

# Sarracenia

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Newsletter of the Wildflower Society of Newfoundland and Labrador.

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Figure 4: Black Ash, Cluster of male flowers. Note corky bark of young stem in the right background. See p. 26.

## Notices:

### From the Editor.

This issue contains the usual unusual plant article from Henry (slightly out of sequence) but, I have had very little material from other sources, so I have been looking in the dusty corners of my computer for articles that were set aside for some reason and nearly forgotten. I have also plundered an early issue of Sarracenia for the article on seed collecting that still has some relevance.

This issue contains a number of hyperlinks. If you right click on them a related web page should appear in your browser (.pdf version on screen only!)

### Next Meeting.

**March 13<sup>th</sup> at 7.30 p.m.** at MUN Botanical Garden.  
Allan Whittick: "*Wandering around southern Africa,*

*Plants from Deserts (Namibia), Wetlands (Botswana) and Mountains (Lesotho)"*

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## Collecting Wildflower Seed.

*{This article originally appeared in Volume 1 #3 of Sarracenia in Spring 1991. It came with a request for some Newfoundland seed from the Canadian Wildflower Society with which we were affiliated at the time. Although it was intended for wildflower seed the same method can be use to collect seed from cultivated plants. I have edited it slightly. Ed.}*

Early in the season, choose those plants to be used as a seed source later when the seed ripens, by watching plants as they grow and blossom, and identifying them with a good field guide. Choose plants within each species with vigorous growth habits and large blossoms as those should produce seeds which will grow into equally vigorous plants. Mark well those plants intended to be used as a seed source, either with a brightly coloured string tied to the main stem of the plant, or a stake or other readily identifiable marker placed at the base of the plant, to enable it to be located later in the season, as plants in seed don't always resemble the same plant in bloom. *{This may not work in places accessible to the public! Ed.}*

Ripened seed can be found approximately a month to six weeks after a plant has bloomed – several trips may be necessary to get seed at the right stage. Experience will tell you when the seed is ripe -- seed pods should be dry, berries soft to the touch, seeds of composites (asters, sunflowers etc.) should separate easily from the seed head. Ripe seed is usually black or tan in colour, not green, and in most cases is hard to bite, and there is a fullness, or plumpness about it.

When collecting seed, take along a pen or pencil, and a supply of paper or plastic bags (when using plastic, remove the seed immediately upon arriving home as

freshly picked seed contains moisture and may go mouldy if left in plastic for even a few days). Pick no more than 10% of the seed, leaving the rest for natural dispersal and for the birds and small mammals which rely on seed as a food source.

Once the seed is collected and placed in the bag, mark on the bag the name of the plant and its location; it also helps to record growing conditions (rich, humousy soil, full shade; rocky pasture, full sun, sandy soil) for future use, and the date the seed was gathered, as a reference to use in subsequent years when collecting seed from the same species.

Once home, remove seed from bags and dry it thoroughly (for 10 days to 2 weeks) in the open air in shallow containers (saucers, foil pie plates, etc.). Crush berries and other seed with a pulpy coating (e.g. Starry False Solomon's Seal, *Maianthemum stellata*, Corn Lily, *Clintonia borealis*, etc.) before drying; and, once dried, separate the seeds from the hulls and seed pods. Seed should be placed in envelopes or plastic bags (pill bottles, film containers work well) with the original information (name, location, date collected) recorded on each seed package, and stored in the refrigerator in an air-tight container such as a glass jar.

Most seed stored this way at a low temperature and low humidity will remain viable for two to three years.



## Uncommon Wildflowers of Newfoundland 17: Black Ash (*Fraxinus nigra* L.)

By Henry Mann

Our native woody angiosperms are often not treated as wildflowers, instead occupy a separate category between the conifers and the herbaceous plants, usually in works devoted specifically to trees and shrubs (e.g. Boland 2011). Some have beautiful large colourful blossoms, while others have only tiny “insignificant” flowers to the naked eye, but all are “wild” and all have flowers. The naked eye has now been supplemented with amazing technology. At the mega end of visibility, the Hubble Telescope provides awesome views of the universe and at the other end we have the macro lens of the wildflower enthusiast, and digital, easy to use, microscopes. Even the tiniest, drabest blossoms take on a remarkable dimension at this level as has ably been demonstrated by some of the photos of Wildflower Society members. Much scope still exists for macro and

micro images for a large portion of our wind pollinated flora which is often overlooked in favour of more and better close-ups of eye-catching blossoms. Black Ash is an example of such. Even within touching distance of the tree, nothing impressive seems apparent in its early blooms, but zoom in with a hand lens, macro lens or stereo-microscope, and the colour, texture and delicate forms become superb. Black Ash is readily recognizable by its large, dark green, opposite, pinnately-compound leaves of 7 – 11 leaflets (figure 1), and by its corky grey bark on young stems. In winter its characteristic opposite blackish buds and large horse-shoe leaf scars are unmistakable (Figures 2 & 3). It is our only native true ash (*Fraxinus*) in the Olive Family (*Oleaceae*). The Mountain Ashes (*Sorbus* spp.) are not related and in a different family (*Rosaceae*), the Rose Family.



Figure 1: Dark green compound leaves of Black Ash.



Figure 2: Winter twig with opposite buds and leaf scars.  
Figure 3: Horseshoe-shaped leaf scar of winter twig. (inset)

At least two other *Fraxinus* species may be encountered as horticultural plantings in urban areas, European Ash (*Fraxinus excelsior*) and Red Ash (*Fraxinus pennsylvanica*).

Flowering occurs before leaves appear on separate male and female trees, although the literature indicates bisexual flowers may also occur. To date I have only seen unisexual flowers in our trees. Male flowers occur as a mass of dark-purple anthers, each individual flower contributing two stamens (figure 4 - cover picture.). Individual female flowers when examined closely are composed of a single pistil with a reddish ovary, two staminodes and a delicate large two-lobed lavender

stigma for catching wind-borne pollen. Petals are entirely absent (figures 5 & 6). The globose-tipped staminodes are reputed to be evolved non-functional stamens whose significance is uncertain. At maturity the pistil develops into a one-seeded winged fruit (a samara), often somewhat twisted (figure 7). From my observations in the Humber Valley, few or no fruits develop in most years probably due to unfavourable weather conditions during the brief pollination window, cold rainy conditions, storms and late frosts. Yet young trees can be found throughout the valley in suitable habitat so occasional good seed crops must occur.



Figure 5: Emerging female flower clusters, usually late May/early June in Humber Valley.

Black Ash has a number of other common names including Basket Ash, Hoop Ash and Swamp Ash. "Black" possibly refers to the dark-brown to black buds on the grey winter twigs, but some suggest is also descriptive of the dark-green foliage, or maybe the unusual black heartwood at the centre of stems and



Figure 6: Three individual female flowers about a week later than figure 5. Note staminodes at base of ovaries.

branches (Figure 8) The wood is flexible and easily separated into thin uniform strips making it useful for basket weaving, woven chair bottoms, barrel hoops, snowshoe frames, canoe ribs and a variety of other miscellaneous crafts.





Figure 7: Cluster of fruits (samaras).  
Note twisting.

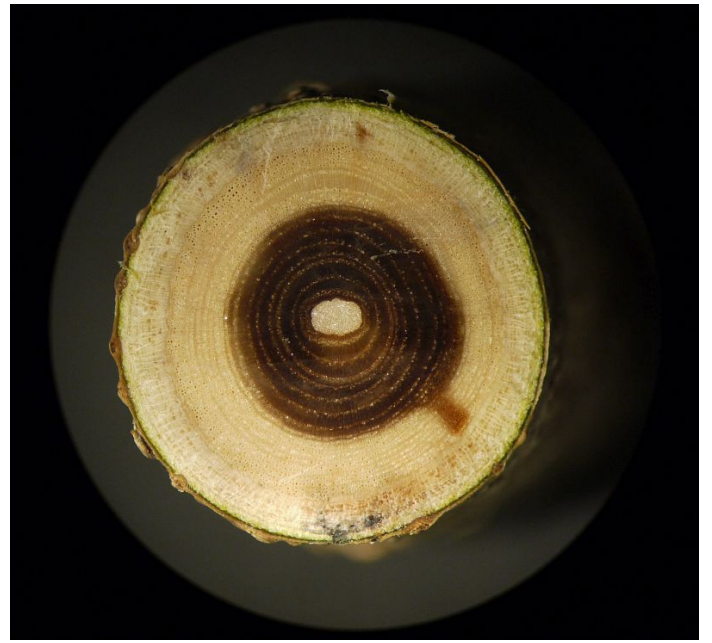


Figure 8: Cross section of a 2 cm diameter branch showing characteristic “black” heartwood.

As growth begins in spring, the early wood is made of very large thin-walled cells, and the later summer produced wood is of smaller thick-walled cells (Figure 9). With soaking and pounding the spring wood layers separate leaving strips of the more dense summer wood.

*Fraxinus nigra* is an uncommon tree in insular Newfoundland restricted mainly to the warm sheltered valleys of the west. It was once listed as rare, but can be readily located here in the Humber Valley in wet woodlands in association with Speckled Alder, Larch, Black Spruce and Red Maple. Finding a tree of significant stature though, is fairly rare. Most individuals I have seen are small trees with trunks usually less than 10 – 15 cm in diameter, rather coarsely branched, and occurring along stream banks, seepages, wet clearings and forest margins. The species does not appear to be very shade tolerant. It mostly occurs as isolated individuals; I have yet to observe a stand of more than two or three trees. The range of Black Ash is centered around the Great Lakes region as far west as Manitoba, south to Virginia, and hanging on by its fingernails in Newfoundland. In its core range growing conditions are warmer and seasons are longer. It is our latest tree to fully leaf out and one of the earliest to shed its leaves at the first sign of fall frosts. The short growing season probably partly accounts for its slow growth here at the edge of its range. But other stressors have also been noted locally. Crown dieback occurs frequently in

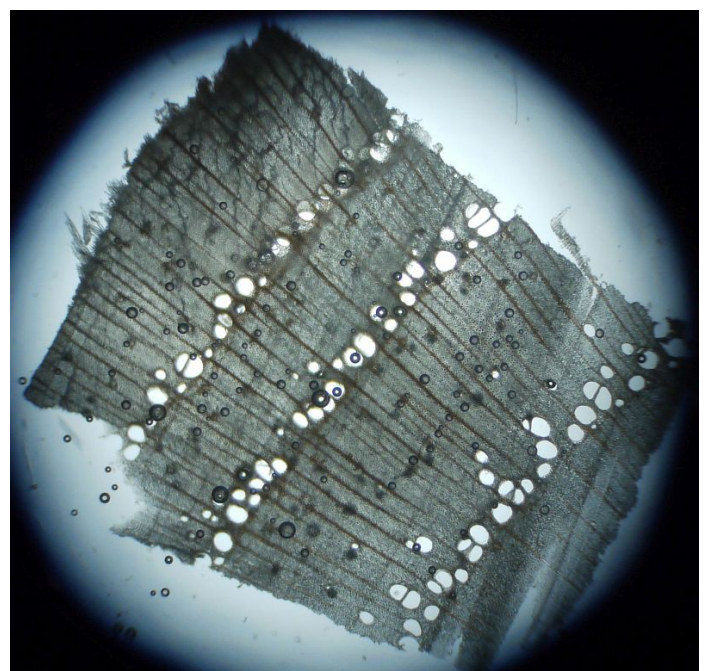


Figure 9: Microscopic cross section of wood showing three annual rings. Note the rows of large spring thin-walled cells alternating with the rows of more dense summer wood.

apparently healthy young trees (Figure 10), the cause unknown. Leaves are commonly contorted (galled) by an insect known as a psyllid (Figure 11), leaf miners occur, and chewing insects can cause partial defoliation.





Figure 10: A young tree with crown dieback. Note dark green leaves of Black Ash compared to background vegetation.



Figure 11: Common galling of leaves by a psyllid insect.

Like all forest species it is susceptible to a range of herbivores, diseases and fungi, but here at the extreme climatic edge of its range the overall effect of these can be much more significant than in sunnier climes with longer growing seasons. Throughout its mainland range, an introduced insect, the Emerald Ash Borer (*Agrilus planipennis*) is causing serious damage to ash trees and should be looked for here on the island as well.

As an interesting sideline, some have noted that the distributions of Black Ash and Showy Lady's Slipper (*Cypripedium reginae*) are almost identical, both here in

Newfoundland and also in the greater North American context. Their habitats are the same and their associated tree species are similar. Here in the Humber Valley the two can often be observed growing "cheek by jowl". From a mushroomer's perspective this is magnificent stuff. You can read all about it through the eyes of a moose, a crow and a vixen in two separate instalments (Voitk 2011, Voitk et al. 2013) in *Omphalina*, the newsletter of ForayNL, available online at < nlmushrooms.ca >.

Happy Botanizing!

### Selected Sources

**Boland, T. 2011.** Trees and Shrubs, Newfoundland and Labrador. Boulder Publications, Portugal Cove – St. Philip's, NL.

**Hurlburt, D. D. 2011.** Provincial (Nova Scotia) Status Report on Black Ash (*Fraxinus nigra*). Nova Scotia Department of Natural Resources, Halifax, N.S.

**Voitk, A. 2011.** The Ties That Bind Us. *Omphalina* Vol. II, No. 2: 14 – 19.

**Voitk, A., Chatzidakis, Z., Thorn, G., Sveshnikov, D., and H. Mann. 2013.** The Ties That Bind Us – the sequel. *Omphalina* Vol. IV, No. 6: 4 – 7.



## Pictures from the Christmas Show.

This is very much the editor's choice. I've picked out a few photos mainly because the plants are interesting or favourites of mine rather than just for artistic merit – although they are all pretty good pictures. I have also cropped most of them to concentrate on the plant itself.

The **Spurred Gentian**, *Halenia deflexa*, is fairly common in late summer in seaside meadows where it only grows to a height of 10 – 20 cm. (in mainland woods it can be much taller). Generally it is purple-blue but you fairly often come across white, cream or even pale green flowers. Photograph from the Public Park at Come by Chance. It's the only gentian with an Island wide distribution. The others prefer limestone and are more of less restricted to the west, especially the Northern Peninsula.



*Halenia deflexa*

Gene Herzberg



*Arabidopsis thaliana*

John Maunder

**Thale Cress**, *Arabidopsis thaliana*, is related to the native *Braya* below, but is a recently introduced weed which is mostly found in or around garden centres. There's also a lot of it in the working areas of the MUN Botanic Garden, but it isn't a widespread weed – yet! It has a prostrate basal rosette of greyish-green leaves, which distinguish it from the widely established Bitter Cresses. As one of the plants with a very simple genome it is widely experimented on by plant geneticists.

**Long's Braya**, *Braya longii*, is one of our endemic native plants growing on the Northern Peninsula's Limestone Barrens in disturbed areas of limestone gravel, - disturbed either by natural frost heave or man's activities. There are two other species of *Braya* on the Northern Peninsula and all three are endangered. There is an official federal recovery plan (see the [COSEWIC report](#) for more details.) Living on an exposed site, poor in nutrients it grows very slowly often taking a decade to reach maturity. Attempts to build up a stock at the MUN Botanical Garden failed because in better conditions it burned itself out in a couple of years.

*Continued on p. 32*



*Braya longii*

Todd Boland

# A Tale of Two Keys.

By Howard Clase.

{A story to introduce readers to the two types of keys most commonly used to identify plants.

Not all of it is entirely true, but more of it is than you might think! Ed.}

Charlie Limetree was a retired taxonomist who, in his earlier life, had identified and named a large number of plants, animals and other organisms. So many, in fact, that his names were usually identified simply by putting the letter L. after them. He was now living in retirement in a small Scandinavian town near to his old friend The Revd. Pete Kool, who had travelled widely, especially in North America, and had sent Charlie many new exotic specimens to name. Charlie had also collected a num-

ber of exotic pets to keep him company in his absent minded old age. He was getting so absent minded in fact that he often forgot which of them ate what. Was it Fritz who liked peanuts or Alex and who had strong enough teeth to chew on bones?

After a while he had an idea, he would write a key to enable him to identify them and construct a table to remind him what food to use for each. This is what he wrote:-

- 1. Animal has two legs and two wings.....**Alex**
- 1. Animal has four legs and no wings..... Go to 2
  - 2. Animal is covered in fur.....Go To 3
    - 3. Animal meows when hungry.....**Shiraz**
    - 3. Animal barks when excited.....Go to 4
      - 4. Animal is less than 2 ft (60 cm) high.....**Fritz**
      - 4. Animal is taller than 2 ft (60 m).....**Paddy**
  - 2. Animal has no fur but is covered in a scaly shell.....**George**

Once Charlie had identified his pet he was able to serve it its favourite food from the following:-

Dining Table		
Name	Description	Favourite Food
<b>Alex</b>	The African Grey Parrot; an intelligent bird that can identify and name colours and count at least up to six. (Google him for more)	Peanuts and crackers.
<b>Fritz</b>	The dachshund; likes to chase badgers down their burrows.	Real meat treats.
<b>George</b>	The lonely giant tortoise; over 100 years old.	Lettuce.
<b>Paddy</b>	The Irish wolfhound; likes to chase wolves.	Very large tins of dogfood.
<b>Shiraz</b>	The Persian cat; doesn't like going out in case his long fur gets matted. <b>Don't forget to give him a good brush every day!</b>	A bit of a fussy eater, but likes boiled fish – most days.

This is typical of the way most botanical keys are constructed. It's known as a single access (or dichotomous) key. Each question has a yes/no answer and each either leads you to the name of a plant, or to another question. But you must start at the beginning and go through the questions in order. The next level

is often indented to make it easier to find the next pair of questions.

One of the main problems for the field botanist with this kind of key is that they are usually constructed by ancient taxonomists in dusty herbaria, surrounded by files of pressed plants in all stages of



growth. In the field you often have an incomplete sample. It's not too often that you find a plant with both flowers and ripe seeds at the same time, and it's not uncommon for a key to suddenly switch from questions about leaves and flowers to asking whether the seeds are smooth or covered with warty bumps. I think they are intended primarily for other ancient taxonomists in dusty herbaria rather than botanists "in the field". If you don't have any seeds you have to follow up along both routes until you get a couple of

To continue with our story:-

One day Charlie came round to Pete's and asked him if he could look after his pets for a few days as he was going to a foreign university to get yet another honorary degree, and he showed Pete his key. "Hmm!", he said "That's all very well, but suppose, for example, it's furry but won't say anything. Then I'm stuck. I prefer a different kind of key, one with more flexibility. And he set out to construct one according to his liking. It also had a series of similar yes/no questions, but they are labelled

A.	Animal has wings and feathers
B.	Animal has fur
C.	Animal has flat face (and meows)
D.	Animal is less than 60 cm tall

This is known as a "multi-access key" - you can ask the questions in any order. It has the advantage that if you don't know the answer to a question you can still get a pattern to try to fit, and if there isn't an exact match you can look for the closest fit more easily. It is also much easier to extend when a new species is discovered. However, both of these key types will only work for a fixed set of species, if you

names and then look at the detailed descriptions, which often include features that are not used in the keys. There is another problem too: if a new species is discovered, the whole key may have to be re-written. I found this when I discovered that the European *Epilobium montanum* was fairly common in the St John's area - none of the North American keys had included it as a possibility and it always keyed out to *E. glandulosum* or *E. ciliatum*.

alphabetically and you have to try to answer them all. If the answer is "yes" you write down the letter and if it's "no", or you don't know, you don't. This gives you a pattern of letters which you match to a list.

"Yes!", said Charlie, "I think that would work too. And he went off to get his umpteenth Hon. Lit. D. without having to worry about his pets getting fed properly. (He'd left a good stock of all the necessary foodstuffs.)

AD	Alex
B	Paddy
BD	Fritz
BCD	Shiraz
D	George

find a species that the key creator didn't have in mind then it will cause problems. I have a couple of field guides that use this system:- 'Collins Pocket Guide to Sedges, Rushes and Grasses of Britain and Europe' uses alphabetical labels as above, while 'Newcombe's Wildflower Guide' has a similar system but uses numbers as labels. Most computer based key systems also work this way.

## Global warming?

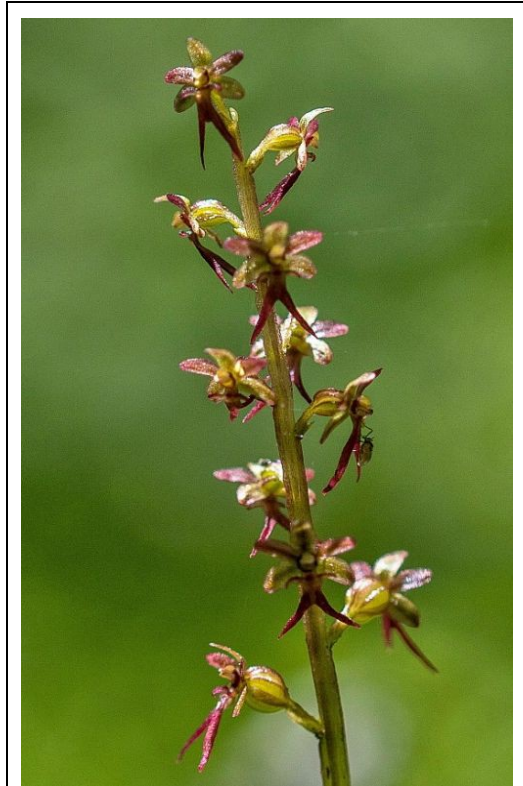
The Botanical Society of Britain and Ireland organises an annual [New Year Plant Hunt](#), much like our Christmas bird counts – except that it

covers the whole of the UK and Eire. This year they found no less than 532 species in flower! That's ten times the expected number by the

books according to an article in [The Guardian](#). It'll be a few years before we can match that!

Pictures from the Christmas show, continued from p 29.

**Moonworts or Grape Ferns, *Botrychium* sp.**, are often difficult to identify. In fact, it is not known how many species we actually have here, ten are currently listed in our official list, but more are pending confirmation. . They are ferns and reproduce by spores rather than seeds. They have been found all over the Island, but are more common in the west and north. Mark's picture comes from Cape Norman.



*Neottia cordata* Clyde Thornhill

In the middle ages there was a folk belief that moonworts were able to open any lock. This probably because of the resemblance of the frond to mediaeval keys. There is an [old chest in a Cambridge college](#) that has a moonwort motif decorating its lock.

Many of our orchids have interesting rather than beautiful flowers. The **Heartleaf Twayblade, *Neottia cordata*** (Syn. *Listera cordata*,) is the only one of our four species of Twayblade found widely across the Island, the others are mainly restricted to the western side.

All orchid flowers have the same basic construction, three inner and three outer

tepals, but the inner three, especially the lower lip vary enormously, from the balloons of the Lady's-slippers to the tapered forks of these species.

The **Curly Grass Fern, *Schizaea pusilla***, is our smallest fern; widespread, but difficult to find amongst the grass, sedges, and shrubs of our fens. In our Society's experience we have always found it in association with the Dwarf Huckleberry, *Gaylussacia bigeloviana*. This may be just because they both prefer the same habitat, or because they share a micorhizal fungus. Gene's picture shows both the immature current year's fronds and those of the previous season.



*Botrychium* sp. Mark Primack



*Schizaea pusilla* Gene Herzberg

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