# SRGC ----- Bulb Log Diary ----- 

## BULB LOG 50..... 12th December 2012

With the conditions here remaining cold there is little movement in any of the bulb houses so I thought I would follow up on last week's theme of sowing bulb seeds. This is the time of year many of us are placing requests for seed from the various exchanges so it seems like a good time to revise my experiences on the subject of sowing bulb seed and in particular the depth at which you should sow the seed, to get the best and quickest results.

I started experimenting with the depth of sowing seed after trying to figure out why the self sown narcissus in the bulb house sand plunge always grew better and flowered quicker than the ones that I had carefully sown in pots in the conventional way. When the narcissus seed was ripe I did not always collect it in time and some of it was shed onto the sand plunge, as I removed the pots for repotting and then replaced them I disturbed the sand enough for the seed to get buried sometimes at the bottom of the plunge and so my experimenting began.

**Narcissus bulbocodium seed and first year bulbs**

I started sowing several pots of the same seed at different depths, which I indicated by a mark on the plant label, and I carefully watched the results.
Above are the one year old seedling bulbs from the deepest sowing that I made, they are significantly bigger and healthier than the surface sown ones were.

**Narcissus bulbs descending**

Narcissus bulbs are one of the many bulbs that can pull themselves down into the ground. This can be seen clearly from the picture above where the bulbs on the left have a fat (contractile) root as well as the normal roots, as the plant goes dormant this fat root contracts as it dries out, pulling the bulb down. The bottom two bulbs on the right hand view shows the classic bulb shape typically seen in bulbs that are happy at that depth. The two above are the elongated bulbs trying to take themselves deeper. The seed will germinate if surface sown and the bulb will gradually take itself down until it achieves its optimum planting depth some three years later - this is wasted time in my book.

**Narcissus bulbs at depth**

Here we can see this progression over a few growing seasons where the bulbs have moved gradually down over three growing seasons; the ones bent through 90 degrees have hit the bottom of the pot.

**Narcissus seed**

So my next question was how does the seed achieve depth in the wild when it is shed by simply falling out of the opening or disintegrating capsule? The answer can be seen if you study the seed carefully - you can see a small, usually white, appendage, an elaiosome, attached to each seed. These are mostly sticky and attractive to insects, especially ants, which are the vehicle that takes the seed underground. This led me on to studying the seed of other the other bulbs we grow.

**Eranthis & Trillium seed**

The seeds of many bulbs have a tasty treat to attract ants or other insects, this serves two functions. One: it disperses the seed so they are not all having to grow congested where they fall at the base of the parent plant, two: the insects usually bury the seed.

**Trillium seed pod and Wasp picking up seed**

This leads to another problem for us in the garden as some trillium seed, like T. ovatum, has such an attraction to wasps that they often break into the capsule and take the seed before we can collect it.

**Trillium seedlings**

Here you can see an early experiment where I have sown these trillium seeds a cautious 2cms deep, where they are growing quite well - I now have the confidence to sow them at around 5cms deep. If you think how vulnerable a young seedling bulb is and if all that covers it is a thin layer of gravel then it is going to be subjected to big swings in moisture level, temperature variation and it is also much more likely to be eaten or infected with mould and fungal problems.

## Crocus seed pods

Crocus are another group that do best if planted deep and again we can start to see the link between how the seed is dispersed in the wild and what depth we should be planting the seed at. Many crocus also have the sticky appendage attached to the seed and there are some crocus seed pods that do not come above ground, certainly in cultivation, even when they are ripe and open.

## Crocus seed pods

The top tip of these seed capsules in the picture above right were below the top of the gravel top dressing.

## Crocus seed pods

## Allium & Rhodohypoxis seedheads

As I look at more of the bulbs we grow I am now starting to be able to predict whether it is best to surface sow the seed or sow at depth. On the left is a typical allium seed head, which you will observe, hangs onto the seed for a long time even after it has opened unless it gets broken off by the wind and then it gets blown around, tumbleweed style, shedding some seed each time it is knocked. On the right the rhodohypoxis seed just seems to fall to the ground and I have not worked out how else it might get dispersed.

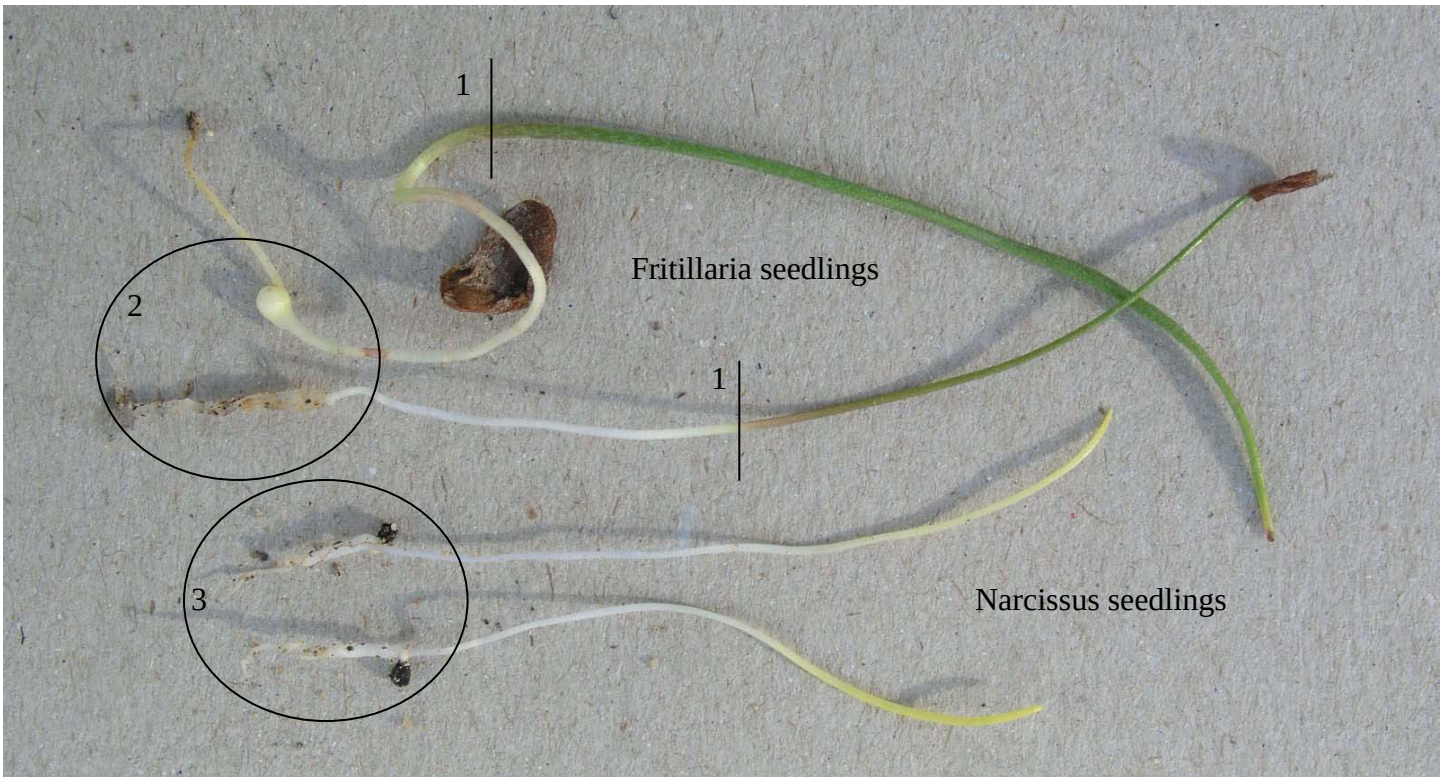
## Fritillaria seed heads

Fritillaria seed is obviously wind dispersed; the thin papery seeds can be blown a considerable distance as they are slowly released layer by layer from the stacked seed pod.

Most Lily seed is like this and as a result all of these should be sown on the surface with just a centimetre or two of gravel on the top.

**Fritillaria seed**

Fritillaria seed will not germinate if sown deeply, they have to be surface sown and only covered by a layer of gravel – it may be that they also require light to stimulate germination. I have never germinated any of this papery type of seed, which also includes lilies, which I have sown at depth.




There is a fundamental difference in the way that narcissus seed and fritillaria seed germinate. With narcissus the seedling bulb forms beside the seed so if the seed is surface sown the young bulb spends its first year on the surface before it starts to take itself down. The fritillaria seed sends a root down into the ground and the young bulb forms at the end of this root so it is safely at a good depth from the very start. I am still experimenting with many other bulb seeds to see how they behave.

The line at 1 above indicates the soil level where the seed was sown and you can see the fritillaria has sent a shoot down into the soil with the young bulbs forming at the bottom of this growth 2. The narcissus seeds do not send down a shoot and their bulbs form just beside where the seed is lying.

This group of pictures show how fritillaria seedlings have adapted to germinate on the surface then the young shoot probes until it enters the ground with the new bulb forming some depth down. Just look at the picture below right and you will see a first year seedling Fritillaria purdyi bulb having escaped forming below bottom of the pot in the sand plunge. This is also a good indicator that we should not be afraid to plant small bulbs deeply as this is where they would plant themselves when they get the opportunity.

**Narcissus seedlings**

Above is a group of narcissus seedlings which I sowed deeply.  They have just germinated and you can see the small bulbs starting to form near the seed coat and the point where the stem changes from white to green indicates the depth that I sowed the seeds at.

These Muscari seeds were sown just below the gravel top dressing and you can see just how exposed and vulnerable the young bulbs are so near the surface - now I sow all my Muscari seeds at depth.

**Erythronium oregonum seed**

**Erythronium japonicum seed**

Erythronium seeds are very interesting and are divided into two distinct types Those to the left, above, are typical of all the Western North American species – they lack the fleshy attachments so do not attract insects to distribute them – they should be surface sown. On the right above I show Erythronium japonicum seeds and below those of Erythronium sibericum you will notice they both have attachments as do E. caucasicum, E. dens-canis. All the the Eastern North American species of Erythroniun also share this feature making thme more closely related to the Eur-Asian complex than they are to the geographically closer Western North American species.
The indication here is sow The NW American species on the surface with just a covering of gravel and the others at depth for optimum results.

**Erythronium sibericum seed**


One final tip if you do get any of these plump type seeds that are dried out like above then soak them in water overnight with a tiny smear of soap – just enough to break the surface tension allowing the seeds to absorb the water.

**Dry seed** **Soaked seed**

As a quick rule I can tell you that Narcissus, Crocus, Cyclamen, Trillium and Tecophilaea are among those that will do best if the seeds are sown deeply and Fritillaria, Lily and Tulip seed need surface sowing.
If in doubt sow on the surface as nature has made sure that while some seeds will perform best when sown deeply they will also germinate and grow if shed on the surface but observe how they respond and make notes for your future guidance.....