Arboretum Wespelaar

Foundation Arboretum Wespelaar
Year Report 2019

2019 started with an early spring: by mid-March the early magnolias were in full flower. Temperatures kept rising and the heat record was broken in July, making the summer of 2019 one to be recorded in history books. Luckily, small rain showers and increased irrigation capacities ensured that we lost very few plants. In March 2019, the construction of the Artois Pavilion started in the Artois Meadow, at the end of two important vistas. The design is inspired by the old pavilion along the canal in the Park of Wespelaar.

In the new Arboretum de Marche, a total of 189 trees have been planted in the past two years. In collaboration with Natagora, five ponds were created and a 5ha plot was sown with wild seed to create a meadow of native grasses and flowers. The building permit for the visitors centre and technical facilities was obtained.

2019 was a very active year for both Arboretum Wespelaar and Arboretum de Marche, as is 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 5,116 specimens representing 2,340 different taxa (versus 16,376 specimens and 4,955 taxa on the whole of the estate). These numbers include the 629 new accessions on the estate during 2019 of which 108 (or 17%) are of documented wild origin.

Photo 1: Spectacular flowering of the early magnolias in mid-March

Around 37 **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. On the Artois Meadow, the new pavilion is gradually taking shape. Because of that, we unfortunately had to remove some beautiful specimens as they would completely block the view of this building. We were able to transplant one plant, *Acer rubrum* 'Morgan', which we received as a gift from the IDS Council in 2016. But two beautiful crabapples, *Malus hupehensis* and *Malus transitoria*, were cut with much regret. Also, *Magnolia* 'Patty', a named selection of our cross 'David Clulow' x 'Leda', had to be removed but not before we had taken material to propagate so that a new 'Patty' can be planted in the Arboretum in due time.

Once again, our winter was not worth mentioning and by mid-March we could have opened the Arboretum for our visitors because the early magnolias were already in full flower! On March 11th however, we had a serious storm with accompanying damage and much cleaning up. A large pin oak (*Quercus palustris*) fell over in the Werner Wood and the crown of a beech tree along the cobblestone road of the domain of Wespelaar collapsed on the fence of the Arboretum in the southwest corner of the Marnef Wood. We therefore decided not to advance our opening date.

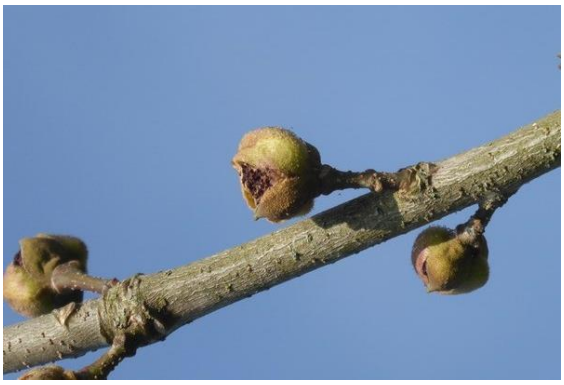

Photo 2: *Fraxinus baroniana* starts to flower for the first time

In 2011, through our good contacts with The Morris Arboretum in Philadelphia (USA), we obtained seeds collected in the wild from an extremely rare Chinese ash species, *Fraxinus baroniana*. We were very successful in growing this plant and over the years we have planted a dozen of these plants on the estate. In 2019, a *Fraxinus baroniana* **flowered for the first time**; a first for Europe! We had the good surprise of witnessing the first flowers, after 16 years, on our only surviving *Magnolia decidua* (formerly *Manglietia decidua*) in the Verlat Wood. Another first for Europe in Wespelaar! This recently discovered species was introduced to

Europe via seeds that Philippe de Spoelberch cultivated and distributed. *Magnolia decidua* is only known from a single population in Jiangxi (China) and is listed as an endangered species on the IUCN Red List. Within *Manglietia*, it is the only species to drop its leaves in autumn. This is of course not the case within *Magnolia*, but it retained its species name "decidua". The thin, upright flowers themselves are less spectacular: 4 green outer tepals and up to 11 very narrow, inner white tepals. We used the opportunity to take a photo sequence so that we could follow the opening of the tepals. The flowers finished flowering within three days. The tepals never fully opened: was this due to the somewhat cooler weather or do pollinators just crawl through the tepals to reach the stamens? This has not yet been fully clarified.

Photo 3: Irrigation works in the Werner Wood

The summer of 2019 will surely be recorded in the history books. In July, the **heat record** was broken as we measured an inconceivable 41.5°C on the Magnolia Meadow! And the record of the highest minimum temperature was broken as well: 23.5° on the night of July 25th. This heat caused problems for many collection plants: *Abies*, *Carpinus*, *Stewartia*, some *Magnolia*, *Nothofagus*, *Rhododendron*, all of which suffered severely under these unpleasant temperatures. But luckily, unlike last year, we had a small rain shower every so often. That, plus the fact that we seriously expanded our irrigation capacities last year and in 2019 as well, ensured that we lost very few plants.

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. On April 4th the project "Belgian network and activities in the frame of the **International Plant Sentinel Network**" ended with an evaluation meeting in Brussels. The participating botanical gardens will keep an eye on possible infestations and have knowledge about the procedures to inventory this in a standardized way. We uploaded the last files concerning the research of our Ulmaceae accessions in the Plant Health Checker, a database part of the Plant Sentinel Network. We also received the final results for the *Sirococcus* blight research (*Sirococcus tsugae*) but luckily no plants of ours are infested. In 2019 we also participated in the research for Rose Rosette Virus by the International Plant Sentinel Network: again, no symptoms were identified.

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 2019 and a total of 121 beds have been thoroughly inventoried. During this inventory,

each plant within a certain bed is localised, 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. For the labelling of our small plants (seedlings, cuttings, small purchases or gifts) we bought a professional label printer. That should allow us to label larger quantities of young plants in a quick and more efficient way.

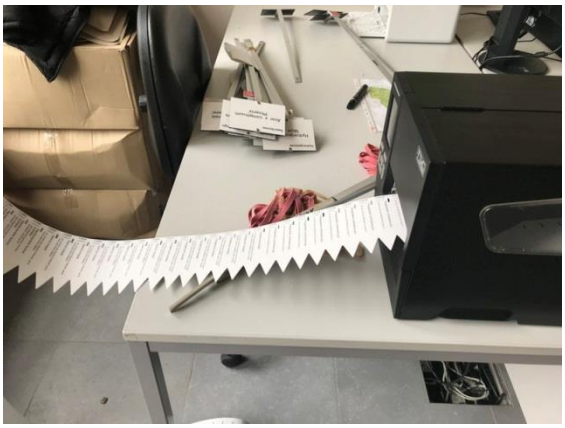

Photo 4: Newly purchased label printer

We keep on monitoring and evaluating our plants. In 2019 we **registered two of our rhododendrons and one horse chestnut**. *Rhododendron augustinii* 'Bokrijk' and *Rhododendron dauricum* 'Jelena' were both registered for their rich flowering and both named in honour of their donor. *Aesculus glabra* 'Herkenrode' has always been a good compact tree with great silhouette and warm red-orange autumn colour. The tree has never been pruned and stays compact. This will be an interesting selection for gardens. It does not suffer from the horse-chestnut leaf miner (*Cameraria ohridella*) which is a great asset as well. As usual, a short paragraph and many pictures of these plants were added on our website in the category "our selections".

Photo 5: The rich flowering and striking colour of *Rhododendron augustinii* 'Bokrijk' (left).

VISITORS

Although there is a slight decline in the total number of visitors, it is important to report that we continue to see a steady and significant increase in the annual subscription category. These are visitors who find it worthwhile to return after their initial visit and who are therefore a real indicator of success.
The number of individual visitors amounts to 4,791 (vs. 4,733 in 2018) and the number of groups totals at 91 (vs. 87 in 2017). 316 annual tickets for families were sold (vs. 265 last year)!

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 (*Acer*), Raquel Folgado (*Magnolia*), Jan Spruyt (perennials), Martijn Essers (*Acer*) 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, Sébastien Emain and Vert'Tige from France, Gerbert Klein Wassink from The Netherlands) and colleagues from other collections on visit (e.g. Michael Dreisvogt from Härle Arboretum in Germany, Faith Douglas and Lady Ropner from Thorp Perrow in England). Moreover, specialist groups such as the Welsh Historic Garden Trust, South Swedish Rhododendron- and Magnolia Society, Daytona Ohio Garden group also found their way to the Arboretum. We were of course very honoured by the visit of the well-known Belgian contemporary artist Luc Tuymans and his colleagues.

Photo 6: Visitors in the Verlat Wood

In this day and age of social media, we must also consider the virtual visitor to the Arboretum. In 2019 our **website** had 14,767 users (vs. 12,871 in 2018) and 75,681 pageviews (vs. 75,458 in 2018) with as usual a clear peak in spring and autumn. 83% of the visitors on the website are new visitors. 64% of the visitors are from Belgium. The website is mostly viewed in Dutch (53 %) followed by English (25%) and French (11%). The most visited pages are the homepage, the contact page, the database of woody plants of Arboretum Wespelaar, the database of images connected to the identification keys by Jan De Langhe, and the BELTREES database. Since the end of 2018, the site is now fully **user-responsive** and thus adapted to smartphones and tablets. This was an important step since the number of visitors through smartphone and tablet kept rising: 59% of the visitors use a computer, 31% a smartphone and 10% a tablet. Another novelty on our website is the **virtual tour**, currently only available in Dutch, but translation into English and French is ongoing and will be available in 2020. This interactive site divides the Arboretum into nine zones that can each be visited separately and where background information and botanical eye-catchers are presented. There is also, again via an interactive map, a specific link to all our own selections and to species that appear on the IUCN Red List.

Photo 7: The "virtual tour", a new addition to the Arboretum Wespelaar website

Our **Facebook** page currently has 2,396 followers (1,936 at the time of the last report in 2018). 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 top three of most liked albums were the Album Winter 2018 -2019, containing photographs from December 2018

to February 2019 (290 likes), those of the months of October (272 likes) and March (245 likes). But the most liked post was one about the huge flowers of *Magnolia macrophylla*: 291 likes ("*Magnolia* macro-phylla has macro-flowers"). 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 1,500 persons (vs. 1,000 in 2018). The post about *Magnolia macrophylla* had the biggest reach: 3,245 persons.

Photo 8: A picture showing the very large flowers and leaves of *Magnolia macrophylla* was a hit on social media

Our **new Instagram** page currently has 1.028 followers. Every post gets about 120 to 200 likes. New posts are added once every week or every two weeks, containing a selection of photographs of plants flowering at that time. The scientific plant name is always mentioned, which is much appreciated by the followers.

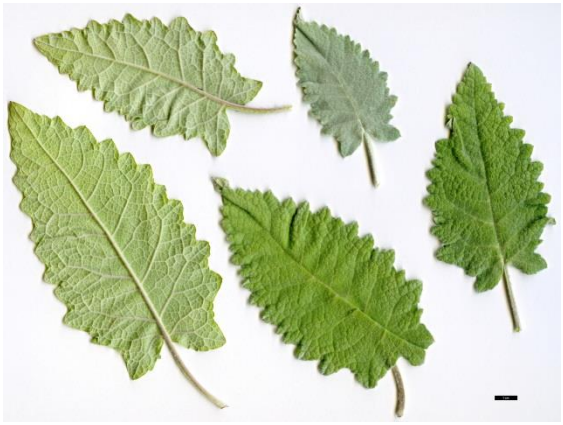

Photo 9: Scan of *Buddleja agathosma* by Jan De Langhe

There are now no less than 38 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 33,000 high-definition images (3,027 species) consultable on the website, making this more and more an inexhaustible source of information and beauty. The genera *Amelanchier*, *Buddleja*, *Crataegus*, *Deutzia*, *Euonymus*, *Pittosporum*, *Rhododendron*, *Rubus*, *Salix*, *Viburnum* and the family Actinidiaceae received special attention in 2019.

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 on a daily basis. 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 more than 8,000 pictures were linked. This is an important project which will continue and expand in the years to come.

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 (not in 2019 because of the retirement of the responsible person at Meise BG) and the PLANTSEARCH database of Botanic Gardens Conservation International (BGCI) which is a global database of living plants with 1,154 contributing institutions. PlantSearch then provides us with a list of **taxa that are included in the IUCN Red List**. We also use the most recently published Red Lists that we receive via BGCI to actualize our list. The update in 2019 resulted in two extra taxa (*Acer pentaphyllum* and *Sorbus lancifolia*) in the category 'critically endangered' (13 species in our collection now). We have 33 species in the category 'Endangered': unfortunately, we lost *Abies fraseri* but following six taxa have this status now as well: *Acer griseum, Acer tenellum*, *Liquidambar orientalis, Picea engelmannii* subsp. *mexicana, Pittosporum patulum, Quercus acerifolia* and *Ulmus chenmoui*. We have 80 species with the status 'vulnerable': *Fagus longipetiolata* is new for our collection, *Sorbus latifolia* and *Sorbus minima* received the status vulnerable and we lost *Picea asperata*, *Rhododendron meddianum*, *R. oligocarpum*, *R. rothschildii* and *R. viridescens*. Arboretum Wespelaar is the only arboretum with *ex situ* collections of *Ilex brachyphylla*, *Quercus hintoniorum* and *Carpinus faginea* according to BGCI's PlantSearch.

Our **library** has a steady growth of items and we now have 3,361 accessions, mostly books (2,609) but also journals, maps, reprints, cd's and dvd's.

Photo 10: The critically endangered *Acer pentaphyllum* doing particularly well at Arboretum Wespelaar

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 2019 were winter flowering trees and shrubs, catkin bearing trees, some specific genera such as *Sorbus* and *Rhododendron*, invasive plants, propagation of woody ornamentals via seed or cuttings, autumn colour 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. In December our group visited the brand-new WOODlab of the Botanic Garden, Meise. Visitors get to know all aspects of wood in a contemporary and interactive way: from sustainable building material that helps stabilize the climate to the microscopic secrets that explain the properties of wood.

Photo 11: the guides of Arboretum Wespelaar visiting the WOODlab of the Botanic Garden Meise

One of the more effective ways to **share dendrological expertise and horticultural practice** is the organisation of talks and study days. In 2019 several of such activities were organised. In June, under the impulse of a couple of our enthusiastic guides, we organised an activity for our annual card holders that specifically dealt with endangered tree species. The day started with a theoretical introduction to the theme, explaining the current situation and knowledge and the challenges and possible solutions. A lot of attention went towards explaining the Red List categories, and this was then illustrated by a tour along some endangered tree species growing in the Arboretum.

Photo 12: A visit along endangered trees growing in Arboretum Wespelaar

Seven **students and trainees** worked in the Arboretum in 2019 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 2019, the Director gave three lectures to an international audience: the dendrological collections of Arboretum Wespelaar with a special focus on the genus *Magnolia* for the 6th Langenloiser Gehölztag in Langenlois, Austria; Collection Management in Arboretum Wespelaar at Pinetum de Dennenhorst in Lunteren, The Netherlands; and *Magnolia*, la reine parmi les floraisons printanières for Les Rencontres Botaniques de Varengeville-sur-Mer, France.

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.

A total of seven such international collaborations were set up in 2019 focusing on different plant groups such as *Acer*, *Carya*, *Betula*, *Abies* and *Magnolia*. It concerns research in Ukraine, China, the USA, Germany and Belgium. The subjects differ from research on invasive species (some *Acer* species) to research on wintergreen scent (*Betula*) and identification and phylogeny. The full list with detailed information is available upon request.

Photo 13: *Carya ovata* and *Magnolia* 'Yellow Fever'

In October 2017, during the International Maple Symposium in the village of Roscoff (France), it was proposed that the Maple Society should set up a working group to look at and publish a list of valid and correct names for maple species and infraspecific taxa (subspecies, variety and forma). Koen Camelbeke was appointed Chairman of The **Maple Society Species Working Group**. A first hurdle was taken in 2019: a draft list of accepted names was compiled and assessed by a group of maple specialists. This list is now available on the Maple Society website to give a possibility of feedback to the larger public. This first step also led to a publication in the Maple Society Newsletter entitled: A list of *Acer* names on which we all agree – Utopia or (almost) a Reality? The second step is undoubtedly a bigger challenge: all synonym names must be assigned to one of the accepted *Acer* names. We hope to be able to meet this challenge in the course of the year 2020.

Photo 14: *Acer palmatum* 'Bloodgood'

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 old Pavilion, along the canal, which would welcome visitors to the estate travelling by barge from the city of Leuven to the Park of Wespelaar. The new Artois Pavilion will be implanted at the end of two important vistas and will therefore be a useful 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 pavilion started in March 2019 and we are counting on completion of the work by the Summer of 2020.

Photo 15: Construction of the Artois Pavilion, September 2019

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 recurring beneficiaries is the **Belgian Dendrological Society** (BDB): the director of the Arboretum is a member of the Board of directors of the society and of the reading committee of the society's Yearbook; since 2016 he is also publisher of the BDB Yearbook. A successful lecture day was organised in February with talks on the woody flora of California, the gardens and arboreta of Yorkshire and the Hyrcanian forest of Iran. A member of the team provides for the secretariat of the BDB and Arboretum Wespelaar also remains the driving force behind the database of remarkable **Trees of Belgium** (BELTREES). This database contains today some 31,000 living measured trees with 2,044 new accessions or updates in 2019. This year we organized for a sixth 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. In 2017 we also started linking available photos to the BELTREES accessions. In the past three years, 5,660 photos were linked and uploaded. These photos are visible on the Arboretum Wespelaar website.

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 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 2019 was the organization of a French course for future guides of botanical gardens and arboreta.

The Director is Chairman of the expert committee of **Fondation Franklinia**. He is also active in and responsible for the follow-up of the projects sponsored by Arboretum Wespelaar, mostly in the field of nature conservation. The Director is a member of the **Magnolia Society International** Board of Directors and he chairs the Research Committee of that organisation. The Director is also member of the advisory commission of the

PhD of Emily Veltjen entitled "The Caribbean *Magnolia* species (Magnoliaceae): Assessment of the genetic diversity and the underlying evolutionary history". The public defence of this PhD is scheduled for March 2020 and he will be a voting member of the examination board.

It is crucial that the Arboretum keeps good and solid contacts with the **local community**. It is therefore with pleasure that we continue to advice 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.

ARBORETUM DE MARCHE

For many years we had been hoping to develop a second arboretum in the Walloon region. In 2018 we were able to purchase an interesting property with woodlands, meadows and marshlands on some 78 ha in Aye near Marche-en-Famenne. The property at Aye had been neglected for years by the previous owners. The better trees had been cut and sold and nature was left to fill the gaps. Cattle had moved into some of the woodland and hawthorns had invaded the pasture. The result was a very charming untidy site. But the potential for a dendrological exercise was huge. Further the whole area provided for distant vistas framed by a striking landscape of limestone hills and cliffs.

Photo 16: The beautiful panorama of Arboretum de Marche

This was going to be a long-term project. But under the supervision and most active dedication of our Chairman and Director, things soon got going:

- Some 189 specimen trees have been planted, pruned and labelled. The drought and heat of the past year has made irrigation of these young plants indispensable. However, losses were not too bad, 3 trees were lost this summer, and 17 others are in poor condition. These will be replaced in 2020.
- Five ponds were created in collaboration with Natagora (The Walloon nature conservancy organisation). These not only provide an aesthetic added value but will also increase the biodiversity of the site and be a true attraction for birds, dragonflies, amphibians, aquatic plants, etc.
- Two forestry plots of Douglas Fir (*Pseudotsuga menziesii*) which had not been cared for, were severely thinned. This will surely have to be repeated before mature trees stand at the ideal distance.
- An ugly dense planting of common spruce (*Picea abies)* was clear cut. The 5ha cleared of all stumps was sown with wild seed provided by Natagora, in order to create a

meadow of native grasses and flowers typical of these poor alkaline soils.

- We obtained the building permit for the visitor centre and the technical facilities. We should be able to start construction work by mid-2020.

Photo 17: The newly created ponds in Marche are gradually filling up