



Symposium proceedings

FIRST INTERNATIONAL SALICACEAE SYMPOSIUM, MEISE BOTANIC GARDEN, May 25, 2019

Sonja Deneve, Dirk De Meyere and Kenneth Bauters

Meise Botanic Garden, Meise, Belgium.

Emails: deneve.sonja@skynet.be; dirk.de.meyere@skynet.be; kenneth.bauters@plantentuinmeise.be

Received: 3 August 2019 | Accepted by Keith Chamberlain: 10 September 2019 | Published online: 15 November 2019

ABSTRACT

In 2018, Meise Botanic Garden, situated in a former royal estate, accepted an invitation to host the 2019 International Salicaceae Symposium. Being the only botanic garden in Belgium with a long-standing salicetum tradition, it proved to be the perfect premises. This was a remarkable illustration of biodiversity resulting from a well-managed Salicaceae collection with spontaneous indigenous Salicaceae taxa appearing across the garden. Speakers and participants alike welcomed the initiative, as many feel that research on Salicaceae world-wide needs to be stimulated. A workshop on *Salix* identification concluded the successful day.

Keywords

Meise Botanic Garden, *Populus*, Salicetum, Salicaceae symposium, *Salix*

INTRODUCTION

Meise Botanic Garden has a long and turbulent history. Its origins go back to the Napoleonic era, i.e., the late 18th century. Originally, the garden was under private ownership and as the owners changed so it moved from one location inside the city of Brussels to another, acquiring a different name each time.

By the end of 1938, the Belgian government had acquired an estate just outside the Brussels area with the purpose of assigning some 90 ha to an official State Botanic Garden (Jardin Botanique de l'Etat/Rijksplantentuin), to which plants and part of the greenhouses were to be gradually transferred from the Brussels Jardin Botanique. It was assumed that hard work would result in a quick and dramatically needed transfer of the Botanic Garden to its final and present location, the Bouchout Domain in Meise (Fig. 1). From the very beginning, when considering a transfer to the Bouchout Domain, Dr. Walter Robyns, Director of the State Botanic Garden, drew up a plan that included all the attributes of a model garden: the State Botanic Garden was to

comprise a rose garden, space for aquatic plants, commercial, phylogenetic and ecological collections, a horticultural arboretum and fruticetum, a systematic herbacetum, fruticetum, and arboretum, the Palace of Greenhouses, propagation greenhouses, an alpine garden, aspects of Belgian vegetation, an Italian garden, rhododendron and bamboo collections; aquatic scenery and experimental and nursery cultivation areas. By early 1940, greenhouse constructions covering 1200 m² had been put in place. However, due to financial problems exacerbated by the ongoing World War II, their completion was postponed. The official inauguration of the Meise site, which included the Plant Palace, took place in 1958, yet even then the greenhouse was not completely finished (Diagre-Vanderpelen, 2011).

In 1967, the name of the Garden was changed to the National Botanic Garden of Belgium (Nationale Plantentuin van België/Jardin Botanique National de Belgique). Finally, on January 1, 2014, the Garden was transferred from the federal level to the regional community level, acquiring its new name in Dutch: Agentschap Plantentuin Meise (Meise Botanic Garden).¹ With the premises in the northern (Flemish) part of the country, the Garden receives considerable financial support from the Flemish Government, which contributes to the overall maintenance, renovations and additions to the collection. Yet the Garden continues to fulfil the role of the national botanic garden.



Figure 1. Bouchout Castle, Meise Botanic Garden - Venue of the Salicaceae Symposium, May 25, 2019

¹ <http://www.br.fgov.be/PUBLIC/GENERAL/ABOUTUS/ABOUTUSNL/historynl.php> (accessed 2 Aug 2019)

Salicetum Living Collection

It was not until 1979 that the Fruticetum, including the Salicetum (Fig. 2), was conceived and installed at a new location in Meise by Dirk De Meyere, who supervised the project and decided on taxa to be included. He was assisted by Danny Swaerts.

Material for the first plantings in the Fruticetum Salicetum was supplied by the Meise

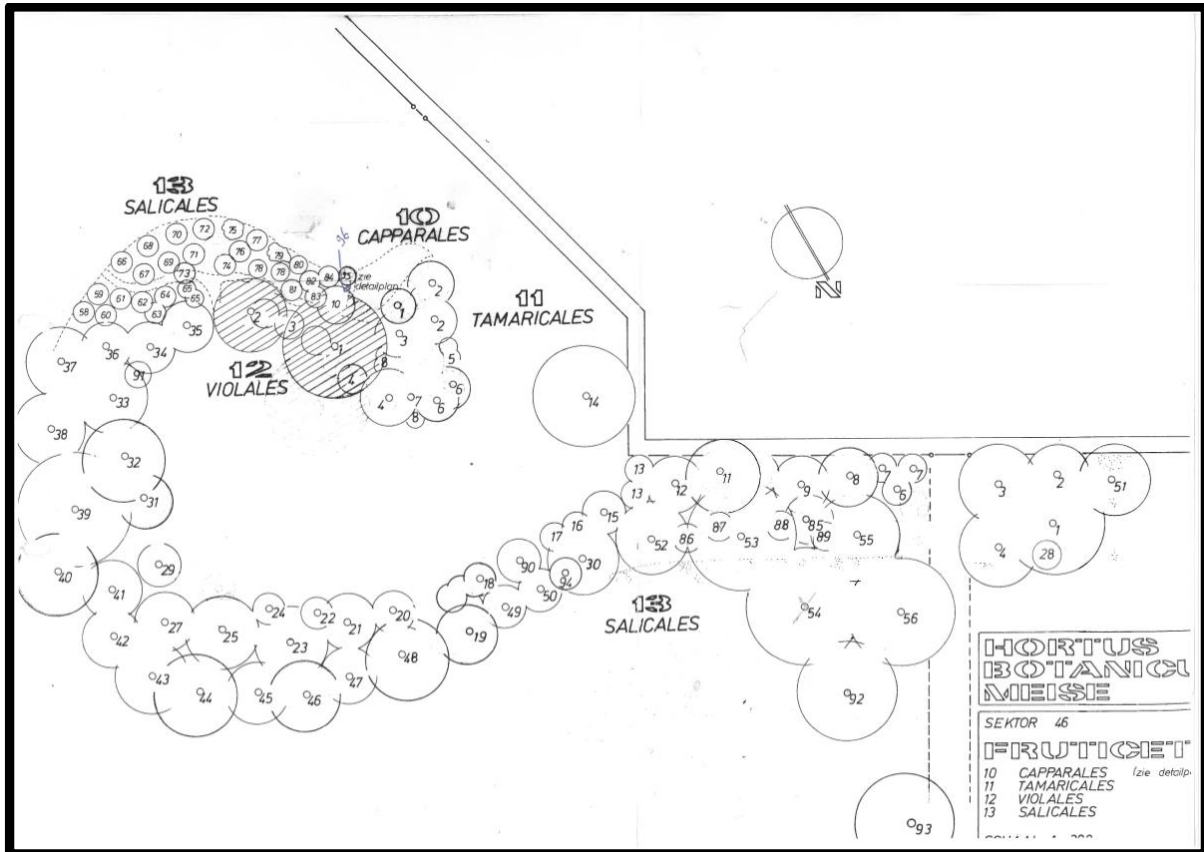


Figure 2. Original Fruticetum planting scheme, including Salicetum, Meise Botanic Garden, 1979

Botanic Garden nursery and external Belgian nurseries. During the following years, plant material was obtained from abroad. In 1980, some rather rare plants, such as *S. aegyptiaca* L., *S. eleagnos* Scop. subsp. *angustifolia* (Cariot) Rech.f. (Fig. 3) and *S. phlycifolia* L., were imported from the famous Hillier Nurseries in the U.K.

In early 1982, Meise Botanic Garden acquired a substantial cuttings collection from the Botanic Garden of Masaryk University in Brno, Czech Republic. Later in 1982, Meise Botanic Garden bought a vast collection of alpine and boreal species from the Dutch nursery Zwijnenburg, Boskoop. In 1983 some 30 willows from that collection were planted in the Salicetum. The collection was then gradually augmented with new taxa, while specimens that had died were replaced.

As is the case in many collections, there was insufficient space for all available species. Consequently, competition for light resulted in the loss of a number of species. Moreover, the heavy wet loam substrate in the estate was not ideal for most of the alpine species, leading to the disappearance of a substantial number of these taxa. Despite these drawbacks, the collection still represents an interesting overview of the diversity within the genus *Salix*.

Since the *Salix* collection has been integrated into the wider context of a systematic



Figure 3. *Salix eleagnos* Scop. subsp. *angustifolia* (Cariot) Rech.f., planted in 1980, Meise Botanic Garden - autumn (left); summer (right)

collection, the proximity of other Salicaceae s.l. is a plus. These are represented by members of *Populus* L., *Carrierea* Franch., *Idesia* Maxim. and *Poliothyrsis* D.Oliver (the four latter genera were earlier attributed to the distinct family *Flacourtiaceae*).

Accession numbers in the database of Meise Botanic Garden Living Collections illustrate the history of the plantings. The oldest accession numbers testify to the long-standing tradition of growing *Salix* and *Populus* in Meise Botanic Garden. As far as *Salix* is concerned, 60 accessions of 51 different taxa have been registered; *Populus* is represented by 20 accessions covering 15 different taxa.

According to these data, several *Salix* specimens from the original planting of 1979 appear to have survived until now. Among them there is *S. integra* Thunb. (19796079) (Fig. 4) and *S. irrorata* Andersson (19790878) (Fig. 5), both of garden origin.

In Meise Botanic Garden, an accession number starting with 1000 may indicate that the provenance of the taxon is unknown. The hybrid *Salix ×rubens* Schrank (10001307), now *S. ×fragilis* f. *vitellina* (L.) I.V.Belyaeva. (Belyaeva *et al.*, 2018: 47)² constitutes an example of such an accession. It has grown to a beautiful tree at the entrance of the Salicetum (Fig. 6).

As testified by the database, Meise Botanic Garden has acquired an impressive number of foreign Salicaceae taxa. However, native biodiversity is equally highly appreciated and native taxa maintained, playing an important ecological and educational role. The comprehensive collection of native species in the Garden includes a substantial number of willows, which have been safeguarded in the natural area of Meise Botanic Garden as well as alongside the lakes and streams surrounding the castles of the former royal domain.

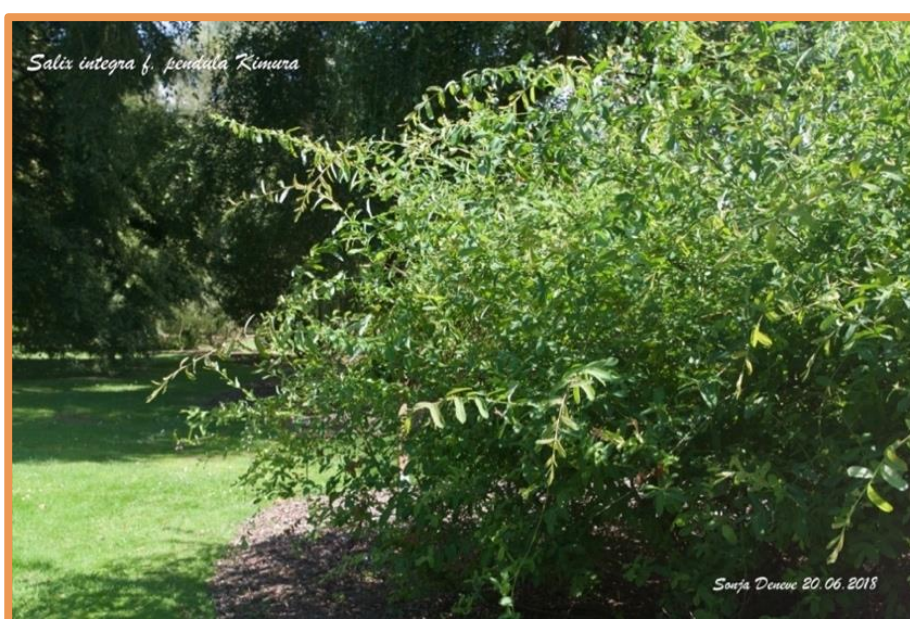


Figure 4. *Salix integra* Thunb. f. *pendula* Kimura planted 1979, Meise Botanic Garden

An accession number starting with 9000 indicates that the specimen had been present before the card registration system of the 1960–70’s was adopted. Later on, accession numbers starting with 9000 were applied to all spontaneous plants registered in the estate. For example, *Salix alba* L. (90000105) might have been present before the manual registration system but could just as well have been planted or be a spontaneous plant. The same is true for *S. caprea* L. (90000040), another example of a native species. In 1980 no distinction was made between specimens of undocumented origin (those whose accession numbers start with 1000) and spontaneous specimens (those whose accession numbers start with 9000). Therefore, the *Salix*

² <http://skvortsovia.uran.ru/2018/4203.pdf> (assessed 21 Sep 2018)



Figure 5. *Salix irrorata* Andersson, planted 1979, Meise Botanic Garden

caprea (10001303) in the Fruticetum Salicetum may have been accessioned to the collection around 1980 as a spontaneous seedling found in the estate.

The oldest registered accessions of *Salix* that the authors identified date back to 1965. One example is *S. aurita* L. (19650075) registered as cultivated material; it also appears spontaneously elsewhere in the Garden. One other much cherished specimen introduced that same year is the often-debated *Salix pentandra* L. (19650083) (cultivated material) which was obtained from the renowned Kalmthout Arboretum, Belgium. Also introduced in 1965 and still present in the Salicetum itself as well as in the area of the garden called Wild Meise, is *Salix triandra* L. (19650074) (cultivated material). One accession of *S. alba* (19650080) was acquired, as the number testifies, in 1965.



Figure 6. *Salix* × *fragilis* f. *vitellina* (L.) I.V.Belyaeva, Meise Botanic Garden, unknown provenance

In 1979–80, willow specimens dating back to 1965 were propagated by cuttings in Meise Botanic Garden nursery and integrated into the Fruticetum Salicetum.

Between 2002 and 2010, a total of 357 species of native spontaneous vascular plants have been registered in the domain of Meise Botanic Garden. Amongst these are *Salix caprea*, *S. cinerea*, *S. aurita*, *S. × multinervis* Döll, and *S. alba*, *S. × fragilis* (Ronse, 2011).³ At present, most of these species can still be observed in the domain. Recently a spontaneous *S. viminalis* L. was spotted next to a small brook in the grassland. This taxon is also represented by a cultivated plant (19870256) in the Medicinal Garden.

Some of the more recent additions are *Salix euxina* I.V.Belyaeva (20180301-33, cultivated material), *Salix euxina* ‘Bullata’ I.V.Belyaeva (20180306-37, cultivated material) and *Salix pierotii* Miq.⁴ (20180306-38, cultivated material).

Herbarium Collection

Meise Botanic Garden has acquired a vast herbarium collection of some 4 million specimens. Digitization is ongoing, and to-date some 1,731,265 specimens have been digitalized, of which 6,534 are *Salix* specimens and 3,023 are *Populus*.⁵

Salicaceae Symposium

The International Salicaceae Symposium at Meise Botanic Garden took place on May 25, 2019. This event was long overdue, since the previous Salicaceae symposium had taken place in 1991 (Irina Belyaeva, pers. comm.). In the morning, several speakers discussed *Salix* from different perspectives: taxonomy, native taxa, spontaneous taxa, medicinal *Salix* use, saliceta projects, commercial *Salix* breeding, and *Salix* art. In the afternoon, a workshop was organized in Meise Botanic Garden Salicetum. *Salix* plants in the Salicetum had previously been marked according to their countries of origin. Some 50 Symposium participants were divided into three groups. Under the competent guidance of Dr. Irina Belyaeva (U.K.), Em. Prof. Dr. Peter A. Schmidt (Germany) and Prof. Dr. Henry Väre (Finland) and armed with identification keys, the participants were invited to try and determine *Salix* species.

³ Presently *S. alba* L. × *S. euxina* I.V.Belyaeva

⁴ Formerly *S. koreensis* Andersson

⁵ www.botanicalcollections.be (accessed 2 Aug. 2019)

The following taxa were studied during the workshop.

Europe

S. alba, *S. apennina* A.K.Skvortsov, *S. appendiculata* Vill., *S. aurita*, *S. caprea*, *S. cinerea*, *S. eleagnos* Scop. subsp. *angustifolia*, *S. kitaibeliana* Willd., *S. aegyptiaca* L., *S. myrsinifolia* Salisb., *S. phylicifolia* L., *S. pentandra*, *S. gmelinii* Pall., *S. purpurea* L., *S. rosmarinifolia* L., *S. repens* L., *S. triandra*, *S. × fragilis*, *S. aurita* × *S. purpurea* L., *S. alba* × *S. triandra*.

China, Japan and Russia

Salix integra Thunb. f. *pendula* Kimura, *S. babylonica* f. *tortuosa* Y.L.Chou, *S. fargesii* Burkill, *S. nakamura* Koidz. f. *yezoalpina* (Koidz.) H. Ohashi, *S. pendulina* Wender f. *erythroflexuosa* I.V.Belyaeva.

United States of America

Salix discolor Muhl., *S. interior* Rowlee, *S. irrorata* Andersson, *S. pyrifolia* Andersson

Conclusions

This first International Salicaceae Symposium, which also happened to be the first ever such event in Belgium, was attended with much enthusiasm by the speakers and participants alike and there was warm applause from everyone at the end. Considerable interest was generated by the impressive living and herbarium collections of Meise Botanic Garden hosting the Symposium. Featuring in its collection 1,079 taxa that are not present in any other botanic garden, being the only arboretum in Belgium with an extensive and well maintained Salicetum, and recently nominated an *Advanced Conservation Practitioner* by the BGCI (Botanic Gardens Conservation International), Meise Botanic Garden can play a leading role in the preservation of Salicaceae. The excellent garden and collections in combination with the historic location have proved to be ideal for an event intended to increase awareness of the accumulated knowledge about Salicaceae.

The general public and the scientific community should gain awareness of the vital role members of Salicaceae play in global biodiversity and in fostering human well-being. Botanic gardens must rise to the challenge and stimulate comprehensive research, scrutinising representatives of Salicaceae from various perspectives.

Acknowledgements

The authors would like to express their gratitude to Meise Botanic Garden for hosting the 2019 International Salicaceae Symposium and making it a success. Sincere appreciation is also due to all the speakers: Dr. Irina V.Belyaeva (U.K.), Prof. Dr. Henry Väre (Finland), Em. Prof. Dr. Gert Laekerman (Belgium), Dr. Arnout Zwaenepoel (Belgium), Dr. Ir. Anne Ronse (Belgium), Pol Meert (Belgium), Sarah Wouters & Maarten Vanwesemael (Belgium), Ir. Bart De Vos (Belgium) and Will Beckers (Belgium). Much of the success of this event was due to the excellent guidance provided by Dr. Irina V.Belyaeva, Prof. Dr. Henry Väre and Em. Prof. Dr. Peter A. Schmidt during the afternoon *Salix* identification workshop, for which very special thanks are herewith expressed.

References

- Belyaeva, I.V., Epantchintseva, O.V., Govaerts, R.H.A., McGinn, K., Hunnax, J. and Kuzovkina, Y.A.** 2018. The application of scientific names to plants in cultivation: *Salix vitellina* L. and related taxa (Salicaceae). *Skvortsovia*: 4(2): 42–70.
- Diagre-Vanderpelen, D.** 2011. The Botanic Garden of Brussels (1826–1912): Reflection of a Changing Nation, National Botanic Garden of Belgium, Meise.
- Ronse, A.** 2011. The truly ‘indigenous’ flora. *Scripta Botanica Belgica* 47: 59–66.