International Rock Gardener

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This month we again have Joyce Carruthers and ZZ as our guides to see some of the choicest alpines from higher elevations in North America.

Many of these plants are not only delightful in their mountain habitats, they can be grown in our gardens, as we shall see from Michal Hoppel, who has some success with these plants in his Polish garden.

Our cover photo is by the late Joyce Carruthers of *Aquilegia scopulorum* ssp. *perplexans* grown from seed, in her Victoria B.C. garden. Joyce in action in 2009, creating, with ZZ, a porphyry crevice garden at Anhalt University in Bernburg, Germany.

---Gardens in the Mountains---

LAND ABOVE THE TREELINE
By Joyce Carruthers, pictures Zdeněk Zvolánek

This section is limited to the areas I have visited and the plants we have photographed. It is divided into six states: Nevada, Oregon California, Montana, Utah and Wyoming.

Mount Wheeler, Nevada

NEVADA
The silver state has reefs of mountains with some violent rushing rivers, which gradually disappear into the steppe land below. There is no drainage to the sea, only the Great Basin.

Some rivers make their way to salt lakes. Huge amounts of rock, gravels, sand, silt, and minerals are washed down to the lowland where evaporation and mineral accumulation can cause the typical salinity or alkalinity of many habitats.
I was disappointed with the second highest peak of Nevada, Mt. Wheeler, because of the relatively poor flora. Hard limestones probably account for this. *Phlox caespitosa ssp. pulvinata* was the best alpine. There was variability in the size and tightness of the cushions but little variability in the flowers; 99% were white, which was the norm on all the alpine areas that we visited west of the Rocky Mountains.

Sunset above the Snake Range, seen from Utah.

We climbed this big mountain in the hope of finding Aquilegia *scopulorum, Primula nevadensis and Eriogonum holmgrenii* but we had made the wrong choice, we should have been on Mt. Moriah or Mt. Washington, which are neighbours of Mt. Wheeler in the Snake Range.

Unfortunately the access to the top parts of the mentioned mountains needs a suitable all terrain car and a brave driver; their dirty roads are long and very wild.
We had to stop climbing Troy Peak (another mountain above 3000m which has the above mentioned flowers) in the Grant Range, due to a forest fire, steep cliffs on the wrong slope and the danger of local, protected, hungry cougars.
The third highest peak of Nevada, Mt. Charleston was ideal for a round trip of 26 kilometres plus a bivouac under *Pinus longaeva* (Bristlecone Pine). The limestone here is softer and the flora richer.
We saw *Penstemon thompsoniae, Telesonix jamesii, Oenothera caespitosa, Petrophytum caespitosum* and tall *Dodecatheon pulchellum*, which were on seeps in the subalpine zone. Our goal was the eastern summit, (a relatively small steep talus area above the tree line) where we had correctly guessed *Aquilegia scopulorum f. perplexans* would be growing.

Near the location where *Aquilegia scopulorum* (Tidest) ssp. *perplexans* (Clokey) was collected in 1936, was a small population including three of mixed colours: dark blue, blue with white, rose with white and creamy white with yellow. The plants were not higher than 7cm in bloom and had extremely long spurs. They grow in moving talus and on my investigation I saw thick, very long, ropey roots stretching many metres down the slope confined, in the vicinity of the roots, only to greasy clay deposits on the bedrock. These plants are under “attack” because of the wild horses that graze the area.

If you have fresh seed to sow immediately and some good luck, this is one of the most beautiful garden residents from the Wild West. The seeds must see the light and when they do they can germinate in a month, be pricked out into a crevice at the first true leaf stage in the autumn and in two years show their flowers. We have raised plants from seed we bought from Ron Ratko. In lowland areas, which have high temperatures in summer, cultivation is

very difficult. This species needs shade during the hottest part of the day; planting in crevices is always preferable.

E. marifolium with red female flowers

The Ruby Mts, named after the garnet gems found by early explorers, are the wettest mountains in Nevada. We climbed Grey's Peak - over 3000m high and formed from limestone above Angel Lake. Two choice residents for your rock garden, *Epilobium obcordatum* and *Eriogonum kingii* grow near the summit ridge. Both are saxatile plants growing in east facing crevices. The Epilobium, described by Farrer as "gorgeous" is mat forming with grey green foliage and abundant deep rose flowers. The Ruby Mountains' eriogonum, *E.marifolium* has grey leaves and small pale yellow tufts (inflorescences) on short scapes to 5 cm. The very variable *E. marifolium* grows 500m under the top ridge and is happy to live in our garden.

OREGON

Mt. Matterhorn (3049m) is a picture book mountain in the Wallowas (Alps of Oregon), NE Oregon with its feet cooled by Ice Lake. Our long trek with an uncomfortable bivouac among miniature bog mosquitoes, which even went inside my ears, was a nightmare. The reward was the best flora we had seen framed by oolitic and crystalline limestone in lovely shapes. I have selected three top alpines for your consideration. *Erigeron chrysopsidis var. brevifolius* is the best yellow miniature daisy, flowering from early summer to frost in our garden. It is recommended to keep one plant 'hostage' in a pot and divide it regularly and also always to collect and sow seed from your garden plants.

Erigeron chrysopsidis var. brevifolius in the Beauty Slope

Eriogonum scopulorum is a dwarf rock loving distinct species with soft yellow flowers held close to the silver grey mats. It is shown below in its rocky habitat.

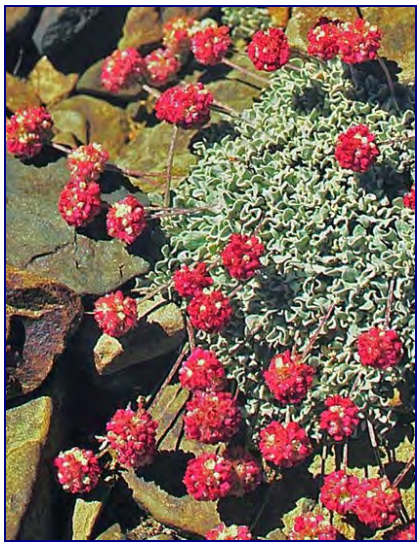
The top ridge is of course the naturally ventilated place for the pretty *Erigeron vagus,* with large pale violet flowers, to thrive but we shall see that later, in Wyoming.
Just near the tree line in the Strawberry Mts. we were lucky and found *Epilobium obcordatum* (shown left) growing on the very stony metamorphic slopes.

We have some seedlings which were planted at the Beauty Slope last year so the report about flowering must wait until next summer.

CALIFORNIA

The White Mts. the home of the oldest patriarch pines, *Pinus longaeva,* is the highest desert in North America and shows the progressive desiccating trend in the climate of the Great Basin.

Our favourite here is *Eriogonum gracilipes*, endemic to the area, which has grey felted rosettes, short stemmed inflorescences and a “raspberries and cream“ appearance which was changing to good rust red with age.
This contrast of *E. gracilipes* against the glaring white dolomite is stunning.
E. gracilipes is an easy miniature shrub on our hot and dry slope. These *Eriogonum* have their own fans among gardeners.



above left: *Eriogonum gracilipes* above right: *Eriogonum ovalifolium var. nivale*

Eriogonum ovalifolium var. nivale is confined to acid shale. The mature flower heads are very dark raspberry red. In the Sheep Mt. area, at around 3500 metres, there are at least dozen natural rock garden plants. *Penstemon speciosus ssp. kennedyi, Hymenoxys acaulis,* white *Phlox caespitosa ssp. pulvinata, Erigeron vagus, Draba sp.* are a few of them.
The last time we climbed the hot volcanic cone of Mt. Lassen it was like a pilgrimage of tourists. We admired *Collomia debilis var. larsenii* in its lilac form shining against dark grey lava screes and *Penstemon newberryi var. newberryi* in stabilized screes and crevices. The spectacular long tubular flowers ranged from intense red through to deep burgundy. Penstemons are another plant with their own organisation of followers.

MONTANA

Panayoti Kelaidis gave us some perfect advice to visit the tundra of Kings Hill Peak (2440m) above the Kings Hill Pass to see *Aquilegia jonesii*. This peak is just above timberline in the Little Belt Mts. towards famous limestone Mt. Big Baldy (2797m).

left: Joyce on the Kings Hill tundra

There were thousands of specimens of *A. jonesii* here, giving an expectation of good ripening of its seed in the middle of July.
All the cushions were strong; bigger than in Wyoming and usually with 5 full seed pods. There seems little evidence of grazing here.

right: *Aquilegia jonesii*, with seed pods forming.

In the cushion plant community of numerous isolated fellfields were hundreds of *Eritrichium aretioides* (syn.*Eritrichium nanum* var. *aretioides*) and thousands of Phloxes.
An excellent cushion species, *Phlox caespitosa ssp. caespitosa,* with large white flowers, showed its superior qualities both here and under the timberline.
A pleasant surprise under conifers was the blue flowering *Clematis tenuiloba* sharing an eastern slope with *Delphinium nuttallianum* and a tall *Oxytropis*.

left: Clematis tenuiloba

UTAH

Hiking the unknown alpine zone in Utah can be a great disappointment. When we claimed Mt. Delano (3710m) in Piute County, we found only dense grassy meadow over volcanic bedrock, a land above timberline with no presence of alpines. This year we instinctively headed towards a place on the map called Limestone Mountain using a good dirt road crossing the Diamond Plateau very high above the bones of dinosaurs north of Vernal.

We found the (new to us) lilac dwarf *Penstemon scariosus* with nearly ripe seeds (above) among the small outcrops of hard limestone covered with alpines like *Penstemon caespitosus var. caespitosus* with azure blue flowers.

left: *Eriogonum arcuatum* (syn. *E. jamesii*) in the Big Horn Mountains.

WYOMING

On our first visit to Medicine Mountain in the Bighorn Mts. we were late

and instead of a greeting with flowers we were met by a terrible thunderstorm. The only souvenir was this photo of the nice low *Eriogonum arcuatum* (syn. *E. jamesii*) *(above left)*. Panayoti Kelaidis gave us a detailed map of Big Horn and recommended us to visit an unknown limestone peak called Duncum Mountain (2996 m). As usual his tip was excellent. This peak was free of the usual flock of tourists, accessible with a city car, full of desirable alpines, great views and bizarre rocks.

Duncum Mountain with its rock sentinels

Joyce Carruthers in the Big Horn Mountains, Wyoming

To see the dark blue flowers of a compact alpine form of *Clematis tenuiloba* (left) by the top ridge together with blooming plants of *Eritrichium aretioides, Phlox pulvinata, Silene acaulis* and *Tonestus pygmaeus* was paradise for a photographer and the only mistake was that hundreds of *Aquilegia jonesii* were busy in producing seed rather than flower.

Phlox in the Big Horns

left: Tonestus pygmaeus syn. *Haplopappus pygmaeus*

Tonestus pygmaeus is also known as the pygmy goldenweed. This is only found above the treeline on tundra or in alpine meadows and makes small mounds up to 30cms across. This bright little perennial daisy can be found in Colorado, Montana and New Mexico, as well as in Wyoming.

Rock surfaces with orange lichens gave happy shelter to small drabas.

left: *Draba densifolia apiculata*

above: *Phlox caespitosa* in the Big Horns.

All open places above tree line were decorated with thousands of white cushions of *Phlox caespitosa,* slightly interrupted with blue hue of populations of lupinus.

After this experience we joined the procession of tourists at Medicine Mountain (left) but we escaped to the flowering tundra and did not see their target –the 'healing wheel' made from rocks.
The ancient site of the Medicine Wheel is sacred to the native American people. The ceremonial site, thought to date from as early as 1700, has a 25 metre diameter delineated by rocks with 28 rays leading from a central cairn to the "rim" of the wheel and five smaller rings round the edge.

Another perfect navigation of Panayoti was of the Snowy Range Pass (3306m) in the Medicine Bow Mountains.

There is one place near the road offering a rich display of *Phlox pulvinata,* where many forms have a light blue colour (left).

Here again were great blue stands of *Polemonium viscosum,* often called the Sky Pilot (above), and
the shining pinks of *Silene acaulis ssp. subcaulescens* (left) contrasting well with the colourful lichens on the rocks.

White and blue *Eritrichium aretioides* (syn. *Eritrichium nanum* var. *aretioides*) grew here in a rich natural crevice garden together with *Minuartia obtusiloba* and phloxes.

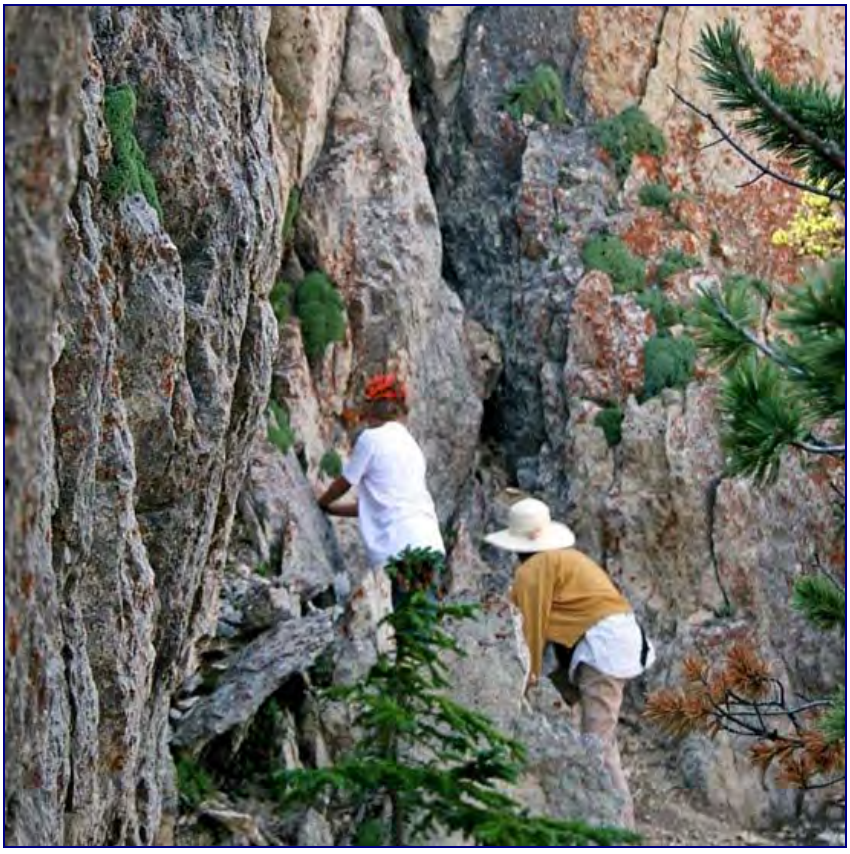
right: *Eritrichium aretioides* photo by Panayoti Kelaidis

Under the central large outcrop (which has the function of the view point for tourists) were nice bunches of *Aquilegia caerulea,*(below) a species which surely emigrated here from Colorado.

above: *Minuartia obtusiloba*, Medicine Bow

Probably the most appealing saxatile alpine from this rich locality of Medicine Bow was *Erigeron vagus* (above) with finely divided foliage. The only bad thing at this 3000 metres high heaven of alpines were the millions of mosquitoes.

A memorable trip was to Heart Mountain east of Cody, where we saw hundreds of perfect cushions of the famous *Kelseya uniflora* - unfortunately out of flower.



Kelseya uniflora remains one of the most challenging plants to grow and particularly to flower well in cultivation in the UK. With its tight cushions, which can attain a great size, it is a desirable plant for exhibition.

left: ZZ conducting a passionate Scandinavian ‘service’ as he plans a crevice garden.

OUR LAST TRIP T0 COLORADO
By Zdeněk Zvolánek

It was a great pleasure to have a chance to see true alpines of Rocky Mountains in their peak condition. Joyce Carruthers and I were delegates at the NARGS Annual Meeting in Salida, Colorado, in the middle of July 2010. Joyce drove us in her car from British Columbia to Denver and back via many states and via many natural habitats of rock garden plants. Salida was full of the enthusiastic American rock gardeners and the lectures were of a high standard.

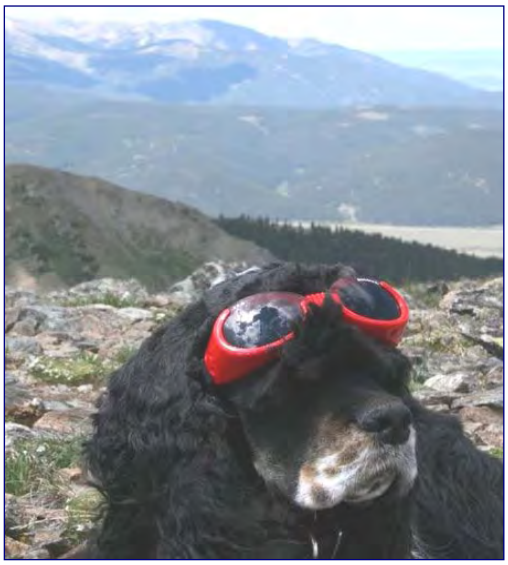
right: *Phacelia sericea* on Mt. Sherman

below: *Minuartia obtusiloba*, also on Mt Sherman

Panayoti Kelaidis led us in a minibus full of delegates (many minibuses were involved in two days field trips) to the limestones of Mt. Sherman. I also visited the famous but acid Independent Pass with another leader. Mt. Sherman was richer in its offer of plants - actually it was paradise for every person with a camera and a sense for natural beauty.

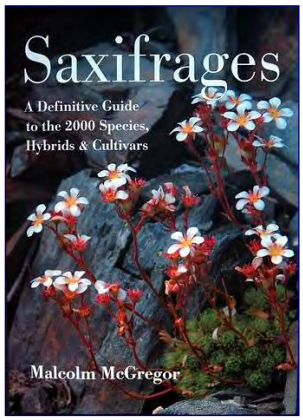
Penstemon hallii (above) was another of the gems of the tour with Panayoti. This 'alpine house' (below left) was rather unusual. Nearby was *Lesquerella alpina* (below right).

far left: well-camouflaged Ptarmigan



left: hiking dog with smart spectacles

In the alpine region above the Independent Pass I saw my first ptarmigan (it had no fear from the presence of a vegetarian) and a little dog (belonging to a female delegate to the conference) that had red spectacles in competition with the recently appointed NARGS editor in chief, the genial Englishman, Malcolm McGregor.



Malcolm, author and a former editor of the SRGC Journal, has our best wishes in his new challenge as Editor of the quarterly bulletin of the North American Rock Garden Society.

above: *Rydbergia grandiflora* (syn. *Hymenoxys grandiflora*) above Independent Pass

Polemonium pulcherrimum on Independent Pass

---International Rock Gardener---

Claytonia megarhiza on Independent Pass, Colorado, July 2010

We Central Europeans, gardening in dry lowland, have had some difficult experiences with the cultivation of the true American alpines and we gladly delegate the pleasure of growing them to growers elsewhere.

International Rock Gardener

Michal Hoppel from Poland is a computer scientist working in banking who has a growing family and a plant and photography passion. He was first given an interest in alpine plants by his father, Witold Hoppel, with whom he runs an alpine website.

Michal has written for the NARGS bulletin and is a regular attendee at European alpine events, such as the annual Czech-German rockgarden meetings.

Dating from 1253, the 'Stary Rynek' (Old Town Square) is a beautiful square in Poznan, the capital of the Wielkopolska region in western Poland where Michal lives. Wielkopolska is also known as the cradle of Polish statehood. Michal is one gardener who has made efforts to understand the cultivation needs of the dryland American plants.

WIELKOPOLSKA

Penstemon caespitosus in the garden of Michal Hoppel

AMERICAN BEAUTIES text and photos by Michal Hoppel.

Some time ago, after many experiments with alpines, I asked myself: 'What kind of alpines could be the most successful in my garden?' The answer was not a simple one because in my climate most desirable and beautiful alpines require special treatment.

My 'new' 5-year old garden is located in Western Poland 100 metres above sea level, and has a total precipitation about 500 mm per year. Summers can be very hot and dry with temperatures above 35C in June, July and sometimes even in May. It's quite difficult to grow treasures from very high altitudes which may be sunburned or boiled on the hottest days.

Townsendia condensata

Phlox missoulensis

One would hope there were many plants coming from dry and hot areas, including Turkey and North America, which would love our hot summers. Unfortunately the happiness of such plants is over in autumn and they have to survive till next spring. Autumns here are damp and too warm, so plants must fight against continuous fungal attacks. Winters are not much better as humid warmer weeks (+10C) mixed with cooler ones (–20C) together with little or no snow cover can make alpines crazy.

Now after a couple of years I can see that many of my favourite treasures happened to have labels ‘made in North America’ or rather ‘came from North America’. Why from there? Their seed was easily available in commercial sources and societies as well. I had also a lot of information about these plants, their habitat and cultivation. For me they are also symbols of wilderness, independence and freedom. I’ve tried to grow many typical American plants and found them quite responsive in my area (zone 5).

Aquilegia jonesii

Erigeron aureus

In my climate extremely good drainage and winter cover are essential for the good health of dry-loving alpines. All my rockeries, beds and troughs are very well drained and contain only a small proportion of organic matter.

My biggest rock garden is built of amphibolite rocks and contains only a minimum of peat (about 5%) in the substrate. Almost 95% of the volume is grit together with rock dust and a bit of sand and clay. It's a good place for more tolerant plants such as bigger *Eriogonums* (*E. sphaerocephalum, E. jamesii*), *Aster coloradoensis*, easier *Drabas*, *Zauschnerias*, *Pulsatillas* and others. They are mostly located on the southern and eastern slopes with a 2-3cm thick layer of top drainage to keep their root necks on the dry side. The only *Townsendia* which is growable there without winter cover is *T. rothrockii* – all the others are close to death after winter and struggle to recover till next winter – usually with no success.

Phloxes and *Erigeron aureus*

More difficult 'Americans' are grown in a long narrow crevice garden under the roof-overhang at the southern side of my house. This site is very good for dry-loving alpines as the overhang of about 80-100 cm directs most of the rain away and only very heavy rain together with wind is able to water the plants. In winter it is covered with a layer of snow (if available). This rockery is built of brown hard slate and contains only mineral matter - dust, grit and small stones filling the crevices between bigger slabs of slate. The substrate is 20-30cm thick above the surface and also 30 cm below the ground level. Plants have not been fed artificially so far as the rock seems to be very fertile by itself, consisting of many silicate compounds also with iron, magnesium and potassium. My watering system is based on drip irrigation placed right under top-dressing. That way moisture goes where is should go – to the root system leaving the above-ground part of the plant dry and not susceptible to being boiled on hot days. Sometimes I do water it from the top. My American alpines seem to be quite happy there, such as members of these genera *Tetraneuris* (*T. acaulis, T. lapidicola), Phlox (P. bryoides, P. missoulensis, P. pulvinata, P. condensata), Townsendia (T. leptotes, T. montana, T.parryi, T.condensata), Eriogonum (E.shockleyi, E. kennedyi, E. umbellatum var porteri, E. caespitosum)*, *Erigeron (E. chrysopsidis* (below)*, E. linearis, E.aureus), Lesquerella, Physaria (P.didymocarpa, P. eburniflora), Penstemon caespitosus* and others.

Erigeron chrysopsidis

Other American treasures are grown in troughs located under a high roof overhang on the eastern side of my house. Rains from eastern side are not frequent here and for most of the year these are watered by drip irrigation system, having from time to time extra showers from the east. These are hypertufa troughs and sandstone troughs which are more than 150 years old. They have also very gritty and free-draining mix with some organic matter. Each trough has a different mineral content and rocks including gneiss, limestone tufa, lava and slate.

below left: *Phlox bryoides*

below right: *Phlox condensata detail*

Inhabitants of these troughs prospering quite well include my favourite plants such as *Townsendia hookeri*, *Douglasia montana* and *D. nivalis, Phlox bryoides*, *P. kelseyi* , *Eriogonum ovalifolium*, *Eritrichium aretioides*, and *Aquilegia jonesii.*

These plants do not get as much sun as their fellows on the southern side but dry conditions are probably more important for them than their orientation.

Crevice bed with *Eriogonums*

Here in Poland American alpines are not happy in my traditional alpine house made of 4mm glass. It is a quite well ventilated construction, basically used for my collections of *Dionysia* and *Primula allionii* hybrids. American alpines usually etiolate there and seem to be out of character. It must be shaded in the hottest weather and that is the second factor making it a poor place for plants requiring a lot of direct sunlight. Last year I built a new alpine house from 10mm and 16mm polycarbonate sheets with side plates less than 1m high and totally detachable. My first experience of that year showed it is useful also for alpines including Lewisias and also small Astragalus and Oxytropis species native to dry American areas. Another way of cultivating these plants in my climate is to use a sand bed covered with polycarbonate sheets in the wet periods of autumn and winter. The best form of such a bed would again be a crevice garden, with 2-3cm of top grit, placed in full sunshine. It is now under construction in my garden and many plants in covered frames await it patiently.

I guess that if you really want, you can grow these plants no matter where you live. They will respond with their subtle and appealing beauty, like this *Townsendia hookeri* - and will be the source of really good fun for a crazy collector. M.H.