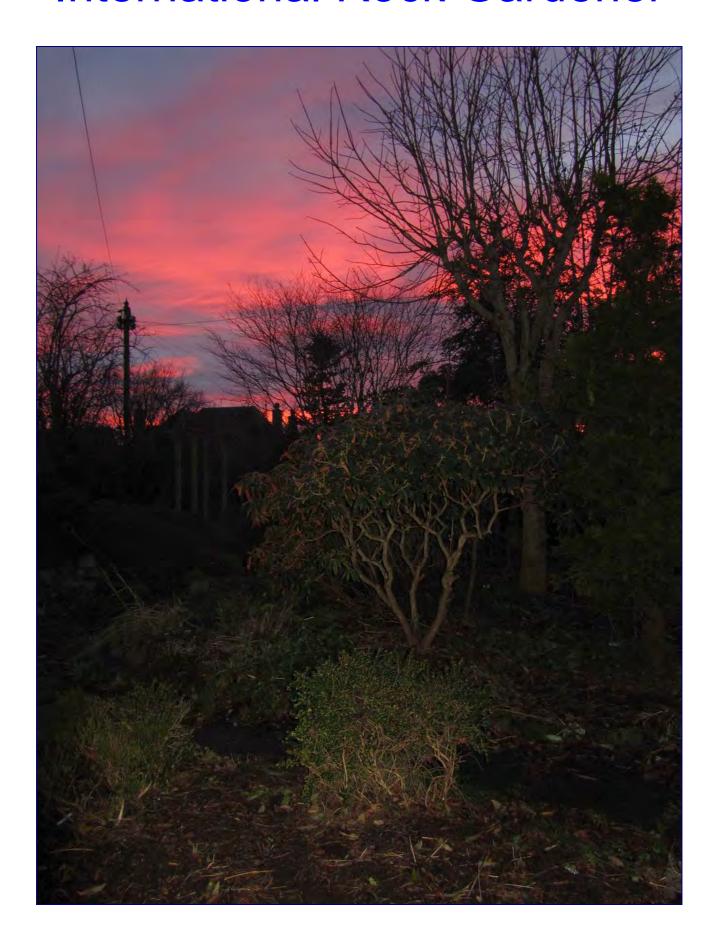
International Rock Gardener



January 2012



We begin the year with some "perennial favourites": plants with lasting attraction. The late Harold Esslemont was one of the most experienced growers and exhibitors in the SRGC over a great many years and the following article was adapted from The Rock Garden journal of 1969 to showcase some plants that are as popular today as they were over forty years ago.

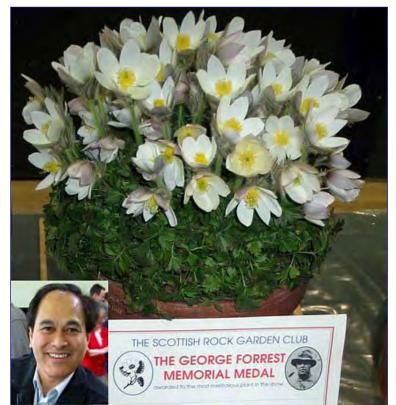
The last cover of 2011 was of a wintry scene in the Scottish Garden of two of the IRG team so we thought we'd share this January sunset for the start of 2012. In his weekly Bulb Log Diary, now in its tenth year, Ian shares his method of taking such photos. Cover picture: January Sunset, Aberdeen. J. Ian Young

---Mountains in the Garden---

My Twelve Favourite Alpines by the late Harold Esslemont M.B.E. (adapted by M.Y.)

It was the final meeting of the season of the local group. A postcard announced that two* members had been invited to show and discuss slides of their twelve favourite alpines. It appeared that I was to be one of the speakers. I forget who told me that his list of twelve favourite alpines ran to at least twenty, but I was soon to learn how right he was. My brief was twelve plants, no more, and a decision, however difficult, had to be made. The compiling of such a list is influenced by so many factors that the result may be expected to vary widely among individuals. I believe I can at least claim that my dozen plants will give pleasure; all of them have been grown successfully in unheated frame or alpine house in north east Scotland.

It is with considerable reluctance that I pass over the spring bulbs. A number of them, collected in Iran and elsewhere, have flowered with me this year for the first time. These new and colourful crocuses, colchicums, reticulate irises and fritillarias proved a real tonic at the end of a long and rather dreary winter. [Ed.: Harold, who died, aged ninety-one, in 1992, was still exhibiting and gaining Awards of Merit and First Class Certificates from the RHS Joint Rock Plant Award Committee as late as 1987, notably for various Fritillaria species.]



Among the spring flowers my first choice is *Pulsatilla vernalis*, "our Lady of the snows". This lovely Anemone never fails to please, be it in bud, flower, seed, in the wild at the edge of the melting snow or in cultivation. I find it difficult to flower out of doors as the furry buds rot away in our wet winters. It thrives in a rich gritty mixture, in a deep pan, and my ten-year-old plant, repotted annually after flowering, produces up to fifteen flowers. It spends the summer plunged in an open frame and is returned to the alpine house in October.

Ed.: If H.E. could see the plants exhibited nowadays, particularly by Cyril Lafong, he would surely be full of admiration for the skill shown in bringing the plant to such magnificence in a pot. For the most part, though, it is still tricky in the gardens of most of us.

[* see p.14]



Pulsatilla vernalis - show plant grown by Brian and Shelagh Smethurst, photo by Cliff Booker



Pulsatilla vernalis seedling pictured in the New Brunswick, Canada garden of an Australian, Helen Poirier.



Pulsatilla vernalis in the wild in Norway

photo Trond Hoy



Ranunculus sericophyllus in the wild in New Zealand photos Dave Toole

A high alpine buttercup from New Zealand comes next on my list: *Ranunculus sericophyllus*. It inhabits rock crevices and sheltered hollows in the central Alps of that country at altitudes of between 5,000 and 7,000 feet. Its striking large yellow flowers are borne over finely dissected foliage and its cultural challenge adds to its interest. Perfect drainage and carefully controlled watering are essential or the fleshy roots will quickly rot away. Several of these high alpine ranunculus and *R. haastii* in particular are worthy of the attention of the keen plantsman. Propagation is by seed, which should be sown fresh as germination can be slow and difficult.





[Ed.:This charming buttercup was awarded a Cultural Commendation and a Preliminary Certificate when presented to the RHS committee by Harold in 1966. It is not common in cultivation in 2011.]



Ranunculus haastii in the wild in New Zealand

photo Doug Logan





Ranunculus haastii - close up and in seed

photos Doug Logan

This plant was known in 1969 as *Orphanidesia gaultherioides*] I remember admiring a large plant of this rare relative of the ericaceae, an inhabitant of the Black Sea area, growing in dense shade at Branklyn garden by Perth. I was promised a layer. Unfortunately the following winter was a severe one and the plant, which had been given no protection, perished. Subsequently, on two different occasions, I acquired plants and lost them both. They were in pots and probably were allowed to dry out. On my third attempt I planted the Epigaea outside in a cool north-facing border in the shade of some azaleas and kept it moist. In November it was covered by a cloche and after quite a hard winter rewarded me with a few flowers. Seeds of this fine plant have been collected on recent plant expeditions and it is to be hoped that it will soon become more plentiful.



A bank of Epigaea gaultherioides pictured in Turkey by Philip MacDougall of Canada



A close up of Epigaea gaultherioides in the wild photo Philip MacDougall



A photo taken from a scanned SRGC Journal of 1992 of a plant shown by Ian and Margaret Young.

This lovely plant is still not at all common in cultivation though it does appear sometimes in UK shows as in this recent picture (below left) taken by Diane Clement.





Above: A watercolour painting of *Epigaea gaultherioides* by the late Lawrence Greenwood, from a plant from the garden of the Youngs in Aberdeen.

Picking a Primula is a task for a Solomon. I have selected *Primula allionii* var. *alba* which in a good form can be quite outstanding. This Primula, which hails from the Maritime Alps, should be acquired in one's youth, as it increases so unconscionably slowly. My plant, after eight years, measures barely six inches across. A large specimen of the more usual mauve form, which I acquired from a dispersed collection ten years ago and is now in a twelve-inch pan, must be at least thirty years old. If the plants are grown in a mixture containing a quarter limestone chips, and have tufa collars round their necks, they require little attention, save for the removal of dead flowers and decaying leaves. I repot mine every third year and occasionally give a liquid feed during the growing season.



[Ed.:Today varieties and hybrids of *P. allionii* of many colours are widely grown. They are not often grown without glass house protection in the UK and the intricate work to tidy up the sticky old foliage in the Spring can cause many a gardener to curse that task. The broken side shoots at least make good propagating material. One of the

Left: A young plant of *Primula allionii* var. *alba* grown and photographed by the late Johannes Hoeller in Austria.



best types of white flowered *P. allionii* which is available today is the charming 'Aire Mist'. This plant's worth as a plant for exhibition is evident in this photo (above) by Cliff Booker].

I was pleased to gain a First Class Certificate with Paraquilegia anemonoides [Ed.: then known as *P. grandiflora*] in 1966: this form will always have pleasant associations for me. My plant came as a seedling ten years ago from those great and generous gardeners, the Rentons, (Late owners of Branklyn Garden, Perth). Mr. Renton informed me that his plants originated from seed collected by the late Major George Sherriff.

In nature, I understand, the Paraquilegia attains a considerable age and already mine is developing a branched woody stem. Photographs taken in the wild often show it as a crevice plant and my experience confirms that it should not be over-potted. A careful watch should be kept for its great enemy greenfly, which can soon wreck a promising plant.



Photos of *Paraquilegia anemonoides* in the wild by <u>Harry Jans</u>, the talented Dutch grower and keen traveller.



Below left: Christine and Mike Brown with their medal winning plant of *Paraquilegia anemonoides* at an AGS/SRGC "joint" show

in Hexham. This was in 2005 so an AGS Farrer medal was awarded: in "even" years, an SRGC Forrest medal is the prize. Photo by Sandy Leven.

Below right: close up of flowers of *Paraquilegia anemonoides* photo Margaret Young.





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Phlox triovulata photos © Patrick Alexander



Phlox triovulata can lay good claim to being crowned queen of the phloxes and I have no hesitation in including it in my top twelve. A native of New Mexico, it enjoys a hot sunny situation in gritty soil and should be repotted every year after flowering. Propagation is by root cuttings or side cuttings pulled off with a heel. If one hesitates over the risk of taking root cuttings from a precious plant, a safer method, adopted by me and one which has proved successful, may be attempted. In the first instance this involves planting the Phlox in an orchid pot; this has holes

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around the sides as well as the bottom. The orchid pot is then plunged in a larger one and the gap between them filled with a mixture of 50% sharp sand and sorbex peat which is kept moist. If all goes according to plan, roots from the Phlox should penetrate the holes of the orchid pot and new shoots should appear in the space between the two pots. When these growths are about two inches long, they may be detached and potted up.

[Ed.: This phlox is seldom grown now. Even the once popular *Phlox adsurgens* 'Wagon Wheels' for which Harold gained an Award of Merit in 1967 is now seldom seen in U.K. collections.

Daphne petraea 'Grandiflora', a cultivar generally grafted on another species, has gained more major awards than any other alpine plant. I prefer the wild plant which is smaller and neater in all its parts. I sought it one hot summer day on the Cima Tombea but was unable to reach its rocky fastness. My Daphne, on its own roots, was planted eleven years ago in a half-inch hole bored through a lump of tufa. It first flowered in 1961 and has bloomed regularly ever since until it was repotted in 1968. Daphnes do not enjoy repotting and in the case of grafted plants especially, great care must be taken not to disturb the root system more than necessary.

[Ed.: Daphne petraea 'Grandiflora' is still a popular show plant, often gaining the premier awards at shows. Photo, right is of James Cobb with his Forrest medal winning plant, picture by Sandy Leven.]



One more shrub, Kalmiopsis leachiana, appears on my list. Kalmiopsis leachiana is a variable species and in the 'Marcel le Piniec' form the flowers tend more towards pink than mauve. In a wellflowered specimen the foliage can be almost completely hidden. Kalmiopsis flowers best when slightly pot bound and when potting on, this creates a problem. I find it advisable to tease out slightly the tight ball of roots to encourage them to move into the fresh soil, after which care should be taken not to allow the soil to dry out. My plants spend the summer plunged in an open north border and they are returned to the alpine house in October.

[Ed.: Harold was awarded both a First Class Certificate for Kalmiopsis 'Umpqua Valley' and an Award of

Merit for K. 'Marcel Le Piniec'on the same day, 13th May, 1964.]

Left and below: Kalmiopsis leachiana pictured

in the wild by Philip MacDougall





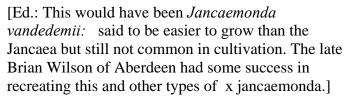


Above: J. heldrichii photo Cliff Booker Left: *Jancaea heldreichii* on Mt Olympus, photo Tony Willis

Jancaea heldreichii (Jankaea), an endemic of Mt. Olympus, ranks high on any plantsman's list. In its native home this Gesneriad enjoys cool moist conditions. During the summer months my plants are housed in a covered north frame but are returned to the drier climate of the alpine house in winter. Jancaeas increase slowly and my limited success with them may be attributed to attempting to grow them in too dry an

atmosphere. I have germinated seed but lacked the skill to bring the seedlings through their first winter.

An interesting hybrid between Jancaea and Ramonda was recently added to my collection.





Left: x *Jancaemonda vandedemii* photo by Franz Hadacek.



Dicentra peregrina; a dark form and a white form, shown by George Young, photos by Peter Maguire



Dicentra peregrina is a Japanese charmer which gained an Award of Merit when shown by Jack Drake in the 1960s. In well-grown specimens the pink "bleeding hearts" are suspended gracefully above the ferny foliage.

A gritty mixture suits this species and a fellow member has a venerable plant growing in a mixture containing 50% tufa lumps which flowers and sets seed regularly. Seed should be sown immediately as it quickly loses its viability.



The pink form of *Dicentra peregrina* thriving in the garden of <u>Magnar Aspaker</u>

The Campanula family is a large one and from it I have selected *Campanula morettiana*, a species which inhabits hair cracks on vertical rocks in the Dolomites. This gives a clue to its cultivation, for I once succeeded in establishing a plant in a lump of tufa, where it flowered happily in my alpine house for some eight years. One spring, alas, it was no more! Perhaps it had been kept too dry during the winter months. It can, of course, be grown in a gritty mixture, but I do not find it so long-lived under these conditions.

[Ed.: Campanula morettiana has also been a popular plant in the pages of IRG. It featured in <u>IRG 13</u> of January 2011; was in <u>IRG 17</u> of May 2011 where the cover photo was from Gita Piatková (right) and was also in <u>IRG 20</u>. This is surely one little bellflower with enduring appeal.]



C. morettiana in the Südtirol Johannes Hoeller



Cyclamen hederifolium, [Ed.: known to H.E. as Cyclamen neapolitanum)] the form which gained a First Class Certificate on September 19th 1967, rounds off my list of a dozen favourites. That fine plantsman, Herr Wilhelm Schacht, once stated "The days I have spent on Mt. Parnes are unforgettable" and it was on the slopes of that Greek mountain, famous for its flowers, that I collected this Cyclamen during one memorable holiday. It was chosen on account of its attractive leaf markings as it was not in flower at the time. [Ed.: such collecting is now frowned upon.]





Above left: very good silver leaved C. hederifolium photo Gerd Knoche Above right: Cyclamen hederifolium 'Album' growing through Salix hylematica photo J. Ian Young

Cyclamen appear to resent disturbance, especially when they have been allowed to dry out, and my plant took three years to settle down to pot life before flowering. *Cyclamen hederifolium* is only one member of a very large genus. If the species are suitably chosen they will provide flowers throughout the year. Recent expeditions to Turkey and Iran have brought back a number of new ones. Some of these have flowered for me recently for the first time. Two very attractive ones are the diminutive *C. parviflorum* M & T 4341 and a large-flowered, dark claret *C. pseud-ibericum* which arrived as a seedling under the number P.D. 26844. These cyclamen seem to enjoy the cool conditions of a partially shaded north frame with the lights removed in summer and an occasional weak application of a liquid plant food.

This brings me to the end of my story and leaves me with only one regret - the number of fine plants I have been compelled to omit.





Above: *Cyclamen parviflorum* in Turkey photo ZZ

Left: Cyclamen pseudibericum, photographed in the garden at Ashwood by Diane Clement

* from page 2: As a matter of interest the twelve hardy plants for cultivation in the open ground selected by the second speaker were: Bulbocodium vernum, Iris winogradowii, Saxifraga oppositifulia var. latina, Lewisia brachycalyx, Incarvillea mairei 'Frank Ludlow', Trillium rivale, Paeonia obovata (from S.R.G.C. seed), Dianthus subacaulis, Raoulia grandiflora (protected by wire netting from birds), Roscoea cautleyoides, Lilium formosanum var. pricei (from seed) and Colchicum speciosum 'Album'.

---International Rock Gardener----- Plant Portrait----

Asarina procumbens 'compact form': The origins, the mystery and the simple beauty by Grahame Ware

I admit that I was rather dubious of this 'compact' form when I ordered seeds from the 64th SRGC seed exchange as lot #570. Gratefully my doubts were soon dispelled come June when it flowered. This was not the sprawling, sticky beast that I'd previously grown.

No, it was the 'compact' form that was truly a compact form and a damned fine plant because of that mere fact. It certainly is a far better rock garden plant than the type. The last 150 years has seen writers on alpines like Sutherland, Robinson, Clark and Farrer all mention it as good or useful so it certainly is no stranger to our collective gardening consciousness.

Botanists like to refer to *Asarina procumbens* as a hemicryptophyte. This is based on the <u>Raunkiaer</u> system of classification. Indeed this classification has undergone some refinement since 1907. Specifically, one would now call the type a rambling hemicryptophyte whereas our compact form is a rosette forming hemicryptophyte.

[Ed.: A plant with perennating buds situated at or just below the soil surface. Hemicryptophytes are usually herbaceous perennials and are commonly found in cold moist climates.]

I am a sucker for Scrophy/Gesneriad flowers. They thrill me. That is why I'd first grown *Asarina procumbens* sometime in the early 90's. It was alright I suppose but not my cuppa Darjeeling. When I left that place and garden, I didn't get out my Hori Hori to loosen its grip on my boulder/crevice garden.



Some of Grahame's collection of trowels and hori hori (Japanese trowel with knife-like double edge)

But the compact form of *Asarina procumbens* is a real beauty with the flowers being a standout feature. I guess its all about proportions because these soft yellow flowers with the dark violet guidelines look so stunning on the compact form of this plant. The leaves are covered with silky hairs and have lovely crenate edges to small, full round leaves. It forms a fuzzy rosette with the flowers projecting out just under the top layer of leaves. So cute you almost have to spell it with a 'K'.



Asarina procumbens 'compact form' in author's garden June, 2011, near Ladysmith, BC www.srgc.org.uk

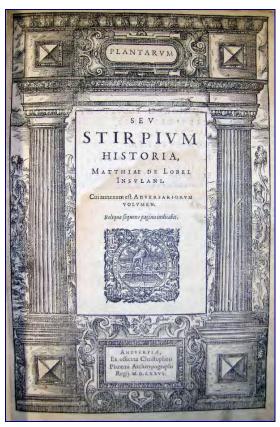
Christine Grey-Wilson did an absolutely lovely drawing of Asarina procumbens (on p.40) in "A Manual of Alpine Plants" (1989, Helm/Timber Press) edited by her husband. It looks for all the world like the forma compacta and his description matches it to a T. However, it is twenty years later in 2009's "The Rock Garden Plant Primer" (Timber Press), that Chris Grey-Wilson becomes the first author to give mention of the plant under discussion - the forma compacta (although Grey-Wilson refers to it on p. 62 of the latter publication as 'nana'.) I am going to assume that 'nana' and 'compact form' are one and the same. Anecdotal evidence of this inter-changeability of terms in this specific case is provided by the eminent Canadian alpine nurseryman, Harvey Wrightman. Mr. Wrightman had previously used the term 'nana' but now calls it ,compact form'. I believe that it is more botanically correct to refer to it as 'compact form'. But what of its origins?

There really is not a lot of hard evidence as to what is the source of the 'compact form'. The RHS Plantfinder 2011-12 shows plants last listed in 2003. None were listed before or since according to my research. If anyone knows more on this please weigh in on the Forum. Thus, it would seem that it is a recent arrival on the horticultural scene. Grey-Wilson's inclusion would seem to support this idea. The Alpine Garden Society seedex listed the 'compact form' in 2004/2005 I do not have access to previous years seed lists so that's as far as I can go. Quebec-ARGS listed it in 2007-2008. It seems that last year was the first time it had been listed on the SRGC seedex since 2003. Lucky me!

According to many Spanish, ecologically-partial websites (academic), *A. procumbens* loves subalpine, moist climates growing primarily in rock ledges that are largely siliceous in minerals i.e. schist, granite, gneiss. It can grow at elevations up to 2400m in the eastern Pyrenees Mtns. With this kind of range both across the Pyrenees and at fairly high altitudes, it seems possible that someone may have found a 'compact form' in their travels through the mountains and quietly put it into horticultual 'play'. It has also been a horticultural feature in many French Pyrenean villages for hundreds of years. Possibly a sport emerged there as well. It is all speculation at this point.



Left: <u>Matthias de L'Obel</u> from his Plantarum seu Stirpium Historia (1576) <u>Front page</u> shown below.



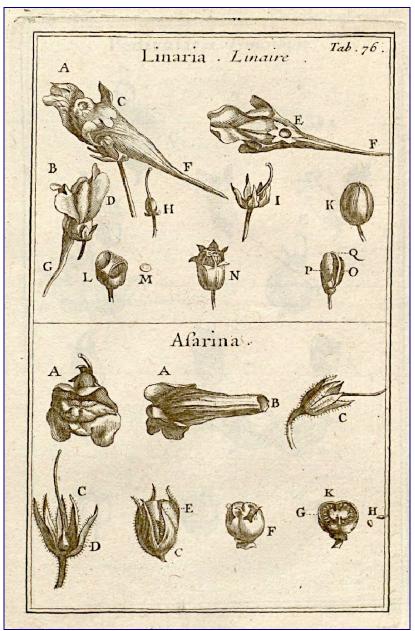
Nomenclature

The most commonly used recent synonym is *Antirrhinum asarina*. Previous to this it has been called *Antirrhinum procumbens* and *Maurandya asarina* with earlier authors calling it *Antirrhinum saxatile* (Bauhin), *Asarina mathioli* (Mathioli), and *Hedera saxatilis* (L'Obel).

This genus was first named by L'Obel but Tournefort was the one that really identified it and provided not only a detailed description but some very handsome (as usual) illustrations of *Asarina procumbens*. Check out this excellent image of Tournefort's Asarina at this link: http://edb.kulib.kyoto-u.ac.jp/exhibit-e/b06/image/2/b06l0386.html

Noteworthy is the fact that Tournefort was the first real botanist to explore and describe the flora of the Pyrenees. Tournefort declares Asarina as a new species and genus on p. 139-140 of his Rei Herbaria (1700) - "Asarina speciem unicam novi"

In so doing Tournefort references L' Obel and his use of the name Asarina for the first time in literature on p. 262 of his Stirpium (1576).



Tournefort's Rei Herbaria 1700 - showing Asarina

George Don Sr. in his "A general system of gardening and botany, Vol 4." 1838, gives precedents and synonymy and states that he doesn't understand why it is called Asarina ("meaning unknown to us"). I couldn't either and I didn't accept at face value what others (including Grey-Wilson) had

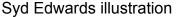
stated, that it is simply Spanish vernacular. However, this is not true. I spent the better part of a weekend trying to find out why it was called Asarina. Here's why. Many people state that the name means Little Asarum or Little Ginger. However, why this may be so is not clear. L'Obel was a 17th century Flemish physician of some repute who numbered King William among those he cared for. It was L'Obel who really started a sensible foundation for the classification of plants based on their morphological characters and not on their supposed attributes in relation to a materia medica. The suffix "ina" does not in this case indicate a diminutive. It does however, denote possession. 'Possession of what?' you may well ask - as I did. I can set the record straight and say that *Asarina procumbens* had medical qualities like Asarum but they were not as violent. This was the meaning of L'Obel's name.

I should mention that Philip Miller gets the nod of authorship for our type plant (not the compact form). This is in 1757 in his Dictionary. He states that Asarina is a local Spanish name for the plant meaning, a little asarum. But as we now know what he really meant to say (and he was just conveying information) was that it was a little like Asarum in its medical virtues. [Ed.: Miller, (1691-1771) a botanist of Scottish ancestry, was chief Gardener at the Chelsea Physic Garden until shortly before his death. He was succeeded at the garden by a pupil of his, Willam Forsyth, born in 1757 at Old Meldrum, in Aberdeenshire.]

Parkinson's Theatrum Botanicum (1640) refers to our plant as Asarina matthioli or bastard spiknard (p. 267) and says that it is very good for jaundice, falling sickness and palsy. It was used as a powder called pulvis compositus for snorting to get rid of headaches as a result of excessive intoxification. There was also a wine called asarites that was a very effective diuretic. I'm not sure that our little 'compact form' would give one the same pharmacological jolt but the chances are good that it would.

<u>In 1805, Volume 23 of Curtis' Botanical Magazine</u>, the species (referred to as *Antirrhinum asarina*) gets a lovely Syd Edwards colour illustration and a short but sloppy write-up by John Sims.







Muflier faux azaret

An even better early illustration of "Muflier faux azaret" can be found in Saint-Hilaire's, "La flore et la pomone francaises", vol. 4: t. 308 (1831) The translation means False Ginger Snapdragon. Recent molecular analysis by a number of authors (Vargas, Rossello, Oyama, and J. Guiemes) strongly suggest that the diverse and eclectic Antirrhinae tribe is confusing to say the least. Asarina procumbens closest molecular taxonomic sister outside of her genus is *Cymbalaria muralis* (Kenilworth Ivy!) This is followed by the very useful (if temperate-climate tender) SW America vine, *Maurandella antirrhiniflora* and the lovely hanging basket staple, *Rhodochiton consatrosanguineum*. They have all been assigned to the Maurandya Group by the above taxonomists (Plant Syst. Evol. 249 pp. 151-172 (2004).

A rather intriguing conclusion from a worker in the field (Grant, 1981) indicates that Schrophulariaceae (Figwort/Foxglove family) in general are quite interfertile and have what is known as a high crossability index. Geographical speciation is also quite common. Thus it would seem that our "compact form" came by its condensed qualities the old-fashioned way - from an evolutionary response to its alpine environment.

Propagation

One word- EASY! Bottom heat and wamth will do the trick. But be sure that after germination you get it out of the propagator and into coldframe-like temps to prevent wilting. Even an unheated greenhouse (at least one that doesn't freeze), will do nicely.

Right: Green seed pods of *A. procumbens* 'compact form' tightly curled under leaves

Gathering seeds is tricky because they tend to hide, curled tightly under the leaves. Out of sight is, indeed, out of mind.

But you don't want to miss getting these little jewels so that you can have more of them. It is a good idea to give the seeds 30 days in a cold/moist regime before bottom heat, 70 degrees F. and light. In order to accomplish this, I like to place the seeds in a small zip lock bag that has a



mixture of coarse sand and vermiculite that is slightly moist and put them in my seed fridge. Any fridge will do. This allows the seeds to imbibe and swell in anticipation of the heat and light. You should have germination in 10 days.

Left: A. procumbens 'compact form' seed pods just starting to open after one week in a paper bag in dry, warm dark conditions.

Cultural hints

They like a little light and well-drained granitic media. If you are growing it in a pot, try using chicken grit as part of the soil mix.

The late Jack Elliott used to extol the virtues of this when he gave a workshop I attended once. Trust me it works really well with this character.

In the open garden, they'll appreciate a little shade (definitely from afternoon sun) but they seem to love indirect light. Other buddies in the same bed might include *Beesia calthifolia*, some of the smaller, Fall-flowering Asian saxifrages as well as some spring flowering pals like *Mukdenia rossii*. It is definitely a front of the border guy in the raised rock bed on the northeast side of my garden. This way I get to look at it as often as possible. In that sense it is kind of like the good pupil that sits in the front row and always raises it hand to answer questions. This pundit gives it an 'A'. G.W.

---- Plant Portrait----

Whitethroat from Idaho PEPiPEDIA and Fritz Kummert

Dasynotus daubenmirei Johnst. (Boraginaceae) was described in 1948 but this monotypic genus is unknown and not seen yet in the woodland parts of our rock gardens. The internet is almost devoid of good pictures. We are obliged to our Austrian friend, Fritz Kummert, who has this Rocky Mountain Whitethroat in cultivation and sent us good pictures showing the very nice flowers.



From the website of the <u>Forest Service</u> of the United States Department of Agriculture: Dasynotus is a rhizomatous perennial from 3 to 6 dm tall. Leaves are mostly on the mid and upper portions of the stem with the lower leaves reduced in size. Leaves range from 7 to 17cm and with a width of 1.5 to 3.5cm. Coarse hairs grow on both sides of the leaves. Flowers have united white petals, 12 to 15mm long with throat appendages about 4mm long. Flowers are arranged in a loose

terminal cluster, and bloom June through July. Dasynotus is a paleoendemic, local to a limited portion of Idaho County (Lichthardt 1999). Daubenmire (1975) believed it to be a relict of the early Cenozoic forest.



Dasynotus is a narrow endemic, restricted by unknown factors to an approximately 30 square mile area on the divide between the Lochsa River and Lolo Creek, ranging from Walde Mountain north to Mex Mountain and extending out spur ridges above the Lochsa River in Idaho.

Dasynotus inhabits forest openings within mid-elevation (3,000-5,000 ft), mixed coniferous forest, mostly in western red cedar and grand fir habitat types.

Left: Close up of a *Dasynotus daubenmirei* flower, photo Fritz Kummert

Below: *Dasynotus daubenmirei*: This image is a work of the Forest Service of the United States Department of Agriculture. As a work of the U.S. federal government, the image is in the public domain.



REFERENCES: Daubenmire, Rex. 1975. Floristic Plant Geography of Eastern Washington and Northern Idaho. Journal of Biogeography 2:1-18.Lichthardt, J.J. 1999. Action plant for sensitive plant species on the Clearwater National Forest. Report to the Clearwater National Forest SO, Orofino, ID. Idaho Dept. of Fish and Game, Conservation Data Center, Boise, ID. 17 pages plus appendices.