Emmenopterys henryi

An *Emmenopterys henryi* came in to flower at Arboretum Kalmthout in Belgium and Borde Hill Garden in England in 2016. This is an unusual experience to which many dendrologists look forward to with the greatest excitement. **ABRAHAM RAMMELOO** writes about this exceptional species and its flowering.

At Arboretum Kalmthout, the blooming of the *Emmenopterys* is always reason for jubilation. As soon as the first signs of buds appear in June or early July, we roll out the action plan we always have on hand. The gardeners are at the ready, the gift shop, bookshop and plant centre are stocked with the relevant postcards and plants, and the guides delve into their botany books to refresh their knowledge of this unique tree and its amazing history.

The *Emmenopterys* at Arboretum Kalmthout has already bloomed five times, which is unique in north-western Europe. Every time, it unleashed a veritable media spectacle, attracting thousands of visitors to admire this amazing flowering. As a result, the *Emmenopterys* has become an icon of, and ambassador for the Arboretum. It is also, without a doubt, the most frequently photographed individual tree in the collection and a very popular attraction when it flowers.

The tree is approximately 50 years old, and the first time it was in bloom was in 1987. At that time, however, it did not attract as many visitors as it

Opposite, The specially constructed scaffold tower at Kalmthout provides three different observation platforms, the highest of which is six metres above ground level. These collectively provide safe access for visitors to see the flowers close up.

Above, left, the attractive bark of *Emmenopterys henryi* in Arboretum Kalmthout; **top right**, the leaf petioles and buds are a deep red; **above right**, the white flowers with the single long sepal, which can sometimes grow into a 5cm-long stemmed bract which remains attached to the fruit and turns pink to red (see below) during the autumn.

Below, left, in June or July the attractive buds herald the flowers and a plan of action to be rolled out to accommodate all the visitors who come to see this wonderful tree at Kalmthout; **right**, the seed capsules and elongated sepals in the autumn.

Emmenopterys henryi growing in China from one of E.H. Wilson's photographs taken in 1910.

does today. Although a flowering *Emmenopterys* then was even more exceptional than it is today, we did not have today's fast communication channels to reach large groups of interested people. A telescopic ladder, pulled out to twice its length next to the tree, gave a number of photographers the opportunity to photograph the flowers from close up. For a long time, these slides were the only photographs available of an *Emmenopterys* flower.

The second time the tree flowered was in 2006. The media latched onto this phenomenon quickly, and thousands of visitors thronged to see this botanical wonder with their own eyes. At certain moments, there were so many visitors that they completely crushed the borders surrounding the tree. We even had to ask a gardener to act as a guard from time to time so as to ensure that the visitors would respect one another and the surrounding plants! At that time many people already owned a digital camera and our *Emmenopterys* was constantly surrounded by beeps and zoom noises!

The tree is growing larger and larger, and last year we built a big scaffold with three different observation platforms around it, with the highest towering six metres above ground level! Building a temporary construction like this may not be the most straightforward thing to do, but it is certainly worthwhile. One could hardly imagine a better observation post for the flowers.

The story behind the *Emmenopterys* is extremely interesting and self-affirming. To draw visitors' attention to this spectacular occurrence we built observation platforms, installed a panorama viewer, organised a competition in which we asked people to come up with a suitable Dutch name for the tree, and so forth. Our efforts to inform everyone of the *Emmenopterys*'s unique history unconsciously resulted in an epidemic of FOMO—fear of missing out.

Inquiries among botanical gardens via the BGCI (Botanic Gardens Conservation International) yielded a wealth of observations regarding flowering *Emmenopterys*. (see table, opposite)

There are in fact many more flowering *Emmenopterys* then we had

Flowering *Emmenopterys*, registered observations

Belgium	Arboretum Kalmthout 1987, 2006, 2009, 2013, 2016; Arboretum Bokrijk 2007
France	Parc Kerdalo 2008; Jardin Botanique de l'université de Strasbourg 2012; La Petite Rochelle 2012
Ireland	National Botanic Gardens Glasnevin 1990
Italy	Villa Taranto 1971 for the first time and very regularly thereafter
Spain	Jardin Botanico d'Iturraran 2005, 2012
The Netherlands	Arboretum De Dreijen 2006; kwekerij Esveld 2012
United Kingdom	Wakehurst Place 1987, 2010; Borde Hill 2010, 2011, 2012, 2016; Marwood Hill 2011; Cambridge Botanic Garden 2012
USA	Silver Spring 1994, Quarry Hill 2004 and every year from 2006 onwards

And many unspecified observations in mainly the United States but also in The Netherlands, France and Germany. The *Emmenopterys* in the garden of Nicky and Michael Manisty (IDS members) in Devon flowered a few years ago.

expected. Two explanations that undoubtedly play a part in this is that more and more trees are being grown, and they are all gaining in maturity. All over the world, their flowering attracts media attention, with at least a press release and a website announcement, and often a tour or simply an arrow with a sign saying 'look up, something interesting is flowering here'. It is only in exceptional cases that small, young trees flower or that trees produce low-hanging branches with flowers. Sometimes, as we do at Kalmthout, a scaffold is put up to bring visitors closer to the flowers.

Emmenopterys henryi originates from the central part of southern China. This species generally grows at altitudes between 600 metres and 1,300 metres, and in a subtropical climate zone, but there are some exceptions. In principle, the tree's most favourable growing conditions correspond to those of the handkerchief tree, *Davidia involucrata*: an average temperature ranging from 18 °C to 22 °C, annual rainfall of 1,500 to 2,000 mm and a humidity level of 80%. *Emmenopterys henryi* seedlings and young plants grow in dark places during the first ten years, and can tolerate the shadow of surrounding plants well. Older trees, however, do need sufficient direct sunlight.

Emmenopterys henryi is now a rare and endangered species, primarily due to the deforestation of large parcels for agriculture. The limited germination level of the seeds in nature also inhibits the species' chances of spontaneous re-colonisation. Because the species is endemic and protected, a great deal of research is currently being done on its natural populations and morphologic and genetic diversity. The intention behind this research is to understand the

Left, *Emmenopterys henryi* flowering at Borde Hill Garden in September 2011. **Right**, The characteristically long bract turning pink to red in the autumn.

mechanism that causes this species to become endangered, and to be able to take the necessary measures to protect and expand the area in which it grows naturally. The Chinese government has since discovered the potential that the large, flowering *Emmenopterys* has for the tourist industry.

Flowering *Emmenopterys* produce a pleasant, delightful scent reminiscent of the perfume of the *Gardenia,* or Cape jasmine. In the forests of China, it is possible to perceive this odour at distances of up to 15 kilometres. A wide range of insects, including beetles and butterflies, is attracted by its strong perfume, thus ensuring the pollination of the tree. *Emmenopterys* is one of the strongest-smelling species of trees in the world. In China the tree can flower for up to nine months. It is no wonder that Ernest Wilson described *Emmenopterys* as 'one of the most strikingly beautiful trees of Chinese forests' in his book *Plantae Wilsoniannae*. Due to Wilson's reputation, a great deal of value was attached to this one comment and the species was conferred an almost mythical status. The enthusiasm for *Emmenopterys* among growers and collectors, however, soon drifted into frustration when the young trees failed to bloom. For a lack of genuine flowers, Europeans had to make do with Wilson's description and a single pen-and-ink drawing of a flower.

The species was named after Augustine Henry, an Irish doctor and botanist who was extremely active in China during the nineteenth century who first discovered *Emmenopterys* in 1887. It was Ernest Wilson who introduced the species into the Western Hemisphere in 1907. He collected the seed of a tree in Yichang and sent it to the Arnold Arboretum in the U.S., but unfortunately this did not produce any plants. However, other seeds he sent to the famous Veitch Nursery in Great Britain germinated successfully.

photograph © Abraham Rammeloo

Emmenopterys henryi growing at the Villa Taranto on Lago Maggiore. This tree has flowered regularly since 1971.

Emmenopterys henryi is a deciduous tree that can grow as tall as 24 to 30 metres in nature. In Western Europe, however, we can be extremely satisfied if it reaches 10 to 12 metres. The grey bark first tends to flake off, but it becomes increasingly rougher as the tree grows older. In spring, leaves appear with a red-bronze glow about them. Aside from its flowers, these leaves are one of the most decorative aspects of the tree. After a few weeks, the opposite leaves become more leathery and glossy in appearance. They turn dark green and are a little paler on the underside, but the petioles remain tinged red. The leaves are a broad oval in shape, and can grow to 22 cm in length. On the underside of the leaves, in the axils of the veins, you will find what are called domatia. These are tiny chambers in which insects cohabit with plants in a natural, non-parasitic manner.

Recognisable flowers appear between June and September, grouped together in a sort of panicle that can grow up to 50 cm. Every panicle contains 20 to 40 flowers that bloom in succession, resulting in an incredibly long flowering period: easily four to six weeks in the Western Hemisphere, and even several months in China!

The corolla is white, approximately 2.5 cm × 2.5 cm, with five round, widespread petals that come together at the base in funnel-like shape. There are five rounded-off sepals, of which one can sometimes grow into a 5 cm-long stemmed bract. These white bracts remain attached to the fruit and turn pink to red in hue, tending towards purple, during the ripening process. To prevent self-pollination within the same flower, the stamens and stigma mature at different times.

The fruit is a spool-shaped, smooth or slightly corrugated capsule, up to 3.8 cm in length, and it ripens between October and November. Every fruit contains a number of broad, winged seeds that can be spread by the wind.

The name *Emmenopterys* is a contraction of two Greek words: *emmeno* which means remaining and *pteron* which means wing. This ‘wing that remains’ refers to the bracts.

The question that comes to mind first is always: when does an *Emmenopterys* come into bloom? In any case, the age of the plant is not a determining factor. It took as many as 75 years for some trees to come into bloom for the first time, while others flowered at the age of ten, and some even six. A long, warm spring and summer are both excellent conditions to incite these trees to flower. According to botanists, the lack of such weather conditions in the maritime part of Europe is the reason why these trees come into bloom so rarely. Additionally, a humid summer, succeeded by a cold, yet dry winter would also promote the flowering of this tree. These aspects are all rather conditional, and they in fact do not apply to every flowering observed.

Now that weather specialists expect more extreme rains, heat and drought, it is possible that we will see *Emmenopterys* flowering more frequently. Regardless of the long wait, ours is certainly a beautiful and healthy tree.