

## Garden Lycoris and More

by James W. Waddick

*Lycoris* are known as Surprise Lilies, Naked Ladies, Naked Boys and even Pink Flamingo Flowers. The most commonly grown *Lycoris squamigera* is among the hardiest and most vigorous of the genus and has been grown in the US for well over a century. In southern gardens, *Lycoris radiata* or the Red Surprise Lily, has been cultivated even longer. There is more to the genus than these two common representatives. I'll attempt to describe the material available for most garden uses. Excuse some generalities.

All Surprise Lilies produce their foliage in fall to spring and are leafless (or 'naked') at the time their flower stems emerge in late summer. They tend to prefer light to moderate shade and year round moisture, but tolerate and even flourish in full sun. The hardier varieties do well as cool as Zone 4 or 5, but many are restricted to Zone 7 to warmer. The selection of species and hybrids includes flowers of red, white, pink, lilac, blue, yellow, orange, tan, peach and many intermediate shades on stems from 15 inches (38 cm.) to 3 ft (.9 meters) or more in height.

There are two horticultural divisions in the genus: those that produce their foliage in late fall, remain evergreen through winter and are not tolerant of harsh winter climates; and those that produce foliage in spring after danger of hard freezes. The latter are among the hardier species. There are over twenty species centered in China and Japan and their neighbors.

### In The Garden

The hardier group of species prefer continental conditions with cold winters, spring rains and warm summers. They are adapted to producing foliage in light woodlands where they can take in spring sun before the deciduous trees are fully leafed out shading their growth.

The southern group is similar, but adapt to edges of moist location such as ride paddies where *Lycoris radiata* can be a major 'weed'.

Both groups offer a welcome bloom season from August to October when many flowering bulbs are dormant. One detraction from their acceptance can be their large lush clumps of foliage in spring when they offer no color for compensation. These clumps of leaves are often mistaken for a nuisance and cut short or mowed off. Repeated cutting stops fall flowering and bulbs will die.

## **Cultivation**

*Lycoris* do best in light shade, deep rich soils and average fertilization with a 'bulb' food. In general they are not fussy. Care should be taken in planting them where their abundant spring foliage will not disturb other plants and fall flowers can be appreciated. Here in the Midwest bulbs are often planted along paths or around flowering trees by themselves.

They do not need a 'summer baking', but can remain moist or in even moisture all year.

## **Propagation**

*Lycoris* are mostly propagated by separation of existing bulbs, but fertile species produce ample seed. Seeds ripen very quickly following bloom and can be harvested within weeks of flowering. Seeds are large, rounded, and black. Some species produce pea size seeds. Seed should be planted as soon as fresh as viability drops off rapidly with storage. Seeds germinate well within the first season, but bulbs can take a long time, well over 5 years, to come to blooming size from seed. Some success has been noted with tissue culture, but the cost has not warranted this method.

Bulbs should be dug and divided when summer dormant from about 6 weeks after foliage goes dormant through late summer. Bulbs resent drying and removal of roots so it is best to keep them damp and replant as quickly as possible.

## **Genus**

There are two botanical divisions in the genus. The first, Subgenus *Symnanthus*, abbreviated 'SubG Sy' has regular funnel shaped flowers with smooth, not ruffled or wavy petals. The stamens do not or barely extend beyond the flower.

The second, Subgenus *Lycoris*, abbreviated 'SubG Ly' has irregular shaped flowers; petals are ruffled, wavy or spidery. The stamens frequently extend well beyond the flower.

## **Species**

This first group includes those most commonly encountered in gardens and in commerce.

**A** *Lycoris squamigera*. Pink Surprise Lily. This is the most common northern species and very common in some locations. The bulbs are large; the flowers are large, bright pink and abundant. The plants are vigorous and multiply rapidly to form clumps of flowering stems in a few years. This species is readily available. This species has spring foliage and is hardy through Zone 5 and at least parts of Zone 4. All plants in cultivation are sterile and do not produce seed. It is believed to be a natural triploid hybrid of *L. longituba* x *L. sprengeri*. It originated in China. Also known as "Hardy Amaryllis". SubG Sy.  $3n=27$

*Lycoris radiata* var. *radiata*. Red Surprise Lily. This is the common southern species and abundant in wet spots. Bulbs are small and flowers are bright red, small, but abundant. Stamens protrude very noticeably beyond the flower edges. The plants are even more vigorous than *Lycoris squamigera* and can spread rapidly. This species produces fall foliage and is readily hardy through Zone 6, but survives with protection in Zone 5. Most plants are sterile triploids and do not produce seed. *L. radiata* var. *radiata* is distributed widely from Japan to Nepal and naturalized outside of Asia. SubG Ly  $3n = 33$

*L. radiata* var. *pumila* is a smaller, fertile, diploid form, that does produce seed and has been used to produce hybrids. *L. radiata* var. *pumila* is native to southern and eastern China. SubG Ly  $2n = 22$

*Lycoris longituba*. White Surprise Lily. Although not widely grown, it is a large handsome plant. The flower stems can reach to 3 ft (.9 meters) and higher with large regular lily-shaped flowers. It is hardy (Zone 5), vigorous, and a fertile diploid readily producing seed and hybridizing with other fertile species. It is believed to be one of the parents of *L. squamigera*. It is quite variable and a pale yellow form (*L. longituba* var. *flava*) has been named, but up to 15 different colors and forms from white to yellow to pink and median shades have been recognized in China. Highly recommended for northern gardens. SubG Sy  $2n=16$

*Lycoris chinensis*. Golden Surprise Lily. This is another larger species with golden-orange spidery flowers with ruffled and curved petal edges. Flower color can range from medium yellow to orange to gold. Stems are slightly shorter than the former species, but still held high above the ground. The flower color is bright and striking. This is a fully fertile seed producing diploid that readily hybridizes with *L. longituba* producing a gorgeous range of large flowers on tall stems in a range of 'dawn' colors. The species is hardy (Zone 5), vigorous, and highly recommended for northern gardens. SubG Ly.  $2n=16$

*Lycoris sprengeri*. Small Pink or Electric Blue Surprise Lily. This species is overall smaller in leaf and stem with stalks rarely exceeding 15 inches (38 cm.) Flowers are essentially pink, with pale blue tips, but quite variable with some a deeper pink and others almost entirely rich 'electric' blue. This is a fertile diploid that readily produces seed. It is well suited to northern gardens (Zone 5) and suited to many garden locations due to more modest size. SubG Sy 2n=22

There are numerous hybrids of the last four species, especially between *L. longituba* and *L. chinensis* and these are among the most common parents of natural hybrid species.

The above are the most adaptable and readily available commercial species. The next group are less common, but easy and recommended species.

**B** *Lycoris incarnata*. Peppermint Surprise Lily. This is a medium size plant with stalks to about 20 inches (50.8 cm.) The flower buds are very distinct with a deep pink-red stripe on the midline outside of every pale petal. The flowers open wide with slightly fainter pink centered white petals giving a striped effect. It clumps up rapidly and produces dense displays of flowers. It has an odd fertility and has not produced seed for me. It is a good selection for northern gardens (Zone 5). SubG Sy 2n= 30

*Lycoris xcaldwellii*. Pale Yellow Surprise Lily. Although not common, this species is easy and hardy (Zone 5). It is comparable to *L. squamigera* in size, ease and vigor. The flowers are pastel yellow fading to near white. Bloom season is well after *L. squamigera* has finished with rare overlap. This is a sterile triploid and probably originated as a natural hybrid in China. It is valuable for its pastel color, later bloom season, abundant flowers and impressive size. SubG Ly (but flower form more regular than most) 3n=27

*Lycoris xstraminea*. Straw Flowered Surprise Lily. This species is less hardy than most of the above, but readily identifiable. Flowers open straw yellow/tan with small bright pink flecks and dashes; they may have a pink central stripe too. Flower stalks are under a foot. This species is probably sterile. SubG Ly 2n =19

*Lycoris sanguinea*. Orange Surprise Lily. This is one of the smaller species and one of the most common of Japanese origin. Flowers are apricot to orange and the first to bloom for me. I count on this to 'announce' the *Lycoris* bloom season. The var. *kiusiana* has larger flowers, but otherwise similar to type. It is potentially fertile, but has not produced seed for me. (Zone 5) SubG Sy 2n=22

C This next group of species is more suited to southern gardens or is less often found in cultivation. Common names fail me.

*Lycoris aurea*. This is the most common of this group and the largest plant in the genus. The foliage is most distinctive with leaves up to 1 yard (.9 meters) long and 1 inch wide (2.54 cm.) with a conspicuous white central stripe. Leaves are very succulent and frost sensitive. Flowers are rich yellow. There are many forms of this species including chromosomal variants. Diploids are fertile and hybrids are known. *Lycoris* with yellow flowers are often assumed to be this species, but there are many yellow flowering species. It is best in mildest climates (Zone 7 and warmer) and its distribution includes tropical locations. SubG Ly 2n= 16 (mostly)

*Lycoris x haywardii*. This is a small species with deeper coloration than *L. sprengeri*. Believed to be a natural hybrid of *L. sprengeri* x *L. radiata* var. *pumila*, it is not reliably hardy in Zone 5/6. I think it is sterile. SubGSy 2n=22

*Lycoris traubii* is in many ways a smaller form of *L. aurea*. It is smaller in all ways and equally tender. I have not tried this species, but bulbs are often available in the trade. Flowers yellow. SubG Ly 2n=12

*Lycoris elisae* is another smaller sized poorly understood Japanese species. I have not grown it. Flowers salmon. SubG Ly 2n=17

*Lycoris xalbiflora* has white flowers. It looks like an albino *L. radiata*, but is surely a hybrid. Size and hardiness similar to *L. radiata* SubG Ly 2n=17

*Lycoris xhoudyshelii* is a small species with clear white flowers. It is barely hardy here (Zone 5) and only blooms some years late in the season. It is a sterile hybrid (triploid?) of unknown origin. SubG Ly 2n=30

*Lycoris xrosea* is a Chinese species with rose pink flowers. It looks like a rose-colored *L. radiata* and may be a hybrid of *L. radiata* var. *pumila* x *L. sprengeri*. Size and hardiness similar to *L. radiata*. SubG Ly 2n=22

*Lycoris anhuiensis* is very poorly known in cultivation, but potentially hardy. Similar to *L. longituba*, but somewhat smaller and with clear yellow flowers SubG Sy 2n=16

*Lycoris shaanxiensis* is very poorly known in cultivation, but potentially hardy. It has white flowers and may be related to *L. chinensis*. Smaller size and hardy. SubGLy 2n= ?

*Lycoris guangxiensis* is from more southern parts of China and is potentially tender. Smaller size with yellow flowers marked with pale red bands. SubG ly 2n= ?

*Lycoris flavescens* is from Korea, but may be identical to some Chinese yellow flowered species. A sterile hybrid? SubG Ly? 2n=19

*Lycoris chejuensis* is another Korean species that is poorly known.

*Lycoris argentea*. This species was collected once as a single specimen from N. Burma. With distinct silver pink flowers it has not been seen again owing in part to political isolation. It is surely tropical and tender.

And there are a few more names that have been tossed around from 'sperryi' to 'cinnabarina' and others. These may refer to natural or artificial hybrids. I am also certain that more species remain to be discovered especially in western China.

## **Cut Flowers**

*Lycoris* make excellent cut flowers. They are longer lasting than in the garden and even small buds will continue to develop and open in water. The base of the stem will split and curl so cannot be easily removed from vases with small openings.

## **Botany**

Some botany facts, based on experience in Zone 5 and the papers of Hsu, Kurita et al (1994) and Shi, Qin et al (2006)

Abbreviations:

Early season –E, Midseason –M, and Late season –L

2n/3n – diploid/triploid chromosome number

Known fertile- KF, Known sterile – KS, Fertility Unknown – F?

Family Amaryllidaceae

Subfamily Lycoridae

Genus *Lycoris*

Subgenus *Lycoris*

<i>L. x albiflora</i>	M	2n=17	KS
<i>L. aurea</i>	E	2n=16	F?*
<i>L. x caldwellii</i>	ML	3n=27	KS
<i>L. chinensis</i>	EM	2n=16	KF
<i>L. elisae</i>	M	2n=17	S?
<i>L. guangxiensis</i>	E	2n?	F?
<i>L. x houdyshelii</i>	L	2n=30	KS
<i>L. radiata</i>	L	2/3n= 22/33	F/S
<i>L. x rosea</i>	ML	2n=22	KS
<i>L. shaanxiensis</i>	M	2n?	F?
<i>L. x straminea</i>	EM	2n=19	F? (S)
<i>L. traubii</i>	ML	2n=12	F?

#### Subgenus *Symnanthus*

<i>L. anhuiensis</i>	EM	2n=16	F? (F)
<i>L. argentea</i>	E	2n=?	F?
<i>L. x haywardii</i>	E	2n=22	KS
<i>L. incarnata</i>	ML	2n=30	KS
<i>L. longituba</i>	M	2n=16	KF
<i>L. sanguinea</i>	E	2n=22	KF
<i>L. sprengeri</i>	EM	2n=22	KF
<i>L. x squamigera</i>	M	3n=27	KS

#### Affinity?

<i>L. chejuensis</i>	?	?	?
<i>L. flavescens</i>	?	2n=19	F?

Recent work by Shi et al suggests three subgroups within the genus. They place those species with  $2n=16$  into 1 group (4 species of above), species with  $2n=22$  into a second group (5 species from above including the diploid form of *L. radiata*) and all others into a hybrid group.

\* These data may vary and produce uneven characteristics in the garden. *L. aurea* has a variety of 'cytoraces' with mixed chromosome numbers and types as well as uneven fertility)

### **References**

Hsu, Kurita et al. 1994. *Synopsis of the Genus Lycoris (Amaryllidaceae)*. Sida Vol 16: No. 2 1994

Shi, Qin et al. 2006. *Phylogentic Relationships and Possible Hybrid Origin of Lycoris Species (Amaryllidaceae) Revealed by ITS Sequences*. Biochem. Genet. Vol. 44 : Nos. 5/6. June 2006.