

International Rock Gardener

ISSN 2053-7557





Two years after his first offering, we now present the second part of the Eijkelenboom report on the orchids of Crete. There are quite a number of these orchids grown in commerce and a good number of people cultivating these orchids (mostly under glass in the case of the UK growers), as can be seen by the number of posts in the Terrestrial Orchid threads of the Forum, such as [this compilation for 2011 to 2014](#) or [this from 2015](#). It is good to know that such seed grown plants are available to buy for those who wish to grow them and it is a delight to see how they appear in the wild.

Cover picture: *Ophrys spruneri* by Gerrit Eijkelenboom

---Gardens in the Islands---

Wild orchids of Crete: part 2 text and photos by Gerrit & Ibeltje Eijkelenboom

Genetic research has found that a number of orchids, familiar to us, are not related any more to the group of the genus *Orchis*. For many of us, we have to study in order to learn the new names. Some of us will refuse to use those names and will carry on with the old names. Anyhow, the orchids remain the same orchids.

The changes that have been made to what we previously called "Orchis" are now listed as:

Anacamptis: *pyramidalis, morio, palustris, elegans, laxiflora, picta, boryi, cariophera, fragrans, collina, robusta, papilionacea.*

Neotinea: *lactea, tridentata, conica, commutata, ustulata, maculata, corsica.*

Orchis: *the remaining species.*

In [IRG 43, July 2013](#), I told you about the many orchids found during a fortnight's trip to Crete. In this article, I carry on to describe the species, found from April 3 until April 17, this year. It was a late season. Many species came into flower 2 weeks later than usual. An opportunity for us to see the early flowering species, such as those of the *Ophrys fusca* complex.

My wife and I mostly spent our time in central Crete, near Spili, where the greatest number of orchids can be found and in western Crete, where we stayed near Chania. In the meantime, my wife has become an expert in finding orchids between the weeds and bushes. Sometimes I am almost standing with my foot on an orchid without seeing it. Okay, I will do the photographing and she is searching around. We form a good team.



Gerrit's wife, Ibeltje, before the village of Grigorio and the highest peak of Crete; Psiloritis, 2456m

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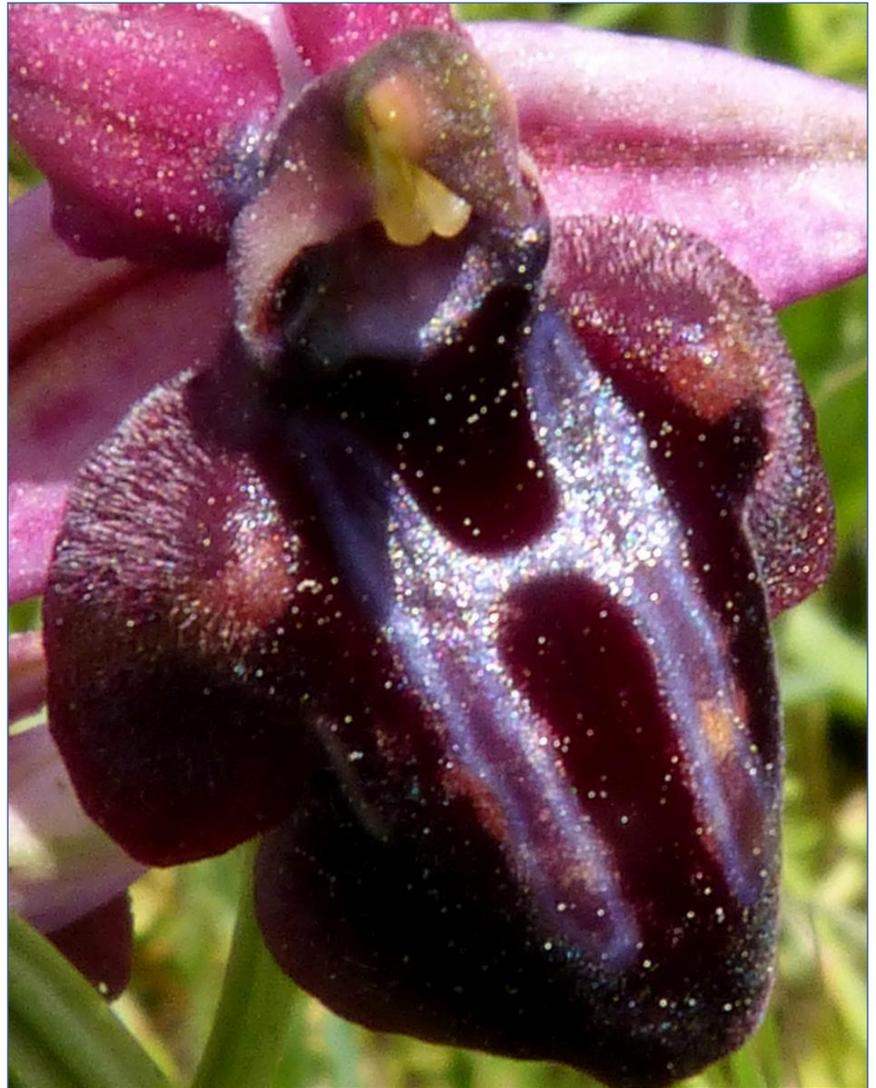
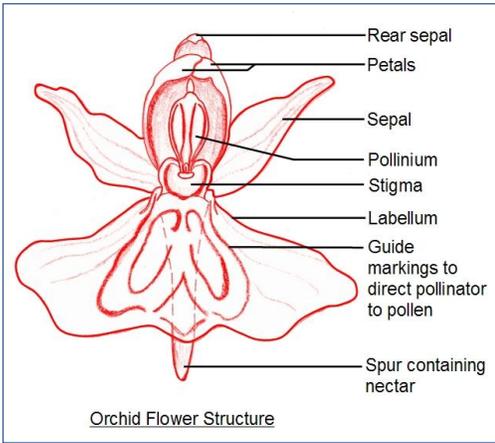
Ophrys bombyliflora:

A cute little orchid. Easy to miss in the field, but the very light green tepals catch our eye. We went on our knees to take pictures and we needed a camera with a macro lens, to discover the absolute beauty of this species. Look well at the pictures and notice the stigmatic cavity, the place where the pistil is. The entrance to this cavity is extremely large. The edges are framed with black ridges. Above that entrance you see the pollinia with the two packets of pollen. The lip is small and blackish-brown with a blue blazon. Mostly the “bumblebee orchids” grow in a group. This species forms tubers, where new plants emerge.



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Diagram of the flower structure of an orchid – used by kind permission from the Cronodon website.



Ophrys spruneri:

This large and spectacular species was found near the village of Rodovani, far away and deep inside the island. After a long ride from the coast to this village, we found the strong plants with many flowers, with striking pink tepals (sepals & petals). The lip is deeply divided into three lobes. The middle lobe is long, velvet brown, even black, with an intensive blue H on it.

The entrance of the stigmatic cavity is bordered by a blue horizontal line with 2 pseudo-eyes at the end of this line. This line is what we often see in Ophrys. At the end of the lip, there is a protuberance, pointing forward. An encounter with this beautiful species, makes the long trip absolutely worthwhile.

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Orchis provincialis: Some twenty kilometers away from the village of Rodovani, we found this rare species. It grows on acid subsoils. The colour is pale-yellow, the centre of the lip is somewhat darker, with red dots in the middle. The long spur, bending upwards, contains the nectar reward for the pollinating insect.



Orchis provincialis



Above: *Orchis provincialis* - this photo by Cedrik and Štěpánka Haškovec, from [IRG 19](#)



Orchis (Anacamptis)

papilionacea subsp. heroica:

This is a low growing plant, well known and beautiful, because of the two colours red and pink. The lip is red with many red dots and stripes. Important for diagnostic reasons, is the leaf rosette.

During the flowering period, the leaves stay alive and green. This is the most important difference with the other subspecies, the rare *O. papilionacea* subsp. *alibertis* whose leaves are already withered by the time of flowering. The latter one flowers a month later than the more common subsp. *heroica*. So you can not see them at the same time.



Orchis (Anacamptis) papilionacea subsp. *heroica*

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Above and left: *Orchis (Neotinea) lactea*



Above: *Orchis (Neotinea) tridentata*

Orchis (Neotinea) lactea

This species is closely related to *Orchis (Neotinea) tridentata*. *Orchis (Neotinea) lactea* is a strong but low growing orchid. The sepals form a closed helmet: this is the most important difference with ***Orchis (Neotinea) tridentata*** where the helmet is slightly open at the tip. Those three tips bend away from each other, like three teeth.

The lip has three lobes, the lateral lobes stand out to the side. The outline of the lip is rounded. This is an orchid which can be variable in colour. Many beautiful specimens can be found.

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Orchis sitiaca: A difficult species to both find and to determine. Leaves with dark spots. A large spur, bending upwards. The lip is divided in three lobes. The two lateral lobes are turned downwards. The most characteristic point of interest are the green striped sepals, with a red margin.



Ophrys cretica



Ophrys ariadnae

Ophrys cretica and Ophrys ariadnae: On a slope in Southern Crete, I met a German, Of course we discussed some orchids. I pointed to an orchid by our feet. It was *Ophrys cretica*. And I asked him, which subspecies he thought it was. "I come here already 25 years, he said, and for me *Ophrys cretica* is *Ophrys cretica* and nothing more". That's a delicate point, he mentioned. Sometimes it is hardly

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possible to see the differences between some species and subspecies. In this case I will show you the two subspecies, growing on Crete. It can only be seen through the lens of a camera, when you crop the picture and blow it up. The size of the entrance to the stigmatic cavity is decisive: In *O. ariadnae* higher than wide, in *O. cretica*, much wider than high. Each subspecies has their own pollinator. The latest opinions in taxonomy are, that it is the pollinators that make the difference.



Left: *Ophrys mammosa*

The *Ophrys mammosa* group: Members of this group have an undivided lip. On this lip we can see two humps. You will understand now the word 'mammosa'. We find 4 subspecies in Crete:

***Ophrys mammosa*:** Strong lateral humps, with a red colour in the middle of them. The edges of the lip turn downwards. The outline of the lip is triangular.

***Ophrys herae*:** The outline of the lip is rounded. Also strong humps with a lighter red colour.

***Ophrys sphegodes* ssp. *cretensis*:** The next two ophrys have small humps. The lip of this species is smaller than the next Ophrys. The outline of the lip is rounded.

***Ophrys sphegodes* ssp. *gortynia*:** The lip of *gortynia* larger than that of *cretensis*. The outline of the lip is not rounded. There is often a yellow margin.



Left:
Ophrys
sphegodes
subsp. *cretensis*

Right:
Ophrys herae

Below:
Ophrys
sphegodes
subsp. *gortynia*



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Sexual deception: Pollinating insects get their reward after visiting a member of the genus *Orchis*. They find nectar in the spur. *Ophrys* cheat those insects in a remarkable way. [The flowers produce sex pheromones, the same smell as female insects produce, to attract a male](#). The excited male insect approaches the flower and when he gets closer, there is a visual deception. [The flower looks like a female](#). After landing on the lip, where the insect feels comfortable, by the shape of the lip, the insect starts mating. In this way the insect touches one of the two pollinia, which is sticky. Disappointed the insect-lover flies away with a packet containing pollen on his head or back. Looking for another "female", where he will leave behind some pollen. This is called pseudocopulation. Now you may understand why so many *ophrys* have a name like: bee orchid, bumblebee orchid, fly or wasp orchid. (*Ophrys tenthredinifera*, tenthredo = wasp)

These pictures, below, of a bee collecting the pollinia from *O. sphegodes* are by **Steve Clements**.



***Ophrys candica*:** The edges of the lip are hairy. The middle of the lip looks like marble. This species is hard to find because of the resemblance with *O. heldreichii* and *O. episcopalis*.

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Ophrys fusca group: The members of the fusca group cause a headache to those who try to differentiate them. There are at least 14 subspecies, which are fortunately not all growing on Crete or at the same time. I have seen and determined 3 of them.



Above: *Ophrys fusca* subsp. *creberrima*
Left: *Ophrys iricolor*

Ophrys iricolor: Of note is the impressive blue blazon. Underneath the lip, we see the rainbow colours, hence it's name: rainbow orchid. At the base of the lip there is some orange colour and a deep groove.

Ophrys fusca* subsp. *creberrima: A plant with up to five flowers. The lip has a groove at the base. The lip is rounded with downy edges. There is a blue blazon, with its edge intenser blue in the form of an omega.



Ophrys omegaifera: Huge flowers, 2cm in length, covered with dark brown velvety hairs, with a metallic blue omega on the lip.



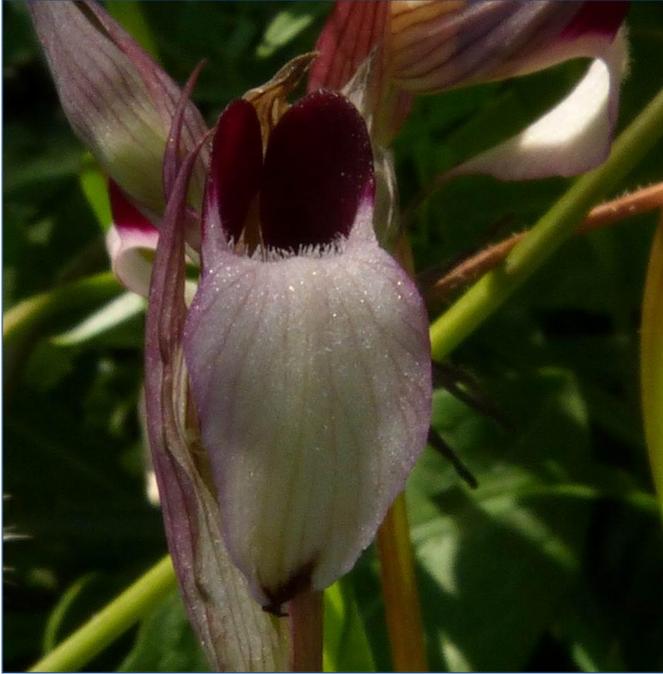


Ophrys grigoriana: We were excited to find this very rare species. We have found 7 specimens growing somewhere in the neighbourhood of the village of Grigorio in Central/South Crete. This species is threatened by extinction. Determination is easy. It has a velvet black/brown lip. Maybe the largest of all ophrys. It has a beautiful silver/blue H on the lip. A special feature is the presence or not of side lobes – the shape is somewhere in between!

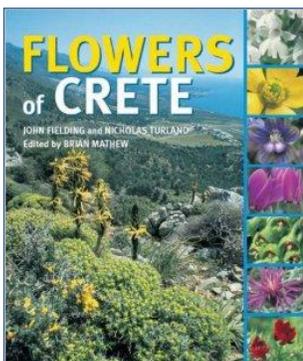
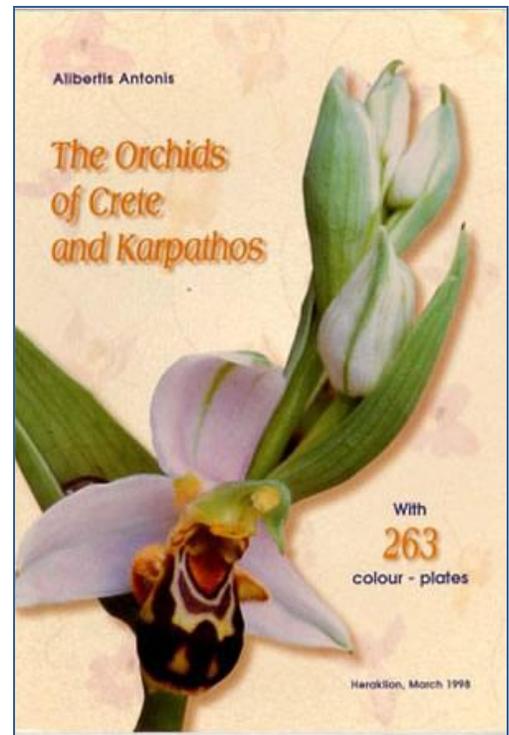
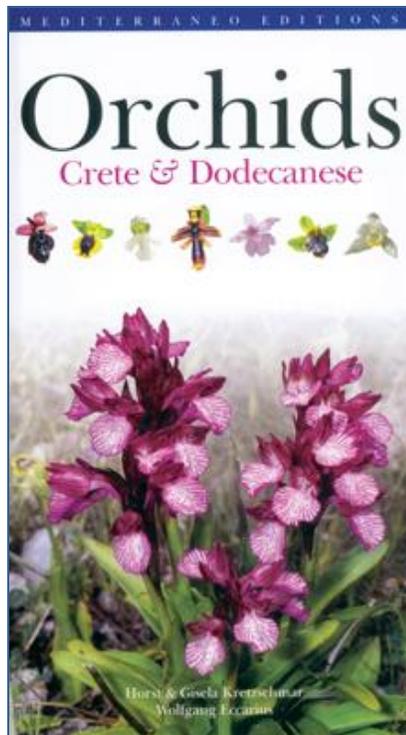
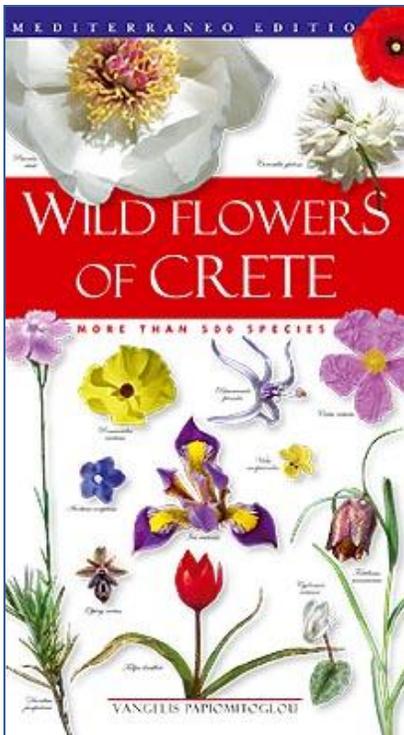


Serapias bergonii: The most common on the island. The flowers are arranged at an angle.

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Serapias lingua: (above left) Small and delicate plants, often in large groups. The lip is striped.
Serapias orientalis: (above right) A plant with a very long lip, red and hairy.



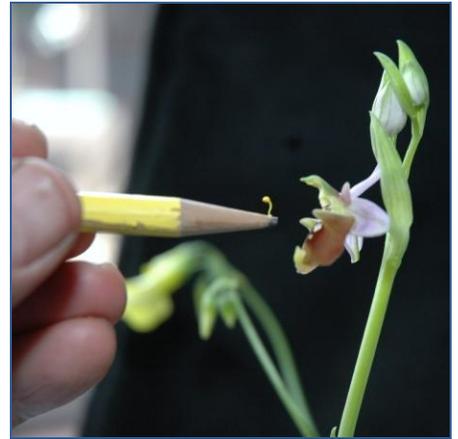
- Books:
 Vangelis Papiomitoglou: Wild flowers of Crete.
 Horst & Gisela Kretzschmar, Wolfgang Eccarius: Orchids, Crete & Dodecanese.
 Antonis Alibertis: Die Orchideen von Kreta ind Karpathos.
 John Fielding and Nicholas Turland: Flowers of Crete.

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Ophrys episcopalis, photo by Anthony Darby

Previously, in the SRGC Forum, Anthony has shown the method of removing the pollinium to pollinate this orchid. These five pictures are a series (left to right) showing collecting the pollinium, holding it against the stigma and then pulling it away. "There was quite a force needed as the pollinium was well stuck."



Anthony Darby also showed the pollination of *Ophrys tenthredinifera* in [this Forum post](#).



Two pictures of the orchid *Himantoglossum robertianum* (syn. *Barlia robertiana*) each with a bumble bee (*Bombus terrestris*) complete with pollinia on its head, photos by Anthony Darby.

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---Mountains in the Garden---

Building a miniature rock garden by Zdeněk Zvolánek, photos: Zdena Kosourová

As Charles Kingsley wrote in *Westward Ho!* in 1855: “there are more ways of killing a cat than choking it with cream” and there are many designs for setting rocks into farmers’ old stone troughs. Here is my way to construct a crevice garden in long trough standing close to house wall, where one side of the rock work is partly hidden.



Mid April 2015 – there is still snow lying.

The place of the work is in Moravian highland at elevation 2500 feet /762m with exposure to morning sun only, plenty of snow in winter and a very fresh wind to cool it. The timing was fine for establishing alpines; just in the middle of April, when the snow had not melted in some northern exposures. The retired farmer is Jaroslav Konvalinka and the village is Studnice (the highest village in the Moravian Highland). Stones of different shapes were collected by Jaroslav in his own deciduous forest and I had to select larger flat slabs (the ones with parallel sides). The gneiss rock (called locally, orthorula) is of a metamorphosed igneous type, which forms wild

stone fields or seas here (in steep forests). Too many stones have a poor shape for the use in crevice garden rock work.

Selecting the stones in the village

Some smaller stones were softer in texture and we were able with a heavy hammer to break and split them into grit of different sizes suitable for top dressing and closing (wedging) steep crevices.



Collecting mole hills



The charm of making miniature rock gardens in a village is the possibility to find good natural soil substrates. I used the sweet light loam from local molehills (from the area where there was a mine for crystalline limestone). The molehills are very important in countries where the famously perfect John Innes no. 2 is not available! Molehills are weed free and they have good content of humus and clay to be moisture retentive and are full of other goodies. Some sieved garden soil was used just above covered drainage holes, layered and pressed with my fists to the level of the stone bottoms.

The owner Mr. Konvalinka placed the empty gneiss trough above three supporting pillars. There is great need, even a duty, to support every long heavy stone trough in the middle because every rock is strong under vertical pressure but weak against the pulling force. We know from our experience a few great ancient troughs have collapsed just in the middle.

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Support of the length of the trough is essential



Selecting the best flat stone
Three drainage holes in the bottom of the trough were covered with plastic mesh and thinly crushed rock.



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The opening rock work was placing the biggest slab (flat stone) left out of the centre of my designed ridge. I placed it diagonally against the sides of the trough. This direction of first stone governs the position of all the rest of the parallel layers of stones. You can notice the trick of mutual overlapping of stones towards main view point and the visual effect of one long rock wall (the side-walls are facing north here). The designed ridge has a feel of natural erosion; the stones step down from the highest point towards both ends. We selected the height of suitable flat stones after measurement of each neighbouring one.



All the main stones are in place facing towards the entrance to the garden to give the optical effect of a solid wall of stone.



Left: plants bought from the Prague Spring Show

Right: Home-grown plants for the project



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When the basic stone layers were placed and fixed in their tilt I started to fill and plant crevices, using smaller flat stones and the split stone flakes. Zdena and her small relatives helped me.



We saved some *Sempervivum* and *Haberlea rhodopensis* from our garden and we bought one box of small alpine such as the moisture-loving *Primula rosea* (including a good selection of *Saxifraga* cultivars) so we had good supply for planting on a nice cool sunny day. All the planted alpine were low in nature so they could be in right proportion with surrounding rocks. Some will run over the edge of the trough and that is always nicely prolonging the miniature garden. All were watered immediately. Because the trough is against the house wall it is not necessary to plant any of the rear faces, which simplifies construction. Taking the children into the



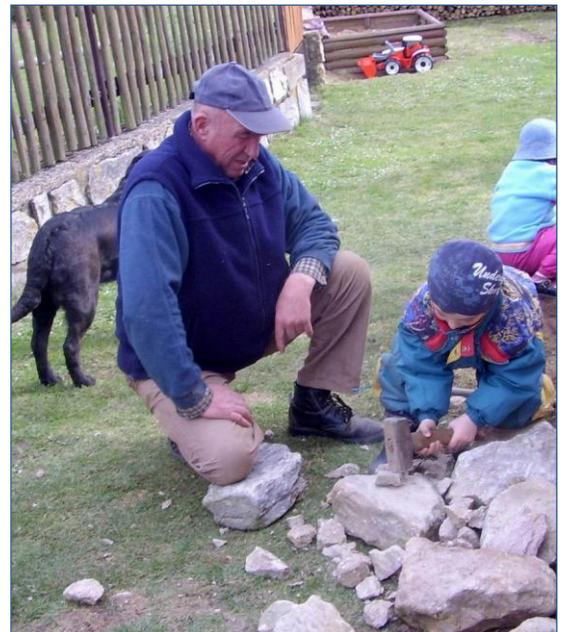
planting party is what the Czech medieval protestant teacher Jan Amos Komensky called 'The School by Play'. I hope they will later learn the better approach to the flower trough in their yard.

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Looking at the front layers, we see a series of wider gaps that needed to be closed with molehill's soil, narrower stones and chip-like wedges. The gaps between the alpine plants, which must naturally be low and slow-growing in proportion to the size of the stones, must also be covered in stone similar to that used for the main construction. These smaller pieces of gneiss can be smashed with a hammer or mallet. The involvement of family members in this and in the planting and watering is "school play". Planting in early spring is best to allow better rooting of the plants in the trough before the arrival of hot summer days and to avoid the need for shading and extra watering. A well-made miniature rock garden planted with smaller additional stones has a balanced impression, the plants flowering serenely as on natural rock.

It was long effort for an oldie like me and I must thank Jaroslav Konvalinka for keeping me and himself in a good mood with a bottle of Finnish vodka.



The ever-present black Labrador, Barina, loved my sweat and evaporating spirit so much that she suddenly chewed my right ear. I feared I would become like the artist Vincent van Gogh who lost one ear too and this is well seen at the last photograph with the finished trough.

Z.Z

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--- Volunteer Plants in the Garden---

Those plants which seed themselves around voluntarily can prove to be some of the most appreciated we have in our gardens, especially when they are orchids!

Steve Garvie, who lives in Fife, in Scotland, one of the SRGC's finest photographers and a keen grower who is trying to find more time to devote to his plants, shares some photos of some orchids which are seeding in his garden.

Steve writes:

Dactylorhiza maculata and ***Dactylorhiza purpurella*** grow locally with occasional seedlings appearing in troughs and gravel paths in my garden. I have additionally introduced a few bought plants of ***foliosa*** and ***fuchsii***. The interbreeding of all of these "Dacts" has created a number of variants, some of which are quite attractive up close or en masse. My general garden soil is an acidic leafmould-enriched loam with added granite grit. Some of the *Dactylorhiza* have self-sown into pots/troughs which contain gritty alkaline mixes. Whilst the Dacts grow well in my garden soil it seems not to be conducive to their germination/seedling development.



Dactylorhiza fuchsii type



Dactylorhiza - forming a healthy group in the garden of Steve Garvie



Broad-lipped *maculata* type



Dactylorhiza foliosa



Dactylorhiza maculata type 1

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Dactylorhiza maculata type 1- self-seeded in a shaded trough



Dactylorhiza group in the border



Dactylorhiza maculata type 2

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Dactylorhiza maculata type 2 group



Self-sown in the open garden

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Self-sown *Dactylorhiza* in a pot with *Eryngium*

[J. Ian Young](#) gives his thoughts on the self-seeding of *Dactylorhiza* in his garden:

I have tried to understand the precise requirements that *Dactylorhiza* seeds need to allow them to germinate and grow on. I have observed the many which have self-seeded around our garden over many years, trying to make some sense of why the seed germinates where it does.

The areas where I most often find them are in old neglected pots of seeds or plants, troughs, between the edges of paving slabs and in gravel paths, like our front drive, where the common denominator seems to be that the ground lies undisturbed for long periods and is low in nutrients, (or maybe that should be “not high in nutrients”) especially, I suspect, nitrogen. I have found that adult rhizomes can be harmed by too much nitrogen and have thought that the nitrogen was not directly affecting the plant but was harming the mycorrhiza fungi associated with *Dactylorhiza*.

I have also considered this from the other side; asking why they do not self-seed into the other garden beds? It is not because of the competition because so often when they germinate in pots etc. they actually grow through cushions and mats of other plants. My feeling is that it is down to the disturbance of the ground surface – all the areas where they do germinate are not disturbed by me nor are they disturbed by any other influences such as birds or rain or wind that can all have an effect on the ground surface in the larger garden beds.

I regularly take the seed heads when they are ripe and scatter the seeds onto troughs, pots and such undisturbed areas and we can enjoy literally hundreds of [self-sown *Dactylorhiza*](#) around the garden.

J.I.Y.