



# THE MERLIN TRUST WATERPERRY PLACEMENT

McGregor Saxifrage Study Award

## WATERPERRY GARDEN

A 2-week placement diary to study Saxifrage under Adrian Young of Waterperry Garden, made possible due to The Merlin Trust, a McGregor Saxifrage Study Award

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A placement diary

## ACKNOWLEDGEMENTS

I would like to thank The Merlin Trust for accepting me onto The McGregor Saxifrage Study Award Placement at Waterperry Garden. I would also like to thank Adrian Young of Waterperry Garden for taking the time to deliver this 2-week placement, and for imbuing an appreciation for the wonderful genus *Saxifraga*.

## INTRODUCTION

My interest in alpinism has grown with my career in horticulture. I have long been told and encouraged to pursue a Merlin Trust placement. A placement was advertised for a 2-week experience at Waterperry Garden to study Saxifrage with Adrian Young the head of the Alpine area where there is a National collection of Silver Saxifrage. Having worked as part of the beautiful RHS Harlow Carr Alpine department, this opportunity would develop my interest in this beautiful genus and strengthen my abilities as an alpine horticulturalist. This report is laid out as a daily diary of my experience illustrated with some of the many photos that were taken.

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### AIM

The aim of going on this placement was to gain an understanding and appreciation of the Genus *Saxifraga*, this will help to develop my range of understanding of the alpine world and some of the intricacies associated with individual genera. This is to be achieved by spending ten days working alongside Adrian Young at Waterperry Gardens in Oxford where there are National Collections of *Saxifraga*.

## A PHOTOGRAPHIC DAILY DIARY

WEDNESDAY 25/05/22

The day began meeting Adrian Young at the entrance to Waterperry Garden in the Carpark area, to get an introductory tour of the gardens and a sense of the operations involved. Then I had the health and safety introduction with a tour of the first aid boxes. Informed of the presence on site of 2 Ukrainian families who have been given accommodation on the grounds as part of the refugee program. There is a huge variety in the foliage and forms of the silver Saxifraga that are grown here as seen below.



Figure 1, Saxifraga trough shown on initial tour, Image authors own 2022.





Figure 2, raised bed with a mixture of alpine plants, Image authors own 2022.

As seen above the alpine plants are generally displayed in raised beds constructed of railway sleepers. This brings the plants up to the visitors for closer inspection and helps to protect them from wandering feet. The conifers in the back of the bed seen in Figure 2 are candled at any time of year. (*Abies lasiocarpa* 'Godshill', *Cedrus deodara pygmaea*). The stone used is a Cotswold Limestone from Stoneworld. The bed in figure 2 was completed 4 years ago with Tim Roberts helping to place the rocks. This is an 'easy' bed and most of the plants came from Pottertons nursery, with a usual compost mix (sand 50%, peat 40% and grit 10%).

The alpine area is located within the walled garden, this maintains a temperature 2°C warmer than elsewhere in the garden. The wall itself dates to 1760. There is a bed adjacent to the wall in the alpine area that contains Adrian's large collection of large leaf Hosta's. There have been issues in the past with conifers rapidly outgrowing the space available *Pinus pinea* had to be removed as the roots had begun to ingress the adjacent bed

The beds were filled with 30% 20mm ballast stone to stabilise and sand, with an overhead irrigation system. The first bed was completed in 1994.

*Saxifraga* 'Tumbling Waters' was a cross of 2 superb parent plants (*S. callosa* x *S. longifolia*) which produced the brilliant cultivar. *S. 'Tumbling Waters'* has since been self-crossed, and the seedlings produced a huge range in the variability of traits displayed.

Southside Seedling Group, has red on the petals, allows for the use of the term group as there is a similarity between all the seedlings.

There are 11 frames for the backup of the National collection, with spare plants sold on open days if enough are available.

With the increasing heat experienced, the compost mix for the Saxifraga has been adapted to help the plants cope. ADAS was contacted and through Janet advice was given to use 10mm grit and water  $\frac{1}{2}$  as much. The larger grit should hold onto the water for longer, therefore reducing the chances of fungal infections of watering more frequently. And don't use a loam-based compost due to the risk of Puccinia infection. One grower had brown patches indicating rot/fungal infections and changed over to the loam free mix and it appeared to work. 10% Vermiculite now added to the base compost to bring air into the compost.



Figure 3, round sand used instead of sharp, Image authors own 2022.

Figure 3 shows the round sand that is used instead of sharp sand, which comes from Leighton Buzzard at roughly £50/tn. Round sand adds more air into the compost, the plants root quickly and it works well in the compost.





Figure 4, Oxford stone, Image authors own 2022.

Figure 4 shows the round Oxford stone that is used in the compost mix and for top dressing, this is preferential for Waterperry, and the plants like to self-seed amongst it.

It is also 'of the area' and as such creates that sense of place that can be important in a garden setting.





Figure 5, Standard compost mix, Image authors own 2022.

Figure 5 shows the standard compost mix used at Waterperry, incorporating the round Oxford Stone (1 part) round sand (5 parts) and peat (4 parts), now and additional (1 part) Vermiculite. Dolomitic Limestone added to compost.





Figure 6, a tray of Saxifraga cuttings, Image authors own 2022.

For cuttings as seen in Figure 6 above, the Leighton Buzzard round sand was mixed (9 parts) with Vermiculite (1 part), and the top layer of the tray was sieved sand for the top half an inch. This was tamped down firmly and dampened. Cutting material was removed from the parent plants by removing side rosettes, thus preserving the characteristics of the parent plant. Removed any dead material from the cutting material and reduced the stem length if required so that was somewhere between 1-1.5cm, the plant will take longer to root if the stem length was too long.

It is important to remove any old roots from the cutting material, this action forces the cutting into a new period of growth and thus produces new healthy root systems. A square ended chopstick was used to make the hole to put the stem into and then firmed in using the square end. And a good spray with a fine mist hand sprayer of water, don't sit in water. And importantly remember to label everything.

My first practical task is potting on the cuttings seen in Figure 6 above.



Figure 7, the first row of rooted cutting removed, Image authors own 2022.

When potting-on remove all the plants of 1 kind at a time into a separate tray. Don't remove sand from the roots to prevent damaging them.





Figure 8, Saxifraga 'Silver Dollar', Image authors own 2022.

A carpet fitters' knife was used to remove the rooted cuttings from the tray, these are then potted into the standard alpine mix, firmed in and top dressed in 1cm of the oxford stone grit. Then placed into the blue tomato crates (seen n figure 9 below) to be soaked from below for 5 minutes.



Figure 9, Potted on cuttings, Image authors own 2022.



Figure 10, Potting on pots, Image authors own 2022.

Figure 10 shows the pots used for potting on, the colour is important as they move away from black pots that could be 5/6 degrees warmer in the summer which the roots of alpine do not enjoy. This change helps to mitigate for climate change induced heatwaves.



Figure 11, Silver Saxifraga flowering, Image authors own 2022.

The delicate sprays of silver Saxifraga blooms were adding a graceful air of beauty to the amazingly intricate rosette growth forms as seen in Figure 11 above.



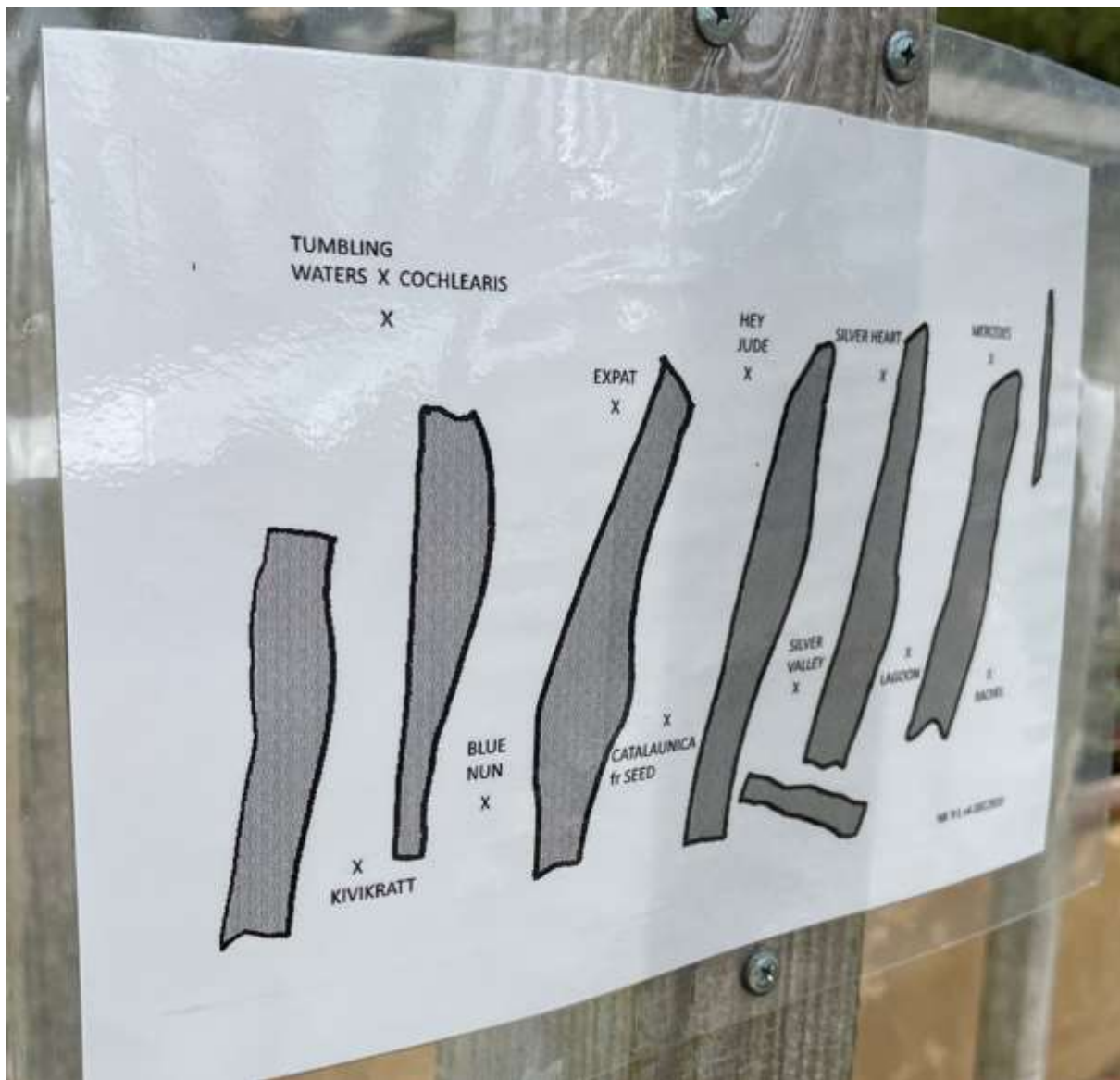


Figure 12, Map of trough, Image authors own 2022.

The troughs and beds have maps produced and placed nearby rather than have each individual plant labelled as seen in Figure 12. This makes the beds less cluttered, however it does make it difficult to return to photos and be confident in placing names to the photos.





Figure 13, a profusion of Saxifraga flowers, Image authors own 2022.

The predominant colour for the Saxifraga flower colour is white as seen in Figure 13.

Towards the end of the day, we made up a compost mix for a potted Wisteria of John Innes number 3 peat free, with grit 10mm and vermiculite.



THURSDAY 26/05/22

Thursday started with potting up the Wisteria that is part of the alpine area display and tying it up onto a cane structure.

The main task of the day was potting up large numbers of Silver Saxifraga and laying them out in the frames.



Figure 14, Potted on Silver Saxifraga, Image authors own 2022.

Once the potted-on plants have been soaked from below for 5 minutes they are then placed out into the frames as seen in figure 14 above.



Figure 15, a shallow trough, Image authors own 2022.

There are many troughs across the alpine area. The trough in figure 15 is a shallow trough, however with the careful placement of rocks the depth of compost for roots has been increased substantially.

It has been emphasised that to understand the plants it is imperative to go and see them in the natural habitat.



Figure 16, Saxifraga 'Annika Hope', Image authors own 2022.

Some of the collections are in pots sitting on damp sand under slatted shade frames as seen in figure 16 where Saxifraga 'Annika Hope' was flowering beautifully.





Figure 17, Hosta collection, Image authors own 2022.

A small portion of the Hosta collection can be seen in figure 17 above, this runs along 2 sides of the alpine area at the base of the old walls.



Figure 18, Saxifraga frames, Image authors own 2022.

The Porophyllum Saxifraga have suffered with the increasing heat that is experienced over the summer months with large losses suffered. One way to combat the heat stress is the use of wooden slatted shading that is held aloft the frames and replaced with acrylic sheets for the winter months. They are held at 2m height above the plants, to allow maximum air flow critical for the plants.



Figure 19, slatted wooden shading, Image authors own 2022.

The wooden slatted shading can be seen in figure 19, also the pipework for the misting units runs along the framework allowing for ease of watering. Many of the Saxifraga are planted directly into the tufa rock as they have a symbiotic relationship with several microorganisms, providing glucose in return for the work that the microorganisms perform at the root tip. There are well over 300 cultivars growing as part of the national collection at Waterperry garden.

There have been 4 main species used to produce many cultivars found today. These are *S. cochlearis*, *S. callosa*, *S. longifolia* and *S. catalaunica*. Selfing has produced good results.



Figure 20, the most recent alpine bed, image authors own 2022.

Figure 20 shows the most recent alpine bed constructed, with a large square format this has allowed for a high central point and uses a limestone instead of the tufa found in the surrounding Saxifraga beds. It is also not shaded as the plants can tolerate more heat and sun.





Figure 21, and alpine pot display, Image authors own 2022.

A crevice style alpine display has been created in this large pot and its corresponding map can be seen in figure 22 below. Saxifraga 'Tumbling Waters' beginning to flower near the Picea abies 'Little Gem'.

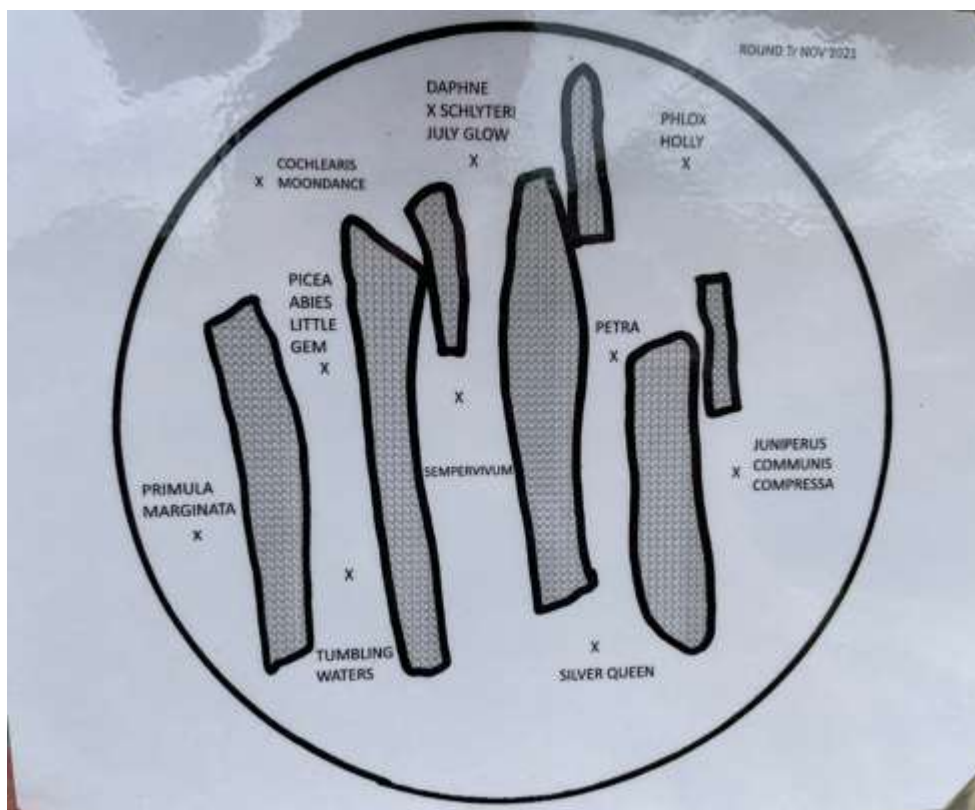


Figure 22, map of alpine pot display, image authors own 2022.





Figure 23, Herbaceous border, Image authors own 2022.

Just outside the walled garden can be found the herbaceous border the was beginning its summer display.



Figure 24, Alpine area, Image authors own 2022.

From a vantage point of a raised summer house, you can see an overview of the alpine area in figure 24 above, with the shaded tufa raised beds dominating the area.

FRIDAY 27/05/22



Figure 25, Overview of the potting shed, Image authors own 2022.

The alpine potting shed at Waterperry manages to store all the required equipment and provide adequate work bench space for potting on and other tasks.



Figure 26, National Plant collection status, Image authors own 2022.

Waterperry hold a National Plant Collection of *Saxifraga* sect. *Ligulatae*: spp. & cvs. as recognised by Plant Heritage. This is testament to the hard work and dedication of Adrian Young and the support of the wider Waterperry team.



The stem colour of the Saxifraga are very variable and are influenced by temperature whilst the bud is forming, better flower production comes with a cold frosty winter. Less reliably frosty cold winters with climate change may make the flowering less reliable.

David Walkey was a plant scientist specialising in plant infections. He wanted to produce a new porophyllum Saxifraga with shorter flower stems, large flowers, and crenate petals. He produced over 80 hybrids including S. 'Tysoe village' and S. 'Tysoe Sunrise'

S. 'Cairos' selfed produced S. 'Moondance' and S. 'Oh Yes'

Primary hybrids are the best, with 2° and 3° hybrids not producing as good results.

Porophyllum Saxifraga resting in winter therefore cuttings better in winter as the roots grow in winter with the rosettes growing in summer.

Practical task of the day is to prepare cutting of Saxifraga kolenatiana which retains its dead foliage as seen in figure 27 below.



Figure 27, *Saxifraga kolenatiana*, Image authors own 2022.

The stem of *S. kolenatiana* damages easily when removing the old foliage, therefore use scissors to cut off the old foliage instead of tweezers as this could tear along the stem.



Figure 28, Prepared cuttings, Image authors own 2022.





Figure 29, adding sieved layer of sand, Image authors own 2022.

Preparing the tray of sand and vermiculite with the final layer of sieved round sand. (The sieve was the property of Valerie Finnis).



Figure 30, tamping the sand, Image authors own 2022.

Valerie Finnis purportedly used a brick to tamp the sand in the trays for cuttings this ensures there are no air pockets and good contact between the stems and damp sand is maximised. It is worth taking the time to ensure the sand is level. Spray the tray with water then allow to sit for 5 minutes. Once the cuttings start to root, they don't stop. Potting on young plants just as important as potting on the mature specimens.





Figure 31, tour of the wider garden, Image authors own 2022.

I was able to join a tour group on the Friday afternoon to see the wider gardens, seen in figure 31 is the amphitheatre used for productions during the summer months. The amphitheatre is around 16 years old, with the bridge dating to 1790. Beatrix Havergal opened a horticultural school on the site of 83 acres with around 14 students per year. Growing Royal Sovereign Strawberries winning 15 gold medals and 1 silver gilt in 16 years of competing with them. In 1971 it was sold to the School of Economic & Science. A plant of note is Clematis 'Bill MacKenzie' raised from a seedling found on site by Valerie Finnis. A more recent seedling of C. 'Bill MacKenzie' has been named C. 'Amelia Joan'. The soil is a sandy loam to around 1 metre deep with sand underneath, making the whole a free draining base.



Figure 32, Rock Garden area, Image authors own 2022.

Lying just outside the walled garden is an area of rack garden seen in figure 32, many of the plants are quite large in scale.





SATURDAY 28/05/22



Figure 34, Gate to Walled Garden, Image authors own 2022.

The garden has elements of art including the beautiful gate to the walled garden seen above in figure 34.



Figure 35, Saxifraga hybrid, Image authors own 2022.

One of the attendees of the Saxifraga day brought along the impressive plant seen in figure 35 to let the other associates see. The day was successful with a steady stream of curious members of the visiting public having a look behind the scenes at the Saxifraga collection and members of the no longer running Saxifraga society a chance to meet up and exchange plants.

This day proved to be an invaluable opportunity to meet many of the exemplary Saxifraga growers and showers from across the UK.



SUNDAY 30/05/22

Upon the recommendation of the team at Waterperry I made 2 garden visits on Sunday. Evenley Wood Garden and Rousham Hall gardens.



Figure 36, *Meconopsis* and *Lilium pyrenaicum* at Evenley Wood Garden, Image authors own 2022.



Figure 37, *Tulipa* sp. Naturalised in meadow at Evenley Wood Garden, Image authors own 2022.





Figure 38, Rill and Pond at Rousham, Image authors own 2022.



Figure 39, Pelargoniums and Tufa in a conservatory at Rousham, Image authors own 2022.



MONDAY 30/05/22

If there is any doubt about the old pot compost it is binned. In April and September there are treatments with nematodes to combat Vine Weevil.

There is a new product being developed, produced from garlic, 2 chemicals, comes in a granular form watered into the compost but is going to be costly.

The section *Porophyllum* includes the subseries *Engleria* and *Kabschia*. On *Porophyllum Saxifraga* the rosette forms side rosettes and does not die in comparison to the Silver *Saxifraga* where the parent rosette dies after flowering, and some produce the side rosettes if not monocarpic. The *Porophyllum* flower a month or 2 before the silver *Saxifraga*. The *Porophyllum* generally occur higher up in the mountains meaning they normally have a smaller window to complete flowering and reproduction. Whereas the silvers are more generalist and can exist right to the bottom of the alpine range. However, there are always exceptions to the general rules. *Saxifraga scardica*, a *porophyllum*, can occur at 4,000m and at 1,000m on the same mountain. There are no toothed margins on the *porophyllum*, but glandular hairs do occur.

One of the tasks today was to water the plants, they received 1-2 hours of water a week ago, now dry an inch down in the compost. Adrian turned on the overhead irrigation for 1-2 hours.

*Saxifraga cochlearis* var *minor* has 3-5 flowers on each pedicel. *S. cochlearis* always has spatulate leaves.

*S. callosa* subsp *catalaunica* (a true species in its own right).

*S. callosa* subsp. *callosa* var. *callosa* has parallel leaves.

*S. callosa* subsp. *callosa* var. *australis* has diamond tipped leaves.

There is a lot more work required on *S. callosa*, which was originally done on geographical grounds. A feature of which is single sided flower stems that arch over.

1980's Jan Burgel published two *S. karadzikensis* from the Balkans, *marginata* type with only 1 pore on the leaf tip. SWEP Pakistan expedition 1984 samples sent to RBGE.

*S. callosa* subsp *catalaunica* became *S. catalaunica* in part due to Adrian Young and Pablo Vargas, recognised as a different species, DNA analysis published in *Flora Iberica* as new species.

*Saxifraga* 'Cumulus' is one of the best hybrids that Ron Beeston raised from AGS seed that was labelled as *S. iranica* but turned out to be hybrids.

Further potting on of cuttings was performed today.



Figure 40, further cuttings to be potted on, Image authors own 2022.

The cuttings seen in Figure 40 were taken January/February time.

Tim Roberts collected *S. callosa* from Central France that looked different, but DNA analysis showed it was the same and suggested at one time a single continuous distribution at the last ice age that has since isolated as it has been pushed up the mountains with climate change.





Figure 41, potted on Saxifraga cuttings, Image authors own 2022.



Figure 42, Compost mixing, Image authors own 2022.

The compost is hand mixed by turning the pile 3 times over with a spade and then stored under a tarpaulin until required.





Figure 43, Compost pile, Image authors own 2022.



Figure 44, Potted on plants, Image authors own 2022.

The space in the frames quickly fills up as seen in Figure 44, with up to 6,000 potted plants labelling is crucial to keeping things correct.





Figure 45, *Saxifraga valdensis*, Image authors own 2022.

Growing from out of the tufa rock is this exquisite *Saxifraga valdensis* that was flowering profusely.

If a *Saxifraga* has forward facing teeth, then the probability is quite high that *Saxifraga paniculata* is one of the parents of the plant. Viable seed of *Saxifraga* is plump and fat, non-viable is flat. No increased vigour is observed generally with hybrid *Saxifraga*

TUESDAY 31/05/22

*Helianthemum canum* collected in the French alps by Adrian Young, trim back by 1/3 every 3 years to keep it compact.



Figure 46, *Helianthemum canum*, Image authors own 2022.



Replanting a section of a trough today. The trough is adjacent to irrigation and has overhead slatted shading, therefore suitable for *Porophyllum Saxifraga*.



Figure 47, Emptying the old compost, Image authors own 2022.

Retaining the *Daphne* in the corner of the trough, the old compost was removed from just over half the trough.



Figure 48, Damaged trough, Image authors own 2022.

Careful positioning of rocks allows a trough to be used that is damaged as seen in figure 48.





Figure 49, trough refilled with fresh compost, Image authors own 2022.

The rocks are repositioned to match the existing rocks and fresh compost fill the trough.



Figure 50, positioning plants, Image authors own 2022.

The plants were spaced out and Adrian advised if any were likely to require more space.



Plants chosen: S. 'Tysoe Jubilee', S. 'Koda', S. 'Your Kiss', S. 'Beinn Alligin', S. 'Mellow Yellow', S. 'Orion', S. 'Kon-Tiki' ex PW, S. 'Divci Hradý'.



Figure 51, Planted and top dressed, Image authors own 2022.

The plants were planted into agreed positions and the whole lot was top dressed in the round Oxford stone.



Figure 52, *Pinus mugo* 'Mini Mini', Image authors own 2022.

*Pinus mugo* 'Mini Mini' was then repotted into the mix used for the Hostas. A Petersfield general nursery mix (reduced peat, composted bark, sand) and 10% vermiculite added.



Figure 53, an overhead shot of the trough, Image authors own 2022.

The plants appear quite evenly spaced, over time as they grow and spread at different rates the distances will become less uniform.

Paint.net is used to create the map that will then be laminated and displayed in the vicinity of this trough.



WEDNESDAY 01/06/22



Figure 54, potting on, Image authors own 2022.

The potting on continues in earnest as seen in figure 54.

*Saxifraga scardica* from Macedonia border – JB 600b – did not look like Jan Burgel COLL Greek *S. scardica*. Selfed produced *S. 'Waterperry Bullion'*

There was a fire in the tea shop this morning, with the eggs purportedly catching fire.



Figure 55, Potting on, Image authors own 2022.

Some small plants that were donated at the Saxifraga day were potted on.



Figure 56, A lunchtime stroll round the garden, Image authors own 2022.

There was time at Lunch to have a stroll around more of the garden that I had yet to visit including the scree style beds in Figure 56 and the waterlily ponds.



In the afternoon Adrian gave me a seed sowing demonstration. The standard Saxifraga mix is used. Firm down a layer of the compost to fill around 60% then the rest of the pot is filled with sieved compost. They need light to germinate, therefore the finely sieved compost to prevent seed disappearing down.



Figure 57, *Saxifraga federici-augusti grisebachii* seed saved, Image authors own 2022.



Figure 58, Firming the compost, Image authors own 2022.



Figure 59, Sieving the compost, Image authors own 2022.



Figure 60, Seed on paper, Image authors own 2022.

The seed is so fine that paper is used to achieve a fine even layer of seed across the surface of the compost as seen in figure 60.





Figure 61, Thin layer of grit, Image authors own 2022.

A single layer of grit is applied to the surface of the seed sown compost.



Figure 62, Label, Image authors own 2022.

The seed is from *Saxifraga federici-augusti grisebachii* however the seed origin is from the garden and therefore no guarantee that it is true hence from garden is added to label. The pot is then watered from below so as not to displace the seed, and then placed in the greenhouse. But no discernible difference between the greenhouse and being out in a cold frame. Using a very fine rosed watering can, the seeds will receive water only occasionally. At 1 year can pot on or wait till the autumn in case anymore germinate.



Figure 63, *Saxifraga* growing in tufa, Image authors own 2022.

The flowers continue to be astonishing with the intricate rosettes hugging the rock.



Adrian observed a *S. callosa* x *S. cochlearis* hybrid growing faster in the rock than in the soil. *S. 'Mercedes'* from a selfed *S. 'Tumbling Waters'* one of Adrian's favourites.



Figure 64, *S. hostii* ssp. *rhaetica*, Image authors own 2022.

A *Saxifraga hostii* ssp. *rhaetica* had rooted down into the sand and required repotting as seen in figure 64, from the central dolomites in Northern Italy, collected in the Croce-domini pass.

THURSDAY 02/06/22



Figure 65, Mixing compost, Image authors own 2022.

Thursday began with mixing a large quantity of Saxifraga compost. The dolodust is added at a rate of 1 scoop per wheelbarrow of compost.

The shades of white of the flowers of the Saxifraga can vary year on year depending on the cold experienced over the winter months. Darker with colder winters, and the spotting can vary on the inner petals.





Figure 66, Platinum Jubilee pudding, Image authors own 2022.

The café/restaurant at Waterperry produces wonderful food using produce from the garden, estate and local area, prepared on site. Apple juice is produced from the orchard fruit.



Figure 67, Silver Saxifraga seedlings, Image authors own 2022.

The silver Saxifraga are prolific self seeders, and the bed in figure 67 shows the plants that have been allowed to develop from seed produce a frothy display of white blooms.



Figure 68, another National Collection Sign, Image authors own 2022.

Saxifraga 'Citadel' is one of the best cultivars to have arisen at Waterperry, with no evidence of it being a hybrid so far. *S. cochlearis* has very thin stems on flowers.

*S. callosa* x *S. cochlearis* produces *S. cotienensis*, which is a naturally occurring hybrid. *S. 'Silver Jewel'* is having a rest year but has one of the largest diameter silver saxifrages at Waterperry. The warm, dry winter this year has resulted in fewer flowers.

Deadhead as soon as possible if you wish to prevent self-seeding, just cut the flower stem at the base.

3 flowers on each pedicel, likely *S. cochlearis*. *S. callosa*, 1-sided flowers. *S. longifolia* only ever 1 rosette (out of 500 seedlings might have 3 with multiple rosettes and it's probably due to root damage). *S. 'Tumbling Waters'* always has a recurved leaf tip.





Figure 69, tray of cuttings, Image authors own 2022.

Pot on a tray of cuttings that had come from sickly plants, to be rescued.

Henrik Zetterlund, Porophyllum collections Bateaura Glacier 1983 SEP22 (live material), SEP 59 & SEP 45 (Herb sheets sent) to RBGE. Type specimens are at RBGE.

*Saxifraga luteo-purpurea*, 3 sites known originally in Porophyllum book. One of the most vulnerable, may even be extinct in the wild now. Tim Roberts had gone to one of the sites, a plateau and it was overgrown with grass brought up by goats. Plants can also become threatened where roads are expanded and cliff faces blasted off, thousands of plants lost at a time.

**FRIDAY 03/06/22**

Garlic spray applied to the Hosta collection. Dig up and replant Hosta 'Golden Shower' removing reverted material.

Pot on cuttings, stem rot in the cuttings prevents root formation

*Saxifraga* 'Silverdale' raised by Adrian Young and named after the Lancashire nursery of Reggie, a great gardener who had over 120 *Saxifraga* for sale at one time.

SATURDAY 04/06/22

For a day trip in my own time, I went to visit Oxford Botanic Garden.



Figure 70, Parasite display bed, Image authors own 2022.

It was great to see the variety of Orabanche species that were successfully growing parasitically in this display bed.



Figure 71, Oxford botanic Rock Garden, Image authors own 2022.





Figure 72, Dry stone wall rock gardening, Image authors own 2022.

This was an interesting rock formation style that could be utilised to delineate boundaries as an alternative to traditional means.



Figure 73, Saxifraga cochlearis, Image authors own 2022.

In the top of the rock display in figure 72 there was a Saxifraga cochlearis that was growing well given the exceptional heat that was being experienced during the summer of 2022.

MONDAY 06/06/22

The map for the trough that I helped to refresh part of has been laminated and ready for hanging as seen in figure 74 below.

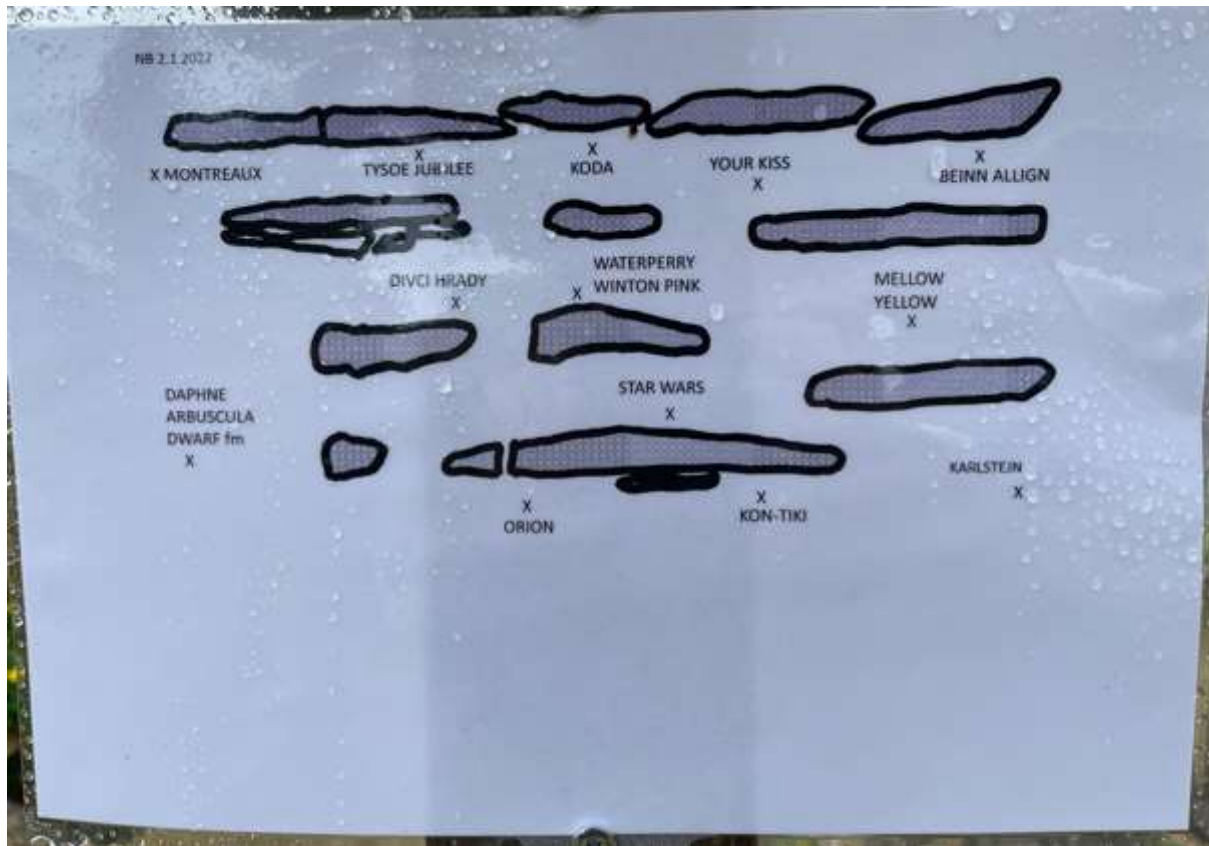


Figure 74, Map of trough, Image authors own 2022.





Figure 75, taking cuttings, Image authors own 2022.

One of the tasks today was to take more cuttings as seen in figure 75 above.



Figure 76, Potting on S. 'Fritz Kolhein' Seedling, Image authors own 2022.



Figure 77, Strengthening the tables, Image authors own 2022.

With space at a premium, having good surfaces is imperative. Some of the benches had begun to bow quite severely.



Figure 78, Drilling holes for drainage, Image authors own 2022.

In the greenhouse the Saxifraga sit in trays that have damp sand in the bottom. Drainage holes are added about 3" up from the base of the tray to the level of the top of the sand, so that the roots can extend down into the damp sand, but the pots should not be sitting in puddles of water.





Figure 79, Levelling the sand, Image authors own 2022.

Great care is taken to ensure the level of the sand does not lead to puddling, so it is tamped down and a spirit level used to create an even surface.

A side note was the wasps were observed taking the seed from Cyclamen and flying off with them, it must be for the protein rich elaiosome presumably.



Figure 80, Wasp taking Cyclamen seed, Image authors own 2022.

Adrian only recommends creating a tufa bed if the tufa pieces available are of a significant size as they must be half buried for moisture to wick up into the rock for the roots of the plants to then be able to access it. His most recent tufa had to be shipped from Canada and was quite costly.

With some of the stem rot that has been observed in some of the cuttings, if the material is valuable enough it is sometimes possible to cut off the affected material and resubmerge it in the sand for roots to try and form.

TUESDAY 07/06/22



Figure 81, S. 'Mex', Image authors own 2022.

For the final day I was tasked with taking more cuttings including Saxifraga 'Mex' seen in figure 81, a beautiful vibrant pink.



Figure 82, Further cuttings taken, Image authors own 2022.



Adrian very kindly allowed me to take cuttings to take North with me again.



Figure 83, A full tray of cuttings, Image authors own 2022.

I also helped to get more sand to fill more of the damp sand trays that are very useful in keeping the potted plants in the greenhouse in a humid atmosphere.

With the increasing heat experienced at Waterperry the *Porophyllum Saxifraga* have really suffered, especially as the night-time temperatures do not drop significantly therefore the plants cannot get respite for days at a time. With this change in the climatic conditions, *Porophyllum Saxifraga* that are from above 3,000m are no longer being sought for the collection.



Figure 84, Removing flowers, Image authors own 2022.

When the cuttings are taken it can sometimes be difficult to tell a rosette that was beginning to produce flowering buds. Therefore, the flowers are removed from the cuttings to help promote vegetative and root growth.



Figure 85, Saxifraga 'Tumbling Waters', Image authors own 2022.

The S. 'Tumbling Waters' in the alpine pot display has produce a magnificent arching spray of flowers. I must endeavour to make a return trip to Waterperry in the Spring to see the Porophyllum flowering.

The day ends with a walk round the alpine area admiring the plants that I have become very fond of, and a farewell meal at a local eatery.

Adrian advises that time is the greatest lesson with regards to learning the characters of the plants.



## CONCLUSION

By spending time at Waterperry working alongside Adrian Young I have come to appreciate the genus *Saxifraga* even more and broaden my knowledge of the cultivation techniques to get the best out of the plants. How as growers we need to adapt the conditions to face the ever-growing threat of climate change and what this means for National Collections. *Saxifraga* are an alpine plant, and as such face the threat of being pushed up the mountain ranges either too fast or when there is no further refuge for them to go. As a horticulturalist working with alpine plants, I've come to gain an understanding of some of the mitigating measures that can be taken to help preserve collections from baking summer temperatures. Propagation is essential to maintaining a National Collection but having those propagation skill set now allows me to help in maintaining *Saxifraga* collections in garden settings. It has been an incredible opportunity to learn from such an expert grower of the genus and to be able to get hands on experience with the National Collections, I hope this understanding and appreciation of the genus can continue to grow and develop in my future.

## FURTHER READING

- MacGregor, M. and Harding, W., 1998. *Saxifrages*. Hutton: Saxifrage Society.
- Webb, D. and Gornall, R., 1989. *Saxifrages of Europe*. London: Helm.
- Horný, R., Webr, K. and Byam-Grounds, J., 1987. *Porophyllum saxifrages*. Stamford: Byam-Grounds.
- Bland, B., 2000. *Silver Saxifrages A Guide to Encrusted Saxifrages for Gardeners and Botanists*. Dorchester: Alpine Garden Society.
- MacGregor, M., 2001. *Saxifrages from Scratch - a Saxifrage Society guide*. Driffield: The Saxifrage Society.

## BUDGET

Accommodation costs for the 10 days came to £1,331.75