Species Profile Lilium kesselringianum Miscz.

History and taxonomy (Dr Jamie Compton)

Miscz., Trudy Biuro po Prikladnoi Botanickie 7: 251 (1914)

This lily was first discovered by the plant collector and botanist [Georg] Jurij [Nikolaewitch] Woronow and his wife Mrs A. Woronowa in Georgia. The Woronows were accompanied by Nicolaj Adolfovich Busch and Vasil Vasilevicz Marcowicz who collected specimens of the lily under the name *Lilium monadelphum* in 1909 (Takhtajan 2006: 76). The Russian botanist Pavel Ivanovich Misczenko described *Lilium kesselringianum* from material collected by Mrs Woronowa near Bakhmaro



The coloured plate which accompanied Misczenko's description. The type specimen is the illustration Fig. I.



Specimen of *Lilium kesselringianum* from Russia deposited in the Moscow University Herbarium (MW0655772).

in the Caucasus mountains in what was then Batumi District and is now Guria, Georgia. The type, the coloured plate that accompanied Misczenko's description, was designated by Davis and Henderson in 1969 and herbarium material is in Tiflis [now Tbilisi], Ilia State University (TBI). It was first introduced into cultivation into the commercial nursery of Regel and Kesselring (Woodcock & Stearn 1950: 245) thence to the Imperial St Petersburg Botanical Garden in 1911. This beautiful lily is native to north-east Turkey, Georgia and the Kuban region of south-west Russia.

There has been much confusion surrounding the Caucasian lilies with recurv-

ing flowers over the years due to a lack of clear characters in their original descriptions. Based on the regional floras, the principal differences between Lilium kesselringianum and its close ally L. monadelphum are the cream or strawcoloured flowers in L. kesselringianum as opposed to bright yellow flowers in L. monadelphum; the perianth segments in L. kesselringianum are narrower at 11-13 mm wide as opposed to 18-22 mm wide in L. monadelphum; the anthers of L. kesselringianum are reddish-brown whereas on L. monadephum they are yellow to orange-red (Komarov 1968: 266; Davis & Henderson 1984: 283, 284). There is merit in accepting that L. szovitzianum Fisch. & Avé-Lal. (1839) is merely a variety of L. monadelphum M. Bieb. (1808) following the treatments of Davis and Henderson (1984) and Matthews (1989). It is notable that Davis and Henderson (1984) did not distinguish var. mondalephum from var. szovitzianum (Fisch. & Avé-Lal.) Elwes (1877) in their key to the varieties of L. monadelphum. The main difference appears to be that the perianth segments in var. monadelphum do not narrow significantly towards the base (vs. significant narrowing in var. szovitzianum) and the anthers are vellow in var. monadelphum and orangered in var. szovitzianum (Elwes 1877: t. 21 text). Von Bieberstein's assertion that the anthers are fused together into a central column (monadelphous) in L. monadelphum is not accurate (Bieberstein 1808).¹

Lilium kesselringianum is without any doubt a superb species with by all accounts a glorious floral scent. The broadly ovoid bulb has pale, broadly deltoid, acute tipped scales; an inflorescence up to 175 cm tall with up to seven flowers; spirally arranged narrowly lanceolate leaves, smooth but with very short hairs on margins and on veins below; large funnel-shaped flowers with linear-lanceolate perianth segments that recurve from the middle, cream to straw-coloured with purple spotting at the throat; anthers with reddish-brown pollen.

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¹ Assistant Prof. Dr Nursel İkinci has added that Kesselring (1932), differentiates *Lilium kesselringianum* from *L. monadelphum* and *L. szovitsianum* as being a smaller plant, having lighter petal colour, with floral segments only slightly reflexed, with shorter chestnut-purple anthers, and by the type of stigma. The anthers are half the length of those of *L. szovitsianum*. Ed.



A good population of Lilium kesselringianum growing on a forest edge in Turkey.

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Distribution and ecology (Assist. Prof Dr Nursel İkinci)

Lilium kesselringianum naturally grows in northeastern Turkey, in Artvin, Ardahan and Erzurum provinces (İkinci et al. 2006; İkinci and Oberprieler 2010); in Georgia, in the Republic of Abkhazia (Suchum district, in Ritsinsky National Park) and in the northwestern part of the country in Svaneti. It also grows in the northern Caucasus within the borders of the Russian Federation (Cheget Mountains). The altitudinal range of *L. kesselringianum* extends from 1,250 m to 2,400 m. The flowering time for the species is from June to July in its native habitat.

In Turkey, *Lilium kesselringianum* has an extent of occurrence of around 4,000 km². Therefore, we assigned it as Endangered (EN). The species is also included in the Red List of the Russian Federation. Taniya et al. (2016) studied the populations of *L. kesselringianum* in Ritsinsky Relic National Park (Republic of Abkhazia). They stated that the status of the species is alarming due to the small number of populations (nine populations with less than 200 individuals) and

anthropogenic pressure on these populations. They identified threats as being grazing, recreational activities and collection of plants.

Lilium kesselringianum can be found in different habitats. It prefers openings and borders of *Pinus sylvestris* L., *Picea orientalis* (L.) Peterm. and *Abies nordmanniana* (Steven) Spach subsp. *nordmanniana* forests and also *Quercus* and *Carpinus* forest openings. It can grow under sparse *Picea orientalis* forests with *Rhododendron*. It also grows in moist meadows, on shady slopes and among sparse *Corylus* shrubs. Slate and igneous rocks are among the substrates the species prefers.

References

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Bulb

The sizeable bulbs of *Lilium kessel-ringianum* are broadly ovoid and usually around 5–6 cm in diameter, although they can be larger. The ovate to lanceolate scales, which have acute tips, are numerous and yellowish-cream in colour with yellow stripes.

Stem and leaves

The stem is rooting in the section above the bulb; the aerial part, being light green and smooth, reaches a height of about 170 cm.

The spirally arranged leaves are



numerous, the lower ones being oblong to lanceolate, 1.5-2(-2.7) cm wide and 6-9(-12) cm long; with the veins beneath and margins clothed with setulose hairs. The median leaves are lanceolate to linear lanceolate, 0.9-1.5 cm wide and 10-



Left, the numerous leaves of *Lilium kesselringianum* are arranged spirally on a light green stem which reaches a height of about 170 cm.

Opposite, the purple anthers of *Lilium kesselringianum* dehisce to reveal yellowish brown or dirty yellow pollen.

12.5(-18) cm long, tapered at both ends and with very acute tips; the margins being papillose and the veins with dense setose hairs.

Buds and flowers

The inflorescence is racemose with 1-6(-8) flowers. Floral bracts, which have purplish apices, are lanceolate, (2-)4-10 mm wide, 35-52(-57) mm long with

the margins and lower surface clothed with setose hairs. Some flowers have an additional bracteole just below the middle of the pedicel, which is usually 4.8–5.5(–8) cm long. This is an unusual character in Turkish lilies, a feature which has also been observed in a few *Lilium armenum* specimens. The flower buds are cream or greenishyellow with the base and apex purplish.

The flowers, which open in June and July in Turkey, are infundibularrecurved, light cream to pale strawyellow with the base and apex purplish. Usually fine chocolate spots are present on the floral segments which have a central darker yellow line. The outer tepals are linear lanceolate, 7-1.2(-1.6) cm wide and 6.5-8.5(-10) cm long with a tuberculate apex whilst the inner



Note the purplish tip and base of the buds of *Lilium kesselringianum* and the unusual bracteole just below the middle of the pedicel of the lower one.



ones are narrow oblanceolate, 1.3-1.5(-2) cm wide, 7-8(-10) cm long and tapered below. Stamens are free and shorter than the style. The filaments are light green and 32-42 mm long. They carry anthers which are purple, 1.5-2(-2.5) mm wide, 8-10(-12.5) mm long and which dehisce to reveal yellowish brown or dirty yellow pollen. The ovary is 12-17.5(-20.5) mm long; the style whitish-green, curved, 30-37 mm long and carrying a purple stigma which can, rarely, be yellowish-green with only a small touch of purple.

The plants currently in cultivation in the United Kingdom probably originated from seed of Russian populations which was apparently sent here in the 1970s. The floral segments have less distinct vellow central markings than the Turkish plants pictured by Assistant Prof. Dr İkinci and although the flowers open near to white they mature in the first few days to a more pronounced pale yellow.

Seed Capsule

The seed capsule is round to cylindric, 1.2-2.4 cm in diameter and 3-4 cm long. It is dark purple-brown when ripe, which is in the second half of August on cultivated plants in the United Kingdom.



An immature seed capsule in July.

Seed and Germination

Lilium kesselringianum seeds are brown to dark brown with a narrow membranous margin. They are 4–7 mm in diameter and both endosperm and embryo are usually clearly visible when the seed is candled.

They have typical delayed hypogeal germination. The seedlings taking six or so years to reach flowering size.

Cultivation

This species remains fairly rare in cultivation which is a pity as it is a very fine plant and it can be quite long lived once properly established.

A successful grower in the south east of England has flourishing plants which have been undisturbed for more than 15 years and which regularly produce strong stems, with 17 buds on one occasion, and good quantities of seed. This on a neutral to slightly acid clayey soil not prone to water-logging and improved through the regular addition of organic matter and grit; the plants being in quite a shady spot, very dry in summer but without any special attention, either with watering or feeding. Another enthusiast, growing the same stock in a continental climate, also had strong plants on an improved light sandy soil, again with a good degree of shade, but when the bulbs were moved they failed to re-establish in a more maritime environment.

Seedlings are best planted out into a suitable position at about the three year stage, preferably the whole potful together and with the minimum of disturbance. Longer than this in pots and the plants tend to dwindle. Like other Caucasian species *L. kesselringianum* may sulk for a year after being moved, especially larger bulbs, and may well never appear above the ground! Once established in the garden they are best left undisturbed to reward the grower with their beautiful and highly fragrant flowers.

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Members' contributions

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