

# Species Profile

## *Lilium superbum* L.

### History and taxonomy (Dr Jamie Compton)

*Lilium superbum* Sp. Pl. ed. 2: 434 (1762)

The 'superb' North American lily was first validly described and named by Linnaeus in volume one of the second edition of *Species plantarum* (Linnaeus 1762: 434). In that work Linnaeus cited three references. First he referred to Philip Miller [of the Chelsea Physic Garden] and the eighth edition of his *Gardener's Dictionary* (Miller 1768 Lil). Miller followed Linnaeus describing the plant as *Lilium superbum* and with the vernacular 'The great yellow martagon' and dwelt on the scent: 'the flowers have so disagreeable strong scent that few persons can endure to be near them' (Miller 1768 Lil). From this description it is likely that he was not referring to this species at all. In *L. superbum* the flowers are very rarely yellow nor do they have a strong disagreeable scent, indeed they are almost scentless. Miller goes on to say that his yellow lily flowers in June whereas *L. superbum* flowers in July or August. Miller's description would better fit the European *Lilium pyrenaicum*.

Linnaeus's second reference is to Georg Dionysus Ehret's magnificent watercolour (right) of the plant in Christoph Jacob Trew's book *Plantae selectae* (Trew 1751: t. 11). The accompanying text by Trew explains that the lily had been painted by Ehret when it first flowered in the garden [in Peckham] of the cloth merchant Peter Collinson in August 1738 and that it grew to six feet in height. Trew also mentioned that according to Gronovius, Dutch botanist and patron of Linnaeus,



the plant occurs naturally in Pennsylvania.

The third reference that Linnaeus included was to Mark Catesby, explorer and artist who went firstly to Virginia from 1712 to 1719 and then to Carolina and Georgia from 1722 to 1726. Catesby illustrated the plant under the polynomial '*Lilium, sive Martagon Canadense, flore luteo punctato*' (Catesby 1736: t. 56). Catesby also referred to his friend and sponsor Peter Collinson as being the first person to have this plant growing in his garden in England.

### References

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The illustration of '*Lilium, sive Martagon Canadense, flore luteo punctato*' by Mark Catesby (1736).

### Distribution and ecology (Dr Mark W. Skinner)

This towering lily—the tallest in North America except for *Lilium humboldtii*—ranges from one end of the Appalachian Mountains to the other, spilling down-slope on both sides of the crest where it meets various congeners and disappears into them (e.g. *Lilium pyrophilum* to the east) or interdigitates with them (e.g. *Lilium canadense* or *Lilium michiganense* to the west). Along the way it shares the landscape with its close relative *Lilium michauxii*, though hybrids are essentially unknown in part because of habitat segregation: *L. superbum* is in the moist areas and *L. michauxii* in the dryer margins, roadcuts, powerlines, and open dry forest. It is replaced by *Lilium pyrophilum* in the Sandhills region of Virginia, North Carolina, and South Carolina, and by *Lilium iridollae* in the Florida Panhandle and adjacent Alabama. Some of the prettiest and most historic drives in the United States harbor this beauty, and its stature commands your attention. Driving the Natchez Trace Highway or Blue Ridge Parkway in July is a can't miss opportunity for jaw-dropping displays of *Rhododendron maximum* interdigitating with stands of *Lilium superbum* or *Lilium canadense* × *grayi*. Spectacular! I have seen *Lilium superbum* plants in the wild over nine feet tall (2.8 m) with 20 plus flowers in North Carolina, where the species reaches peaks of glory and local abundance. Linnaeus had it right: this truly is a superb lily.



*Lilium superbum* growing in two locations in Mississippi. **Above**, in Tishomingo County and **right**, Choctaw County.

In terms of states, *Lilium superbum* ranges from New Hampshire and New York south and southwest to eastern Louisiana, reaching into the tallgrass prairies of eastern Indiana, Illinois, Missouri and Arkansas and existing as spotty populations near the coast in Virginia and South Carolina. It interdigitates with *Lilium canadense* in various places in the Appalachians, but hybrids are not prominent because *L. canadense* is hummingbird-pollinated and *L. superbum* butterfly-pollinated, and because of genetic barriers between the two major clades of eastern US lilies (superbum + pyrophilum + iridollae + michauxii and canadense + michiganense + grayi). Its linear range is about 1,300 miles, second only to *Lilium philadelphicum* among North American lilies.

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Common inheritance of a suite of unique, derived features and peripheral

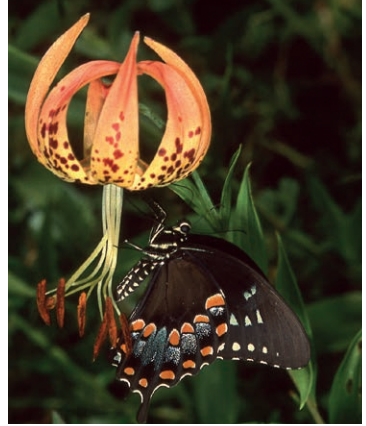
allopatric distributions suggest that *Lilium pyrophilum* and *L. iridollae* may be geographical isolates of broadly distributed *L. superbum* ancestral stock; both restricted species occur in specialized wetland habitats. *Lilium superbum* blooms the earliest, is the largest, and has the most numerous and largest flowers, and the long, narrow leaves in many whorls are distinctive. *Lilium michauxii* overlaps in range with these three species but is easily separated by its well-drained habitats, and morphologically by its small size, compact bulb, and obovate leaves few in both number per whorl and number of whorls.

The Turk's-cap lily covers an impressive range of elevations and habitats, including gaps and openings in rich woods, swamp edges and bottoms, stream-sides, moist meadows and thickets, balds, pine barrens, and roadsides. All feature water in greater or lesser degree, so it's no surprise that moist open woods, areas near streams, and wet roadsides are classic places to find this species. Like all North American lilies, *L. superbum* wants a lot of light to thrive and flower. It's fairly common up to about 1,600 m in the soggy woods both east and west of the Roan Mountain massif that is home to *Lilium grayi*, but at both ends of its range in Rhode Island or Louisiana and Florida, or in the swamps of coastal Virginia, it occurs nearly at sea level. In essence it is a creature of the eastern deciduous hardwood forest of North America, so you might find it with red maple (*Acer rubrum*) or swamp

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Two forms of *Lilium superbum*. **Left**, a flower photographed in Washington County, Rhode Island and **right**, a form with narrower and redder tepals in Choctaw County, Mississippi.



*Lilium superbum* really is a very beautiful species which is pollinated by equally beautiful butterflies such as the spicebush (*Papilio troilus*) in these images.

white oak (*Quercus bicolor*) to the north and various hickories (*Carya*), water oak (*Quercus nigra*), tulip tree (*Liriodendron tulipifera*), or sweetgum (*Liquidambar styraciflua*) farther south.

*Lilium superbum* is pollinated primarily by the swallowtail butterflies that are common within its range, among them the spicebush (*Papilio troilus* Linnaeus), pipevine (*Battus philenor* Linnaeus), and eastern tiger (*Papilio glaucus* Linnaeus). Great spangled fritillaries (*Speyeria cybele* (Fabricius)), also visit the Turk's-cap lily to much lesser effect, as do ubiquitous ruby-throated hummingbirds (*Archilochus colibris* (Linnaeus)).

In much of the northeastern U.S. it is much less common than before because of concerted herbivory by over-abundant white-tailed deer, and everywhere it has lost populations due to habitat obliteration and wetland modification. Like most plants it is less dense in the periphery of its range, and its range in peripheral states is also often quite small. So, despite its overall broad distribution and relative abundance, it receives legal protection in Florida, Kentucky, New Hampshire, and New York, and is extremely rare in Alabama, Arkansas, Illinois, Louisiana, Missouri, and South Carolina.

### **Bulb**

The bulbs of *Lilium superbum* are stoloniferous. They frequently branch at an angle of about 120° from their main axis and measure between 2.4–4.3 cm across, being approximately half this in height. When lifted it is usually possible to see two or three years of growth as annual bulbs, with the stolons between these



The branching white stoloniferous bulbs of *Lilium superbum* are fed by a network of fine feeding roots and thicker fleshy roots which spread widely, thereby stabilising the plants in the soft and wet soils they love.

being around 0.6–4.6 cm in length and sometimes carrying a few small scales. The white bulb scales, which are ovate with pointed tips and closely imbricated, are sometimes composed of two segments, but usually only the inner ones, and vary between 1.2–3.9 cm. The main and widespreading fleshy white basal roots branch very infrequently and are accompanied by a network of finer feeding ones.

### **Stem and leaves**

The smooth stems, which may or may not be rooting, can approach 3 m in height but are usually a little less. They are green which can be overlaid with purple or sometimes reddish staining to varying degrees. Seed collected at Rattlesnake Swamp, Pennsylvania has produced both green and darker stemmed plants as have other collections from different populations.

The foliage, which is usually fairly evenly distributed along the stem, is carried in 6–24 whorls or partial whorls of 3–20 leaves. These are usually held horizontally and may have drooping tips but when growing in good light the uppermost leaves may be somewhat ascending. They are narrowly, sometimes very narrowly, elliptic in shape. When growing in sun the lowest leaves may only be about 7 cm in length whilst the largest leaves on plants in a more shady situation may reach up to 27 cm. The leaf margins are plain and more or less smooth as are the veins on the lower surface whilst the tips are pointed, sometimes sharply so in the higher whorls.

### **Buds and flowers**

The racemose inflorescences (see photos, pp. 90/91) carry 1–22 flowers in the wild but often more than this in cultivation with the blooms opening in late July and



**Above**, individuals of *Lilium superbum* with both green and purple stems can occur in the same population. Green, purple stained and dark purple stemmed individuals are present in this stand being cultivated in West Wales.



**Above**, the buds, which are triangular in cross section, and pedicels are subtended by quite large leaflike bracts during their early development.



This form of *Lilium superbum*, with relatively narrow tepals compared to forms with broader tepals, **opposite**, carries noticeably longer triangular buds.

August. Each scentless pendant flower is carried on a long pedicel up to 19 cm long which usually arches just below the bloom. They are up to 7.5 cm across, Turk's-cap-shaped with the sepals and petals reflexed less than 1/5 of the way along their length from base. The floral segments are usually yellow or sometimes yellow-orange proximally, being red-orange or sometimes red, red-purple, orange, or yellow barely suffused with red towards the tips. They are marked with maroon or magenta spots which may be quite large or finer and largely restricted to the yellow or yellow-orange areas, the nectaries forming a visible green star in the centre of the flower. An unspotted yellow form was collected in a meadow in south-east Pennsylvania by Mrs Henry and named 'Norman Henry' after her husband. The outer segments, which are about 7–10 cm long by 1–2 cm wide, have a raised midrib on their exterior surface composed of two parallel ridges, the petals being similar but just a little wider. The strongly exserted stamens have filaments which are parallel along much of their length and then spread widely and anthers which are magenta or occasionally purple and dehisce to reveal orange brown or rust pollen. The pistil is a little longer than the stamens with a pale green style which is often spotted purple and a slightly lobed stigma.

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### Seed capsule

The seed capsules are erect, 3–6 cm high and about 2 cm in diameter.





photographs © Mel Heibert



The buds of forms with broader tepals are shorter in length and characteristically triangular in cross-section.

### Seed and germination

The light golden-brown seed (below) is about 10 by 9 mm, is clearly winged and germinates hypogeally after a cold period. Germination rates are usually high, provided that the seed is fresh or has been properly stored, and the seedlings progress quite rapidly so long as reasonably high moisture levels are maintained. It is possible to get a first flower in three years or so but five would be more typical.

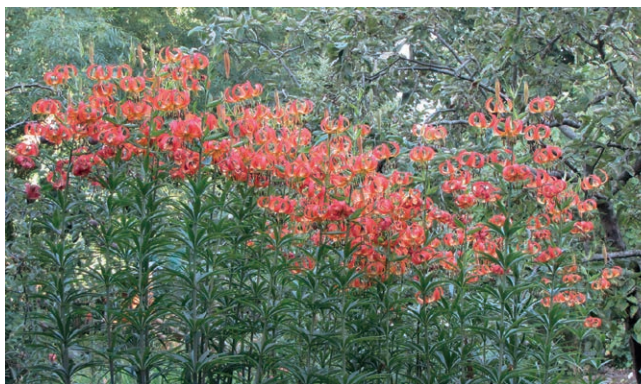
### Cultivation

It is surprising that this truly superb species is not more widely grown as its cultivation is really very straightforward. To give of its best it does require an adequate supply of water but very good specimens have been grown in the less than perfect conditions of Kent in the south-east of England. Having said that it is undoubtedly the case that to see the species really flourishing in the UK one needs to travel to enthusiasts' gardens in the west where it revels in the cool, mild and moist Atlantic maritime climate, multiplying annually and regularly producing stems of more than two metres.

Like most *Lilium* species mature bulbs of *L. superbum* do resent disturbance and if they must be moved then it is best to prepare the new site thoroughly beforehand and then to transfer as a clump with as much soil as possible. A clump of bulbs measuring perhaps 50 cm across was lifted as a whole from a sandy soil in Germany and transferred to an

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**Left**, the clump of *Lilium superbum*, about 15 seeds sown in 2002, moved to Wales in 2014 and photographed in 2016. **Above**, The same clump two years later in 2018.

improved clay based loam in Wales with no setback at all, whereas individual bulbs have taken several years to settle again once moved.

Without doubt the best way to establish this beauty in the garden is to grow it from seed sown in the usual well drained slightly acidic compost with plenty of grit, keep the seedlings well watered and pot on as a whole after two years growth. Another year in the larger pot will probably be enough and then plant out the whole pot together with as little disturbance as possible. A good loam with plenty of organic matter added is ideal and regular annual mulches will help to maintain the group in good health. Over the years the stoloniferous nature of the bulbs will allow them to achieve their perfect depth and the clump should grow in numbers, stature and floriferousness.

### References

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### Members' contributions

Many thanks to the following growers who contributed observations, photographs and comments for this Species Profile: Darm Crook, Mel Herbert and Peter Shoter.