

Walk the Bruce Trail -

There are few places in the world better than the Bruce Trail to see a great variety of ferns, especially along the northern half of the trail through Grey and Bruce counties. Unfortunately, some hikers notice little except the rocks at their feet and the trees in their path, least of all ferns which are merely green with no brightly coloured flowers. However, if you do start to look around, you may be surprised at how interesting and beautiful ferns really are.



Just for the Fern of it!



Harts Tongue Fern



Northern Holly Fern



Rattlesnake Fern

Ferns go back a long way in history to their origin in the Devonian period, about 380,000,000 years ago. They were the dominant plant type until flowering plants emerged. The ferns we have today managed to survive this competition and find their own niches, but they are a challenge to plant taxonomists as they still have a great gift for hybridizing and creating new species. Most people are aware that they reproduce by spores contained in tiny organs called sporangia. The structures (sori) in which the sporangia are housed vary enormously and are often the key feature in identifying a particular species.

One of the easiest ways to get a grip on identification originated in

the Peterson Field Guide to Ferns. There, ferns are separated into four groups: First, those with “entire” or undivided fronds (leaves); second, once-divided fronds which have a row of pinnae (leaflets) on each side of the stem; third, twice divided in which the pinnae are sub-divided into pinnules or sub-leaflets; and fourth, thrice divided or “lacy” ferns in which the pinnules are sub-divided again.

Two of the Bruce Trail’s most interesting ferns have entire fronds. Hart’s Tongue Fern is found along the northern half of the trail, mainly in Grey County, on dolostone outcrops of the Escarpment. This is a globally rare subspecies of the European fern which, apart from Ontario is also

found in four American states and is endangered in all of them.

The second most interesting fern found on the Bruce Trail is the Walking Fern. Unlike the Hart’s Tongue Fern, it is not rare, but it is on the northern edge of its range here. Its long, narrow leaves have the ability to root at the tips. Its Latin name is *Asplenium rhizophyllum*, meaning “root-leaf”. Consequently, it “walks” across large, mossy boulders forming clones which are often hard to spot among the dead leaves.

The “once-divided” ferns are fairly simple to pick out. The most frequent is Maidenhair Spleenwort which is extremely common on dolostone outcrops. The leaves are small and the stems are purplish-





Sensitive Fern

brown. The closely related, but uncommon, Green Spleenwort has bright green stems and it is most often spotted in deep crevices or on extremely shaded rock walls. Ebony Spleenwort is much larger and extremely rare, but it has been



Ebony Spleenwort Fern

noticed recently by a hiker growing on the trail just east of Owen Sound.

Common Polypody is to be found in places along the Escarpment but the rocks are too alkaline for it, so it only grows where mosses have provided a more acid substrate. Sensitive Fern is commonly found in swampy areas but also occurs in very moist parts of the forest floor. It is an example of a fern which has separate spore-bearing fronds. It is called “sensitive” because the sterile leaves

are very susceptible to frost. They die when the first frost hits, though the dark fertile fronds remain erect and shed spores throughout the winter. Two larger once-divided ferns are Northern Holly and Christmas Fern. The Northern Holly is common on the northern half of the trail and is distinguished by the stiff, prickly, quality of its leaflets. The Christmas Fern is common further south, and is easily identified by the fertile fronds which have the sori (spore dots) only on the shrunken pinnae in the upper half of the leaf.

Two very small ferns in this “once-divided” category are the Cliffbrakes and they are only found on vertical rock faces. Purple Stemmed Cliffbrake has purple stems with bristly hairs and it is rare in Ontario. Smooth Cliffbrake is hairless with reddish stems and is the more common of the two, though it is often mistaken for Purple Stemmed.

Another much larger common fern which has separate fertile fronds is Ostrich Fern which forms large patches on the forest floor. In this species the fronds are “twice-divided.” It is also the one from which fiddleheads (developing fronds) are harvested. This should be done with caution, if too many are taken from one plant it will die. It is also probably not a good idea to eat too many. Ferns have not survived for so long without having developed an array of bio-chemicals which are unpalatable and/or poisonous to predators

(some evidence points to ferns having carcinogenic properties).

One of the more common “twice-divided” ferns is Marginal Shield Fern which occurs among the Escarpment outcrops and is easily identified by the spore dots lined up along the edges of the underside of the pinnules. The three Osmunda’s, named for a Scandinavian king, are also twice-divided. Royal Fern with large pinnules and a fertile portion at the top of the frond; Cinnamon Fern, with separate fertile fronds that look as though they are dusted with powdered cinnamon; and Interrupted Fern which has the fertile portion half way up the frond. The latter is very uncommon in the more northern counties because it is more acid-loving. The other two are most commonly found in wet areas.

There is one fern in this category which is rare in Ontario and that is Wall Rue. It is an amphi-Atlantic species on the extreme western edge of its range here. As its name suggests, it grows on rock walls and has only been found in the north of the



Smooth Cliffbrake



Maidenhair Spleenwort and Walking Fern



Royal Fern





BULBLET FERN
(Cystopteris bulbifera)



MAIDENHAIR FERN
(Adiantum pedatum)



CRESTED SHIELD FERN
(Dryopteris cristata)



COMMON WOOD FERN
(Dryopteris carthusiana)
(Dryopteris intermedia)



(Dryopteris marginalis)



MALE FERN
(Dryopteris filix-mas)



GOLDIE'S FERN
(Dryopteris goldiana)



HART'S TONGUE FERN
(Asplenium scolopendrium)



OSTRICH FERN
(Mettenia struthiopteris)



ROYAL FERN
(Osmunda regalis)



CINNAMON FERN
(Osmunda cinnamomea)



INTERRUPTED FERN
(Osmunda claytoniana)



BRACKEN FERN
(Pteridium aquilinum)



SENSITIVE FERN
(Onoclea sensibilis)



NEW YORK FERN
(Thelypteris noveboracensis)



MARSH FERN
(Thelypteris palustris)



CHRISTMAS FERN
(Polystichum acrostichoides)



NORTHERN HOLLY FERN
(Polystichum lonchitis)



LADY FERN
(Athyrium filix-femina)



**NARROW LEAVED
GLADE FERN**
(Diplazium pycnocarpon)



CHAIN FERN
(Woodwardia virginica)



GREEN SPLEENWORT
(Asplenium trichomanes-ramosum)



FRAGILE FERN
(Cystopteris fragilis)



SMOOTH CLIFFBRAKE FERN
(Pellaea glabella)



MAIDENHAIR SPLEENWORT
(Asplenium trichomanes)



SLENDER CLIFFBRAKE
(Onoclea sensibilis)



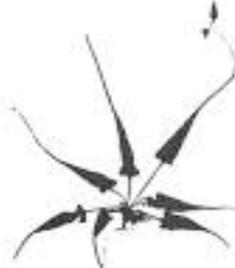
PURPLE-STEMMED CLIFFBRAKE
(Pellaea atropurpurea)



HAY SCENTED FERN
(Dennstaedtia punctiloga)



COMMON POLYPODY
(Polypodium virginianum)



WALKING FERN
(Asplenium rhizophyllum)



NORTHERN BEECH FERN
(Phegopteris connectilis)



OAK FERN
(Gymnocarpium dryopteris)



EBONY SPLEENWORT
(Asplenium platyneuron)



RATTLESNAKE FERN
(Botrychium virginianum)



DISSECTED GRAPE FERN
(Botrychium dissectum)



ROBERT'S FERN
(Gymnocarpium robertianum)



Cut Leaf Grape Fern

Bruce Peninsula and on Flowerpot Island, which is an extension of the Escarpment.



Wall Rue

Finally, we come to the “thrice-divided” or “lacy” ferns. The most common and found on the forest floor are Intermediate or Evergreen Woodfern and Lady Fern. These are easily distinguished by the sori (spore dots) on the back of the pinnules in Intermediate, and in slits, forming a chevron pattern on the pinnules of the Lady Fern. Further south, Spinulose Wood Fern (related to Evergreen) becomes more common. Its leaves die in the winter; however Evergreen Woodfern leaves persist - hence its name. A very common lacy fern along the Escarpment rocks is Bulblet Fern, which has very narrow triangular fronds. It is often found hanging down on the rock faces along the Escarpment. In the

summer, tiny asexual reproductive structures called “bulblets” are found on the back of the leaf tips.

There are three ferns where the fronds are clearly divided into sections: the beautiful, small Oak Fern forms patches on the forest floor; the Rattlesnake Fern with its erect fertile spike haunts the trail edges in spring; and the Bracken Fern is large, tough and ubiquitous - very much an edge effect species and an exploiter of disturbed areas.



Walking Fern

Finally, we must not forget the true Maidenhair Fern with the most unusual finger-like arrangements with the pinnules fanning out from the dark, wiry stem. This fern is only found on rich deciduous forest floors. A few years ago I showed this fern to a pair of avid, English, orchid enthusiasts. They were not at all interested in anything else, least of all ferns, but they were bowled over by the beauty of this one.

This article only touches on some of the more obvious or more interesting ferns that can be found along the Bruce Trail. Learning to recognise all of these unique plants is a challenge. If you are interested, Nels Maher’s fern silhouettes (made from real specimens) can be accessed on the Owen Sound Field Naturalists website www.owensoundfieldnaturalists.ca – they are a big help with identification. Further information is to be found in “A Guide to the Ferns of Grey and Bruce Counties” (\$18.95) published by the Bruce-Grey Plant Committee of the Owen Sound Field Naturalists and is available from the Ginger Press in Owen Sound. This book covers most of the species to be found along the trail. For more information send an email to maryann@gingerpress.com or call (519)372-1685. •

