

By Tom Shields

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otherwise indicated

Jewels of the Biosphere Res

The Niagara Escarpment is justly famous as a UNESCO World Biosphere Reserve, one of Canada's first. In Southern Ontario, its towering dolostone cliffs, formed in ancient seas more than 420 million years ago, rise dramatically along a jagged line that stretches 725 kilometres from the Niagara River to the tip of Tobermory. From these heights the Escarpment tilts down gently to the west. Rainfall and ground water seep gradually through its porous rocks, creating swamps, fens, bogs, marshes, valleys, caves, and microclimates across the meandering band that follows its length.



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Nowhere are these features more prominent than in the Bruce Peninsula, enrobed on either side by Georgian Bay and Lake Huron. Here, jewel-like members of one of the Escarpment's other claims to fame grow with an abundance and diversity thought unequalled elsewhere in any similarly sized area of North America north of Mexico. They are our native orchids, and they annually draw people from all over the world in a quest to discover and photograph their exquisite and uncommon beauty.

Some 44 of the 65 orchids that call Ontario home can be found on the Escarpment. Although several can also be found elsewhere along the Bruce Trail and at other locations in Ontario, they never occur in such numbers or variety as on the Bruce Peninsula. Its 45° north latitude and the climate moderating effects of its surrounding waters, plus the porous, calcium-rich Escarpment rock and the cooling effects of its slow sub-surface drainage, are all thought to be factors behind this remarkable fecundity.

Also at play is the fact that the Peninsula and other locations along the Bruce Trail offer pristine, unaltered habitats that today serve as refuges for orchids - considered the most evolved of



Photo: Henry Glowka
Showy Lady's Slipper
(*Cypripedium reginae*)
in habitat

all flowering plant families. As such, orchids often have highly specialized needs and occupy ecological niches that many other living things cannot. The widespread destruction of such habitats elsewhere as the result of agricultural and urban development has added immensely to the thinning numbers and increasing rarity of orchids. Indeed, sev-

Distinguishing orchids

All orchids have a highly modified, lavish petal called the lip. Usually it is held at the bottom of the flower, but sometimes at the top. It both attracts pollinators and serves as a landing pad for them.

eral species found on the Escarpment are now considered rare, threatened, or endangered, making their habitat preservation critical.



Photo: Greg Corman
Pristine mixed forest habitat
along the Bruce Trail

DISCOVERING OUR ORCHIDS

So how do you discover these delicate jewels, with their harmonious interplays of design and colour? Different orchids prefer different environments and flower at different times, so it is wise to do a bit of research before you set out. Some prefer dry uplands on neutral or alkaline soils, while others favour wooded areas on acid soils and still others wetlands that will have you breaking out your Wellingtons. Some are quite showy and some sweetly fragrant, some large and some small, but all – even the smallest – are fascinating and intriguing to the point of wonder. Below are details on several of the better known orchids that you can find on the Niagara Escarpment. For more information on these and other native orchids, see the bibliography on page 34.

LADY'S SLIPPERS (CYPRIPEDIUM)

Easiest to find and most familiar of our orchids are the lady's slippers, so named due to the fancied resemblance of their pouched lip to an old-fashioned slipper or moccasin. The flowers are often large and showy. Four of the nine species found in North America occur along the Trail. Caution! The large yellow and showy lady's slippers may cause serious rashes if handled.



Photo: Henry Glowka
Large Yellow Lady's
Slipper (*Cypripedium
parviflorum* var.
pubescens)

Yellow Lady's Slippers

There are two varieties of this orchid: the Large Yellow Lady's Slipper and the Northern Small Yellow Lady's Slipper. The Large Yellow grows to 55 cm and has larger, lighter flowers than the Northern Small Yellow, which has dark purple petals and sepals and rarely grows taller than 30 cm. The Large Yellow has a slight rose scent, whereas the Northern Small Yellow smells of spice and vanilla. Both are common and grow in a variety of habitats, including mixed forests, grasslands, and bogs. Look for them from late May to early July.



Photo: Henry Glowka
Northern Small Yellow
Lady's Slipper (*Cypripedium
parviflorum* var. *makasin*)



Showy Lady's Slipper (*Cypripedium reginae*)

Photo: Laurence Adland

or in small groups in forests or dunes on calcium-rich, moist soils. Search for it on the Peninsula east of Highway 6 between mid-May to mid-June.

REIN ORCHIDS (PLATANThERA)

The largest group of orchids in North America, the rein orchids are so called because the lip of several species is backed by a nectar-containing spur that fancifully resembles a horse's rein. Often the lip is three-lobed, and sometimes strikingly fringed. Some 11 species find homes on or around the Trail, three of which we cover here.

Orchid Etiquette

Avoid stepping near or touching orchids. Most have shallow, extensive, sensitive root systems and delicate flowers and stems that are easily damaged. It's thus best to search for them in small groups.

Showy (Queen) Lady's Slipper

This spectacular orchid, Canada's largest, bears one or two massive white, fragrant flowers with pinkish slippers on a stem that can rise to 90 cm. It prefers to grow in colonies on the margins of balsam-cedar swamps in muck soils and along wet beaches. It is fairly common along the Trail and normally flowers from mid-June to late July.

Pink Moccasin Flower

A subject of one of Tom Thomson's paintings, this striking orchid bears a single flower with a rich pink, heavily veined slipper on a stalk that grows some 30 cm high. It prefers acidic soils under jack pines or on the edges of coniferous swamps or bogs, where it usually forms thin colonies. It is more common just south of the Bruce Peninsula and typically flowers in June.



Pink Moccasin Flower (*Cypripedium acaule*)

Photo: Kevin Tipson



Ram's Head Lady's Slipper (*Cypripedium arietinum*)

Photo: Henry Glowka

Tall White Bog Orchid

This attractive orchid with its pure white flowers fragrant of cloves grows to 70 cm. Look for it from mid-June to July in fens and other moist, sunny habitats in the Milton-Halton Hills area and near the Huron shores of the Bruce and at its northern tip. It is not common along the Trail, but sometimes grows with the related Tall Northern Green Orchid, another rein orchid.



Tall White Bog Orchid (*Platanthera dilatata*)

Photo: Kevin Tipson

Ragged Fringed Orchid

This delicate-looking, yellowish-greenish white orchid is noted for its deeply fringed lip and evening fragrance.



Ragged Fringed Orchid (*Platanthera lacera*)

Photo: Kevin Tipson

Although it can rise to 80 cm, its muted colours may make it tricky to find. It blooms from late June through July on moist, acid soils, particularly sphagnum bogs, fens, and swamps. The Halton Hills-Caledon area is probably the best place to find it.

Small Purple Fringed Orchid

With its 30 or more fringed, lilac-purple flowers open on a stem that can top 70 cm, this is an exceptionally beautiful orchid. Look for it in wet areas, moist meadows and ditches, the edges of swamps, and mucky banks along much of the Trail from late June through July. It often forms colonies, and there is a rare white form.



Small Purple Fringed Orchid (*Platanthera psycodes*)

Photo: Kevin Tipson

LADIES' TRESSES (SPIRANTHES)

These small plants have miniature, white, fragrant flowers that spiral around the stem, giving the fancied appearance of braided hair, or tresses. As if to make up for their size, these orchids often grow in colonies and flower after other orchids have finished. They can be hard to tell apart. Six species are known on the Escarpment, of which we cover two.

Nodding Ladies' Tresses

This orchid grows around 30 cm high in moist, slightly acid areas like meadows, pastures, fens, shores, and ditches, and can form large colonies. Its 15-30 flowers often sport a yellowish or greenish spot

Nodding Ladies' Tresses (*Spiranthes cernua*)



Photo: Kevin Tipson

Photographing Orchids

Set packs down carefully away from the orchids you wish to photograph. Use a long focus lens, with the camera set on a tripod away from the plant. If needed, gently tie back surrounding vegetation, but don't remove it.

at their base and sometimes look like they are nodding. It is most common along the central portion of the Escarpment and the Niagara area.

Hooded Ladies' Tresses

The white to cream coloured sepals and petals of this orchid form a hood over its lip. Flowers may number 15-50 on a stem around 30 cm tall. It grows in colonies with grasses and horsetails in sunny locales that are usually wet part of the year. It is most common from the Blue Mountains area north to Tobermory, and flowers from late July through late August.



Hooded Ladies' Tresses (*Spiranthes romanzoffiana*)

Photo: Kevin Tipson

CORALROOTS (CORALLORHIZA)

These orchids are unusual in that they almost entirely lack chlorophyll and leaves and thus cannot make their own food. Instead they live underground with their coral-like roots tapped into the food supplied by fungi to tree roots. We only see them when they put up stems to bloom. Below are details on the most colourful of the four species found along the Bruce Trail, the Striped Coralroot.

Striped Coralroot

Backlit by the sun, this largest of the coralroots with its boldly striped flowers and their ruby lips has indeed been compared to a jewel. Typically it grows in clumps, rarely exceeding 40 cm in height, in dry, open cedar and deciduous woods. It is locally common over much of the Trail from the Milton area north to Tobermory, flowering from late May through June.



Photo: Henry Glowka

Striped Coralroot (*Corallorhiza striata*)

ONE-OF-A-KIND ORCHIDS

The orchids in this category are either the only one of their type or have only one representative species in our area. They include some of our most spectacular orchids.

Fairy Slipper (Calypso)

Many consider this our most stunning orchid, what with its pink petals and sepals raised over a veined white and purple slipper sporting a yellow-haired crest. It is elusive, growing no higher than 15 cm in the shade of cedars, spruces, and firs on calcium-rich soils. Search for it along the northernmost part of the Bruce Peninsula from mid-May through June.

Grass Pink (Calopogon)

Unlike many other orchids the grass pink holds its yellow-haired crested lip uppermost, and its deep pink sepals and petals below. This exquisite orchid grows to 50 cm in sunny fens, sphagnum-



Fairy Slipper (*Calypso bulbosa*)

Photo: Beth Gillespy

easy to see the dragon's mouth comparison. This spectacular orchid likes sphagnum bogs and fens, so prepare to get wet to find it between mid-June to mid-July. Seldom exceeding 25 cm in height, it is relatively rare around the Trail but can be found in the Beaver Valley – Blue Mountain area.

Rose Pogonia (Pogonia)

This uncommon beauty usually grows no higher than 30 cm and smells of raspberries to most. The short-lived flowers vary from pale pink to nearly purple, with a strongly fringed lip that sports yellow or greenish bristles. Like Dragon's



Grass Pink (*Calapogon tuberosus*)

Photo: Henry Glowka

spruce bogs, and moist meadows, where it can form large colonies. Its rose-like scent attracts bees. Find it from mid-June through July on the Escarpment from Milton north.

Dragon's Mouth or Swamp Pink (Arethusa)

With its mauve sepals and petals held like a menacing crest over its gaping pink, white, and yellow-haired lip, it's



Dragon's Mouth (*Arethusa bulbosa*)

Photo: Kevin Tipson



Rose Pogonia (*Pogonia ophioglossoides*)

Photo: Kevin Tipson

Mouth, it likes fens and bogs. Look for it from late June to early August along the Trail in the Beaver Valley and along the Peninsula's Huron shores.

Small Round Leaved Orchis (Amerorchis)

This is an exquisite gem, what with its three-lobed, purple spotted, alabaster lip half shrouded by white sepals and pale pink petals. It is rare in southern Ontario, preferring cool, calcium-rich



Small Round Leaved Orchis (*Amerorchis rotundifolia*)

Photo: Kevin Tipson

coniferous bogs, swamps, and fens to the north. It occurs on the Peninsula and flowers from June to early July on a stem typically no more than 20 cm high, often bearing 4–12 flowers.

Let Them Be

Many of our orchids take 10–16 years to reach flowering size. Picking or digging them up is illegal, prevents them from reproducing, and almost always kills the plant. Never reveal site locations to people whose commitment to conservation is in doubt.

THERE'S MORE

Other orchids that you may find at places on the Niagara Escarpment along the Bruce Trail include the Showy Orchid, Putty Root, Long Bracted Green Orchid, Alaska Orchid, the Rattlesnake Plantains, the Adder's Mouths, the Twayblades, and lastly Helleborine, a non-native but now very common orchid originally from Europe. These orchids may not always be as large or their flowers as showy as those presented above, but they are nevertheless remarkable and well worth discovering.



Showy Orchid (*Galearis spectabilis*)

Photo: Kevin Tipson



Heart-leaved Twayblade (*Listeria cordata*)

Photo: Henry Glowka

JEWELS OF THE BIOSPHERE RESERVE – BIBLIOGRAPHY FOR FURTHER READING

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ABOUT THE AUTHOR AND PHOTOGRAPHERS

Tom Shields, Henry Glowka, and Kevin Tipson are active or former (Kevin) members of the Southern Ontario Orchid Society's Conservation Committee, which works to preserve orchid habitats everywhere.

Orchids in the Care of the Bruce Trail Conservancy

Several common species of orchids thrive on BTC properties, readily found amongst the carpet of wildflowers that cloak the Bruce Trail in the spring and summer months. The common Menzies Rattlesnake Plantain (*Goodyera oblongifolia*), Long Bracted Green Orchid (*Coeloglossum viride*) and Northern Green Orchid (*Platanthera aquilonis*) are familiar sights from the Beaver Valley on up through the Bruce Peninsula. Large Yellow Lady's Slipper (*Cypripedium parviflorum* var. *pubescens*) produce their familiar flowers on BTC properties all the way down toward the southern ends of the Toronto section. The delicate blooms of Loesel's Twayblade (*Liparis loeselii*) have been spied in wetter areas on BTC lands from Niagara to Tobermory. From the Sydenham and Peninsula sections the less common flowered spike of Striped Coralroot (*Corallorhiza striata*), Early Coralroot (*Corallorhiza trifida*) and Alaskan Rein Orchid (*Platanthera unalascensis*) can be spotted protruding from the forest floor.

The less travelled and more sensitive habitats found on BTC properties support many species of orchids that are less commonly seen. Rose Pogonia (*Pogonia ophioglossoides*), Tuberous Grass Pink (*Calopogon tuberosus*) and Dragons Mouth Orchid (*Arethusa bulbosa*) have been observed in fen and bog habitat on a few BTC properties, and our wetlands are home to several populations of Small Purple Fringed Orchid (*Platanthera psycodes*) and Showy Lady's Slipper (*Cypripedium reginae*). Alvars on BTC properties in the Peninsula section provide ideal homes for Hooded Ladies' Tresses (*Spiranthes romanzoffiana*) and Nodding Ladies' Tresses (*Spiranthes cernua*).

An introduced species of orchid - the Helleborine (*Epipactus helleborine*) - has become the most abundant orchid along the Bruce Trail, and is found on almost every BTC property. Helleborine seems to be a contradiction in a group of plants that are notoriously known for their rarity, as

it thrives in almost any environment.

Of the 37 species of orchids growing on the Niagara Escarpment, 19 have been identified on lands protected by the BTC. While hiking the Bruce Trail you may be fortunate enough to spy one of these beauties. Please enjoy your sighting from the safety of the Bruce Trail treadway, so that the sensitive habitat in which these orchids and other delicate species grow is not disturbed.

Orchids found on BTC properties

1. Small Purple Fringed Orchid (*Platanthera psycodes*)
2. Large Yellow Lady's Slipper (*Cypripedium parviflorum* var. *pubescens*)
3. Loesel's Twayblade (*Liparis loeselii*)
4. Tuberous Grass Pink (*Calopogon tuberosus*)
5. Dragons Mouth Orchid (*Arethusa bulbosa*)
6. Menzies Rattlesnake Plantain (*Goodyera oblongifolia*)
7. Striped Coralroot (*Corallorhiza striata*)
8. Alaskan Rein Orchid (*Platanthera unalascensis*)
9. Small Yellow Lady's Slipper (*Cypripedium parviflorum* var. *makasin*)
10. Rose Pogonia (*Pogonia ophioglossoides*)
11. Dwarf Rattlesnake Plantain (*Goodyera repens*)
12. Northern Green Orchid (*Platanthera aquilonis*)
13. Striped Coralroot (*Corallorhiza striata*)
14. Early Coralroot (*Corallorhiza trifida*)
15. Long Bracted Green Orchid (*Coeloglossum viride*)
16. Helleborine (*Epipactus helleborine*)
17. Showy Lady's Slipper (*Cypripedium reginae*)
18. Hooded Ladies' Tresses (*Spiranthes romanzoffiana*)
19. Nodding Ladies' Tresses (*Spiranthes cernua*)