



Maidenhair Spleenwort is a beautiful, dainty, 10-cm fern with black stems which fan out in dense clusters. It can be found along the entire Escarpment in crevices, on cliffs and boulders.

# Green Feathers: Rock-loving Ferns of the Niagara Escarpment

Words & Photos by Gary Hutton

Ferns are part of the amazing mosaic of plant life that covers Ontario's Niagara Escarpment. Ferns soften the rocky forest floor and fuse the colours of the hard landscape to the flowers, shrubs and trees to create a seamless natural portrait. Their graceful leaves or fronds can be likened to intricately arranged bird feathers. These rock-loving green feathers dot the Escarpment floor in a whimsical array of shapes and forms that beguile the imagination.

**T**he Niagara Escarpment has more kinds of ferns than any single place in Canada, a total of 48 species. Ferns thrive on the calcium-rich land that dolomite and limestone create. Even the pickiest ferns can find the habitats they need. From the mineral-rich soils above and below the Escarpment to the arid fissures of the weather-beaten cliffs, the Escarpment supports a vast diversity of thriving colonies of delicate ferns. Several species are not found anywhere else in Ontario.

Ferns also seem to share an affinity with waterfalls which add to their mystique and beauty. Chasing the abundant waterfalls of the Niagara Escarpment yields some excellent views of ferns that dance on the moss-covered rocks associated with watery cascades. Some of the ferns are small and less prominent like Maidenhair Spleenwort and Smooth Cliff-brake while others are more noticeable and showy such as Northern Holly and Marginal Wood Fern.

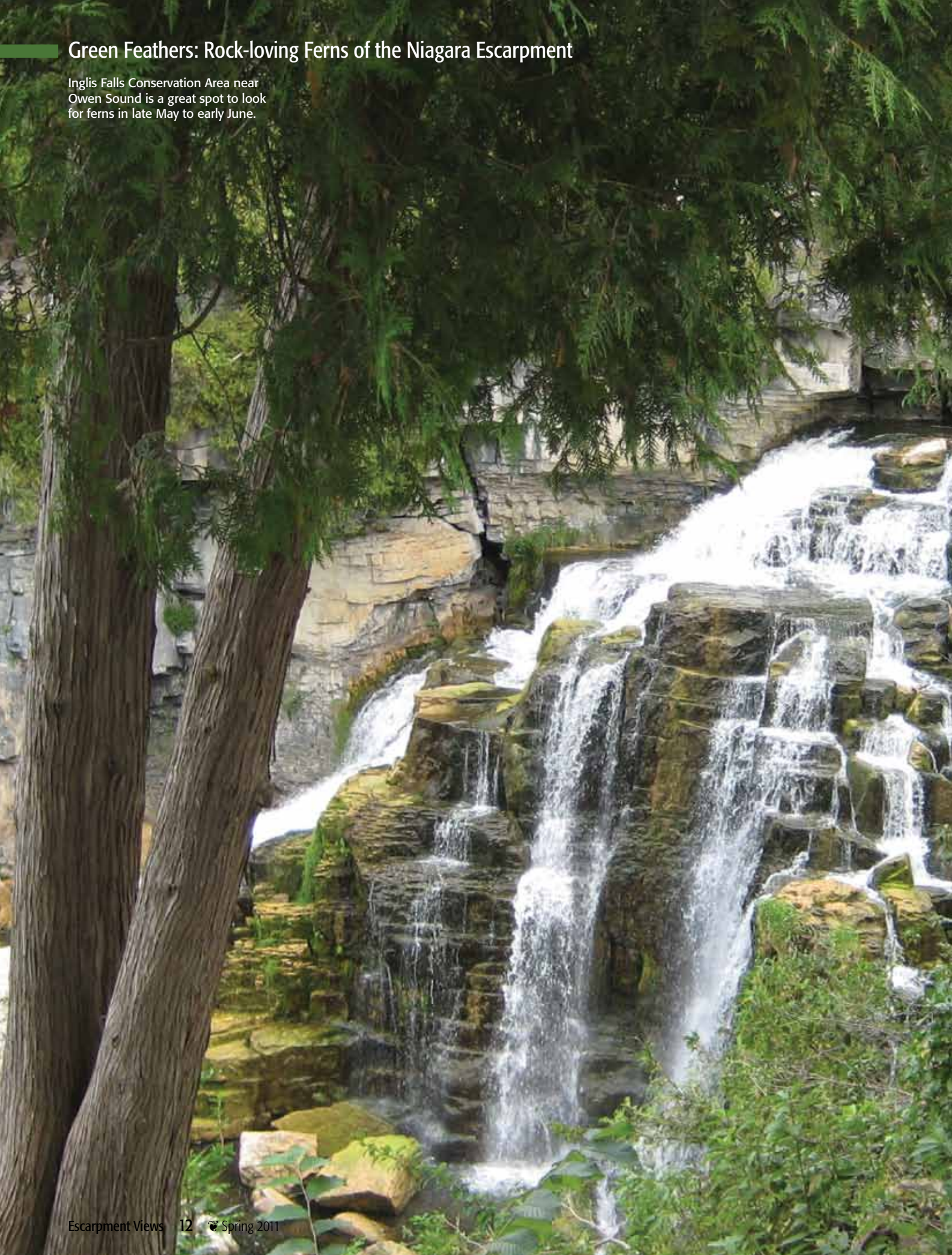
## Fern Anatomy

Ferns are vascular plants with leaves (fronds), stems (axis) and fully developed roots. The leaves are often subdivided into leaflets (pinnae) and subleaflets (pinnules). The number of leaf divisions along with size and shape are key features in fern identification.

This ancient group of non-flowering plants reproduces by way of spores located on fertile fronds or in spore cases under the leaves. The shape, quantity and location of

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Inglis Falls Conservation Area near Owen Sound is a great spot to look for ferns in late May to early June.





The 90-cm Bracken Fern has fronds that form a broad triangle divided into three parts. This fern prefers poor soils and can often be seen along Escarpment country roads.



Walking Fern, about 22 cm long, has a cluster of spear-shaped fronds that straddle large moss-covered boulders.



Hart's Tongue Fern, 60 cm high, has strap-shaped leaves with oblong spore cases under the fronds.



The spore cases of the Northern Holly Fern are evenly spaced in two rows under the pinnae.

the spore cases also help distinguish individual species.

Another unique feature of ferns is the way the leaves are rolled up before they unfurl in the spring. These tightly curled structures, called fiddleheads, look like the scrolled end of a violin. They are also called crosiers because of their resemblance to a bishop's crook. Similar to a butterfly emerging from its cocoon, the marvellous unfolding of ferns is known as circinate vernation. Every part of the frond is present in the bud including spore dots, pinnae and pinnules. When the fern starts to grow, it stretches up and leans backwards in an effort to become bigger. First the main stem loosens its coil, then the leaflets, which are at right angles to the stem, begin to unfold. This is followed by the sub-leaflets that loosen and seem to stretch and look at the world they have just entered.

Fiddleheads vary in appearance from species to species. Continued on page 24



Sensitive Fern, about 45 cm in size, produces triangular, unfernlike leaves that are light green in colour. These ferns prefer the damp habitat of swamps, streams and bogs.



Polypody Fern, sized 25 cm, is also called Rock Cap Fern due to its preference for cliff edges where it thrives in harsh conditions.

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The crozier of the Bracken Fern, found almost everywhere on the Escarpment, develops three claws that look like the talons of an eagle. So intricate is the action of these multiple spirals that it is very impressive to watch.

### Where to Find Ferns

Ferns can be found almost everywhere on the Niagara Escarp-

ment which is well endowed with shade, moisture and rocky outcrops. Damp crevices reveal small delicate ferns such as Green Spleenwort and Slender Cliffbrake. Large boulders covered with moss are clad with strings of Polypody Ferns. You may also see the less common Walking Fern with single spear-shaped fronds with tips that sprout new baby ferns. Escarpment forests are often blanketed with ferns such as

Marginal Shield, Evergreen Wood and the Bulbet Fern. This fern produces little buttons or bulbets which fall to the ground and grow new ferns. Even the most weathered part of Escarpment cliffs include unique ferns like the drought resistant Smooth and Purple Stemmed Cliffbrake.

One of my most pleasurable fern hunting experiences took place along the Escarpment in the Owen Sound area. Anyone into

plant hunting knows the thrill of finding a new or uncommon species that you venture out to find, comparable to finding a gold coin on a beach. The Hart's Tongue Fern is one of the rarest ferns in North America but somewhat abundant in selected Escarpment locations of Grey and Bruce Counties in Ontario. Following in the footsteps of several famous naturalists who undertook special expeditions to find this glossy



The eight-cm Green Spleenwort is a small delicate fern with green stems, that prefers cool damp crevices.

fern with strap-like leaves, I began my fern quest.

With my wife and dog along for the adventure, we began our search for this renowned green feather. A short drive out of Owen Sound to Mount Kemble led us to a remote part of the Bruce Trail known as the Nelson Maher Side Trail. The trail was named after the 'Fern Guy' of the Bruce Peninsula. The late Nelson Maher was a local expert in ferns who opened the door to green feathers to hundreds of budding

nature enthusiasts. We hopped out of the car at this nondescript natural area where even the trail was a bit difficult to find, but there were ferns everywhere.

The first fern we encountered was a new one for us. The one-metre tall, robust Male Fern was ubiquitous here but rare in most of eastern North America. A few minutes later we had our "ferntastic" botanical moment! Patches of Hart's Tongue Ferns were everywhere, in dolostone crevices, on moss-covered rocks and in old

stumps. The plants seemed to appear at every turn or hump along the trail. Patches of Northern Maidenhair, Christmas, Royal, Marsh and Sensitive Ferns could also be seen nearby. A most memorable fern hunting experience.

### **Fern Conservation**

Ferns provide a beautiful backdrop for things natural and are part of the incredible biological diversity of the Niagara Escarp-

ment. If we want to conserve our wild green feathers we must continue to protect the Escarpment's special landscape as well as educate people about its significance. Hunting for and learning about ferns is a great pastime that supports this effort. **EV**

*Gary Hutton is the author of Halton Hikes and the former director of communications for Conservation Halton.*