Creating and managing a private arboretum

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Herkenrode has become much more than an arboretum. Perennials, rose collections, bulbs and garden artefacts have over time moved in and have not only changed the atmosphere but increased the maintenance required. These notes will concentrate on the early years (1980-1995) when one gardener managed the collection. The arboretum on the other hand is still very much a low maintenance area and continues with the principles of a traditional arboretum.

Garden and arboretum are now home to some 4300 woody taxa and some 12000 specimens. These were added at the rate of on average 365 per year. They came from seed, cuttings, purchases from nurseries and gifts. I must honestly admit that it is the maniac collector in me, which is responsible for the numbers. We never bought or raised a plant with the purpose of creating a garden. Quite the opposite, it was the need to empty overcrowded nursery plots which forced me to enlarge the grounds and create space for what I had grown or purchased. This is the story of that adventure.

Preparing the ground

Two kinds of areas were used: meadows and woodland. Both needed some kind of intervention. This I learned at my expense. Our first foray into the woodland was done without concern for honey fungus. As trees were cut to open vistas in the wood, stumps would be left to rot. The fungus soon got the best of many choice plants. We did not make this mistake when extending the grounds and moving into the old oak wood: all shrubs and undergrowth was put through the shredder and the upper layers were then rotovated All dead wood was removed. We should not have any honey fungus there but the soil structure was not improved by this exercise and typically, it took years before we had the visit of moles. They like good fertile soil well aerated by millions of worms.

Whenever entering a woodland area, one should plan the vistas with an eventual focal point of interest while leaving mature monumental trees in the middle of future island beds. Old oaks are ideal for this purpose. Beech trees were kept for their majestic allure but would not allow for under-planting of many shrubs or trees. Most were cut and sold. (Ilex and rhododendrons can settle under beach if given a good start, from a small size).

In old meadows it was necessary to plough completely and even beneficial in one case to allow a local farmer to grow corn for two seasons. Old meadows have been trampled by cattle and will not be kind to new trees. These will sulk in the hole, never send a root out of the planting hole and eventually drown in the same hole. Plough and drain must be the rule in a flat part of the world. In the arboretum's meadow after ploughing we created little mounds, which would hold the trees and little depressions that would carry the water to drains. The result is spectacular. Visitors have been kind enough to say that the whole

thing is not too ridiculous. One can say that trees planted on the mounds are at an advantage and some movement in the terrain does have visual appeal.

Source of plants

Of the 12.000 plants in the garden and arboretum a large percentage were raised by us from seed, cuttings and collected seedlings.

Seed is collected or received throughout the autumn and winter. It goes straight in the refrigerator (5°C). A numbered label is added to the individual bag. The seed lots accumulate there until some day in March when they will be sown in pots. We use ordinary soil mixed with some sand and leaf mould. The numbered label goes in with the seed. Very few seed accept being dried. Most need a cold winter period to start germinating, so the winter months will provide both. There is no objection to planting immediately, but mice will always find your good seed and have a feast. Ungerminated seed pots should be allowed to go through another winter. Quite a number of good surprises can be expected. Seedlings are repotted when big enough to withstand the shock (two or four true leaves, above the cotyledon) but basically when you have the time. Seedlings can stay crowded in a pot for many months. There is always time to separate them during the next winter.

Cuttings are taken from late May until mid August. Every time we have purchased a plant, we have immediately taken some cuttings. Cuttings from young small plants are much better at striking than cuttings taken from older trees and shrubs. In one interesting statistic, I took cuttings on a young plant of *Magnolia* 'Elizabeth' three years in a row. Out of five cuttings taken each time on the first, second, fourth year we could strike 5, 2 and then none. Old stock does not root readily. To succeed it is better to cut back the tree or shrub and use new (more juvenile) growth. New growth cuttings are taken at any time in spring and summer, and as soon as the new shoot is sufficiently strong to hold upright in the bed. The easiest is to use wood or polystyrene boxes, which are half filled with a mixture of peat and sand. The cuttings are sprayed once or twice a day during the first weeks. Roots should appear after four to six weeks. Theoretically one could transplant the rooted cuttings after eight weeks and give them a few months before wintertime but we do not seem to find the time to do this. The winter months are hard for the cuttings; perfectly rooted cuttings will decay under the attack of fungi. Good white roots go brown and the base of the unhardened cuttings go brown; the cutting dries up. We have not been very good at keeping our cuttings growing, with many losses, but we still end up with too many plants: some 500 cuttings, seedlings, which will have to be looked after for another three to ten years.

Small seedlings can be collected along roads and edges of woodland and will then travel well if kept in moss relatively dry, in plastic bags or plastic water bottles. It is quite reasonable to collect like this in areas where seedlings would anyhow have no chance of surviving or being allowed to grow. Obviously one will want to be respectful of rules and legal restrictions. Seedlings are repotted on arrival and possibly held under plastic cover until they have re-established

a proper root system. Generally speaking starting with seedlings gives a much higher success rate than starting from seed but quantities are much smaller.

Plants are also purchased, mainly as small pot plants, the smaller the better: I have had many disappointments with large plants. Small plants are of course cheaper and can be grown to good size until ready for final planting in the arboretum.

Woodland nurseries

Three temporary nurseries have been used around the garden and arboretum. Good woodland soil and shade from large trees has provided the ideal growing conditions for our small plants and seedlings. It is ideal to have the opportunity to observe plants until they have suffered a bad winter and you have got to know them. It gives you the time to decide where to plant them. They will go with a good lump of soil (not the miserable peat ball with circling root system of the average garden-center). We have seldom failed in transplanting a young tree or shrub raised in these woodland nurseries' on the other hand we have lost many plants in the first few years in the nursery. But better there, than in the grounds after an expensive effort at planting! A generous mulch is provided to control weeds between the young plants. Leaves (from the nearby beech wood) will provide cover and in winter can even be raised over small plants or at least the base of the plants (good protection for a bad winter). Slug bate may have to be used as these hungry animals can eat a row of young magnolia seedlings in a couple of nights. Young plants are moved (or simply turned around every year, so that they build up a good root ball as opposed to a single taproot. Plants may spend up to five years in these nurseries, until a place is found for them. Although we feel so ineffective at raising cuttings and seed, we still have far too much in the nurseries and are permanently under (mild) stress to empty the nurseries. If only we could stop buying and raising seedlings or cuttings… (wishful thinking). We try to plant very small seedlings and cuttings near the house giving us the opportunity to keep a close watch on them whenever we pass by. Drought, slugs, sun, etc. can kill these youngsters overnight.

Planting

We have very rarely planted an acquired plant directly into its final location. All plants have gone through this period of adaptation and observation in one or other woodland nurseries. Few people like the idea, it seems like double work. I consider this a mistake, many recently acquired plants will die and I like them to die in the nursery. Healthy plants, which have demonstrated that they are happy in our soil and climate, will be moved to their final destination with a good root ball. These transplantations never fail. But I have not convinced many people that it is much easier to keep all plants under observation in a central location. One can then at ease, verify the identity and quality of the plant, label it, and chose the final destination.

During the study day many playing cards were seen in the garden and arboretum. I do not know whether it was my gardener or I who came up with

the idea, but we have used this system for 25 years. Up to two sets of playing cards (reds and blues) will be placed on rows of plants in the nursery, written up on one of our special forms. A corresponding set of plasticized playing cards is placed on 104 bamboo sticks which will be placed in the garden and arboretum during a somewhat stressful walk through the grounds. The purpose of the walk is to get rid of all the bamboo sticks while trying to remain intelligent and effective and still get home in time for dinner. It takes us in general, up to 5 hours to place two sets of cards. The bamboo sticks are re-used many times but the corresponding playing card may stay on the plant for a year, until we have checked the years planting and labelling. You could write up the name of the plant on the stick but it is not as easy to spot from a distance which plant must go where. Cards numbers are noted in a particular area, collected in the nurseries and sent to the ad hoc area. One does waste a game of cards for every 52 trees planted!

Planting holes would be made at the last moment with a small digger and for as many plants as my gardener thought he would be able to place in a days work. The idea is never to allow rainwater to accumulate and damage the structure of the soil. Mulch is added as soon as possible to cover the base of the tree. Four bamboo stakes are planted to protect from deer damage.

Plants have often been placed within the arboretum by systematic affinity. Areas have been designated for special genus groups, so the first attempt will be to put a new viburnum within the viburnum section. If there is really no space left, one has to find room elsewhere. Obviously one must know what condition the plants likes, how big it will become what colour it may have etc… One becomes better at this with time but the right planting distance is always a terrible illusion. Someone once told me that when there was a gap between two plants and if you planted one of your young trees in between, well you ended up with two further gaps. And I must admit that I have found myself planting two new trees in such gaps. Discipline is essential. Large trees should be planted at 15 m distance at least. We have many at half that distance. (We will cut one of them in due course). Trees should not be planted near the edge of a wood or they will grow at an angle. Groups of threes should be avoided as none of the trees will end up as a balanced specimen. This is not a problem for shrubs and small trees. (Garden architects love to do this because it gives a quick mass effect). All of this makes your arboretum look rather dull for many years. One has to suffer the irony of friends and guest. Most do not understand what is going on. I like to think that I do not need to see my trees in old age - that I know what they will look like. Other plant collectors are more impatient and can't seem to enjoy what has happened until much later.

In the garden of Herkenrode, we started with trees at great distance and then interplanted with smaller trees and then shrubs and eventually ground covers. This makes for a more full effect while allowing bigger trees to grow a balanced crown. Shrubs and ground cover would be allowed to go in due course, as the trees reach their full size. But in the meantime Herkenrode is more of a garden and requires much more care and maintenance than the arboretum.

Cataloguing

Most IDS members have a clear view of how they want to catalogue their plants. And they will only take advice when in trouble. I strongly recommend that they take a look at the IDS recording scheme before starting. Participants on the study day, were handed a photocopy of the official **IDS recording system** booklet. This document was originally put together by David Hunt and is out of print, but as suggested by a participant, should go onto the web site.

It is a good idea to think over carefully what software one wants (to be able) to use and to try and use its possibilities to the fullest extent. These days one may want to consider using relational database software but a single spreadsheet can be equally effective. Take some time to sit down and think over the structure of your database.

It is suggested that some 20 fields be used although I recommend a minimum of six: Accession number, Name, Location, Source, Date planted, Status, and most will want at least a unformatted DATA field for any other information.

Accession numbers are a difficult concept for beginner dendrologists. I do not know why. An accession number is no more than a simple and unique number given to each plant that comes into the collection. You can give the same number to several plants provided that they are from the same source, same age and in the same location, but otherwise give them other numbers or you will soon regret it. Further, there is no reason to combine date and numbers to provide a complex accession number. Both can be presented on the label, but not combined. To take an example let's say that one has acquired 51 plants in 2005 and purchased or received a plant on 1 January 2006 it would simply bear the number 52. The label would indicate Plant XYZ, n°52, 2006. The most important advantage of the simple number is that you can order them in advance and place them on the plants as they are received (and before they go into a nursery or to their final destination). This is also the right time to mark the accession number on the invoice or in your notebook of acquired plants.

Name To make sure that all plants come together in the listings of catalogues, avoiding spelling errors and nomenclatural issues, the best is to refer to one single accepted list of names. The RHS *Plant Finder* is probably the only document to be sufficiently comprehensive and, most importantly, updated annually. Synonyms and taxonomic changes will be clearly indicated every year. When you specialize in a certain taxon or taxa, you may want to use a revision or monograph on that taxon if it exists, is generally accepted, and recent. Anyway, the *Plant Finder* will in most cases remain the best standard for cultivar names. There are few exceptions to this rule but we can for instance recommend the recently published RHS International Rhododendron register and checklist.

Map of locations (beds) Several alternatives are suggested. Here at Wespelaar, we chose the natural boundaries plan (as opposed to the theoretical grid system) all beds are given a number and are reasonably recognizable by natural boundaries. A cleanly cut path in a meadow may be sufficient to line out such a bed. Avoid having too large beds or too many plants in a single bed.

Source: We have used three digits to indicate the origin of the plant (nursery or propagator). For instance, HIL is for Hillier's, ESV for Esveld, PDS is for in-house propagation, WLD is for wild collected material (with collectors name and data in the data field).

Status (health) We find it useful to give a code indicating the current (latest known) health status of plants. These codes may evolve as plants move from one category to another as they decline or regain health over the years

0 : dead
1 : dying
2 : damaged, diseased
3 : weak, unadapted,
4 : healthy

Date planted (in location) Everyone will want to know the age of a plant. This is so obvious that most curators will want to have the date of planting on the label. This is a good thing, but I would keep the date separate from the accession number. We made the mistake of combining the two: our first plant bears accession number 66001 which means the first accession in 1966; this system was useful until the year 1999, with the millennium, we got into trouble, as the first plant of the new millennium was 00001 and it shows up first in any numbered list. The date refers to the last move of a particular plant. Rhododendrons for instance can be moved after many years and so the date planted refers to the latest movement into the current location. The date of original acquisition might get lost with this system.

Data: One will surely need a DATA field where any kind of free text can be added. You can enter all kinds of information in that field such as flowering time, circumference, pest attacks, autumn colouring, etc. However, if you intend to keep detailed data of your plants on a certain issue or character, it is always recommended to create an extra field. This will make life easier when making queries, reports and the like, e.g., if you plan to measure the girth of your trees every three years, you should create a "measurement" field instead of putting all this data in a general data field.

Labelling

This has always been the dendrologist's nightmare. I have always had a very average memory and not relied on it to know anything. This is probably why I have been so determined to make sure that plants were properly labelled. I learned my plants while visiting, on my own, arboreta and botanical gardens all over the world. I would go to a plant take a picture and search for a name and would be exasperated if I did not find a label and soon astonished at the number of wrongly labelled plants I would meet. Problems are never far away: to start at home, one of our members at the study day was a little surprised to find a label stating *Abies rufinerve* (sic) on one of our recent maple accessions. So even in the best houses…