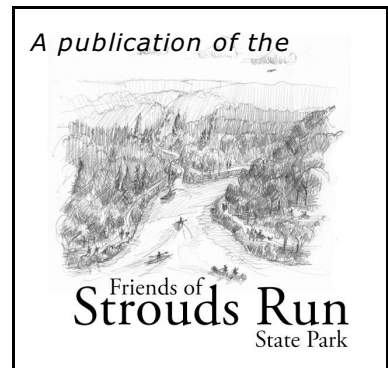


**\$2.00**

# **Ferns, Fern Allies and Lycophytes** *of the* **Strouds Run Area**



*Maidenhair fern, Adiantum pedatum*



***Strouds Run  
Field Guide #4  
Second Edition***

**Ferns, Fern Allies and Lycophytes of the Strouds Run Area** is a publication of the **Friends of Strouds Run State Park** ([www.friendsofstroudsrun.org](http://www.friendsofstroudsrun.org)). It is published with the assistance of the Athens Conservancy ([www.athensconservancy.org](http://www.athensconservancy.org)) and Athens Trails ([www.athenstrails.org](http://www.athenstrails.org)).

*Publications in this series:*

1. **Geology of the Strouds Run Area**
2. **Spring Wildflowers of the Strouds Run Area**
3. **Non-Native Invasive Plants of the Strouds Run Area**
4. **Ferns, Fern Allies, and Lycophytes of the Strouds Run Area**
5. **Woody Plants of the Strouds Run Area**
6. **Vascular Plant Checklist of the Strouds Run Area**
7. **Summer Wildflowers of the Strouds Run Area**

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Cover photo: *Adiantum pedatum*, the **maidenhair fern**, growing on a hill slope in Strouds Run State Park

# Ferns, Fern Allies and Lycopods of the Strouds Run Area

## About Ferns

Ferns are very different from seed plants. Important ways in which they differ include:

--They have fronds that are often finely-dissected, which emerge by a process called circinate vernation, in which the new fronds emerge tightly coiled and unroll.

--They reproduce by spores, which are borne on the fronds in small formations called sori (singular: sorus). The spores are shed into the air as a powder. The spores grow into a stage of the life cycle called a gametophyte, which is usually green and somewhat heart-shaped. The gametophyte sexually reproduces to grow a new fern, which is the stage of the life cycle that is called the sporophyte.

--Ferns don't form woody stems as many seed plants do, but usually have rootstocks, called rhizomes, in the ground, which bear both fronds and roots along their length. Some tropical ferns do form upright trunks, but these are radically different in structure from the trunks of seed plants.

Ferns are largely successful in this dog-eat-dog world by growing in niches other plants can't succeed in, such as on rock faces or in shady swamps. Not all ferns like the shade, however; some prefer full sun.

Fern classification has wildly confused botanists for centuries. Recent genetic studies have often clarified classification, and the plants in this book are arranged by the current classification, even if the groups may not seem obvious to the reader.

Fern study is fascinating, and can take you to some fascinating places. Southeast Ohio is a fairly good place to find ferns, with thirty-four species of ferns and ten species of "fern allies."

## Lycophytes

Lycophytes, formerly known as "fern allies," aren't closely related to either ferns or seed plants but have an ancient and venerable history of their own. Lycophytes include clubmosses, spikemosses and quillworts. Quillworts do not grow in southeast Ohio, while only one spikemoss is known from the area, and not from Strouds Run. Lycophytes are one of the three main divisions of vascular (higher) plants, the others being ferns and seed plants. Relatives of today's humble club mosses were huge trees in the coal swamps of tropical Ohio during the Carboniferous period, 300 million years ago.

## Horsetails

Modern genetic evidence tentatively places the horsetails within the fern group. However, the horsetails are radically different in structure from ferns – or any other plants, for that matter. They have an ancient fossil history, and their exact correct position within the plant kingdom is still uncertain.

### Clubmosses

**1. Shining Firmoss**, *Huperzia lucidula* (*Lycopodium lucidulum*): This plant looks like an overgrown moss, growing up to three inches tall. It most often grows on moist ground over rocks, or on moist mossy rock faces that are vertical or steeply sloping, with a northern, northeastern or northwestern exposure, and only in fairly protected areas. The closely-related **rock firmoss**, *Huperzia porophila*, is rare throughout its range, but is found in the Hocking Hills, growing only on rocks.

**2. Groundcedar**, *Diphasiastrum digitatum* (*Lycopodium flabelliforme*): This plant, which is by far the most common clubmoss in our area, resembles cedar branches growing on the ground. It is a beautiful and evergreen ground cover, often covering large areas, even acres at a time, spreading by runners. The spore are in small cone-like structures above the plant on stalks. These turn a golden-brown and shed clouds of spore. The spores were once used as flashpowder for photography, and are still used by magicians.

**3. Groundpine**, *Lycopodium obscurum* (*Dendrolycopodium obscurum*): Groundpine greatly resembles groundcedar. However, where groundcedar has leaf scales pressed to the branchlets, in groundpine they are more perpendicular to the branchlets. The spores are borne in cone-like structures at the tips of vertical branches. These structures are continuous with the rest of the stem, unlike groundcedar, and also unlike groundcedar, they are borne singly. Groundpine is not common in our area, although it is a common species farther northeast. It grows in areas of shallow, sandy soil on rock shelves, usually at or near the tips of ridges. Two closely-related species grow elsewhere in southeast Ohio, *L. hickeyi* and *L. dendroideum*. The latter is often found in the Zaleski State Forest and also in the Hocking Hills.

The related **meadow spikemoss**, *Selaginella apoda*, looks like a coarse moss and is found, but rarely, elsewhere in Athens County.

### Fern Allies: Horsetails

The genus name, *Equisetum*, means “horse hair.” This is consistent with the common name of horsetail, which may also be reserved for one group that is typically branched, deciduous, with separate spore stalks. The plants are also called scouring rushes, which is usually used for the *Hippochaete* group, which is typically unbranched, evergreen, with spore cones on the tips of vegetative stalks. The leaves are not obvious, but are tiny and fused in whorls to form sheaths around the stem at regular intervals.

**4. Scouring-rush**: *Equisetum hyemale* var. *affine*: Also known as *Hippochaete hyemale* var. *affine*. The stalks are usually unbranched, dark grayish-green, larger than the field horsetail, evergreen, finely fluted, and visible any time of year, making dense brakes of the plant, colonizing railroad grades, riverbanks and roadsides in full or partial sun and sandy soils. Colonies can grow so thickly that nothing else can grow. It usually grows to one to two feet tall, sometimes taller. The spores are borne in small cone-like structures at the tips of the shoots (as on the tip of the left-most shoot shown). The name derives from the silica in the stems, making them rough to the touch, and were once used for scouring dishes.

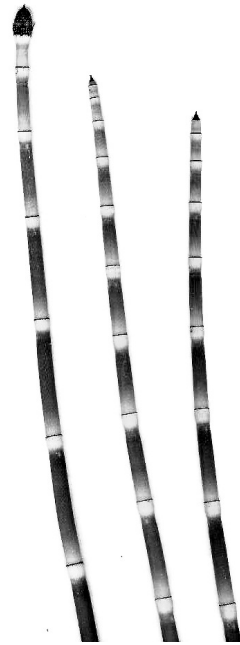
**5. Field horsetail**, *Equisetum arvense*: This commonly grows throughout the county in moist soils, often forming large colonies. It may be found in stream bottoms and along roadsides, as well as in garden patches and other unexpected places. The slender, jointed stem has jointed side branches radiating out to the sides in a whorl at each node, angling out and upwards. Each stem is around a foot tall or so. The spore-bearing shoots come up early in the spring before the green vegetative stalks, but few are produced and they’re seldom noticed, especially because they have no branches or chlorophyll.



1. *Huperzia lucidula*



2. *Lycopodium obscurum*



4. *Equisetum hyemale*



3. *Diphasiastrum digitatum*; fertile plant on right



5. *Equisetum arvense*; fertile stalks on left

**Fern Allies: Ophioglossoids**

**6. Adders-tongue**, *Ophioglossum pycnostichum* (*Ophioglossum vulgatum*): This species has only one frond a year. It often vanishes by midsummer. The leaf tip is rounded, and the base may be rounded or have slight ears. The spore is borne on a stalk arising from the base of the frond. The sporangia are in a tapered cylinder with transverse cuts, thus the name, due to its fancied resemblance to a snake's tongue. The sterile frond is two to four inches high. The spore stalk can rise to five or six inches. This plant is easily overlooked. It's most abundant atop Tunnel Rock in the Blair Preserve. A related species has over 1200 chromosomes, the highest of any living thing. This species has around 360 chromosomes.

**7. Matricary grape-fern**, *Botrychium matricariifolium*: This is a tiny fern, only an inch or two high, and recently found in the park in one place. It resembles a miniature of the other two grape ferns, below. Sometimes a plant sends up only the sporangia (the bead-like objects), with no leaf tissue. An even tinier fern, the **lance-leaved grape fern**, *Botrychium lanceolatum*, is also found in the Hocking Hills.

**8. Oblique grape-fern**, *Sceptridium dissectum* (*Botrychium dissectum* or *B. obliquum*): The spore stalk is borne from the base of the sterile leaf. The sterile leaf can either be more flat, with broad lobes with rounded tips, or finely dissected and "crisped" – almost skeletonized. The dissected form is rare in this area. This plant is generally found in disturbed land, young woodland, or pine woods. It emerges in mid-summer and dies down in spring. In winter, fronds often become reddish-bronze.

**9. Rattlesnake fern**: *Botrypus virginiana* (*Botrychium virginianum*): The single frond is triangular in outline and finely-cut. It is held almost parallel to the ground and usually grows four to eight inches tall, with the leaf blade about that long again. The spore stalk, when present, splits off from the leaf blade at the base of the stalk near the soil. Look for the rattlesnake fern in a variety of habitats, but especially areas that have been disturbed within the past thirty or so years. It generally prefers good-quality soils.

**"Primitive" True Ferns**

The "flowering" ferns, which don't flower but have showy spore stalks, are similar in appearance. They are easily distinguished when they bear spores in early spring.

**10. Interrupted fern**, *Osmunda claytoniana*: When the spores are shed from the pinnae dedicated to this purpose, these pinnae wither and the fronds appear to have a gap. This fern is pinnate-pinnatifid, and fronds can sometimes top four feet. It likes moist, wooded, north-facing slopes. It is common along some roadsides in the Zaleski State Forest. It resembles the cinnamon fern, but is lighter, brighter green.

**11. Cinnamon fern**, *Osmundastrum cinnamomeum*: This sends up spore-bearing fronds early in spring, bearing only sporangia. When ripe, they are an attractive cinnamon-brown. It will only grow with wet feet in acid soil. Old plants may form large hummocks of old roots. These root masses are harvested for the greenhouse trade, known as osmunda fiber. The cinnamon fern can reach a height of five to six feet. It greatly resembles interrupted fern, but the pinnules (smallest frond divisions) are more pointed and less crowded, while the frond texture is more leathery. In Athens County, it generally grows two to three feet high. It does not grow in Strouds Run, but is in the Riddle Nature Preserve.

**Filmy Ferns**

**12. Weft fern**, *Trichomanes intricatum*: This is a strange plant, consisting only of the gametophyte, with no sporophyte stage known. It is rare, found only in scattered rock crevices and small rockhouses, somewhat resembling green steel wool. The related **Appalachian filmy fern**, *T. boschianum*, grows in rockhouses and crevices in the Hocking Hills, but is rare. It hangs upside down from the ceiling of these recesses. The fronds are translucent, because they are only two cells thick.



6. *Ophioglossum vulgatum*



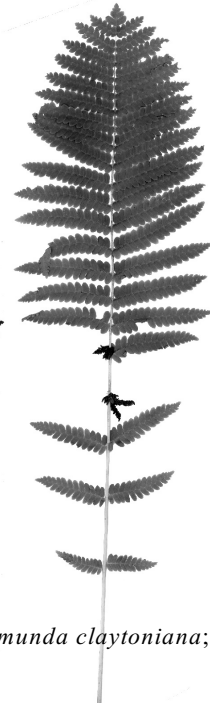
7. *Botrychium matricariifolium*



8. *Sceptridium dissectum*; different forms on left, fertile plant on right



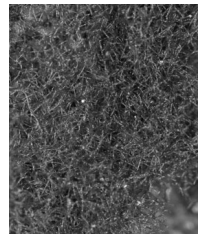
9. *Botrypus virginiana*



10. *Osmunda claytoniana*; fertile frond on right



11. Frond detail of *Osmundastrum cinnamomeum*



12. *Trichomanes intricatum*

### Pteridoid Ferns

**13. Hay-scented fern**, *Dennstaedtia punctilobula*: The hay-scented fern gets its name from its odor, most noticeable on a hot, late summer day when the plant is in the full sun. This is a fern that loves sun as long as its feet are moist. The fronds of the hay-scented fern are finely dissected, and can be quite long. They taper somewhat towards the base, and the basal pinnae often turn brown and wither as the frond ages because they're completely shaded from the sunlight, as the fronds will make a thicket so entangled that it can be very difficult to extricate one frond. This fern is occasional in the Strouds Run area but more common in the far western part of the county.

**14. Northern maidenhair fern**, *Adiantum pedatum*: This is one of the most beautiful ferns, with lacy, delicate foliage radiating from a slender black stem. The stem forks, each side curving backwards with pinnate pinnae extending from the forward side only. The fronds grow individually from a creeping, wiry rootstock. The stipes, or petioles, are vertical, but the blades of the fronds are parallel to the ground. If the plant grows on a hillside, then the fronds always point downhill. The spores are borne in marginal sori, covered by a small flap of leaf tissue that folds back from the edge of the frond. Maidenhair fern grows in moist areas with rich soil.

**15. Purple-stem cliffbrake**, *Pellaea atropurpurea*: The blue-green fronds take several different forms depending on size fertility. The sterile fronds have flat leafy tissue, while on the fertile fronds, the edges of the leafy tissue are curled under over the sori, which are at the edges of the fronds. This fern grows only on exposed calcareous rock, that is, rocks containing calcium carbonate. Only two small colonies is known in the park, but scattered plants also occur in the eastern fringes of the county.

### Polypodioid ferns: Spleenworts

Besides the species below, the **mountain spleenwort**, *Asplenium montanum*, grows as close as the fringe of Vinton County, and is also found in the Hocking Hills.

**16. Walking fern**, *Asplenium rhizophyllum* (*Camptosorus rhizophyllus*): All fronds are entire. The small sterile fronds have rounded tips. On the fertile fronds, the sori go every which-way. These fronds are long and tapering down to almost thread-like tips that may be several inches long. These tips form small buds at the tips which root into the moss on the rock and grow into new plants. Typically, you'll find that one plant is connected to at least several others. This is why it's called walking fern. It grows in moss on rocks that are not highly acidic. It is frequent within our area.

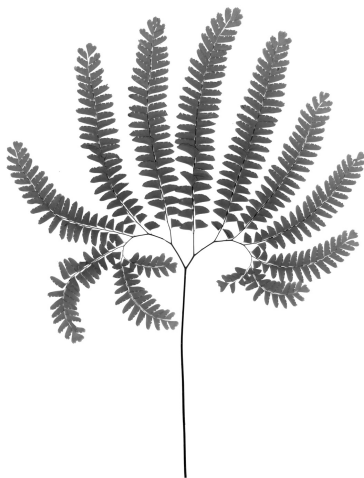
**17. Ebony spleenwort**, *Asplenium platyneuron*: The **ebony spleenwort** seemingly grows anywhere: meadows, ridgetop woods, piney woods, valleys, cliffs, boulders, and even high up on chimneys. It has dimorphic fronds. Sterile fronds are short and almost flat on the ground, while fertile fronds are stiffly erect and much longer, and often face the same direction. The fronds are also extremely narrow. This gives the plant a very distinctive appearance. A very fancy form is known as f. *baccalum-rubrum* (illustrated, smaller). Similar to the ebony spleenwort in appearance, but smaller and more delicate and always growing on rocks, is the **maidenhair spleenwort**, *Asplenium trichomanes*. This was known from one small colony in the park, but has since died out. It is occasional in the Hocking Hills.

**18. Lobed spleenwort**, *Asplenium pinnatifidum*: The lobed spleenwort has irregular fronds that are lobed and not quite pinnate, with the outline being long-triangular like the walking fern. Sometimes the lobes are irregularly sized, some in the middle of the frond possibly being shortened. The fronds are usually only one to three inches long, and are dark green, and may have long-trailing tips. The spores are borne in linear sori that follow the veins on the backs of the fronds. The sori are more or less regular. This fern is found in small cracks in well-weathered sandstone, and prefers moderate acidity. Its small size adds to the difficulty of locating it. It is much more common in the Hocking Hills.

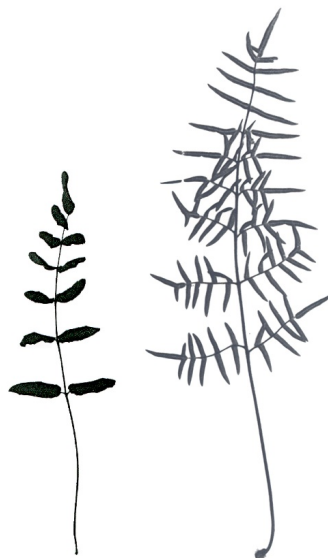




13. *Dennstaedtia punctilobula*



14. *Adiantum pedatum*



15. *Pellaea atropurpurea*



16. *Asplenium rhizophyllum*



17. *Asplenium platyneuron*



18. *Asplenium pinnatifidum*

**Polypodioid Ferns: Thelypteroid Ferns**

**19. New York fern**, *Thelypteris noveboracensis*: The New York fern frond tapers strongly to the base. Sori are very small and round. The fronds are usually only about a foot tall, and tend to face the same direction. It spreads to form extensive monocultural colonies, usually on north-facing hill slopes. In the Appalachians, it sometimes forms a solid groundcover covering many acres, but it is only occasional around Strouds Run.

A related species, **marsh fern**, *Thelypteris palustris*, is known only in the Beaumont Swamp near The Plains in our area. It is larger, with a broader frond base, than the New York fern.

**20. Broad beech fern**, *Phegopteris hexagonoptera* (*Thelypteris hexagonoptera*): This is strictly a plant of woodlands, spreading to make small colonies on the forest floor, sending up individual fronds from a slender rootstock. The fronds are triangular, with wide basal pinnae, and a curious winging of leaf tissue at the base of the pinnae. The spores are borne in tiny, round sori on the backs of the fronds. There is virtually no differentiation between fertile and sterile fronds. It usually grows eight inches to a foot tall, but it can grow to two feet or more under ideal conditions.

**Polypodioid Ferns: Athyrioid Ferns**

**21. Northern lady fern**, *Athyrium angustum* (*Athyrium filix-femina*): The lady fern usually has some tint of red about it. Often, the stipe and rachis are red. The frond is pinnate-pinnatifid, with the pinnules usually delicately lobed. The fronds in our area usually grow eight inches to twenty inches tall, but may grow thirty inches or more under ideal conditions. The fronds are sent up from a slowly-creeping rootstock. Look for it in moist coves and pockets on hillsides.

**22. Silvery glade fern**, *Deparia acrostichoides* (*Athyrium thelypteroides*): The silvery glade fern is so-called because, just before the spores ripen, the sori on the back of the frond turn a silvery color, making the whole back of the frond appear silvery. The pinnule lobes are often almost square at their tips. The fronds usually grow 2 to 2 ½ feet high. The silvery glade fern grows in almost any moist woodland soil and is to be found in almost every wooded valley. It often carpets the floors and lower slopes of small stream valleys with a thick covering of fronds.

**23. Narrow glade fern**, *Diplazium pycnocarpon* (*Athyrium pycnocarpon*): The narrow glade fern is once-pinnate, resembling Christmas fern in the spring, but once fronds emerge, they're obviously much wider and lack the narrowed fertile tip. The fronds are usually about two feet long or a little longer. It may form dense colonies in moist places, but is only locally common here.

**24. Sensitive fern**, *Onoclea sensibilis*: The sensitive fern is coarse, weedy and common. It prefers wet areas, but can grow in dryer spots as well. The name refers to its sensitivity to frost. Sterile fronds, 1-3 feet tall, are coarsely lobed, with wavy edges, sent up at intervals. The frond blade, widest at the base, is usually 8-18 inches long, and about two-thirds as wide as long. The spores are borne on specialized fertile fronds which bear no resemblance to the sterile fronds, with the fertile pinnae rolled up to form bead-like structures that contain the sporangia. It is also sometimes called bead fern. These fertile fronds are sent up in mid to late summer and persist through the winter. A fern very similar in appearance and somewhat related is the **net-veined chain fern**, *Woodwardia areolata*, which grows around acid seeps in the western fringe of the county, and can also be seen behind the Hocking College nature center.

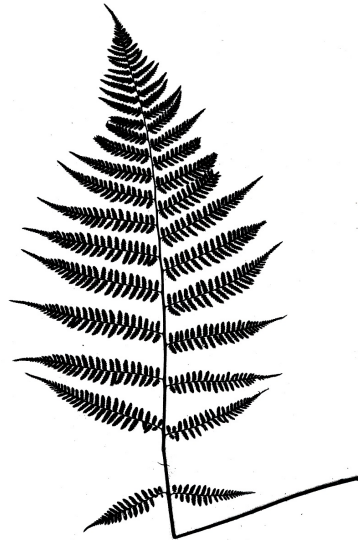
**Ostrich fern**, *Matteuccia struthiopteris* is native farther north, but is often planted in our area. It is not known from Strouds Run, but there is a sizeable naturalized colony on Long Run.



.....acensis



20. *Phegopteris hexagonoptera*



21. *Athyrium angustum*



22. *Deparia acrostichoides*



23. *Diplazium pycnocarpon*



24. *Onoclea sensibilis*

**The bladder ferns, *Cystopteris*:** These are smallish ferns with round sori. There are four species at Strouds Run. Three grow exclusively on rock, while one grows exclusively in soil.

**25. Lowland fragile fern, *Cystopteris protrusa* (*Cystopteris fragilis* var. *protrusa*):** The lowland fragile fern, also called bladder fern or brittle fern, is more or less one of the spring ephemerals. It emerges early in the spring, and is often gone by mid-summer. It often covers large areas with a carpet of small, delicate green fronds, although it doesn't tend to be extensive at Strouds Run. The fronds usually grow 5 inches to 10 inches tall. Look for this fern on moist slopes, generally in wooded areas but where it's not too shady. It's frequent at the park.

**26. Mackay's fragile fern, *Cystopteris tenuis* (*Cystopteris mackayi*):** This fragile fern, also called bladder fern or brittle fern, greatly resembles the lowland fragile fern, but the fronds are generally wider and more triangular in outline, with slightly wider leaf tissue. More to the point, they have very different habitats. The Mackay's fern grows only on rock, usually under a sheltering overhang. The lowland fragile fern is generally only found growing in woodland soils. The Mackay's fern is best seen along Long Run, in the south-central part of the county.

**27. Tennessee bladder fern, *Cystopteris tennesseensis*:** This is an uncommon species in our area, resembling the fragile ferns. On very large fronds, the frond tips may be elongated, and there may be a few small bulblets on the underside of the frond. It will be found growing only on rock, preferring alkaline rock, in a more exposed spot than *C. tenuis*. It is more rigid and compact than the Mackay's.

**28. Bulblet fern, *Cystopteris bulbifera*:** This is an uncommon species in our area. The only population known in the county currently is on the floor of a rockhouse in Strouds Run. It is also frequently found in rockhouses in the Hocking Hills, and on boulders at Rock House there. The fronds are much longer than the other species, often over a foot long, gradually tapering to the tip, and there are small bulblets found underneath than can be grown into new plants. This is an abundant fern in limestone cave country.

**29. Blunt-lobed cliff fern, *Woodsia obtusa*:** This is an uncommon fern at Strouds Run, mostly found around Tunnel Rock on the Blair Preserve. It resembles a narrow form of a *Cystopteris*, but has many small hairs on the frond, which *Cystopteris* doesn't. It usually grows on rocks, but can also sometimes be found in talus or scree (broken-down rock on slopes). It is most common in our area at Fox Lake.

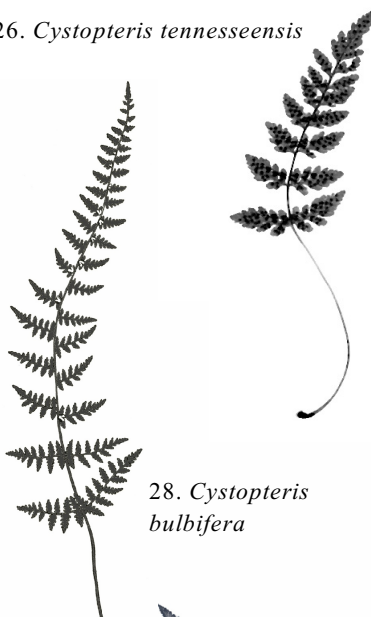
### **Polypodioid Ferns: Dryopteroid Ferns**

**30. Christmas fern, *Polystichum acrostichoides*:** The Christmas fern is so-called because it is evergreen, and has been extensively collected in the past for Christmas decoration. It is also sometimes called sword fern because of the shape of the pinnae. The fronds are dark green and narrow. In the spring, as they emerge, they may be almost vertical, gradually reclining through the season. In the fall, after a strong frost, they will then lay down on the ground, trapping fallen leaves in place, and so are an excellent soil-maker. The fronds are once-pinnate, and are moderately dimorphic. The spores are borne on the fertile fronds on special narrowed pinnae on the upper part of the frond. In the dense shade or on small plants, the fertile pinnae may only be a few near the tip, but on large plants and in high light levels, as many as three-fourths of the pinnae may be fertile. The sori are large, round, and crowded on the backs of the fronds. This is one of the most abundant ferns in our area. Enter virtually any woodland and you'll see it growing. It is particularly common on poor soil in young woods, and can compete successfully with invasive weeds such as Japanese honeysuckle. It is easily grown in gardens but difficult to grow in pots.



25. *Cystopteris protrusa*

26. *Cystopteris tennesseensis*



28. *Cystopteris bulbifera*



27. *Cystopteris tenuis*



29. *Woodsia obtusa*



30. *Polystichum acrostichoides*

**The wood ferns, genus *Dryopteris***

These ferns all have round sori on the backs of the fronds, which often turn interesting colors just before ripening. These are some of the “fernliest” of ferns.

**31. Marginal wood fern, *Dryopteris marginalis*:** Also called evergreen wood fern (sold in the nursery trade as “leatherwood fern”), the marginal wood fern is striking, with mature fronds being an almost leathery blue-green color. The fronds form a strong rosette on a crown, and the crown, emerging fronds, and stipes of fronds are all covered with scales. The sori are at or near the margins of the leaf tissue.

Just before the spores ripen, the sori turn a striking violet-blue color. This plant is found where it’s well-protected from direct sunlight and from the worst heat of the summer. It’s almost always found in our area growing in association with rock outcrops. Look for it in ravines on north-facing slopes and on north-facing rock exposures just over streams.

**32. Goldie’s wood fern, *Dryopteris goldiana*:** Goldie’s wood fern is only found in rich soil in protected situations, in woods that have been undisturbed for years. It is one of the first plants to disappear when woods have been logged or otherwise disturbed, and takes many years to re-establish itself. That’s one important reason that it’s more common at Strouds Run than in many areas of the county. In Athens County, this plant grows usually one to two feet tall, but it grows up to six feet in New England. Goldie’s wood fern is easy to distinguish from all other wood ferns, although it does bear a slight resemblance to the marginal wood fern. The fronds are dark green, with long pinnules. The spores are borne in round sori on the backs of the fronds.

**33. Spinulose wood fern, *Dryopteris carthusiana* (*Dryopteris spinulosa*):** This is one of the most common ferns at Strouds Run. It grows in moist woodland that’s not too exposed to the sun. Of the wood ferns, this species is most tolerant of habitats. The finely-cut fronds arise from a central crown, making a vase of fronds. Like all wood ferns, the stipes, crown and fiddleheads are scaly. This fern usually grows one to two feet tall, but can top three feet. This fern is very easily confused with the Intermediate wood fern. Experienced fern watchers can tell them apart at a glance, because of the difference in the frond texture and contours. The intermediate wood fern is usually a slightly darker green, the toothing on the edges of the leaf tissue is more pronounced, leaf tissue is more “crisped”, or three-dimensional, and fronds are more narrow. Conversely, that of the spinulose wood fern lies flatter. However, the rule of thumb for distinguishing them is that the innermost bottom pinnule of the frond is longer than the next pinnule in this species, while it’s slightly shorter (or equal length) in *D. intermedia*.

**34. Intermediate wood fern, *Dryopteris intermedia*:** Whereas the spinulose grows in more or less ordinary soil, the intermediate (like the marginal) in our area prefers rock, and always in sheltered valleys away from sunlight. This fern looks even more “ferny” than the spinulose. Its fronds have often been used by florists. It usually grows one to two feet tall. The leaf tissue is not “flat” like the spinulose wood fern, which it strongly resembles, but is more “crisped.” This fern is abundant in the Hocking Hills, where the spinulose wood fern is uncommon, and is often in plain soil there.

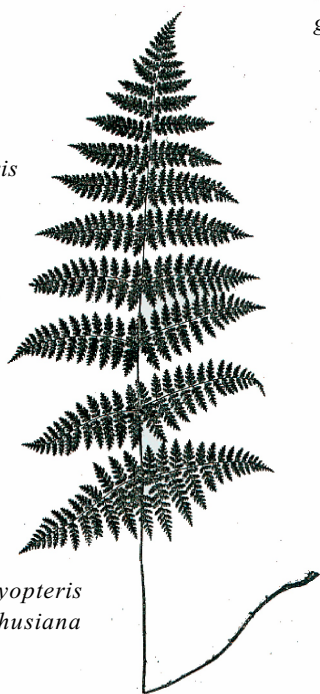
The **triploid wood fern, *Dryopteris Xtriploidea***, is the hybrid between the spinulose and the intermediate wood ferns and is fairly frequent. It is not illustrated, but is intermediate between the two. There is also one small colony of the hybrid between the marginal and Goldie’s wood ferns, *Dryopteris Xneo-wherryi*, in the park. The **crested wood fern, *Dryopteris cristata***, is found in abundance at a small area known as the Beaumont Swamp near The Plains, but is otherwise unknown in the county. It also grows around Lake Logan in Hocking County.



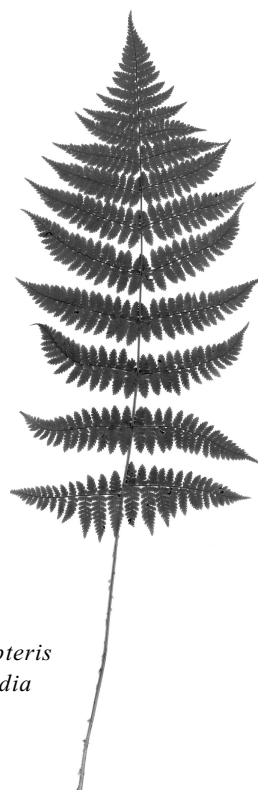
37. *Dryopteris marginalis*



38. *Dryopteris goldiana*



39. *Dryopteris carthusiana*



40. *Dryopteris intermedia*

**Polypodioid Ferns: Polypody group**

The **rock-cap ferns** or **polypodies**, genus *Polypodium*: The rock-cap fern is also called polypody after the scientific name, meaning “many feet,” because of the much-branching rhizome. Rock-cap ferns are commonly found in the woods on the tops or edges of well-weathered sandstone rocks, boulders and bluffs that are not either excessively dry or excessively moist, forming dense mats. They depend on organic matter dropping onto the mat and eventually becoming part of the soil. Sometimes tiny plants may be seen where they’re just beginning to colonize a rock, and the creeping rootstocks will then cling to the surface of the rock as the fronds act as catchment for organic debris. The fronds are always lobed, never pinnate. The large, round sori are usually only found on the upper part of the frond. They turn an attractive golden-tan when ripening. No other native fern has sori as large as the rock-cap fern. There are two species of rock-cap fern:

**35. Virginia rock-cap fern, *Polypodium virginianum***

This is the tetraploid species (meaning it has four sets of chromosomes), arising as a hybrid between *P. appalachianum*, below, and another species.

**36. Appalachian rock-cap fern, *Polypodium appalachianum***

This is the diploid species (meaning it has the normal two sets of chromosomes), and is one of the parents of *P. virginianum*.

These are difficult to tell apart, and often hybridize, making it even more confusing. The table below gives some pointers on distinguishing them. *P. virginianum* is much more common, and tolerates more environments; *P. appalachianum* likes cooler, more sheltered places. This is greatly complicated by the fact that the hybrid between them is common, and can form large colonies, although the hybrid cannot reproduce from spore.

The Virginia rock-cap fern is common at Strouds Run, while the Appalachian is rare. The hybrid is frequent. However, in the Hocking Hills, it’s precisely the opposite: the Appalachian is common, while the Virginia is uncommon, and the hybrid is still frequent.

The related **resurrection fern**, *Pleopeltis polypodioides*, is also known from our area, at the extreme northern end of its range. The two closest populations are on the rock known as “Leaning’ Lena” at Clear Creek Metro Park in Hocking County, and on private property near the southeast border of the Acadia Cliffs Wildlife Area in Washington County, very close to the Athens County line. The backs of the fronds are densely scaly, and the plant grows on the face of the rock, not on top of it.

	<i>P. appalachianum</i>	<i>P. virginianum</i>
Shape	widest at the base	parallel sides or widest in the middle
Pinnules	sharper at tip, narrower, more space between	rounded at tip, wider, little space between
Basal notch	present on lowermost pinnule	absent
Frond tip	more lobed towards tip	more smooth towards tip
Flatness	lower pinnae may be twisted out of frond plane	lower pinnae usually flat





41. *Polypodium appalachianum*



42. *Polypodium virginianum*

Ferns and Lycophytes in Southeast Ohio: Boldface species are found in the Strouds Run area.

Lycopodiophyta

Lycopodiopsida

Lycopodiales

Lycopodiaceae

***Lycopodium obscurum***

*Lycopodium dendroideum*

*Lycopodium hickeyi*

***Diphasiastrum digitatum***

*Diphasiastrum tristachyum*

Huperziaceae

***Huperzia lucidula***

*Huperzia porophila*

Selaginellopsida

Selaginellales

Selaginellaceae

*Selaginella apoda*

Polypodiophyta

Equisetopsida

Equisetales

Equisetaceae

***Equisetum arvense***

***Equisetum hyemale***

Ophioglossopsida

Ophioglossales

Ophioglossaceae

***Ophioglossum pycnostichum***

*Ophioglossum engelmannii*

Botrychiaceae

***Botrypus virginiana***

***Sceptridium dissectum***

*Botrychium lanceolatum*

*Botrychium matricariifolium*

Polypodiopsida

Osmundales

Osmundaceae

***Osmundastrum cinnamomeum***

***Osmunda claytoniana***

*Osmunda regalis*

Hymenophyllales

Hymenophyllaceae

*Trichomanes boschianum*

***Trichomanes intricatum***

Schizeales

Lygodiaceae

*Lygodium palmatum*

- Pteridales
- Hypolepidaceae
    - Dennstaedtia punctilobula***
  - Pteridiaceae
    - Pteridium aquilinum*
  - Adiantaceae
    - Adiantum pedatum***
    - Vittaria appalachiana*
  - Pteridaceae
    - Pellaea atropurpurea***
    - Pellaea glabella*
- Athyriales
- Aspleniaceae
    - Asplenium montanum*
    - Asplenium pinnatifidum***
    - Asplenium platyneuron***
    - Asplenium rhizophyllum***
    - Asplenium trichomanes*
  - Thelypteridaceae
    - Thelypteris noveboracensis***
    - Thelypteris palustris*
    - Phegopteris hexagonoptera***
  - Athyriaceae
    - Athyrium angustum***
    - Deparia acrostichoides***
    - Diplazium pycnocarpon***
    - Onoclea sensibilis***
    - Matteuccia struthiopteris*
    - Cystopteris bulbifera***
    - Cystopteris protrusa***
    - Cystopteris tennesseensis***
    - Cystopteris tenuis***
    - Woodsia obtusa***
    - Woodwardia areolata*
- Polypodiales
- Dryopteridaceae
    - Dryopteris carthusiana***
    - Dryopteris cristata*
    - Dryopteris goldiana***
    - Dryopteris intermedia***
    - Dryopteris marginalis***
    - Polystichum acrostichoides***
  - Polypodiaceae
    - Polypodium appalachianum***
    - Polypodium virginianum***
    - Pleopeltis polypodioides*

# Strouds Run State Park and Surrounding Area

## Athens County, Ohio

- A. Tucker Run Preserve (AC)
- B. Riddle State Nature Preserve (CA)
- C. Sells Park (CA)
- D. Strouds Ridge Preserve (CA)
- E. Blair Preserve (AC)
- F. Strouds Ridge Preserve (CA)
- G. Baker Easement (AC)
- H. Wayne National Forest

AC = Athens Conservancy; CA = City of Athens

