ALPINE LINE

AUGUST/SEPTEMBER 2017

NEWSLETTER OF THE ALLEGHENY CHAPTER of NARGS

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Message from the Chair, Karen Schmidt

This summer has been really great for the garden, just enough rain and some days that are not too hot to work outside. The last meeting we had our annual breakfast at DJ's, good food as always. Thanks Dennis and Gretchen (cook)!

We still have a lot more activities this year. The annual picnic is August 20, more information later in the newsletter. You don't want to miss this chance to visit with other members and enjoy some good food. By bringing plants for the exchange, you will have the opportunity to get some new plants from other members. There will also be an auction and trough show. At the September 17 meeting Paul Zammit from the Toronto Botanical Garden will speak on succulents. Then our final meeting on November 19 will be with Michael Szesze from Carnivorous Plant Nursery. He will do a presentation on carnivorous plants, and then we will do a workshop to create a terrarium.

We are going to do the same as last year for the banquet on October 21. We are going to have it catered at the church across from the library. If anyone would like to help, please let me know. I need help with table decorations and giveaways. There will not be a speaker and it will be more of a social activity. There will be more information later in the year.

I want to thank Dianne Passoth for being the secretary. She did a great job and her minutes were like hearing a story about each meeting. With her retirement, she no longer is able to do the minutes, so we are looking for a replacement. Please consider helping out. The minutes can be simplified and just state facts. We just need to have minutes recorded for each meeting. Handwritten is ok, no need to even have a computer.

The group only runs with your help, so please let me know if you are interested. I would really appreciate it.

I hope you all are having a wonderful summer and your gardens are growing well. Hope to see you at the picnic.

Annual Members-Only Picnic Sunday, August 20, 2017

The Allegheny Chapter's annual picnic and members-only plant exchange will be held on Sunday, August 20, at the Pine Township Community Park, beginning at 2 p.m. The Chapter will provide ribs, chicken, drinks, and place settings. **Members are asked to bring a covered dish to feed approximately 8 people.**

RSVP to Patty McGuire by Sunday, August 13, if you plan to attend.

This meeting provides a nice opportunity to socialize and enjoy great food in a beautiful outdoor setting. Members are asked to bring rock garden plants from their gardens to exchange for a very small fee that benefits the club. In addition to the plant exchange, there will be an auction and a trough show. Consider bringing an item of $10 or more for auction, and bring your troughs to show off in a friendly competition. Growing your own plants from seed is a special activity of the overall garden experience. Packets of extra seeds from the NARGS Seed Exchange will be available.

We will again hold the Trough Show that will be judged by all the attendees. A trough is defined as at our May Show -- Class #9: A trough of three or more distinct species of rock garden suitable plants arranged for effect. Three nice prizes will be given to the three troughs voted most popular (one prize per member). While it is a bit of a contest, look at it as an opportunity to see what members are growing in troughs this summer.

Members are urged to bring plants for the exchange. As always, members who contribute plants will be allowed to choose and buy plants before the sale officially starts. Now would be a good time to split some overgrown clumps of plants that are starting to intrude on their neighbors. Almost all primulas actually thrive on being split every two or three years. Most sedum are easy to divide and transplant. Volunteer seedlings are always choice material for our sale, as well as rock garden plants grown from seed.

Consider donating a special plant, garden tools, art or décor for our auction that will again be conducted by Len Lehman, our walking encyclopedia on plants and planting. The auction has been great fun over the years, and with your help it can be even better this year.

Directions to the picnic:

Traveling north on US 19, Perry Highway in Wexford, bear left onto Church Road at the Custom Framing Shop and then turn right (east) onto PA 910. Pine Community Park is located on the left, across for the Pine Township Municipal Building. Turn left onto Pine Park Road. Turn at the next left and then immediately turn right and park at the end pavilion.

Traveling south on US 19, Perry Highway in Wexford, bear right onto Church Road at the Goodyear Tire store and then turn left onto PA 910. Continue on PA 910 for 1.7 miles then turn left onto Pearce

Mill Road for 2.5 miles. Pine Community Park is located on the left, across for the Pine Township Municipal Building. Turn left onto Pine Park Road. Turn at the next left and then immediately turn right and park at the end pavilion.

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MEETING NOTICES
ALLEGHENY CHAPTER ROCK GARDEN SOCIETY

Date/Time	Location	Speaker	Activity
Jan 15, 2:00 PM	Northland Library	Len Lehman	The Truth About Ferns
Feb 19, 2:00 PM	Northland Library	Mark Tebbitt	Seed Planting Workshop
Mar 19, 2:00 PM	Northland Library	Katie Schuller	Vertical Gardening
Apr 23, 2:00 PM	Aviary	Amanda Haney	Rock Gardening of Vancouver, BC
May 7, 9:00 AM	Soergel Garden Center	Show & Sale	Show & Sale
Jun 11, 9:00 AM	DJ's Greenhouse	Dennis James	Breakfast, and "You Name it, We Discuss it!"
July	No Meeting	No Meeting	No Meeting
Aug 20, 2:00 PM	Pine Township Park	Picnic	Picnic
Sep 17, 2:00 PM	Northland Library	Paul Zammit	Succulents
Oct 21	St. John's Lutheran Church		Awards Banquet
Nov 19, 2:00 PM	Northland Library	Mike Szesze	Carnivorous Plants Program and Workshop
December	No Meeting	No Meeting	No Meeting
Dec 7, 9:00 AM	Northland Library	Trish Abrams	Seed Packaging

MYSTERY PLANT

Our mystery plant(s) for this newsletter issue are related to dianthus and are dwarf evergreen plants that are hardy to -15 degrees Fahrenheit. They prefer dry gritty and sandy soil that is slightly alkaline. The genus contains about 120 species found mostly in Greece, Turkey and the Middle East but with some disjunctive species in Chile and New Zealand. The genus is considered one of the choice groups for rock, crevice and trough gardens. Growing these choice plants from seed is almost impossible, and propagation is almost always by cuttings. Mostly if one wants these, they are best purchased from reliable alpine plant suppliers. They do not like water and prefer very sunny, well drained, hot soils. For this plant only the genus name is required. Send answers to Len Lehman.
Lyn Lang won last issue for correct id of Draba mollissima!

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BY THE WAY

Our Chair's Choice Award for last year - Standard Dwarf Bearded Iris "Hot Coals" - has been awarded an Award of Merit by the American Iris Society, the next to last step before being awarded the highest honor for a dwarf Iris, the Caparne-Welch Award.

Primroses: Diversity is Their Key to Popularity - Part 2: Descriptions of Main Groups of Primroses

Todd Boland, Chair, Newfoundland Chapter, NARGS

In an earlier article entitled: Primroses: Diversity is Their Key to Popularity, I described the main cultural requirements of primroses and how they may be used in the garden. In this article I will describe in more detail the main groups of primroses that are easily grown in the garden. There are over 500 species of Primula and plant taxonomists have broken these down into 37 groups based on area of origin, flower form and leaf form. Some of these groups are near impossible to grow in a garden setting as their cultural requirements are so specific. In fact, only a few groups are easily grown in the average garden. However, even this limited number of groups can provide you with a wonderful display of flowers over an extended season from mid-winter to mid-summer, depending on where you live.

Polyanthus Group

The most popular group of primroses are those referred to as polyanthus primroses. Botanically these are called the Vernales Group. This group will provide colour from mid-winter through May. In the Pacific Northwest, they are popular for providing winter blooms in container plantings. They are also popular indoor pot-plants during the winter months and may be later planted in the garden to provide colour in future years. Polyanthus primroses are usually hybrids derived from *Primula vulgaris, P. veris, P. elatior* and *P. acaulis*. These primrose species are all native to Europe. They are available in a rainbow of colours, including green and brown! They include single, semi-double or double-flowered forms.

Polyanthus primroses do best in a highly fertile, humus-rich soil and in lightly shaded areas. Because they do not like acidic soil, lime should be applied to the planting area. These plants also demand constant moisture. Allowing them to become wilted will severely set back the plants. To help maintain soil moisture, mulch the plants with 3 - 5 cm of old compost/leaf mould or well decomposed manure. This mulch will also keep the organic content high in the growing area. For best results, divide and replant polyanthus primroses every 3 - 4 years.

Auricula Primroses

Another popular and easily obtained group of primrose are the Auriculastrum Group, commonly called auriculas. Like the polyanthus group, they too are natives of Europe. The most popular auriculas are hybrids available in a wide range of colours in single, semi-double or fully double forms. Unlike the tufted

leaves of the polyanthus primroses, auriculas produce a rosette of leaves from a stout rhizome.

Auriculas demand more sun than the polyanthus types and are ideal subjects for a rock garden. While the hybrid auricula are relatively large, species such as *P. marginata, P. hirsuta* and *P. pedemontana*, are fairly small in size. Most of the species in this group hail from limestone regions; thus the addition of lime in the growing area is beneficial.

Even though the auriculas are among the most drought-tolerant of all primroses, they still prefer a moist, well-drained soil. Old leaves often remain at the base of the rosettes and should be carefully removed to keep diseases to a minimum. They flower about the same time as the polyanthus primroses.

Candelabra Primroses

Another diverse and increasingly popular group of primroses are the candelabra or Proliferae primroses. As the name implies, plants produce whorls of bloom on tall slender stems. A good plant may produce 4 - 6 whorls, each whorl lasting about a week. As such, they are among the longest blooming primrose. This group has the added bonus of late spring-early summer blooms, generally May to July. Flowers are available in red, purple, pink, orange, yellow and white.

Plants may be grown in full sun or light shade, but flower colours will be richer if plants are lightly shaded. The candelabra primroses include the species *P. bulleyana, P. beesiana, P. japonica* and *P. pulverulenta* as well as hybrids of these. In the wilds of eastern Asia, these primroses often grow in boggy situations, hence constant moisture is a must. They are ideal subjects for bog gardens and waterside plantings. These primroses overwinter as a tight acorn-sized bud.

Sikkimensis Primroses

The Sikkimensis group of primroses are valued for their attractive, heavily farinose (powdery), fragrant, pendent flowers that are available in shades of violet, cream, yellow, pink, copper and red. Easily grown in damp, fertile soil in sun or light shade, these primroses bloom about the same time as the candelabra and as such, are great companions for each other. Species in this group *P. alpicola, P. florindae, P. secundiflora* and *P. sikkimensis* are also native to Asia. Although they are rarely available locally, they may be available through mail order catalogues. As a note of interest, *P. florindae* is among the tallest of any primrose, often reaching over 1 meter in height. These primroses disappear completely in winter.

Bird's-Eye Primroses

These primroses are among the smallest and most dainty primroses. Many only obtain a height of a few inches. Botanically they are referred to as the Farinosae Group as most plants have leaves heavily covered in whitish powder called farina. These primroses have the widest distributional range of any

groups, being found throughout North America, Europe and Asia as well as the Falkland Islands and southern tip of South America. Of the groups mentioned, these are a little more challenging to grow. However, they are popular among the more avid primrose growers. The colour range is more restricted; mauve, purple, pink, pale yellow or white. They prefer moist to boggy conditions and are apt to be short-lived so collecting seeds is recommended. With their small size, alpine troughs might be the recommended way to grow them. Seed exchanges or specialty nurseries would be the best sources for these primroses. Among the recommended species are *P. halleri, P. frondosa, P. luteola* and *P. algida*. They are spring-bloomers.

Asiatic Primroses

There are several other popular primroses that belong to a mixture of primrose groups. However, the one feature they all have in common is that they hail from Asia. Technically, the candelabra and sikkimensis groups can also be included in the Asiatics, but the following are additional species.

The drumstick primrose*, P. denticulata*, is native to the Himalayas. As the name implies, flowers are carried in dense, spherical heads. They are among the earlier primroses to flower in spring. They are also among the most robust primroses, producing quite large leaves by mid-summer. As a result, they require quite a lot of space in the garden. The colour range of drumstick primroses are more restricted than the polyanthus or auricula, being available in shades of mauve, pink, magenta and white. Like the candelabra types, this primrose also overwinters as an acorn-sized bud.

The Cortusoides Group contains some lovely choice primroses that are late spring-early summer bloomers. These are woodland species with softly-hairy, rounded leaves that are vaguely reminiscent of Geraniums or Pelargoniums. The colour range is rather limited to pink shades or white, but they have relatively large flowers in loose, rounded clusters. Among the most easily obtained are *P. cortusoides, P. jesoana, P. polyneura* and *P. sieboldii*.

Primula capitata and *P. glomerata* are similar species with flat rosettes of attractive spoon-shaped, crinkly leaves that are covered in white farina. The deep purple-blue flowers are produced in a head similar to drumstick primroses but often don't flower until mid-summer. Also grown for their foliage and flowers are *P. chionantha* and *P. melanops*. These two have upright, elongate leaves which are also covered in yellow to white farina. The somewhat pendant flowers are produced in late spring-early summer atop a tall stem. The blooms are cream-white and deep mauve respectively. These need constant moisture to do well.

The last primrose to be discussed is the exotic (if not bizarre) *P. vialii*. This species hardly looks like a primrose at all. The leaves are narrow and held quite upright. In August or even September, plants produce a tall stem topped with a

Kniphofia-like spike of flowers. The flowers have a red calyx which protects the developing blossoms, and the petals themselves are lavender-blue. Together, the calyx and petals create a pleasing effect. *Primula vialii* is among the latest primrose to sprout in spring. They are not the easiest of primroses for the home gardener to grow and even if you are able to keep them alive through their first winter (they are notorious for rotting in winter), plants are apt to be short-lived. However, they are still a welcome addition to the variety of primroses which can add beauty to any garden.

Primula vialii

Todd Boland, BSc., MSc.
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JOIN NARGS TODAY

NARGS is for gardening enthusiasts interested in alpine, saxatile, and low-growing perennials and woody plants. Annual dues in the US and Canada are $40, payable in US funds. VISA/Mastercard accepted.

Benefits of membership include: *Rock Garden Quarterly* with articles on alpines and North American wildflowers, illustrated in color photographs and pen and ink drawings; annual Seed Exchange with thousands of plant species; study weekends and annual meetings in either US or Canada; and book service.

Join online at www.nargs.org or write: Bobby J. Ward, Executive Secretary NARGS, P.O. Box 18604, Raleigh, NC 27619-8604, USA.

The NARGS *Quarterly* is now online and members have free access at www.nargs.org/rock-garden-quarterly.

FREE MONEY - NARGS Link to Amazon

Have you ever purchased an item online through Amazon.com? Most of us have. Are you a regular shopper at Amazon.com? Many of us are. Have you ever shopped at Amazon.com through the NARGS website link? Very few of us do. Do you know what the NARGS Amazon.com link is? Every time an individual (NARGS member or non-member) goes to the NARGS.org website and then clicks on the link to Amazon.com, the North American Rock Garden Society earns a commission on each item purchased. The commission varies based upon the item purchased and typically ranges from 4% to 18%. You make your purchase just as if you had gone to Amazon.com directly, and there is no additional cost to you. It is free money to NARGS. Make your next Amazon.com purchase by starting at NARGS.org. It is a winner for us all! Here is how to financially support NARGS.org through Amazon.com.

Go to the NARGS.org website.

There is a black banner with a link to Amazon.com. Click on that link and the next web page is the Amazon.com site. (Mozilla Firefox does not provide the link.) Shop as you normally do.

Shop at Amazon.com through NARGS.org web link! Together, we can ensure the future value of NARGS to all of us!

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Thinking of You

If you would like to let Allegheny Chapter members know of a serious illness, death in the family, or help needed by a fellow member, you may send your message to the membership chair for communication to all members. Contact Lyn Lang.

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HEY We are always interested in receiving contributions from you either as articles written by you or sharing an interesting/informative article about rock gardening. The deadline for contributions is the **20th of Feb., Apr., Jul., Sep., and Dec.** Please email your contribution to Len Lehman <lclehman1@verizon.net> or Al Deurbrouck <adeurbrouck@verizon.net>. Thank you for your interest and support of *Alpine Line.*

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Secretary's Report from Breakfast at DJ's June 11, 2017

After Dennis James had provided a fabulous breakfast, he generously answered the following questions from the group:

Q. Are there perennials that bloom all summer?
A. Very few. Becky Shasta Daisies are a possibility, but they are difficult.

Q. Are there any deer resistant trees?
A. A suggestion would be Seven-Sons.

Q. Do you have a Japanese Maple that you can recommend?
A. Any of them! There are so many varieties that can be planted in different places.

Q. What about hellebores?
A. There are two new ones out – Anna's Red and Penny's Pink.

Q. Why is my lavender not doing well?
A. Lavenders need well drained soil. They do not like basin type conditions. You may want to incorporate grit in the soil. Prune them in the spring rather than the fall.

Q. What can I do to get rid of stink bugs on my tomatoes?
A. Other than using an organic spray, there is not too much you can do.

The audience thanked Dennis for sharing this information. Chair Karen Schmidt reminded everyone that election time is fast approaching. She is willing to serve as Vice Chair and Patty McGuire had volunteered to remain Treasurer. The offices of Chair and Secretary will need to be filled.

Lyn Lang correctly identified the Mystery Plant described in the most recent issue of the newsletter. Details were given concerning the PA Master Gardener's Garden in the Parks Field Day. Our Club will have a table there. It should be an excellent opportunity to distribute membership information.

The next meeting will be the annual picnic on August 20.

Before the gathering ended, we were reminded that plants from the May show and sale may be purchased. Next, there was an invitation from Sandy and Jim Ellenberger to visit their garden today. Finally, a raffle took place.

On a personal note, as this is the end of my term of office, I would like to thank Patty McGuire for filling in for me when I could not attend a meeting. It has been an honor and pleasure to serve on Len Lehman's and then Karen Schmidt's Board.

Dianne Passoth, Secretary

DJ's Greenhouse & Gardens 2017 Schedule of Events

www.djsgreenhouse.com
1004 East Lake Road, Transfer, PA 16154
724-962-1230

AUGUST

5th Breakfast with DJ 9:00 Reservations required You Did What, to Your Plant?
15th Adult Create Your Own Fairy Garden Sip & plant $40 Reservations required All Material included
22nd Vegetable Gardening Class 6:30 Yes, you can still plant a fall garden!
26th Customer Appreciation Day 9-5 Refreshments and specials

SEPTEMBER

2nd Breakfast with DJ 9:00 Reservations required It's not over yet!
12th Create Your Own Fairy Garden $35 6:30 Reservations required
TBA Leaf Casting Class $25 Reservations required
23rd Fall Garden Walk 10:00 Getting your garden ready for winter! A tour of the gardens
26th Vegetable Gardening Class 6:30 It's all over except the harvest! Maybe!

OCTOBER

8th Farm to Table 4-9 Fund Raiser $75 on Facebook@ Our Hometown Farm to Table!

Our Hours of Business are listed on the Web-Site

LIKE US ON FACEBOOK!

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Soergel's Garden Center — Educational Series

2573 Brandt School Road, Wexford, PA 15090
Phone 724-935-2090

Date/Time	Speaker	Activity
August 17, 7:00 PM	*TBD*	*Build-a-Terrarium Workshop*
September 21, 7:00 PM	*Len Lehman*	*Bulbs*
October 19, 7:00 PM	*Aspen Bird Feed*	*Birding*
November 16, 7:00 PM		*Creative Ribbon & Bow Workshop*
December 21, 6:00 PM		*Fresh Holiday Centerpiece Workshop*

Epimediums for the Woodland Garden

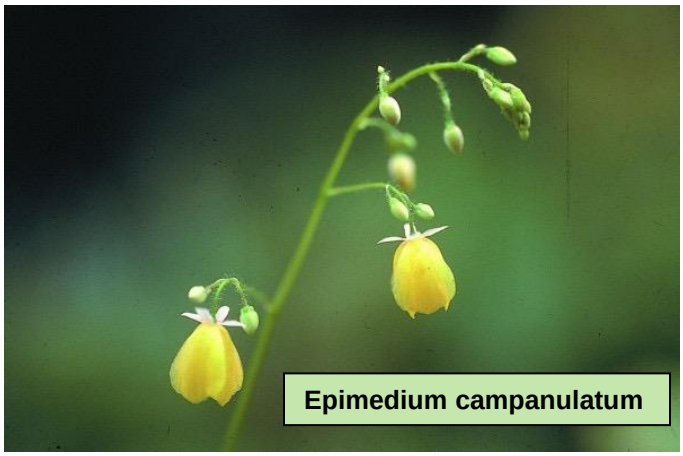
By Tony Avent, Published November 2012

Introduction to Fairy Flowers

Epimediums are exotic little plants known by several common names such as fairy wings, bishop's hat, and my personal favorite, horny goat weed. In Asian cultures, Epimediums are used as herbal medicines to stimulate androgen hormones and therefore enhance sexual desire, erectile dysfunction, and to provide energy. This use was reportedly discovered after a farmer noticed goats which grazed on Epimediums became much more sexually active. It is with mixed feelings that one passes bushels of dried Epimedium roots in a roadside market on the way to a high peak in Asia ... I'm sure they provided much enjoyment for the indulging parties, but at great expense to the preservation of many of these species.

It was 40+ years into my gardening life before I got involved with epimediums, partially because I found the conflicting information made them more confusing as a group. It was only with the assistance of Epimedium guru, Darrell Probst that I was finally able to wrap my arms snugly around this group that we have since embraced. Epimediums are members of the barberry family which includes such other familiar garden plants as mahonia (lumped by some into berberis), berberis, podophyllum (mayapple), and vancouveria.

In the late Professor William Stearn's first Epimedium monograph in 1938 (updated just before his death in 2001), only 21 species were known. Even as late as the early 1990s only a handful of these known species were represented in cultivation by living specimens. As we would soon discover, far less than half of the Epimedium species had even been discovered or named.



Epimedium campanulatum

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 Epimedium campanulatum (1996), Epimedium chlorandrum (1997), Epimedium dolichostemon (1993), Epimedium flavum (1995), Epimedium fangii (1995), Epimedium franchetii (1996), Epimedium ilicifolium (1998), Epimedium latisepalum (1993), Epimedium ogisui (1993), Epimedium mikinorii (1998), Epimedium rhizomatosum (1998), and previously named species that were not in cultivation such as Epimedium brevicornu, Epimedium ecalcaratum (1991), Epimedium fargesii, Epimedium lishihchenii (1997), Epimedium pauciflorum, and Epimedium platypetalum. Probst's introductions include Epimedium brachyrrhizum (1997), Epimedium dewuense (2003), Epimedium epsteinii

(1997), Epimedium myrianthum (1998), and the previously described Epimedium sutchuenense which he introduced to cultivation. Many yet to be published species from his work are in the pipeline.

As of 2008, our collection had swelled to 49 of the currently named 54 species, along with most of the distinct hybrids. Epimediums are quite the promiscuous bunch, with bees creating both garden hybrids as well as 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. For the purpose of this article, I'm grouping my descriptions based on the plant morphology ... plant characteristics that are easily observable, especially flowers.

Epimediums spread via a woody rhizome, located just below the soil surface. Just like bamboos, there are fast spreaders (leptomorphs), and slow spreaders that appear to form a tight clump (pachymorphs). In the garden and nursery, Epimediums can be divided, which is best done after flowering has finished. One of the most important tricks I learned from Darrell Probst is to always leave two-thirds of the foliage on the newly divided plants to encourage them to form new roots. The tight clumping pachymorphs will be the most challenging to divide, hence the higher price these usually demand. If you decide to try dividing them, get a pair of bonsai scissors. Roots on divisions should be cut back to 4-5" long. Epimediums can be grown from seed, but you'll need to have a keen eye since the seed usually matures about 45 days after pollination (Probst). I tried for years to gather seed, which must be sown fresh, with no luck and now I just allow the seed to fall into a well prepared seed bed, where it will germinate the following spring. If you're lucky enough to gather the seed, they will require 60 days below 40 degrees F for germination. We have been able to flower about 10% of one year old seedlings with the rest flowering the second year. Since most Epimediums are self-sterile, a lot of your offspring will be hybrids, creating a myriad of possibilities where many different species are grown nearby.


Epimedium x rubrum

In gardening circles, Epimediums are known as great plants for dry shade, but 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, stay away from salt-based fertilizers which can burn Epimediums when used in excess. Plants such as Epimedium x rubrum, Epimedium x warleyense, Epimedium x perralchicum, Epimedium pinnatum ssp. colchicum, and Epimedium x versicolor seem to be particularly durable in very dry sites. Most Epimediums are native to alkaline soils, so we recommend a soil with a pH between 6.2 and 6.5

that allows us to grow all species well. According to Dan Hinkley (Pacific Horticulture, 1997), the cultivars of Epimedium grandiflorum do not fare well in alkaline soils.

Most Epimediums are spring flowering, with a few species such as Epimedium rhizomatosum and Epimedium
davidii continuing sporadically through the summer. I have categorized them into flowering times in the chart (Chart #1) below with some beginning in early March (NC- Zone 7b) and others not starting before late April. In areas subject to late spring frosts, the flowering spikes of many of the early flowering Epimediums will need to be protected if temperatures drop below the mid-20s F.

Some Epimediums have evergreen foliage, while others are completely deciduous. As a rule, the deciduous species are more winter hardy than those that retain their foliage. When planting them in the garden, keep in mind that just because the foliage is evergreen doesn't mean it will look great throughout the winter. For us, severely cold winters can damage evergreen foliage that in some mild years may look fine. Most gardeners trim any remaining damaged foliage in mid-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

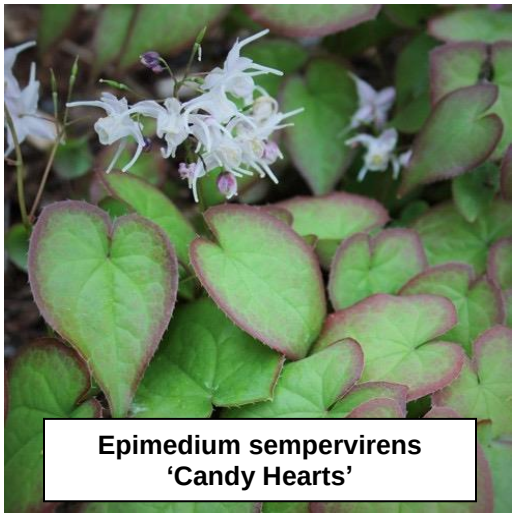
Epimedium wushanense has superb mahonia-like leaves, while Epimedium acuminatum and Epimedium x omeiense are a couple of species with wonderful leaf mottling. Some selections of Epimedium x youngianum emerge purple or with a red border, as does Epimedium grandiflorum v. higoense. The leaves of Epimedium x versicolor are a kaleidoscope of colors as they emerge. Below, I have categorized species by their plant form and flower types in order to help you select the best plants for your site.

Small Epimediums with small/medium sized flowers

If you're looking for small and dainty in the Epimedium world, the deciduous Japanese **Epimedium diphyllum** is for you. This cute garden plant has been in cultivation since the mid-1800s and ranges in flower color from light pink to white. Epimedium diphyllum (Zone 5-8) is represented in cultivation primarily by three cultivars: **Epimedium 'Nanum'** (white flowers), **Epimedium 'Roseum'** (pink flowers), and **Epimedium diphyllum 'Variegatum'** (speckled leaves). The 8" tall flower spikes contain between 2 and 6 flowers each ... certainly nothing to match the showier species. The fading flowers are topped by a second flush of spring foliage. I would consider Epimedium diphyllum to be a clumping species, but one which can make a 2' wide, easily dividable clump in 7 years. Epimedium diphyllum and the evergreen Epimedium sempervirens have naturally hybridized to produce **Epimedium x setosum**, which is intermediate between both parents.

Mid-sized Epimediums and hybrid groups

Next is the most familiar group of Epimediums ... mid-sized plants that represent what most folks typically think of as epimediums. Plants in this group average around 18" tall x 18" wide and are composed of several species and hybrid groups. From smallest to largest, they include Epimedium sempervirens, Epimedium x youngianum (Epimedium diphyllum x Epimedium grandiflorum), Epimedium grandiflorum, Epimedium koreanum, and a series of interspecific hybrids. Plantsman Darrell Probst has interesting theories on these confusing groups and their origin that he will hopefully publish one day.



Epimedium sempervirens 'Candy Hearts'

Epimedium sempervirens (Zone 5-8) is a similar Japanese species to Epimedium diphyllum, except for having evergreen (from Zone 7 south) foliage, larger flowers and about 1/3 larger plant size. Epimedium sempervirens produces flower stalks reaching 12-15" tall with 6-10 flowers each, also in colors ranging from white to lavender.

Epimedium sempervirens is usually a tight clumping species, although some forms can spread a bit. Another trait of Epimedium sempervirens is the new leaves often emerge with a lovely red flush. Epimedium sempervirens is represented in the trade by Epimedium 'Candy Hearts (red edged leaves and pale lavender), Epimedium 'Cherry Hearts' (red edged leaves and white flowers), Epimedium 'Mars' (red-purple flowers), Epimedium 'Okuda's White' (white flowers), and Epimedium 'Violet Queen' (red-flushed foliage and light lavender flowers). The major drawback to Epimedium 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 Epimedium diphyllum and Epimedium grandiflorum. A few forms are tardily deciduous, indicating that some hybrids attributed to this group may not belong here. Epimedium x youngianum is represented by a large number of hybrids in the trade including, Epimedium 'Baby Doll Pink' (small clump with small pale pink flowers), Epimedium x youngianum 'Be My Valentine' (very floriferous clump with dark pink sepals with a white cup), Epimedium 'Benikujaku' (light lavender flowers), Epimedium 'Capella' (pink sepals and white spurs), Epimedium 'Fairy Dust' (small light pink flowers), **Epimedium 'Grape Fizz'** (small light lavender flowers), Epimedium 'Liliputian' (very dwarf white with nice white flowers), Epimedium 'Milk Chocolate' (chocolate mottled leaves and white flowers), Epimedium 'Milky Way' (white), Epimedium 'Murasaki Shikibu' (purple sepals and white spurs),

Epimedium x youngianum 'Grape Fizz'

Epimedium 'Pink Star' (pale pink, nearly white), Epimedium 'Purple Heart' (bronze leaves and white flowers), Epimedium 'Royal Flush' (reddish bronze foliage and light pink lavender flowers), Epimedium 'Ruby Tuesday' (pink spurs with a violet cup), **Epimedium x youngianum 'Tamabotan'** (purple foliage and light lavender flowers)', Epimedium 'White Cloud' (small clump with white flowers), and Epimedium 'White Star' (white flowers). We find each of these to be dramatic improvements over Epimedium x youngianum 'Niveum' and Epimedium x youngianum 'Roseum'. Some clones of Epimedium x youngianum also have a second flush of foliage that obscures the flowers, but the problem isn't nearly as prevalent as in Epimedium sempervirens or Epimedium diphyllum. As expected, Epimedium x youngianum is usually intermediate between the spreading clumps of Epimedium diphyllum and the tight clumps of Epimedium grandiflorum.

Epimedium grandiflorum (Zone 4-8) is a winter deciduous Japanese species that represents the majority of the Epimedium cultivars in commercial trade. Like Epimedium sempervirens, most forms are tight clumpers, although a few may have longer rhizomes. Many of the earlier selections of Epimedium grandiflorum have large flowers produced among or just slightly atop the foliage, usually obscured by the second spring flush. Selections of E. grandiflorum in the trade include Epimedium grandiflorum var. higoense 'Bandit' (dwarf plant with red-edged leaves and white flowers), Epimedium grandiflorum 'Benedict's Violet' (lavender flowers), Epimedium grandiflorum var. violaceum 'Bronze Maiden' (chocolate foliage and light lavender flowers), Epimedium 'Cranberry Sparkle' (chocolate new leaves and cranberry red flowers), Epimedium grandiflorum 'Dark Beauty' (chocolate leaves and white cup and spurs/purple outer sepals), Epimedium 'Lavender Lady' (dark purple buds opening to light lavender flowers), Epimedium 'Lilafee' (bronze mottled foliage and lavender purple flowers), Epimedium grandiflorum 'Pierre's Purple' (dark purple flowers), Epimedium grandiflorum 'Princess Susan' (white cups and spurs with purple outer sepals), Epimedium grandiflorum 'Purple Prince' (dark purple cup with light lavender spurs), Epimedium grandiflorum 'Red Queen' (carmine red), Epimedium 'Saxton's Purple' (light lavender flowers), Epimedium 'Silver Queen' (white flowers), Epimedium 'Spring Wedding' (red edged leaves, pale lavender flowers), Epimedium 'Swallowtail' (red edged leaves and light lavender flowers), Epimedium grandiflorum 'Tama-no-gempei' (white cups and spurs, purple outer sepals), Epimedium 'Waterfall' (rose purple flower with white spurs), Epimedium 'Yellow Princess' (light yellow flowers), and Epimedium grandiflorum 'Yubae' (purple foliage, cranberry flowers).

Epimedium koreanum 'Harold Epstein'

With the exception of Epimedium grandiflorum 'Swallowtail', the other Epimedium grandiflorum selections don't pick up their nice leaf coloration until after flowering.

Epimedium koreanum (Zone 3-7) was long considered a subspecies of Epimedium grandiflorum, but was finally split out as a species on its own. As the name indicates, it is found in Korea and northern Japan. While most Epimedium

grandiflorum outside of Northern Japan where Epimedium grandiflorum var. flavescens resides, Epimedium grandiflorum has flowers of white to purple, while Epimedium koreanum has yellow flowers. Also, the deciduous Epimedium koreanum spreads 6-12" per year via rhizomes compared to the typically clumping Epimedium grandiflorum. In the trade, Epimedium koreanum is represented by two selections, Epimedium koreanum 'Harold Epstein' (light yellow flowers on red stems), and Epimedium 'La Rocaille' (creamy flowers).

Epimedium x rubrum (Zone 4-8) is a name used for a group of semi-evergreen hybrids between Epimedium alpinum and probably Epimedium sempervirens (Probst - Garden Vision catalog 1997). Epimedium x rubrum is most prized for its leaves, which emerge with a stunning 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 clone named Epimedium 'Sweetheart' was introduced by Darrell Probst. As with Epimedium grandiflorum, the attractive red leaf edges don't occur until flowering is finished.

Epimedium x versicolor (Zone 5-8) is the name for a group of hybrids between the deciduous Japanese E. grandiflorum and the European native evergreen Epimedium pinnatum first raised in the Ghent, Belgium Botanic Garden in the mid-1800s. These hybrids are known for their stunning new foliage, which is chocolate, highlighted by green veins. From Zone 7 south, the foliage remains evergreen but becomes deciduous as you head further north. The well-spreading Epimedium x versicolor is represented in the trade by Epimedium 'Sulphureum' (evergreen, new foliage brown with green veins, light yellow outer sepals, light yellow spur and cup), Epimedium 'Neosulphureum' (tan new evergreen foliage and creamy sepals with a yellow cup), and Epimedium 'Versicolor' (deciduous, stunning netted new foliage of dark cinnamon, peach sepals with a yellow cup). My favorite of the group is Epimedium x versicolor 'Cherry Tart' (cinnamon foliage and light pink sepals, dark pink spurs, and a yellow-tip cup.

Epimediums with short flower spikes and large spider-type flowers

The next group are evergreen Epimediums that have large flowers in pink to white, but are borne on short flower stalks.

Epimedium brachyrrhizum first described from China in 1997 is similar to another species, Epimedium leptorrhizum (Zone 5-8) that has been known since 1938. Both have spreading rhizomes with Epimedium brachyrrhizum possessing a thicker rhizome, spreading considerably slower. For us **Epimedium leptorrhizum** never

exceeds 6" in height, while Epimedium brachyrrhizum typically reaches 1' tall. Both evergreen species are topped in early spring with very short flower spikes of 8-12 flowers ranging from pink to lavender, and occasionally white. Epimedium brachyrrhizum (Zone 5-8) is represented in the trade by two hard to find cultivars, **Epimedium 'Elfin Magic'**, and soon, the white flowered PDN selection **Epimedium 'Little Angels'**. The foliage of Epimedium brachyrrhizum turns a nice shade of lavender in the winter. **Epimedium ogisui** (1993) (Zone 6-9) is a similar spreading evergreen species with near horizontal spikes of large white flowers. The Chinese **Epimedium epsteinii** (Zone 5b-8), also named in 1997, is a similar evergreen species with short, but spreading rhizomes and short flowers spikes, sporting up to 12 large bicolored 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.

Some of the most showy Epimediums are those with large flowers on long spikes. The evergreen **Epimedium acuminatum** (Zone 5-8) from limestone cliffs in the Southern Chinese provinces of Yunnan and Sichuan leads this list along with its hybrid, **Epimedium x omeiense** (acuminatum x fangii). Epimedium x omeiense is fairly new to cultivation, first flowering in cultivation in 1982 (W. Stearn 2002). In our studies, the primary easily visible difference is that Epimedium acuminatum has smaller, narrower leaves and is shorter in stature, 12" tall for Epimedium acuminatum, compared to 24" tall for Epimedium x omeiense. Epimedium acuminatum flowers with 18" long arching spikes, each adorned with up to 50 large flowers composed of long dark purple spurs, highlighted by pale lavender inner sepals. The flowers are so large, the spikes can become quite heavy, so much that their tips nearly touch the ground. For this reason, I recommend both Epimedium acuminatum and Epimedium x omeiense be planted atop a berm, so the flowers can be better enjoyed. Both Epimedium acuminatum and Epimedium x omeiense are prized for their long-pointed and wonderfully mahogany mottled leaves. Compared to the tight clumping species, this is a reasonably good spreading species. Heronswood's Epimedium acuminatum 'Ruby Star' (white sepals, lavender spurs, and a purple cup), and Darrell Probst's Epimedium acuminatum 'Night Mistress' (pink spurs, purple spurs, and a purple cup) are the two easiest to find clones on the market. Mikinori Ogisu's wild collected clone of Epimedium x omeiense released as Epimedium 'Stormcloud', Dan Hinkley's 'Myriad Years' (white sepals, light lavender spurs and a purple cup), and the Japanese 'Akane' are the easiest to find in the market.

Epimedium acuminatum 'Night Mistress'

Epimediums with yellow spider-type flowers

There are a number of evergreen Chinese species with large cream to yellow flowers including Epimedium davidii, Epimedium fangii, Epimedium flavum, Epimedium hunanense, Epimedium franchetii, Epimedium lishihchenii, Epimedium rhizomatosum,

Epimedium membranaceum, Epimedium chlorandrum, and Epimedium wushanense. I would consider all of these to make very showy garden specimens.
Although first discovered on limestone cliffs in China around 1869, the garden worthy **Epimedium davidii** (Zone 5-8) wasn't introduced to cultivation until 1985. There are both tight clumping and slowly spreading forms of Epimedium davidii, both of which hold their spikes of up to 2 dozen curved yellow-spurred flowers above the small spiny green foliage for good visibility. Because new buds that form along the rhizomes and the leaf axils re-flower (Probst, American Nurseryman, 1998), it produces new flowers for us throughout the summer. Epimedium davidii is a superb garden plant deserving more widespread recognition, although it is not a species that performs well in dry locations.
The Chinese **Epimedium fangii** (1995) (Zone 5-8), **Epimedium flavum** (1995) (Zone 5-8), and **Epimedium hunanense** (1931)(Zone 5b-8) are similar evergreen species with short flower stalks of bright yellow flowers. These are still little known in cultivation. Epimedium fangii is the fastest spreading of these species, followed by the vigorous Epimedium hunanense and then the dwarf Epimedium flavum. The flowers in this group are much smaller than the rest of the yellow spider group. **Epimedium franchetii** (1996) (Zone 4-8) and the similar **Epimedium lishihchenii** (1997) (Zone 4-8) are slowly spreading evergreen species, also recently discovered in China. Both of these species are similar in growth and form to Epimedium acuminatum and Epimedium x omeiense, but with up to 2 dozen large yellow flowers with recurved spurs, held horizontally on sturdy 2' long flower stalks. Both species can produce foliage that emerges with an attractive bronze hue. Although some folks argue that these represent a single species, we find that all of our clones of Epimedium lishihchenii have much larger foliage than Epimedium franchetii. I feel that the cultivar Epimedium franchetii 'Brimstone Butterfly' actually belongs to Epimedium lishihchenii. **Epimedium chlorandrum** (1997) (Zone 5-8) is a similar slowly-spreading species native to Sichuan and also resembles Epimedium acuminatum, but the flowers are creamy yellow on 2' long arching spikes.


Epimedium membranaceum

Another group of yellow spider-flowered Epimediums include Epimedium rhizomatosum, Epimedium membranaceum, and Epimedium ilicifolium. For us the Chinese **Epimedium rhizomatosum** (Zone 5-8) flowers longer than any other species, often reblooming throughout the summer. As the name would indicate, Epimedium rhizomatosum, named in 1998, spreads via long rhizomes, as compared to the shorter rhizomes of the similar looking **Epimedium membranaceum** (1922). Epimedium rhizomatosum is adorned with short 15" long 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 2' long stems. Epimedium membranaceum is a superb garden

specimen that starts flowering just as Epimedium franchetii ends and continues all summer, thereby extending the flowering season. The third and smallest of the group is **Epimedium ilicifolium**, a smaller growing (1' tall x 2' wide in 3 years) plant, composed of narrow, spiny green leaves. Despite its small stature, Epimedium ilicifolium is one of the most floriferous of the group with light yellow flowers that are tightly packed along the flower spike as compared to the wide spacing of Epimedium rhizomatosum and Epimedium membranaceum.

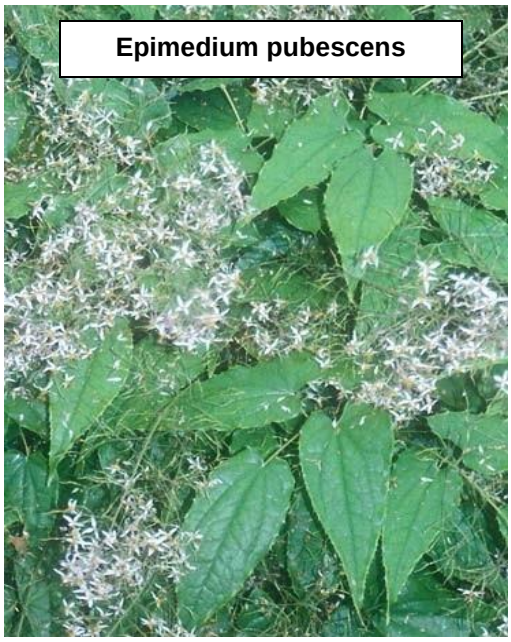
As best I can determine, the slowly spreading **Epimedium wushanense** (Zone 5-8), although named in 1975, wasn't sold before 2000. My prediction is that it won't be long before this becomes one of the most popular garden species. The long, spiny evergreen leaves (nicely mottled in some clones) up to 8" long come through the winter in great shape (NC) and serve as a nice background for the spikes of up to 100 long-spurred creamy-yellow flowers. The entire flowering spike can reach nearly 3' in height. The flowers are bunched closely together and held just above horizontal on a very sturdy spike.

Epimediums with small yellow bell-shaped spurless flowers

For something a little more dainty, there are yellow-flowered species without the long spurs of the group above. **Epimedium platypetalum** (1922) (Zone 5-7) is a cute semi-evergreen Chinese species with spreading rhizomes and small yellow spurless bell-shaped flowers along 1' tall flowering stems. Two other little known, but similar Chinese species with compact rhizomes are **Epimedium ecalcaratum** (1991) (Zone 5-7) and the clump-forming evergreen **Epimedium campanulatum** (1996) (Zone 4-7a), topped in spring with 2' flower stalks of small yellow bells.

Epimediums with tiny white flowers

You'll never hear this next group decried as showy, but I would not be without these in my garden for their understated charm. The clumping, evergreen **Epimedium sagitatum** (1877) (Zone 5-8) is one of many Chinese species with tiny flowers, but the feature to recommend is the attractive cinnamon colored leaves as it emerges. The only cultivar of Epimedium sagitatum in the trade is **Epimedium 'Warlord'**, a plant that is worth growing for its exceptional red and tan flushed new foliage. **Epimedium myrianthum** (1998) (Zone 5-8) is similar to Epimedium sagittatum, except the former usually has red tinted foliage, while the latter is often mottled, and Epimedium myrianthum has a much larger number (up to 150) of tiny flowers. Epimedium myrianthum, which can often rebloom in summer, is represented in the trade by the stunning foliaged Darrell Probst introduction, **Epimedium 'Mottled Madness'**. **Epimedium pubescens** (1877) (Zone 6-8) is a similar evergreen species with slightly larger flowers. Unlike the previous two, Epimedium pubescens comes in both a clumping and a creeping form. Epimedium stellatum is relatively new, being introduced to cultivation in 1983 and only named in 1993. **Epimedium stellatum** (Zone 5-8) is similar to the above three species, but with even


Epimedium pubescens

larger flowers on a 20" tall stalk that gives it considerable garden value. The most common cultivar of Epimedium stellatum in the trade is Roy Lancaster's dwarf 1' tall 1983 Chinese collection, **'Wudang Star'** and a taller 20" tall clone known simply as "long leaf form". Other species in this group which are still relatively rare include the Chinese **Epimedium truncatum** (1990) (Zone 5-8), and **Epimedium baieali-guizhouense** (1993) (Zone 5-8), each with tiny white flowers.

Epimediums with Dodecatheon-like flowers

Several other favorites that don't resemble any of the aforementioned species are the clumping evergreen species **Epimedium fargesii** (1894) (Zone 5-8), **Epimedium dewuense** (2003) and the slowly spreading evergreen **Epimedium dolichostemon** (1988) (Zone 5-8). In flower, these more closely resemble a dodecatheon (shooting star). I find Epimedium fargesii to be of the most elegant, understated of all the fairy wings ... unfortunately, the lack of commercial demand will probably keep it rare. Epimedium fargesii is represented by the cultivars **Epimedium 'Pink Constellation'**, **Epimedium 'Pink Treasure'**, and **Epimedium 'Star Shower'**. Epimedium dolichostemon which has wider spurs is also prized for its wonderfully mottled foliage. Epimedium dewuense is the smallest of the three with flowers that resemble a small Epimedium fargesii.

Other Epimedium Species and Hybrid Groups

Other than the previously mentioned species and groups, there are a couple of others which are fairly widespread in commercial production.

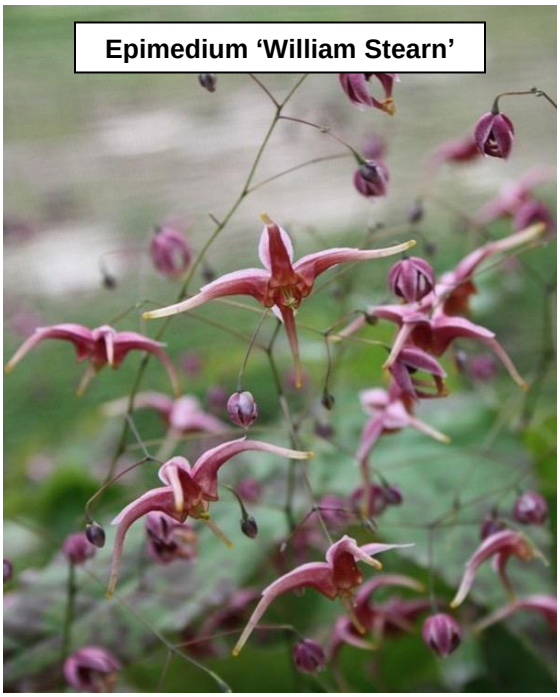
The European **Epimedium pinnatum ssp. colchicum**(1903) (Zone 5-8) is a lovely evergreen species, best known in the trade by the US National Arboretum collection from near the Black Sea and later named **Epimedium pinnatum ssp. colchicum 'Thunderbolt'**. In cold weather, the foliage darkens to nearly black with a few green veins. **Epimedium x warleyense** is a hybrid of Epimedium alpinum and Epimedium pinnatum ssp. colchicum. This is one of the few true orange epimediums. Commonly available cultivars from this cross include **Epimedium 'Ellen Willmott'**, and **Epimedium x warleyense 'Orangekonigin'**. **Epimedium perralderianum** (1862) (Zone 5-8) is the only species native to Africa ... Algeria, in fact. The 1' tall stalk, held above the foliage is adorned with up to two dozen large bright yellow flowers. A similar looking hybrid to the parent derived from crossing Epimedium perralderianum with the closely related Epimedium pinnatum ssp. colchicum is **Epimedium x perralchicum**. This cross, also with long spreading rhizomes as its parents, is represented in the trade by **Epimedium 'Frohnleiten'** (reddish spring foliage with green veins and only 8" tall, yellow flowers), and **Epimedium 'Wisley'**.

Epimedium Hybrids

Despite all of the fabulous species and species selections, some of the most exciting new Epimediums are coming from interspecific crosses. I thought I'd share a few of my favorites. **Epimedium 'Amber Queen'** PP 17,197 is a cross of **Epimedium 'Caramel' x Epimedium flavum**. This amazing hybrid is topped with large floral sprays of large golden flowers. Also from Robin White's breeding program in the UK is **Epimedium 'Pink Elf'** PP 17,228. This floriferous hybrid comes thanks to Epimedium pubescens with the other parent in question ... reportedly Epimedium leptorrhizum, but I'm betting on Epimedium grandiflorum. This is the very first of the Epimediums to flower for us, often starting to bud by early March. The numerous flower stalks create a cloud-like effect of small flesh-colored flowers.

Epimedium 'Amber Queen'

There are a number of other hybrids of unknown parentage. Some of my favorites including the Japanese hybrid **Epimedium 'Yohiki'**, a later selection with long-spurred white flowers, which have white cups and hot pink sepals. **Epimedium 'Spritzer'** is a wonderful Epimedium membranaceum hybrid from Darrell Probst with heavily liver-speckled, spiny-edged leaves, topped starting in late March with tall spikes of large yellow flowers with contrasting coral sepals. Another one of my favorites of Darrell's hybrids is **Epimedium 'Domino'** ... mid-March flowering vigorous 3' wide specimen with nicely mottled leaves, topped with 2' tall burgundy flower spikes that have huge numbers of large white flowers, highlighted by pink cups.



Epimedium 'William Stearn'

Two others that should soon become more widely available are Robin White's **Epimedium 'William Stearn'** (long pink spurs and raspberry cups) and Darrell Probst's **Epimedium 'Pink Champagne'** (red mottled foliage and flowers of long light pink spurs and 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 PDN.

I hope you find this group as enjoyable as I have and hope your interest in Epimediums 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.

Chart 1 - Epimedium Relative Flowering Times

*Flowering times are average in Zone 7b Raleigh, NC (average winter temperatures -15 degrees C (5F) and will be later in colder climates and earlier in others.

Early March - Mid March

E. pubescens - ends mid-April

Mid March - Late March

E. brachyrrhizum - ends mid-April
E. chlorandrum - ends late April
E. epsteinii - ends mid- April
E. fargesii - ends mid-April
E. franchetii - ends mid-April
E. sagitatum - ends early April
E. sempervirens - ends mid April
E. stellatum - ends early May
E. truncatum - ends early May

Late March - Early April

E. acuminatum - ends early May
E. davidii - ends May-July
E. dolichostemon - ends mid April
E. grandiflorum - ends mid April
E. leptorrhizum - ends mid- April
E. lishihchenii - ends mid-April
E. myrianthum - ends mid-April
E. ogisui - ends late April
E. pauciflorum - ends mid-April
E. rhizomatosum - ends mid-May
E. x rubrum - ends mid-April
E. x setosum - ends mid April
E. x versicolor - ends mid April
E. x youngianum - ends mid April

Epimedium sagittatum

Epimedium acuminatum ‘Ruby Shan’

Early April - Mid April

E. baieli-guizhouense - ends late May
E. brevicornu - ends mid-May
E. x cantabrigiense - ends early May
E. diphyllum - ends late May
E. grandiflorum v. higoense
E. hunanense - ends late April
E. ilicifolium - ends late April
E. x omeiense - ends early May
E. x perralchicum - ends late April
E. pubigerum - ends late April
E. x sasaki - ends late April
E. wushanense - ends late April

Mid April - Early May

E. dewuense - ends early May
E. membranaceum - ends August
E. pubescens - ends late April
E. platypetalum - ends early May
E. shuichengense - ends mid-May