).

The arrangement in which the vegetation is planted is also important. Since air pollutants are dispersed primarily by

**Table 2: Native tree species that emit less volatile organic compounds (VOCs).**

Common Name	Scientific Name	Sunlight Requirements	Soil Moisture Requirements
Downy Serviceberry	<i>Amelanchier arborea</i>	Full sun to part shade	Medium
River Birch	<i>Betula nigra</i>	Full sun to part shade	Medium to wet
Eastern Red Cedar	<i>Juniperus virginiana</i>	Full sun	Dry to medium
Basswood	<i>Tilia americana</i>	Full sun to part shade	Medium
Winged Elm	<i>Ulmus alata</i>	Full sun	Medium
American Elm	<i>Ulmus americana</i>	Full sun	Medium
Slippery Elm	<i>Ulmus rubra</i>	Full sun	Medium



**Table 3: Annual removal rate of air pollution per canopy cover by different vegetation types in Chicago between August 2006 and July 2007.**

Vegetation Type	NO <sub>2</sub> (g/m <sup>2</sup> /yr)	SO <sub>2</sub> (g/m <sup>2</sup> /yr)	PM <sub>10</sub> (g/m <sup>2</sup> /yr)	O <sub>3</sub> (g/m <sup>2</sup> /yr)	Total (g/m <sup>2</sup> /yr)
Short grass	2.33	0.65	1.12	4.49	8.59
Tall herbaceous plants	2.94	0.83	1.52	5.81	11.1
Deciduous trees	3.57	1.01	2.16	7.17	13.91

wind, the effects of emissions are not necessarily confined to the immediate vicinity of their source. Although the concentration of pollutants does decrease with distance from their source, these pollutants can still cover a large area. One study (Zhua et al., 2002) found that particulates originating from roadways often travel up to 240 feet from their source.

Vegetation buffers can be planted adjacent to locations where land uses produce emissions high in particulates and nitrogen dioxides, including roadways with high traffic volumes, industrial districts, oil refineries, and coal-burning power plants. When we include species that will maximize the collection of particulate matter, or lower the amount of VOCs emitted where O<sub>3</sub> is a concern, these buffers can be effective for distances up to 600 feet from the sources of the contaminants.

In addition to roadway buffers, urban trees can also reduce the exchange of air between the atmosphere and the street environment, forming a green ceiling over the

street environment. In the rural and less populated parts of Arkansas, these canopies can limit the ability of contaminated air from higher up from mixing with the cleaner air at ground-level, leading to below-canopy air quality improvements. However, the reverse is true in more densely urbanized areas where tall buildings can create “street canyons,” and these green ceilings can trap pollutants under their canopies, thereby reducing air quality if planted too close together. Therefore, thought should be given to the spacing of trees in densely urbanized areas to allow sufficient ventilation, so that contaminants such as ground-level O<sub>3</sub> aren’t adversely impacting the air quality where the majority of human activity is occurring.

### Conclusion

Improving air quality is yet another application of phytoremediation in which native plants can help improve environment quality. The greatest improvement in air quality from urban trees and other vegetation has been reported to be the reduction of particulate matter, O<sub>3</sub>, SO<sub>2</sub>, and NO<sub>2</sub>, with a greater percentage of tree coverage found to correlate with an improvement in air quality. However, it should be noted that while urban trees remove tons of air pollutants annually, the overall improvement in air quality in cities has been minimal. Nevertheless, the most beneficial contribution that urban trees make to air quality is their contribution to passive temperature cooling and the sequestration of atmospheric carbon. With a simultaneous reduction in our use of fossil fuels, native plants can still play an important role in regenerative efforts to improve and restore air quality.

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**Winged Elm (*Ulmus alata*). Photo by Eric Hunt.**

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# ANPS Monthly Webinar Series

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If you would like to receive webinar announcements and Zoom links, contact Eric Fuselier to be added to the email list (anps.programs@gmail.com). You can watch past webinars on the ANPS YouTube channel: [youtube.com/channel/UCEIIEFuRaz0HblgXxwRIHvw](https://youtube.com/channel/UCEIIEFuRaz0HblgXxwRIHvw).

- **Saturday, May 21, 6 pm - Basics of Botany Series with Dr. Richard Abbott Part 2: Plant Reproductive Terminology**

In this webinar, Dr. Abbott will discuss the terminology needed to understand how plants reproduce.

- **Saturday, June 18, 6 pm - Basics of Botany Series with Dr. Richard Abbott Part 3: The Basics Behind a Name**  
In this webinar, Dr. Abbott will discuss the basics of plant names.

- **Saturday, July 16, 6 pm - Plant Communities of Lower Mississippi River Islands with Grace McCartha**

Join Grace McCartha for this presentation on the floristic diversity and plant communities on six Lower Mississippi River islands through the lens of flooding and island habitat formations. From conducting a flora of the islands, 474 species were recorded, including 14 state records and over 100 county records. Subsequent plot work explored relationships between plant community compositions and abiotic factors (elevation, soil, island size and age, latitude, proximity to tributary confluences). Grace looks forward to sharing adventurous river stories and exciting botanical findings with fellow plant enthusiasts.

- **Saturday, August 13th, 10 am – Tracking the phenology of herbaceous species on Buck Island on the MS River with Caity Sims**

In this program Caity Sims will discuss the results of her thesis research project on tracking the reproductive phenology (the change in flowering and fruiting) of seven native, herbaceous plants found on Buck Island on the Lower Mississippi River. While most phenological studies focus on shifts in climate over time, Caity's study focused on the phenological relationship with flooding along the elevation gradient of the island. You'll also hear about some of her exciting experiences about researching plants on the Lower Mississippi River.

- **Saturday, September 3rd, 10 am - Biodiversity and the Role of Disturbance in Managing Natural Ecosystems with Nate Weston**

Join ANPS President Nate Weston to learn about the role disturbance has in managing natural ecosystems, and its impact on biodiversity.

- **Saturday, October 22, 6 pm - Ecesis: the nature of Nature with Justin Thomas**

In this webinar, Justin Thomas explores the maxim "Nature does not exist". That statement often startles nature lovers, but it is necessary in understanding that humans and nature are not separate things. In order to interact with nature in sustainable ways, we, even nature lovers, have to expand our understanding of this relationship. This presentation addresses ways we can directly measure and better communicate this relationship through our regional flora and share that understanding with others.

- **November - TBD**

- **Saturday, December 10th, 10 am - Sedges Have Edges: Carex Species of Arkansas with Karen Willard**

Join Karen Willard, field botanist and former herbarium manager at the University of Arkansas, to learn about the *Carex* genus of sedges.



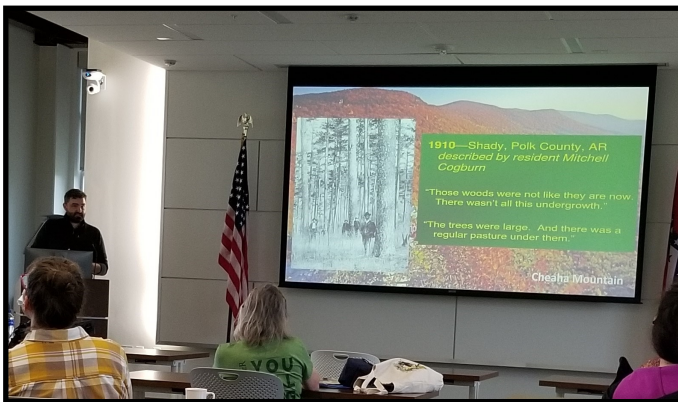
*Short's Sedge (Carex shortiana).*

*Photo by Jennifer Ogle*

## ANPS at ASB 2022

ANPS members Jennifer Ogle of the University of Arkansas Herbarium and Virginia McDaniel of the U.S. Forest Service represented ANPS during the 83rd Annual Meeting of the Association of Southeastern Biologists, held in Little Rock March 30 - April 2, with an ANPS exhibit booth that highlighted the society's mission and programs. They also re-connected with friends they had not seen since 2019!

The Wednesday field trips to Camp Robinson Special Use Area and Lorange Creek Natural Area were canceled due to strong storms in the area, but that didn't stop Dwayne Estes (pictured below) of the Southeastern Grasslands Initiative and Theo Witsell, Dustin Lynch, and Diana Sotero-poulos of the Arkansas Natural Heritage Commission from putting on an outstanding indoor program that included an overview of southeastern grasslands, an in-depth talk on Arkansas crayfish, and a tour of the ANHC Herbarium.



Jennifer and Virginia stopped by ANHC on Thursday to have lunch with botanist and ANPS life member Brent Baker (below) and were pleasantly surprised to see charter member and retired UA-Monticello professor Eric Sundell! Eric regularly volunteers at ANHC and gets his plant fix by identifying herbarium specimens.



The ANPS booth at ASB was situated in a high-traffic area, and many of the 550 or so ASB attendees visited and learned about the society's mission. They sold several ANPS memberships and 17 copies of *Trees, Shrubs, and*

*Woody Vines of Arkansas*, signed by Jennifer and Theo, who donated the proceeds to ANPS.

Several graduate and undergraduate students from Travis Marsico's A-State lab presented research during the conference. Students (below, from left) Ben Benton and ANPS Research Grant recipients Grace McCartha, Caitlyn Sims, and Mathew Jones came by the ANPS booth to say hello.



On Friday, Virginia gave a well-received talk about her research on long-term woodland restoration using prescribed fire and thinning in the Ouachita National Forest.

On Saturday, which started out rainy but turned sunny by mid-morning, Jennifer co-led a field trip to Gillam Park with Jonathan Young (far right, below) and Dan Scheiman (center) of Audubon Arkansas. One highlight for the group that also included (from left) Thomas Hennessey, Amber Richards, and Brandon Wheeler, was a tour of the nepheline syenite glades, where we saw Golden Selenia (*Selenia aurea*), Texas Saxifrage (*Micranthes texana*), and several other native plants in flower.



Despite the crazy spring weather, Jennifer and Virginia had a great time at the conference and were happy to help showcase the society's work of promoting Arkansas's native plants to the large group of southeastern biologists and students in attendance.

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## Upcoming ANPS Field Trips

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**June 5, 10 am - 12 pm: Field Trip to Restored Prairies on Private Property near Devil's Eyebrow Natural Area**  
**Trip Leader: Nate Weston, anps.president@gmail.com or 479-879-7489**

Because this walk is on private property, participants will be required to RSVP to Nate for address and directions.

Level of difficulty: The walk is relatively easy and will be on foot through the 13-acre complex along mowed pathways.

Description: A native plant walk through grasslands being restored by David and Karma Nees, native plant advocates who live immediately beside Devil's Eyebrow Natural Area and the Rob and Melani Walton Preserve near the town of Garfield in Northwest Arkansas. David and Karma are passionate advocates for native plants and are converting numerous acres from former cattle pastures into grasslands, collecting and cultivating several uncommon native grassland species from local-ecotype populations from natural communities throughout the Ozarks.

**June 25, 9 am - 12 pm: Cherokee Prairie Natural Area**  
**Trip Leader: Ben Benton, 501-581-8459 (text preferred) or benjamin.benton1@smail.astate.edu**

Level of difficulty: Easy to moderate, through a relatively flat tallgrass prairie. There is a mowed trail but we will be off trail for most of the walk. The entire walk will be in full sun, so bring a wide-brimmed hat and plenty of water!

Description: CPNA is one of the largest and highest quality remnants of tallgrass prairie in the Arkansas Valley. We should see American bluehearts, wild indigo, prairie blazing-star, and many other native wildflowers in bloom. Ben is a master's student in Dr. Marsico's lab at A-State and is working on patterns and processes of plant and soil microbe biodiversity in Arkansas River Valley remnant prairies.

Directions: From Charleston, take Hwy 217 N approximately 2.5 miles, then turn left on Hwy 60 and continue for 1/2 mile and park in the small gravel parking area on the left.

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## Welcome, New ANPS Members!

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**These new members have joined ANPS since the last issue of *Claytonia*, from October 2021 to April 14, 2022:**

Barry Bennett (Fayetteville, AR)  
Terri Bennett-Moyer (Ozark, AR)  
Sarah Bryan (Fayetteville, AR)  
Dan Burns (Melbourne, AR)  
Sydney Calvert (Alexander, AR)  
Ben Cash (Conway, AR)  
Rebecca Cook (Jackson, TN)  
Judy Dare (Hot Springs, AR)  
Terry Davis (Bigelow, AR)  
Joanne Erickson (Hot Springs, AR)  
A. Dean Flanagan (Fort Smith, AR)  
Sara Foster (Batesville, AR)  
Benjamin Gahagen (Tifton, GA)  
Roger Hall (Little Rock, AR)  
Amie Lein (Sherwood, AR)  
Michael Wayne Morris (Troy, AL)  
Jami Nash (Jonesboro, AR)  
Martha Nixon (Little Rock, AR)  
Marita & Michael Pilcher (Little Rock, AR)  
Bob & Sharon Morgan (Springdale, AR)  
Michelle Muntz (Alexander, AR)

Laurie Scott (Garfield, AR)  
Phyllis & Sam Speer (Mountain Home, AR)  
George Spellman (Virginia Beach, VA)  
Pat Standridge (Mabelvale, AR)  
Andrew Sweet (Jonesboro, AR)  
Matthew Thorn (Columbus, MS)  
Lucy Towbin (Little Rock, AR)  
Robin Trent (Conway, AR)  
Erin Wiley (Conway, AR)  
Joshua Wilkinson (Hattiesburg, MS)  
Aileen Wilson (Fayetteville, AR)

### **New Life Members**

Sharon Boatright (Gassville, AR)  
Rita Cotham (Ash Flat, AR)  
Carl Dobson (Rogers, AR)  
Karen and Marvin Fawley (Clarksville, AR)  
Robert Fuhler (Conway, AR)  
Judith Ann Griffith (Berryville, AR)  
Sue Madison (Fayetteville, AR)  
Emilie Monk (Bryant, AR)  
Sarah Nunn (Prairie Grove, AR)  
Alan Ostner (Fayetteville, AR)

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# OCANPS Report and Upcoming Field Trips

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On November 5-7, 2021, the Ozark Chapter of the Arkansas Native Plant Society held their annual retreat at Harmony Mountain, a welcome event for many after taking the previous year off due to the Covid-19 pandemic. Burnetta Hinterthuer reports that 13 vaccinated and boosted OCANPS members enjoyed a potluck, live music and sing-alongs, a plant auction, and hikes in the Buffalo River area over the weekend. During their annual meeting they elected Sue Hubbard and Jim Dudley to serve as co-presidents and Sandy Tedder to serve as vice president. They also voted to have Deb Bartholomew continue as Treasurer, Janice LaBrie continue as Historian/Photographer, and Burnetta to oversee the newsletters. More news, as reported by Burnetta in the chapter's spring newsletter: "we voted to donate \$100 to both the Ozark Natural Science Center and the Arkansas Citizens Climate League. We also agreed to donate \$300 to Halberg Ecology Camp for student scholarships."



**OCANPS members at the 2021 retreat at Harmony Mountain. Photo by Janice LaBrie.**

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OCANPS has several field trips scheduled this spring.

## **April 29 - May 1: Weekend Trip to Sylamore Creek – Cold Fork and Blanchard Springs**

**Contact: RSVP to Burnetta at [wbhint@gmail.com](mailto:wbhint@gmail.com)**

We plan to hike at Cold Fork on Saturday morning, April 30, and visit Blanchard Springs on Sunday, May 1st. We'll enjoy folk music/bluegrass music in the evening on the square in Mountain View and at the Ozark Folk Center. The Folk Center Lodge is open in April, and you can make a reservation at [arkansasstateparks.com/parks/ozark-folk](https://arkansasstateparks.com/parks/ozark-folk)

**-center-state-park.** There are several motels in town as well; and if you feel like camping, there are some great USFS camping areas. Burnetta contacted the USFS biologist there and she hopes to accompany the group to Cold Fork. This is a special plant reserve that has a population of Showy Lady's-slipper (*Cypripedium reginae*) that we may see if we are lucky. They may not be blooming, but we hope to see the plants.

## **May 7, 10:00 am: Devil's Eyebrow Natural Area near Gateway**

**Trip Leader: Eric Fuselier, [ansp.programs@gmail.com](mailto:ansp.programs@gmail.com)**

Level of Difficulty: Strenuous; very steep with loose gravel for part of the hike, but we'll be taking it slow.

Meeting Location: Parking lot south of Hwy 62 near the town of Gateway. Google Maps link: [goo.gl/maps/L5M155ysxVd5nks3A](https://goo.gl/maps/L5M155ysxVd5nks3A).

Directions: If coming from the town of Garfield, travel east on US Highway 62 for approximately 4 miles to the community of Gateway. From the junction of Highway 62 and Highway 37 in Gateway, continue east on US Highway 62 for another 0.5 mile to the gravel road on the south (right) side of the highway. This is the entrance to the natural area. There should be a sign for the natural area by the highway just after the gravel road. Continue down the gravel road to the parking area.

If coming from Eureka Springs, travel west on US Highway 62 for approximately 13 miles past Lake Leatherwood City Park to a gravel road on the south (left) side of the highway. This is the entrance to the natural area. There should be a sign for the natural area by the highway just before the gravel road. Continue down the gravel road to the parking area.

About Devil's Eyebrow Natural Area: Located at the northern end of Beaver Lake along Indian Creek and its tributaries, Devil's Eyebrow supports one of the highest concentrations of rare plant species in Arkansas with several species typically found far to the north and others that are restricted in distribution and considered globally rare. Plant communities are diverse and include high quality glades, woodlands, bluffs, rich hardwood forests, and riparian forests.

## **May 21, 9:30 am: Baker Prairie Natural Area, Harrison** **Leader: Burnetta Hinterthuer, [wbhint@gmail.com](mailto:wbhint@gmail.com)**

Level of Difficulty: Moderate; rolling terrain on mown path through the prairie.

Meeting Location: Harrison Middle School parking lot on Goblin Drive. Directions: From Hwy. 62/65 coming into Harrison, look for Industrial Park Road. Take Industrial Park Rd. west and turn left at Goblin Drive which is past the Post Office about ¼ mile. Google Maps link: [goo.gl/maps/qhm2qZU4Wa6pgkov8](https://goo.gl/maps/qhm2qZU4Wa6pgkov8).

Baker Prairie is a very healthy, diverse tallgrass prairie remnant that was preserved in 1994 as a natural area by the Arkansas Natural Heritage Commission. More information about Baker Prairie can be found at [arkansasheritage.com/arkansas-natural-heritage/naturalareas/find-a-natural-area/baker-prairie-natural-area](http://arkansasheritage.com/arkansas-natural-heritage/naturalareas/find-a-natural-area/baker-prairie-natural-area).

**June 11, 9:30 am: Long Pool Recreation Area and Pine Ridge Gardens**

**Trip Leader: Kim Lovely, [perinopsis@gmail.com](mailto:perinopsis@gmail.com)**

Morning: Long Pool Recreation Area

Level of Difficulty: Easy to moderate

Directions: From Dover, take AR 7 north for 6 miles, turn left (west) on Arkansas 164 and go 3 miles, turn right (northeast) on County Road 14 and go 3 miles, then turn left (northwest) on County Road 15 and go 2 miles. 1804 is road number into the recreation area. Description of the site and additional directions: [fs.usda.gov/recarea/osfnf/recarea/?recid=43459](https://fs.usda.gov/recarea/osfnf/recarea/?recid=43459).

Afternoon: Mary Ann King's Pine Ridge Gardens

Level of Difficulty: Easy

Directions: From Long Pool, turn left on AR 164 then turn right on AR 7 heading south. Turn right (south) on AR 333. Turn right on Arkansas 333. Turn right onto Martin Chapel School Rd. Turn left onto Storment Road. Turn right onto Sycamore Rd. Pine Ridge Gardens is located at 832 Sycamore Rd., London AR 72847.

**June 25, 9:30am - 12:00pm: Osage Park Trail, Bentonville**

**Trip Leader: Sue Hubbard, [shubbard@redshift.com](mailto:shubbard@redshift.com)**

Level of Difficulty: Easy walk on an urban trail

Directions: Take SW 16th Street off Sam Walton Blvd in Bentonville. You can also take SW D Street south off SW 14th Street and turn west on SW 16th. Park in the lot at the end of SW 16th.

Many excellent eateries are to be found in Bentonville; we will select one to try! Compton Gardens, Crystal Bridges are great afternoon attractions for those who wish.

**Date TBD: Return to Possum Trot**

Don Mills and Burnetta Hinterthuer have been talking about returning to Possum Trot this spring. Weather is always a factor this time of year, but they are hoping to

try for mid-April to mid-May, at a time OCANPS doesn't have another hike scheduled. Burnetta will send an email if and when they get this planned. It is a USFS site with a forest subcanopy of umbrella magnolia (*Magnolia tripetala*). It has been recognized as harboring seven different tracked plants including a population of French's Shooting-star (*Primula frenchii*), Ozark spiderwort (*Tradescantia ozarkana*), Ozark trillium (*Trillium pusillum* var. *ozarkanum*), yellow mandarin (*Prosartes lanuginosa*), and a lily we need to find in bloom before deciding if it is Michigan lily (*Lilium michiganense*) or Turk's-cap Lily (*Lilium superbum*). There are at least three Possum Trots in NWA. This one is south of Nail, AR off Hwy. 16. Meet at the Nail store parking lot just off Hwy. 16 and carpool to the site. Additional parking is found at the church parking lot across from the store. **If you are interested in going on this trip, email Burnetta ([wbhint@gmail.com](mailto:wbhint@gmail.com)) and she keep you up to date on their plans.**



**Top: Ozark spiderwort (*Tradescantia ozarkana*).**

**Bottom: Ozark Trillium (*Trillium ozarkanum*).**

**Photos by Eric Hunt.**

# 2022 Spring Treasurer's Report

	2020 Actual	2021 Actual	Jan - Apr 10, 2022		Proposed 2022 Budget
			Start	End	
				\$26,154.93	
			2022 Actual as of Apr 10		
<b>INCOME</b>					
Membership Dues	\$5,110.00	\$5,465.00	\$2,600.00		\$4,800.00
Meeting Registration	\$0.00	\$0.00	\$0.00		\$1,200.00
Plant/Silent Auction	\$0.00	\$1,126.78	\$0.00		\$2,500.00
Spring BioBlitz	N/A	\$3,522.34	N/A		N/A
T-Shirt, Hat, Book Sales	\$0.00	\$818.44	\$7.21		\$800.00
Fundraiser: Ozark Society Foundation	\$1,000.00	N/A	N/A		N/A
Contributions	\$1,405.00	\$6,359.00	\$1,075.00		\$0.00
<b>TOTAL</b>	<b>\$7,515.00</b>	<b>\$17,291.56</b>	<b>\$3,682.21</b>	<b>\$3,682.21</b>	<b>\$9,300.00</b>
<b>EXPENDITURES</b>					
ANPS.Org (website expenses)	-\$99.00	-\$99.00	\$0.00		-\$111.00
Bulk Mail	-\$235.00	-\$245.00	-\$265.00		-\$245.00
Claytonia (Print & Distribute 2 Issues)	-\$1,887.00	-\$2,075.90	\$0.00		-\$2,000.00
Directory (Print and Distribute)	-\$1,136.75	\$0.00	-\$1,444.61		-\$1,150.00
Memorial Awards (Grants/Scholarships)	-\$4,000.00	-\$8,475.00	\$0.00		-\$3,000.00
Grants/Support to Public Gardens	-\$652.06	-\$4,199.80	\$0.00		-\$1,000.00
Ecology Camp	\$0.00	\$0.00	\$0.00		-\$500.00
Webinar series (Zoom)	\$0.00	-\$163.39	\$0.00		-\$164.00
Meeting expenses (2021: auction shipping, misc)	\$0.00	-\$529.17	\$0.00		-\$1,000.00
Tabling events (2022: ASB)	\$0.00	\$0.00	-\$350.00		\$0.00
Fundraiser: Ozark Society Foundation	-\$1,000.00	N/A	N/A		N/A
Supplies/postage/PayPal fees/misc	-\$134.28	-\$102.37	-\$8.10		-\$130.00
<b>TOTAL</b>	<b>-\$9,144.09</b>	<b>-\$15,889.63</b>	<b>-\$2,067.71</b>	<b>-\$2,067.71</b>	<b>-\$9,300.00</b>
			<b>Total as of Apr 10, 2022</b>	<b>\$27,769.43</b>	

Respectfully submitted by Kate Lincourt, Treasurer

## 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 out of receiving 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:

Katherine Lincourt, Treasurer  
2625 Charter Oak Drive  
Little Rock, Arkansas 72227

**JOIN OR RENEW ONLINE INSTEAD! Details at [anps.org/join](https://anps.org/join).**





## CLAYTONIA

Jennifer Ogle | Interim Editor  
anps.memorialawards@gmail.com

### Please check your mailing label!

The calendar year is the membership year. If your mailing label says "21" or earlier it's time to renew. Life members have an "LF" on their label.

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](https://anps.org/join).

### MANY THANKS TO OUTGOING ANPS BOARD MEMBERS

We would like to express our deep gratitude to Becky Hardin, Susan Hardin, and Betty Owen for their service to ANPS as board members over the past several years.

Becky and Susan served on the President track for four years and, as the pandemic unfolded, steered ANPS into uncharted waters with confidence and ingenuity (and frequently, much-needed humor) that helped us adapt and navigate.

After serving for four years on the President track, Betty became Editor of *Claytonia* and continued in the position for seven years. She did an outstanding job as editor, keeping ANPS informed of the goings on of the organization and gathering interesting botanical content for each issue.

Becky, Susan, and Betty, we have loved working with you and thank you for everything you have done to help make ANPS successful. We miss working with you on the board but look forward to seeing you at future meetings!

Gratefully, The ANPS Board

## SAVE THE DATE!

### ANPS FALL 2022 MEETING

OCTOBER 7-9

STUTTGART, ARKANSAS

#### 2022 ANPS OFFICERS

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