

# Acer henryi Pax (1889)

## Henry's Maple

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Originally published in *The Maple Society Newsletter*, Fall 1998



Summer leaves of *Acer henryi*

This Chinese maple is one of the most versatile maples to grow, tolerating a wide range of soil conditions. It is an example of the many plant discoveries of the remarkable Augustine Henry, named and described by Ferdinand Pax, and collected and introduced by Ernest "Chinese" Wilson.

Henry's maple is one of the easiest to recognise by its trifoliate leaves with more or less untoothed margins, outward-pointing long narrow yellowish-white spikes of tiny almost stalkless flowers, and green juvenile bark which persists on the shoots/branchlets for

several years. It forms a large shrub or medium-sized tree – up to 60ft (19m) – with attractive downy but shiny dark green foliage, long tassels of pink or red fruit, and unusual dark bronzed orange-red to purple-red coloured leaves in the autumn. Though common in its native habitat in Central China, it is surprisingly rare in cultivation and only found in a few collections, arboreta or botanic gardens. This is surprising because it is quite hardy and will tolerate most conditions, except heavy shade or water-logged soils. Its rarity is partly due to this species usually being planted as a single specimen and the male and female flowers being separated on different trees. Hence, the bulk of the prolific fruit produced on female trees is infertile.

*Acer henryi* has an extensive natural range across Central China from the east coast provinces of Jiangsu and Zhejiang, across to Sichuan in the west. Over such a huge area, almost 2,000km east to west and 900km north to south, it grows on a great variety of soils and occurs at elevations from 1,125-5,850ft (350-1,800m) above sea level. It is common as an understory tree or shrub in woodland throughout the length of the Yangtse Valley.

### Discovery and Introduction

It was during a 6-month leave period in 1888 collecting plants in Hubei and Sichuan that Henry discovered *Acer henryi*, plus nine other maples and also the legendary pocket handkerchief tree (*Davidia involucrata*) made famous by his writings. He sent herbarium samples to the Royal Botanic



Bright yellow flowers compliment new growth

Gardens, Kew. Pax described and named it in honour of the collector, together with several other maples which Kew had received from Henry. Professor Pax was the first botanist to produce a classification system for maples, described in his monographs of 1885-6 and 1902.

Augustine Henry (1857-1930), once described as "an insignificant little Irishman", lived in China for 20 years, changed his career three times, and took up plant collecting out of sheer boredom. In 1881 he went to Shanghai as a medical officer in the Chinese Maritime Customs Service, and was sent a year later to Yichang on the Yangtse River in central China. The Chinese employed British personnel as they found them less corrupt than their own countrymen ! Henry found life very monotonous and in 1885 wrote to Kew for advice and instruction in collecting plants. "I know very little botany and have scarcely any books of reference. However, I would be glad to collect specimens and forward them if you think that would be useful. In this case, any hints would be helpful."



Early fall colour



Leaves and fruit of *Acer henryi*

Henry returned to England in 1889, married and lost a charming consumptive wife, and went back to China in 1891, this time as a Customs official serving in Taiwan and S.W. Yunnan. He became worried by the wholesale destruction of forests and pleaded with Kew to send a collector before all the rich native flora was destroyed. Professor Sargent of the Arnold Arboretum offered to fund an expedition if Henry would lead it, but by then Henry was becoming homesick and declined.

During his 15 years botanising in China, Henry had sent to Kew 16,000 plant specimens, including 500 new species. Beside *Acer henryi*, several were named after him, such as *Parthenocissus henryana*, *Rhododendron augustinii* and *Spiraea henryi*. He returned to England in 1900, took up a new career in forestry, wrote the 11-volume classic *The Trees of Great Britain and Ireland* with Henry Elwes, started up the Forest Genetic Department at Cambridge University, and finished his career as Professor of Forestry at Queens University, Belfast.

*Acer henryi* was brought into cultivation in England in 1903 via the famous Veitch Nurseries who, on Kew's recommendation, had sent Wilson to China to follow in Henry's footsteps in search of the famed pocket handkerchief tree. Wilson visited Henry in Yunnan and the "precise" position of the tree Henry had seen was marked on a map covering some 20,000 square miles, drawn in pencil on a half-page torn from a notebook! Six months later, after a long hazardous journey Wilson found the exact spot and saw the tree – cut down to build a hut. Henry had always got on well with the Chinese and, afterwards, Wilson was welcomed wherever Henry had been. Many of Henry's discoveries were later introduced into cultivation by Wilson.

In 1907, Wilson re-introduced *Acer henryi*, this time into America at the Arnold Arboretum, Massachusetts, who had financed his third Chinese expedition. Since Henry first discovered this species in 1888 it has been found by a succession of famous Western plant hunters – Giraldi (1897), Scanlon (1899), Wilson (1900-1907), Meyer (1915) and Hers (1918-24). It was re-introduced into America by seed collected in 1980 on the Sino-American Botanical Expedition to Hupei. A tree at Caerhays Castle is the current British champion, and was 29ft (9m) tall in 1991.

## Classification



Flower Spike

The closest relative of *Acer henryi* is the Japanese vine-leaved maple, *Acer cissifolium*, these two species forming the Series *Cissifolia*. Together with the American Box Elder, *Acer negundo*, they form the Section *Negundo*. The main distinguishing features of species in this section are: male and female flowers on separate trees (dioecious), flowers with 4 sepals, petals and usually stamens as well (4-merous), compound leaves with at least three leaflets, the leaflets joined to the petiole by stalks at least 3mm long, petiole bases expanded to completely enclose the buds. The buds have 2 pairs of valvate scales, with the outer pair completely enclosing the inner pair.

*Acer henryi* differs from its closest relative *Acer cissifolium* in having outwardly-pointing very narrow spike-like inflorescences, much smaller (4mm diameter) yellow-white short-stalked flowers, petals which are often quickly shed as the flower opens on male trees, darker green more downy leaves turning deep orange-red to purple-red in autumn, untoothed leaf margins or nearly so, and shiny green 2nd-year shoots which become a darker glossy green for several years. *Acer cissifolium* has broad pendulous racemes with larger yellow stalked flowers which retain their petals, lighter green leaves turning bright yellow, orange and scarlet in autumn, coarsely toothed leaf margins, bright red petioles and shoots, and red-brown to grey matt 2nd-year shoots.

There are five other maples with trifoliate leaves, all belonging to a more distant and quite distinct section, Section *Trifoliata*. The Paperbark Maple, *Acer griseum*, is an example. These differ from species in the Section *Negundo* in having the flowers of both sexes on the same tree (monoecious), inflorescences only three-flowered (except for *Acer sutchuenense*), flowers 5-merous, basal leaflets more or less sessile, petiole bases not enclosing the buds, and buds with numerous overlapping bud scales (imbricate). Any of these characters can be used to distinguish *Acer henryi* from any of the *Trifoliata* species. In addition, *Acer henryi* has unusual stamens in that the lower half of the filaments are swollen – a characteristic found in no other maple except the allied *Acer cissifolium*.

Considering the extensive natural range of *Acer henryi* covering a broad range of conditions, it is a remarkably uniform species, with very little variation throughout its range. Pampanini recognised a variety *Acer henryi* var. *serratum* in 1910 with larger leaflets and some coarse toothing on the margins. In 1932, Fang described *Acer henryi* forma *intermedium*, also with some coarse toothing. However, as leaves with and without some coarse teeth can be found on most trees, especially on coppiced, damaged or vigorous juvenile shoots or young emerging leaves, this character alone does not seem to be sufficient to justify distinctive forms or varieties.



## Detailed Description



*Buds and green second-year wood*

Deciduous large broad multi-stemmed shrub or small to medium-sized tree, with wide rounded crown up to 32-49ft (10-15m) in height in cultivation, though it has been recorded up to 60ft (19m) tall in the wild. The bark of the trunk and older branches is smoothish, silver-grey to grey-brown and lightly furrowed. Current shoots are slender, olive -green with silky grey hairs at first, becoming hairless later with lighter striations and horizontal brown lenticels. Young vigorous shoots are often purple-red early in the season becoming bronzed dark green in autumn/winter. Second-year shoots are a darker green and glabrous, with a slight sheen.

The green juvenile bark remains on the shoots for several years. The small green buds are completely enclosed by the petiole during the growing season. The small winter buds are 2-4mm long, ovate, with two pairs of valvate scales, the outer scales completely enclosing the inner.

Leaves : The leaves are trifoliate, with clearly stalked leaflets, the central leaflet usually the longest. Each leaflet is long ovate with a drawn-out pointed tip and wedge-shaped base (cuneate), 5-10cm long and 2.5-4cm wide. The leaves are green and downy on both sides with soft grey hairs, becoming less downy as the season progresses, but persisting along the veins and in the vein axils on the leaf underside. The upper side is often darker green with a soft sheen, the underside mid-green. The margins are smooth and untoothed, though sometimes with a few coarse irregular teeth towards the tips on leaves of vigorous young shoots, young emerging leaves and young seedlings.

The leaves turn a glossy bronzed orange-red to purple-red in the autumn. The lighter green venation consists of a central midrib along each leaflet with 7-10 pairs of more or less parallel lateral veins, becoming reticulate. The veins are sunken on the upper surface and pronounced beneath. Each leaflet is on a short slender 5-15mm stalk (petiolule) attached to the 5-10cm long pink to reddish-green slightly downy petiole. The petiole has a central groove on the upper side and a swollen slightly bent base completely enclosing the lateral bud.



*Fallen leaves showing untoothed margins*

Flowers: The yellowish-white subsessile flowers are borne in long slender light-downy outward-pointing spike-like racemes, up to 8cm long and 1cm wide and containing 15-40 flowers. They appear at about the same time as the leaves in early May, at the junction of the previous year's shoot and are leafless or subtended by one pair of small leaves. The male and female flowers occur on separate trees (dioecious). Each flower is 4-merous, almost stalkless, the pedicels very short, less than 1mm.

The small greenish-white sepals are ovate, 1.5mm long and 1mm wide, with ciliate margins. The 4 creamy-white petals are narrow obovate, 2-2.5mm long, and are often dropped in male flowers as the flower opens (anthesis). The usually 4 small stamens (sometimes 5-6) are between the sepals (antisealous) are on filaments which are swollen from the middle downwards and inserted on top of the very small green round receptacle disc (extrastaminal). The stamens are absent in female flowers. The ovaries are glabrous with almost sessile stigmas and are absent in male flowers.



*Leaf undersides of Acer henryi*

**Fruit:** The abundant fruits occur in 10-20cm long drooping racemes, each fruit on a very short stalk attached to a thick densely grey pubescent central stalk (peduncle). The fruits are bright to light pink, becoming straw-coloured to brown on ripening in late September. Each nutlet is fat, oblong-ovoid, clearly veined, 10mm long x 5mm wide x 3-4mm thick. The slightly keeled and veined wing plus nutlet is 2-2.5cm long and 6-7mm broad at the widest point in the outer third. The wing has a broad rounded tip and narrows only slightly towards the junction with the nutlet. The paired wings are mostly held at an acute angle, but may vary from a right-angle to almost parallel.



*Wing angle may vary from acute to almost parallel in Acer henryi*

*Additional editing and layout by Emery Davis*