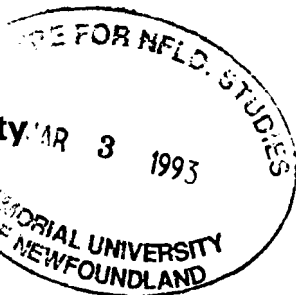


SARRACENIA

Newsletter of the
Canadian Wildflower Society

Newfoundland Chapter



Volume 3, Number 2

Winter/Spring 1992/93

Spring Schedule

Feb. 17, 1993 - Pollination Biology - rescheduled from Feb. 3, due to inclement weather.
An illustrated talk by Dr. Peter Scott on pollination mechanisms.

Mar. 3, 1993 - Lichens of Newfoundland

An illustrated talk by Dr. Bill Meades on the more common lichens of barren, bog, and forest.

April 7, 1993 - Sun Tracking in Plants

An illustrated talk by plant ecologist Dr. Louise Hermanutz.

May 5, 1993 - Wildflowers and Butterflies

An illustrated talk by Bernard Jackson, curator of the Oxen Pond Botanical Garden.

June 2, 1993 - The Ericaceae (Heath/Blueberry Family)

An illustrated talk and workshop by Susan Meades on the provinces ericaceous plants.

NOTE!!! Change in Meeting Place !!!

Because our former meeting room Engineering X-4000 is scheduled for other uses, we will be meeting in room **Engineering X-4029, the Forestry Lecture Room (S.J. Carew Building)** for the remainder of this year. Unless otherwise notified, our regular meetings will be at 8 P.M on the first wednesday of each month (Oct. - Dec., Feb. - June). Pay parking is \$2.00 (on entry) in the basement of the Earth Sciences Building or \$.50/hour at meters on Arctic Avenue, in front of the S.J. Carew building.

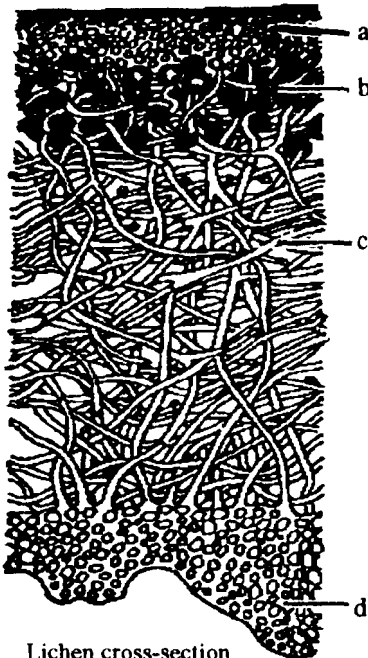
Lichens

by Sue Meades

On March 3, our speaker (Bill Meades from Forestry Canada) will be lecturing on lichens. The following information is provided to familiarize you with some of the terminology used in the study of lichens.

Lichen structure

Lichens are ecological pioneers or colonizing species, since they often establish on bare rock. Acids, formed mainly from the release of CO_2 during the lichen's growth, dissolve minerals in the rock, starting the erosion process of converting rock to soil. Lichens are also important as a food source for caribou. Lichens are a unique vegetative form; they are composed of two distinct organisms (**algae and fungi**) growing in a symbiotic relationship. The body of the lichen is called the **thallus** and is composed of fungal strands (**hyphae**) that anchor the "plant" to a substrate and surround individual cells of algae. The algal cells absorb water and dissolved mineral nutrients from the fungus and, in turn, the fungus absorbs its food from the photosynthetic algal cells. The fungal and algal components of lichens can be separated in the laboratory (with some difficulty) and grown independently. The fungal components (mycobionts) of lichens are usually **ascomycetes** (fungi that produce ascospores in cup-shaped fruiting bodies), but some are basidiomycetes (fungi that produce basidiospores in mushroom-like fruiting bodies). The algal component (phycobiont) is usually a unicellular **green algae** but some basidio-lichens contain single cells or chains of **blue-green algae**, such as *Nostoc*. The most common alga found in lichens is the unicellular, green alga *Trebouxia*.



Lichen cross-section
(from Hale, 1969)

A cross section of most lichens reveals several strata. The **upper cortex (a)** is composed of very compressed fungal hyphae. Below the upper cortex is the thin **algal layer (b)**, which consists of algal cells scattered throughout the fungal hyphae. The next layer is the **medulla (c)**, a thick layer of loosely interwoven fungal hyphae. A **lower cortex (d)** may or may not be present. If present, the lower cortex is anatomically similar to the upper cortex, but may be of a different thickness and color. Small, root-like structures that help anchor the lichen to its substrate, **rhizines**, may develop from the lower cortex or the exposed medulla.

Reproduction

Lichens can reproduce sexually (usually by the formation of **ascospores** in **asci**) or vegetatively (by **fragmentation** or by vegetative propagules, which contain minute amounts of both the fungal and algal component.). In sexual reproduction, ascospores are produced in either flattened, disc-shaped **apothecia** on the surface of the thallus, or in urn-shaped **perithecia** immersed in the thallus and appearing as small, dark pores on the thallus surface. Perithecia are common only in crustose lichens, apothecia may occur in all lichen types. In some lichen species it is necessary

ascus and the shape, color, and septation of spores before a positive identification can be made. When fungal ascospores are shed, they germinate into fungal hyphae. If contact is not made with the alga of the parent lichen species, the hyphae will die. If proper contact with the right alga is made, a symbiotic relationship will form between the two organisms and a new lichen "plant" will develop.

Pycnidia are common, urn-shaped structures that resemble perithecia in that they also are immersed in the lichen thallus (pycnidia in few lichen species project from the thallus). However the spores produced in pycnidia, called pycnoconidia or microconidia, are asexual in origin.

Vegetative propagules in lichens may be of two forms: soredia, and isidia. **Soredia** are microscopic clumps of algal cells surrounded by fungal hyphae; no cortex is present. The soredia appear as powdery areas (**soralia**) along margins and cracks in the thallus surface. The soredia form in the algal layer or the medulla and are pushed outward, or erupt, through the cortex by the formation of new soredia below. At the lichen surface, they are blown away and may then grow into a new thallus if they land on a site with optimum growing conditions. **Isidia** are small vegetative outgrowths (< 0.5mm in size) that form from the upper cortex. The algal layer of an isidium is always covered by cortex. Isidia are larger and more variable in shape than soredia—they may be semiglobular, club-shaped, cylindrical, or coralloid and are easily broken off.

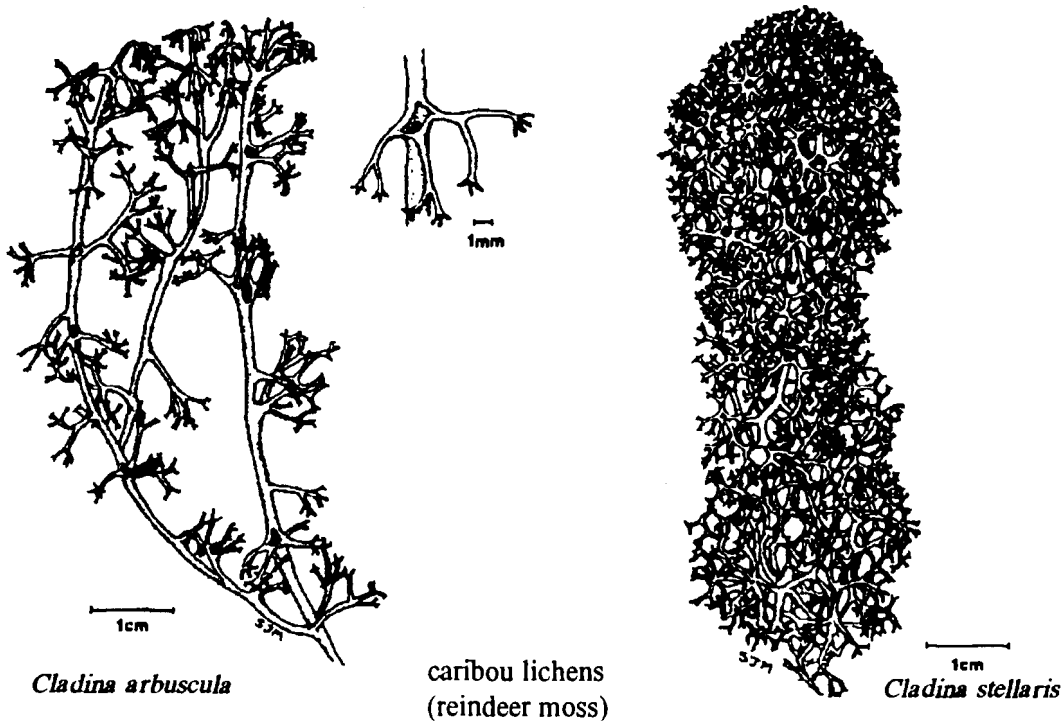
Lichen forms

Based on their method of attachment and growth form, lichens can be divided into three major categories: crustose, foliose, and fruticose. As its name implies, a **crustose lichen** grows like a crust, closely attached to rocks or tree bark; its thallus usually lacks distinct lobes. Crustose lichens are most commonly visible on rock or boulders near the coast. Many are brightly colored, such as the orange or yellow-orange *Caloplaca* and *Xanthoria*. Less obvious are the crustose lichens that inhabit tree trunks. Some may look, at first glance, like round patches of mildew, but upon closer examination, small apothecia can be seen scattered across the thallus. *Graphis* is an example of a bark-inhabiting crustose lichen. Crustose lichens cannot easily be separated from their substrate; the medulla is attached directly to the substrate - they contain no lower cortex or rhizines.

A **foliose lichen** has a flat, lobed (leaf-like) thallus that grows on tree trunks and branches, horizontally along the ground, or occasionally on rocks. Some foliose lichens have a thallus that looks similar to thalloid liverworts such as *Marchantia*. The lower surface of foliose lichens is attached to its substrate by many small rhizines, or less commonly, by a single, central stalk or **umbilicus**. The lobes of foliose lichens may be narrow (< 2mm wide) or broad (> 3mm wide); and the margins may be smooth, indented, finely divided, or covered with cilia (narrow, hair-like outgrowths 0.5-6.0mm long). The color and patterning of the upper and lower thallus also are important for accurate identification. Notice if the cortex is dotted with pores, smooth, wrinkled, or veined. Examples of foliose lichens are the dog lichens (*Peltigera canina* or *P. aphosa*), the umbilicate rock-triopes (*Umbilicaria* spp.), and arboreal foliose lichens (*Hypogymnia physodes* and *Platismatsia glauca*).

A **fruticose lichen** can have an erect, often branched, bush-like thallus or a pendant, string-like, branched thallus that hangs loosely from tree branches and looks like Spanish moss (*Tillandsia spp.*). Fruticose lichens exhibit the most morphologically diverse forms and are attached to their substrate only at the base. Examples of fruticose lichens are reindeer "moss" - more appropriately called **caribou lichens** (*Cladina rangiferina*, *C. stellaris*, *C. mitis*), the red-topped **british soldiers** (*Cladonia cristatella*), and the pendant, old-man's beard lichens (*Alectoria spp.* and *Usnea spp.*)

Many fruticose lichens, including the *Cladinas* and *Cladonias*, have a hollow central cavity, while a few have dense, cartilaginous cords embedded in the medulla (*Alectoria spp.* and *Usnea spp.*). *Cladonias* typically have many small, flat lobes, called **squamules**, growing at the base of a hollow, erect thallus - the **podetia**. The podetia may be simple or branched; cup-shaped, spike-like, or cylindrical; sterile or with fruiting bodies (apothecia) produced at the branch tips or cup margin.



Lichen acids

Lichens are also unique because they produce organic compounds called "lichen substances" and "lichen acids" that can be used to separate taxa. Crystallized lichen acids, usually located in the cortex or medulla, are colorless, but will react with various reagents. The common reagents used to determine the presence of certain lichen acids or lichen substances are:

- P** (saturated solution of p-phenylenediamine in 95% ETOH)
- K** (10% aqueous solution of KOH)
- C** (commercial chlorine bleach solutions, such as Javex)
- KC** (K reagent immediately followed by C reagent)
- I** (a few crystals of iodine dissolved in 70% ETOH, to test for certain carbohydrates)

As with all poisons, extreme care should be taken when handling these compounds. The solutions should be applied with a thin glass rod or a small glass dropper to an exposed portion of the lichen thallus. **Once the reaction (+ or -, and color of the + reaction) is recorded, the tested portion of the lichen thallus should be discarded safely.**

Lichen acid tests usually are conducted to verify an identification or to separate species of similar appearance. For example, four of the caribou lichens have similar growth forms, three of the four are yellowish- or greenish-white (*Cladina arbuscula*, *C. mitis*, & *C. terrae-novae*) while *C. rangiferina* is described as purplish, brownish, or ash-gray. *Cladina rangiferina* and *C. arbuscula* have their branch tips bent in one direction, but *C. mitis* and the more diminutive *C. terrae-novae* have branch tips not strongly oriented in one direction. Sometimes it is very difficult to distinguish between *Cladina arbuscula*, *C. mitis*, and *C. terrae-novae*, particularly when they are growing together, thus acid tests are useful in this instance. The chemical reactions that separate these taxa are as follows:

<i>Cladina arbuscula</i>	P + (red)	K -	C -
<i>Cladina mitis</i>	P -	K -	C -
<i>Cladina terrae-novae</i>	P -	K + (yellow)	C -
<i>Cladina rangiferina</i>	P + (red)	K + (yellow)	C -

According to Dr. Teuvo Ahti, a Finnish lichenologist who studied Newfoundland's lichen flora, there are 610 species of lichens in the province, of which 585 are known from the island. About 250 of these are **macrolichens** (easily visible, foliose or fruticose forms). When compared to Quebec, which has 647 known lichen species, and Cape Breton with 199 species, Newfoundland's lichen flora is fairly diverse.

Important characters to observe when identifying lichens with a field guide:

Recommended field guide: *How To Know The Lichens*, M.E. Hale, 1969,
Wm. C. Brown Co., Dubuque, Iowa..

- **color** - whether wet or dry, of upper and lower cortex. The usual described colors are:

- 1) mineral-gray or greenish-gray, 2) greenish yellow, 3) sulphur yellow or lemon yellow,
- 4) orange, 5) brown, 6) variations of tan to blackish-brown, and 7) lead-colored.

- **growth form:** foliose, fruticose, or crustose.

- **reproductive structures:** presence or absence, type, location, color, shape.

- **habitat** - some of the terms used to describe lichen habitats are:

terrestrial - a general term for species growing on the land.

terricolous - growing specifically on bare earth.

saxicolous - growing on bedrock or boulders.

arboreal - a general term for species growing in trees.

corticulous - growing on bark of tree trunks and branches (epiphytic).

lignicolous - growing on dead wood: dead trees, fences, fish flakes, and wood planks.

halophilous - salt tolerant; usually coastal, saxicolous species or some lignicolous species.

Wild Plants in Newfoundland's Informal Economy

by Dr. J.K. Crellin

(or: Sleuthing for the Wildflower Enthusiast)

This article is based on a talk presented at our November, 1992 meeting.

Regional discussions on medicinal plants invariably become something of a "shopping list" and many plants are certainly listed in this article. However, the discussion is framed by a particular question: Why is the extensive Newfoundland record of self-care, which documents the time from around 1900 to the 1960's, relatively silent on many medicinal uses of plants recorded elsewhere?

A particular reason for the question is because until recent times much Newfoundland life centred on an "informal" economy based on bartering, exchange, borrowing and on living off the land as well as from the sea. Although an informal economy has been a commonplace in rural life everywhere, it has been of special significance in Newfoundland. One reason is that the visible or "formal" economy once rested largely on a credit system that bound fishermen to merchants. Merchant credit advanced at the beginning of the season was paid off in kind, namely the season's catch of fish. Cash was limited and a culture of self-sufficiency was of key importance.

Because of this and of rich popular traditions derived from England and Ireland, one expects more extensive Newfoundland knowledge of medicinal lore than apparently existed; of course, it may not have reached the written record, though this appears unlikely.¹ Perhaps the absence of information reflects the coastal location of Newfoundland communities and the central role of the fishery rather than agriculture in Newfoundland life. Perhaps, too, the absence reflects somewhat limited flora and habitat differences in parts of the island, through many medicinal plants are common weeds. Many questions undoubtedly arise about Newfoundlanders and their relations with plants, and wild flower observers can add much to our knowledge of this by constantly enquiring about local knowledge. In fact, many will remember that flower books of the past often romanced titbits of medical and other information.

For the table and for the "sick room"

Much of Newfoundland's informal economy fell on the shoulders of women. They generally took responsibility for the vegetable garden, which was of key importance. The ability to keep root crops, particularly potatoes and turnip but also carrot and parsnip, over the winter was especially significant. Although some blamed shortages by spring time for nutritional "problems" in the island, other informants remember an abundance of root vegetables throughout the winter, so long as they were stored properly. But Newfoundlanders, as well known, supplemented food supplies with many protein sources: birds and animals (murre, moose, caribou, and seal). But here we discuss a few wild plants, well known for the table, but with sturdy reputations as medicinals

¹ The Newfoundland record considered here is a detailed review of the extensive amount of "oral" tradition documented in the Newfoundland Folklore and Language Archive, Memorial University of Newfoundland. The Archive consists primarily of class projects undertaken by students during the past thirty years or so. Although much evenness exists in the records, and many have to be used cautiously, the Archive as a whole presents a rich panorama of Newfoundland life. Additional material on popular medical knowledge is available in many published writings on Newfoundland and from on-going projects on health beliefs in Newfoundland.

elsewhere if not in Newfoundland. Many Newfoundlanders have extolled the dandelion as greens: "Newfoundland spring greens:"

"We'd have them [said one informant] 'til the greens came, the cabbage and the turnip tops. We'd have the dandelion first. I like it better than any of it. My God we were as strong as bulls from eating that stuff."

Dandelion's reputation as a tonic was also generally known (for "bad blood" or that "run down condition") as elsewhere, but seemingly not its reputation as a diuretic to increase the quantity of urine. In contrast to the dandelion, such other "vegetables" from the field as leaves from lamb's quarters (*Chenopodium album*) or the hearts of the young shoots of cattail (*Typha latifolia*), seem to be little known. The relatively recent introduction of the latter may be an explanation for that plant, as well as limited distribution.

Turning to the abundance of berries in the island -- so often gracing the Newfoundland table -- it is especially surprising that Newfoundlanders are generally unaware of their medicinal reputations. Blueberries (*Vaccinium spp.*), for example, have spawned a host of Newfoundland recipes, but these do not extend to medicines. The astringency of the leaves and root, as well as the ability to reduce blood sugar levels, is not recorded as it is in many parts of mainland North America. Perhaps an explanation lies in species differences not yet studied.

Newfoundland "silence" on many uses of berries recorded elsewhere extends to raspberry (*Rubus idaeus*) leaf tea as an aid in easing the birth of a baby. Even bakeapple (*Rubus chamaemorus*), so much part of the Newfoundland culture, is generally not viewed as a medicinal, although a reputation that it helps coughs and allays the stomach is recorded. And the commonplace strawberry is little remembered, although a commercial preparation, *Extract of Wild Strawberry* (marketed, for instance, by the celebrated Newfoundland proprietary medicine entrepreneur, Gerald S. Doyle) has been well known "for the treatment of diarrhea, dysentery, pain in the stomach and cramps."

The last berry mentioned here is crowberry (*Empetrum nigrum*), not so much for lack of information, but because there is at least some reference to a use -- one seemingly not recorded elsewhere -- namely that the juice from boiled berries can relieve uterine pains after childbirth.

Two beverages -- prepared either from Labrador tea (*Ledum groenlandicum*) or from creeping snowberry (*Gaultheria hispidula*) -- have been well known, though it is unclear if they were used more in the sick room, at least by this century. The former has been recommended for "colds, influenza, measles, stomach ailments," while the more aromatic creeping snowberry has been viewed as a stimulant. It is noteworthy that *Gaultheria procumbens* (not common in Newfoundland) is better known elsewhere as a beverage/medicinal tea (and as the source of oil of wintergreen). A common name for the latter is mountain tea or teaberry, while mountaineer tea in the island refers to creeping snowberry. The relationship of these popular names to more common Newfoundland names for creeping snowberry -- namely, maidenhair, magnatea or manna tea -- reminds us that another fascinating area of study for the wildflower enthusiast is Newfoundland plant names.

Preventive care; the sick room

Although much more can be said about items that might serve both the table and sick room, this section mentions examples of plants with medicinal reputations alone (leaving aside other possible economic uses such as dyes). The comments are to be seen in the context of growing reliance by Newfoundlanders on over-the-counter medicines during the first few decades of the century, despite the isolation of its hundreds of small communities, the shortage of cash in the economy, and low literacy. There were, too, many alternative magical/religious treatments as well as widespread use of items found in the kitchen.

“Years ago [stated an informant] when growing up, if you had a cough, they’d give you kerosene oil and molasses for a cough; that’s a spoonful of molasses with a few drops of kerosene oil in it and that used to seize up the coughs. Take it on a spoon. It was the hardest thing that you had to drink. But it used to cure it”.

~~For many Newfoundlanders, the medicinal use of plants was something of a backseat unless, like the widely used senna leaves or fruits (“pods”), they were purchased from stores. The reliance on commercially-available laxatives (which included such other “favourites” as Epsom salts and castor oil) perhaps contributed to lack of interest in locally available botanical laxatives -- e.g., iris (*Iris versicolor*) or bindweed (*Convolvulus sepium*) -- with similar reputations.~~

Laxatives were not used solely to treat constipation, for there was a popular belief that they contributed to general “cleansing” of the body. Newfoundlanders were certainly not alone in employing various ways of purifying the blood and dealing with a “run-down-feeling.” Popular traditions everywhere have listed countless tonics and blood purifiers for this, and Newfoundlanders as much as (if not more than) people elsewhere have relied on the use of spring tonics or purifiers. Many of the tonics recorded are bitter, though others (especially those seen more as blood purifiers), were generally astringent. But Newfoundlanders only seem to have been comfortable in collecting tansy (*Tanacetum vulgare*). In 1936, it was said “tansy is used for a great number of ills and is thought so highly of that in some homes it is gathered for winter use.”* Perhaps it was gathered from a tansy patch planted in gardens, rather than from wild plants.

Other tonics/blood purifiers available to Newfoundlanders, at least in some parts of the island, are alder (e.g., *Alnus rugosa*), burdock (e.g., *Arctium minus*), Canada thistle (*Cirsium spp.*), elder (*Sambucus spp.*), goldthread (*Coptis groenlandica*), wormwood (*Artemisia spp.*), and yarrow (*Achillea millefolium*). Yet if these were known or used at all, they were distant alternatives to tansy; and even this has been employed much less than sulphur and molasses as a spring tonic.

***Editor’s note:** Since tansy (*Tanacetum vulgare*), introduced from Europe, is not common around Newfoundland, yarrow (*Achillea millefolium*) may be the plant referred to in the above quote. Although white-flowered, yarrow, which Newfoundlanders often refer to as wild tansy, is more widespread than (and similar in inflorescence and leaf to) common tansy.

Closing comment

Countless other examples could be given to illustrate the apparent lack of information among Newfoundlanders during the first half of this century about the medicinal reputations of plants available in the island. It is suggested that the amount of knowledge is much less than in similarly isolated communities such as in the Appalachians of the United States. But it is not my intent to leave readers with negative feelings about Newfoundland's flora. The purpose is to raise questions and to prompt wildflower enthusiasts to study the fascinations and byways of Newfoundland plants and their role in Newfoundland's particular culture and its complex changes in the twentieth century.

References and acknowledgements

Citations to Newfoundland archival material are available from the author, who is grateful to Philip Hiscock, archivist of the Folklore and Language Archive, Memorial University, for permission to quote from the archives general information on medicinal uses, with special reference to the Appalachians. An extensive bibliography can be obtained from Crellin, J. K. and J. Philpott. *Herbal Medicine Past and Present*, Durham, Duke University Press, 1990, 2 vols.

Late Flowering Plants

by Dr. Michael Collins

While most people tend to think that the flowering season for native wildflowers is over in September, I am one of those optimists who still looks for plants in flower in October and November, and yes, even in December, if the fall weather has been fairly mild. As long as I can find plants in flower, I can continue to deny the fact that winter has actually taken hold of the landscape for yet another year.



yarrow
(*Achillea millefolium*)

Most of the fall flowering plants are species which first began to flower in summer, some as early as the first week of June. As fall gets underway in September, few new species will come into flower, but there are in excess of 30 local species at this time of year. Some of these are commonly found in flower throughout September while the weather is mild, but do not usually last into October. It may be surprising to learn that almost 50 species can still be found flowering during October, but it is only the hardier species which can last into November, or can survive the early snows of December.

The following table lists, by flower colour, those species which I have found flowering into October or later in the St. John's area. This is not meant to be a complete list, but is taken from my records for the last five years.

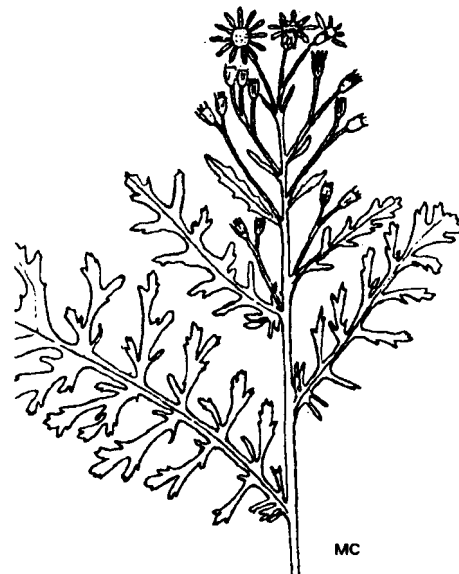
Species:	October	November	December
BLUE			
Chicory (<i>Cichorium intybus</i>)	+	-	-
Forget-me-not (<i>Myosotis spp.</i>)	+	-	-
Speedwell (<i>Veronica spp.</i>)	+	-	-
ORANGE			
Orange hawkweed (<i>Hieracium aurantiacum</i>)	+	-	-
PINK			
Alsike clover (<i>Trifolium hybridum</i>)	+	-	-
Hemp nettle (<i>Galeopsis tetrahit</i>)	+	-	-
Northern willow-herb (<i>Epilobium glandulosum</i>)	+	-	-
Rough hedge-nettle (<i>Stachys tenuifolia</i>)	+	-	-
PURPLE			
Blue toadflax (<i>Linaria canadensis</i>)	+	+	-
Bog aster (<i>Aster nemoralis</i>)	+	-	-
Canada thistle (<i>Cirsium arvense</i>)	+	+	-
Cow vetch (<i>Vicia cracca</i>)	+	+	-
Hardheads			
or black knapweed (<i>Centaurea nigra</i>)	+	+	-
Joe-pye weed (<i>Eupatorium maculatum</i>)	+	-	-
New York aster (<i>Aster novae-belgii</i>)	+	-	-
Purple-stemmed aster (<i>Aster puniceus</i>)	+	+	-
Red clover (<i>Trifolium pratense</i>)	+	+	+
Spearmint (<i>Mentha spicata</i>)	+	-	-
WHITE			
Arrow-leaved tearthumb (<i>Polygonum sagittatum</i>)	+	-	-
Crackerberry or bunchberry (<i>Cornus canadensis</i>)	+	-	-
Eyebright (<i>Euphrasia americana</i>)	+	+	+
Gall-of-the-earth (<i>Prenanthes trifoliata</i>)	+	-	-
Meadowsweet (<i>Spiraea latifolia</i>)	+	-	-
Ox-eye daisy (<i>Chrysanthemum leucanthemum</i>)	+	+	-
Pearly everlasting (<i>Anaphalis margaritacea</i>)	+	+	+
Scentless chamomile (<i>Matricaria maritima</i>)	+	+	+
White clover (<i>Trifolium repens</i>)	+	+	-
Yarrow (<i>Achillea millefolium</i>)	+	+	+
+ found during this month; - absent during this month			

Species:	October	November	December
YELLOW			
Beggar-ticks or sticktight (<i>Bidens frondosa</i>)	+	+	-
Butter-and-eggs or yellow toadflax (<i>Linaria vulgaris</i>)	+	+	-
Canada hawkweed (<i>Hieracium canadense</i>)	+	+	-
Canada goldenrod (<i>Solidago canadensis</i>)	+	+	-
Canadian burnet (<i>Sanguisorba canadensis</i>)	+	-	-
Common groundsel (<i>Senecio vulgaris</i>)	+	-	-
Common or tansy ragwort (<i>Senecio jacobaea</i>)	+	+	+
Common St. Johnswort (<i>Hypericum perforatum</i>)	+	+	-
Creeping buttercup (<i>Ranunculus repens</i>)	+	+	-
Fall dandelion (<i>Leontodon autumnalis</i>)	+	+	+
Hop clover (<i>Trifolium agrarium</i>)	+	-	-
Lance-leaved goldenrod (<i>Solidago graminifolia</i>)	+	-	-
Mouse-ear chickweed (<i>Cerastium vulgatum</i>)	+	-	-
Mouse-ear hawkweed (<i>Hieracium pilosella</i>)	+	-	-
Pineapple-weed (<i>Matricaria matricarioides</i>)	+	+	+
Spearwort (<i>Ranunculus flammula</i>)	+	-	-
Stinking groundel (<i>Senecio viscosus</i>)	+	-	-
Tall or common buttercup (<i>Ranunculus acris</i>)	+	+	-

+ found during this month; - absent during this month



scentless chamomile
(*Matricaria maritima*)



common ragwort
(*Senecio jacobaea*)

Only a few of these species, however, are hardy enough to endure the first frosts and light snowfalls of November, and have been found in flower as late as early December. These are listed below, together with the latest date observed in parentheses.

- | | |
|-----------------------------|-------------------------|
| Common ragwort (Dec. 1) | Fall dandelion (Dec. 1) |
| Pearly everlasting (Dec. 1) | Red clover (Dec. 1) |
| Yarrow (Dec. 1) | Pineapple-weed (Dec. 9) |
| Scentless chamomile (Dec.9) | |

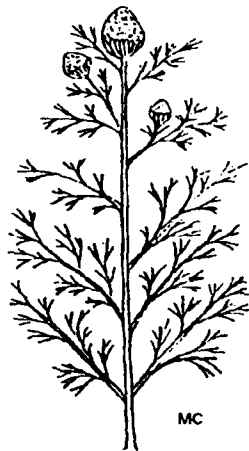
On rare occasions some plants growing in comparatively sheltered locations which usually flower in spring are "fooled" by a number of sunny, warm days into "thinking" its spring and flowering! Several years ago I came across several common dandelions in flower as well as yellow rocket and northern field violet all in flower on Nagle's Hill in early December. This last year (1991) I did manage to find the following five species flowering on December 1, on Nagle's Hill.

- | | | |
|---------------------------|----------------------|----------------|
| Common ragwort | Eyebright | Fall dandelion |
| Pineapple-weed | Scentless chamomile | |

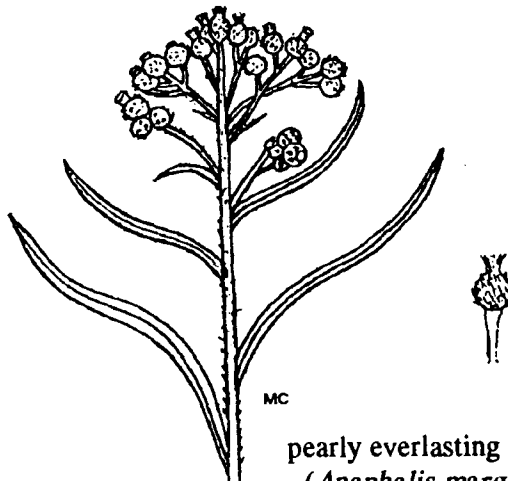
The last four of these were no surprise since I had seen them all in flower this late previously, but the diminutive eyebright was a surprise. Later that same day, the comparatively sheltered Rennies River trail also revealed the last four in flower there, as well as yarrow and red clover, two other species which can last into late fall. I did not find pearly everlasting on this occasion although I have done so in previous years.

In conclusion, therefore, if you, like me, refuse to accept winter's arrival while there is still a single plant in flower, look in sheltered locations for the following species:

- | | | |
|----------------|----------------|---------------------|
| Common ragwort | Fall dandelion | Pearly everlasting |
| Pineapple-weed | Red clover | Scentless chamomile |
| Yarrow | | |



pineapple-weed
(*Matricaria matricarioides*)



pearly everlasting
(*Anaphalis margaritacea*)