



## Rubus

On Saturday 1 October a group of members from Belgium, the Netherlands, Germany, England and Scotland, met at Arboretum Kalmthout for a study day on this little known but both interesting and useful group of plants. KOEN CAMELBEKE writes about their botany and some of the species that grow in the Arboretum.

The *Rubus* study day began with a presentation by Abraham Rammeloo, curator-director of **Arboretum Kalmthout**, and organiser of this study day. Abraham started some 20 years ago with a single plant at Arboretum Kalmthout, *Rubus lineatus* (still one of his favourites), and now just over 100 *Rubus* specimens are growing at the Arboretum! Under the impetus



Top, the deeply-veined simple leaves of *Rubus calophyllus*, that are silvery underneath (above, left) and its characteristic flower buds (right), the prickles are just visible.



Above, left, *Rubus crataegifolius*, Ussurisky Nature Reserve in Russia. Right, *Rubus spectabilis*, Lynn Canyon Park, Vancouver, in Canada.

Above, left, *Rubus caudifolius* in Olivier Colin's private garden, in France. Right, *Rubus chamaemorus* in Norway.

of Abraham, and perhaps also with some slight coercion, the Arboretum gardeners have succumbed and come to appreciate the variety and beauty of the genus. Part of Abraham's talk highlighted the assets of the genus and why the 'underdogs of the garden' should be planted more.

- For their delicious fruit, e.g. raspberries, blackberries, loganberries, *Rubus coreanus*
- For their flowers, e.g. the well-known *Rubus* 'Benenden' with its big, pure white flowers in early summer (and another favourite of Abraham), *R. ulmifolius* 'Bellidiflorus' a double-flowered pink bramble, *R. parviflorus* 'Dr Stasek' the double-flowered thimbleberry
- For their leaf shape, e.g. *Rubus calophyllus* (what's in a name?), *R. lineatus* with deeply veined five-foliolate leaves silvery underneath, *R. thibetanus* especially the well-known cultivar aptly named 'Silver Fern'
- For their leaf colour, e.g. *Rubus parvifolius* 'Ogon' yellow, or *R. parvifolius* 'Kusachi' or *R. microphyllus* 'Variegatus' if you like variegated leaves
- For their (yellow) autumn colour, e.g. *Rubus trifidus*
- For their coloured stems, e.g. a white bloom in *Rubus biflorus* or *R. lasiostylus*, or *R. coreanus* 'Dart's Mahogany' which has glossy mahogany-red stems (a beauty!)

Abraham's presentation continued with *Rubus* in artwork, *Rubus* as a surrogate for tea, some taxonomy and a clear explanation of why we should never call the prickles in *Rubus* thorns.

After this general introduction, the next speaker, Rense Haveman, took a completely different tack and dived into the depths of the subject with a talk entitled ***Rubus* in northwest Europe, biodiversity at its best!**

The genus *Rubus* comprises 300 to 400 sexual species with diversity centres in Asia (SE Asia, Japan, Himalaya), America (Andes region), and the sub-

Atlantic temperate parts of Europe. But the greatest diversity is found in Europe due to the occurrence of more than 1,000 (!) asexual species. The evolutionary history of *Rubus* in northwest Europe is well understood: there are only six parental species (two of which are extinct) which gave rise via hybridization to all European polyploid apomicts. An extreme example of reticulate evolution after the retreat of the ice caps at the end of the Pleistocene. In the apomicts asexual reproduction occurs through seeds but because there is no gene transfer, only the female characters are passed on to the next generation. Some tetraploids however have retained sexual reproduction (the *Glandulosi* group).

Looking at the phytogeographical aspects of the genus in Europe, one also finds great variation: sexual species with a large distribution area, apomict species with a large distribution area, and a majority of species with small distribution areas of (much) less than 250 km in diameter. While studying these distribution data in detail Rense and his team came to the conclusion that these patterns are caused by history (inherited ecology) and not by ecology. The original pristine woodlands in northwest Europe had only three sexual species. From the Bronze Age these woodlands were partly opened by human settlers. This gave a possibility to warmth-loving taxa which survived the cold Pleistocene in the south to invade these gaps in the forests. Two southern



*Rubus alceifolius* (left) and *Rubus henryi* (right) showing the diversity of leaf shapes.





*Rubus gongshanensis* at Arboretum Kalmthout, a species that has many needle-like prickles.

species were involved in this invasion: *R. ulmifolius* in the west and *R. canescens* in the east. These species hybridised with the already present *Rubus* and these hybridisations resulted gradually in the many stable apomicts.

The ecology of the European brambles includes two distinct groups. Nemophilous species are low growing, rather delicate species, often with tri-foliolate leaves, soft prickles and numerous glands on the twigs, they are shade tolerant (series *Glandulosi*, *Hystrix*, and *Pallidi*). Thamnophilous species are large, high climbing species, with penta-foliolate leaves, big prickles, no glands, and often felted underside of leaves, they are shade intolerant (series *Discolores* and *Hayneani/Rhamnifolii*). Brambles are important species in structures like hedges, woodland edges and clearings and they play an important role for many vertebrate and invertebrate species.

The third speaker of the day, Iris de Ronde, went into even more detail with a presentation entitled **Battle of the brambles – small scale dynamics between a disjunctive native species and an invasive alien**.

The invasive alien of the title is *Rubus armeniacus*, a species from the Caucasus that was introduced for its fruit and then widely dispersed by birds. Iris's main research question was: is *R. armeniacus* a threat for the native *Rubus* species in The Netherlands? To help answer this question Iris and her colleagues studied the small-scale vegetation dynamics in a 25 × 3-metre transect on the Dutch Wadden isle of Texel. In the transect three *Rubus* species occur with a different (historical) ecology: the invasive *R. armeniacus*, a big species, that expands quickly but does not tolerate shade; *R. affinis*, a pioneer species that grows upright (suckering, not layering), also shade intolerant; and *R. guestphalicoides*, a small species that is much more shade tolerant. In the transect, all woody species (including the brambles) were mapped in detail during 13 years. During the study the researchers observed a decline of *R. affinis* (more shrubs over the years so less place for a pioneer species), and an expansion of *R. armeniacus*. In the last years of the study, a stop in the expansion of *R. armeniacus* was observed because of the growth of other trees and shrubs which favoured the more shade-tolerant *R. guestphalicoides*. The preliminary conclusion of the study is that *R. armeniacus* can form a threat for native *Rubus* species but all depends on the specific local conditions.

The most interesting feature of native brambles is their often restricted natural distribution area. Every region has their unique combination of species. Place Iris de Ronde anywhere in the Netherlands and she'll be able to give the

exact location just by looking at the species of *Rubus* growing naturally in that area! I have tested her while walking in the Arboretum in the afternoon and she said without hesitation: this must be Kalmthout!

The final speaker of the morning was Barry Clarke, national collection holder for the genus, which he started collecting from 1995 onwards. The title of the talk was ***Rubus* species and primary hybrids new to cultivation**.

Barry has undertaken frequent trips all over the world hunting for *Rubus* species and he has since collected some 260 different ones in his woodland garden. Obviously, not all of these can be discussed and so we will limit ourselves here to a few eye-catchers starting with the Antipodes. Perhaps the most bizarre species is *R. squarrosus* whose leaves are so small they appear absent. As a result, the plant simply looks like a tangle of green stems with pale prickles resembling dewdrops, a strange sight. *Rubus parvus* is a species with a beautiful habit, not too vigorous and the unifoliolate elongated leaves have a nice colour, especially in winter, and are very sharply toothed. *Rubus × barkeri*, the hybrid of *R. parvus* with *R. australis*, has even more vividly tinted foliage and is a good groundcover. But the main bulk of Barry's talk, of course, dealt with Asian species, a centre of (sexual) diversity of the genus.

A first species, frequently incorrectly named in collections, is *R. alceifolius*. Not an easy plant to grow because it is native to subtropical warm temperate Guangxi. There is a nice form on the market with purple patches on the leaf upper surface but Barry suspects that this is in fact a hybrid (with *R. reflexus*?). There is also a true purple form but the leaves do turn to green from summer onwards. A favourite of Barry's is *R. reflexus* var. *lanceolobus*: the shrub has a nice growth with furry stems, the leaves are large and perfectly palmate and the young foliage is reddish-bronze; but again: not easy to grow. The strangest name in the list is undoubtedly *R. playfairianus*. The twig and leaves are reminiscent of those of *R. henryi* but IDS Trees and Shrubs Online even thinks of another genus: 'the shape of its leaves is very uncommon among hardy Rubi, being more suggestive of *Ampelopsis*'. I soon realised that Barry would use the phrase 'one of my favourites' quite often, very typical, of course, for someone bitten by his subject. Yes, *R. rubrisetulosus* is 'one of his favourites'; it is an excellent ground cover with a neat beautiful leaf and singular starry flowers. And some brambles are from now on in my memory simply because of the apt description Barry gave us. For example *R. crassifolius* (one of his favourites, ha) which he described as 'stroking a teddy bear'. *Rubus calophyllus* is of course not missing from any list; as the name suggests, the foliage is truly beautiful and, moreover, it is the only *Rubus* species with truly red flowers! Many more species pass by and the talk ended with some beautiful images of their habitats in China and Taiwan. The breathtaking landscapes made us daydream but Abraham brought us back to the lesson. Time for lunch (with a very tasty bramble cake for dessert, by the way).

The afternoon session consisted of two parts. First we started with an

*Rubus formosensis* has decorative strongly veined leaves (top and middle) and is almost unarmed (bottom).



identification exercise using the vegetative key to species of *Rubus* in cultivation by Jan De Langhe, dendrologist at the Botanic Garden of Ghent University in Belgium. It can be a little stressful as to how smoothly the identification work will go, but in general the key worked very well and most specimens were correctly named by the groups of bramble enthusiasts.

After this session, we went outside and I followed the group led by Abraham Rammeloo into the Arboretum. Again, it is tempting to discuss a whole range of *Rubus* we saw that afternoon. Remember, there are more than 100 *Rubus* growing in the Arboretum!

I will therefore limit myself to just one: *Rubus formosensis*. This is a very hardy shrub with a creeping to semi-erect habit from the mountains of Taiwan. Its foliage is very decorative, consisting of slightly elongated, lobed, strongly veined, almost crinkled leaves; it has white flowers in spring followed by orange-red, edible fruits. It is almost unarmed and grows in sun to part shade in any garden soil; it tolerates dry conditions well. What struck me most were the large stipules that seemed to embrace the twigs like little hands, a special sight.

Of course, as always, there were also numerous other eye-catchers in the Arboretum. I am thinking in particular of the *Chaenomeles* with its numerous scented fruits, the giant *Betula nigra*, the two yellow-twigged pagoda trees *Styphnolobium japonicum* 'Gold Standard' and 'Flavirameum', *Populus glauca* with its unique leaves, etc. In the Gloriette, there was a lovely exhibition including scarves with *Rubus* as the theme. And of course we were honoured to be among the very first societies to set foot in the Arboretum's recent expansion. Indeed, in 2020, Arboretum Kalmthout was able to purchase an adjacent piece of land about 1 ha in size. An extra piece of land like this makes one

dream and something tells me that various *Rubus* taxa will find a place there.

The fascinating and educational day ended in style with a good gin and tonic with blackberries and raspberries floating in the drink.