

Foundation Arboretum Wespelaar Year Report 2020



The COVID-19 pandemic and associated measures taken by local and state governments were at times challenging: the arboretum was closed, or access was restricted for some of the time and group visits were not allowed for a long period of time. We all learned to live with face masks, social distancing, and hygienic measures. At the same time, this challenge made for creative solutions and opportunities. Arboretum Wespelaar became more active on social media and we provided our visitors with an on-line alternative when the arboretum was closed. We all learned how to organize and attend on-line video conferences and meetings. Teleworking became a useful and viable alternative for administrative personnel when possible or necessary. The COVID-19 crisis clearly illustrated the importance of parks, plants, the countryside, and nature for the well-being of the public and resulted in an increase in visitor numbers in all green areas of the country, including the Arboretum. Every cloud has a silver lining!

THE COLLECTIONS

The **living collection of woody plants** in the Arboretum currently (as of 18 December 2020) contains 5,359 specimens representing 2,319 different taxa (versus 17,074 specimens and 4,997 taxa on the whole of the estate). These numbers include the 476 new accessions on the estate during 2020 of which 102 (or 21%) are of documented wild origin.

Around 22 **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. A constant concern is keeping the different vistas open. It is amazing how quickly a tree or shrub becomes too wide and therefore blocks the view or takes away the feeling of space. Three good examples of such a decision were *Viburnum sargentii* 'Susquehanna' and a big *Acer velutinum* which both started to block the main vista towards the Artois pavilion, and a *Carpinus caroliniana* - although from known wild provenance - which blocked the view on our very best *Liquidambar styraciflua* 'Aurora', especially in the autumn.

Once again, our winter was not worth mentioning. Quite to the contrary, several **flowering records were broken** with, for example, spectacular flowering on February 6th of *Prunus mume* 'Beni-Chidori', *Rhododendron dauricum* 'Jelena', *Rhododendron* 'Lee's Scarlet', *Ribes laurifolium*, *Acer rubrum* 'October Glory', *Cornus mas*, to name just a few. February was also a very turbulent month with several severe (but not too damaging) spring storms (some even receiving a name:



Photo 1. View on *Liquidambar styraciflua* 'Aurora' in autumn.

Ciara, Dennis, and Ellen) and abundant amounts of rainfall. However, the groundwater levels were so low from previous year's droughts that everyone applauded the rains gratefully. The unseasonably glorious spring weather continued, and we were gradually preparing for an early opening of the Arboretum until COVID-19 threw a spanner in the works. Arboretum Wespelaar remained closed to the public until May 6th, and we were alone to enjoy the beautiful flowering of magnolias and cherries.

An early spring naturally entails the risk of major damage from a late spring frost, and this was again the case this year. At the end of March, we had a few nights with frost and damage was considerable on *Magnolia*, *Hydrangea*, *Cercidiphyllum*, *Wisteria*, *Trachystemon*, ... Yet nature has recovered wonderfully, and the second part of spring was nothing short of spectacular. However, 2020

was the driest spring ever recorded and we had to start irrigating the collection plants exceptionally early this year. Students have made a systematic tour of all new plantings for watering at least twice. And a third tour was necessary at the end of July. So again, we experienced **a year of extremes**. But several plants enjoy both the drought and heat. Rare eye-catchers this year were our two *Hoheria* in the courtyard: *Hoheria angustifolia* and *H. sexstylosa*. Both flowered profusely in July.



Photo 2. The charming flowers of *Hoheria sexstylosa*

The low number of visitors during spring following the COVID-19 pandemic measures gave rise to some opportunities for the collections. The number of identifications increased significantly (mainly in the genera *Wisteria*, *Rhododendron* (incl. *Azalea*), *Acer*, *Viburnum*, *Hypericum* and *Aesculus*). Directional and formative pruning also increased (48 beds in 2020 versus 14 in 2019) and additional inventory rounds were undertaken, checking both the woody plants

and the perennials and bulbs (212 beds versus 121 in 2019).

We have been following and observing one of our *Magnolia x wieseneri* (hybrid of *Magnolia obovata* with *M. sieboldii*) for many years now as it stands out in terms of both spectacular flowering and wonderful fragrance. The specimen was therefore recently given the provisional cultivar name 'Charm and Fragrance' and was added to our list of plants to be registered and propagated. Unfortunately, the mother plant was hit hard in 2017 after a very late spring frost. Through an excellent collaboration with the Crop Biotechnics lab of Professor Bart Panis (KU Leuven), we have succeeded in preserving plant material from this specimen through cryopreservation as well as growing specimens via in vitro culture. In 2020 seven in vitro propagated plants were returned to us from the university. A number of them will be given a place in the collection, but under the motto "if you want to keep a plant, you have to give it away", some plants have already been distributed to other collections in Belgium.



Photo 3. *Magnolia x wieseneri* 'Charm and Fragrance'. In vitro propagated plants of this clone are now available.



Through our privileged contacts with the Rhododendron, Camellia and Magnolia Group of the Royal Horticultural Society and The Royal Parks in the UK we have been able to obtain cutting material from 16 Kurume Azaleas, part of the so-called 'Wilson 50'. The 'Wilson 50' is a collection of important evergreen Kurume Azaleas collected by the famous plant hunter Ernest Wilson in Japan during the 1920s. Wilson travelled to Kurume at the behest of the Arnold Arboretum in Boston and selected what were in his opinion the fifty best Azaleas that would be suitable for a western climate. Upon his return to Boston, they were propagated and then distributed around the World to key gardens and parks. Many of these Azaleas do have brightly coloured flowers, so it will be important to give them a place in the arboretum in an intelligent and elegant way so that the whole remains a pleasing sight for our visitors.

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. Last year the project "Belgian network and activities in the frame of the **International Plant Sentinel Network**" ended with an evaluation meeting in Brussels. In 2020 a survey for Ash Dieback (*Hymenoscyphus fraxineus*) and Emerald Ash Borer (*Agrilus planipennis*) on non-*Fraxinus* hosts was set up. These pests have recently been shown to affect *Chionanthus* spp. and *Phillyrea* spp. in several isolated cases. In combination, these pests are a serious threat to global ash populations and the increased risk of spread through non-*Fraxinus* hosts is of great concern. The IPSN is continuing the 2019 survey to assess whether any further findings of Ash Dieback and

Emerald Ash Borer on non-*Fraxinus* hosts have been recorded in 2020 and to gain a better understanding of their impact. We checked our *Chionanthus* and *Phillyrea* specimens as well as some *Fraxinus* and *Syringa*, but no signs were found except for one strange wound on a *Chionanthus* (probably a *Nectria* cancer – follow up is needed).

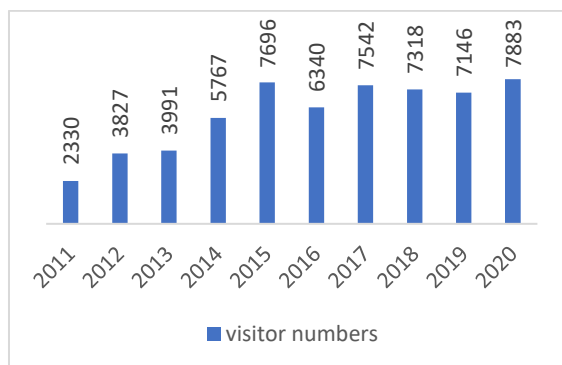
Having a perfectly labelled and correctly identified collection is one of the main objectives of the Arboretum. Since 2014 we have significantly increased our efforts and our team continues this **major inventory round** at the Arboretum and the dendrological collections of the surrounding private estates of *Herkenrode*, the *Park of Wespelaar*, the *Potager de Wespelaar* and *Bosveld*. This important and valuable work continued in 2020 and a total of 212 beds have been thoroughly inventoried. During this inventory, each plant is localised within a certain bed, its health status is assessed, the identity is verified if possible and/or as 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 last year. This allows us to label larger quantities of young plants in a quick, durable, and more efficient way.

No new cultivars were registered in 2020. However, various likely candidates for future registration are closely followed up, observed, documented, and propagated through cuttings or through partnerships with specialized growers through grafting.

VISITORS

It goes without saying that 2020 was an exceptional year for our visitors and our visitor numbers. Although we had planned to open the arboretum doors on March 22nd due to the superb early spring, the measures in response to the COVID-19 pandemic resulted in a strict lockdown and Arboretum Wespelaar remained closed to the public until May 6th! The visitor centre remained closed during the first month (until June 7th). A correct count of the number of visitors was impossible during that period. Guided visits were also cancelled until September. Visits from specialized groups such as plant breeders, colleagues from other arboreta and botanical gardens, horticultural schools, dendrology societies, gardening groups, etc. also fell back sharply in 2020. Despite all these setbacks, our global visitor numbers for 2020 saw a **spectacular increase** of at least more than 10%!

The number of individual visitors amounts to 7,072 (vs. 4,791 in 2019) while the number of groups totals at 21 (vs. 91 in 2019). We are quite pleased with the impressive increase in the number of family tickets sold: 392 versus 316 in 2019!



In this age of social media, we must also consider the virtual visitor to the Arboretum. In 2020 our **website** had 22.085 users (vs. 14.767 in 2019) and 96.854 pageviews (vs. 75.681 in 2019) with a clear peak in autumn. Usually there is also a peak in April, but since the Arboretum was closed during the first lockdown, we had fewer virtual visitors. Since the end of 2018, **the site is fully user-responsive** and thus adapted to smartphones and tablets. This was an important step since the number of visitors using a smartphone or tablet kept rising. Since 2019 we have another new feature on our website: the **virtual tour**. At first this feature was only available in Dutch. In 2020 the French version was finished. The English version will be available in 2021. 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.

Our **Facebook** page currently has 2.734 followers (2.396 at the time of the last report in 2019). 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 “October” (405 likes), “November” (332 likes) and “September” (314 likes). But the most liked post (apart from the albums above or the more practical posts concerning opening), was one about the spectacular flowers of *Aesculus wilsonii*, with 137 likes. The album “October” had the biggest reach with 9.441 persons.



Photo 4. The spectacular inflorescence of *Aesculus wilsonii*. A hit on our social media.

Our **Instagram** page currently has 1.424 followers (versus 1.028 in 2019). Every post gets in between 80 and 225 likes. *Magnolia* posts are the most popular. 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.

In April 2020, we also opened a **YouTube** channel. When the Arboretum was closed during the first lockdown, we wanted our visitors to be able to enjoy the flowering *Magnolias* and *Rhododendrons* at the Arboretum. The accompanying sound of birds and insects (in particular a swarm of bees) in the videos made it possible for our followers to experience spring at the Arboretum from their homes. We currently only have 36 followers of our channel but have had 1.334 views of the videos in total.

There are now no less than 40 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 38,000 high-definition images (4,440 taxa) consultable on the website, making this more and more an inexhaustible source of information and beauty. The genera *Aesculus*,

Amelanchier, *Cotoneaster*, *Crataegus*, *Deutzia*, *Euonymus*, *Rhododendron*, *Rubus*, *Salix* and the olive family (Oleaceae) received special attention in 2020.



Photo 5. *Salix repens*. More than 38,000 high-definition images are consultable on our website.

DATABASES

All our collections (woody and perennial plants, propagation, 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 four years more than 8,500 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 and 2020 because of the retirement of the responsible person at Meise Botanic Garden) and the PLANTSEARCH database of Botanic Gardens Conservation International (BGCI) which is a global database of living plants with 1,170 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 2020 resulted in one extra taxon (*Fraxinus profunda*) in the category ‘critically endangered’ (14 species in our collection now). We also have one extra taxon (*Rhododendron platypodum*) with the status ‘endangered’ (now 34 species). We have two fewer taxa with the status ‘vulnerable’ (78 taxa; *Abies durangensis* var. *coahuilensis* has re-entered our collection but we have lost *Abies delavayi*, *Rhododendron pemakoense*, *R. cyanocarpum* and *R. sphaeroblastum* var. *wumengense*). Arboretum Wespelaar is the only arboretum with ex situ collections of *Ilex brachyphylla*, *Quercus hintoniorum* and *Carpinus faginea* according to BGCI’s PlantSearch. There is only one other collection that grows *Magnolia decudua* according to that same database.

Our **library** has a steady growth of items and we now have 3,410 accessions, mostly books (2,629) 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 2020 were leaf morphology and anatomy, *Hamamelis*, Beltrees, plant hunters, urban trees for a changing climate and the geographic origin of our plants. Some of the courses were cancelled due to the COVID-19 situation and we were not able to continue with the in-depth study of the woody plant specimens per location.



Photo 6. *Hamamelis x intermedia* ‘Sunburst’. The genus *Hamamelis* was studied during a course for our guides.

Arboretum Wespelaar was recognized in 2020 as provider of a workplace for alternate learning (part-time learning / part-time working) in the "plant and environment" sector. Through so-called dual learning, young people acquire skills at school and in the workplace as well. This way we hope to contribute to a high-quality education so that they find their place in the professional world and to give their career a good start. In 2021, one of our gardeners will follow a mentor training course to properly guide and train these future students.



One of the more effective ways to **share dendrological expertise and horticultural practice** is the organisation of talks and study days. Needless to say that 2020 was a poor year in that area. On March 8th we were able to organize a series of winter lectures with following themes: the flora of NW Yunnan, a dendrological trip in Slovenia and autumn colouring in Japan.

Eighteen **students and two trainees** worked in the Arboretum in 2020 and we wish to thank them for their help and assistance and for bringing new ideas and youthful vivacity to the Arboretum.

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, observations, seeds, leaf material or cuttings for scientific research.

A total of thirteen such international collaborations were set up in 2020 focusing on different plant groups such as *Cercis*, *Fagus*, *Glyptostrobus*, *Lindera*, *Magnolia*, *Poliiothyrsis*, *Populus*, *Pseudotsuga*, *Quercus*, *Rhododendron* (*Maddenia* subsection), *Taxus* and *Torreya*. It concerns research in China, France, Germany, New Zealand, Russia, Sweden, Turkey, Ukraine, the UK, and the USA. The subjects of research are very diverse and include molecular biology and biochemistry, phylogeography and population genetics, conservation of threatened tree species and surveys for pests and diseases. The full list with detailed information is available upon request.

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. The list was finalized in 2020 and will surely be updated regularly. It is available on the Maple Society website. This led to a publication in the Maple Society Newsletter entitled: "Accepted names in the genus *Acer* – An update". We are delighted that the list of *Acer* synonyms was also completed this year thanks to the excellent work of Dan Crowley (BGCI). A list of over 2,200 *Acer* names is available and for each name there is now a reference to an accepted name within the genus. All of this will form the nomenclature backbone of The World Flora Online as well as within the Global Conservation Consortium for *Acer*. And while we are on the subject of maples; in September 2020, BGCI published "The Red List of *Acer*: revised and extended". Arboretum Wespelaar actively contributed to this publication and the director provided the foreword.

To accelerate effective conservation of global plant diversity, BGCI is coordinating a suite of **Global Conservation Consortia**, which catalyse groups of institutions and experts to collaboratively develop and implement comprehensive strategies to prevent extinction of priority threatened plant groups. Primary objectives include coordinated in situ and ex situ conservation efforts and dissemination of species recovery knowledge. Five such

consortia have already been established and Arboretum Wespelaar has expressed a genuine interest to take an active role in three of them, namely those of the genera *Acer*, *Magnolia* and *Rhododendron*.

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. Construction of the pavilion started in March 2019 and was finished this year. It has become a beautiful building; a nice focal point from different perspectives with an important link to the Park of Wespelaar and the Artois family. The official inauguration of the pavilion had to be postponed and is now planned for the autumn of 2021. The turf and plantations around the pavilion will also not be finished until 2021.

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**



Photo 7. The Artois pavilion was completed in 2020.

Dendrological Society (BDB): the director of the Arboretum is a member of the Board of directors of the society and of the editing committee of the society’s Yearbook; since 2016 he is also publisher of the BDB Yearbook. A successful lecture day was organised in March (see higher). 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 32,500 living measured trees with 2,174 new accessions or updates in 2020. This year we again organized 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 four years, 6,119 photos were linked and uploaded. These photos are consultable 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.). In 2020, two gardens became new members of the association, L'Observatoire du Monde des Plantes in Liège and Plantentuin "De Kleine Boerderij" in Merksplas. The number of members now stands at 23, which is a nice number for a small country like Belgium and illustrates our rich tradition in botany and horticulture.

The Director of the Arboretum 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** (MSI) Board of Directors and he chairs the Research Committee of that organisation. In April 2020 MSI published a completely revised and updated *Magnolia* Cultivar Checklist. This Checklist is a listing of published names of cultivated magnolias in PDF format available for free on the MSI website. This new listing is the result of years of effort by MSI member volunteers, several working at Arboretum Wespelaar!

The Director was a member of the examination committee of two PhD Theses: "The Caribbean *Magnolia* species (Magnoliaceae): Assessment of the genetic diversity and the underlying evolutionary history" by Emily Veltjen, and "Through the fog: evolutionary insights provide novel genus- and species-level boundaries in

tribe Hydrangeae and genus *Hydrangea*" by Yannick De Smet.

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 offer advice for cutting and planting of new woodland.

Arboretum Wespelaar staff was actively involved (advice, pictures, proofreading) in the new book of Professor emeritus Martin Hermy (KU Leuven) entitled 'The right tree for your garden' ('De juiste boom voor elke tuin' in Dutch). Hermy translates scientific knowledge into practical tips and bite-sized information. For example, you learn why you should plant trees, how you should plant, what support they need, what soil they require, what life is underground, or why certain trees are better adapted to climate change and the urban environment. There is little room for planting new forests in Flanders, but there is room for millions of trees in gardens. The many figures, tables and photos and the extensive index make this book a true standard work for both the tree lover and the passionate gardener.

ARBORETUM DE MARCHE-EN-FAMENNE

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 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. Furthermore the whole area provided for distant vistas framed by a striking landscape of limestone hills and cliffs.

This is going to be a long-term project and the following was achieved in 2020:

- COVID-19 disrupted our planting schedule of woody ornamentals. That is why we have limited ourselves this year to replacing some dead or weakened plants. Indeed, in terms of both drought and heat, it was also a difficult year in Marche for the young plantings. We are still in a testing phase where we are only starting to understand the characteristics of this new site in terms of microclimates, extremes in weather conditions, and characteristics of the soil (both in terms of structure and alkalinity). A 500 m long mixed hedge was planted along part of the property and a spruce forest was replaced by oak and alder in the lower, wetter areas.
- The ponds we dug with Natagora last year are a great success. In fact, the two large ones within the perimeter of the Arboretum were completely filled with water all summer, despite the drought. Fortunately, small, spontaneous, local sources provide for a constant supply of water. The three ponds outside the fence are slightly more sensitive to partial drying up, but this variation ultimately ensures extra (bio-)diversity.
- Already, the area of the previous spruce plantation provided for a wonderful show: it was mainly the massive bloom of oxeye

daisies (*Leucanthemum vulgare*) that created a breath-taking landscape. This summer we also saw the rare short-tailed blue butterfly (*Cupido argiades*) in that same spot.



Photo 8. The massive bloom of oxeye daisies creates a breath-taking landscape.

- The year 2020 was particularly marked by the start of the construction of the two main buildings of the new arboretum: the technical facilities and the visitor center. The lockdown slowed down the process at first, but we finally got started in late spring. Since then, the construction works proceed smoothly and the buildings are no longer a project but becoming a reality. If all goes well, we should be able to complete the construction works by mid-2022.



Photo 9. Aerial view of the Arboretum de Marche-en-Famenne and construction sites.