

June 14, 2005

Our Heritage of Orchids

For anyone with an interest in wildflowers, June is synonymous with orchids. At least a dozen species of this fascinating family of plants bloom this month in the Kawarthas. In addition to their exquisite colour and design, finding orchids is also very satisfying because they usually require some special searching and knowledge.

The Kawarthas have long enjoyed a special status among orchid lovers. The first book on Ontario's orchids was researched and written here by a Peterborough resident, Frank Morris, in 1929. Some of the most interesting passages are his vivid descriptions of orchid-searching trips to the Cavan Swamp and Stoney Lake. Unfortunately, one becomes immediately aware of how much more plentiful orchids were at this time. As a result of habitat loss, indiscriminate picking and digging up for transplanting into gardens, the majority of orchid species have become quite uncommon. In fact, I recall a local naturalist telling me that in the 1950s, people used to sell bouquets of showy lady's-slippers at the Farmers' Market!

Orchids form the largest plant family with about 430 genera and over 15,000 species. They are most abundant in the tropics. However, despite the huge number of species, most orchid species tend to be uncommon and almost never dominate a given landscape. Paradoxically, they produce seeds in astronomical quantity - well over a million in some species. Orchids are pollinated by insects and show amazing adaptations to this end. They also depend on a special relationship with fungus, known as mycorrhiza, in order to provide the plant with minerals and other nutrients that it needs but cannot attain by itself. Without the presence of specific species of fungi, most orchids will not survive. This is one reason why transplanting wild orchids to your garden is almost never successful. Peterborough County is home to about 36 orchid species including one, helleborine, which is an alien species from Eurasia. Of the 36, 14 are considered rare or their presence is based on very old records.

Species belonging to the genus *Cypripedium*, commonly known as lady's-slippers, are certainly the most renowned of our orchids. The Kawarthas boast four species. Probably the best known member of this genus is the pink lady's-slipper, also known as the moccasin-flower. It is usually found in dry, upland sites, almost always in association with pines. Petroglyphs Provincial Park and the north shore of Stoney Lake provide good habitat for this species. The largest of our native orchids is the showy lady's-slipper which measures up to 80 cm in height and occurs in open to semi-shaded wetland edges. This species requires 10 years of growth from germination to the time they flower. Dry to moist calcium-rich sites are the preferred habitat of the yellow lady's-slipper, possibly our most common member of the genus. This species is fairly widespread in the Warsaw area, probably because of the large amount of limestone. The Kawarthas also has good numbers of ram's-head lady's-slipper, a species that has become quite rare elsewhere in the province. Ram's-heads prefer cold, undisturbed wetland edges and are often found in association with white cedars.

Lady's-slippers have extremely complex flowers in which self-pollination is all but impossible. The pink lady's-slipper has a particularly ingenious set of adaptations. First of all, the striking pink colouration serves to attract bees, the principal pollinator. On the hunt for nectar and pollen, the bee enters the flower by the incurved split in the large, slipper-like pouch. However, exiting by the same entrance is impossible. Rather, the bee is guided upwards along a trail of hairs

to a translucent area at the top of the pouch. Here, it is forced to crawl under the depressed sexual parts of the flower. The bee first of all comes into contact with the stigma, a female organ, and then with the sticky pollen masses on the stamens which partially block the exits at the top of the flower. Pollen ends up sticking to the bee's back and sides. If it enters another flower of the same species, it will follow the same path but unwittingly leave behind pollen from the first flower when it comes into contact with the stigma. In this manner, cross-pollination is assured. Despite this elaborate mechanism, pink lady's-slippers seem to spread mostly through their rhizomes. Rhizomes are underground, creeping stems which are capable of forming new plants. Unlike most other native orchids, this species is sometimes found in large masses.

Three other species are of considerable interest this month, both because of the unique design of their flowers and the special habitats in which they grow. They are the arethusa (dragon's-mouth), calopogon (grass-pink) and rose pogonia (snake-mouth). All three are pink in colour and grow in the acid soil of bogs and wet meadows. Pollination, once again, depends on some very clever adaptations. In the case of calopogon, downright deception comes into play. Bees are immediately attracted to the top petal of the flower because of a mass of stamen-like objects which appear to be loaded with pollen. However, upon landing on these hairs, the insect quickly realizes there is no pollen to be found. But, before it can fly away, the weight of the insect causes the petal to collapse downward. The hapless bee ends up on its back, pinned against a trough-like appendage that contains the true sexual parts of the flower. The bee's hairy back may pick up sticky pollen located here or transfer pollen - from a previous visit to another calopogon - to the stigma, thereby assuring pollination. Quite the trick to say the least!

Orchids, like all plants, follow a definite blooming schedule. Most of the lady's-slippers bloom in late May through mid-June. Showy lady's-slipper, however, along with arethusa, calopogon and rose pogonia, usually bloom in late June. Rose pogonias can sometimes still be found in flower as late as mid-July. Later in the summer, watch for spotted coral-root (July), dwarf rattlesnake-plantain (late July and August) and nodding ladies'-tresses (late August and September). Once again, Petroglyphs Provincial Park is a good place to try for all three of these summer-blooming species.

What to watch for this week:

June is the month of the spectacular giant silk moths. Measuring up to 15 cm in width, this group includes the well-known luna and cecropia moths. Males are quite distinctive with their large, feather-like antennae which serve to locate females. Female moths release airborne sex attractants called pheromones, detectable by males at distances of up to five kilometres!

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