

TONY AVENT surveys the cultivated species, highlights some of the recent

cultivars, and

describes his

favourites

information about them confusing. It was only with the assistance of *Epimedium* guru, Darrell Probst, that I was finally able to embrace them.

In the late Prof. William Stearn's

T WAS OVER 40 YEARS into

involved with epimediums,

partly because I found the conflicting

my gardening life before I got

In the late Prof. William Stearn's first *Epimedium* monograph (Stearn 1938) only 21 species were known.

Epimedium 'Amber Queen' is one of the new generation of floriferous hybrids

This increased dramatically to 54 in the updated edition (Stearn 2002) that he completed just before his death in 2001. Even as late as the early 1990s only a handful of the known species were in cultivation.

Recently introduced species

Few genera of plants have seen such a dramatic increase in new species, primarily thanks to the work of Mikinori Ogisu of Japan and Darrell Probst of Massachusetts.

Most of the Epimedium species discovered and introduced in the 1990s were due to the work of the tireless Ogisu. His discoveries include E. campanulatum, E. chlorandrum, E. dolichostemon, E. fangii, E. flavum, E. franchetii, E. ilicifolium, E. latisepalum, E. ogisui, E. mikinorii, E. rhizomatosum and previously named species that were not in cultivation such as E. brevicornu, E. ecalcaratum, E. fargesii, E. lishihchenii, E. pauciflorum and E. platypetalum.

Probst's introductions include *E. brachyrrhizum*, *E. dewuense*, *E. epsteinii*, *E. myrianthum* and the previously described *E. sutchuenense*. Many yet to be published species from his work are in the pipeline.

As of 2008, my collection at Plant Delights Nursery in North Carolina consists of 49 of the currently named 54 species, along with most of the distinct hybrids. Epimediums are promiscuous, with bees creating garden hybrids and natural hybrids in the wild. While most epimediums make great garden plants, there are a few that offer little for gardeners, and these will not be discussed here.

Propagation

Epimediums spread via a woody rhizome located just below the soil surface. As with bamboos there are

fast spreaders (leptomorphs) and slow spreaders that appear to form a tight clump (pachymorphs). Division is best done after flowering. The pachymorphs are the most challenging to divide, hence the higher price they usually demand. If you try to divide them use a pair of bonsai scissors. Roots on divisions should be cut back to about 10cm long. One of the most important tricks I learned from Probst is to always leave two-thirds of the foliage on newly divided plants to encourage them to form new roots.

Epimediums can be grown from seed, but you will need to have a keen eye as the seed is small and the capsules can split without warning. Seed is usually mature about 45 days after pollination (Probst, pers. comm.). I tried for years to gather seed, which must be sown fresh, with no luck, and now I just allow it to fall into a well-prepared seed bed where it will germinate the following spring. If you are lucky enough to collect seed it will require 60 days below 4°C before germinating. At Plant Delights Nursery we have been able to flower about 10% of one-year-old seedlings with the rest flowering in the second year. Since most epimediums are self-sterile, offspring tend to be hybrids if you grow more than one species, creating many possibilities.

Cultivation

In gardening circles, epimediums are known as great plants for dry shade. However, in the wild most grow in very moist soils, with many being found near woodland waterfalls. While epimediums will indeed grow in dry shade, they fare much better in part sun to light shade with a rich, organic, moisture-retentive soil. As with all plants, avoid using salt-based fertilisers which can burn epimediums when used in excess. Hybrids such as *E. x perralchicum, E. pinnatum* subsp.



Epimedium sagittatum 'Warlord' (above) and Epimedium 'Yokihi' (below) are two new selections

colchicum, E. x rubrum, E. x warleyense and E. x versicolor seem to be particularly durable in very dry sites. Most epimediums are native to alkaline soils, with the exception of a few Japanese ones such as E. grandiflorum. I recommend a soil with a pH of 6.2 to 6.5 – although on the acid side, this allows us to grow most species well. According to Dan Hinkley (1997), the cultivars of E. grandiflorum do not fare well in alkaline soils.

Most epimediums are spring flowering, with a few species such as *E. rhizomatosum* and *E. davidii* continuing sporadically through the summer. In areas subject to late



spring frosts the flower spikes of early-flowering ones will need protection below -4°C.

Some epimediums have evergreen foliage while others are completely deciduous. As a rule, the deciduous species are hardier than those that retain their foliage. When planting them in the garden, keep in mind that just because the foliage is evergreen does not mean it will look great throughout the winter. Where I am based, severely cold winters can damage evergreen foliage that in some mild years may look fine. Most gardeners trim any remaining damaged foliage in mid to late February, before the new flower spikes begin to emerge. While many epimediums are grown primarily for their flowers, several of the newer species and hybrids are worth growing for their lovely foliage. Epimedium wushanense has superb mahonia-like leaves, while E. acuminatum and E. x omeiense have wonderful leaf mottling. Some selections of E. x youngianum emerge purple or with a red border, as does E. grandiflorum var. higoense, and the leaves of E. x versicolor are a kaleidoscope of colours as they emerge.

Here I have categorised species by their size and flower type in order to help you select the best plants for your site. I have also given US hardiness zone ratings; most of the UK is in Zone 8. Many of the cultivars are only available in the US at present but hopefully enterprising nurseries will distribute them further.

Small species with small or medium flowers

If you are looking for small and dainty in the *Epimedium* world, the deciduous Japanese *E. diphyllum* (Zone 5–8) is for you. This dainty species has been in cultivation since the mid 1800s and ranges in flower colour from pale pink to white. It







is represented in cultivation primarily by three cultivars, 'Nanum' (white flowers), 'Roseum' (pink flowers) and 'Vanilla Ripple' (syn. 'Variegatum') (speckled leaves). The 20cm tall flower spikes bear two to six flowers each, certainly nothing to match the showier species, and the fading flowers are topped by a second flush of spring foliage. I regard *E. diphyllum* as a clumping species, but one which can make a 60cm wide, easily dividable clump in seven years.

Evergreen *E. sempervirens* has crossed with *E. diphyllum* in the wild to produce *E. x setosum*, which is intermediate between the parents.

Mid-sized species and hybrids

This group of plants, typically 45cm tall and 45cm wide, is the most familiar to gardeners. Darrell Probst has interesting theories on the origin of this and related groups that he will hopefully publish one day.

Epimedium sempervirens (Zone 5–8) from Japan is similar to *E. diphyllum*, except for being about one-third larger with evergreen (from Zone 7 south) foliage and larger flowers. The flower stems reaching 30–40cm tall with six to ten flowers each, also in colours ranging from white to lavender. Epimedium sempervirens usually forms tight clumps, although some variants can spread a bit. Another trait is that new leaves often

emerge with a lovely red flush. Cultivars include 'Candy Hearts' (red-edged leaves, pale lavender flowers), 'Cherry Hearts' (red-edged leaves, white flowers), 'Mars' (red-purple flowers), 'Okuda's White' (white flowers) and 'Violet Queen' (red-flushed foliage, pale lavender flowers). The major drawback to *E. sempervirens* is the tendency of the second spring flush of foliage to obscure the flowers.

Epimedium x youngianum represents a large group of hybrids between E. diphyllum and E. grandiflorum. A few cultivars are tardily deciduous, indicating that they may not belong here. Cultivars attributed to this hybrid include 'Baby Doll Pink' (small clump, small pale pink flowers), 'Be My Valentine' (very floriferous, dark pink sepals with a white cup), 'Benikujaku' (pale lavender flowers), 'Capella' (pink sepals, white spurs), 'Fairy Dust' (small pale pink flowers), 'Grape Fizz' (small pale lavender flowers), 'Liliputian' (very dwarf, attractive white flowers), 'Milk Chocolate' (chocolate mottled leaves, white flowers), 'Milky Way' (white flowers), 'Murasaki-shikibu' (purple sepals, white spurs), 'Pink Star' (pale pink, nearly white flowers), 'Purple Heart' (bronze leaves, white flowers), 'Royal Flush' (reddish bronze foliage, pale pinkish lavender flowers), 'Ruby Tuesday' (pink spurs, violet cup),

'Tamabotan' (purple foliage, pale lavender flowers), 'White Cloud' (small clump, white flowers) and 'White Star' (white flowers).

At the nursery we find each of the above cultivars to be dramatic improvements over *E. x youngianum* 'Niveum' and *E. x youngianum* 'Roseum'. Some have a second flush of foliage that obscures the flowers, but the problem is not nearly as prevalent as in *E. sempervirens* or *E. diphyllum*. As expected, *E. x youngianum* is usually intermediate in habit between the spreading clumps of *E. diphyllum* and the tight clumps of *E. grandiflorum*.

Epimedium grandiflorum (Zone 4–8) is a winter deciduous Japanese species that includes the majority of *Epimedium* cultivars in the trade. Like *E. sempervirens*, most cultivars are tight clumpers, although a few may have longer rhizomes.

Cultivars of *E. grandiflorum* include 'Bandit' (dwarf plant, red-edged leaves, white flowers), 'Benedict's Violet' (lavender flowers), 'Bronze Maiden' (chocolate foliage, pale lavender flowers), 'Cranberry Sparkle' (chocolate new leaves, cranberry red flowers), 'Dark Beauty' (chocolate leaves, purple outer sepals, white cup and spurs), 'Lavender Lady' (dark purple buds opening to pale lavender flowers), 'Lilafee' (bronze mottled foliage, lavender-purple flowers),







'Pierre's Purple' (dark purple flowers), 'Princess Susan' (purple outer sepals, white cup and spurs), 'Purple Prince' (dark purple cup, pale lavender spurs), 'Red Queen' (carmine red flowers), 'Saxton's Purple' (pale lavender flowers), 'Silver Queen' (white flowers), 'Spring Wedding' (red-edged leaves, pale lavender flowers), 'Swallowtail' (red-edged leaves, pale lavender flowers), 'Tamano-gempei' (purple outer sepals, white cup and spurs), 'Waterfall' (rosepurple flower, white spurs), 'Yellow Princess' (pale yellow flowers) and 'Yubae' (purple foliage, cranberry flowers). With the exception of E. grandiflorum 'Swallowtail', the other cultivars do not pick up their nice leaf colouration until after flowering. Many of the older selections of E. grandiflorum, such as 'Album' and 'Nigrum', have large flowers produced among or just slightly atop the foliage, usually obscured by the second spring flush.

Epimedium koreanum (Zone 3–7), a deciduous taxon, was long considered a subspecies of *E. grandiflorum* until Stearn (2002) recognised it as a distinct species native to Korea. *Epimedium grandiflorum* outside of northern Japan has flowers of white to purple, but in northern Japan there is a yellow-flowered form, *E. grandiflorum* f. *flavescens*, that is distinct from yellow-flowered

E. koreanum. Also, in contrast to the typically clump-forming E. grandiflorum, E. koreanum spreads at a rate of 15–30cm per year by rhizomes. It is represented by two cultivars, 'Harold Epstein' (pale yellow flowers on red stems) and 'La Rocaille' (creamy flowers).

Epimedium x rubrum (Zone 4-8) covers a group of semi-evergreen hybrids between E. alpinum and reputedly E. grandiflorum. However, Probst regards the second parent as more likely to be E. sempervirens (Probst 1997). This hybrid is most prized for its leaves which emerge with a striking reddish margin. The short spikes of pinkish red flowers can be obscured if the old foliage is not removed before flowering. The unnamed clone in the trade is widespread thanks to the fact that it spreads well via rhizomes. A much more vigorous cultivar named 'Sweetheart' was introduced by Probst. As with E. grandiflorum, the attractive red leaf edges do not occur until flowering is finished.

Epimedium x versicolor (Zone 5–8) covers hybrids between the deciduous Japanese E. grandiflorum and the evergreen European E. pinnatum These hybrids have beautiful new foliage that is chocolate-brown highlighted by green veins. From Zone 7 south, the foliage remains evergreen, but becomes deciduous as

you head further north. The spreading *E. x versicolor* is represented by 'Sulphureum' (evergreen, new foliage brown with green veins, pale yellow outer sepals, pale yellow spur and cup), 'Neosulphureum' (evergreen, tan new foliage, creamy sepals with a yellow cup) and 'Versicolor' (deciduous, new foliage with netted pattern of dark cinnamon, peach sepals with a yellow cup). My favourite is 'Cherry Tart' (cinnamon new foliage, pale pink sepals, dark pink spurs, yellow-rimmed cup).

Species with short flower spikes and large spider-like flowers

This group consists of evergreens with flowers of pink to white. Epimedium brachyrrhizum (Zone 5-8), first described from China in 1997, is similar to E. leptorrhizum (Zone 5–8) that has been known since 1938. Both have spreading rhizomes, but E. brachyrrhizum has a thicker rhizome spreading more slowly. For us, E. leptorrhizum never exceeds 15cm in height while E. brachyrrhizum typically reaches 30cm. Both are topped in early spring with very short flower spikes of 8-12 flowers ranging from pink to lavender, and occasionally white. There are two cultivars of E. brachyrrhizum, both hard to find: pale pink-flowered 'Elfin Magic' from Probst and the

March 2010 13







forthcoming white-flowered 'Little Angels' from my nursery. The foliage of *E. brachyrrhizum* turns an attractive shade of lavender in winter.

Two other evergreen Chinese species are similar. *Epimedium ogisui* (Zone 6–9) has spreading rhizomes with near horizontal spikes of large white flowers. *Epimedium epsteinii* (Zone 5b–8) has short but spreading rhizomes and short flower spikes, sporting up to 12 large, bicoloured inflorescences of purple cups and spurs, backed by a white outer sepal. Plants in this group make superb groundcovers, often with attractive, red-mottled foliage.

Species with long flower spikes and large spider-like flowers

This is perhaps the most showy group and all have pink or purple flowers. The evergreen E. acuminatum (Zone 5–8) from limestone cliffs in the southern Chinese provinces of Yunnan and Sichuan leads this list along with its hybrid with E. fangii, E. x omeiense. The hybrid is larger, about 60cm in height, whereas E. acuminatum has smaller, narrower leaves and is about 30cm tall. The arching flower spikes of E. acuminatum are about 45cm long, each adorned with up to 50 large flowers composed of long dark purple spurs highlighted by pale lavender inner sepals. The



flower spikes can be heavy enough for the tips to nearly touch the ground. For this reason I plant *E. acuminatum* and *E. x omeiense* on a bank so the flowers can be better enjoyed. Both are prized for their long-pointed and wonderfully mahogany-coloured, mottled leaves. Both are reasonably good spreaders.

The commonest cultivars of *E. acuminatum* are 'Ruby Star' (white sepals, lavender spurs, purple cup) from Heronswood Nursery and Probst's 'Night Mistress' (pink spurs, purple spurs, purple cup). Cultivars of the hybrid include Ogisu's wild collected 'Stormcloud' (dull purple flowers), Hinkley's 'Myriad Years' (white sepals, pale lavender spurs,



purple cup) and the Japanese 'Akame' (dark red flushed yellow).

Species with yellow spiderlike flowers

These are evergreen Chinese species with large cream to yellow flowers and include *E. chlorandrum*, *E. davidii*, *E. fangii*, *E. flavum*, *E. franchetii*, *E. hunanense*, *E. lishihchenii*, *E. membranaceum*, *E. rhizomatosum* and *E. wushanense*. All make showy garden specimens.

There are both tight clumping and slowly spreading variants of *E. davidii* (Zone 5–8) in cultivation. Both bear spikes of up to 25 flowers with curved yellow spurs above the spiny green foliage. Because new buds that form along the rhizomes and leaf axils re-









flower (Probst 1998), it produces new flowers for us throughout the summer. It is a superb garden plant, although it does not perform well in dry locations.

Epimedium fangii (Zone 5–8), E. flavum (Zone 5–8) and E. hunanense (Zone 5b–8) are similar species with short flower stems bearing bright yellow flowers. They are still little known in cultivation. The fastest spreading is E. fangii, followed by the vigorous E. hunanense and then the dwarf E. flavum. The flowers in this group are much smaller than the rest of the yellow spider group.

Epimedium franchetii (Zone 4–8) and the similar *E. lishihchenii* (Zone 4–8) are slowly spreading evergreen

species. Both are similar in habit to E. acuminatum and E. x omeiense, but with up to 25 large yellow flowers with recurved spurs, held horizontally on sturdy 60cm flower stems, and foliage that emerges with a bronze hue. Although some argue that these represent a single species, we find that all our clones of E. lishihchenii have much larger leaves than E. franchetii. 'Golden Earrings' is a particularly floriferous cultivar of E. lishihchenii selected at Plant Delights Nursery. I feel that the cultivar E. franchetii 'Brimstone Butterfly' actually belongs to E. lishihchenii. Epimedium chlorandrum (Zone 5-8) is a similar, slowly-spreading species native to Sichuan and also resembles E. acuminatum, but the flowers are creamy yellow on 60cm arching stems.

Another group of yellow spiders includes E. rhizomatosum, E. membranaceum and E. ilicifolium. For us the Chinese E. rhizomatosum (Zone 5-8) flowers longer than any other species, often reblooming throughout the summer. Epimedium rhizomatosum spreads via long rhizomes, in contrast to the shorter rhizomes of the similar E. membranaceum. E. rhizomatosum is adorned with short 40cm flower stems of large-spurred yellow flowers. Epimedium membranaceum (Zone 5-8) is a similar species with up to 30 large-spurred yellow flowers on 60cm stems. E. membranaceum is a superb garden specimen that starts flowering just as *E. franchetii* ends and continues all summer, thereby extended the flowering season. The smallest of the group is *E. ilicifolium*, 30cm tall by 60cm wide in three years, with narrow, spiny green leaves. Despite its small stature, *E. ilicifolium* is one of the most floriferous of the group with pale yellow flowers tightly packed along the spike, in contrast to the wide spacing of *E. rhizomatosum* and *E. membranaceum*.

As far as I can tell, the slowly spreading E. wushanense (Zone 5–8), although named in 1975, was not sold before 2000. I predict that it will become one of the most popular garden species. The long, spiny evergreen leaves up to 20cm long (nicely mottled in some clones), come through the winter in great shape, and make a good background for the spikes of up to 100, longspurred, creamy-yellow flowers. The entire flowering spike can reach nearly 90cm in height. The flowers are bunched closely together and held just above horizontal on a sturdy stem. Its cultivar 'Caramel' has the pale yellow flowers subtly suffused with orange and purple.

Species with small yellow bellshaped spurless flowers

Epimedium platypetalum (Zone 5–7) is a dainty semi-evergreen Chinese ➤

March 2010 15







species with spreading rhizomes and small yellow spurless bell-shaped flowers on 30cm stems. Two other similar Chinese species with compact rhizomes are *E. ecalcaratum* (Zone 5–7) and the clump-forming evergreen *E. campanulatum* (Zone 4–7a), topped in spring with 60cm stems with small yellow bells.

Species with tiny white flowers

The clumping, evergreen *E. sagittatum* (Zone 5–8) is one of many Chinese species with tiny flowers, but its best feature is the cinnamon-coloured leaveson emergence. The colour is an exceptional red and tan in 'Warlord'. *Epimedium myrianthum* (Zone 5–8) is similar to *E. sagittatum*, except the former usually has red-tinted foliage, while the latter is often mottled, and *E. myrianthum* has more (up to 150) flowers and can rebloom in summer. The best for foliage is Probst's *E. myrianthum* 'Mottled Madness'.

Epimedium pubescens (Zone 6–8) is a similar evergreen species with slightly larger flowers. Unlike the previous two, *E. pubescens* comes in both a clumping and a creeping form.

Epimedium stellulatum (Zone 5-8) is similar to the above three, but with even larger flowers on a 50cm stem that gives it considerably garden value. The commonest cultivar of *E. stellulatum* is Roy Lancaster's dwarf 30cm high 1983 Chinese collection 'Wudang Star'. There is



also a taller 50cm clone known simply as "long leaf form".

Other species in this group, which are still relatively rare, include the Chinese *E. truncatum* (Zone 5–8), and *E. borealiguizhouense* (Zone 5–8), each with tiny white flowers.

Species with dodecatheon-like flowers

Other favourites unlike any of the above are the clumping evergreens *E. fargesii* (Zone 5–8) and *E. dewuense*, and the slowly spreading evergreen *E. dolichostemon* (Zone 5–8). Their flower shape resembles that of a *Dodecatheon*. Although lack of demand will probably keep it rare, I think *E. fargesii* is one of the most elegant of all. It is represented by the cultivars 'Pink Constellation', 'Pink Treasure' and 'Star Shower'. *E. dolichostemon*, which has wider spurs, is also prized for its wonderfully mottled foliage. *E. dewuense* is the smallest of the three.



Other species and hybrids

There are three other species and two hybrids that are probably more widely grown than any of the above.

The European *E. pinnatum* subsp. *colchicum* (Zone 5–8) is a lovely evergreen species. Its cultivar 'Thunderbolt' was collected by the US National Arboretum near the Black Sea and its foliage, in cold weather, darkens to nearly black with a few green veins.

Epimedium × warleyense is a hybrid of *E. alpinum* and *E. pimnatum* subsp. *colchicum*. This is one of the few true orange-flowered epimediums and cultivars include 'Ellen Willmott' and 'Orangekönigin'.

Epimedium perralderianum (Zone 5–8) is the only species native to Africa – Algeria, in fact. The 30cm stems, held above the foliage, are adorned with up to 25 large bright yellow flowers. A similar looking hybrid derived from crossing with











the closely related *E. pimatum* subsp. *colchicum* is *E. x perralchicum*. With long spreading rhizomes like its parent species, the commonest cultivar is 'Fröhnleiten' (reddish spring foliage with green veins and yellow flowers on 20cm stems).

Hybrids

Despite all of the fabulous species and their selections, some of the most exciting new epimediums are coming from interspecific crosses. I will share a few of my favourites.

From Robin White's breeding program in the UK comes *E*. 'Amber Queen', a cross between *E. wushanense* 'Caramel' and *E. flavum*. This amazing hybrid is topped with great sprays of large golden yellow flowers. Also from White is *E*. 'Pink Elf', the very first epimedium to flower for us, often starting to bud by early March. The numerous flower stems create a cloud-like effect of small flesh-coloured

flowers. The female parent is *E. pubescens* with the other parent in question – reportedly *E. leptorrhizum*, but I am betting on *E. grandiflorum*.

There are a number of other good hybrids of unknown parentage. The Japanese E. 'Yokihi' has long-spurred white flowers with white cups and hot pink sepals. Epimedium 'Spritzer' is an E. membranaceum hybrid from Probst with heavily liver-speckled, spiny-edged leaves and tall spikes of large yellow flowers with contrasting coral sepals starting in late March. Another from Probst is *E*. 'Domino', a vigorous plant to 1m wide with nicely mottled leaves, topped in March with 60cm burgundy stems bearing huge numbers of large white flowers highlighted by pink cups.

Two others that should soon become more widely available are White's E. 'William Stearn' (long pink spurs, raspberry cups) and Probst's E. 'Pink Champagne' (red mottled foliage, long pale pink spurs, raspberry cups). These are just a sample of the wonderful hybrids that have just begun to hit the market with more on the way including many from our work here at Plant Delights Nursery.

Conclusion

I hope you find epimediums as enjoyable as I have and I hope your interest has been 'spurred' to new heights. Again, a final thanks to Darrell Probst, without whom this would not have been possible and without whom many of these great epimediums would never have made it into commerce.

TONY AVENT is President of Plant Delights Nursery, North Carolina, specialising in rare and unusual plants

REFERENCES

Hinkley, D (1997) On the trail of new epimediums. *Pacific Horticulture* Winter: 12–18

Probst, D (1997) Garden Vision nursery catalogue. Hubbardston, Massachusetts

Probst, D (1998) Garden elegance. American Nurseryman March 1st: 34–40 Stearn, WT (1938) Epimedium and Vancouveria (Berberidaceae), a monograph. J. Linn. Soc., Bot. 51: 409–555

Stearn, WT (2002) *The Genus Epimedium*. The Royal Botanic Gardens, Kew

March 2010 17