Two Special Redbud Programs (& Election)

We have a pair of special member meetings coming up October 28 and November 17 via Zoom. Each meeting will feature a truly rewarding presentation. We’re also doing biennial elections of Redbud Chapter officers. We’ll have nominations at the October meeting and elections at the November meeting. Put ‘em on your calendar! Read on for details (including Zoom info)!

A swallowtail butterfly enjoys nectar of a Santa Rosa Island sage (Salvia brandegeei) in Carol Thompson’s native plant garden in Lincoln.
October 28, 2021 7 p.m.  *Adventures in Gardening with California Native Plants*

Our October Redbud presentation features four Redbud native plant gardeners from Placer and Nevada Counties who will share how their gardens express their love of native plants. They will highlight how their gardens incorporate and reflect characteristics such as elevation, climate, and local plant species and communities. They will also address how their gardens meet goals such as attracting birds and wildlife, providing pollinator habitat, deterring deer, and addressing water-conservation and fire-safety considerations.

Our four speakers come from communities as diverse as Lincoln and Dutch Flat, Alta Sierra and Chicago Park, at elevations ranging from 175 ft to 3700 ft, and in settings ranging from suburban gardens to oak woodlands and mixed conifer forest.

Our experienced panel will share their adventures in native plant gardening, their successes, and what inspires them as they create their gardens with beautiful California natives.

Bring your questions on October 28. You can also email questions in advance to nativeplanthelp@redbud-cnps.org. Zoom & YouTube info at end of next article.

*Western redbud and ‘Ray Hartman’ ceanothus make this path in Darlene Ward’s Alta Sierra garden a visual pleasure!*

**Presenters**

**Darlene Ward** moved from San Diego to a 1/3-acre lot in Alta Sierra in 2006 (2,100- ft elevation). Sierra wildflowers were new to her, so she joined a Redbud walk led by author and Redbud member Julie Carville and was inspired to join CNPS. To start her native plant garden, she bought dozens of native plants at the Fall 2007 Redbud plant sale. Darlene is a docent at the South Yuba River State Park and has led wildflower walks there since 2008. In 2011, Darlene became a Master Gardener. Though Covid 19 put many of her volunteer activities on hold, her understanding of native plant gardening has grown as her garden has matured — there is always something new to learn!

**Chrissy Freeman** discovered the value of gardening with California native plants 15 years ago, just after she and her husband bought their home on 1.5 acres in the Chicago Park area of Grass Valley. She has been enthusiastically pursuing native plant gardening ever since. At 2,300-ft elevation, her property features oak woodlands. Chrissy’s days often focus on native plants — gardening, propagating for Redbud plant sales, and volunteering for Redbud as Publicity Chair. She’s also very active as a Master Gardener.

**Carol Thompson** has been a big fan of California native plants since the early 1980s. Only when Carol moved to Lincoln (Sun City, 175-ft elevation) did she have her own yard where she could
Jeanne Wilson has loved exploring the Sierra since childhood, fascinated by the plants and wildlife. Since her 2011 move to 10 forested acres in the small community of Dutch Flat (3,700-ft elevation), she has tried to let nature guide her gardening efforts. Over 100 native plant species grow on her property, and Jeanne has incorporated as many as of these as possible into her garden. In the past six years, she has experimented with propagating many native plants, adding some to her garden and contributing others to Redbud plant sales.

October 28, 7 p.m. Zoom link:

https://cnps-org.zoom.us/j/84812655988?pwd=M28rTVFwd3ljOqbE9lYzcxAHBumJvZz09
Meeting ID: 890 5960 8289
Passcode: 393934
If you prefer to just listen on your phone, email nativeplanthelp@redbud.org ahead of time for details (though the presentation will include many photos).

Or watch on YouTube:
https://youtu.be/s71497avCs

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November 17, 2021 7 p.m. Plant Families of Nevada and Placer Counties.

Join field botanist and Redbud Vice President Shane Hanofee as he walks us through the major plant families and “clades” of Nevada and Placer Counties.

He’ll take us through the characteristics of a selection of the most common and species-rich families in the area, highlighting patterns that will help you recognize the plant life on your hikes and in your backyard. Members of these few families comprise the majority of the plant life here, so you’ll walk away being able to associate most plants you see with their family.

Shane Hanofee is a self-taught botanist who specializes in the flora of Nevada and Placer Counties. He wears many hats for the Redbud Chapter of the California Native Plant Society.

Creamcups (Platystemon californicus) is an uncommon member of the family Papaveraceae (poppy family). It grows locally in American River canyons, around Auburn, and in lower elevations of both Nevada and Placer Counties.
serving as Vice President, Web Editor, and Chapter Council Delegate. He is the Plant Sale Committee co-chair as well as running Redbud’s social media presence. He has produced a series of virtual hikes and other videos for Redbud in 2020 which can be found on the chapter YouTube channel. He works as a Botany Technician in Northern California and grows natives at his home nursery for the Redbud Fall Plant Sale. He lives in Grass Valley with his wife Ashley and their dog, Camus and two cats, Kafka and Bertie.

This is the second of two Zoom member meetings related to chapter officer elections. At this meeting, we’ll vote for chapter officers. Join our virtual meeting and help us meet the quorum needed for elections.

Nov 17, 7 p.m. Zoom link:
https://cnps-org.zoom.us/j/84812655988?pwd=M28rTVFwd3IqbE9lYzcxalBuMjvZz09
Meeting ID: 890 5960 8289
Passcode: 393934

Or watch on YouTube:
https://youtu.be/ROLsXYb7eRM
If you prefer to just listen on your phone, email nativeplanthelp@redbud.org ahead of time for details (though the presentation will include many photos).

Redbud Chapter Membership Meetings with Board Nominations & Elections
We invite all active members of the Redbud Chapter-CNPS to attend two upcoming Redbud Chapter virtual membership meetings on October 28 and November 17.

These membership meetings will include both a brief business meeting and a presentation. On October 28, the presentation is “Adventures in Gardening with California Native Plants;” on November 17, the presentation is “Plant Families of Nevada and Placer Counties.” You’ll find more information about each of these programs in the nearby article.

As part of our self-governance as a CNPS Chapter, we will accept nominations for officer positions at the October 28 membership meeting. We will also accept nominations by email to nativeplanthelp@redbud-cnps.org through October 31.

Voting will take place at the November 17 meeting. Non-members are welcome to attend both meetings and programs, but only members can vote in the elections. These will be virtual events. The links to these online Zoom events, with phone-in options, are located in colored boxes in the preceding article. Voting will be online only, not by phone. Current membership status is required for your vote to count.
Redbud Officer Positions

The Redbud Chapter has four elected positions — President, Vice President, Secretary, and Treasurer. All officers are voting members of our Chapter’s Board of Directors. They attend board meetings and general membership and public meetings. Term of office is two years. Officers are nominated and elected by a vote of the general membership. Vacancies in officer positions may be filled by board appointment; at the next election, the appointee may be a candidate and may be elected to the office. The Nominations Committee has submitted a slate of candidates, identified below for each position. You may submit additional nominations at the October 28 meeting or to NativePlantHelp@redbud-cnps.org through October 31.

President: Our current president, Jeanne Wilson, has held this office for 6 years. Shane Hanofee has been nominated for president. He has served as Vice President by appointment for the past 18 months, assisting Jeanne with the President’s responsibilities.

Responsibilities of President: Chair meetings of the board of directors and chapter membership, public, or special meetings. Act as chapter representative in CNPS and other meetings and correspondence to further chapter objectives and policies. Appoint committee chairs to fulfill the chapter goals and mission. Monitor State CNPS and Nevada and Placer County environmental group activities of interest to the chapter.

Vice President: Carol Thompson has been nominated for Vice President. Carol has been our Volunteer Coordinator for the plant sales during the last two years, and took charge of tracking and ensuring fulfillment of hundreds of spring and fall plant sale orders during 2021.

Responsibilities of Vice President: Assist in guiding chapter policies, events, and projects. Recruit members for chapter leadership and activities. Assist in outreach efforts. Represent president in his/her absence as delegated.

Secretary: Susan Dewar has skillfully recorded minutes of each board meeting; she has been nominated for a second term as Secretary.

Responsibilities of Secretary: Attend and take minutes of board meetings, give notice of meetings, distribute minutes and copies of handouts, and receive and respond to correspondence on behalf of chapter as appropriate. Maintain records, either on paper or in secure electronic files, of all meetings of the general membership and of the board of directors, as well as records of correspondence on behalf of the chapter.

Treasurer: Jeanne Wilson served as Treasurer several years ago, leaving that position to become President. She has periodically stepped in to serve as interim Treasurer when others have had to resign for family or other personal reasons. She has been nominated for the position of Treasurer.
**Responsibilities of Treasurer:** Keep secure electronic and/or paper files of all financial transactions and maintain chapter financial accounts, including assets, liabilities, receipts, and disbursements. Deposit all funds received by chapter. Disburse chapter funds as directed by board and consistent with budget. Maintain inventory records and cash boxes. On request, provide reports to board on financial transactions and chapter expenses. Prepare and submit to CNPS annual financial reports and quarterly sales tax reports. Submit annual chapter budget for board approval. Obtain sales permits/insurance for events. Ensure purchase, service, or rental contracts meet CNPS guidelines.

If you are a CNPS member interested in running for one of these positions, or if you would like to nominate another candidate for any position (any nominees must consent to being nominated), please attend the October 28 meeting, or send an email to nativeplanthelp@redbud-cnps.org by October 31. Once more, links to these online Zoom events, with phone-in options, are located in colored boxes in the preceding article. See you there!

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**Fall Redbud 2021 Plant Sale — a New Milestone!**

First and foremost, we want to thank our 40 or more dedicated volunteers who helped with the plant sale in one or more roles. Several Redbud members were active for most of the year growing plants for sale. For the past four months, nursery monitors have watered and cared for plants at the nursery, groomed and labeled them. Several volunteers spent hours “de-bugging” plants after the nursery’s narrow escape last month from the Bennett Fire. We discovered that aphids, thrips, and other pests displaced from the wildlands by the fire had migrated en masse to our tender, juicy nursery plants and made themselves at home. De-bugging is a hands-on job, and we really appreciate our volunteers for meeting this challenge!

During the sale, approximately two dozen volunteers, led by Volunteer Chair Carol Thompson, organized and alphabetized the plants and filled, boxed, and delivered about 140 orders to our customers’ vehicles.
We could have done this only in partnership with our wonderful volunteers, and we hope you join us in thanking them for all their hard work

A New Milestone

At this year’s fall plant sale, Redbud marked an important milestone — with the inspiration and resources of our new nursery, Redbud members grew approximately half the 1500 plants available during the sale, and at least half of the 140+ species we sold. (The remaining plants we purchased wholesale from other native-plant nurseries.)

As we build our greenhouse and increase our collective propagation activities (rather than relying solely on individual “home-growers” to start and grow new plants), we anticipate being able to provide even more locally native, locally grown plants.

Some of our over 1300 sold plants, boxed by volunteers, ready for customer pickup and planting in their new homes

Over 1300 plants were sold during the sale. Since the sale, we have donated some of the remaining plants to a restoration project and to a school native-plant garden; we anticipate making a few other donations as well.

We’ll “pot up” many remaining plants, including narrowleaf milkweed (Asclepias fascicularis) and white sage (Salvia apiana), from quart and 4-inch containers into gallons for our spring sale — no plants will go to waste. We also may offer remaining plants that can’t be potted up at a small, in-person after-sale event — perhaps at a local farmers’ market.

Online Plant Sale Improvements

This fall, most online shoppers had an easier experience, primarily because we had a better selection and offered many more plants of highly desirable species, such as showy milkweed (Asclepias speciosa), California bush anemone (Carpenteria californica), coyote mint (Monardella villosa), and spice bush (Calycanthus occidentalis).

The vast majority of our sales took place the first day of the members-only sale (96 orders and over $11,000 in sales). We had only seven orders the next day — though we still had many desirable plants for sale. The first day of the public sale fewer than three dozen orders (about $2,500 in sales), and the second day of the public sale had a half dozen orders, even though we still had quite a few plants left. Of the remaining plants, volunteers (each entitled to a free one-
gallon as a thank-you) took home more than two dozen plants — if you volunteer next year, you, too, could receive a free plant.

Given this experience, in the future, our members-only and public on-line sales will be just one day each, 9 a.m. to 9 p.m.

**We Thank Our Customers**

We appreciate our many native-plant enthusiast customers for their loyalty and support. In all, we cleared over $9,000 after deducting most expenses. These funds will help us continue our education and advocacy efforts.

As always, we welcome your feedback, suggestions, and requests for particular species. Just email us at nativeplanthelp@redbud-cnps.org.

To learn more about our fall plant sale, or if you have questions, please attend our member meeting on October 28. Find information about this meeting in the first article in this newsletter.

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**Our Redbud Nursery Project, Part 4**

By Ames Gilbert

[Ed. note: If you’re just checking into the saga of the Redbud CNPS propagation center, you can find earlier segments of Ames’s reporting.]

- Parts 1 and 2: Redbud newsletter, [Feb 2021](#)
- Part 3: Redbud newsletter, [April 2021](#)

All the plants from our home propagators for this plant sale have been growing at our new Redbud CNPS Nursery for several months. Having this space has allowed us to supply more plants ourselves than ever before (over 700)!

**Nursery Now in Operation**

It is thanks to the efforts of a “growing” group of nursery volunteers that our nursery is in operation:

- The shade house is up and in full use, with tables, irrigation, shade cloth, and more.
- It has shade fabric on the roof and three sides (east, west, and south), and all the growing benches are installed and labeled.
- It is filled with plants produced by our dedicated home growers, almost ready for the upcoming plant sale. Plants not fully grown by then will continue to develop, ready for the next (possibly spring) sale.
• We have a soaking station for loosening the dirt on pots so we can clean and sanitize them, with three plumbed stainless-steel sinks and sprayers for final cleaning before sanitizing.
• We have a working solar sanitizer, able to sanitize up to 1400 one-gallon pots at a time, so goodbye to the harmful effects of chemicals like bleach on our hands, clothing, and in the environment!
• We have a working electric sanitizer, ready for the cooler months of the year, able to economically sanitize up to 300 one-gallon pots at a time (or a much greater number of smaller pots).
• We now have a brand new four-cubic-foot electric cement mixer for mixing our potting mixes quickly and thoroughly — no more raw knuckles or sore backs from doing it by hand!
• We have two potting tables (and two more in reserve), both completely equipped with the tools to do potting up efficiently and without bending over. These are shaded by trees, so we can work comfortably through the rest of summer and fall.
• We have already had several “potting up” workdays and are establishing a routine that is efficient and even enjoyable!
• Taking advantage of a great deal on used sturdy steel shelving, we added some in our storage units and reorganized the existing spaces. We have assembled, installed, and moved supplies onto the shelves.
• Chain link fencing has been installed around much of the nursery, and the rest enclosed with deer fencing. We may move or replace the deer fencing at some point. If you’d be willing to help with these or similar activities, contact volunteer4redbud@gmail.com.
• Our office is now secure and locked. We have found a good used Brother laser printer and are looking for a basic computer setup, so we can start printing our labels instead of each one by hand. Elderberry Farms, the nursery operated by the Sacramento chapter of CNPS, has perfected this process, and has not only so generously advised us, but has given us all the data to print out the labels for over 170 native plant species!

Did you know that Loren Willman and Lauren Almond paid for and installed the two new shipping containers we’re using for storage at the nursery, as well as the one from which we’ll be moving? And that they’ve donated another separate space for storing our thousands of
books? Please give them long rounds of applause for their many incredibly generous contributions to Redbud over the years!

**Part Never-Ending: Which is Where You, Dear Reader, Come into The Story**

After the plant sale, we’ll finish erecting our greenhouse next to the shade house. Once that’s ready, we’ll be propagating many plants from seed and cuttings right at the nursery site. We’ll offer propagation workdays, in which volunteers can assist with and learn more about propagating native plants.

At their homes, volunteers are growing hundreds of plants from cuttings and seed for future sales. Once the greenhouse is ready, we’ll start most cuttings there. We’ll also propagate some particularly frost-sensitive species in the greenhouse, continuing to do most seed propagation at our homes. Home growers will bring plants to the nursery for potting up and thence to the shade structure.

We also now have a great group of nursery monitors who regularly check the plants in the shade house for water needs and pest-removal, weeding, sweeping concrete clean, and identifying plants ready for potting up. We invite additional interested, reliable folks to come and learn about native plants and nursery operations and help make our Redbud CNPS Nursery a continuing success. We’re aiming to have a large enough group to not only cover for one another during illness and vacations but to be able to work in teams of two, which we’ve found is more enjoyable and effective.

Would you enjoy seeing plants grow from seedlings or cuttings into saleable size, ready for planting out in the world, expanding the reach of native plants? Could you come check on the plants once a week, after you learn how to spot a plant that needs attention?

Growing up little plants is a lot of fun, the Redbud horticultural group is composed of very nice and dedicated folks, and this is really satisfying work. If you’re interested, or have questions, contact [nativeplanthelp@redbud-cnps.org](mailto:nativeplanthelp@redbud-cnps.org)
Fawning Over Ferns
By Shane Hanofee

Many of us adore ferns, for their intrinsic beauty, for their suggestion of water, and for the combination of shape and softness they bring to natural and cultivated landscapes. So let’s explore them!

Ferns and Other Early Plants
Ferns are among the groups of plants that evolved early in the botanical evolutionary tale. Some of the first plants were mosses. These complex organisms evolved reproduction via spore, an advantage over their vegetatively reproducing predecessors. The problem with being a moss is you need water to survive, water directly on your leaves to sustain them, and water to allow your gametes to meet in order to produce these spores.

Ferns overcame this limitation and developed the next best strategy, vascular systems. The ability to transport water and nutrients around the entire plant gave ferns the ability to wick up moisture from the soil and transport it to the very tips of their leaves, ending reliance on exceptionally moist environments and allowing ferns to colonize areas of the planet not yet inhabited by plant life.

Eventually conifers would evolve, the world’s first seed plants, gaining a leg up because their propagules (plant parts that can become detached and generate new plants) were more long-lasting and self-sustaining. These seed propagules could wait until conditions were ideal for germination and came packaged with a little store of nutrients to help jump-start their growth. Much later came flowering plants, with their ability to contract other organisms into their reproductive strategies, introducing animal pollination; before flowers, all pollination had been by wind.

Many are tempted to call ferns “inferior,” “primitive” or some other disparaging term. But when you think about it, that they’re here now, that they’re still so very successful, is not a sign of inferiority. It’s a sign that they got it right early on and didn’t fix what wasn’t broken. They weren’t the first plants, the originators. They weren’t botanical originators, as Bo Diddly, Little Richard, and Chuck Berry were to rock and roll. They were, however, the first major success story that introduced concepts that led to all subsequently evolved plant life we know and love. Continuing this musical analogy, ferns are The Beatles.
Fern Allies in Our Counties
In Nevada and Placer Counties, we count somewhere 50 to 60 species of fern; they have a niche in every habitat in our region. Ferns can be found from the valley floor to the tips of our mountains.

The plants we call ferns are best split into two distinct groups: true ferns and fern allies. Let's start with the three classes of fern allies — clubmosses, spikemosses, and quillworts. We have representatives of all three in our area.

Clubmosses: Clubmosses are the most ancient lineage of plants beyond true mosses. That's right, clubmosses are not true mosses, for clubmosses have a vascular system. The group is represented by a single species locally, bog clubmoss (Lycopodiella inundata). This rare species is known from only two small locales in all of California, and we are lucky to have one of those places. It grows sprawled on the soil surface at the edges of wet places, rooting every so often as it goes. Then when it's ready to reproduce, a fertile branch is held erect above and scatters spores onto the ground.

Spikemosses: Like clubmosses, spikemosses are not true mosses, though they look extraordinarily similar to mosses. Our area has three species, all in the genus Selaginella, which require close examination to tell apart. You'll find them sprawling over steep slopes and rocky areas, forming large mats. Notably, these plants dry out completely in the summer, turning brown and shriveling. When the rains return, spikemosses instantly uncoil and regain their green. They can then begin to photosynthesize and grow again. This ability is why some call them resurrection plants, though this name can refer to a plethora of disparate plants that exhibit similar behavior. Look for them in abundance growing over rocks in our river canyons.
Quillworts: Quillworts are weird! You could easily overlook these small, grass-like tufts. Look closely in seasonally wet areas, however, and they will reveal themselves to you, if you know what to look for. The five local species, all in the genus *Isoetes*, are members of our fascinating vernal pool communities at all elevations. Telling the species apart is difficult, however, without the assistance of an expert with a microscope. They all resemble tiny rosettes of wiry leaves and arise from underground corms.

Our True Ferns
We have three groups of true ferns in our area: the horsetails, the moonworts, and the rest, those ferns with your typical fronding form and the group with the highest level of diversity. True ferns and fern allies share a common ancestor, but they’ve been evolving separately for hundreds of millions of years. A clubmoss living today is as closely related to a true fern living today as to any flowering plant.

Horsetails: Most people are familiar with horsetails, but perhaps few realize they are actually ferns. All these plants are in the genus *Equisetum*. You know the scene: large patches of skinny, erect, green stems in wet areas. Two of our four species of horsetails have two forms, one fertile and capped with a little spike, which contains the spores, and one infertile, usually covered with whorls of wiry branches. The other two lack any branched forms and are always capped with the spore-filled spike.

Moonworts: The moonworts in our area are in two genera, *Botrychium* and *Sceptridium*. Both have distinctly different fertile and infertile fronds. The infertile fronds are leafy and divided and the fertile fronds are held higher and covered in little round projections containing the spores. These round fertile parts are the origin of another common name for these, the grapeferns.

*Sceptridium* is represented by a single species in our area, *S. multifidum*. It’s relatively large and relatively common in the forest understory at our mid- to high elevations.

*Botrychium*, on the other hand, are so small you could easily miss them. They grow in meadows or the edges of seeps, sometimes in alpine talus, those fields of rock chunks formed by erosion processes. Of the nearly dozen species reported in our area, all but one are ranked rare plants. They are often four inches tall at full maturity, not easy to spot among other vegetation. Species identification requires consultation with an expert in the genus, and we may have far fewer species than have been reported, as misidentifications are very likely.

Leather grapefern (*Sceptridium multifidum*)
Notable of these two genera is that they are closely symbiotic with fungi, something not known from any other ferns in our area. These ferns spend a portion of their life completely underground, without access to the sun for photosynthesis, reliant on mycorrhizal fungi in the soil to provide them with the sustenance they need to reach maturity and finally poke their heads above ground.

The remainder of ferns (some 11,000 species worldwide) are more easily understood by noting a couple of important factors and taking these together to learn which fern you may seeing.

Most importantly, for the most part these ferns grow in very specific habitat types. The two entirely aquatic ferns are hardly recognizable as ferns. The floating mosquito ferns (Azolla) species look more like duckweed than ferns. And the water clovers (Marsilea) anchor to a lake or stream bed but float their leaves, which look like four-leaf clover, on the water’s surface.

The strange fern of vernal pools, American pillwort, (Pilularia Americana) look like quillworts; as quillworts look like grasses, this does as well. It has lost its leaves to evolution, retaining only the photosynthetic stipe.

Some water-loving ferns prefer the edges of running streams and creeks rather than the open water. This includes the tall and winter-dormant lady ferns (Athyrium), five-finger maidenhair fern (Adiantum aleuticum) with its sprawling branched habit, and giant chain fern (Woodwardia fimbriate), our largest fern and a sure-fire sign of a perennial spring or other waterway.

Rock-loving ferns can cope with the extreme heat and aridity of our exposed rocky outcrops. They include:

- Indian dream fern (Aspidotis densa), which even has tolerance for the heavy metals of serpentine
- lip ferns (Myriopteris) with beady, heavily divided leaflets
- parsley ferns (Cryptogramma) with their two types of fronds of which only one is fertile
- gold- or silverback ferns (Pentagramma) with its five-sided shape and gold or silver undersides
- cliffbrakes (Pellaea), a diverse group having wiry black stems and often glaucous (blue-green) colorations.
Lastly come the woodland ferns:

- sword ferns (*Polystichum*), which love rocky areas but prefer the shade
- California maidenhair fern (*Adiantum jordanii*)
- polypody ferns (*Polypodium*) and fragile fern (*Cystopteris fragilis*) on trailcuts
- wood fern (*Dryopteris arguta*) sitting alone in dry, open wood understories
- bracken fern (*Pteridium aquilinum var. pubescens*) rhizomatous and stand-forming, ubiquitous and sometimes towering at eye-level heights

**Factors in Identifying Ferns**

Habitat can help you learn to recognize various fern genera. For instance, the aforementioned *Dryopteris* and *Athyrium* look almost exactly the same, but, because *Dryopteris* likes it dry and *Athyrium* needs riparian areas, the two can often be differentiated by habitat alone.

The other important factor is reproductive parts. Do they have two different forms of fronds like the *Botrichyum, Sceptridium, Cryptogramma,* and *Struthiopteris*? Do they have false *indusia* (spore coverings) like the *Pellaea, Adiantum,* and *Aspidotis*? True indusia like *Polystichum, Dryopteris, Athyrium,* and *Thelypteris*? Or no indusia at all like *Polypodium, Pentagramma,* and *Myriopteris*?

**Fern Parts and their Names**

Did you get thrown by some (or all) of that confusing vernacular used to describe ferns? Let’s take a step back and go over some definitions you’ll need to navigate the world of ferns. Ferns, like other plants, have three main parts: roots, stems, and leaves. Fern roots are fibrous and don’t usually penetrate very deep into the soil. From these roots grow specialized stems called *rhizomes.* Rhizomes grow laterally underground; both roots and leaves grow directly from the rhizome every so often as it creeps along. The rhizomatous habit of most ferns is why you often see them growing in stands or patches.

The leaves of ferns are often called *fronds.* Fronds have two main parts: the *stipe,* analogous to the midrib of any more familiar leaf, and lateral leaflets or *pinnae.* (Fronds of a relatively few ferns lack pinnae.) The form of the pinnae is very important; a few terms describe the variations.

*Pinnatifid* are deeply-lobed leaves that don’t quite divide all the way down to the stipe. The best local example of ferns with a pinnatifid leaf are *Polypodium* species.
Next, we have *pinnate leaves*, those that are divided all the way to the base. Think of *Polystichum* species. From there, leaf terms get easier. Pinnate pinnae can then be pinnate again; we call those leaves *twice pinnate* (often written as 2-pinnate). The 2-pinnate leaves can be divided again for three times pinnate (3-pinnate) and again (4-pinnate). To figure out how many times pinnate your specimen is, start at the stipe and count outward. This takes a little practice, but it's easy to get the hang of.

Next we need to cover a very important topic: *Sori*. (singular: *sorus*). Found under the leaves, these are where the spores are formed. Many sori are comprised simply of the spores themselves, which slough off at maturation. Just as many, however, have coverings called *indusia* (singular: *indusium*). There are two types of indusia: true indusia and false indusia. *True indusia* are a membranous, paper-like covering on top of or attached just beside the sori. *False indusia* are parts of the leaf which are folded over the sori. Both serve the same purpose, to protect the developing spores. The shape and location of these sori and indusia can be essential to fern identification.

Now, you, dear reader, are equipped with the basics to appreciating ferns and their allies. You know where to look and what to look for. We certainly need more eyes on ferns. Our area has some seldom-recorded rarities, which need more attention to understand their distributions and ecologies. There are reports of certain fern species in our area that haven't been relocated in decades; these need confirmation! In the past three years, the author himself has discovered two fern species in our counties that had not previously been known to exist here! So, get out there and flip over some fronds!