

International Rock Gardener



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October 2010



For October, IRG makes a visit to North America – in such a large land area with so many majestic mountains there is great scope for items of interest to our readers and we bring you a selection from Zdenek Zvolanek and Joyce Carruthers, the woman he called his “perfect partner” – in fact it was Joyce who wrote the major part of this issue, before her tragic death in a road accident in Canada on 25th September.

As you might imagine, the IRG Team has been rocked to its core by this awful event.

Many tributes have been made to Joyce - widely regarded as a great gardener and even better friend - we extend sincere condolences to her family and to ZZ and present her articles to you here in fond memory of the much loved intercontinental rock gardener, Joyce Carruthers. Joyce was born a proud Welsh woman who earned a British science degree. She was a teacher and a professional gardener. Along with all her other activities she managed to keep house, and raise and educate a family. Despite the passage of time and her many varied travels, occupations and life's experiences her garden was always maintained and to this day contains many choice and classic plants. She has spread her knowledge and enthusiasm for alpine plants wherever she travelled around the world and made many friends in the process. Further tributes and memories of Joyce from such friends as Rex Murfitt, Robert Rolfe and Diane Whitehead and can be seen in the [SRGC Forum](#).

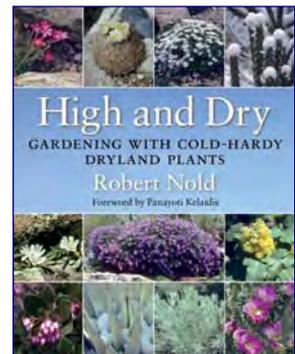
The Beauty Slope will be a lonely place without her.



COVER PICTURE: *Sphaeralcea caespitosa* var. *caespitosa*
According to Robert Nold, the author of the book “[High and Dry](#)”, *Sphaeralcea caespitosa* var. *caespitosa* with its luminous 4 cm popsicle-orange flowers, is the most beautiful North American rock garden plant. The orange, impressionistic effect of the flowers is enhanced by a mat of silver grey-green, woolly leaves. This [rare](#) perennial subshrub, called tufted globemallow, from the Malvaceae family is an [endemic plant of Western Utah](#). Its closest relative from Nye County in Nevada is a sensitive species *S. caespitosa* var.

williamsiae found only in a range of about 30 km long at an altitude of about 1524 m. This distinctive variety was named by Holmgren in honour of Margaret Williams (the late) famous plantswoman from Reno. This variety is taller than and not as charming as the variety from Utah.

The former variety grows in thin poorly developed soil on dolomitic limestone, at 1500-2000m, in pinyon-juniper and grass communities of local semideserts.

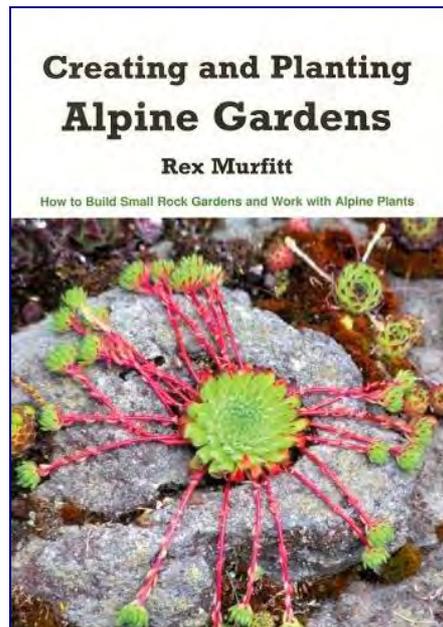
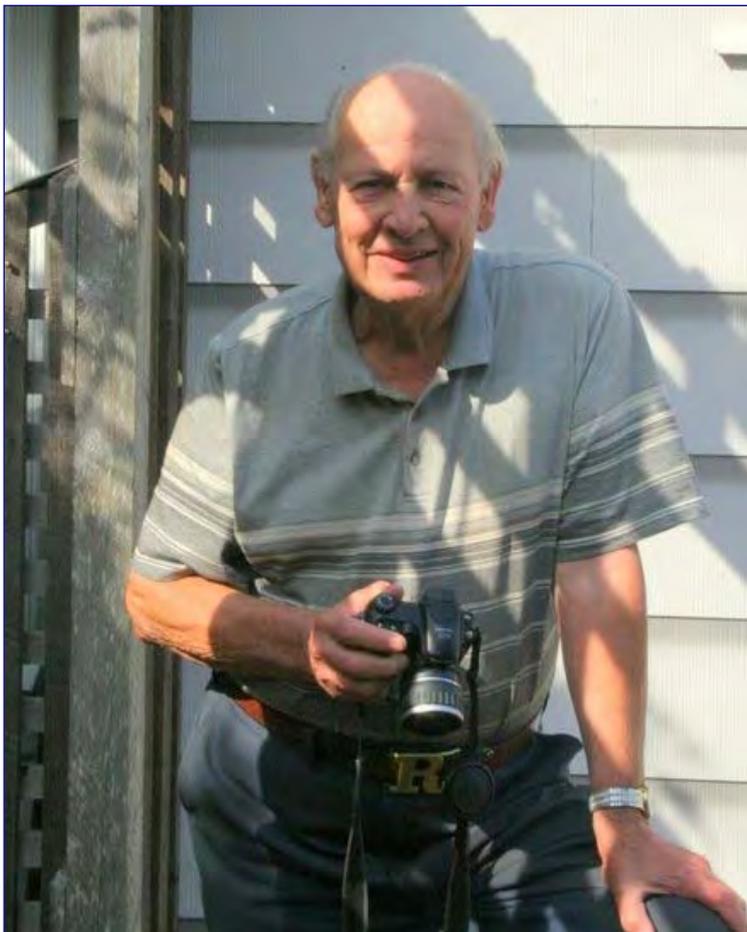


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The flowering time is May to July. Ripe capsules are flat open carousels offering small dark seed to the wings of wind. A special reporter of the IRG Team photographed the cover picture at the place where Christopher Christie photographed this species for the [University of California](#) in 2005. The locality is near a small hill at 1890 m, at the edge of the Desert Experimental Range in Millard County, Utah. Small mounds or low cushions up to 3 x 20 cm are formed from slightly lobed silvery leaves which do a kind of mimicry or camouflage in a limey gravelly soil of a similar colour. In the strong desert sunshine the smaller nonflowering cushions are not easy to find. The associated plants in this habitat, where there is more open soil than plants, are *Eriogonum shockleyi*, *Penstemon nanus*, *Oenothera caespitosa* and *Pediocactus simpsonii*. Both *Eriogonum shockleyi* and *Oenothera caespitosa* grow well in a mineral soil packed in a crevice in a steppe lowland garden near Prague, so growing *Sphaeralcea caespitosa* in our gardens is not such an unrealistic prospect. **It must be emphasised that seed collection of these species, and others which are rare and protected, requires a permit.**



---Mountains in the Gardens---



Rex Murfitt is a well known and well seasoned North American rock gardener. He now lives and gardens in in Victoria, British Columbia and shares his experiences as a retired professional gardener in bulletins, lectures and books such as '[Creating and Planting Alpine Gardens](#)', and '[Creating and Planting Garden Troughs](#)' which he co-authored

with [Joyce Fingerut](#), a past president of the North American Rock Garden Society. He trained in England at the famous W. E. Th. Ingwersen, Birch Farm Hardy Plant Nursery with Walter and Will Ingwersen, building rock gardens and traveling widely. There he learned the lore and

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romance of alpine plants. Later he served as head gardener to Constance Spry; eventually he moved to New York and started Stonecrop Nurseries with Frank and Anne Cabot. Rex knew Joyce Carruthers for many years and shares his reminiscences in the [SRGC Forum](#): He visited Joyce and ZZ in Victoria with Adrian and Yihreng Young in mid September. Yihreng Young took this 'tea break' photo.



Rex Murfitt, Joyce Carruthers, Z denek Zvolanek and Adrian Young 13th September 2010

ZAUSCHNERIAS by Rex Murfitt, BC, Canada

It sometimes takes an infrequent, if none the less welcome visitor, to your garden to zero in on a plant that you have undervalued. To make matters worse you are unable to remember who gave it to you, and when. The name was not much of a challenge as the plant was in full flower in mid August and could only be a white form of *Zauschneria californica*. The occasion was a recent visit from Joyce Carruthers and Zdeněk Zvolánek on a lovely summer afternoon, thankfully much cooler than the previous week when it was over 90 degrees F.

Z. californica 'Alba' below and right: with *Zauschneria septentrionalis*.



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Late August is not one of the best months to visit rock gardens so it was not surprising that they focused on the large clump of the white form of *Zauschneria*. I was very surprised that Zdeněk was so pleased to see it, claiming he had not seen it before, either in the wild or in cultivation.

I have had that plant in my garden for at least 20 years and so far it has survived all that our winters and springs can throw at it. The plant now covers at least a square metre of green leaves and masses of thin woody stems which carry several white flowers per arching stem. It stands well above the masses of foliage. Individual flowers are in terminal racemes and are usually a narrow tube just over 2.5cms long with four petaloid sepals opening to four bi-lobed petals.

I have always taken the plant for granted referring to it as the white form of the California Fuchsia never stopping to consider what the true species might be. Checking my records later, there is little doubt my stock came from Boyd Kline and Lawrence Crocker in Oregon where they listed an *alba* form of *Z. latifolia* in the earlier lists of the Siskiyou Rare Plant Nursery. I have a copy of their 1967 catalogue where it is listed as *Zauschneria latifolia* f. *alba* and described as “**An extremely rare white form. Long white tubes -yellow throat.**” A few years later it became correctly listed as *Z. californica* ‘Alba’. I have a problem seeing the yellow throat.

Another long time success in my garden is *Zauschneria septentrionalis*. I obtained it from that great plantsman Ed Lohbrunner of Victoria (he died in the late 1980’s). This plant is ideally suited to the smaller rock garden as it has short stems crowded with small compact leaves and a greyish cast created by an abundance of silky hairs. The plant will mound slightly with age, up to about 15cms. On a slope some stems will creep attractively along the rocks producing almost stemless flowers. In Victoria this plant is still widely grown in some of our Rock Garden Club member’s gardens and for many years has withstood our winters, which, while they may not be that cold by some people’s standards, can be murderously unpredictable.

(**Note:** *Zauschneria septentrionalis* is restricted to Humboldt County in Northern California where it is growing on rocky outcrops in open forest in the coastal ranges. It is listed as a Rare and Endangered species. All *zauschnerias* are now under the bigger banner of the genus *Epilobium*. All California Fuchsias were reclassified with fireweeds a few years ago so we see on the internet the new scientific name *Epilobium septentrionale*).



Several years ago I raised *Zauschneria arizonica* from seed on returning from a visit with Gwen & Panyoti Kelaidis in Denver. To my surprise it has lived happily in my sunny, west sloping rock garden where it has pride of place in the centre where it is no threat to smaller plants. Right now it stands about 60 to 75cms on light woody stems. The flowers are quite spectacular at about 3cms long with a large open tube of scarlet with four notched petals 2.5cms across.

(**Note:** *Z. arizonica* was renamed *Z. cana* ssp. *latifolia* and now it is *Epilobium canum* ssp. *latifolium*).

I have been doing some further reading and must search for further varieties to try. I would like to try the shell pink *Z. californica* ‘Solidarity Pink’ discovered in the wild. I also note Rancho Santa Ana Botanic Garden released a named white form several years ago.

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I also found an excellent account of *Zauschneria* by Panayoti Kelaidis in Vol 43, no. 3 of the then American Rock Garden Society Bulletin, 1985 to be well worth a read.



(**Note:** I saw two very large *zauschnerias* in the front garden of the late Mike Lambert in Victoria. After many years of growth and sensational flowering they reached four square metres. Mike correctly called his plants, which produced scarlet flowers up to 15cms above a mat with silver gray narrow leaves, *Zauschneria californica* 'Etteri').

Zauschneria californica 'Etteri'

---Gardens in the Mountains---

Rock Garden Residents from the Wild West

By **Joyce Carruthers**, British Columbia, Canada

Photographs mostly by Zdeněk Zvolánek

Seeds are the secret of many a good rock garden allowing plants to select themselves for your conditions. I work in one garden in British Columbia and the other in the Bohemian Karst in the Czech Republic. Both gardens are very hot and dry in the summer and I will not and cannot be a slave to watering, or be in two places at once. The solution is to grow as many nice rock garden plants as possible, preferably from seed, which can withstand and even enjoy such conditions. The theory is that even plants like to feel as if they are at home. Ideal rock garden plants for this kind of lazy (sensible) rock gardening come from high deserts and steppes and adjoining areas. In the Northern hemisphere we have collected our seeds from this kind of environment in Europe (The Balkans), the Near East (Turkey) and North America. This paper is an amateur account and condensation of my many trips and expeditions to the Wild West.



Red Fleet Camp Ground, Utah.

The "Wild West", a land of nostalgia, allure and romance, is also a physical geographic entity. It extends from British Columbia in the North to California, Arizona and New Mexico in the South and from the Cascades and Sierra mountain series in the West to the Rocky Mountains in the East. Included are parts of Washington, Oregon, Idaho, Montana, Wyoming, Nevada and Utah. All this area is physically connected, and there is the unifying factor of [sagebrush](#) and its lookalikes as well as the stony,

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sandy, rocky and to a greater or lesser degree alkalinity and mineral nature of the soil. Within this vast region there is a series of approximately north to south mountain ranges which have alpine regions at about 2800 to over 3000m elevation. The physical area was subject to massive compression which caused uplifting, faulting, fracturing and folding at the same time due to these tremendous pressures. Subsequently and indeed, whilst the process was occurring (and it still is) the mountains were eroded to expose an amazingly rich variety of rocks; igneous, metamorphic and older sedimentary ones like different shales, mudstones, various sandstones and limestones. As would be expected the variety of soil is correspondingly diverse. This is one of and probably the main reason for the diversity of species, subspecies, forms and some endemics, especially in groups like eriogonum, penstemon, astragalus and cryptantha. They are relict species which have had time to adapt, compete and establish species with fine differences. It should be mentioned that there are pioneer outposts of both the western and eastern flora in this intermontane area, less from the north and south. Between the ranges there are intermontane basins with an elevation of 1500 – 2000 metres. I will classify the whole area into two general vegetative zones. I am not discussing true deserts although they exist in the area.

below: Wah Wah Mts., Utah

MOUNTAIN RANGES

All the ranges have forested subalpine zones with meadows. Above, the alpine zone can have the characteristics of tundra (in the northern ranges) and of high desert (in the southern ranges).

Most of the precipitation falls in the winter as snow. In the summer on and around the highest peaks there are

thunderstorms most days which come mainly from the moist eastern gulf air mass in the Great Basin. The Sierras are such an effective barrier that less precipitation comes from the western maritime air mass.

In the western rain-shadow true deserts exist. Further north the Cascade Mts. are not as effective and the western air mass does bring more precipitation. There is classic accumulation of clouds, which provide protective shading from concentrated high UV radiation during the hottest part of the day. The associated high winds provide the environmental exposure factor and cooling effects of a typical alpine region. The consequent evaporation during the afternoon maintains the cooling effect which is followed by very low temperatures during the night. Every morning the alpiners have the luxury of mountain dew.

From the Cascade and Sierra mountains east there is rain-shadow effect so the total rainfall is reduced to about 800 mm annually. It is interesting to note that it has been estimated that 6 to 15% of the moisture which plants use comes from the condensation of moist air in the soil during the night. The lie of the land, such as gaps in the mountain series, modifies the wind direction of the air mass on its way north and east. This is an important factor which affects zones and creates macroclimates. The hardiness zone, as a rough guide to cultivation is zone 4 here (-34 to -29°C).



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SAGEBRUSH STEPPE

Sagebrush country is a land of contrasts: it is desolate and beautiful. During the cold winters of piercing wind and blowing snow over untold acres of *Artemisia tridentata* (left) it looks like a never ending grey ocean wilderness. Spring snow melt brings a magic transformation into a

multicoloured floral carpet. Summer days are uncomfortably hot and accompanied by mirages (Fata Morgana) and dust devils (small tornadoes). Very hot afternoons soon pass into sometimes very cold nights under big starry skies. At higher elevations day and night temperatures can vary as much as 30 degrees. The winter cold and summer drought are the reason for a large part of the sagebrush zone being classed as cold desert. Only occasional summer thunderstorms wet the dry cracked soil, rejuvenating some plants. Some areas go without summer thunderstorms for six or seven years at a time. There is a small steady decrease in precipitation from north to south, accompanied by a small rise in temperatures winter and summer. The mean annual precipitation records are 200 mm to 600 mm. In the area of the Great Basin the average annual precipitation is 180 mm to 300 mm. Here the hardiness zone is 5 (-29 to - 23°C). Little wonder these plants are rare with such conditions to cope with. Large [alluvial fans](#) with sometimes canyons or talus zones form the upper slopes which merge into the forest zone of the mountains. The characteristics mentioned above are in general common to the length and breadth of the sagebrush steppe.

Within the sagebrush steppe there are several vegetative subzones, but from the point of view of rock garden plants I will consider only two.

Standard subzone

Here there are less extreme conditions; the soil is moderately deep, somewhat sandy or gravelly, generally slightly alkaline and sufficiently moist for *Artemisia tridentata* and various grasses (the prevailing plant types). In moister sites, near forest margins particularly, *Purshia tridentata* and its associates - lupines and [balsamorhiza](#) species occur. In drier sandier locations [chrysothamnus](#) is common.

Right: natural rock garden in Wyoming



Conspicuous dominants

include a few different species of eriogonum. Less common are species of castilleja, penstemon, delphinium, phlox, astragalus, erigeron, allium, calochortus and fritillaria. Sadly,

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agriculture has encroached heavily on this second most diverse vegetative zone and cattle ranching has led to overgrazing. While almost all plant species are protected by law, agriculture and development sadly seem at times to be less regulated.

Lithosol subzone

Lithosol means rock soils, and they are plentiful in the Wild West, characteristically developing in regions of basalt and lava. An insignificant amount of soil is deposited in rock cracks and crevices probably because it gets blown or washed away (sheet drainage) as it develops. No doubt once rooted plants are able to help to improve and catch soil, in other areas where soil can accumulate there is a hybrid lithosol zone.



Despite the seemingly inhospitable environment, expanses large and small and even tiny outcrops mimic beautifully planted rock gardens.

Among the variety of species dwarf *Artemisia rigida*, different eriogonums, *Haplopappus acaulis*, *Phlox hoodii*, *Pediocactus simpsonii*, *Viola trinervata* and many others grow.

Viola trinervata photo [Kristl Walek](#)

LAND UNDER THE TREELINE

American steppe and semideserts seem endless and it is here that many people experience true freedom in a world gone mad. The meeting place between The Great Soul of the ancient Native Americans was here and still is for contemporary First Nation folk and some other enlightened people. Owners of lowland gardens should worship this kind of drier macroclimate which is rewarding with its multitude of flowers or seeds, and magnificent possibilities for photography.



left: Montana licence plate - "Big Sky Country"

This year, in mid July, Zdeněk Zvolánek and I made a long pilgrimage to see the late [LeRoy Davidson's](#) localities of *Eritrichium howardii* near Glacier National Park.



They are in flat land towards Swift Dam, west of the sleepy village of Dupuyer on US Hwy. 89.

After crawling under farm fences near a few promising hills decorated with patches of creeping *Juniperus horizontalis* we saw neat hairy cushions up to 25 cm across of our beloved *Eritrichium howardii*.

We saved a few tiny seeds and were amply rewarded with broad vistas towards a superb chain of peaks (just under 2745 m high) forming the eastern [Rocky Mountains Front](#). **Bear in mind that seed collection on private property must be done with the landowners' permission.**

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Eritrichium howardii in the Kelaidis Garden, Colorado.

Cushions of *Douglasia* (*Androsace*) *montana* (below, left) had flowered well.
A good discovery was a distinctive white flowering *Phlox* aff. *caespitosa* (below, right) above [Kings Hill Pass in the Little Belt Mountains](#).



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WYOMING

After travelling twice across Wyoming we were unfortunately too late to see flowers in this sagebrush country.

We missed the colour effects of dwarf cushions of [badland](#) phloxes like *Phlox opalensis*, *Phlox muscoides* (*P. bryoides*) (below left) and *Phlox pungens*.



A great surprise was brave herds of [Pronghorn 'antelopes'](#) decorating land close to the fences edging the dirt roads. (These speedy creatures are not true antelopes- they shed their branched horns annually.)



Eriogonum acaule
photo Panayoti Kelaidis

We are very obliged to our old friend Panayoti Kelaidis for this photo and for sending us to the locality of the smallest, pulvinate *Eriogonum acaule* in the middle of the [Laramie plains](#).

Panayoti photographed it here at the end of June and we found it in the middle of July with the remainder of its seedheads hidden under woolly leaves.

This eriogonum shares an interesting small flatland, growing among pebbles together with *Phlox muscoides*.

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The enormous pleasure of photographing the white local 'beardtongue' *Penstemon laricifolius* var. *exilifolius* (below) was spoiled by terribly windy conditions.



We climbed [Mt. Sentinel above Missoula](#), (1564 m) but the blue-white *Phlox missoulensis* is restricted only to Waterworks Hill. Fortunately a plant (below) from Dieter Zschummel is happy in our rock garden near Prague.



IDAHO

We once climbed [Beauty Peak](#), 3859 m, the highest in Idaho. It was renamed Mt. Borah for political reasons. The dramatic limestone structure is home to a rich alpine flora, for example *Kelseya uniflora*, *Saxifraga oppositifolia*, *Silene acaulis*, *Claytonia megarhiza*, *Collomia debilis* and *Polemonium viscosum*. I have decided to focus on the skirt of the mountain consisting of the upper part of the sagebrush community, stabilized scree-talus-slopes and rock outcrops. The dominant plant of the area is *Phlox lanata*, one of the smallest of the microphloxes. The white colour and congested mats are similar to *P. muscoides* and *P. hoodii*. The most beautiful and scarce white *Phlox caespitosa* ssp. *platyphylla* grew with soft pink *Oenothera caespitosa* on very steep eastern slopes in mineral soil. On the northern exposure of Willow Creek Pass (summit 2182 m) we found a few mats of [Phlox diffusa](#) with large white flowers.



Oenothera caespitosa and (left) seedpods



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UTAH

This state is famous for its red sandstone outcrops, picturesque canyons and [National Parks](#). The flora of the hard sandstones is poor, so it is important to look for the associated red limestones and alkaline shales.

The richest area is probably [Red Canyon](#), the area with open forest of *Pinus aristata* west of the better known [Bryce Canyon](#).



above: In Red Canyon: [Cliff Booker](#)

left: Pinus aristata : ZZ

We saw here 30 cm tall *Aquilegia scopulorum* var. *scopulorum* (below), *Penstemon caespitosus*, [Calylophus lavandulifolius](#), pulvinate **Townsendias** and we unfortunately missed *Eriogonum nanum* var. *aretioides*.

A lucky find on sun baked limestones was *Silene petersonii* var. *minor*, a [protected resident of this National Park](#). It has large rose-purple flowers with pronounced dark veins and is only 5cm tall.

We made a pilgrimage to the fine white sandstone altar of the late Jim Archibald to see the very rare and famous orange-red [Gilia caespitosa](#) now known as [Aliciella cespitosa](#), growing in north facing fissures. The marvellous pulvinate cushions of [Lesquerella tumulosa](#), a federally listed species under the [Endangered Species Act](#) decorating white shale hills near the [Kodachrome Basin](#) were breathtaking even without flowers.

The most western part of Utah bordering Nevada is our "promised land". There are limestone areas around the loneliest highway, Ely Hwy 21, between the village of Garrison and town of Milford. Our first stop is always in the Burbank Hills, a small mountain range south of the Snake Valley. The [Burbank Hills](#) are famous for some endemic saxatile plants, fossils and ATV (all terrain vehicle) trails of 158kms.



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The flora is rich because these Hills and close Ranges are formed from Devonian and Permian limestones (calcium carbonate sedimentary rocks). The Burbank Hills form a massive, 49km long syncline (upward fold of layers) which, uncommonly for the Basin and Range Province, trends northwest-southeast.



Evening in the Burbank Hills

What can be better than free camping by the lovely, spring-fed Pruess Lake, surrounded by [*Petrophytum caespitosum*](#), *Eriogonum ovalifolium*, dwarf yuccas and choice cacti?

Here close to a small limestone range near Garrison at about 2000 metres high are two outstanding candidates for our gardens.

Penstemon nanus (right) and [*Eriogonum shockleyi*](#) (below) grow together. The rich violet blue flowers and spatulate leaves of the former are in perfect harmony with the tiny woolly grey blue mats and yellow or cream (fading to apricot and rust) flowers of the latter.



After a series of very dry years the fragile population of *E. shockleyi* was strongly reduced and this July we did not find any rare dwarf beardtongue in this locality.

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left: *E. shockleyi*

The population of tough decorative yellow flowering Naked-stemmed Daisy, *Enceliopsis nudicaulis* was evidently undamaged here.

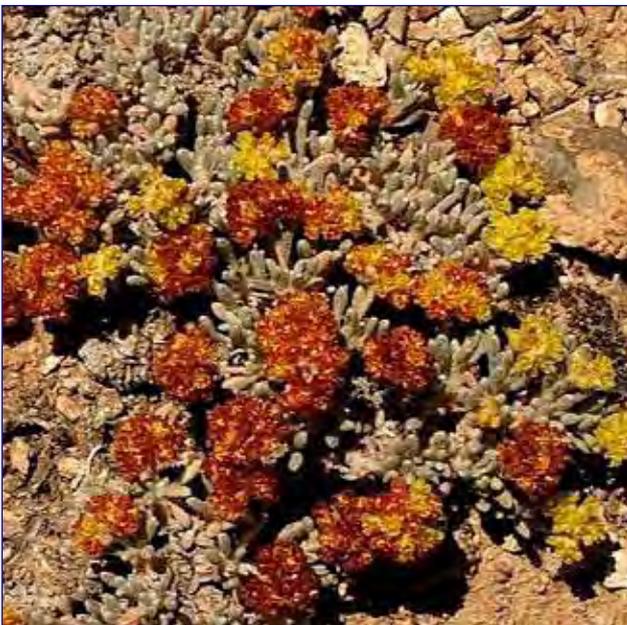


South east of Pruess Lake we saw a very good reddish form of *Eriogonum ovalifolium* (left) in seed, growing on dry, hot limestone ledges.

At the eastern end of the Burbank Hills we stopped at a fine weathered limestone mound with a relatively rich flora. We saw the signs of orange *Sphaeralcea caespitosa* var. *caespitosa* and found *Penstemon nanus* there though flowering was over.

below left: *Eriogonum shockleyi* at Halfway Summit, Utah.

below right: *E. shockleyi* in Wah Wah



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Further east we entered the rich flora of the Northern Wah Wah Mts. where we admired seed heads of *Eriogonum shockleyi* (above right) and saw well developed seed pods of the excellent grey leaved form of *Calylophus lavandulifolius* (syn. *Oenothera lavandulifolia*).



Eriogonum soledium in flower

Grampian Hill, 2133m in the San Francisco Mts., above the ghost town of Frisco, is formed of softer biogenic limestone with numerous metallic compounds incorporated in the gold ores and rock. More gold was taken from the ores of this small mountain than has ever been taken from any gold mine in the Wild West.

We first admired the fantastic densely pulvinate, woolly grey-white *Eriogonum soledium* (above) which could be called the vegetable sheep of Utah, with their sessile white, pink flushed flowers ageing to rusty bronze.

Rock gardeners lucky enough to have eriogonums seeding in their gardens would like to separate the seed from the woolly chaff (the seed of eriogonum has a vulnerable part which can be easily damaged during rubbing the chaff off with the result of no germination) but many miniature woolly eriogonums must be sown *with* the chaff hoping that it contains the tiny seeds.



We found gold nuggets under the south facing ridge - ***Calylophus lavandulifolius*** (syn. *Oenothera lavandulifolia*) which flowers in the evening and during shady mornings.

This small population was quite distinct and definitely the best that we have seen in the Wild West.

This form has greyer leaves, the flowers stand more stiffly erect and the corolla tube (and buds) are bright glistening red - as spectacular as the shining yellow flowers 5 cm across.

A great many of the plants mentioned here are subject to threatened or endangered status protection of the US Government and are not to be collected either by plants or seed except in very rare cases [under licence](#). The [Bureau of Land Management](#) website states that A total of 987 endangered species (388 animals and [599 plants](#)) and 276 threatened species (129 animals and 147 plants) have been [identified in the United States](#).

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The last habitat of *Eriogonum* was in gravelly flatland west of Millford, where creamy flowers of *E. brevicaule* var. *bannockense* near the highway had aged into pink bronze shades (left).

This year we discovered the information that the [very rare](#) dwarf *Penstemon duchesnensis* could be photographed east of Duchesne town. This delightful little member of the Scrophulariaceae is endemic to the area.

right: *Penstemon duchesnensis* in flower

It differs from *P. dolius* in having an orbicular corolla tube and densely orange-bearded staminode. Seed is only set intermittently on these, as with other plants, so it was heartening to see when we visited the hills of this location and found the penstemon, with well developed but unripe seed to give hope for a new generation in the wild. These plants grow in open juniper and sagebrush areas at around 1800 m to 2200 m.



below: *Penstemon duchesnensis* in seed.



right: *Townsendia montana*

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The highlight at this stop was the cushion forming *Eriogonum* aff. *brevicaule* (left)

The shortstem buckwheat grows in Colorado, Nebraska, South Dakota and Wyoming as well as in Utah.

WASHINGTON

Eriogonum thymoides grows on basalt lithosol near Yakima as well as similar areas to the north and south. We have happy residents in our steppe garden grown from seed collected here. They are delightful slow growing twiggy shrubs with needle like leaves at most 5-7cm tall. Flowers are usually yellow, sometimes maturing to a more or less rusty colour.



CALIFORNIA

I must mention *Phlox hirsuta*, endemic to Siskiyou County in California. It grows together with *Eriogonum sphaerocephalum* on a dry serpentine ridge near [Yreka](#) and is the town's floral emblem.

Eriogonum caespitosum is one of the best and easiest for your rock garden and is available via



grows around the world from many of the Seed Exchanges.

Very good pulvinate forms grow in the White Mts. near Nevada.

We grow in both our gardens plants raised from seed labelled *Eriogonum douglasii* ! They are variable and attractive but all are small.

Zauschneria septentrionalis synonym *Epilobium septentrionale* (left) from the rocky ridges of Northern California has the record for the longest summer blooming.

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OREGON

John Day River, a basalt area in north central Oregon has a dry sagebrush community where *Eriogonum sphaerocephalum* var. *halimioides* occurs. In our garden in the Czech Karst we enjoy its creamy large round inflorescences on 15 cm high bushes. A companion plant in the natural community and in our garden is yellow *Erigeron linearis*.



We found a population of extremely large ivory flowered *Lewisia rediviva* on the southern flank of the Steens Mts., growing in red brown shales and mudstones without competition.

left: *Lewisia rediviva* in a Norwegian garden photo [Magnar Aspaker](#)



NEVADA

Small alkaline flats in Eastern Nevada which we visited were characterized by the accumulation of white alkaline clays. They are scarce but have a very special flora. Our best discovery was *Polygala subspinoso* on open eastern slopes with sparse grass and some *Purshia tridentata* under Connors Pass in the Schell Creek Range. This woody subshrub has plenty of carmine and yellow flowers. As a double adaptation against browsing and water loss the number and size of leaves is reduced and the deadly long spines are green to help photosynthesis.



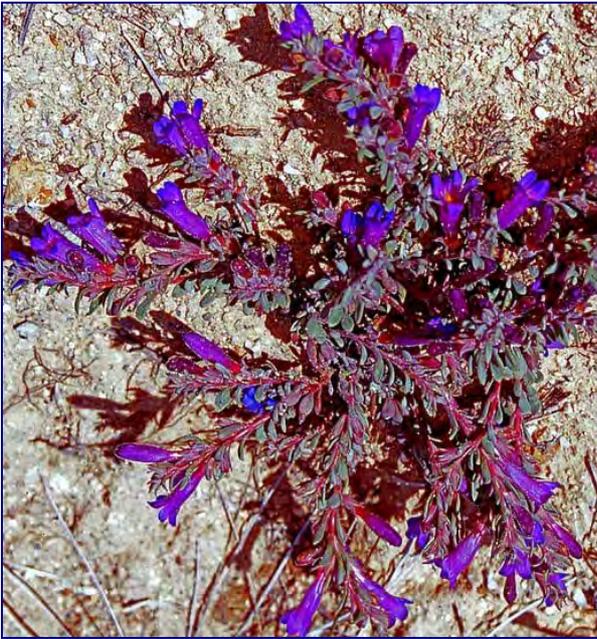
Polygala subspinoso, from Nevada (left)



Polygala subspinoso from Wah Wah Utah (right)

Another desirable and rare resident here was *Penstemon thompsoniae* a relative of *P. caespitosus* var. *desertipicti* with ash grey leaves and sapphire blue flowers. On basalt slopes nearby there was a beautiful population of white *Phlox griseola* ssp. *tumulosa* in company with tight buns of *Erigeron compactus*.

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left: *Penstemon thompsoniae*



right: *Penstemon caespitosus* v. *desertipicti*

At another alkaline flat in East Nevada (near US Hwy 50, under Little Antelope Pass) around Illipah reservoir we saw *Penstemon caespitosus* v. *desertipicti* (above right) and a few metres away we met the famous “the draba to end all drabas” - [Lepidium nanum](#).

Calylophus lavandulifolius (*Oenothera lavandulifolia*) was part of this alkaline high society and all were in bud and the buds in vertical fairground stripes of yellow and red. This year (2010) we enjoyed a good flower display in early July.



Calylophus lavandulifolius (*Oenothera lavandulifolia*)

Dwarf white phloxes and dwarf white [Cryptantha](#) finished flowering in May and we appreciated the artistic seed pods of *Physaria chambersii*. The twin bladderpod, *Physaria chambersii* (below) is a perennial herb in the Brassicaceae usually found in Pinyon pine -Juniper Woodland.

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On limestone cliffs in very narrow vertical crevices there was a saxatile form of *Oenothera caespitosa* with soft hairy leaves in dense cushions. The flowers were white fading to pink with deeply notched petals. From a few seeds, collected long in the past, we have two established plants in a crevice at the Beauty Slope.

A surprise was finding a locality of the lemon yellow *Oenothera howardii* (below) flowering isolated in clayish soil near the dirt road to the reservoir.

This is a perennial member of the Onagraceae, which, despite the name of 'evening primrose' also opens its large flowers during the day.



Few microphloxes are saxatile and *Phlox hoodii* is one of them. We saw it growing in granite cliffs near Austin in Central Nevada. All had white flowers. On some passes on the loneliest highway in America in May you can encounter [*Phlox stansburyi*](#) which is up to 25cm tall, rhizomatous and disappears soon after setting seed. [*Phlox grayi*](#), a relative of the latter, has similar large rosy white flowers on shorter stems and also uses summer aestivation as a survival tactic.

For a distinctly different microphlox we must travel to the west where, above Reno, [*Phlox austromontana ssp. densa*](#) grows on the flanks and top of Mt. Peavine together with *P. grayi* and *Lewisia rediviva* var. *minor*. It is cushion or mat forming with almost sessile flowers.

The queen of this peak according to the late Margaret Williams is [*Eriogonum rosense*](#) which has felty grey leaves and bright yellow flowers on short stems.

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The [Sheldon Refuge in NW Nevada](#) has the same phloxes as [Mt. Peavine](#) but different lovely species of eriogonum from the [E. rosense complex](#). *Eriogonum prociduum* (above) grows on sandy light mineral soils with [Oenothera caespitosa](#) which has shiny green leaves and white flowers ageing to strong wine shades. The eriogonum has small grey leaves, cushions up to 30 cm and large intensely yellow inflorescences up to 5 cm across. This year (2010) we were able to get a few digital pictures of this Princess of Sheldon but unfortunately not entirely ripe seed. The azure blue [Penstemon humilis](#) is part of this open pioneer population where there was no dense competition and a free deep root run.

Travelling up from the sandy, gritty habitat we came to a huge lithosol /intermediate lithosol, flat stony "desert" at about 2200 metres. We were lucky in 2005 that the spring season had been one of heavy rains and late snow falls, a rare situation which had not occurred for 50 years. The tremendous manifestation of all the perennial species present blooming at the same time was a massive effort at survival. The annuals were not yet in flower. It was a miracle because the stony desert had changed into an occidental carpet of about 1 square kilometre, at least.

The yellow pattern in this huge carpet consisted of [Haplopappus acaulis](#) (syn. *Stenotus acaulis*) in large numbers and [Eriogonum caespitosum](#) in smaller numbers. The fiery red tones were provided by [Castilleja chromosa](#). The blues were two intertwining species of dwarf **Penstemon**, one bright blue and the other blue and white. There were rich dark blue waves created by [Delphinium nuttallianum](#) and [Lupinus aridus](#).

[Aster scopulorum](#) was abundant, providing lovely deep lilac to purple hues. This relatively unknown Lava aster aestivates during hot dry summers and we were lucky that in July 2010 some perfectly ripe seed was still left.

There was a lack of white patterns because sadly there were not enough of the exquisite silky white [Lewisia rediviva var minor](#).

I am content to leave you with this rare and astonishing natural tapestry.....

Joyce Carruthers

----International Rock Gardener----



Saxifraga 'Joyce Carruthers'



Joyce Carruthers

Dedicated to the memory and loved ones of Joyce Carruthers, 1937- 2010.