

Ferns, the lacy-leaved inhabitants of the forest floor, are some of the most interesting and beautiful plants of the Sewanee area. Whether hiking the Perimeter Trail, rock climbing at Morgan's Steep, or strolling through Abbo's Alley, the observer will often come upon several types of ferns.

This pamphlet is a guide to a few of the more often encountered and the more unusual ferns in Sewanee. It is pocket-sized, ready for quick reference for anyone interested in learning more about the biodiversity of the Mountain.

BIODIVERSITY ON THE MOUNTAIN
DEPARTMENT OF BIOLOGY
THE UNIVERSITY OF THE SOUTH

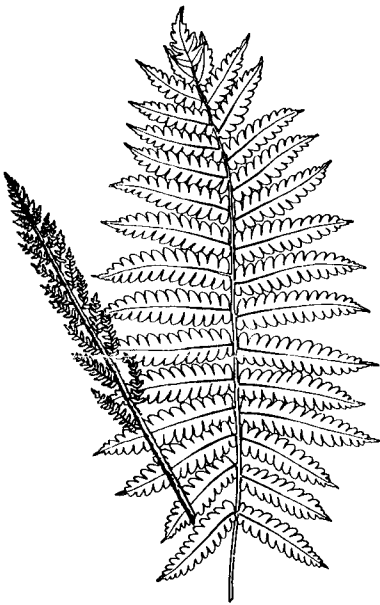
Natural History

When headed down into Dick Cove or Shakerag Hollow, you will find many ferns. Be on the lookout for maidenhair and walking ferns, two of our most interesting species. The **maidenhair fern** (*Adiantum pedatum* L.), pictured on the front, is arguably the most delicate-looking of our native ferns. Its form is unique: the slender, upright stalk divides into two arching leaflet-bearing branches. An interesting little fern that “walks,” **walking fern** (*Asplenium rhizophyllum* L.), has long, extended leaves that often root at the tip, producing new plants. Usually found growing on rocks, walking fern seems particularly fond of limestone.



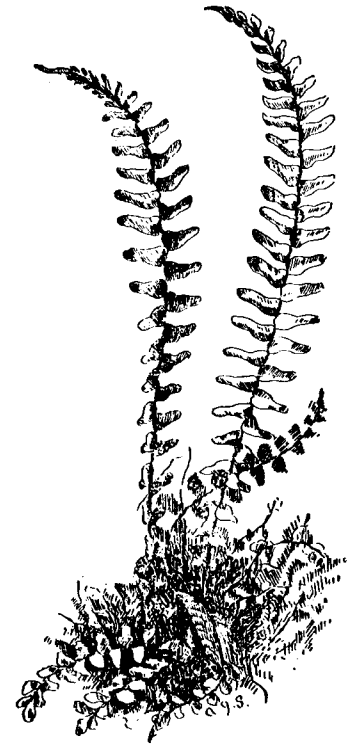
Walking Fern

The evergreen ferns can be found year-round. Hardy and abundant, **Christmas fern** (*Polystichum acrostichoides* (Michx.) Schott) is virtually ubiquitous in Sewanee’s forests. How did this fern get its name? Some say it is because its leaflet resembles a Christmas stocking—or is it a sleigh? Or is it that this is one of the few ferns that are still green at Yuletide? Also evergreen, **wood ferns** (*Dryopteris* spp) can be distinguished from Christmas fern by their somewhat lacier fronds. Wood ferns seem to have a greater affinity for boulder tops than does Christmas fern; otherwise, they enjoy similar habitats. The fern that most closely resembles Christmas fern, however, is **ebony spleenwort** (*Asplenium platyneuron* (L.) B.S.P.). Look for its smooth, black rachis—that of Christmas fern is scaly. The evergreen ferns are an important winter food source for ruffed grouse and white-tailed deer.



Cinnamon Fern

Streambanks and other wet or boggy habitats are always good places to find ferns. Cinnamon and royal ferns actually grow in the water on occasion. **Cinnamon fern** (*Osmunda cinnamomea* L.) fronds grow in circular clusters which, in the spring, surround cinnamon-brown spore-bearing stalks. **Royal fern** (*O. regalis* L.) is our largest local fern. Its leaflets look somewhat like those of the black locust tree. Sturdy-looking **sensitive fern** (*Onoclea sensibilis* L.) seems to belie its name—until it dies back quickly at first frost, leaving only the fertile frond which bears bead-like sori. Similar but



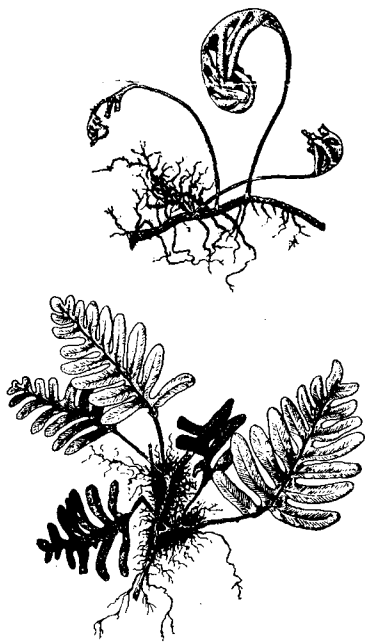
Ebony Spleenwort



Sensitive Fern

somewhat smaller, **netted chain fern** (*Woodwardia areolata* (L.) Moore) produces more elongated sori. Although often growing luxuriantly on streambanks, **New York fern** (*Thelypteris noveboracensis* (L.) Nieuwl.) is more of a generalist than the other water-loving ferns. The small, thin, yellow-green fronds with tiny lowest leaflets are this fern's best diagnostic feature.

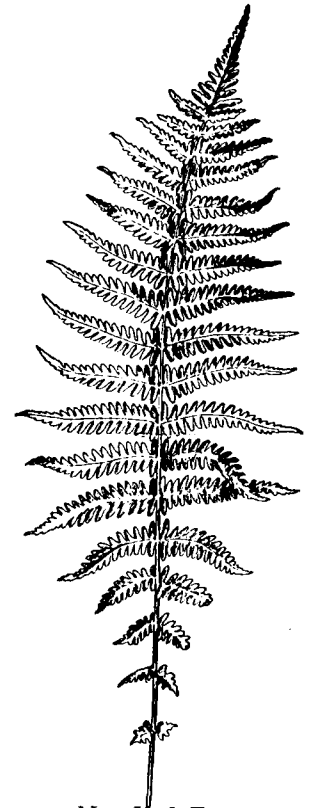
Some ferns have found a niche—literally—clinging to the sides of cliff faces. The most common cliff-dwelling fern is **common polypody** (*Polypodium virginianum* L.), so named (“many feet”) because its fronds grow singly from the rhizome, rather than in clumps. A smaller polypody, **resurrection fern** (*Pleopeltis polypodioides* ssp. *polypodioides* (L.) Watt) seems to prefer growing on the bark of trees. Aptly named, it appears dead during dry spells and seems to spring to life with the return of moisture. If you find a small, delicate bluish-green fern which grows in drooping tufts down and out from rock crevices, it is probably **mountain spleenwort** (*Asplenium montanum* Willd.). On the other hand, if the rock is limestone and the fern is stiff and wiry with dark stems, your best bet is **purple-stemmed cliffbrake** (*Pellaea atropurpurea* (L.) Link). Look for delicate **filmy fern** (*Trichomanes boschianum* Sturm) in wet acid pockets of sandstone rock, away from direct sunlight.



*Resurrection Fern,
in dry and wet weather*

Our major roadside fern—actually the most common fern worldwide—is strong, coarse **bracken fern** (*Pteridium aquilinum* var. *latiusculum* (L.) Kuhn). Look for its large, triangular fronds, growing in colonies on poor soil or in dry habitats. It is uncommon in moist areas favored by many other ferns. Bracken fern is one of the earliest to appear in the spring, and it continues to produce new fronds all summer until the first frost.

Although much smaller, the leaves of **grape fern** (*Botrychium dissectum* Spreng.) and **rattlesnake fern** (*B. virginianum* (L.) Sw.) might be confused with those of bracken. These, however, grow as individual plants which consist of only one fertile and one sterile frond. They are known as the “succulent ferns” and are only distantly related to the other ferns of the Sewanee area.

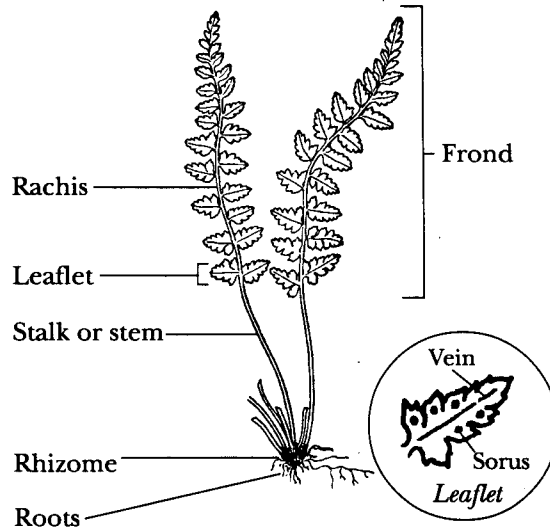


New York Fern



Rattlesnake Fern

Fern Morphology



Ferns are perennial, producing new fronds (leaves) each year from a long-lived underground stem (rhizome). In most terrestrial ferns, the fronds are the only above-ground structures. Unlike most plants, which reproduce by means of seeds, ferns form spores—dust-like one-celled particles—by the millions. When the wind-blown spores land on suitable places, such as moist soil or cracks in rocks, they germinate. Spores are produced in sori, located on fertile fronds which may or may not resemble sterile fronds, depending on the species. Ferns are not flowering plants; they do not produce fruits.

Key to Ferns of the Sewanee Area

- 1a. Fronds undivided, or once-divided and leaflets not deeply cut
 - 2a. Fronds undivided, able to root at tip to produce new plants..... **Walking Fern**
 - 2b. Fronds once-divided, leaflets not deeply cut
 - 3a. Rachis very dark to black **Ebony Spleenwort**
 - 3b. Rachis not as above
 - 4a. Rachis very scaly **Christmas Fern**
 - 4b. Rachis smooth to sparsely scaly
 - 5a. Plant evergreen, found growing on rocks and tree bark; sori, when present, on lower surface of fertile fronds
 - 6a. Leaves more than 9" long; plant most often found growing on rock **Common Polypody**
 - 6b. Leaves less than 9" long; plant most often found growing on tree trunks and branches **Resurrection Fern**
 - 5b. Plant not evergreen, found growing in damp or wet places; fertile fronds distinct from sterile
 - 6a. Sterile leaflet edges smooth; veins depressed **Sensitive Fern**
 - 6b. Sterile leaflet edges fine-toothed; veins raised **Netted Chain Fern**
- 1b. Fronds more than once-divided, or once-divided with leaflets deeply cut
 - 2a. Fronds circular or horseshoe-like **Maidenhair Fern**
 - 2b. Fronds not as above
 - 3a. Fronds grow singly or in clumps of up to three
 - 4a. Lowest leaflets small to minute in size **New York Fern**
 - 4b. Lowest leaflets not as above
 - 5a. Plant often growing in large colonies; leaves large and coarse, up to 3' in height **Bracken Fern**
 - 5b. Plant appears to consist of one isolated sterile leaf plus a fertile spore-bearing stalk
 - 6a. Spore-bearing stalk grows from juncture of main stalk and sterile leaf; appears in early summer **Rattlesnake Fern**
 - 6b. Spore-bearing stalk grows from below juncture of main stalk and sterile leaf; appears in late summer or autumn **Grape Fern**
 - 3b. Fronds grow in clumps of more than three
 - 4a. Plant grows in moist or swampy habitat
 - 5a. Fertile fronds distinct from sterile, appearing as a cinnamon stalk **Cinnamon Fern**
 - 5b. Fertile fronds not distinct from sterile; fertile leaflets usually terminal **Royal Fern**
 - 4b. Plant grows in dry to moist soil, often associated with rocks
 - 5a. Plant grows on or under cliff-faces and small rock ledges; fronds up to 12" in length
 - 6a. Fronds fragile, translucent, one cell thick..... **Filmy Fern**
 - 6b. Fronds not as above
 - 7a. Fronds over 8" long, once or twice-divided; rachis dark purple **Purple Cliffbrake**
 - 7b. Fronds under 7" long; leaflets with irregularly indented edges; rachis brown at base, green above **Mountain Spleenwort**
 - 5b. Plant grows on soil or rocks, but rarely in rock crevices; fronds large, coarse, over 16" long **Wood Fern**

Using the Key

The enclosed key may be used to identify many of Sewanee's ferns. To use the key, compare the fern in question with the two choices, 1a and 1b. Choose the option that best describes the plant; go on to choose between that option's 2a and 2b. Continue until you have reached a plant name. Once you think you have the plant identified, compare it with the natural history information given on the inside of this brochure.



The Biodiversity on the Mountain series is produced by the Biology Department of the University of the South. This guide was written by Mary Priestley of the Sewanee Herbarium. For more complete information on any of the ferns, the *Peterson Field Guide to the Ferns* by Boughton Cobb is an excellent resource. The Sewanee Herbarium web site gives a more complete listing of the ferns located on the Domain of the University of the South. The address is: <http://biology.sewanee.edu/herbarium>.

All graphics (with the exception of the leaflet and above leaves) are from *Plants and Flowers: 1,761 Illustrations for Artists and Designers*, edited by Alan E. Bessette and William K. Chapman. Copyright © 1992 by Dover Publications, Inc.

SEWANEE
The University of the South