



It was almost two weeks ago that I saw the first Painted Lady butterfly, Vanessa cardui, and since then I have seen swarms of them in bigger numbers than I can ever remember. It was very early on a warm sunny Sunday morning as I walked Molly along a quiet lane that we were surrounded by butterflies fluttering in the warm air, no doubt attracted by the delicate scent of the flowers especially the many Buddleia davidi, commonly called the Butterfly Bush, that have established themselves along the verges of the lane. It is unusual to see this many butterflies in our northern region and there is no doubt in my mind that this is one of the many effects of the warming of the climate that the world is experiencing. It is also good to see

increasing numbers of bees appearing again partly encouraged by the warm weather but also as a result of the reduction in the use of insecticides especially the European wide ban on neonicotinoids. I do not know all the types of Bumble Bee but I am seeing several different types which seem to be especially attracted to the plants which have clusters of smaller flowers such as this Origanum majorana rather than to the larger showy flowers such as a poppy.



Climate change is affecting our gardens and if (as is most likely) it continues then we will fairly quickly see big changes in the plants that will grow for us. Rather than the other way around it is the plants that choose us — we introduce plants into the garden but whether they growth successfully will depend if they can tolerate our environmental conditions, the major factors being temperature, rainfall and soil type. Our garden is full of plants that grow well because of our cool moist temperate climate - they rely on our summer moisture and relatively cool temperatures and they suffer if it is hot and dry - like last summer when we had the longest period of warm dry weather I can remember since we have been gardening. We observed signs that some of the plants were suffering last summer but then the weather cooled down and the rains came in the autumn, however the symptoms of weather related damage can be delayed, often for several months.



This Rhododendron elegans has grown very well for over thirty years but this year we are noticing more die-back on some branches.

It is in one part of the garden that gets most sunshine and so as well as exposure to heat on the leaves, the ground also tends to dry out. Gardeners are rightfully concerned with rainfall but that should always be linked to the evaporation rate because two areas could get exactly the same amount of rain, which in a hot garden could all evaporate in an hour, while in a cool area very little may evaporate, allowing it to sink into the ground. My interpretation of the problem with this rhododendron is that our



ground got unusually dry last summer which damaged some of the plant's root system especially the finer roots: the plant was fine during the cooler wetter autumn, winter and spring but when it warmed up the roots were unable to fully support the new growth of the plant. While we have enjoyed some warm days this summer we have also had plenty of rain, mostly falling at night which is ideal so I am hopeful that the root system will recover.



This old **Acer palmatum 'Osakazuki'** is in a similar situation to the Rhododendron there is no die back but the leaf growth is much less than in previous years when the canopy was always very dense with leaves.

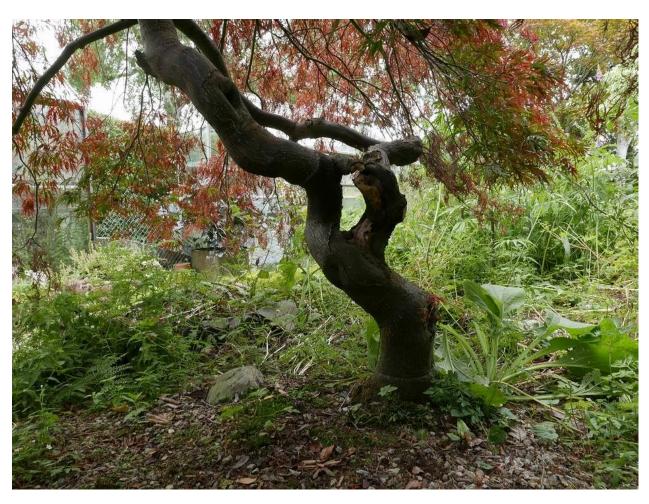


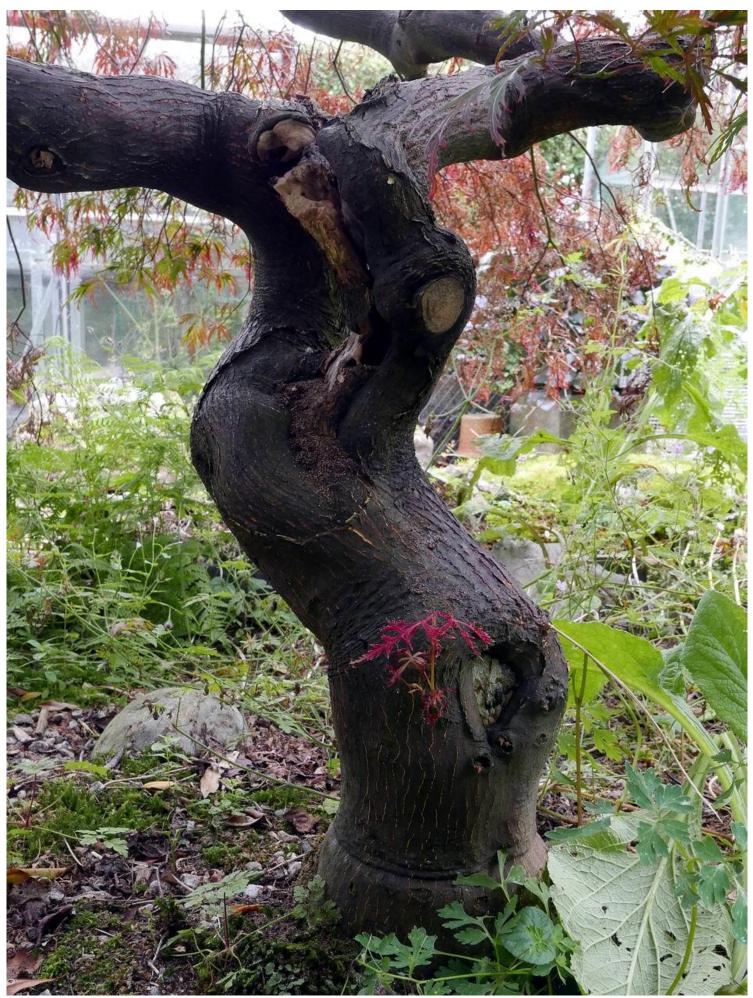
As well as being thin in number the leaf tips have been showing early colour changes when compared to another one, see below, we have growing in a more shaded spot of the garden. These symptoms suggest that this tree is also suffering from climate related root damage.





I also noticed that a significant section of the foliage on this Acer palmatum 'Dissectum Atropurpureum' was curling up so I went underneath to investigate. This along with the Pieris at the other side of the path are two of oldest plants in the garden which we brought with us when we first moved here in 1974.





When I investigate it confirms that one of the two remaining branches have suffered die back – the one on the right. This is an ongoing problem and you can see where I have previously removed dead branches however I am optimistic to see some new growth appearing low down but above the graft which means that there is every chance that this tree will be able to regenerate a new top growth.



The rotten section of the branch was being eaten by Slaters (Woodlice) which feed on rotten wood turning it into a fine dust like material, seen piled in the cleft of the split, which will be recycled back into the soil.



Slaters (Woodlice) eating the rotten wood.



I always crop the hedges in July/August by which time they have produced a good length of growth and by cutting them hard back now they will be fine for another year.



Front hedge



From the left are first the hedge trimmings then some that have been shredded and finally some that have been composted.

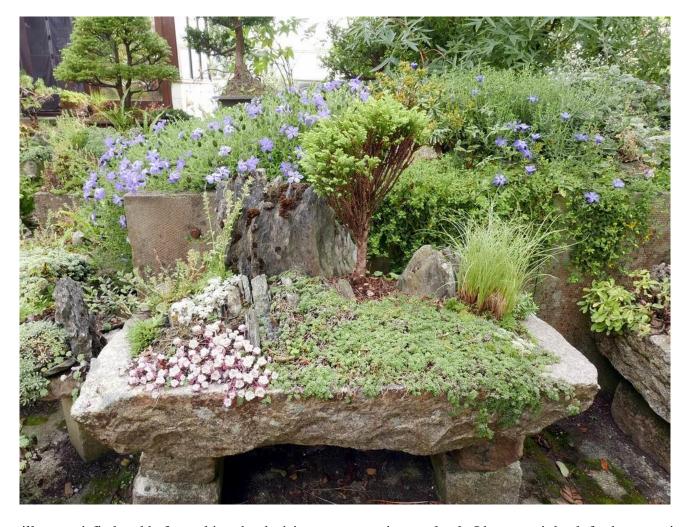


I use the term
"cropping the
hedges" because
all the trimmings
are shredded and
turned into a
valuable mulch
which I will then
spread over the
beds in the winter
once it has
composted.

Just like the Slaters (Woodlice) I am recycling plant material and returning it to the soil. Trees of which ever scale require a degree of management in the garden. I grew this small shrubby conifer from a cutting and planted into this trough when it was very small and in scale however over the years and despite my regular clipping it was getting out of scale. Some time ago I thinned it down from a green mass opening up the base to see into the trunks in an



attempt to find a new shape that I could live with.



I was still not satisfied and before taking the decision to remove it completely I have cut it back further to a single stem which I will further work on and assess. No matter what the size of the subject I go through this same patient process in the knowledge that what is cut away cannot be put back on.



There are measures we can take to try and mitigate some the warming effect of climate change such as growing plants in marginal beds like this one next to the pond where the Primula florindae are growing well being kept cool and constantly moist.



Growing in this constantly moist habitat the flowers stems are one metre tall and you can see the size of the leaves.



This is a pot of primula seedlings germinating in the mist unit - I sowed them as soon as soon as they were ripe a few weeks ago. Plants can slowly adapt to a changing climate but they can only do that through successive seed raised generations where each individual seedling will have a slightly different tolerance to heat and moisture levels. I have written previously how by collecting and growing your own garden seed through successive generations you can

'climate shift' plants

towards those of your garden conditions.

Growing from seed has always been my favoured way to introduce plants into the garden and I only really feel that we have them fully established when we they are growing and seeding. Among the advantages of starting with a pot of seedlings is that you will have a range of clones which will form a colony that is more fertile and likely to produce seed than if you introduce just a single clone.



Primula seed germinating



Pinguicula vulgaris seedlings

This is a pot of Pinguicula vulgaris seedlings which are destined to start a colony in the trough I placed in the pond a few weeks back - $\frac{\text{Bulb Log } 2719}{\text{Log } 2719}$. I sowed the seed in January and to ensure it stayed constantly moist I placed the pot in a saucer of water.



Pinguicula vulgaris seedlings







Cyclamen purpurascens



Other star plants that start flowering in the late summer and continue until the frosts come are Cyananthus lobatus and microphyllus which are both now flowering in the raised slab bed.



Cyananthus lobatus





Cyananthus lobatus



Cyananthus microphyllus



Tropaeolum speciosum

Now for two climbing plants that also flower in the summer.

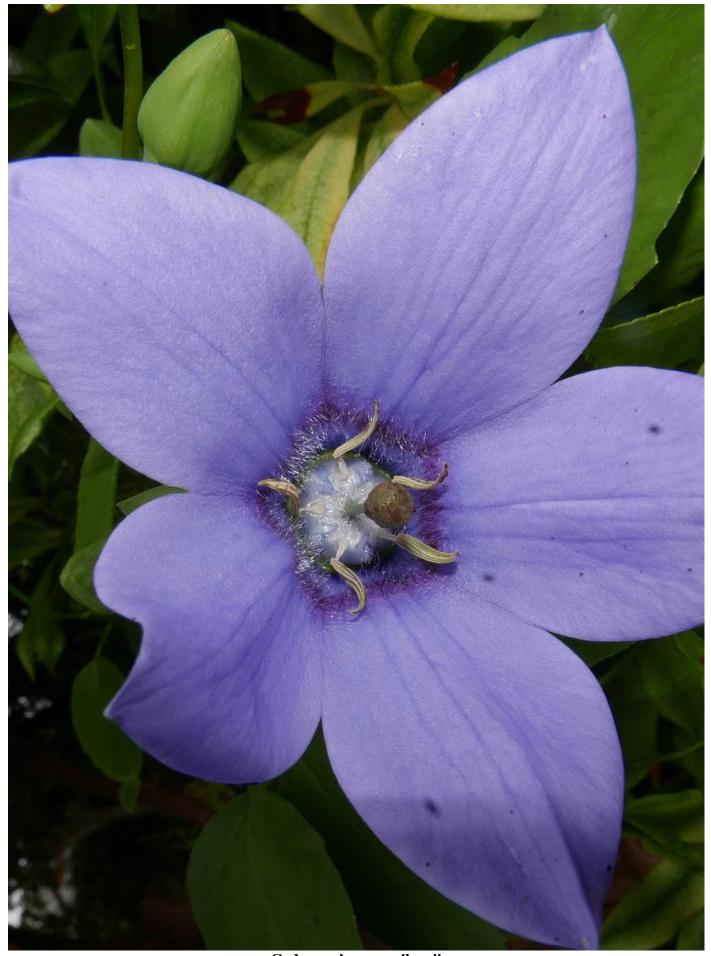


Codonopsis grey-wilsonii



Notice when the flowers first open the anthers clasp the reddy brown stigma, above, then as they dehisce they release their grasp and move back towards the petals, below.





Codonopsis grey-wilsonii

With climate change we will see a change in the plants that can grow in our gardens with those that like cooler moist growing conditions being especially affected. We can try manipulating the habitats within our gardens to help mitigate the effects but the best way gardeners can tackle the raising temperature is to grow the plants from seed including collecting and sowing the seed from your garden......