

## Foundation Arboretum Wespelaar Year Report 2018



*The summer of 2018 was exceptionally warm, abnormally sunny, abnormally dry and with an exceptionally low rainfall frequency. This caused a lot of stress and difficulties for numerous collection plants, but thanks to the hard efforts of the arboretum staff we have succeeded in getting most of the plants through this difficult period.*

*2018 will also go down in the records of Arboretum Wespelaar as the year in which we were able to realize a very important purchase. In Marche-en-Famenne, a municipality in the Belgian province of Luxembourg, we have been able to acquire a lovely site where we will start a satellite arboretum based on the same principles as those of Arboretum Wespelaar.*

*This exceptional opportunity and the many other achievements of Arboretum Wespelaar are described in more detail in this Year Report.*

## THE COLLECTIONS

The **living collection of woody plants** in the Arboretum currently (as of 30 January 2019) contains 4,996 specimens representing 2,276 different taxa (versus 16,145 specimens and 4,871 taxa on the whole of the estate). These numbers include the 309 new accessions on the estate during 2018 of which 97 (or 31%) are of documented wild origin.

Around 35 **woody plants were removed** from the collection as part of an ongoing effort to improve the aesthetic value and health of the living collection. Although choices are often easy (ugly plant, not adapted to our climate, diseased, too many of the same taxon, etc.) other times it is a more difficult process. This year we had to say goodbye to an impressive ornamental crabapple. This *Malus baccata* var. *mandshurica* entered the collection in 1983 and got its final position near the Crane pond in 1987. Over the years it became a real eye-catcher especially when in full bloom.



Photo 1. *Malus baccata* var. *mandshurica* in flower is always a spectacular sight

But at the same time, the plant became wider and wider, eventually causing one of the main axes of the Arboretum to become overgrown. Since this axis will become even more

important in the future because of the impending construction of the Artois Pavilion, we had no choice but to cut the plant.

Since several years, we have taken the useful practice of **mulching** the base of our young plants. This helps to keep grass and unwanted annuals or perennials away from the tree bases and it keeps the soil moist even in longer dry periods. It also prevents the mower from riding too close to the stem of the plants and therefore avoids damage by the mowing machine. Furthermore, we have also significantly increased our mulching efforts for older, established plants from 2016 onwards. Thanks to the help of some job students, last year we succeeded in providing practically all trees with a mulch layer. Now it is only a matter of maintaining this effort on a regular basis in the future.

In the summer of 2018 all records of both temperature and precipitation were broken; we experienced the most **hot and dry summer** since the start of the measurements. It goes without saying that this had a major impact on both the plants and the outdoor maintenance activities. For about three months, the gardeners' main activity was to provide water to the collection plants. Thanks to these efforts, we have succeeded in getting most plants through this difficult period, yet there were several losses or damages. Plants that like coolness and humidity (e.g. *Rhododendron*, *Stewartia*, *Cornus* or *Fagus*) had a hard time, plants originating from a more continental climate were quite happy (e.g. *Koelreuteria*, *Lagerstroemia*, *Styphnolobium* or *Liquidambar*). In 2019 we plan to install an irrigation system in the Wernerbos too, so that we can be even more flexible and efficient if watering is needed in periods of drought.





**Photo 2. Watering collection plants was our main activity during this particularly dry summer. The grass was not watered as can be seen in this picture**

Plant pests and pathogens present a significant risk to global plant health and this threat is ever rising. Sentinel plants within botanic gardens and arboreta can play a vital role in providing information on future and/or known threats. Since 2017, Arboretum Wespelaar is an active partner in the project “Belgian network and activities in the frame of the **International Plant Sentinel Network**”. This year we re-evaluated the conifers and oaks according to the agreed and clearly defined procedures. Despite the hot and dry summer, these plants did quite well except for two *Tsuga mertensiana* that died from a *Phytophthora* attack (plants were probably already weakened due to the difficult summer circumstances). *Phytophthora* seems to become an important problem: a hedge of *Taxus baccata* is dying and a *Castanea sativa* also died from a *Phytophthora* infestation. ILVO (Research Institute for Agriculture, Fisheries and Food) examined root material of our Ulmaceae accessions for the presence of *Meloidogyne mali*, a new invasive plant parasitic nematode in Europe. Luckily no infestations were found.

Having a perfectly labelled and correctly identified collection is one of the main

objectives of the Arboretum. Since 2014 we have significantly increased our efforts and our team continues this **major inventory round** at the Arboretum and the dendrological collections of the surrounding private estates of *Herkenrode*, the *Park of Wespelaar*, the *Potager de Wespelaar* and *Bosveld*. This important and valuable work continued in 2018 and a total of 97 beds have been thoroughly inventoried. During this inventory, each plant within a certain bed is localized, its health status is assessed, the identity is verified if possible and/or needed, and the label is placed on a healthy branch clearly visible for our collaborators and visitors.



**Photo 3. *Magnolia 'Sybille'*, registered in 2018, has big, pure white flowers**

As usual, we also remain active in the field of horticulture. After years of monitoring and evaluation, **three new magnolias and two new oaks were registered** with their respective ICRA (International Cultivar Registration Authority). It concerns the perfectly white

relatively late flowering *Magnolia* 'Sybille' ('White Giant' x 'Leda'), the floriferous *Magnolia* 'Ghislaine' ('Galaxy' x 'Purple Breeze') with pink floppy flowers, and a fast-growing seedling of the cross ('Anne Rosse' x 'Purple Breeze') with late, dark flowers that we have named 'Marguerite'. The two oaks, *Quercus stellata* 'Artois' and *Quercus alba* 'Laura', were selected because of their excellent autumn coloration.



Photo 4. *Quercus alba* 'Laura' has been selected for its excellent autumn colour

## VISITORS

Since the opening of the arboretum to the public in 2011, we have seen a more or less **steady increase** in visitor numbers (see table below). The peak of last year is explained by an activity organised for the Flemish Hardy Plant Association that was very well attended and the year 2015 stands out because we then organized an autumn weekend with extra

publicity and free guided visits that boosted the visitor numbers for that year.



The number of individual visitors amounts to 4,733 (vs. 4,872 in 2017) and the number of groups totals at 87 (vs. 94 in 2017). 265 annual tickets for families were sold (270 last year). The good news is that we see a marked increase in the number of returning visitors (1,850 in 2018 vs. 1,470 in 2017), which is a perfect illustration of the appreciation for the Arboretum and our work by these loyal visitors.

We had, as every year, many visits from **specialized groups**, both national and international, which reflects the importance and impact of Arboretum Wespelaar in the world of woody ornamental plant collections and plant connoisseurs. Amongst those were plant specialists Dan Crowley and Hugh Angus (*Acer*), Olivier Colin (*Mahonia*), Patrik Flank (*Magnolia*) or Jean-Pierre Henin (Styracaceae) to name just a few. We of course had many specialist tree breeders (e.g. Paul Reimer of Reimer's Nurseries Ltd. in Canada) and colleagues from other collections on visit (e.g. John Grimshaw of The Yorkshire Arboretum, Andrew Wyatt of Missouri Botanical Garden, Sir Henry and Lady Elwes of Colesbourne Park, and botanical illustrator Hazel Wilks). Moreover, specialist groups such as the Deutsche Dendrologische Gesellschaft, the



Irish Tree Society, the Société Genevoise de Dendrologie, Vereniging voor Openbaar Groen or the Association of National Trust Members & Supporters also found their way to the arboretum.

In this day and age of social media, we must also consider the **virtual visitor** to the Arboretum. In 2018 our **website** had 12,871 users (vs. 12,195 in 2017) and 75,458 pageviews with a clear peak in spring (in April and May). 84% of the visitors on the website are new visitors. 65% of the visitors are from Belgium. The most visited pages are the homepage, the contact page, database of woody plants of Arboretum Wespelaar, the database of images connected to the identification keys by Jan De Langhe, and the BELTREES database. The Arboretum website has undergone an important update at the end of 2018: the site is now fully user-responsive, but the underlying information is not necessarily modified except where necessary.

Our **Facebook** page currently has 1,936 followers (1,666 at the time of the last report in 2017). During opening season, new pictures from plants of the collection are added once every week or every two weeks, so that followers can see what is flowering or happening at that time. The pictures are grouped by month. Our most liked albums were those of the months of April (287 likes) and October (253 likes), and the album Winter 2018-2019 (231 likes). The reach (people looking at the post without necessarily liking it, also includes people that do not follow the page) of every post is by average 1,000 persons, but one post in autumn (about closing soon for the winter season) had the biggest reach: 3,245 persons.

There are now no less than 35 vegetative **identification keys for selected woody plant genera and species** in cultivation in Western Europe, composed by Jan De Langhe, available on our website. Moreover, there are more than 28,000 high-definition images consultable on the website, making this more and more an inexhaustible source of information and beauty. The genera *Acer*, *Alnus*, *Clethra*, *Hedera*, *Populus* and *Sorbus* (*aucuparia*-section) among others received special attention in 2018.



Photo 5. *Alnus fauriei*. More than 6,000 high-definition images were added to our website in 2018

## DATABASES

All our collections (woody and perennial plants, herbarium, bonsai collection, wood samples, cones and fruit, books, journals and reprints) are kept in a database management system which is updated daily. It is easy to extract and distribute information from this comprehensive database. The catalogue of woody and perennial plants can be downloaded from the Arboretum Wespelaar website and the woody plants information is at the same time available in an on-line searchable database. In 2016 we started linking photos to the individual specimens which can be consulted in the on-line database. The past

three years almost 7,000 pictures were linked. This is an important project which will continue and expand in the years to come.



**Photo 6.** *Quercus oglethorpensis* is an endangered species and is thus facing a very high risk of extinction in the wild

The woody plant information is also shared – by means of a yearly upload of our data – with two other on-line searchable databases: PLANTCOL for collections in Belgium and the PLANTSEARCH database of Botanic Gardens Conservation International which is a global database of living plants with 1,105 contributing institutions. The PLANTSEARCH database of BGCI gives us the possibility to identify which of our taxa are of **conservation concern**. One species, *Franklinia alatamaha*, is extinct in the wild; 11 species are critically endangered (e.g. *Torreya taxifolia* or

*Rhododendron changii*); 27 species are listed as endangered (e.g. *Fitzroya cupressoides* or *Quercus oglethorpensis*); 81 species as vulnerable (e.g. *Abies fabri* or *Fagus hayatae*), etc. The full list is available on our website. Moreover, all threatened red list species are also marked in the field with a red tag on the display label.

Our library had again an important increase thanks to the donation of books and journals from our former Board member Herlinde De Jaeck who unfortunately passed away last year. The library now has 3,277 accessions, mostly books (2,575) but also journals, maps, reprints, cd's and dvd's.

## EDUCATION

We are often highly recommended for our **guided tours**. It is of course important to keep the botanical and horticultural knowledge of our dedicated guides at a high standard and for that reason a class is organized on a monthly basis. Some of the subjects that we studied in 2018 were the genera *Alnus* and *Magnolia*, Gymnospermae, *Acer* classification, maintenance of the arboretum, Red Listing, priority collections of Arboretum Wespelaar, techniques for guiding a group etc. We also continued with an in-depth study of the woody plant specimens per location focussing on identity, nomenclature, morphology, systematics, natural habitat and occurrence, maintenance, background stories, etc. The idea behind this approach is to provide our guides with the necessary background to conduct their tour.

One of the more effective ways to **share dendrological expertise and horticultural practice** is the organisation of talks and study days. In 2018 several of such activities were organised. In May we organised a Maple Weekend for members of the Maple Society and Belgian Dendrology Society. This weekend combined talks by Maple specialists with visits to important collections, i.c. Arboretum Wespelaar and Herkenrode, CECE the nursery of specialist grower Benoit Choteau, and the Park of Mariemont. At the International Maple Symposium in 2017 (Roscoff) it was proposed that the Maple Society should set up a working group to look at and publish a list of valid names for maple species. This would of course be a first step ideally resulting in a database including synonyms, pictures, classification etc. Koen Camelbeke has been appointed as Chairman of this *Acer* Species Names Group and the Maple Weekend has proved to be an excellent opportunity to strengthen this group and to take concrete steps and achieve the first results.

Nine **students and trainees** worked in the Arboretum in 2018 and we wish to thank them for their help and assistance and for bringing new ideas and youthful vivacity to the Arboretum. We also had visits from various horticultural schools or classes in landscape design or garden maintenance and they always received a tailor-made tour.

An important subject when it comes to education is the sharing of information through **lectures** to a specialized audience. In 2018, the Director gave three lectures to an international audience: *Magnolias* and their cultivars for the German Dendrological Society; *Magnolia*, the diva among spring flowering trees for 'Groei & Bloei' in the Netherlands and a presentation on

the specialized woody plant collections of the Arboretum in Grünberg, Germany.



Photo 7. Collecting *Magnolia* buds in the Arboretum for tissue culture and cryopreservation

#### INTERNATIONAL COLLABORATION

We are frequently consulted by scientific institutions or botanical collections with regards to the plants we are growing. After evaluation of the request, we share information, seeds, leaf material or cuttings for scientific research. One of the important projects in which we participated in 2018 is the development of a tissue culture collection of magnolias by The Huntington Botanical Gardens in California (in collaboration with Professor Bart Panis, KU Leuven). Based on their tissue culture repository, they want to establish **cryopreservation protocols** for the long-term conservation of Magnoliaceae. This project can contribute to the conservation of Magnolias and Arboretum Wespelaar provided *Magnolia* material (dormant buds) for several taxa.

A total of ten such international collaborations were set up or continued in 2018 focusing on different plant groups such as *Liquidambar*, *Franklinia*, *Gunnera*, *Liriodendron* and *Magnolia*, Hamamelidaceae, *Fagus orientalis*,



*Ginkgo biloba* and *Paulownia elongata*. The full list with detailed information is available upon request.

Arboretum Wespelaar is a founding member of the **Global Conservation Consortium - Rhododendron** which has as overall goal to avoid all *Rhododendron* taxa extinctions through integrated conservation and improving the conservation status of rare and threatened *Rhododendron* taxa in their countries of origin. Following outcomes must be achieved within the next five years:

- All critically endangered taxa in conservation programmes.
- Red listing of data deficient and not evaluated taxa via Global Tree Assessment.
- Comprehensive expeditions programme designed to ascertain the conservation status of rare and data deficient taxa and to discover new species.
- Make sure that all threatened taxa in ex situ collections are duplicated in more than one facility.
- Develop a list of safe ex situ sites for living *Rhododendron* collections.
- Make optimal propagation protocols available.
- Research into long term seed storage of *Rhododendron*, propagation protocols.
- Capacity building targets. Training, infrastructures, training resources, mentorship, staff exchange opportunities.
- New *Rhododendron* taxa brought into cultivation for sustainable development and income generation.



#### ADMINISTRATION AND CONTACT WITH AUTHORITIES

In 2015 the local authorities started to draw up a so-called spatial realisation plan (entitled “RUP Kastelenparklandschap”) which will help us with the future management and developments at the Arboretum and the surrounding estates. This official document has been adopted and approved by all stakeholders and administrations in January 2018. A direct consequence of this decision is that we have received permission for construction of the **Artois Pavilion** which is inspired by the Hunting Pavilion along the canal that is part of the Park of Wespelaar. The Artois Pavilion will be implanted at the end of two important axes and will therefore be a crucial visual and aesthetic focal point. The pavilion will also fulfil several other functions: shelter in bad weather, resting point with a few benches, exhibition space, space for specific dendrological activities and it will of course have the necessary sanitary facilities. The construction of the Artois Pavilion will start in 2019.

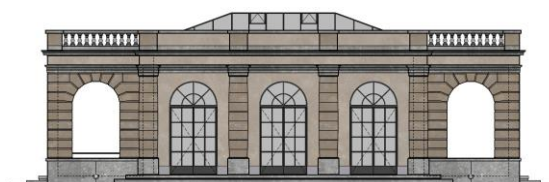


Fig. 8. The Artois Pavilion



## SERVICES TO THIRD PARTIES

Acquiring, compiling and sharing dendrological knowledge and expertise is one of the main goals in the mission statement of Foundation Arboretum Wespelaar. One of our important partners in achieving this objective is the **Belgian Dendrological Society** (BDB) and following was realized in 2018: the director of the Arboretum is a member of the Board of the BDB and continues as member of the reading committee of the BDB Yearbook, since 2016 he is also publisher of the BDB Yearbook. A successful lecture day was organised in February with talks on conifers and on the higher altitude forests of SE Tibet. In October we organised a very well attended visit to the unique dendrological collections of the Golf of Ravenstein in Tervuren. Also, in October the Director organised a 4-day dendrological voyage to Yorkshire with visits to following collections: Howick Hall Gardens and Arboretum, Fountains Abbey and Studley Royal, Thorp Perrow Arboretum, Ray Wood, Castle Howard Estate and The Yorkshire Arboretum, Harewood House and RHS Garden Harlow Carr. This too, was clearly an interesting and successful activity because the trip was fully booked in no time. The secretariat of the BDB remains one of our tasks and Arboretum Wespelaar also remains the driving force behind the database of remarkable **Trees of Belgium** (BELTREES). This database contains now over 30,000 living measured trees with 1,592 new accessions or updates in 2018. This year we organized for a fifth time two meetings (region of Flanders, and Wallonia plus Brussels) with several of the most important contributors to the database in order to encourage and increase the number of yearly measurements.

Another database which is managed and maintained by the Arboretum Wespelaar team is that of the dendrological collections of the private estate **Hemelrijk** in Essen, the property of the De Belder family. In 2014 we have started with a new inventory round of the Hemelrijk collection of woody plants in order to have the main trees and shrubs, if possible, accessed in the database and labelled in the field. This effort will continue in the years to come and we feel privileged to help keep this most important and valuable collection up-to-date and well labelled for the future generations.

The Director of the Arboretum continues his function of secretary of the **Belgian Association of Botanical Gardens and Arboreta** (V.B.T.A.). An important activity in 2018 was the organization of a course for future guides of botanical gardens and arboreta. Arboretum Wespelaar was an important partner in this project and our participation resulted in the addition of four new guides to our team who will now start the local training so that before long they can start guiding groups in Wespelaar. The V.B.T.A. welcomed four new member gardens in 2018 which brings the total number to 21 active members. More information is available on the V.B.T.A. website [www.botanicgardens.be](http://www.botanicgardens.be).

The Director is Chairman and Secretary of the expert committee of **Foundation Franklinia**. He is also active in and responsible for the follow-up of the projects sponsored by the Arboretum; mostly in the field of nature conservation. The Director is a member of the **Magnolia Society International** Research Committee and Board of Directors.

It is crucial that the Arboretum keeps good and solid contacts with the **local community**. It is therefore with pleasure that we continue to advise the local authority on the management, reconstruction, labelling and plantings of the public park in Haacht, the CPAS of Haacht, or individual trees on the grounds of the municipality. We are also active in the “Forestry Group Wespelaar” and help in advice for cutting and planting of new woodland.



Photo 9. Summer view of the property at Marche-en-Famenne (Aye)

#### ARBORETUM DE MARCHÉ

Arboretum Wespelaar is now well-established and for several years the Board of the Foundation has been actively searching for a site in the south of the country to establish a second arboretum there. The fundamental ideas for this new arboretum are the same as in Wespelaar: an aesthetic and interesting woody plant collection, a scientific approach and collaboration, and sharing of information, know-how and expertise with everyone interested in woody plants. A big advantage of having a sister garden in the south of the country is the fact that we can enjoy of a more pronounced relief and that another first-class quality arboretum is welcome in this part of the country.

In January 2018 we were able to purchase a site with woodland and meadow-land of 78 ha in Aye near Marche-en-Famenne. This large area with varied landscapes and land uses gives us a variety of possibilities. The domain in Aye will be built up around three pillars:

- a landscaped arboretum of approximately 15 ha (satellite arboretum of Wespelaar),
- nature conservation and nature experience in collaboration with Natagora,
- forest arboretum with testing of woody species in collaboration with DNF (Département de la Nature et des Forêts) and SRFB (La Société Royale Forestière de Belgique).

As soon as we became owners, many activities started including the application for the construction of a visitor centre, the construction of a fence around the future arboretum, the first planting of about 150 trees after clearing important parts of the site, the cooperation with Natagora for inventories of fauna and flora and for the construction of four amphibian ponds, the creation of a database for collection management, the logging of about 5 ha *Picea* planting, etc.



Photo 10. First plantings at the Arboretum de Marche



This is a very exciting project and we will remain very active in the coming years to make this new site a wonderful, exciting and interesting place for everyone enjoying nature in general and dendrology in particular.