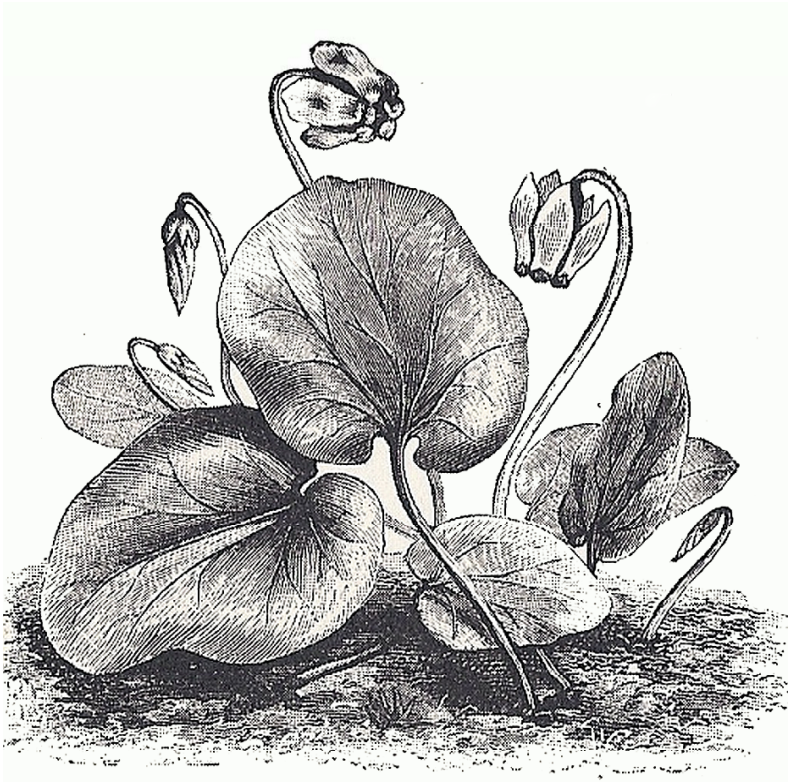
Alpine Garden Club of British Columbia



Vol.52 No.1 Bulletin WINTER 2009

Web Address: www.agc-bc.ca

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Meetings are held the second Wednesday of each month except July & August, in the Floral Hall, VanDusen Botanical Garden. Doors and Library open at 7:00pm and Meetings start at 7:30pm sharp with the educational talk. Don't forget to bring a prize for the raffle which goes a long way to paying for the hall rental.

Front Cover: *Cyclamen coum ~ artist unknown* "The Plant Kingdom Compendium"

PROGRAM:

March 15th Linda and Nico Verbeek: *Dicots of the Cape Province, South Africa.*

April 08: Monthly meeting. Speaker Jens Neilsen: Rhododendrons.

APRIL 15. EXTRAORDINARY MEETING. Josef Halda will speak to us in conjunction with the Hardy Plant group. Venue to be announced. There will be a small fee (less than $10)

Open Gardens: April 18: 1 - 4 pm. Linda Verbeek
Dana Cromie is yet to confirm but may do this day too
May 23: 11 am- 4 pm Wilhelm and Karla Bischoff
Sue & Chris Klapwijk, Philip MacDougall

PROPOSED AFFILIATION WITH NARGS - BALLOT

The motion that the AGCBC should affiliate with NARGS was defeated at the AGM in November. The votes cast at the meeting were: 35 against, 22 in favour. The results of the (non-binding) mail-in ballots were: 62 against, 13 in favour. We wish to thank especially all those out-of-town members who care enough about our Club to send in their ballots. *~ Linda Verbeek.*

NOTE FROM THE PRODUCTION EDITOR**:** For five years Sue Evanetz and I have produced a Bulletin which we hope has contained articles and photos of interest to the members. It is now time for new blood to bring new ideas and enthusiasm to the task. Sue has done a really excellent job of chasing and cajoling articles from a very wide variety of contributors and I have greatly enjoyed researching photos and drawings, getting permission to use them and doing the layout for each issue. I would also like to thank Ian Gillam and others for spending many hours with me to stuff and mail the envelopes.

Amanda Offers has very kindly agreed to handle the production side, but a new Editor is still needed. Please contact Linda Verbeek if you are interested.

Due to the ongoing need to cut costs and the Club's wish to go green, it has been the decision of the Executive that this is the last bulletin to have colour printing. In future, if you wish a colour version of the bulletin, it will be available by email. Those who are able are asked to provide us with an email address where we can send your bulletin. Black and white versions will still be available by mail.

Thanks to everyone who has helped out over the past five years.

~ Moya Drummond

HOW I BECAME AN INSTANT EXPERT: *Tropaeolum azureum*
~ by Ian Gillam, Vancouver

Members are encouraged to send in to the Seed Exchange even small amounts of seeds that are rare and desirable in the hope that if several donors do so there may be enough to fill a number of requests. (As the Seed Director does not have time to open and examine packets before making up the published seed list it's essential to let her or him know if only a few seeds have been sent.) Such seeds usually attract many requests and to avoid disappointing numerous members the policy is not to list seeds when only two or three packets are available. Such valued seeds make an important contribution to the Seed Exchange. They are usually passed around during the lunchtime break at packaging sessions, an incentive and reward for workers with the hope that dedicated growers may succeed in raising plants to provide more seeds for future years.

In 2007 I received in this way from an unnamed donor one of two packets of seed of *Tropaeolum azureum*, the famed blue-flowered climbing plant from the Andes and one I had never seen. The three seeds provided were like black bird-shot and I sowed them immediately (early December) in a mix combining soil-based and soil-less media, placing the pot on a north-facing windowsill, warmer than in my unheated greenhouse but still cool. Almost a month later two very thin, black stems appeared, looking like upright horsehairs. As these elongated they slowly developed small five-fingered leaves and I needed to install a tripod of split canes to support them. By late February the shoots were about 50 cm tall and now supported themselves with petioles of the leaves twisting around the canes and the pot appeared too small. The extremely slender stems and the unwieldy supports made tipping out the plants hazardous to their wellbeing. Instead I carefully and tediously cut out the base of the plastic pot and inserted the whole into a larger and deeper one. This was then moved to a brighter south-facing window, though still quite cool.

Like other perennial tropaeolums *T. azureum* has tuberous roots and I anticipated the tuber would develop in the first season and with luck produce blooms the following year. However, by the end of February tiny flower buds were apparent in the leaf axils, many of them. They developed slowly with the lengthening days and by early April the plants were already to the top of the supports and a few flowers were open on the lower parts. Flowers were smaller than expected, only about a centimeter across, deep blue with a white throat. (One sees now why the name of the common nasturtium of gardens translates as the Greater Tropaeolum.) Their colour, closer to violet than to azure that I take to be sky blue, and the spur behind each flower, were reminiscent of violets.

When our Spring Show came around in mid-April the plants were in good flower along the stems. Wanting others to see a notable plant that

was new to me I entered them in the class for “Rock garden plant from South America”, one where ribbons are often to be won as there are seldom many (even any) entries. As support I also entered a pot of Ipheion. As it turned out there were no other entries so prospects for two ribbons were good. When the Show opened after judging I was surprised to see my choice tropaeolums missing. They had in fact been moved at the judges’ request to the august class called “Expert Growers” for plants rare or difficult in cultivation, a class I had never dared to enter. Furthermore they had been awarded First (and the trophy) over a beautifully grown specimen of *Pteridophyllum racemosum*. Rumours that when the judges came across the plants the Show Secretaries had been required to apply smelling salts and loosen corsets (not only for the female judges) have proven difficult to substantiate!

Tropaeolum azureum is deservedly famed as one of the many floral jewels of the Andes. In our climate it is unsuited to outdoor cultivation but I found that it seems to be an easy windowsill plant. Basically it grew as a winter annual, flowering within four months. After flowering the stems quickly shrivelled and the whole went dormant. I thought that perhaps its reputation for difficulty was based upon the problem of getting the tubers to grow again in subsequent seasons, as some have found. I kept the plants on a south-facing windowsill all summer with only minimal watering. (Plastic pots don’t lose much water when no growth is occurring.) I did tip out the contents and found two white, peanut-like tubers that I replaced. By November 1st one black hair appeared above ground and others followed. A month later several shoots have reached almost 30 cm. and the leaves are unfurling so I look forward to flowers again, perhaps in time for the Show, though I don’t anticipate defending the unexpected trophy.

I did attempt to pollinate the flowers with a paintbrush, inserting the tip into flowers on alternate plants, but failed to produce any seeds. Were the plants too young and will I do better this coming year or do they require warmer and sunnier weather? Seeds are available from several commercial sources and it’s a plant that is rewarding to grow in this way. I think I was fortunate in being able to sow the seeds at what seems to be the right time for growth to begin. I can see that the extremely slender shoots are likely to be very susceptible to damage by slugs, snails, cutworms and sowbugs, so windowsill growing offers advantages over all but the best regulated alpine houses. Given more space to sprawl, bigger plants could be spectacular. (But I wish they had just slightly larger flowers. Do such forms exist?)

HELLENIC ROYALS

~ by Ian Gillam, Vancouver

2008 seed list Item 547: *Aquilegia ottonis ssp. amaliae*. Blue-and-white flowers; Greece.

In the earlier 19th century a spirit of nationalism led Greeks to take up arms in a struggle to free themselves from the rule of Ottoman Turkey. This led to an independent Greece, recognized by Britain, France and Russia in 1830. These powers installed the 17-year old Bavarian Prince Otto as the first king of modern Greece. He was initially absolute ruler of a country without a constitution and Greeks were to prove difficult subjects.

In 1836 Otto married Amalia of Oldenburg, daughter of the Grand Duke of that German principality, who became Queen of Greece. While influential in introducing some innovations (such as gardens) their rule was quite turbulent and 1861 an unsuccessful attempt was made to assassinate the Queen. While visiting the Peloponnese the following year a revolt in Athens deposed the couple. The European powers that had sponsored the kingdom declined to support them and they retired to exile in German lands. They are reported to have made a practice of speaking Greek for a couple of hours each evening. The aquilegia commemorates both king and queen.

Other Greek plants named for the queen include *Acer hyrcanum ssp. regina-amelia, Sempervivum reginae-ameliae and Abies cephalonica ssp. reginae-amaliae.*

Seed list Item 814: *Galanthus reginae-olgae*. Featured as "A Fall Flowering Snowdrop", Bulletin 51#4,75-76 (2008). (Current taxonomic opinion considers this a subspecies of *G. nivalis* differing principally in its flowering period. The shorter form fits our printed labels.)

King Otto and Queen Amalia produced no heirs and the foreign powers felt that Greece again required a king. They appointed a 17-year old Danish prince, George, to the position in 1863. The new king visited Russia to thank Tsar Alexander II for his support. While there he met for the first time the Tsar's 12-year old niece, Olga Constantinovna.

George's sister, Princess Dagmar, married the Tsarevitch Alexander and George returned to Russia to visit her in 1867. George and Olga, now 16 years old, were married that year with Olga becoming Queen of Greece. As well as producing eight children (among them the father of Prince Philip, Duke of Edinburgh) the queen was active in good works, founding the principal hospital in Athens. King George was assassinated in 1913 and was succeeded by their son, Constantine. Queen Olga died in 1926.

BURIED TREASURE: GEOPHYTES OF NIEUWOUDTVILLE, SOUTH AFRICA
~ by Jackie Chambers, Horticulturist, University of British Columbia Botanical Garden

The small village of Nieuwoudtville (350 km northeast of Cape Town) may seem an unlikely holiday destination to some. Founded in 1897 and named after H. C. Nieuwoudt, the man who supplied the land, this farm town in the north western corner of South Africa has remained unchanged for generations. Uneven roads still lead in and out of the place and the centre of town is marked by an old church and four-way-stop. But I will let you in on a little secret; there is some spectacular buried treasure here!

Central Nieuwoudtville

Nieuwoudtville (and the surrounding Bokkeveld plateau) is home to an incredible variety of spring flowering annuals and geophytes. Within an area roughly seventy-five by one hundred kilometers there are over 1350 different plant species recorded, and 80 of these are endemic species. This means that an amazing 6% of the flora found in this small strip of land is found nowhere else in the world!

The area is semi-arid and straddles the edges of the Cape Floral Region and the Succulent Karroo. Both of these regions are biodiversity hotspots so it is not surprising that this area presents such high diversity. What is interesting is that an astonishing 40% of the flora in the area consists of geophytes. These are plants that spend part of their life cycle as underground structures - bulbs, corms, rhizomes, or tubers. There are claims that one spade full of soil in this area can contain as many as 100 bulbs and corms! This incredible density and high diversity of bulbs has earned Nieuwoudtville the title of 'Bulb Capital of the World'.

There are a number of factors that have combined to yield the amazing diversity of geophytes in this area - terrain, geology, weather patterns and wildlife have all contributed.

The mixed terrain is the first factor, the area is mainly rolling plain, and low rocky hills. However, at the western edge of the Bokkeveld Plateau region, there is an escarpment that rises straight up from the flat plains of Namaqualand below. The escarpment reaches a height of 800 m over the space of a few kilometers. At the eastern edge of the plateau are the Hantamsberg Mountains which can reach 1500 m and often have snow cover in the winter. With all the change in terrain, there are a number of ecological niches in a small space.

Driving up the Escarpment – flat plains of Namaqualand below

Geology also plays a key role in the species diversity. In their field guide to the region, Manning & Goldblatt (2007), compare the geology of the area to a gigantic sandwich that tilts downwards and to the east. When you pass through the escarpment the 'sandwich' is visible and you see the layers: at the bottom Ecca shale beds, a thin layer of hard Table Mountain Sandstone, a layer of Dwyka glacial till, and Karoo dolerite, an igneous rock deposited when lava erupted and deposited across the African landscape in the Jurassic period. Over time, erosion has weathered away at these rocks producing a range of soils with different acidity and with different water and nutrient retention. As a result the distribution of certain geophytes is restricted to specific niches while others have flourished in a range of soil types.

Wildlife has also played a role in the diversity. Centuries ago, the plateau was home to large herds of grazing animals, zebra, wildebeest and springbok. The name Bokkeveld (Antelope Plateau) is a reference to the grazing animals that once lived here. Consistent grazing reduced the size and number of shrubs, kept areas open, and provided space, light and water for smaller bulbs and annuals. Digging animals, such as porcupines and Guinea fowl dug for geophytes. Some were shattered by repeated digging, encouraging the growth of more geophytes.

When European settlers arrived in 1700's, the wild animals were eventually replaced by sheep & cattle. Farming has influenced the biodiversity of this area; much of the vast open space has been cultivated. Remaining areas are threatened by agriculture and development. The Conservation Farming Project coordinated by SANBI

(South African National Biodiversity Institute) has been looking at farming practice and conservation in the area, trying to balance the needs of people, animals and plants.

Weather patterns which include hot dry summers with low precipitation and cold winters with rainfall up to 350 mm have a strong influence on the development of plant life. Plants have adapted to winter rains and hot dry summers resulting in many spring flowering plants. The life cycle begins after the winter rains and finishes before the hottest part of the year when geophytes lie dormant until the next season. This means that the best display is in August and September - just after the winter rains when the weather warms up and most annuals, geophytes and succulents are in bloom.

Glenlyon Farm

Just outside the small village of Nieuwoudtville is the Glenlyon Farm & Flower Reserve. This reserve was originally a private farm which was sold to SANBI in 2007, and has now become the Hantam National Botanical Garden.

Currently the garden comprises an area of 6200 ha, at 730 m above sea level, showcasing bulbs and natural patches of succulent Karoo vegetation and Renosterveld fynbos.

Figure 1: Hantam National Botanical Garden - Bulbinella sp. seed heads in foreground, old Glenlyon Farm in distance

At first glance, Nieuwoudtville and the Old Glenlyon Farm seem an unlikely holiday destination. However, like the geophytes lying underground, this small village and old farmland yield the most stunning collection of wildflowers. If you visit in the Spring, you will witness the revelation of their spectacular buried treasure!

Lachenalia elegans

Babiana framesii

Lachenalia sp.

Geissorhiza splendidissimac
'Blue Pride of Nieuwoudtville' one of the many endemic species to the region.

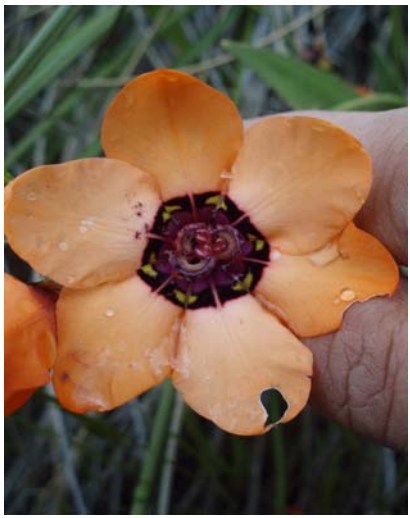
Drimia multiflora – one of many lovely geophytes found here

Moraea tripetala can reach 20-45 cm in height, and is widespread across much of South Africa. It can be found on sandstone or clay soils along the West Coast and Southern Cape

Wurmbea variabilis – avoided being dug up by porcupines because it lay deep in the rocky layer.

Ornithogalum secundum – shows a different adaptation to the weather. The leaves hug the ground holding on to the available moisture in a small area which allows this plant to flower later in the season. The leaves wither away as the flower stalk is produced in October and November.

Wachendorfia paniculata



Sparaxis elegans

Bulbine sp.

Useful Websites

For more about this fascinating place (and to start planning your own trip)
http://www.nieuwoudtville.com/
SANBI Website www.sanbi.org
Hantam National Botanical Garden Website
http://www.sanbi.org/hantam/mainpage.htm
Conservation Farming Project South Africa
http://www.sanbi.org/consfarm/cfindex.htm

ALPINE PLANTS: ADAPTING TO A HARSH ENVIRONMENT
~ by Vernon (Bert) Brink, UBC Dept. Land & Food Systems[1]

An alpine meadow rambler may or not be a skier or a mountaineer but just someone with affection for the freedom and beauty of the mountains. A rambler may first scan a meadow with a conventional eye to choose a campsite and then, in a poetic mode, feel the joy of just being there. Another scrutiny may lead to the recognition and the naming of rock, flower and animal. A botanist may have a third view of the meadow, scanning for the ways plants adapt to the meadow's everchanging soils, climate and weather, to its animals and to its geology. Life is 'on the edge' in the alpine environment. For plants the season for growth is very brief and the temperature at which they can harvest the sun's radiant energy low. Driven by bitter winds, snow crystals abrade foliage and cold soils make water and nutrient uptake slow. Alpine soils too are much disturbed by frost-and-thaw cycling (cryoturbation), making them hostile to vascular plant rooting and seedling establishment.

Yet alpine plants do establish and grow. Some of the adaptations or ways by which they adapt are observable to the ramblers of alpine meadows in British Columbia. Moreover some of the adaptations are testable by experimentation.

Plants Without Roots

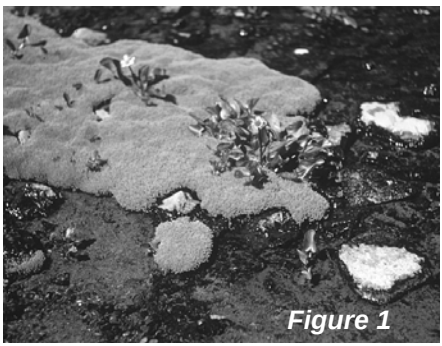


Figure 1

Mosses and lichens have no roots and are very important components of arctic and alpine floras. In some areas of alpine meadows there is so much soil disturbance that vascular plants cannot root: for example, where during the night needle ice lifts soil and turf, but thaws by day, gradually moving soil down the slope. On such sites moss cushions and lichens are moved up and down, sometimes re-establishing from fragments and reproducing vegetatively. When they stabilize, as ruderals or pioneers they accommodate vascular plants in their cushions or on their margins *(Figure 1).*

[1] *Bert Brink, former chairman of UBC's Plant Sciences department, received the B.C. Lieutenant-Governor's Conservation Award for his contributions to protecting the province's natural environment. He was also awarded the Order of Canada and Order of British Columbia. He died December 2, 2007.*

Figure 2

Vegetative (Clonal, Asexual) Reproduction

Annual plants must complete their life cycle from seed to seed in a single season and are absent from the alplands. A few may be found as adventives around human habitations, such as ski resorts, perhaps *Capsella bursa-pastoris* (shepherd's purse) or *Thlaspi arvense* (pennycress). The alpine flora of BC is unquestionably perennial. It is well known that sexual reproduction (by seed) is energy expensive and wasteful with far more pollen and seed produced than is ever used. It is therefore not surprising that asexual reproduction (fission) by alpine plants is common. The "why" of sexuality remains, it may be noted parenthetically, as one of the unsolved mysteries of biological science, but it is known that in "difficult" environments many vascular plants reproduce more asexually than sexually.

The kinds of asexual reproduction vary from species to species in alpines - by layering, by bulb or corm, by rhizome or stolons, by fragmentation of turf or by apomixis (the several ways seed is produced asexually without pollination.). In deep snowpack regions, some conifers reproduce by layering, a good example is *Abies lasiocarpa* (alpine fir) *(Figure 2).* Apparently in the light snowpack areas conifers such as *Larix lyallii* (Lyall's larch) do not layer, nor apparently does *Pinus flexilis* (limber pine). *Erythronium montanum* (avalanche lily) *(Figure 3),* which produces bulblets, and *Claytonia lanceolata* (spring beauty), which forms corms, are two examples of species reproducing asexually underground.

Alpine turf is readily broken by frost heaving, snow creep and by avalanche; broken parts move and reroot. Notably along the margins of tarns and rivulets, ice forming and thawing produces clumps of turf, which extend shores and make bridges over rivulets.

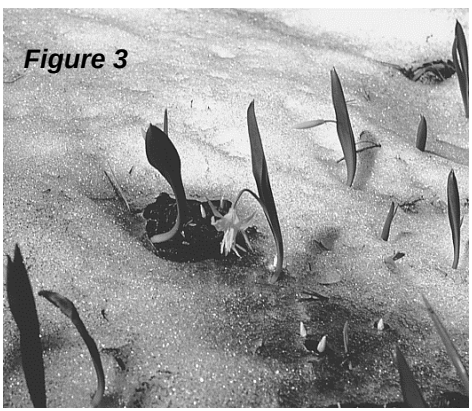


Figure 3

Adding Days to the Growing Season

Alpines lengthen their growth period in several ways. One well studied way is that, by using cyanic respiration, some species heat up and make cavities under snowpacks. As snowpacks melt the snow

becomes translucent and light penetrates to the soil surface, species such as avalanche lily *(Figure 3)* may break dormancy. The heat generated by the penetrating light warms the cavities by several degrees enabling foliage and flowers to start functioning. Other species act in quite a different manner. *Saxifraga tolmiei* (Tolmie's saxifrage), for example, stores nutrients and may survive under snow patches that do not melt away every year. There are occasional years when the saxifrage may not "see" direct sunlight.

Adapting to Creep Downslope of Deep Snowpacks

By midwinter, snow packs on the western slopes of the Coast and Columbian Mountains of BC are heavy and deep and on slopes begin a slow creep. Often too, at the bottom of deep packs an ice layer forms, which plucks at plant and soil, causing breaks in the substrate. Breaks usually occur in the soil profile where the upper rooting organic "A" horizon or layer meets the mineral "B" horizon. One result of this separation may be that some meadows include areas that are bare of vegetation, hummocks and terracettes. *Cassiope* spp. and *Phyllodoce* spp. (heaths) and some other species have firm slippery foliage over which snow packs slide.

In regions of the Coast and Columbian Mountains, which are under the influence of marine wet climates, soils may not freeze or may only freeze lightly in autumn and winter. However, in the Rockies, where the climate is more continental, soils may freeze before an insulating snow cover develops. Where the mountain climate is more oceanic, some species take advantage of the cool autumn to continue to produce seed, some of which may be viable.

Exploiting the Climate near the Ground


Figure 4a

If we define "alpine" as land above the treeline, it is useful to recognize three sub-zones: a lower alpine near the trees, a mid alpine with no trees nearby, and an alpine of high rock fields (fellfields) and lichens. Cushion and rosettes of forbs and graminoids of the mid-alplands are genetically short in stature. Species growing close to the forest fringe may be taller; close to the treeline, for example, *Veratrum viride* (false hellebore) may grow to more than a meter. In the mid-alpine, especially on sunny days, a layer of air close to ground, 1-2 cm thick may heat to temperatures well above those in the air aloft. Air movement in this boundary layer is reduced by friction so

that a "greenhouse" air layer develops. The temperature difference between that of the boundary layer and ambient air may be several degrees. Also the form of the foliage of a particular species may add to the greenhouse effect. For example, *Saxifraga oppositifolia*, well known in the alpine and arctic, has packed imbricate leaves; on one occasion a Danish botanist, Wolff by name, found its foliage temperature to be +3.5°C when ambient air temperature was -12.0°C, presumably in a Stevenson type screen (a standard housing for meteorological thermometers). In the boundary layer the form of flowers may have an influence on temperature; open cup-like flowers, like those of *Ranunculus* spp. (alpine buttercups), may "sequester" heat, warming pollinating insects into activity. It may be noted also that rain splash on flowers close to the ground may effect pollination. These buttercups again are examples of the several species that flower close to the ground with cup-like flowers. Some species, such as *Anemone drummondii*, flower close to the ground, but lengthen shoots as seed dispersal time comes *(Figures 4a, b).*


Figure 4b

Adapting to Meadow Terrain

Meadow surfaces are uneven; there are hummocks and hollows, rivulets and tarns; there are layer features, ridges and swales, and hillocks. An observant rambler may see patterns: lineaments, stone streams, terracettes, areas disturbed by animals, by frost, or by wind. Alpine plants take advantage of such features to establish, grow and reproduce.

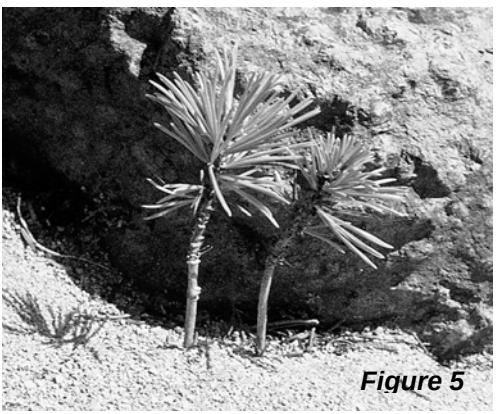


Figure 5

Many different species establish in the lee of boulders *(Figure 5).* Boulders and large rocks move downslope more slowly than smaller particles and the soil in the lee is usually more stable than the open meadow soil, where texture is fine and stone free or sparse. The

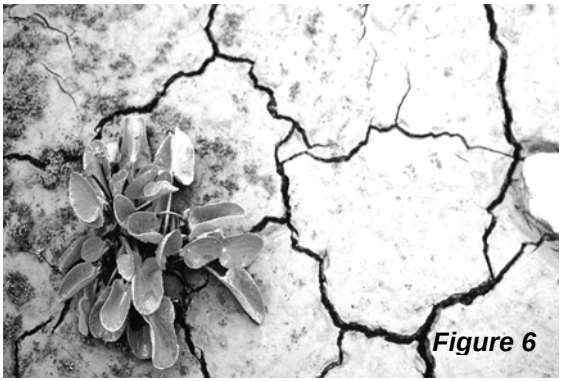


Figure 6

microclimate in the lee of boulders too, may be slightly more favourable for plants and a measure of physical protection may be offered, protection from trampling by animals and from violent winds. Some species, notably small seeded graminoids, may germinate in the cracks of soil polygons that form during the dry, hot days of summer on outwash flats in the front of glaciers and snowpatches. *(Figure 6).*

Glaciers have left a trail of ridges, valleys, and lineaments in the downslope direction of the moving ice. From the ridges and hillocks in winter snow blew away and accumulated in swales and valleys. Thinner snowpacks on ridges result, which melt earlier and provide a longer growing season. Trees and other woody plants with dark green foliage take advantage, establish and grow. Bright green forbs and grass and areas without vegetation share the terrain of valley and swale.

Mutualism and Symbionts

Some mutualisms are very noticeable on alpine meadows. Mosses and lichens are pioneers in many habitats and their cushions provide cover for seedlings of vascular plants, which could not otherwise establish on unstable open soil or water. Old dead cushions of *Silene acaulis* (moss campion) may provide favourable sites for forbs and grasses. Alpine soils are commonly very deficient in available nitrogen. On deep soils large seeded legumes, especially lupines, well nodulated with nitrogen fixing *Rhizobia*, form pure stands and on some wetlands nitrogen fixing blue-green algae occur.

Adaptations and Animal Activity

A distinct ecology develops in areas affected by animal activity. Bears and burrowing rodents churn up meadow soils mixing plant materials, faeces and mineral soil. Seeds and other propagules are covered and establishment favoured. Along rivulets, voles may undermine marginal turf apparently encouraging the establishment of wetland graminoids and forbs. Birds must be responsible for transport of aquatics, such as *Potamogeton* spp. (pondweeds) to alpine tarns.

Adapting to Alpine Organic Soils

Decomposition of plant debris in alpine and arctic soils is low; hence nutrient cycling is also slow. Alpine organic turf tends to be acidic, high in fixed nitrogen that is largely unavailable to plants, and oligotrophic. The

turf tends to be dense, cold, and slow in transferring heat. Some forbs, for example, *Hieracium gracile* (alpine hawkweed) establish and compete.

Conclusion

I have described a few of the ways by which plants adapt to the alpine environment in British Columbia and the adjacent Yukon and Alberta. There are surely many others. Observations such as the ones recorded in this article, might be regarded as a prelude to evolutionary studies of arctic and alpine floras but also provide background for plant community studies of larger alpine North American Cordillera. There is a deficiency of comparative ecology, between the alpine flora of our region and similar floras of the United States, the Yukon Territory and Alaska. There is a major opportunity for a latitudinal comparison of the floristics of Coast Mountains and Rockies. Our part of the Cordillera was heavily glaciated. Most of our flora is therefore recent, most not more than ten or twenty thousand years old. Such studies provide opportunities to gain some appreciation about the dynamics of postglacial migration.

~ Reprinted by kind permission of the Davidsonia, UBC Botanical Garden.

Brink, V. 2005. *Alpine Plants: Adapting to a Harsh Environment.* Davidsonia. 16(3):95-105

IN MEMORIAM – JAMES McPHAIL
~ by Barbara Cook

James, a true Canadian, was born in Cadomin, Alberta, attended King George High School, Vancouver, served as a signal officer for five years in the Canadian Navy, then for some twenty-five years was Curator of the Alpine Garden at the University of British Columbia, until his retirement.

The 'flower-thing' began in 1963-64, when James's mother Iva Angerman, demanded that he and Bob Woodward weed the rock garden that she and Don had created, as Don was ill. Iva cleverly gave them rare plants for their own garden, cleverly suggested that they enter some in the show, where they won prizes, then even more cleverly asked to be taken to the mountains where the wild plants flowered. The first sight of *Calypso bulbosa* and Cypripediums sealed their horticultural fate. The Rockies, California to Peru and all mountains in between saw them scrambling to photograph and to collect seed.

As a member of the Alpine Garden Society of B. C. James instigated:
The Western Plant Study Weekends,
The Club Seed Exchange,
The Study Group,


May 1980

With Roy Davidson, James as co-chair introduced in 1976, a five-yearly International Interim Alpine Conference. The first of these events was a week-long venture, beginning in Seattle, then on up to Vancouver. James undertook world-wide seed collecting trips including two major ones to Turkey. The first of these with John Watson produced this succinct, perceptive and endearing thumbnail sketch. John Watson writes:

"The most delightedly laid back companion, James was a joy to work with. His amused, modulated Canadian drawl never rose in volume or pitch. Nothing phased or panicked him; that alarming fall on the steep, upper Tayran snowdrift; minor road accidents; mountain Kurds discharging shotguns at us; veterinary sized antbiotic shots in the backside; all passed with a wry grin and uncomplaining shrug. I well recall James's amiable, rounded face and wickedly glinting horn-rimmed specs, as some irreverent observation quietly filtered through his beard provoking a half-hidden dimpled smile."

Out of these expeditions many new plants were introduced, with probably the best being *Lamium armenum* and *Gypsophila bricquettiana*, both of which still flourish in James' garden. The University of British Columbia Botanical Garden Seed Exchange followed.

James became editor of our A.G.C. Bulletin, writing articles for it and also for the U.K. and U.S. Bulletins. He wrote for many horticultural magazines and reviews of horticultural books, richly illustrated with his photographs. He became a recipient of the North American Rock Garden Society Award of Merit.

James and his partner of 50 years, Bob Woodward, created three personal gardens with their greatest and always on-going endeavour, the mountainside one in West Vancouver. Now, in that garden, was in fact James's favourite activity the perfect placement of rocks? Some behemoth sized, were heaved, levered and rolled with Heath Robinson ingenuity over many days, until the site and seating seemed perfection. With his deep perception, James saw the garden, the plants and flowers {their form} through eyes attuned to the beauty of all the Great Arts.

With his extraordinary technical skills, he turned to perfecting Iva's hearing aids and installing television with ever more brilliant reception, then on to the making of enchanting small videos, on his many computers.

When invited to our garden, forget socializing! James was head down meticulously photographing every flower, leaf and bud, not forgetting the bees and wasps. So we list: Garden, Travel, the Arts and Photography, with probably the latter the greatest of his current passions. O, a discriminating critic was he and master of pithy, never unkind, one-liners.

James MacPhail, a generous man, contributed beyond the norm and thus can never be forgotten. When spring sings in, when mountains beckon, when music and paintings and dance move us, James will be in our mind.

Participating in a workshop at the University of British Columbia Alpine Garden - 1983

Touring the developing Alpine Garden at the University of British Columbia Botanical Garden The First Interim International Rock Garden Plant Conference - 1976