GREAT LAKES CHAPTER

North American Rock Garden Society

SPRING NEWSLETTER, MARCH 2006

CALENDAR OF CHAPTER MEETINGS ** meeting details below**

****SATURDAY, MARCH 18: Spring Meeting**

MEETING: 10:30 AM – ca. 2:30 PM
PLACE: **Hamburg Public Library (see map enclosed)**
PROGRAM: 10:30 AM – brief business meeting
11:00 AM **Alan McMurtrie**
Reticulata Iris - Creating a Rainbow
12:30 PM – catered lunch
1:30 PM **Alan McMurtrie**
Juno Iris – Find out Which Might Be Best for You

****SATURDAY, May 13: Spring Meeting and Plant Sale**

MEETING: 11:00 AM – ca. 3:30 PM
12:00 noon – **bag lunch**
PLACE: **Leila Bradfield's Fertile Crescent Nursery**
8110 West ML Avenue, Kalamazoo (see map enclosed)
PLANT SALE: 1:30 PM

Mark Your Calendars:

****Our Fall meeting and plant sale will be Saturday, September 16th in keeping with our policy of having it always on the third Saturday.**

Reserve the date on your Calendar. We'll send out details with the fall Newsletter.

UPCOMING NATIONAL MEETINGS – see below and your Quarterly for details.
In 2006 NARGS is sponsoring the **International Interim Rock Garden Plant Conference** – Friday, July 21 - Wednesday, July 26. Host: Wasatch Chapter

Plants of the Western Cordillera: Alpines in All Directions

Join NARGS at the International Interim Rock Garden Plant Conference. This not-to-be-missed conference will include lectures and field trips, in Utah, Nevada, and Wyoming.

Program for the March meeting

We know that many of you have been looking forward to hearing Janis Ruksans speak about the wonderful work he has been doing with bulbous plants in Latvia. But unfortunately, shortly before he was to come over on his NARGS lecture tour, he broke his leg. If any of you order from Janis, I'm sure he would appreciate a card.

We are extremely fortunate, however, to be able to continue the meeting as Alan McMurtrie has agreed to step in. As some of you will know from articles in the Rock Garden Quarterly, Alan has been doing ground breaking work on hybridizing Reticulata Irises, and has also pioneered the cultivation of Juno Irises. He will be talking on both groups, and it is particularly appropriate as the Reticulatas should be starting to come into bloom about this time. We are grateful to Harvey Wrightman for organizing this.

January 21 meeting report by Laura Serowicz

The January 21, 2006 meeting featured Harvey Wrightman of Wrightman Alpines in Kerwood, Ontario, Canada talking about the "Sensitive, Difficult, and Challenging". The title is from an old joke in the AGS journals about if a plant is considered "Sensitive" you've killed it once; "Difficult" you've killed it twice; and "Challenging", three times.

The first group of plants were the easier ones – the "Sensitive." ***Alyssum propinquum*** is a good mat former with a very long bloom period. It is a woody evergreen and because it is shallow-rooted, like a lot of mats, you can grow other plants, especially bulbs, through it or inter-grow them with other mats or upright plants. We don't use mats nearly as much as we should in many gardens; one advantage of mats is that they cover and conform to the rocks. The Turkish *Alyssums* of the *caespitosum* section are quite easy. You can grow them in ordinary garden soil, but Harvey tends to stay on the sandy side since (like a lot of Turkish plants) they need dryness. Harvey offers many Turkish species in his catalog because many parts of Turkey have a roughly similar climate to ours. Things from the European mountains tend to present more problems for eastern North America and Midwest gardens, probably because of our higher humidity and heat levels. ***Veronica bombycina*** was included with Harvey's list of sensitive plants because the form from Lebanon that used to be grown needed alpine house conditions. The form most available now, from Turkey, is much easier to grow as long as it is in dry fairly gravelly soil. It is difficult to photograph as the gorgeous blue flowers don't show up well against the silver foliage. ***Heterotheca jonesii*** is a Great Basin mat former and reasonably easy to grow in the garden. It blooms almost continuously from May into November on new shoots along the outer edges of the mat forming rings of yellow flowers. Pink-flowered ***Androsace studiosorum*** (often mislabeled as *A. sarmentosa*) has many different forms. They are all easy to grow, actually bordering on being weedy because they expand quickly. A native of the prairies, ***Callirhoë involucrata*** is a large mat of brilliant magenta poppy-like flowers in July. It's deciduous so it dies down to a bud, and doesn't over-expand its area, so it's good for filling a large crevice. You can grow it anywhere in just about any soil, but you need fresh seed for immediate sowing. Two mat plants inter-growing in tufa, ***Arenaria tetraquetra*** and ***Artemisia pedemontana,*** show that you don't need everything in nice neat little clumps. In nature plants mix together. There are now much better collections of fuzzy *Draba* because of a lot of new material coming out of Turkey and central Asia which is easier to grow. Even ***Draba acaulis*** which is quite tight and small is not fussy at all. You do need dry gravelly soils but it can take a lot of wind and abuse. The easiest of the *Aretia* section of European ***Androsace***, ***A. ×heeri*** is a natural hybrid of *A. helvetica* and *A. alpina*. It has gray leaves and white flowers with yellow eyes that turn pink when the flower has been pollinated to signal the bees to go elsewhere. The mats are quite easy to grow and spread reasonably quickly. Grow it dry but not xeric; remember it is in the *Primula* family and needs some moisture. The straight species ***Primula auricula,*** especially some of the clones with a bit of farina on the leaves are really pretty; Harvey saw them growing wild in Slovakia, which has a climate similar to us, on gravelly open slopes in full sun but with moisture back in the soil. It has a beautiful fragrance; nothing cloying but still strong enough that you can catch its scent. People don't use *Dianthus* often enough in the rock garden today. Some good choices include ***Dianthus ×'Inshriach Dazzler'***, *D. microlepis* or *D. myrtinervius*. Most *Dianthus* are quite easy to grow. ***Gentiana angustifolia*** is also quite easy to grow in most of its forms, some are larger than others and in some ways prettier, but even straight seedling strains are quite pretty with beautiful blue flowers. One that Harvey grows, ***G. angustifolia* 'Iceberg'** is striking turquoise and white and also easy. A Utah native, ***Aquilegia barnebyi***, takes heat well. It is dwarfer and the colors are a brighter yellow and red than *A. canadensis*. To keep the true species you have to be careful to keep it from interbreeding with other *Aquilegia* or collect wild seed. Even ***Pulsatilla vulgaris*** in its ordinary seedling forms is beautiful, and has fluffy seed heads. Linums are a bit underused as people think of them more as perennials, but the yellow *Linums* vary from the very tiny to larger ones like ***Linum capitatum*** which is around a foot high. Some of the really tiny ones are challenging, but *L. capitatum* will grow in ordinary soil, and self sows a little bit which is nice, because it tends to make colonies. Vertical walls are difficult to plant and you have to limit what you stick in them. ***Geranium dalmaticum*** which naturally grows on cliffs along the Dalmatian coast makes an excellent wall plant; it's really the best place to display it. To get a plant in after the wall is built, you can put it in with some clay, some heavier soil and/or you can put some sphagnum moss back in the hole so

that you can wick some water back to the root until it can take hold. ***Geranium argenteum*** is one of Harvey's favorites, with silvery leaves and deeply veined pink flowers; he doesn't think any of the crosses are as good as the straight species form. One nice thing with the *Geraniums* is that you can grow bulbs with them – especially woodland *Corydalis* – which need moisture in the spring. The *Corydalis* come up before the *Geranium* leafs out and will grow and bloom among the dead stalks of the *Geranium* and then the foliage will die back in May. Then it spends summer amongst the *Geranium* roots where it keeps just the right moisture level – it's like giving them the proper dry storage that *Corydalis* needs. The pink-flowered ***Corydalis schanginii*** is not one he would use with the *Geraniums*, as it is a steppe species it needs even drier conditions. It is quite winter hardy; but the deeper you plant it the better so that it is not subject to freezing and thawing in winter. One that is less common, although it has many good attributes, is ***Corydalis turczaninovii*** with pure aqua-blue flowers. It is from eastern Siberia and basically a woodlander but you can grow it in full sun to full shade and just about any soil; it's quite unfussy in culture, like *C. solida*. It's the last to bloom so it is unlikely to have crossed with any others, and you can get pure seed. The Turkish ***Fritillaria michailovskyi*** (and also *F. meleagris*), are very effective in the rock garden; small enough to make little colonies and you can grow other things with them because even the leaves are not too big. Do beware of the bulbs coming from Holland as they seem to have diseases, but anything from Janis Ruksans is quite clean. Yellow-flowered ***Leontice darwasica*** is an odd bulbous member of the barberry family which also includes *Epimedium*. It blooms extremely early when the snow is just going in early April. It's a dry grower from central Asia to Turkey, fairly easy to grow in ordinary sandy soil; Harvey likes them in the tufa garden because the colors go very well. The round bulbs can't be scaled; the only way to propagate is by seed. Luckily seed sets and germinates easily. ***Penstemon fruticosus*** makes huge mats and is fairly evergreen. By the end of winter if it is ratty you can shear it back. Its pink flowers bloom for a long time in summer, and it grows in ordinary sand scree with gravel mulch.

The next section of plants are "Difficult" plants that need more care. ***Genista radiata*** is a spiny-twigged shrub and can be used like dwarf evergreens, but with the bonus of big brilliant yellow pea-flowers in June. There are many different small-leaf forms of ***Dryas octopetala***. Harvey lost his and it's been hard for him to reestablish it. Huge mats with small leaves; for some people it can be extremely easy to grow, for others not so easy. It likes to grow on disturbed sites in nature. He's always looking for good forms, whether from northern Canada, the Big Horns, or Asia. ***Asperula daphneola*** which is relatively new in cultivation from Turkey via the Czechs can be a little fussy as it needs a lot of drainage and a lot of air movement. Since it gets diseases on the dead flowers it is best to clip off the dead flowers and maturing seed and that helps rejuvenate it. Next Harvey showed an ***Eriogonum*** species that he didn't have a name for. He received it as contaminant in a plant lot. It's a very succulent leaf form that looks like *E. ovalifolium* based on the flowers and the way the leaves are arranged. It's also easy to grow whereas most *E. ovalifolium* are not easy and are fussy about moisture. ***Lewisia rediviva*** has a beautiful flower, like a pink water lily and a sensible approach to growing in our climate. It blooms in May without its leaves and after flowering it just dies back and there are no leaves through the hot summer. It's dormant until late August and then little tufts of green will come up and through the fall more leaves come up and it stays green through all the winter. You could almost say it's winter-growing. It goes dormant in nature to avoid extreme dry conditions, but it also effectively avoids our hot and humid summers. He grows it in gravel and is not so sure it would be happy here growing in clay as it does out west because of our humidity. It (and also *L. pygmaea*) needs a coarser dry sharp material and no organics. A member of the *Brassica* family, ***Chorispora bungeana*** is not long-lived but very pretty with big pink flowers and dissected leaves. You can grow it in a crevice but collect seed and take cuttings to keep it going. Bright pink-flowered ***Pelargonium enderlicherianum*** was once thought to be impossible but it has turned out to be perennial here and hardy. It is easy if you take a few cautionary steps when you first establish it. It has an enlarged stem at about the soil level and in older plants it gets somewhat corky and woody, but in young plants it's still tender. For the first winter pile loose gravel over it and perhaps keep the sunlight off it or otherwise protect it so that it survives the first winter. Other than that it will grow in ordinary sandy/gravelly soils. In nature it tends to grow in depressions amongst rocks and that helps the plant ripen, it will grow up to the level of the rocks. ***Sphaeralcea coccinea*** can become a weed out west because it does run underground a bit, but it has never been a weed for Harvey. With brilliant reddish orange flowers for a long period in mid-summer and foliage that is soft and gray, it's fairly easy to grow in dry soils and can be grown from seed or cuttings. An old Juno cross from the late 1800's, ***Iris* 'Sindpers'** is still one of the best. It is pale blue with orange on the falls, and not too common in culture but quite easy to grow. Harvey also showed a photo of an Oncocyclus, ***Iris acutiloba***, a pale violet flower with dark purple veins. For both the Oncocyclus and Juno Irises, grow them in straight sand or sandy gravel – no top soil – and grow them somewhat dry. The Oncocyclus growth cycle starts in late fall and they winter-grow. In early spring the flowers come up with some emerging leaves, they bloom on short stems especially the small ones. Juno's bloom in early April and the Onco's the end of April, and the leaves will grow until the end of June then in the height of summer the leaves die off, which is perfect for our climate as long as you do not water them in the summer. You want the soil fairly dry, you can actually dig them at that time and leave them on a shelf dry, you don't have to pack them in peat or anything. They will shrivel up and look terrible, but as soon as you replant them and they get

moisture they will start growing. Do not touch them or move them in growth.

From an old collection in the early 1970's from the little town of Sooke, west of Victoria on Vancouver Island came ***Dodecatheon pulchellum* 'Sooke'** which is a very dwarf and floriferous form. It grew in an area that has low rainfall. You can grow it any where; it is really quite easy whether in full sun or full shade and not fussy about soils. ***Convolvulus compactus*** is among the Turkish *Convolvulus* that do not run like the weedy bindweed, but it also does not seed very much and cuttings are very difficult. The easiest Turkish one to root is ***C. boissieri***. The clone most available doesn't bloom much but has good flowers when it does and very attractive silvery leaves. They bloom in late May–June and basically are sub-shrubs, preferring gravelly, poor soil. ***Ramonda myconi*** was shown in white and purple color forms; all are easy to grow. There are two other *Ramonda* species; ***R. nathaliae*** is a little less easy but not too hard to grow and ***R. serbica*** is harder yet but still not terribly difficult. All have beautiful flowers. They are best grown on the north side of the house where it is fairly shaded but bright through the day, and are grown in crevices. They have the incredible feature that they can dry up in the summer and look shriveled and dead, but once it rains or they are watered they green up again.

In crevices between tufa, ***Daphne cneorum* 'Pygmaea Alba'** grows fine but it does not like to actually grow on the tufa, and it doesn't root well into tufa. But ***D. arbuscula*** with fairly thick roots does fine on the tufa, in fact it seems to prefer it. In its native areas it grows in cliffs and very tight crevices, so it is a true chasmophyte, whereas *D. cneorum* needs rocky soils. Maybe the best of the pink-flowered Daphnes, ***D.* × 'Leila Haines'** is a natural hybrid of *D. cneorum* and *D. striata*. It is intermediate between the two; much like a dwarf *D. cneorum* but the flowers are much brighter, almost red and very fragrant. It's fairly easy to grow but is slower than most of the *D. cneorum* forms. If you want to grow a *Daphne* that is completely carefree get ***Daphne* 'Lawrence Crocker,'** a hybrid of *D. arbuscula* and *D. collina*. It is the easiest one to propagate; the cuttings will invariably strike, and it's extremely easy to grow. It blooms a lot and is quite winter-hardy. It's a little bigger than *D. arbuscula* but still fairly small. ***Moltkia petraea*** is a woody sub-shrub from the Borage family that blooms in June. The genus is mainly blue-flowered although there are some white and yellow ones. It grows in fairly gravelly soil and likes lime. Cuttings strike reasonably well. ***M.* ×'Froebelii'** is a cross between *M. petraea* and *M. suffruticosa*. The flowers are a little more aqua and the form is like *M. petraea*. Yellow pea-flowered ***Chamaecytisus pygmaeus*** is reasonably easy from seed but struggles as an adult. It's dwarf in nature and probably not the most spectacular thing, but good if you like to try something different. Grow it in pure sand with gravel on top. Another sub-shrub from Turkey that's fairly easy to grow, ***Pterocephalus pinardii*** looks like it should be on a wind-swept plain; its gray foliage and pink flowers stay very low and it has wonderful fuzzy seed heads. ***Chamaebatiaria millefolium*** is a western native in the rose family not used very often here. It blooms in July and early August in ordinary garden conditions and the bees love it, but Harvey hasn't been able to collect seed and cuttings seldom strike.

Now for the Challenging: ***Aquilegia jonesii*** is from the Big Horns in eastern Wyoming, where it blooms the first week of July. Harvey took the photo of it by a sheep corral which had quite a bit of manure around it and heavy loamy soil, so *A. jonesii* likes a fairly high organic content. In his garden it blooms the first week in April, and he has it in a lime-based gravelly soil and feeds it early with fertilizer. That gives it a boost that encourages it to bloom. If you go west, the Big Horns are the most accessible area for it; the flora is diverse and the road access is good, so once you are up there you do not have to walk far to see the plants. In a genus of hard to grow plants, ***Eritrichium howardii*** is the easiest. In the Big Horns, *E. nanum* grows at the top of the mountains, and *E. howardii* grows down to around 5000 ft., so it tolerates heat better. It is still not an easy thing to grow, but not impossible. The ones Harvey has growing are either in tufa crevices or on tufa, and in the winter they look shabby, like they're dead, but the bud is still alive. They do set seed and have seeded into the garden a little. It's best transplanted at a young stage, and grown in a gritty limey soil with a lot of gravel and very little organic. Another borage, ***Omphalodes luciliae***, from Turkey or Greece, typically grows in north or east facing crevices with no competition. Once there is competition they disappear. Harvey lost most of those he had in pots to the heat last summer, but he does still have it in the garden, and it's not too hard to propagate. There is a Caucasian species, ***O. lojkae***, which looks almost exactly like *O. luciliae*, but the flowers are a little bit darker blue, and it is easier to grow. Also in the borage family, ***Mertensia primuloides*** from Russia/Central Asia can take a fair bit of drought but it wants a bit of moisture and some organic matter in the soil. Otherwise it's fairly easy. One of the more difficult, ***Mertensia viridis***, from the Beartooth Mountains, grows in roadside gravel which gets turned over a lot by traffic and snowplows. And in the garden, ***Mertensia alpina***, a little dwarfer, grows in a crevice so that the foliage can lay over the rock because that helps keep the crown drier and ripen the foliage. The flower color on all three *Mertensia* is blue as in most Borages. With ***Campanula*** you can get any level of difficulty you want. The far western ones are truly difficult including ***C. scabrella***, (and also *C. piperi* and *C. shetleri*). Rick Lupp [Mt. Tahoma Nursery] is able to grow them out west, including hybrids of them. They are not easy to grow outside here, and appear to might resent lime based soils and water that has lime in it. *Campanula scabrella* grows on Mt. Eddy in Northern California, in granite and green serpentine, so it's basically acidic conditions. It starts at around 7000 ft and as you go up the mountain the flower color gets darker and darker. One that you can grow is ***C. raineri***, which is European and likes lime; the flower colors vary considerably, so it's best to grow from seed and pick out the dark forms. In the garden grow it in a crevice in some sun in ordinary calcareous sandy soil; it

can probably take some organics but not a lot. The Turkish ***C. bornmuelleri*** is naturally a wall or crevice chasmophyte best grown in a steeply drained crevice with very well-drained gravelly soil. It's perfect for tufa culture and can take a lot of drought; over watering would be more of a problem. An easier Turkish one, ***C. betulifolia*** can grow just about anywhere – crevice or ordinary garden. With lovely white flowers in June, it is not seen nearly as much as it should be. ***Asyneuma trichostegium*** is a dwarf *Campanula* relative with multiple blue flowers on the stem in spring; it's not too fussy about soil but needs gravel. ***Edraianthus pumilio*** is also a *Campanula* relative and reasonably easy to grow. It makes grassy mounds and is covered with blue flowers in June.

Like most spiny ***Acantholimon***, ***A. acerosum*** is really dry growing and probably the biggest mistake people make with them here is not giving them enough gravel. One exception is *A. bracteatum* var. *capitatum* which occurs at much higher elevations and apparently in wetter conditions and is also the softest needled, with large pink flowers. ***Penstemon bracteatus*** is one of Harvey's favorite Penstemons. It is endemic to a few steep shale slopes in Utah, very difficult to walk on to collect seed. The plants run under the shale layer and pop up here and there and if you give it the room and a cover of gravel it will run in your garden too. It is a pretty thing but challenging. If you want to grow something easier that has the same sort of flowers and habit but a little larger, try *P. arenicola*; you can grow it in straight sand. ***Centaurea achtarovii*** is a fairly rare endemic from Bulgaria that the Czechs collected and started offering seed of in the early 1990's – but never many seeds, since birds and rodents also collect the large seeds. It has nice purple flowers in late May/early June. The leaves are very furry and they die off after the seed head forms and you think you are going to lose it, but just pull the dead leaves away and forget about it. The end of August/early September it will start to sprout again because of the lowering temperature, daylight, and extra moisture, so it avoids the summer heat and humidity problems. Growing on tufa it's not very difficult, but what is really unusual is it has very thick roots and you wouldn't imagine it would want to grow on tufa, but it rooted right away. In order to permeate the tufa the roots form tiny root hairs, and then when it comes through the other side/the bottom it immediately forms a thick root again; it's really weird to pull one up and see that. Another ***Centaurea*** that is not so difficult to grow, ***C. drabifolia***, likes good dry conditions like *Veronica bombycina*. There are different forms, but they are all yellow-flowered. ***Epilobium rigidum*** is easy to raise from seed but not easy to grow. It grows in serpentine conditions in northern California, in what looks like a dry river bed with large bowling ball size boulders. At some point in the year it must get submerged by snowmelt, and there is water under ground that the roots probably reach down to get. It has gorgeous flowers, and stays in a mat; Harvey's not saying it's impossible – yet – he has to keep trying it. Some people can grow ***Kalmiopsis fragrans*** but it is a problem in the Midwest. It's been grown in Calgary and they have heavy calcareous soil, and are very cold in the winter, so hardiness is not a problem. It's still worth trying, and likely would do better in a peat bed or an acid bed since it is from serpentine. Another serpentine endemic, ***Silene serpenticola***, is a split off of *S. californica*. It grows on serpentine sticky clay slopes in full sun, and the plants are very reduced, with fleshy and succulent leaves. It's quite dwarf with huge red to salmon pink flowers 2 inches across. When grown in the pots, if it is watered sensibly it will literally bloom from March through November. Harvey has not tried it outside yet. Pink-flowered ***Silene hookeri*** is another serpentine endemic and it does grow well outside in the tufa garden. Serpentine is high in metals so it may also be high in pH, so perhaps at least some of the species will tolerate lime in the soil. Where Harvey has seen it growing in the west is in light shade under pines or Douglas fir, but here he grows it in full sun. ***Clematis tenuiloba*** doesn't like competition, and in the garden it's not too hard to handle in gravelly soil with lime. It blooms the first week of May and forms from the Big Horns are mainly sugar pink. Some of the other forms are more purple or purple blue. It will run a little bit if it is happy but not a lot and it can be propagated from the runners or seed, but it doesn't seem to set a lot of seed. Harvey never would have thought ***Ranunculus calandrinioides*** from the Atlas Mountains was hardy but he's pretty sure it is since he has it out in the garden now. The collections are from high up. With big pink flowers, it tolerates lime and a good gravelly sandy soil. Another Big Horn endemic, ***Kelseya uniflora*** grows on limestone crevice walls forming incredible mats that have seeded into the crevices. Harvey's been told it's reasonably easy to raise from seed, just treat it with GA_3, spread it on soil mix and be patient. He's always had poor luck with it, although he does have a few seedlings.

The only way Harvey sells Kabschia ***Saxifraga*** anymore is on tufa. They simply last much longer and he gets better reports back on them. The big problem with *Saxifraga* is crown rot and it's hard to control that. One of the new biological treatments that seems to show promise is Rootshield. Kabschia *Saxifraga* grow in character on tufa and you can see why they were originally collected because in the crevices they were probably just as tight. If grown on soil the spiny ones elongate. ***Primula allionii*** selections and crosses also grow well on tufa, staying dwarf and, if they are fed a little bit, blooming with wonderful short-stemmed flowers. Harvey is amazed that ***Penstemon acaulis*** is still in his garden, because the Caespitosi section of Penstemons are not always easy and this is the worst one of the bunch. They grow it in the tufa garden but not in tufa itself. In nature it grows in heavy loam-very rich soil, but you can't grow it like that here. You have to grow it in very free draining sand and gravel. It takes about 2 years to germinate from seed as it naturally needs some cold-warm cycles and then it will germinate pretty well. If treated with GA_3, it will germinate sooner but it tends to elongate. You can also root it from cuttings fairly easily in winter. *Penstemon* are finicky to

move. When they are in active growth from March to June you can do anything but when they start to slow down in mid-July and through the winter don't touch them; you have to wait until they start into growth again to move them. Another genus that Harvey's gotten interested in is *Polygala*, because the seed collections have gotten rather good in the last few years. ***Polygala amara*** has nice brightly colored flowers; blues and some purples. ***Polygala major*** is one of the larger ones, and very spectacular in bloom with brilliant pink blooms. Even the seed heads are pretty and it grows in ordinary conditions. The central Asian and eastern European ones should be grown in a scree conditions or tufa garden. It would be in a grassy situation in nature but the tufa is a very forgiving material since it cools the soil and retains moisture. One of the plants Harvey is very happy to have this year because of the seed collections is ***Arnebia echioides.*** It's a yellow-flowered borage that has a dark brown/black spot on each petal, probably for the insects, but it also draws in humans to look closely at the flowers. He has had one plant for years but cuttings didn't root well and there was no seed from it since it is a single clone. This year he has a flat and a half of seedlings that should be ready in March. It's really a beautiful plant and, along with *A. densiflora,* quite perennial. They grow in sandy limestone soil with limestone rocks and like to be elevated and dry.

Paraquilegia grandiflora is more problematic because it naturally grows on cliffs. The best ones Harvey has are outside in tufa, which is often the best way to treat it. Get it into the garden as fast as you can, and feed it early when it comes into active growth to get it to bloom. Early alpines are used to moisture from snowmelt and a nitrogen spike that they can utilize well at lower temperatures. It's better not to feed them in the summer so you're not pushing them. From another genus Harvey is interested in comes the pale pink-flowered ***Callianthemum kernerianum***; which can be grown in an ordinary bed with a pine bark mulch and a fairly heavy soil. They are in the *Ranunculus* family with gorgeous flowers and quite variable since they come from different locations – Europe, central, and eastern Asia. The best ones have come out of central Asia. Seed treated with GA_3 helps a lot, and heat in summer is the biggest problem. You can't move them as young ones; just leave them in seed pot and wait until next year unless you can get them germinated in the greenhouse early enough in winter and can establish them before hot weather.

Harvey grew his ***Jankaea heldreichii*** from seed; it's quite slow from seed or cuttings and often the moss overcomes the young plants. He was lucky enough to keep it clean enough that it survived so now he is able to do it from leaf cuttings and offsets. It has a huge altitudinal range from near sea-level to 3000 meters on Mt. Olympus, and he doesn't think there is any difference in hardiness from one end or the other. You are better off to get it into the ground rather than keeping it in a pot because it will keep things at a more even temperature and moisture level, especially when growing on tufa. Harvey only propagates them on tufa because he is sure that is their preferred material. It likes the same conditions as *Ramondas* and *Haberleas.* They all prefer a some shade and do not like competition. You can grow them in full sun but they don't like it and will become dwarf and not bloom well. Growing them on tufa is good because you eliminate competition and with tufa they've got this huge mass that they can get their roots into. ***Daphne dominii*** shouldn't be on the challenging list because it is fairly easy to grow. Irene doesn't like it because the flowers don't open, but Harvey thinks the overall effect is quite pretty. You usually have to grow it from seed as it will not propagate readily from cuttings – and it produces lots of seed. Grow it in ordinary garden soil. ***Phyteuma comosum*** is one of the prettiest of the high alpines. It's a *Campanula* relative that's headed toward composite status with all the flowers in a head. Each chalice-like flower is just amazing. In the garden it needs a little bit of moisture and gritty soil. Planting in a crevice is better and between tufa rocks is best. Slugs must be controlled because they have no defense against them. ***Rhodothamnus chamaecistus*** was a tragedy for Harvey. About 3 years ago he transplanted nearly 200 of them as 2 year olds and they really took well, but then they got *Phytophora* and once they did, fungicide couldn't help and they died. So this time around he will use the similar peat/bark mix but they will get Rootshield on them and hopefully that will work better. He has transplanted them into tufa and he has some outside in tufa, it has slowed them down a lot but they have still bloomed, but they really don't like it. In nature they are chasmophytes in limestone crevices and there is also a scree form, so evidently there is some variability. Even though it is growing on limestone it's in acid duff of some sort and since it's a *Rhododendron* relative it has shallow roots. It is odd that it is grows on tufa, which just shows you that you must simply experiment with an open mind. And that's what he said in closing too – normally people don't associate ***Cypripedium*** with rock gardens, especially ***C. reginae***, but he has it in his limestone garden, and when Tony Reznicek saw it he remarked that they can grow on calcareous upland soils, even fairly heavy, relatively dry soils with little organics. So as rock gardeners experimentation is the main thing. If it is written in a journal somewhere, be suspicious, especially if it is from "across the pond;" their conditions are so different from ours.

Finally, good alpine garden construction is paramount before you start growing more difficult plants. If a garden is set up properly then there is really not a whole lot of care to it other than moving plants around and replacing dead ones (which are definitely going to occur no matter what!). If possible, use sandy soil for the mound and then you can use stones to either pave the slope or build a stone ledge into the slope. This makes a very effective, natural looking arrangement. Either way, it is easier to water and to get plants established, as well as providing better drainage than more formal stonework such as vertical walls. Harvey is not too fussy about the soil but it's best to start lean as it is easier to enrich than to remove nutrients from the soil. He uses tufa crumb or pea gravel as a mulch on top. The gravel mulch can be

anywhere from 1 to 3 inches thick and Harvey has noticed is that it is easy to maintain and seems to suppress weeds. That is the easiest way to make a horticultural scree and you can grow almost 90% of plants that would be in any alpine catalog.

In nature, crevice gardens happen all the time. For limestone areas, plants grow in the crevices because they can't grow directly in the rock (unlike tufa), so you can apply this to the garden. Start out by setting the key rock (a large rock) in place first, that gives you the basic plane to work from and then you can set the others to it. It's very important in a container planting that you do not mix up different lines and make it too confusing. It's better to stay dramatic and have things going one way. The big advantage of tufa is that you're going to have a lot of possibilities for planting. There are two ways to plant. You can use a smear of clay and put a rooted cutting in it, or you can drill holes in the tufa and back fill the cutting with tufa grit; that works just about 100% of the time for Harvey. With the smear of clay you may have to be a little more careful with the watering but the advantage of the clay is you don't disfigure the tufa with holes; although once the plants are growing in it you can't see them. The Czechs use a method for building a crevice garden which is time consuming and you have to be obsessive to do it. They take a couple pieces of flat rock, smear wet clay between them and then rub them together and set them all vertical. This makes a natural crevice; then to plant it you stick cuttings into the clay or throw seed on it and mist it every day; it is high maintenance, but it is also beautiful construction. That shows you to what lengths people will go and what can be done to grow things. If you have access to tufa you can do a similar thing, but in an easier fashion; simply set the tufa vertical and drill into it or smear clay on it and put rooted cuttings into it.

One of the marvelous things about tufa is you get such a range of growing conditions, and you can have very wet growing stuff next to dry growing stuff. Using tufa is probably the best way to set up the garden; it will make even a neophyte look like an expert because many things (but not everything) grows better and easier in tufa. Tufa has advantages over other rocks because it has a matrix structure that gives you about 60% air space, and will retain about 20–25% water in it, so even if it looks dry there's still water within. From a growing point of view, it is essentially like well-aerated clay and is calcareous, with lots of mineral wealth in it for the plants so roots can just permeate and fill the whole structure.

NOTE: Wrightman Alpines [www.wrightmanalpines.com] *is located 45 minutes east of Port Huron and is well worth the trip. Though a little more involved than formerly, it's still possible to bring plants from Canada. You need a Phytosanitary certificate and Ag-Canada is now asking for a list beforehand. It's a good idea to give Harvey advance notice so he can have an inspector there, otherwise, you can leave the plants there and pick them up later, after inspection, or Harvey can ship them to you. You can also order from his catalog or online. His main shipping season is April and May but he may do some fall shipping as he has a number of exciting seedlings from the Czech and American collectors that may be ready.*

Seed Exchange

The **2nd Round Fulfillment of the NARGS Seed Exchange** is taking place in Ann Arbor from **March 5** through **April 1.** We need volunteers. This is a great way to spend a few hours getting to know your fellow GLC members and talk about plants, seeds and gardening! It is easy work pulling seed orders for members all over the world. Please email or phone Laura Serowicz and let her know when you are available and she will get back to you with scheduling and location details. We will have day and evening sessions during the week as well as weekend day times, depending on availability of volunteers. Please try to come for at least one 4 hour session. For more information or to volunteer contact Laura at hepatica@twmi.rr.com or (734) 522-2294 (leave message).

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