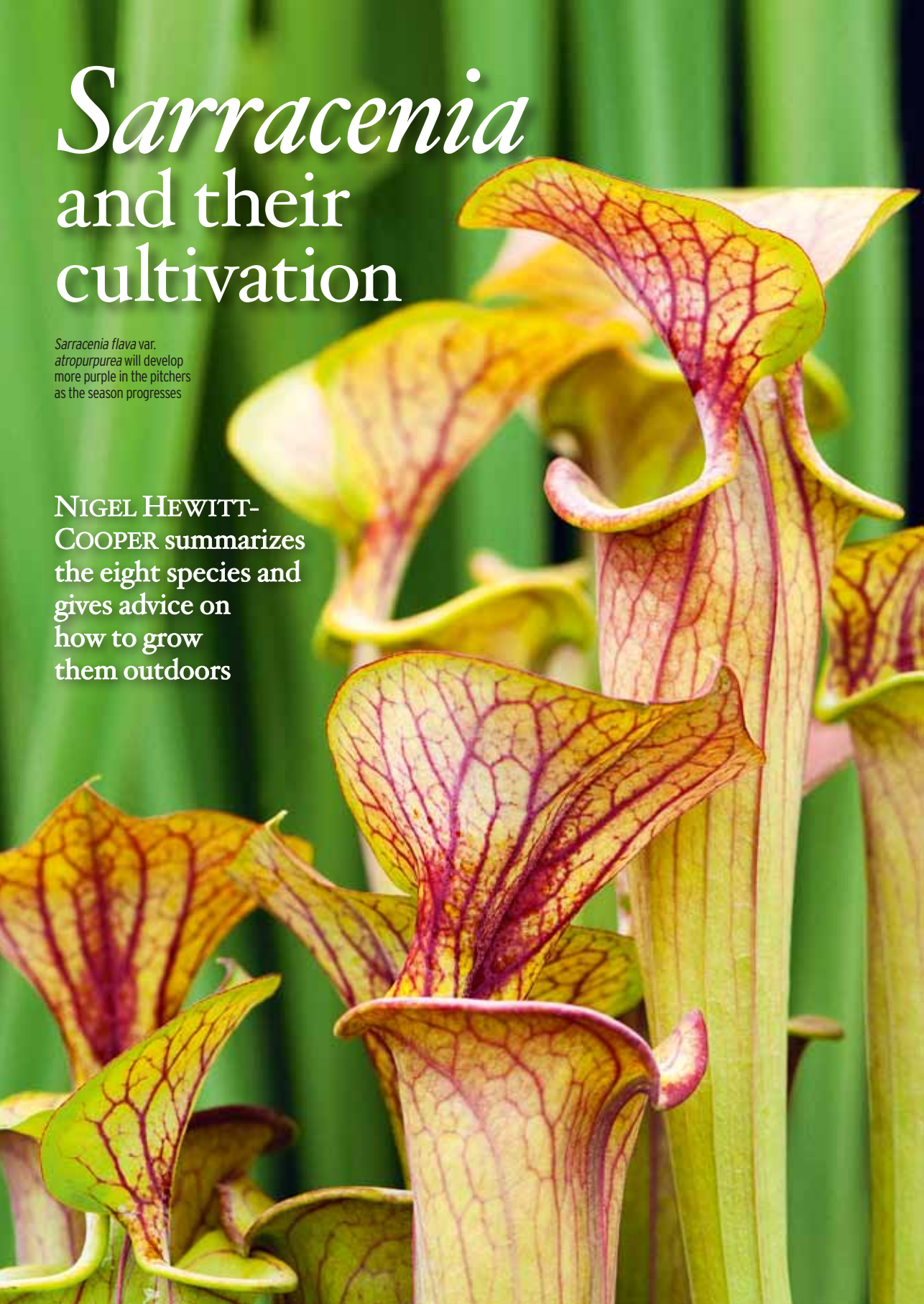
Sarracenia and their cultivation



Sarracenia flava var. *atropurpurea* will develop more purple in the pitchers as the season progresses

NIGEL HEWITT-COOPER summarizes the eight species and gives advice on how to grow them outdoors

MANY OF US ARE familiar with the North American pitcher plant genus *Sarracenia*, but comparatively few people grow them. Perhaps they are consigned to the 'novelty' section of popular horticulture, or perhaps a lack of understanding of their cultural requirements and subsequent loss, has resulted in their being branded as hard to grow. Whatever the reason, this is a genus which deserves a second, closer look.

Distribution and history

The plants are found naturally in the southeast states of North America, with one species (*S. alata*) extending westwards in to east Texas, and another (*S. purpurea*) being found northwards in to south and central Canada. They grow in peat bogs and marshy areas where they can dominate the landscape with their unmistakable pitchers. Sadly, because of land drainage, such impressive sights are now rarely seen. Artificial suppression of wild fires also leads to remaining bogs being rapidly choked out by encroaching vegetation. The result is that most species are now critically endangered in the wild, with many populations gone forever. Fortunately, some conservation is being undertaken and cultivation can help in some cases.

Sarracenia were first noted by Europeans in the 16th century, and the first illustration appeared in Matthias de L'Obel's *Stirpium Adversaria Nova* in 1576. The genus was named after the Canadian naturalist Michel Sarrazin in the late 17th century, with the name being adopted by Linnaeus in his *Species Plantarum* of 1753. The capture of insects by these plants was noted, but their carnivorous habit was not confirmed until the late 19th century by Joseph Melichamp.

Anne Gilbert

Nigel Hewitt-Cooper

Some colour variants of *Sarracenia alata* can have pitchers that are almost black

Morphology

The number of species recognized ranges from 8 to 11. I subscribe to the view that there are 8 species.

All are rhizomatous perennials producing a growth point which repeatedly divides. Eventually, plants can become large and impressive. The growth cycle commences in spring with each growth point producing a flower. The flower has a unique structure with a style the shape of an upturned umbrella held beneath 5 sepals and 5 petals. Once pollination has occurred the petals are shed, and the rest of the inflorescence gradually turns upwards as the seed matures. The petal colour is either red or yellow in the species (with one species sometimes having pink flowers), but hybrids can have petals of pink, orange, or various shades of red.

In most species the leaves open after flowering. *Sarracenia minor* and *S. oreophila* are the exception to this as they flower after the emergence of a few leaves. Vegetative growth can be rapid at this early time of year, with the leaves growing to full height and opening in 4 or 5 weeks if the spring is warm and sunny. Most leaves are produced at this time, with a few more appearing throughout the summer months.

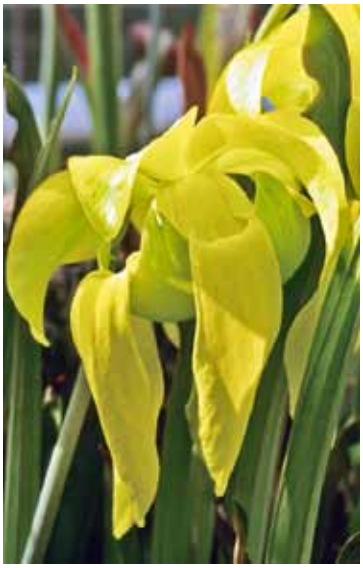
The number of insects caught can be surprising, with pitchers sometimes filling to within 2cm of the mouth. The insects are attracted by the sweet nectar laced with a narcotic (coniine), and they lose their footing on the waxy inner surface of the mouth and throat. This wax coating extends downwards in to the pitcher tube, and is replaced mid way down by downward pointing hairs which allow the insect to fall deeper into the leaf, but prevent upward movement. The insect prey is broken down by enzymatic action and the nutrients absorbed and stored in the rhizome.

By early autumn the pitchers begin to die back from the top downwards. Plants enter a period of dormancy, although two species (*S. flava* and *S. oreophila*) produce flattened, non-carnivorous, winter leaves known as phyllodia.

Sarracenia alata

This species occurs in two disjunct populations, one in southern Mississippi into Alabama and Louisiana, and the other in western Louisiana and eastern Texas. The pitchers are usually narrow, up to 75cm in height, and, in the typical form, an apple green colour with purple veins in the throat. Colour variants include those with red pitcher lids, heavy veining at the top of the pitcher, and red, purple or even black leaves. The petals are pale yellow.

There are a number of stable colour variants, and these have recently been recognized as separate varieties (McPherson & Schnell 2011). ➤



John Glover

Sarracenia flava, named for its yellow flowers

Nigel Hewitt-Cooper

The striking white of *Sarracenia leucophylla*

Sarracenia flava

This species is found in a sweeping crescent from Virginia southwards through North and South Carolina, Georgia, Florida, and into Alabama. Most authorities recognize seven infraspecific taxa. Growing to over 1m in height, this impressive plant is generally the first that enthusiasts encounter in cultivation as it is both showy and vigorous. In its typical form the leaves begin the season lime-green with a few prominent veins in the throat. The entire pitcher gradually fades to yellow as the season progresses. The flowers have bright yellow petals and a distinctive odour of cat urine.

All the varieties have stable colour or pattern characteristics. Var. *rugelii* has a single blotch of purple in the throat rather than veining, var. *cuprea* has a bronze-coloured lid, var. *maxima* is all green with no patterning, and var. *ornata* is heavily veined. Two further varieties have leaves that are a solid, plum-red colour: var. *rubricorpora* retains a green lid, while var. *atropurpurea* which colours entirely in strong sun.

Sarracenia leucophylla

Found across north Florida, southwest Georgia, southern Alabama and southeast Mississippi, this beautiful species forms impressive populations in the wild. Its characteristic white-topped pitchers make a dramatic display. This is surely the most attractive species, producing leaves to 1m in height. Individuals may have veins of green, red, or a mixture of these two colours, on a pure white background. Occasionally, pure white specimens with no veins can be found. Where the range of this species overlaps with others, hybrids are common, and sometimes complex back crosses can be found. The flowers have deep red petals.

This species has two distinct growth periods. Slender pitchers are produced in the spring, following the flowers. But taller, stockier, more colourful and attractive pitchers are produced in late summer. These often remain on the plant through the winter months until the following spring.

Sarracenia minor

This attractive species is found across the Atlantic coastal plain through North and South Carolina, Georgia, and into Florida. It is not a particularly variable plant, and the two varieties are separated on size rather than any other characteristic. In its typical form, var. *minor*, it is fairly small, attaining a height of 30cm. However, the larger var. *okeefenokeensis*, can produce tall slender pitchers up to 90cm, with the lower portion of the leaf another 30cm below the surface of the soil. Both varieties are clump forming, eventually forming impressive specimens.

Small flowers with pale green to yellow petals are produced in early summer, after the emergence of the first leaves. The flowers are always held low down, at around half the height of the pitchers.

This species has an unusual pitcher morphology, unlike the others in the genus. The lid is hooded and completely overhangs the mouth. There are prominent fenestrations on the upper rear

Nigel Hewitt-Cooper

The hooded pitchers of *Sarracenia minor* encourage prey to fly towards the translucent windows

section of the pitcher which allow light to enter. Therefore, an insect on the nectar roll of the mouth is shaded by the lid and can see most light through these false windows. As its instinct is to fly towards the light, it launches towards these fenestrations and falls in to the tube below.

Sarracenia oreophila

This species exists solely in a handful of small, scattered, disjunct locations in Alabama, Georgia, North Carolina, and Tennessee. Some of these populations consist of only a few individual plants, so this species is considered critically endangered.

The typical variety, var. *oreophila*, is a beautiful plant with slender or slightly stocky, lime-green pitchers, sometimes with red suffusion, and often with fine pencilling of either red or purple veins. The leaves are approximately 40–45cm in height.

The recently described var. *ornata* (McPherson & Schnell 2011) is similar in stature, but its distinctiveness lies in the heavily veined pitchers. Some individuals of this variety are absolutely beautiful, such as the purple-veined forms I have seen in the Sand Mountain area of Alabama.

Showy flowers with yellowish green petals are produced after the pitchers open. In this species the flowers are always held above the pitchers – a characteristic that is useful when trying to distinguish *S. oreophila* clones from superficially similar *S. flava*.

Sarracenia psittacina

This species, with its unusual prostrate habit, is the odd one out in the genus. It has a large natural distribution, being found in Georgia, Florida, southern Alabama and southern Louisiana. It has recently been divided into two varieties based on leaf size (McPherson & Schnell 2011), var. *psittacina* and var. *okeefenokeensis.* The same authors also gave formal status to anthocyanin-free (i.e. all green) forms of each variety: var. *psittacina* f. *viridescens* and var. *okeefenokeensis* f. *luteoviridis.*

Nigel Hewitt-Cooper

Sarracenia psittacina has horizontal pitchers with a swollen hood that acts like a lobster pot

The leaves in var. *psittacina* are 7–10cm in length, somewhat narrow, and with a prominent ala (wing) along the front (upper) surface. In the larger var. *okeefenokeensis* all proportions of the pitchers are larger and it is more bulbous, with some producing leaves more than 20cm in length. Small flowers with red petals are produced sporadically in spring.

The attractive, often brightly coloured, red and green pitchers are held horizontally. They trap invertebrates in a similar manner to a lobster pot. Crawling insects, and, in times of flooding, small crustaceans, enter through the small, elongated mouth and into the domed hood. They then proceed along the tube, which is heavily lined with downward pointing hairs, to be trapped and digested.

Sarracenia purpurea

With by far the widest distribution, this species is found through most of the southern Canadian provinces, south into northeast states of the US, and still further south through the Carolinas into Georgia. Another population is found on the Gulf coast of Florida, Alabama and Mississippi.

There are two subspecies, subsp. *purpurea* and subsp. *venosa*, with most authorities recognizing varieties within them. All plants south of Virginia are the more stocky and larger subsp. *venosa*.

The pitchers are relatively short and have open tops which allow them to fill with rain water. They therefore have a smaller stature than the upright species, with pitchers typically 10–15cm in length and with an opening of 2.5–7.5cm in diameter. They vary from pure green, through green with red veins, to all red, with every combination in-between. Tall flowers with red petals are produced in spring.

The pitchers, although at first glance distinct from other ➤

species, work in the same way. The prey fall into the water-filled chamber of the leaf where they drown.

Sarracenia rubra

The final species could be viewed as a botanical conundrum – five subspecies are found across fragmented populations in North and South Carolina, Georgia, Alabama and Florida. All have a similar habit and growth pattern and characteristic, small, red flowers. The differences lie in distinct, sometimes subtle, differences in leaf form. But these distinctions have caused much debate over the years, with two, subsp. *alabamensis* and subsp. *jonesii*, having been recognized at species level by some botanists. Thankfully, most authorities have now settled on five subspecies, the two mentioned above plus subsp. *gulfensis*, subsp. *rubra* and subsp. *wherryi*.

The plant has a distinct growth pattern with thin, even spindly, leaves produced in the spring, and taller and more colourful, stocky leaves produced in the summer. The latter persist into winter. A unique character of all subspecies is the production of more than one flower per growth point in the spring. Therefore, a large, branched specimen can produce a wonderful display of anything up to 30, deep burgundy, nodding blooms on wiry stems.

Cultivation

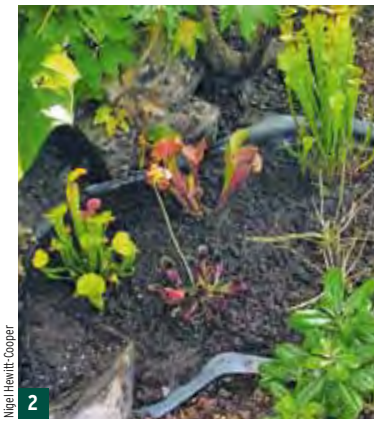
For many, it is surprising to learn just how easy *Sarracenia* are to grow successfully. One just needs to look at their natural habitats, as indeed should be standard practice with all plants. Being North American they are not tropical species, and to keep them in a heated environment all year would result in their rapid demise. They have to be given a

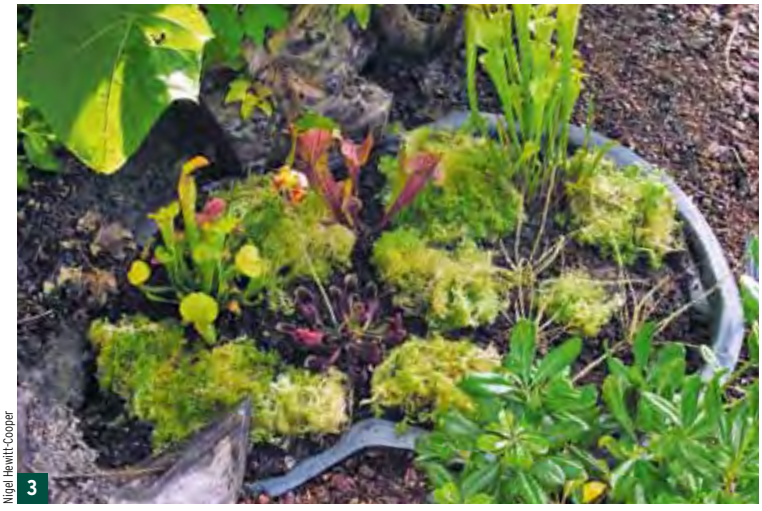
Nigel Hewitt-Cooper

Sarracenia purpurea (above) has pitchers without a covering lid so they can fill with rain water. A profusion of mature *Sarracenia* plants thriving in an outdoor planting (below).

judywhite / GardenPhotos.com


Nigel Hewitt-Cooper
1


Nigel Hewitt-Cooper
2


Nigel Hewitt-Cooper
3

A rigid pond liner (1) makes a good bog garden if filled with suitable compost (2). Clockwise from top left: *S. flava* var. *ornata*, *S.* x *catesbaei* (*S. flava* x *S. purpurea*), *S. oreophila*, *Drosera filiformis* and *S. purpurea*

marked distinction between summer and winter.

Pot or container culture is a straightforward matter. Simply grow them in a 50:50 mix of moss peat and perlite and keep them wet, as described below. For sarracenias there is still no good, reliable alternative to peat. They are one of the very few cultivated plants that are native to peat bogs, another example being *Disa* orchids.

Because of this they do need to be kept wet. Standing the pot in 5–7cm of rain water is ideal, and they also require full sun. Bog land typically has too few nutrients to support larger plants that might shade sarracenias, so a south-facing aspect is preferable. These factors mean they are ideal for unheated glasshouses, conservatories, and, in the summer months, south-facing windowsills in the house.

However, it can be just as straightforward to grow them outdoors all year. These are perfect plants for pond margins or as container plants on sunny patios or decks. All species are suitable for outdoor cultivation, although *S. psittacina* is perhaps the least reliable. While they cannot tolerate garden soil they can be planted in a bog garden with suitable compost. An old plastic pond is perfect for this, especially if it can be given a sheltered, southerly aspect. Begin by ensuring it is watertight, then fill it with moss peat. Bear in mind that these are peat bog plants – do not use sedge peat. Fill the bog with rain water until the surface is spongy. Peat has the remarkable ability to absorb and hold water, a natural raised bog is dome shaped and is little more than a huge water drop with the peat holding it together.

Select a few suitable plants and plant them at the same level they were at in the pot. Finally, place sphagnum moss around the plants, and disguise the liner edges with cork or logs. The sphagnum will grow on the peat and form a vibrant green carpet, as happens in the wild. This makes the perfect background for the red and green colours of the pitchers.

Apart from ensuring the container does not dry out, maintenance is minimal – simply remove dead growth in winter when plants are dormant. They will withstand frost and snow, and growth will resume in spring when temperatures rise.

Conclusion

Rather than being difficult to maintain, or worse, regarded as novelties, these fascinating and beautiful plants deserve a closer look. Their cultivation is perfectly straightforward, and they make unusual and sculpturally beautiful subjects both under cover and outside.

Nigel Hewitt-Cooper has grown carnivorous plants for 30 years and owns Hewitt-Cooper Carnivorous Plants nursery in Somerset.
www.hccarnivorousplants.co.uk

REFERENCE

McPherson, S & Schnell, D (2011) *Sarraceniaceae of North America*. Redfern Natural History Publications, Dorset