

International Rock Gardener

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A flower-rich edition of IRG is on offer this month, which we hope will be of particular cheer to those in the Northern Hemisphere as we come to terms with the looming impact of winter. In the South, of course, readers can feel smug that their chances to enjoy sunny days full of blossoms are increasing by the day! Whether growing plants from distant shores or hybridising alpine plants to find forms which may be more tractable in cultivation there is always something to be learned from the efforts of our friends. The IRG Team is most grateful to all those willing to share so freely their experiences in this way. Should you feel you could enthuse others about a favourite plant, or share a trip, a tip or even a drawback

you have encountered in your garden, then you are more than welcome to send your contribution to the IRG via Editor@InternationalRockGardener.net We look forward to hearing from you!

Cover photo: *Harmonia axyridis* on *Townsendia* flower, by Gerrit Eijkelenboom.

TOWNSENDIA by Gerrit Eijkelenboom All plants grown in the garden of the author. All pictures from the author.

This article first appeared in *Rotsplantenforum*, the journal of our colleagues in the Flemish Rock Garden Society ([VRV](http://www.vrv.be)) and is re-worked here with their kind permission.

For a number of years, I have collected and grown species of the genus *Townsendia*, commonly



named Easter Daisy. The genus is a gem of rosette forming plants with aster-like flowers (family Asteraceae), with spatulate linear leaves.

***Townsendia* foliage**

They occur in the middle and west of the United States. They grow on the plains as well in the mountains. There are about 25 species. Many people do not like composites, maybe that is why the plants are rather unknown and seldom offered by our breeders and nurseries of alpine and rockgarden plants. Perhaps the genus has a reputation of being "difficult".

During my research to write this article, I had to manage different problems.

1. I noticed that the genus of *Townsendia* is rather variable in its natural habitat. The

colour of the flowers, especially, can vary from region to region. The American territories where they grow are immense. From Canada to Texas. From the Mid West to California, Oregon and Washington. In the field, it seems to be difficult to differentiate the species and to identify them. So seeds harvested in the wild are not always reliable as far as their names.

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2. The available seeds in our countries are countless reproduced and dispersed by the different seedex and professional breeders. This must lead to hybridization and misapplied names.

How do you know that the plants you eventually get into flower, are the ones you expected to see. Do they indeed look like the flowers in the wild?

Most people buy their plants at nurseries. Many others order plants from mail-order nurseries. But I might advise you to sow your townsendias yourself. On the seedlists of for example the SRGC seedex you always will find some. That's the way I started once, but the problem is, you will never know what you get. But it costs very little, so do not complain when it goes wrong. Later, after a lot of disappointments, I started to buy seeds from professional companies. For instance in the Czech Republic, where rather reliable seed-suppliers provide lots of seeds. I also ordered seeds from a well-known American company as well as from the UK.

Before writing this article I had to be convinced the plants and flowers are correct.

Which source could provide certainty about the right determination? Is there a touchstone to see whether my collection is correct or not? During my researches I found an article in [The Rock Garden quarterly, bulletin of the North American Rock Garden Society, volume 56, number 2, spring 1998](#), written by Panayoti Kelaidis, who has worked at the Botanic Garden of Denver for 37 years. This renowned man in the botanic world wrote enthusiastically in that article about these native plants and, perhaps the most important thing, he added pictures of the plants he had photographed in the wild. Now I was able to check the species from my own collection with the plants found in the wild. To my relief, I saw them reflected in the pictures in the article. There are differences, but those fall within the boundaries of natural variability and differences as a result of the circumstances of growth: nature vs culture. There were some exceptions. My plant with the name *Townsendia montana* was not correct. *Townsendia spathulata* 'Wilcoxiana', or *Townsendia wilcoxiana* are unresolved names and misapplied and obviously a synonym for *T. rothrocki* and I could not resolve this one from the article, although they were perfect plants.



***Townsendia wilcoxiana* misapplied**

Sowing townsendias is a pleasant and successful activity. You will succeed always more or less and soon you will have a large amount of seedlings at your disposal. In the second year they will come into flower, sometimes even in the year of sowing. So your patience will not be put to the test at length. The seed growth soon emerges and after some months, the little seedlings are manageable and are ready to move to their definitive home. They do not need a cold spell so you may sow

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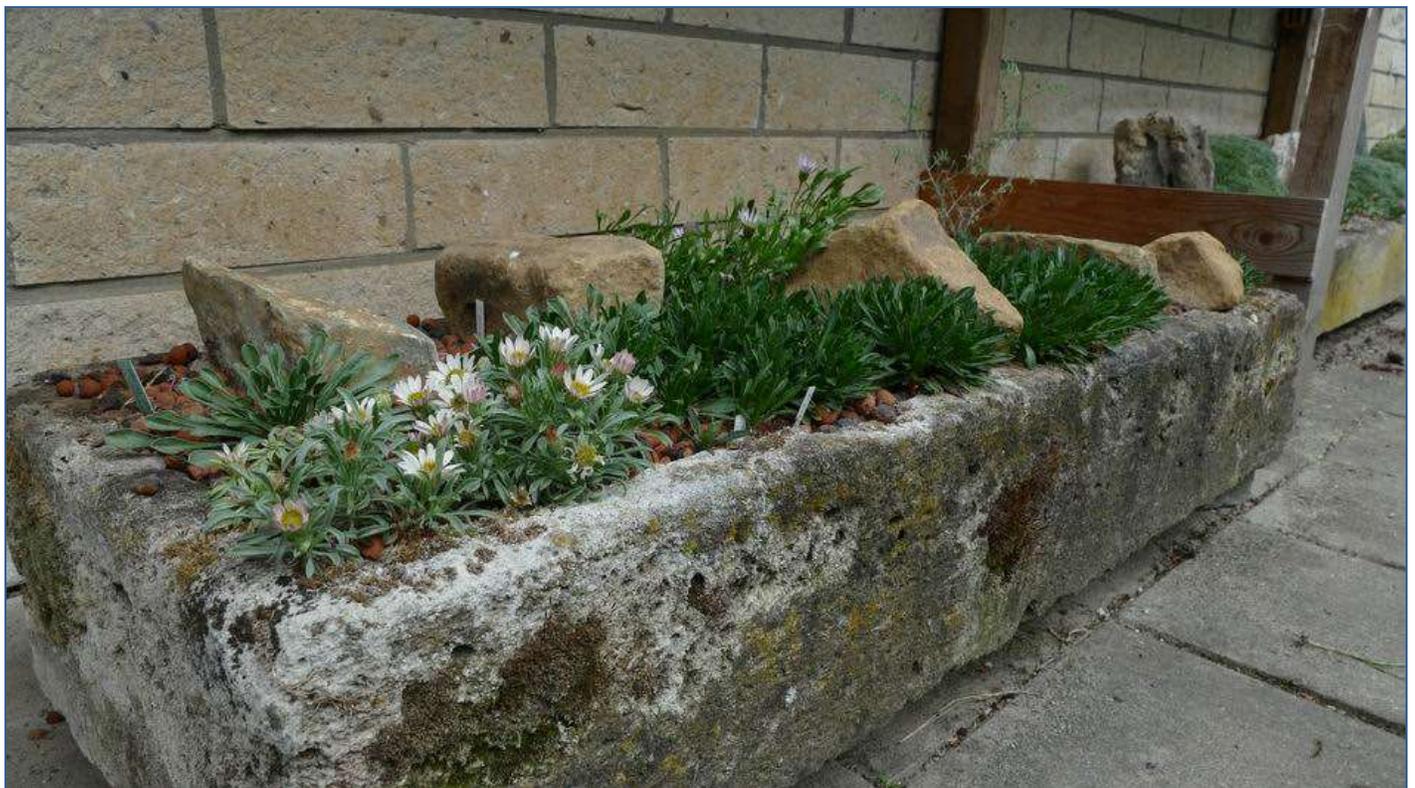
whenever you like. By preference in spring when the circumstances are at their best. Always keep seeds in reserve in the refrigerator. Seedlings of *Townsendia* stay a little thin. They do not form shoots. So put the seedlings close together for a substantial appearance.

Seedlings of *Townsendia spathulata* 'Cotton Balls'

At this moment I suppose you will think: "When sowing is such an easy thing, townsendias must be very easy in culture".

Unfortunately this isn't the case. Because after the easy beginning, the difficulties now begin.

1) Townsendias do not like our climate. They are plants of the steppe or the high mountains. They do not like our wet and foggy winters, with a humidity of almost 100%. Cold is not the problem. Until now I have not lost plants to frost. I have put that to the test with the easiest of all, *Townsendia parryi*. I had so many seedlings, that I planted a few in the crevices of my rock garden, without protection. After the wet and mild winter, a couple of years ago, almost all of them were gone. No, I think, they must be placed in a trough or in a pot in the green house. They must be protected from rain by a shelter. A trough should be covered during wet periods.



A trough filled with townsendias

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For people who live and garden in countries with a maritime climate, who are convinced that plants should be grown in the open garden without any protection against rain, for those people townsendias are the wrong gem. An exception to this statement is *Townsendia glabella*. Herman Meylemans from Flanders grows this species successfully in the open garden. So far, I have not tried it myself.

2. In general, most townsendias are short-lived plants. Some of them are monocarpic, which means, they die after flowering. There has been written much about how we can keep them alive for a longer time. On the SRGC-forum experiences have been shared. I have read all those postings. I have even read a claim of a 14 years old plant. (Maybe the same *T. glabella*?) and now I am sure: I cannot give you a recipe for extending their life. Everybody has his own methods, ideas, different weather and so on. Everybody does and hopes what seems to be the best, but there is one universal advice: Let them grow slowly. This you can achieve by not giving them so much to eat. Do not give them humus, potting compost, or peat. They hate it. No; the growing medium has to be rich in lime. I use crushing-sand (coarse sand), split and tufa in various particles. You may use any material, so long as it is limestone.



***Townsendias* have a taproot.**

The first part of the root, the root-collar, with no roots, is the most vulnerable part of the plant. Rot starts there when wet. The hair-roots begin further down. Knowing this, we may understand why it is so difficult to maintain townsendias in a wet climate. That's why we should not use normal potting earth, because it contains too much peat and humus. This medium stays wet for a long time, while a sandy soil dries out quickly.

Not all townsendias are as demanding as I described above. I mentioned ***Townsendia glabella*** already. Probably a species for the open garden. I did not try it this way for the time being and I keep it in a pot. It was my first and only plant, raised from seeds from America. Now I have gathered many seeds with the intention to try it.

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Townsendia glabella

Townsendia glabella is a white flowering species, but surprisingly I found a pink flowering one. This species grows in the 4 corners region, (Kelaidis) the only place in the USA, where four states touch each other, Utah, Colorado, Arizona and New Mexico.



***Townsendia glabella* pink form**



This is an area with the most amazing landscapes in the world. There you will find the famous national monuments, like Arches, Canyonlands and Monument Valley. I have been there several times, but unfortunately I have forgotten to look down, so I was not aware of the beauty at my feet.

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Townsendia grows in the foothills towards higher mountains on eroded slopes and ridges with slate. They form mats of about 30cm, together with well-known cushion-forming native American plants like the intense blue ***Mertensia alpina***, the pink *Phlox caryophylla* and *Penstemon*. This must be an unforgettable scene.



Mertensia alpina

3. A problem for which I have not found a solution up to now, is the great susceptibility to aphids and pests. *Townsendias* are hotbeds for various kinds, the usual green ones, rounded black ones, red spiders, whatsoever. The plants suffer seriously. The linear leaves become dull, yellow and look unhealthy.



A weekly inspection of all plants with a magnifying glass is necessary. Unfortunately spraying with an insecticide of all plants is needed- but even after this, in no time at all, things are wrong again. But it turns out to be, that the plants do not suffer from the poison. I know, ladybirds should be an alternative and doing the job instead, But these helpers are only available during some periods. Actually I did catch some and have put them on the plants, but they fly away whenever they like it. One should think it is a "land of plenty" for them.

A harlequin ladybird, *Harmonia axyridis*, inspecting a *Townsendia*.

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Above and below: *Townsendia parryi*



Like all genera, there are easy and difficult species. *Townsendia parryi* is the easiest to grow in my opinion and available in many nurseries and seed exchanges. Because of this, this species is very variable - it is always a surprise when the plants come into flower to see what you have got. I have had white flowers, lavender-coloured ones, sometimes with short stems, but also with stems of 10cm high or more. Kelaidis also describes this phenomenon of plants in nature. The species grows for instance in rich ecologic zones in the valleys and planes of the Yellowstone Park. But the area of distribution is much larger, the entire northern Rocky Mountains.

When you have raised some townsendias succesfully, you may collect seeds for the next generation. Collecting seeds is a must, when you wish to go on growing townsendias. Collecting seeds is an easy job. Seeds stick together in a seed-ball (fibres) and roll off the plant. Take them before they are blown away with the wind, the natural way to disperse the seeds. It is my experience that it is possible to sow immediately. Seeds of townsendias do not need a cold spell. In some cases there is a second bloom, so you may have flowering plants and seeds on the same plant. Seeds germinate

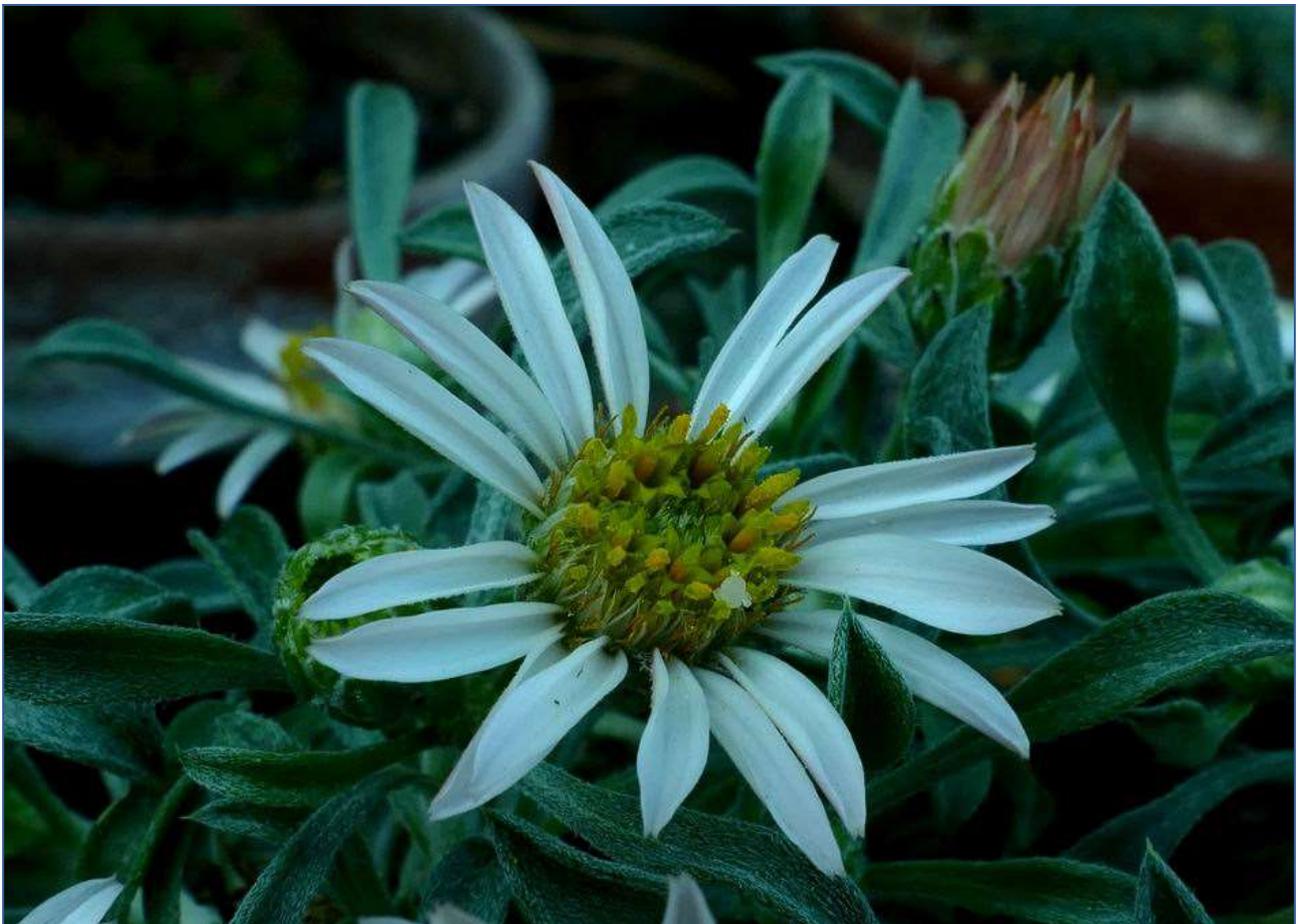
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rapidly. Transplant the young seedlings as soon as possible. Before the winter you may have many young little plants at your disposal. So many - in some cases - you do not know what to do with them. A nice luxury problem, isn't it?



Townsendia grandiflora

Townsendia grandiflora is another species with stems, just as *Townsendia parryi*. It is also named *Memorial Day daisy* or even *Fourth of July daisy*. It is a species of the lower territories, with an enormous area of distribution in the mid-west of the USA. From Montana, in the north to New Mexico in the south. For me it seemed to be a rather difficult plant. The many seedlings died one by one, but a few survived. It has taken several years before they have come into flower. After a long flowering-period, the plants died, but fortunately with hundreds of seeds left behind.



Townsendia incana

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If one could be allowed to choose just one townsendia, I would recommend ***Townsendia incana***.

It is a lovely species, not very demanding, with beautiful greyish velvety narrow spatulate leaves. The cycle, from germination to seeds is very short. One might think it is an annual, but it isn't. The plant is stemless and not longer than about 5cm. It produces numerous flower-heads and it goes on and on. You will find flowers and seeds on the same plant.

Although not an annual, it is yet rather short-lived.

Understandable after so many flowers and seeds. In its natural habitat, *Townsendia incana* is a desert species. We have already noticed it because of its grey and hairy leaves. It is drought resistant.

And it likes sunny circumstances. I have planted them in the sand of my alpine house and it grows happily among the dionysias.



***Townsendia incana* with *Dionysia*.**

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Eriogonum strictum* var. *proliferum

In the US *Townsendia incana* has colonized vast areas, together with - among others - the common wild buckwheat, ***Eriogonum strictum* var. *proliferum***, growing in sand and gravel on flats and slopes. In Montana, Oregon, Nevada, Idaho and more.

Townsendia jonesii seems to be a threatened and vulnerable species. It is like many other townsendias rather variable and occurs in the state of Utah. Ever so variable, that there are (light) yellow species, who have become rare because of being dug out by collectors. The normal *Townsendia jonesii* has a pink

colour and grows under severe circumstances in high mountains, in clayish soils with slate.

Fortunately this species grows happily in culture. It is easy to grow. The seeds germinate quickly, grow fast and bloom follows in the next year. The flower has a yellow disc, surrounded by pink to lilac petals. The flowers stay a long time on the plant. It is a recommendable species

to start with, if you can find seeds somewhere. Once I have tried the yellow form (forma lutea), but the delicate seedlings did not grow and vanished. I grow my species in a pot, but also in a trough and even in the greenhouse, free planted in the sand, because I know they just need mineral soils.

Townsendia jonesii, left, in a trough and ***T. jonesii*** above left, in the alpine house.



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Townsendia hookeri

Townsendia hookeri is the most frequently occurring *townsendia* in the wild. Its common name is The Great Plain daisy, in other words, the daisy of the prairies, the mid-west of America. The plains are covered with short grass. After a long period of drought, it looks like a tundra or steppe. This is the Wild West from the movies, the herds of buffalos in the past, Indian territory, home of the Native Americans, "flyover-country", but when the daisies are flowering, it must look like endless snow-fields, with thick carpets of stemless white flowers, raising from thin linear spatulate leaves. In culture I find it a difficult plant to grow. But I have managed to raise some plants as you may see on the picture, right. There have been many speculations, whether this species is monocarpic or not. With me, my first plant died after flowering, but it continues living by its seeds.



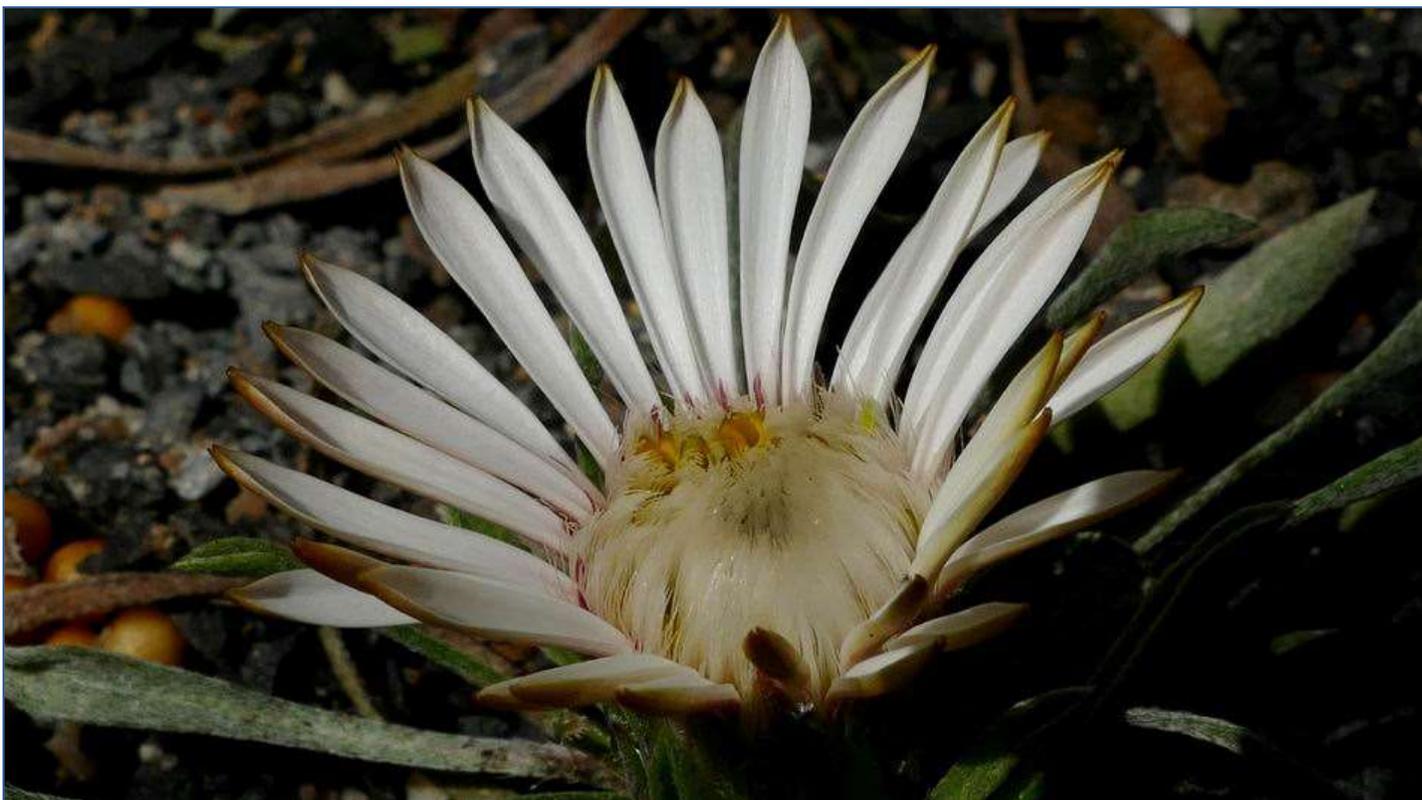
Townsendia hookeri with a fasciated flower.

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Townsendia exscapa

Townsendia exscapa occurs in the same habitat. This species is maybe the most beautiful of all in my eyes. It is a very special white colour, shining white. The plants in my garden are light orange-yellow on their reverse. Kelaidis shows us plants in the wild which almost yellow on the outside.



Townsendia exscapa

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Townsendia rothrockii – right, in a trough - is a species from the high mountain zone, the Rocky Mountains, where you find the highest peaks in Colorado. I planted a trough only with species of *townsendia*. There you can see this particular *townsendia*.

Townsendia leptotes grows in the high mountains too. It is a real miniature. The flowers are pale-lavender coloured. The species has good company in habitat.



Eritrichium aretioides

There you may find for instance ***Eritrichium aretioides***. I have grown this difficult species in a pot under a shelter. I succeeded to get it into flower only after many attempts. Maybe the secret is to raise it in purely mineral soil and not give it any water from above. Another clue is maybe to provide airstream from different sides, to prevent fungus.

Another beautiful species, growing in the alpine zone of the Rockies and a neighbour of *Townsendia leptotes* is ***Astragalus utahensis***, below. This is Not easy in culture.

The silvery hairy leaves are vulnerable to wet

or moist circumstances. I keep the pot as dry as possible and the soil is extremely drained and mineral.

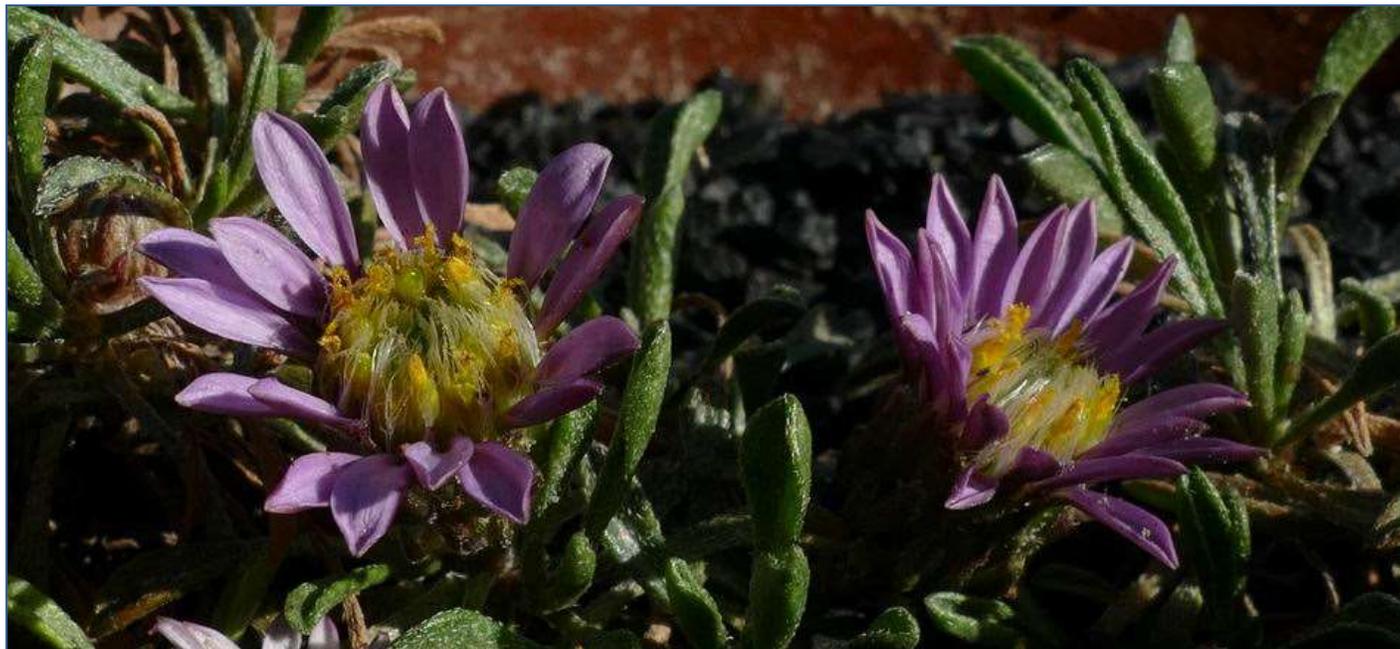


Astragalus utahensis



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In lower regions, in the south of Colorado are found more purple coloured forms of *Townsendia leptotes*. Obviously the plants in culture in my garden are descendants of these purple variations. This easy to grow species stays very small. Put the seedlings close together in a pot or trough to obtain a splendid effect.



Townsendia leptotes purple form



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Another alpine species is *Townsendia spathulata*, also from the Rocky Mountains. It grows there on narrow limestone ridges and in screes, consisting of crushed and eroded slate. In culture it is an extraordinarily spectacular species, with its two-toned flower colour and silvery spathulate leaves. Really breathtaking.



Townsendia spathulata,
a few days before the
flower opens.



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***Townsendia spathulata* 'Cottonball'**. From the moment on which I saw this [plant in pictures](#), I was determined to get seeds of it, by making an appeal on the SRGC-forum. And then I got some seeds from Michal Hoppel from Poland. He wrote me, he was not sure of the viability of the seeds, but I should try it. Two seeds germinated in 2014 and one seedling died in the winter. The last remaining seedling was growing very slowly and was attacked by aphids many times. After the next winter it finally started to grow some more. And it was going to look like a cotton-ball.



***Townsendia spathulata* 'Cottonball'** at an early stage.



And eventually in 2017 ***Townsendia spathulata* 'Cottonball'** came into flower. A reward for the many concerns about its health.

G.E.

Ed.: Both Gerrit and myself (M.Y.) are still trying to successfully access true seeds of *T. alpigena* and *T. mensana* – so far commercial seeds have not been true. We live in hope!

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---Plant Identification---

WHAT IS *CROCUS NUBIGENA* Herb.? by Jānis Rukšāns, *Dr. biol. h.c.*

Abstract: Epitype for *Crocus nubigena* Herb. is designated. Its distribution and the features separating it from similar species are discussed.

Key words: *Crocus nubigena*, *Crocus seisumsiana*, *Crocus harveyi*, *Crocus ruksansii*, Lesvos Island, Samos Island, W Turkey.

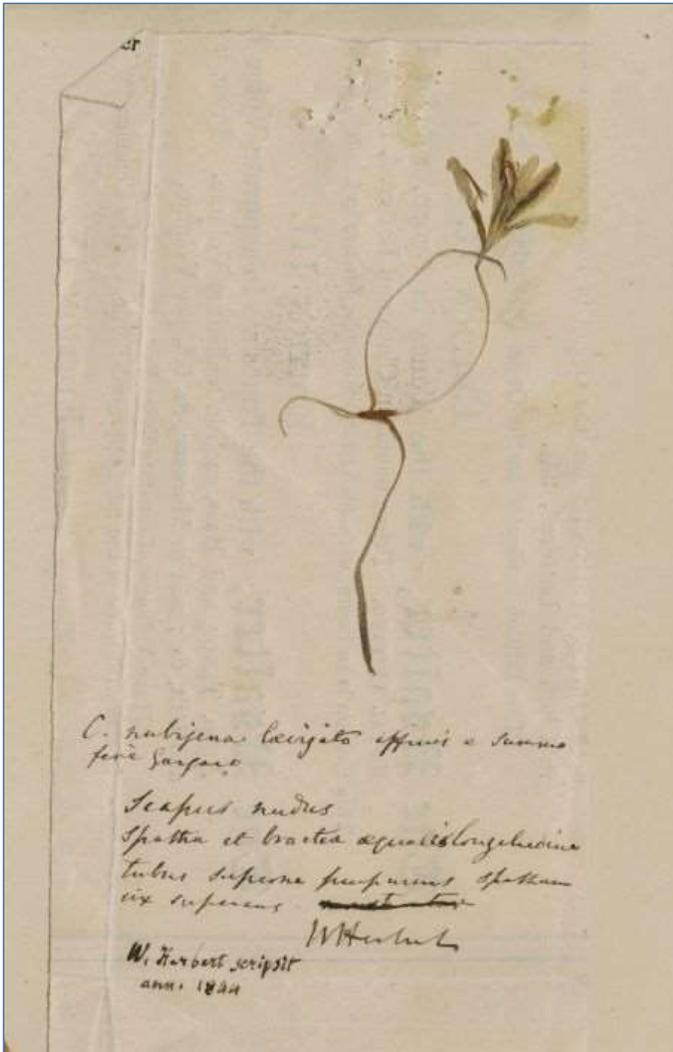
Three new crocus species— *Crocus seisumsiana* and *C. harveyi* by Jānis Rukšāns (2017b) and *C. ruksansii* by Dimitri Zubov (2017) were recently published, June 2017. All of them previously were encompassed in *C. nubigena*, a name previously proposed by Dean William Herbert in 1843, in Edwards's Bot. Reg. 29 (Misc.): 81 and reported from Kaz Dağ in Balıkesir Province, Turkey.



Crocus nubigena - Copy of type herbarium sheet from Kew.

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As is very common with *Crocus* species published in the 19th century and partly even in the 20th century, the provenance of plants was in many cases stated only roughly, implying huge areas from where several new species have been published during the last decades. In some cases the situation is still unclear. H. Kerndorff and E. Pasche (2014) designated an epitype for *Crocus isauricus* from an area N. of Sertavul, whilst O. Erol et al. (a little earlier, in the same year, 2014) for the same epithet (as lectotype) selected plants growing between the Gembos Yaila and İbradi – actually they represent two separate species. The selection of the new epitype for *C. adamii* (Rukšāns, 2014) was very problematic, where no exact localities were reported originally, and eventually it was based on an illustration in G. Maw's monograph. The designation of the type for *C. chrysanthus* and many other species is very difficult.



Left: Specimen with Herbert's own annotation from 1844.

Below: *Crocus nubigena* corm tunics as shown in the type herbarium.

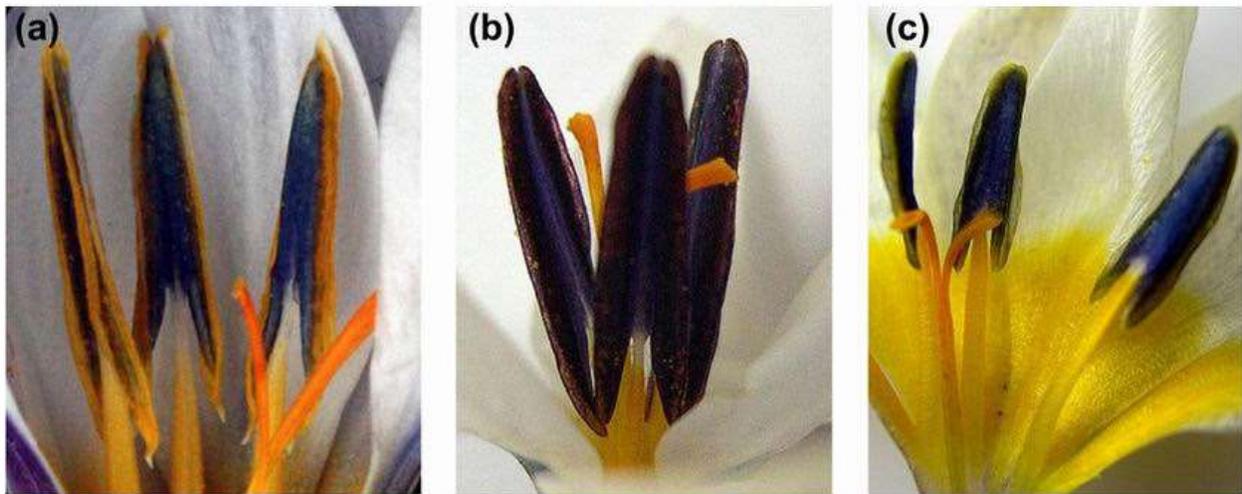


The situation with *Crocus nubigena* is similarly extremely complicated and it was partly discussed by B. L. Burtt in Curtis's Botanical Magazine vol. 170 (1954), t. 235. This species originally was described from material reported to be collected near the summit of Mt. Gargarus by Mr J. Lander. Its description was based on few plants grown by Herbert and on dried material preserved in the Herbarium of the Royal Botanic Gardens, Kew. Both the relevant pressed accessions, preserved at RBG Kew as K000802452 and K000802453, and annotated by Herbert himself, are in good agreement with the protologue. However, from annotations it is uncertain if these were consulted for the protologue of 1843 or sampled at a later date, 1844. Unlike many of the old herbaria which are in "straw-like condition" and as noted by H. Kerndorff & E. Pasche (2014) – not usable for identification – we can clearly note the long basal lobes of the black anthers, the comparatively medium long stigmatic branches ending slightly below the tips of the anthers, the distinctly striped outside of the flowers, and the most noteworthy, the well-preserved corm tunics.

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The anthers and stigmatic branches of *C. nubigena* are well illustrated by O. Erol et al. (2012, fig. 2), comparing the newly-described *C. demirizianus* with *C. nubigena* (from near Bergama) and *C. crewei* (the last two still treated as subsp. of *C. biflorus*; their status was changed by Harpke et al. in 2016; although there the distribution area of *C. crewei* was indicated erroneously – in such a way the authors followed B. Mathew’s monograph, but B. Mathew had clearly stated that this was a mistake of Hooker and Maw) and they both correspond well with the materials of Herbert. Unfortunately the colour of the flower tube deep in the throat is not well observable either in Herbert’s herbarium (there we can only see a somewhat darker staining, which could be explained by the dimming of the colour with age, but that allows to suppose a darker colouring deep in the throat) nor in the picture published by O. Erol (the bottom part of the flower was not shown). After a thorough inspection of a sample from near Bergama in my own collection, it was possible to observe a purple coloration deep in the otherwise yellow throat.

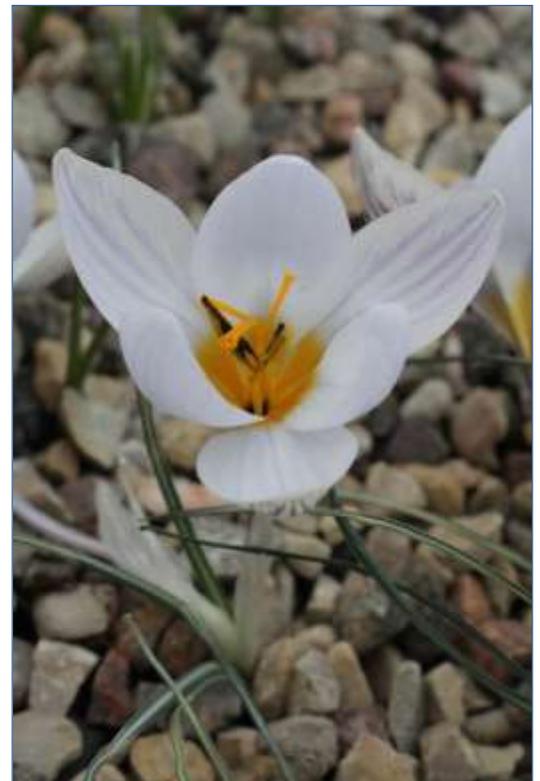
Figure 2: Comparison of the anthers of related taxa (a) *Crocus demirizianus* sp. nov. from the type locality, (b) *Crocus biflorus* subsp. *nubigena* from Bergama: Acropolis (c) *Crocus biflorus* subsp. *crewei* from Denizli.



Copy of Fig. 2 from O. Erol et al, 2012.

Right: *Crocus nubigena* from near Bergama.

Returning to Herbert’s observations on living plants, published only in his posthumous paper of 1847 (according to Burt, B. L., 1954), in his own words: “of three bulbs which survived” – one was white, two heavily striped on the outside, the latter of those two had yellow anthers, the other – black. In the Latin description just the striped flower with black anthers were given as typical characters and others used only to characterise the variation. Further in his article B. L. Burt compares several plants collected by different collectors all over the peninsular Asia Minor up to Gaziantep, where many different species are known these days, having striped or unstriped flowers and more or less blackish anthers. Simply just the black colour of the anthers was the reason why the observed plants were all called “*nubigena*”. Recent DNA analyses have revealed the presence of numerous superficially similar species and consequently much more attention is given to other morphological details that were sometimes overlooked by earlier authors – such as the leaf morphology, the shape of corm tunics and basal rings, etc.



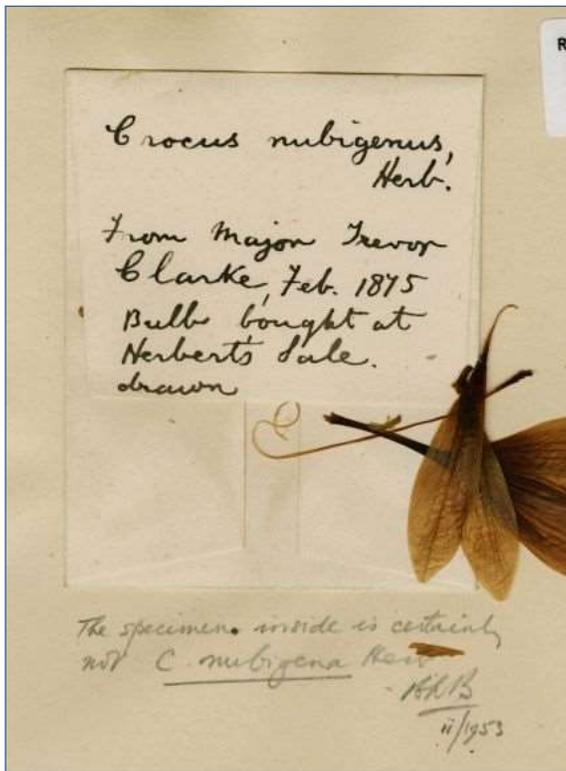
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Arne Strid in his 2-volume Atlas of the Aegean Flora (2016) on map 2039 (vol. 2, p. 518) as the localities where *Crocus nubigena* (as subsp. of *C. biflorus*) has been observed, indicates the E. Aegean Islands of Karpathos, Ikaria, Samos, Chios and Lesvos. The epithet “nubigena” occasionally was applied also to the plants from Rhodes, now described by me as *C. rhodensis* (Rukšāns, 2015). In each case just the presence of the black colour of the anthers was the catalyst to name the observed plants as “nubigena”. More detailed observations allowed the separation of the plants occurring on the islands of Karpathos, Ikaria and Samos as different new species and they were published in 2017.

But still the question remains – what is the original *C. nubigena*?

The plants used for the illustration in the Botanical Magazine (1954) were collected on Samos Island by Mr. Mark Ogilvie-Grant and exhibited by him at an RHS show in February, 1952. Mr. Ogilvie-Grant regarded them as a new, not yet published species. Comparing the morphological details of the plants from Samos, Lesvos and Bergama, it was not difficult to state that only the plants from Lesvos and Bergama matched the herbarium materials of Herbert. There was another source B. L. Burt consulted – a watercolour sketch of E. A. Bowles based upon plants collected by Mr. Whittall of Smyrna. The origin of these is very uncertain, thus their use to define *C. nubigena* is highly disputable. The same can be true regarding the interpretation of *C. nubigena* in G. Maw's

Monograph. The drawing of *C. nubigena* (as var. *nubigenus*) leaves on Maw's plate 59b has no ribs in the lateral channels, which is incorrect. G. Maw characterises Herbert's plant as having a “freckled” outer to the flower, but the Latin description implies plants with striped segments and such is the flower in the herbarium specimen annotated by Herbert. There is another envelope (K000802454) attached to the sheet of Herbert's materials. It appears irrelevant to the protologue and I agree with Burt's comment that the specimen included is not *C. nubigena*.



Annotation by Burt in 1953 (K000802454)

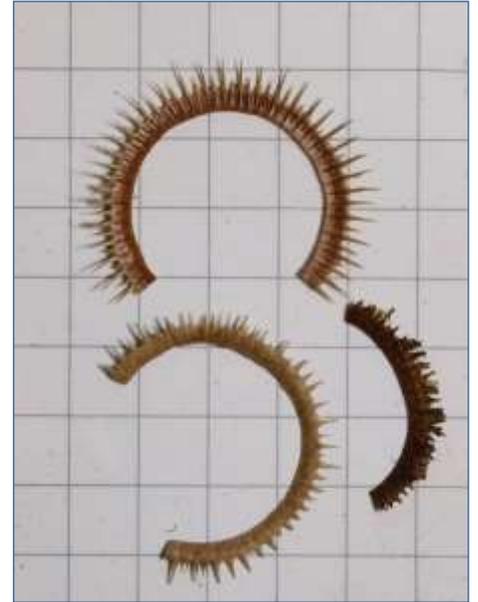
Kaz Dağ from where Herbert's plants had been reported, is now a national park with restricted access and I have never had an opportunity to observe “*biflorus*” crocuses from there, and I don't have any information about the plants collected there having been grown in other collections. But both gatherings from near Bergama and

from Lesvos are essentially identical morphologically and correspond well with the features observable on Herbert's herbarium. All three localities surround the Edremit Gulf (Körfezi) and the so-called Midilii Kanali. It seems that before the postglacial rising of the sea level their areas were joined and they all housed the same species, which still has remained mainly unchanged at least on Lesvos and near Bergama in the adjacent continental part. That allows one to suspect that the plants collected on Kaz Dağ by J. Lander could belong to the same species.

The main differences between a typical *Crocus nubigena* and the crocus from Samos (now described as *C. seisumsiana*) are in the colour of the anthers and in the characters of the teeth on the basal rings. Plants from Ikaria and Karpathos are very different from both - *C. nubigena* and *C. seisumsiana* and their species status cannot be questioned. Both *C. nubigena* and *C. seisumsiana* have purple colouring deep in the throat, which is absent in *C. harveyi* and *C. ruksansii*, the corm tunics are different, too. Plants from Lesvos and Bergama have black anthers, whilst, having seen hundreds and hundreds of flowers on Samos, I did not observe any with completely black anthers,

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but the black colour there usually was present (although sometimes it was absent) only in the connective or in the connective and on the edges of the pollen sacks bordering the connective. Both species have different basal rings. In plants from Lesvos and Bergama the teeth of the basal rings are shorter and practically equal in length. That is easily detectable on the basal ring preserved in the herbarium of Herbert as well. The teeth on the basal rings of *C. seisumsiana* are distinctly longer, often of variable length.



Right: The teeth on the basal rings of *C. seisumsiana*.

Below: *Crocus seisumsiana*



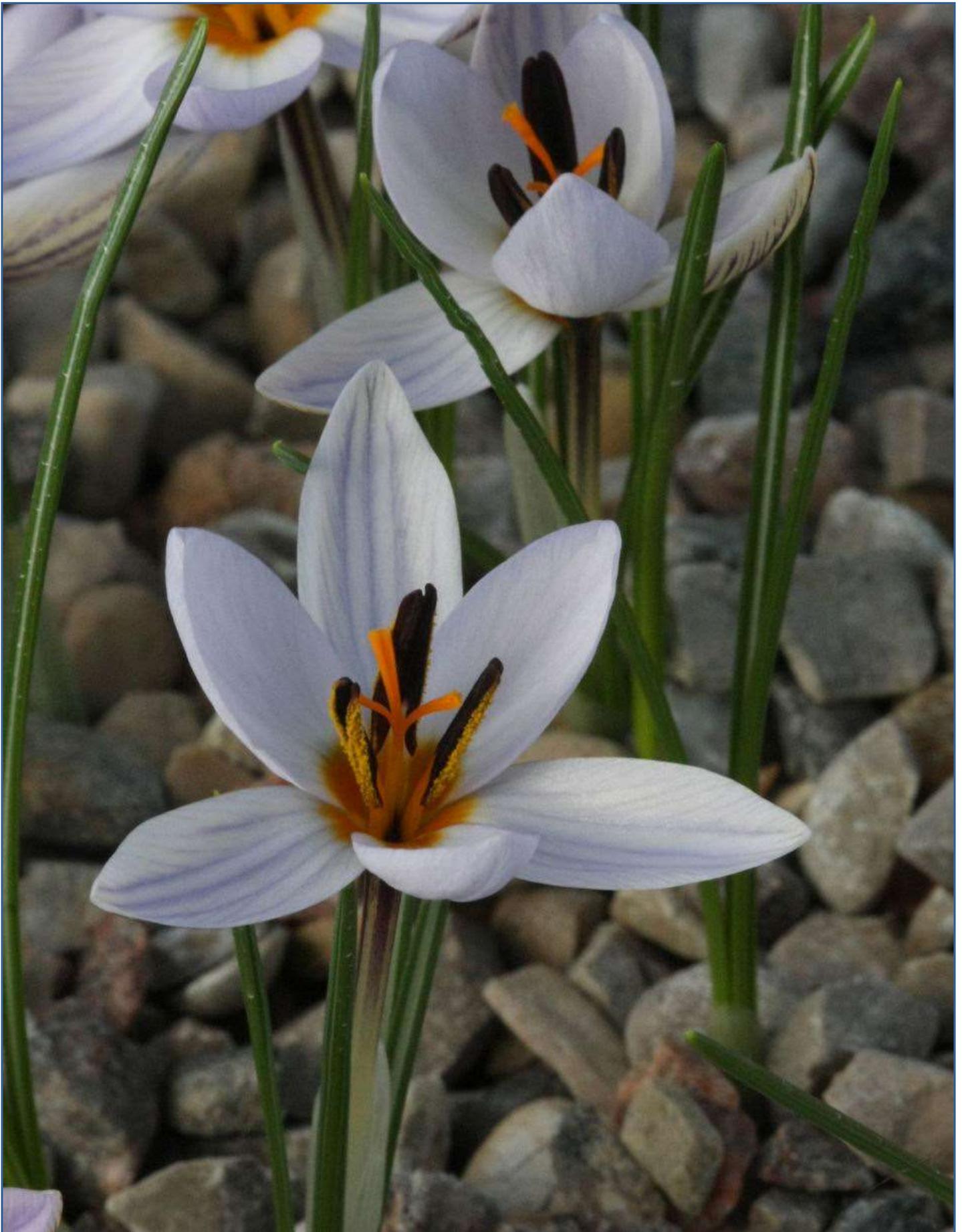
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Above: *Crocus seisumsiana*



Crocus nubigena JP-86-9 Lesvos



Crocus nubigena JP-86-9 Lesvos

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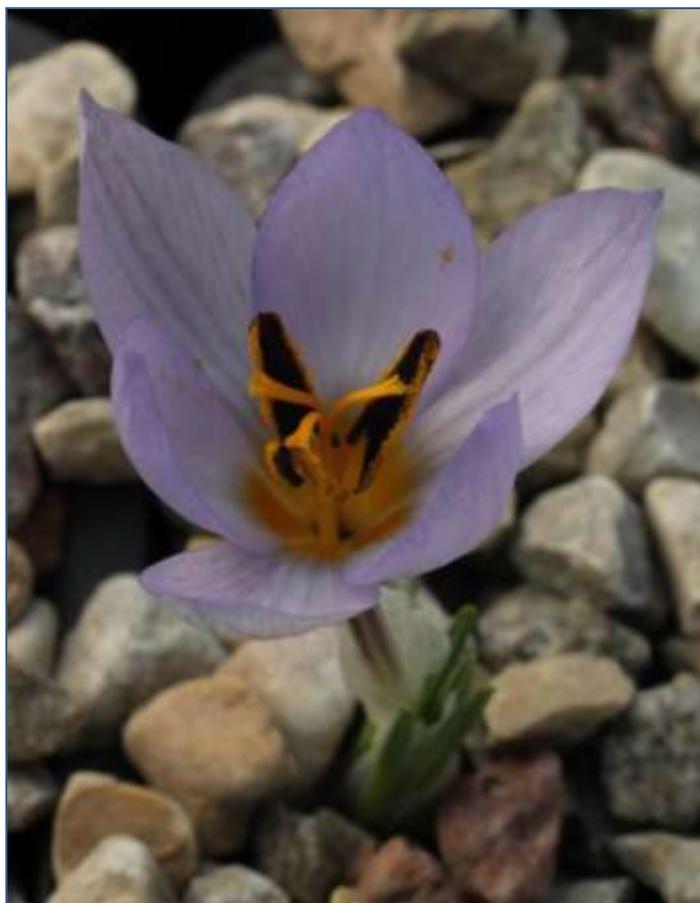


Crocus nubigena JP-86-9 Lesvos – corm.



Crocus nubigena JP-86-9 Lesvos – grown at Gothenburg Botanic Garden.

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Crocus nubigena JP-86-4 Lesvos



Crocus nubigena JP-86-9 Lesvos – flower detail

All the discussed facts clearly show that there is need for an **epitype**, which could enable identification of the original *Crocus nubigena* and to separate it from other superficially similar species. A crocus sample from Lesvos was preserved and used for correct identification of *C. nubigena* sensu Herbert. This sample is deposited in the Herbarium of University of Gothenburg (GB) and a full description of *C. nubigena* can be found in my monograph “The World of Crocuses” (Rukšāns, 2017a: 369).

There still remain three crocus samples to be noted here, all with annulate corm tunics known from three gatherings on Chios Island, which is located between Lesvos and Samos. In 2011, in the company of the Dutch nature lover Kees Jan van Zwienen, I criss-crossed the island driving along nearly every road. I searched everywhere for crocuses with annulate tunics and without any exception in every habitat – under pine trees, in rocky open plains, etc. - I found only the autumn-blooming *Crocus pulchellus*. One of the gatherings (Strid-56513) was collected by A. Strid himself and plants under this number are still grown in the Gothenburg Botanical Garden, but they represent *C. pulchellus*. Perhaps some mix of labels had occurred during cultivation as A. Strid (by private correspondence) denies any possible misidentification. My own investigation at the same locality also yielded only *C. pulchellus*, but I was there in April, so it was very easy to overlook the leaves, although I found and collected there several corms. There remains one more locality from where “*C. biflorus*” was reported and photographed by P. Saliaris on 23rd November, 1994 (according to A. Strid). Blooming of “*biflorus*” crocus at that time is very doubtful (autumn-blooming “*biflorus*” crocus species occur very far from Chios – on the Peloponnese and in S.W. Turkey). Another gathering was made already in 1934 by K. Rechinger and reported as *C. chrysanthus*, which is most likely erroneous. It was collected in May, certainly without flowers, not allowing exact identification. In the same area I found only *C. pulchellus*.

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E p i t y p e: *Crocus nubigena* Herbert. A known locality for *C. nubigena* sensu Herbert exists in an area at alt. 700m, W. of Olympos, Lesbos Island, Greece (JP 86-09, ex culturae in horto Jānis Rukšāns; fl. 20-02-2003) GAT (Gatersleben).



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---New Cultivar---

SPRING STORY by Zdeněk Zvolánek

The first part of the story was told in [The IRG #60](#), where the new cultivar *Saxifraga dinnikii* 'Floralpin' raised from seed in the German nursery Flor Alpin by its proprietor Frank Schmidt was described. At present *Saxifraga dinnikii* 'Floralpin' is well-known from the Spring Shows at Prague as a floriferous and healthy plant, stronger than the type species *Saxifraga dinnikii* collected in subalpine/alpine level by the Czech party led by Vojtěch Holubec and Josef Jurášek (my untameable friend).

'Floralpin' has large crystalline white flowers (with long lanceolate petals, sepals are pale yellow with green tops. The article in the IRG described the locality of the seed used to make 'Floralpin'; it is elevation about 1000 metres above sea level in the Bezengi river valley in Caucasus Mts. near a romantic waterfall.

The second part of this story is played near the weekend house of Josef Jurášek's lady friend Jindřiška in historical old town Budyně nad Ohří in Western Bohemia. Here Josef obtained nice bunch of his seedlings of 'Floralpin'. They all flowered with a snow white colour but a few of them had round petals on saucer shaped flowers with green sepals. Flowers are large with overlapping petals. Josef (the well-known pioneer-seed collector) showed me photographs and I suggested he name the best one after his guardian angel Jindřiška - ***Saxifraga dinnikii* 'Jindriska'**. This cultivar name is now registered by Adrian Young.

We hope that 'Jindriska' has inherited vigour and the willingness to persist in our continental warmer gardens, because of the montane level of its seed origin and of the adaptation effect of home-made seedlings.

***SAXIFRAGA DINNIKII* 'JINDRISKA'**

by Zdeněk Zvolánek, photograph: Josef Jurášek



Another cultivar from *Saxifraga dinnikii* forma *alba* has been named.

Parentage:

Seed parent: *Saxifraga dinnikii* 'Floralpin'

Pollen parent: the same (self-pollination)

Raiser: Josef Jurášek, Prague, Czech Republik

Name of cultivar: '**Jindriska**' (a diminutive of Jindra – a girl's name)

Selection: all seedlings of the German selection 'Floralpin' kept their white colour. Josef Jurášek selected in spring 2017, from a dozen seedlings, the best plant with round petals and flatter outline.

Description:

Flowers: shape is not like a trumpet or funnel as it is with 'Floralpin' but similar to species *S. dinnikii* – this is more saucer shaped and of a very good size.

The colour is pure white with a deep crystalline texture to the petals.

Petals are rounded or obovate as it is with common shape of this species, serrated in margins, well overlapped.

Sepals: are all pale green, not pale yellow with greener top as with 'Floralpin'.

Flower stems are short and all green, not green and yellow.

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---Hybridising ---

Fritz Kummert has been for more than 40 years one of the most active and educated of the world's rock gardeners. We connect him with European alpine primroses and work improving the genus *Daphne*. We are pleased to have his information about breeding classic European *Gentiana* at his home, obtaining new colours and new qualities. Our [monthly journal IRG 36](#) introduced *Gentiana* 'Trumpets of Jericho' a cultivar with long narrow trumpets above slim stems, which Fritz selected and gave as a present to late Joyce Carruthers to propagate. Kirsten Andersen photographed this cultivar suitable for small containers. We wish Fritz a long brave life and plenty of 'blooming luck'.



Gentiana 'Trumpets of Jericho'

GENTIANA HYBRIDISING NEAR ROLLSDORF by Fritz Kummert, Austria.

I was glad to hear that the gentian I gave to Joyce is alive! It came out of a long time breeding programme with mainly Austrian *Gentiana clusii*-types. As my wife, Sefi then said I should try to enhance the depth of the colour I used *Gentiana occidentalis* several times for my crosses. The latest seedlings of these trials are not true *Gentiana clusii* anymore, but more cushion-forming, shorter in the tube, not able to be used as cut flowers (which was the intention of my crossings at the beginning, inspired by the 1000s of flowers which in Vienna were sold cut on Mothers' Day in earlier days!) and are darker in the violet touch. Some years ago nurserymen Josef Holzbecher and Franz Praskac evaluated our gentian-seedlings and the best of them, about ten clones, were selected for propagation.

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I then began to explore the colour-forms of the Upper-Bavarian *Gentiana clusii* and we have a fine selection now. They are more difficult to propagate as cuttings as they normally prefer to seed themselves. But we have nice colours now, which are completely useless, as a **gentian must be blue!**



I add some pictures of the variations I am trialling.

This shot, left, shows the plants lined out for evaluation of in the garden.

The two cushions, on the right, are from the first crossing of *Gentiana occidentalis*.

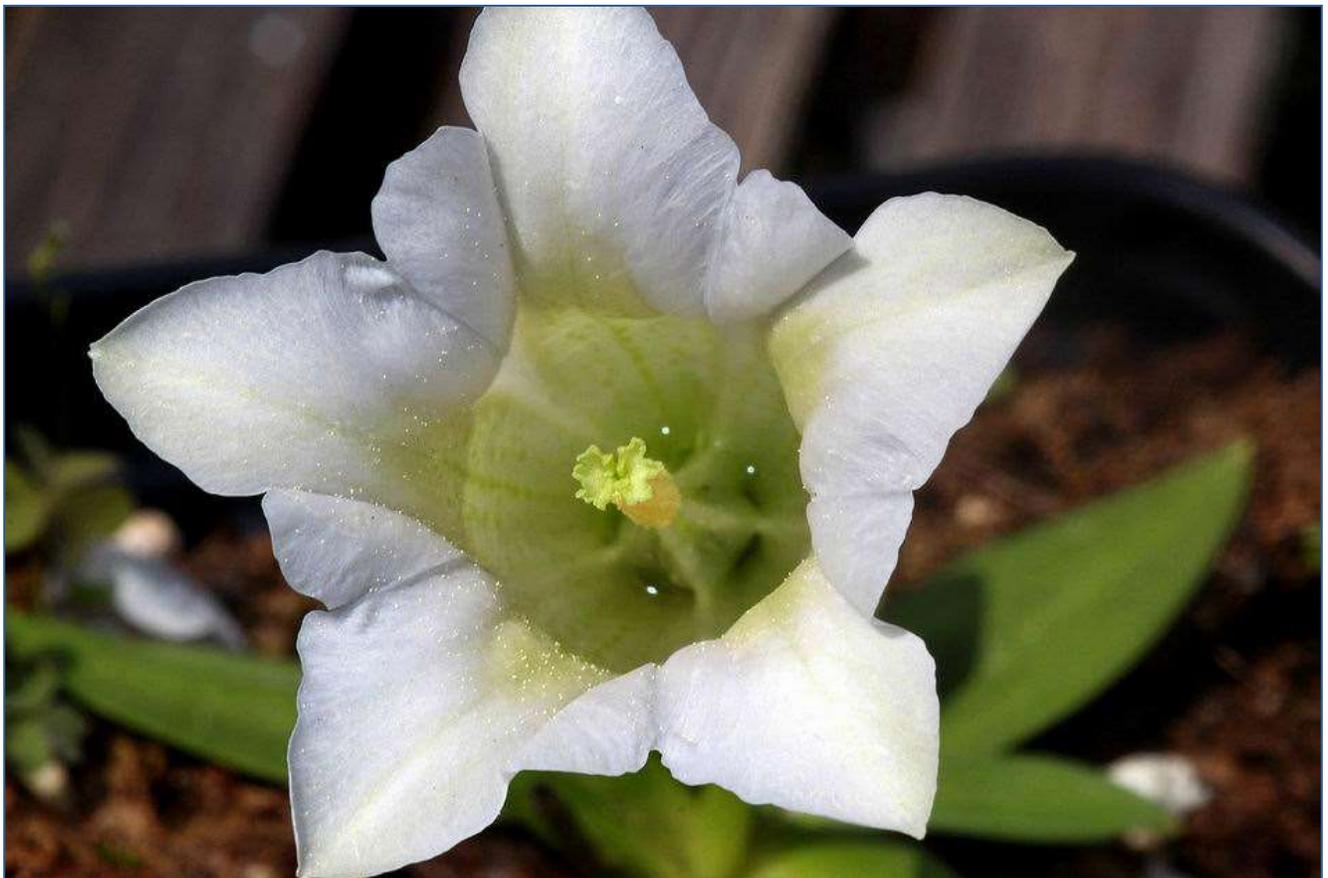


A very compact heavily flowered plant – and a fine blue.

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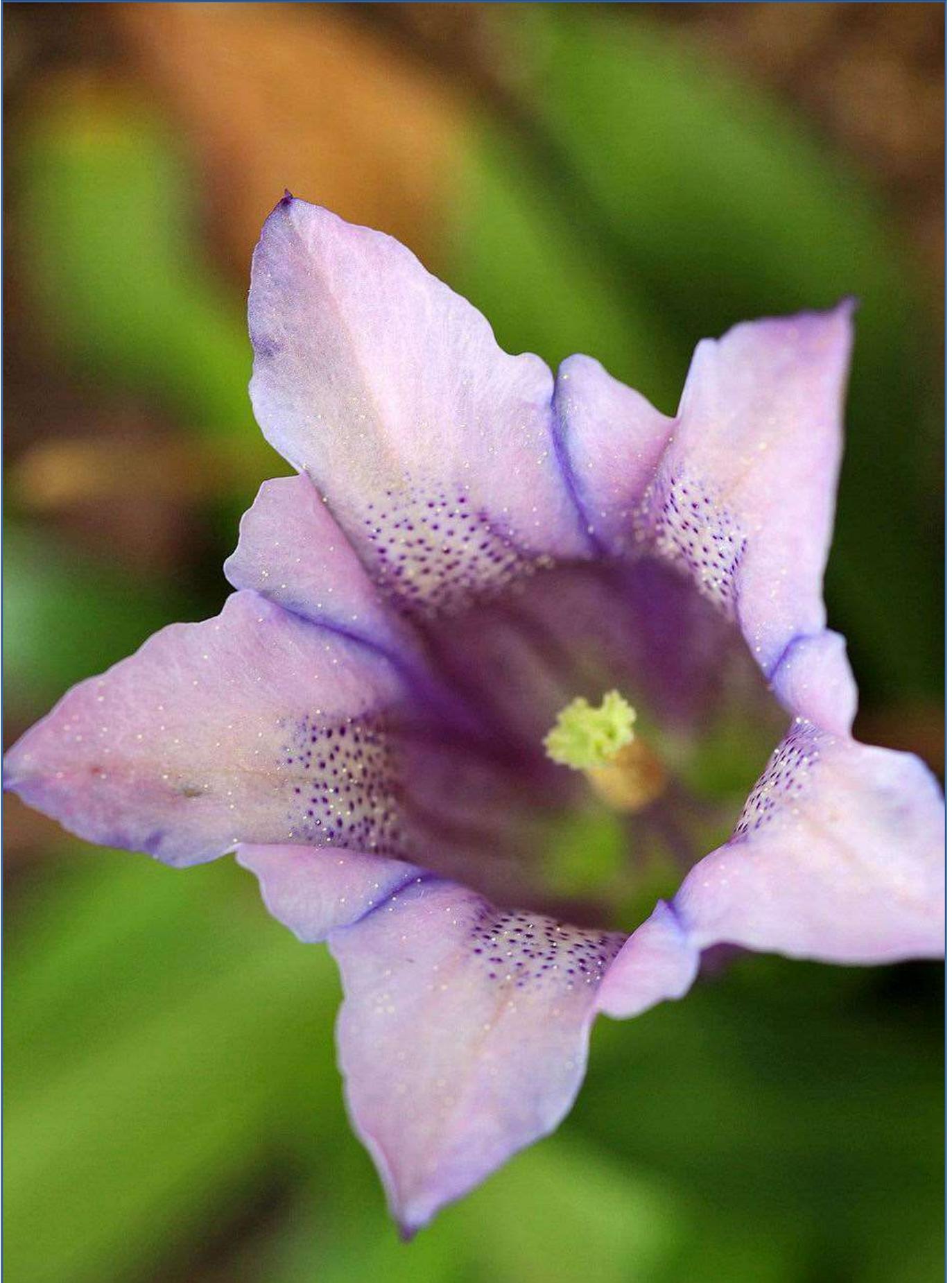
A longer stemmed violet form is one of the newest, but it is more difficult to grow, having even more blood of *G. occidentalis*.



The plain white is ('Belvedere' x *G. kochiana alba*) x *G. kochiana alba*.



Upper Bavarian *Gentiana clusii* selected rosa form.



Gentiana clusii - rose pink selection

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Gentiana clusii – pink throated version 1



Gentiana clusii – pink throated version 2

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These white-hearted ones, which came recently, are very curious. They are complex hybrids between garden gentian and my seedlings.

You can imagine the numbers I raise: there is always more to learn about heredity, I have about 600 seedlings in small pots!

F.K.