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LIVING

A deeper look into the grass

What might appear to be just same old, same old includes 150 types of sedges

Probably the most overlooked group of plants, even by naturalists and amateur botanists, are the grasses, sedges and rushes. Part of the problem is that they all appear somewhat similar, especially at a quick glance. Closer examination, however, reveals profound differences. This lack of appreciation and recognition is unfortunate because these plants are extremely diverse, have beautiful floral structures and play key ecological roles. This week, I'd like to introduce you to the most species-rich members of the group, the sedges. Peterborough County alone is home to nearly 150 species.



DREW
MONKMAN

OUR CHANGING SEASONS

Although sedges can be found growing in most any environment, many species are associated with forests and wetlands. So important is their presence that if ever they were to disappear tomorrow, vast areas of central and northern Ontario would be reduced to nothing but mud. A sedge called *Carex lasiocarpa*, for example, is probably the most important plant in northern bogs. Its rootstocks do not have to be buried in mud to grow but actually extend out into open water. This floating network of rootstalks form the leading edge of a floating mat in which all other bog plants take root. Sedges such as *Carex lasiocarpa* therefore provide vital habitat for all kinds of other plants and animals. Other aquatic sedges such as spike-rushes (*Eleocharis*) provide important a food resource for the many waterfowl that eat their fruit.

Some sedges are actually quite well known to the general public, although not necessarily by the name "sedge". The water chestnut, for example, is actually tropical, Asian aquatic sedge in which the corm (a food-storing underground stem) is edible. Chufas, one of the oldest crops in Egypt, are made from the tuber of a sedge. Maybe the most famous sedge, however, is a 15-foot-tall, aquatic Mediterranean sedge called *Cyperus papyrus*. It was used to make the papyrus on which the ancient Egyptians wrote. The stems and leaves of sedges such as bulrushes are woven into baskets, mats and chair seats in many parts of the world. Some bulrushes are also used in water purification systems in Germany and the Netherlands.

The vast majority of sedges, however, seem to have escaped all but a passing notice. In fact, we haven't even gotten around to giving most species a common name. Those common names that do exist can also be confusing. For example, bulrushes (genus *Scirpus*) are not rushes at all, but rather sedges. So are cotton-grasses (genus *Eriophorum*) and sawgrass (*Cladium jamaicensis*). It is therefore usually necessary to use the scientific names when dealing with these plants.

So, how does one begin to learn about sedges? First of all, sedges prefer shady, forest habitats or sunny wetlands. Unlike grasses, they are usually not found in sunny, upland soils. Another starting point for distinguishing sedges from grasses and rushes is to memorize the following poem and then carry out the "touch test." It will come in handy



DREW MONKMAN photos

Grasses, sedges and rushes are among the most common plants and can all appear to look alike, until you take a closer look. Among the roughly 150 varieties of sedge found in Peterborough County are wool grass (top) and fringed sedge. At left are the female (green) and male (black) flower spikes of what is probably *Carex pennsylvanica*. The sedge above it is probably *Carex pedunculata*. About 100 of the local sedges are genus *Carex*.

the next time you are curious about a clump of vegetation with grass-like leaves.

*Sedges have edges,
Rushes are round,
Grasses are hollow,
What have YOU found?*

When you rotate a sedge stem (especially the base) between your fingers, you should be able to feel a definite triangular shape and three distinct edges. If you take a knife and cut the stem in half, you will also notice that the stem is solid, being made up of vascular conductive tissue. Most rushes, on the other hand, have very round stems which are solid in the middle, while the stems of grasses are somewhat flattened and are hollow inside. Grasses also "have nodes all the way to the ground" - an alternative for lines three and four of the

mnemonic. Nodes (or joints) are the conspicuous raised or swollen areas of the stem where leaves are attached. Bamboo is a typical grass in this respect. In sedges and rushes, nodes are entirely absent.

Once you have determined that a given plant is possibly a sedge, take a look at how the leaves are arranged. Sedge leaves are spirally arranged in three ranks, which means that they lie in three vertical planes along the stem. On grasses, the leaves are two-ranked and therefore occur in two rows on opposite sides of the stems. The leaves of rushes are mostly at the base of the plant and spirally arranged.

Sedge leaves are normally composed of a blade and a sheath. The sheath wraps around and encloses a portion of the stem. The inflorescence (flowering

part of the plant) is composed of one or more spikes. Each spike usually contains several to numerous flowers. The spike has an axis along which are borne either staminate (male) or pistillate (female) flowers. Sometimes a spike will have both types of flowers. The "flower," however, is nothing like that of a showy flowering plant. It is usually rather inconspicuous because of its small size and pale yellow-green, rust, or tan coloration. The staminate flowers consist strictly of one to three pollen-bearing stamens. The pistillate flower is made up of a single pistil. However, the pistillate flower - and the fruit (achene) that the flower will become after fertilization - is nearly entirely enclosed by a sac-like structure known as a perigynium. Perigynia show a great deal of variation. In some species they taper to

what looks like the beak of a crane.

Identifying many of the sedges to the species level is quite a challenge. This is mostly because of the inherent difficulty of seeing, handling and describing very small structures. Reliable identification often requires having reproductively mature specimens with fully-developed perigynia and achenes - the shape, size and colour of which are distinctive in each species.

Of the 150 or so sedge species in the Kewarths, about two-thirds belong to the genus *Carex*. It is one of the largest genera of flowering plants in the world with somewhere between 1,500 and 2,000 species. *Carex* also displays the most dynamic chromosome evolution of all flowering plants, as the number of chromosomes varies greatly from one species to another.

A number of sedges flower in the spring and can be easily found in places such as Mark S. Burnham Provincial

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Park on Hwy. 7, just east of Peterborough. In fact, the entire area between the picnic tables and washrooms is covered in sedges such as Pennsylvania sedge. This small, thin-leaved species is one of the most common ground-layer plants in deciduous forest throughout central and southern Ontario. Plantain-leaved sedge (*Carex plantaginea*) - or at least one of its look-alikes - is also in bloom right now and quite distinctive with its broad leaves. The width and crinkled quality of the leaves is especially evident if you can find some of the yellow-brown leaves from last year that should still be present in the clumps. Also in flower is long-stalked sedge (*Carex pedunculata*), a smaller species with reddish-based flowering stems. A common species to watch for in late spring and summer around wetland edges and in wet ditches is fringed sedge (*Carex crinita*). It has large, drooping flower spikes and can measure over a metre tall. Two other particularly distinctive sedges, albeit not in the *Carex* genus, are wool grass (*Scirpus cyperinus*) and cotton grass (*Eriophorum virginicum*). The latter has fluffy white clusters of white hairs.

So the next time you see grass-like plants scattered about a forest floor, wetland edge or over an entire wetland meadow or bog, don't write the plants off as simply uninteresting grasses. You may very well be looking at one or more of the Kewartha's many sedges, all of which provide unique shape, texture, colour, habitat value and year-round interest to natural landscapes. If you ever decide to take up the challenge of actually identifying the many sedges to the species level - something I'm still working on myself - you may wish to purchase *Forest Plants of Central Ontario* or, if you are really serious, the *Field Manual of Michigan Flora*.

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