

MECONOPSIS GRANDIS – THE TRUE HIMALAYAN BLUE POPPY*Christopher Grey-Wilson*¹

ABSTRACT

The history of *Meconopsis grandis* is described and the species analysed in the light of collections made since George Taylor's monograph of the genus in 1934. Two new subspecies, subsp. *orientalis* Grey-Wilson and subsp. *jumlaensis* Grey-Wilson, are described based on both morphological and geographical separation. Hybrids between *M. grandis* and the allied *M. baileyi* are assessed. Techniques for the cultivation of *M. grandis* are also given.

INTRODUCTION

Along with *Meconopsis baileyi*, *M. grandis* forms a duo of species commonly referred to as the Himalayan blue poppies. These startlingly beautiful plants have an aura that gardeners find irresistible yet, in the UK at least, they can only be satisfactorily grown in the cooler, damper parts of the country. While *M. grandis* is truly a Himalayan species, found primarily from east Nepal eastwards to north-east India (Arunachal Pradesh) and just creeping into southern Tibet, the related *M. baileyi* is found to the north of the main Himalayan divide in the monsoon-fed regions of south-eastern Tibet. An additional species, *M. betonicifolia*, which finds its closest ally in *M. baileyi*, is confined to north-west Yunnan in China.

CLASSIFICATION OF *MECONOPSIS GRANDIS*

Meconopsis grandis belongs to a small group of species currently classified in Series Grandes Prain. This series is distinguished by monocarpic or polycarpic species which die down to resting buds in the autumn and which bear simple, erect leafy stems carrying a distinctive whorl of leaf-like bracts near the apex from which one or several flowers arise. The stems may also, in some instances, support additional, generally smaller and sometimes aborted, flowers in the axils of stem leaves below the whorl of bracts. All the species in the series, as in the closely allied Series Simplicifoliae, bear an indumentum of barbellate hairs, as do the large monocarpic evergreen species of Subsection Eupolychaetia, which contains several widely cultivated species such as *M. paniculata*, *M. superba* and *M. wallichii*.

Series Grandes contains six species as currently defined. While the three species already mentioned (*M. grandis*, along with *M. baileyi* and *M. betonicifolia*) bear blue

1. Christopher Grey-Wilson, BSc (Hort.), PhD, VMH is a horticultural botanist, author and photographer, and is currently editor of *The Alpine Gardener*, the quarterly journal of the Alpine Garden Society.
Address: Red Lion Barn, East Church Street, Kenninghall, Norfolk, NR16 2EP.
Email: c.grey-wilson@talk21.com

flowers, *M. integrifolia* and *M. pseudointegrifolia* (both monocarpic species) have yellow flowers, while the flowers of the perennial, clump-forming *M. sherriffii* are pink. Of these species only *M. grandis* and *M. sherriffii* are truly Himalayan. The two yellow-flowered species are very much species of the southern and eastern Tibetan Plateau and its hinterland.

HISTORY OF *MECONOPSIS GRANDIS* IN COLLECTIONS

Meconopsis grandis was described in the late nineteenth century from several collections (primarily those of Gammie, Watt and native collectors working for Dr King) made between 1881 and 1892 in the Jongri district of Sikkim. George Taylor in his 'An Account of the Genus *Meconopsis*' (1934) records that: "According to Gammie, *M. grandis* is found in this area only as a cultivated plant about the dwellings used in summer by shepherds. They are not primarily concerned with the aesthetic qualities of the plant, but grow it rather for the extraction of oil from the seeds, although the properties of this oil are not recorded. It has also been stated that the species is not truly native to Sikkim, but was originally introduced there from Nepal."

David Prain (1906) was apparently responsible for introducing *M. grandis* to cultivation: it first flowered at the Royal Botanic Garden Edinburgh (RBGE) in 1895. The Nepalese form (subsp. *grandis*; see below) was not introduced until later, flowering in cultivation for the first time in 1932. However, it appears that it was the introductions from north-eastern Bhutan and the neighbouring region of north-east India (Arunachal Pradesh) by Ludlow and Sherriff (sometimes accompanied by others) that introduced into cultivation the most robust and splendid forms of the species (here defined as subsp. *orientalis*). Today, with hindsight, proper cataloguing and record keeping of all these collections would have been extremely helpful in our overall understanding of this species and its evolution in cultivation: unfortunately, the majority of the introductions became muddled in gardens and their authenticity lost. As a result, a lot of time can be wasted trying to track the origin of a particular plant and whether or not it can be traced back to an original collection. To gardeners these were novel and beautiful plants and to most their origins were of little consequence. In any event, the species were soon overtaken by hybrids in favoured gardens, vigorous hybrids in the main that were more adaptable and less temperamental in the garden environment and, furthermore, reliably perennial.

In studying *M. grandis* it has been necessary to re-examine the historical and more recent Herbarium collections at RBGE (material from the Herbarium is referred to as E), at the Royal Botanic Gardens, Kew (RBG Kew) (K) and at the Natural History Museum (BM) (Figs 1, 2 & 3). In his monograph of the genus, Taylor (1934) makes no attempt at subdivision of the species, although he discusses the Sikkim and Nepalese forms. This is scarcely surprising since much of the material of the species observable today was collected after that date. Indeed, the species was not discovered in Bhutan until 1933, and the first seed introduction from that country was Ludlow & Sherriff 600, which

was collected in the year of publication of the monograph. Plants from this seed introduction would not have flowered until 1935 at the very earliest, and more probably in the following year.

Having examined all the available material of *M. grandis*, it is clear that the western and eastern populations, separated as they are by the vast mountainous expanses of western and central Bhutan, are rather different in their overall characters, and these are outlined below. These differences alone are not sufficient to warrant species distinction but they are, when combined with their geographic isolation, enough for subspecific division, and this is the course that I think is reasonable to adopt. At the same time, there is a small and far more isolated population of *M. grandis* in western Nepal and this has also been taken into account in this revision.



Fig. 2 *Meconopsis grandis* subsp. *orientalis*: photograph of Ludlow, Sherriff & Hicks 20801.



Fig. 1 Herbarium sheet of *Meconopsis grandis* subsp. *orientalis*; Ludlow, Sherriff & Hicks 20801, north-east Bhutan, Cho La.



Fig. 3 Herbarium sheet of *Meconopsis grandis* subsp. *orientalis* (GS600); Ludlow, Sherriff 600, north-east Bhutan, Sakden.

Description: *Robust, clump-forming, herbaceous perennial* to 1.2m tall in flower, but as little as 35cm on occasion, with an extensive fibrous root system, overwintering as a solitary rufous-bristled bud at ground level (or cluster thereof); plant base invested with fibrous leaf-base remains beset with numerous rufous barbellate bristles. *Stem* erect, rather rigid, 10–40cm long, sparsely to densely covered with spreading to somewhat deflexed barbellate bristles. *Basal and lower leaves* petiolate, the lamina elliptic to elliptic-oblong, lanceolate or ovate-lanceolate to oblanceolate, (4–)6.5–26 × 1.3–9.4cm, attenuate into the petiole at the base, the apex acute to subacute, margin subentire to irregularly and coarsely serrate or crenate, covered on both sides by rufous barbellate bristles; upper cauline leaves sessile, the uppermost three to five aggregated into a false whorl from which the flowers arise², lanceolate to ovate or oblong-lanceolate, 4.2–7 × 0.8–1.2cm, margined as the lower leaves, sometimes more coarsely toothed, the base cuneate to cordate or subcordate; petiole 19–21.5cm long, expanded and sheathing at the base. *Flowers* one to three normally, occasionally up to five, sometimes with one or two superfluous flowerbuds (which may or may not open) borne in the axils of the lower cauline leaves, more rarely on pseudobasal scapes, nodding to half-nodding, bowl- or saucer-shaped. *Pedicels* 7–32cm long (to 40cm in fruit), erect, covered in spreading to slightly deflexed barbellate bristles. *Buds* nodding to ascending, ovoid to narrow oblong-ovoid; sepals densely barbellate-bristly. *Petals* generally four to six, occasionally up to nine, pale to deep blue, mauve-blue, purple, pinkish purple or wine-purple, obovate to suborbicular, 3.5–9 × 3–7.8cm, slightly ruffled at the margin. *Stamens* numerous, the filaments filiform, whitish, not more than one-third the length of the petals; anthers bright yellow or orange-yellow. *Ovary* ovoid to elliptic-ovoid, glabrous to densely barbellate-bristly; style slender, 4–8mm long, capped by a clavate, four- to six-lobed, greenish-white on stigma, protruding well beyond the boss of stamens and often somewhat deflected, the lobes generally decurrent onto the upper style. *Fruit capsule* narrow to broadly ellipsoidal to ellipsoid-oblong, 2.7–6.8 × 6–15(–19)mm, splitting by four to six valves for a short distance from the apex, glabrous to densely barbellate-bristly, the bristles ascending to patent. 2n = 164.

Distribution: West and east Nepal, Sikkim, north Bhutan, north-east India (Arunachal Pradesh), south central Tibet; 3,000–4,420m.

Habitat: Rough meadows, rocky and grassy places, moist woodland (usually *Picea* species) and woodland margins, shrubberies, streamsides. June to early August.

In specimens in which the stem is very short the false whorl of leaves may be hidden or partly hidden amongst the basal leaves. This gives the flowers the appearance of being

2. In specimens in which the stem is very short the false whorl of leaves may be hidden or partly hidden amongst the basal leaves. This gives the flowers the appearance of being scapose. See footnote 3.

scapose³ and in these instances the species is sometimes mistaken for *M. simplicifolia*. However, the two species are readily separated: *M. simplicifolia* has a larger number of petals, generally six to nine, while the filaments are the same colour (blue or purple) if not somewhat darker (four to six petals and white filaments in *M. grandis*); at the same time the buds of *M. simplicifolia* are always upright or ascending, while in *M. grandis* and the related *M. betonicifolia* they are pendent or semi-pendent.

1. Basal leaves 4.6–9.4cm wide; stem leaves broad-cuneate to cordate at base; petals 6.2–8cm long; fruit capsule 1.2–1.5cm wide, densely bristly at maturity:
subsp. orientalis
Basal leaves 1.3–4.8cm wide; stem leaves with a narrow-cuneate base; petals 3.5–5.7cm long; fruit capsule 0.6–1.1cm wide, glabrous to slightly bristly
..... 2
2. Small plant not more than 35cm tall in flower; basal leaves not more than 2.7cm wide: **subsp. jumlaensis**
Plants larger, 40–60cm tall in flower normally; basal leaves 2–4.8cm wide:
subsp. grandis

Subsp. grandis (Figs 4 & 5)

Description: Basal leaves 10–21 × 2–4.8(–5.8)cm. Inflorescence one- to three-flowered. Bracts 1–3.0cm wide, with a long-cuneate base, entire to remotely and shallowly toothed. Petals 4–6, 3.5–6.8 (–7.8) × 3–6.4(–7.2)cm. Fruit capsule 3.7–6.8 × 0.6–1.1cm, glabrous or sparsely to moderately furnished with slender bristles most of which have fallen away by the time the fruit is mature, the persistent style 6–7mm long, 2.5–3mm diameter. Pollen in tetrads.

Distribution: East Nepal (particularly common in the upper Arun Khola and Barun Khola area, especially to the south and east of Everest, Jaljale Himal and Topke Gola), Sikkim (Jongri region); 3,353–5,487m.

Habitat: Rocky meadows, stream and river banks, low scrub, vicinity of shepherds' huts and shelters. June–July(–early August).

Specimens seen: *J.J. Barnet* 16 (BM); *Beer* 8245 (BM), 8309 (BM); *Cave* s.n. Jongri (BM, E); *Dhwoj* 0248*⁴ (BM, E); *Kanai et al.* 720713 (BM), 721251 (BM, E), 723043 (BM, E), 723044 (BM, E); *Dr King's Collector* s.n. Sikkim (BM); *McCosh* 244

3. The photograph in George Taylor's 'The Genus *Meconopsis*' (Plate XVI) of *M. grandis* subsp. *grandis* clearly shows the apparently scapose condition of some plants, although others in the same group have a well-developed stem with a whorl of leafy bracts held well above the basal leaf-rosette.

4. *Dhwoj* 0248 (BM) typifies the fleeting pubescent nature (when present) of the fruit in subsp. *grandis* for, on the same specimen, the young fruit is moderately bristly but the near-mature fruits are glabrescent, without any bristles.

(BM); *Noshiro et al.* 9261221 (BM, E), 9760385 (BM, E); *Polunin, Sykes & Williams* 5506 (BM); *E Sharma* 515 (BM); *Shrestha & Joshi* 348 (BM); *Stainton* 367 (BM), 382 (BM, E), 561 (BM, E), 1668 (BM, E), 1704 (BM); *Williams* 869 (BM); *Zimmermann* 808 (BM).

It is recorded that in Sikkim shepherds grow or tolerate *M. grandis* in the vicinity of their huts for the extraction of oil from the seeds. Brickell also reports seeing *M. grandis* near Jongri during the Alpine Garden Society (AGS) Expedition to Sikkim in 1983 “which I recall collecting and photographing well away from any habitation” (Brickell, pers. comm).



Fig. 4 *Meconopsis grandis* subsp. *grandis*; eastern Nepal, south of Dudhkund, 3,950m. Photo: Toshio Yoshida.



Fig. 5 *Meconopsis grandis* subsp. *grandis*; eastern Nepal, near Topke Gola, 4223m, June 1990. Photo: Toshio Yoshida.

***Meconopsis grandis* subsp. *orientalis* Grey-Wilson, subsp. nov.**, in habitu generali subsp. *grandi* similis sed foliis et bracteis latoribus magis argute dentatis, fructibus latoribus et brevioribus persistenter setosis cum stylo brevior differt. Type: NE Bhutan, Cho La, Ludlow, Sherriff & Hicks 20801 (BM, holotype). The collection at the Natural History Museum is also accompanied under the same number by a fine black-and-white photograph.

Description: *Basal leaves* 13–26 × 4.6–9.4cm. *Bracts* 3.2–6.1cm wide, rounded to auriculate-cordate or subcordate at the base, subentire, to sinuately lobed to coarsely toothed. *Pedicels* in fruit 23–30cm long. *Flowers* 12–16cm across. *Petals* four, rarely five to six, bright sky blue to deep blue, mauve-blue or deep purple-lilac, (5.8–)6.2–9 × 4.8–7.8cm. *Fruit capsule* 2.8–4.6 × 1.2–1.5(–1.9)cm, very bristly, the bristles stout and persistent in the mature fruit, the style 4–6mm long, the stigma 3.5–5mm diameter.

Distribution: North and north-east Bhutan, north-east India (north-west Arunachal Pradesh), adjacent parts of Tibet⁵ (Cho La, Po La); 3,658–4,268m. June–July.

Specimens seen: *Kingdon-Ward* 13711 (BM); *Ludlow & Sherriff* 387 (BM, E), 600 (BM, E), 875 (BM), 1021 (BM), 1315 (BM); *Ludlow, Sherriff & Hicks* 20671 (BM, E), 20801 (BM), 21069 (BM), 21431 (BM); *Ludlow, Sherriff & Taylor* 6416 (BM); *Rohmoo* 927 (BM, E).

M. grandis subsp. *orientalis* appears to be rather scarce in Tibet (Xizang). It has been recorded from two passes just to the north of the north-east Bhutan-Arunachal Pradesh area (see *Ludlow & Sherriff* 1315 and *Ludlow, Sherriff & Taylor* 6416).

Kingdon-Ward 13711, collected in Arunachal Pradesh (then Upper Assam), is located just east of the Bhutanese border not far from the Bhutanese collections of subsp. *orientalis*. It was collected on the Orka La and the specimen at the Natural History Museum under that number fits well within the circumscription of that subspecies. In recent years Peter Cox and others have also collected and photographed the plant in the same general vicinity in Arunachal Pradesh and plants from seed collected then are at present in cultivation in the UK. A photograph taken on that occasion in the wild by Anne Chambers is included here (Fig. 6).

Subspecies *orientalis* is the most robust of the three subspecies of *M. grandis*, a leafy plant with broader leaves and bracts than in the other subspecies. It is similar in general habit to subsp. *grandis* but with more coarsely toothed leaves and bracts, and fruits that are relatively broader and shorter, persistently bristly and with a shorter style. The flowers are by far the largest of those of the three subspecies and, according to field observations, are often a good deep blue.

5. *Ludlow, Sherriff & Hicks* 20801 from the Cho La in north-east Tibet has exceptionally large flowers to 16cm across.

***Meconopsis grandis* subsp. *jumlaensis* Grey-Wilson, subsp. nov.**, subsp. *grandi* proxima sed planta omnino minor ubi florens raro plus quam 30cm alta, capsulis etiam minoribus et granis pollinis in monadibus haud in tetradibus ordinatis differt. Type. Western Nepal, Ghurchi Lagna, 3,505m, June, *Polunin, Sykes & Williams* 4371 (BM, holotype; E, isotype).

Description: *Small tufted herbaceous perennial* to 35cm tall in flower, occasionally more, the stems and leaves adorned with pale brown barbellate hairs. *Leaves* 6.5–29 × 1.3–7.5cm, margin remotely toothed; petiole 19–21.5cm long. *Scapes* one-flowered, 12–24cm long (to 63cm long in fruit). *Bracts* 4.2–12.5 × 0.8–1.8(–2.5)cm, narrowed to a cuneate base. *Petals* four, occasionally five to seven, sky blue to bright or dark blue, occasionally purplish red, 4.5–5.7 × 3.4–5.0cm. *Stamens* with white filaments and bright yellow to orange-yellow anthers. *Ovary* glabrous. *Fruiting pedicel* 63cm. Fruit capsule 19–21.5cm long, glabrous. *Pollen* in monads.

Distribution: Western Nepal, Jumla region (Barbaria Lekh, Bhurchula Lekh, Chaudhabise Khola, Ghurchi Lagna, Maharigaon, Sialgarhi, Sisne Himal, Suli Gad).

Habitat: Grassy places on rocky slopes, 3,353–4,420m. May–July.

This is an interesting subspecies collected just a handful of times in the Jumla region of western Nepal. It is closest to subsp. *grandis* but is an altogether smaller plant, seldom more than 35cm tall in flower and with smaller fruit capsules; the pollen grains are in monads, not tetrads. This region appears to represent a western outlier where a number of otherwise eastern Himalayan species are found in isolation. Apart from *Meconopsis grandis* one can cite *M. paniculata* and *Incarvillea himalayensis*. There is a fine photograph of this new subspecies in Polunin and Stainton (1984).

Specimens seen: *J.M. Bailey* s.n. Guchi (E); *J.J. Burnet* 16 (BM); *Polunin, Sykes & Williams* 270 (E), 2101 (E), 2286 (E), 4371 (BM, E), 4613 (BM, E); *Stainton* 5423 (BM), 5437 (BM), 5506 (BM).

Within Series Grandes, *Meconopsis grandis* probably finds its closest ally in *M. baileyi*. While the two do not overlap in distribution in the wild, the latter being generally more easterly, they do hybridise readily in cultivation and this has led to a plethora of bold hybrids popularly called the ‘big blue poppies’; quite a few of these have been given cultivar names. The fact that the majority of these hybrids are sterile is not surprising since the parent species have disparate chromosome numbers: in the case of *M. baileyi* $2n = 82$, *M. grandis* $2n = 164$. In studies carried out by Ratter (1968) $2n = 118–120$; however, the material upon which these studies were based may not have been authenticated wild-source material and this number is very close to that of some observed hybrids. Hybrids have a count of $2n = 123$ or thereabouts. Interestingly, fertile hybrids have appeared

amongst these poppies in recent years, ‘Lingholm’ being perhaps the best-known example, and such plants are known to be allotetraploids with a count of $2n = 246$.

While the exact hybrid origin of nearly all the big blue poppies (or the big blue perennial poppies) is shrouded in doubt and mystery, it is also uncertain whether or not other species were involved in this cultivated hybrid complex. Over the years other species have been suggested that were known to be in cultivation at the time the first hybrids appeared, especially *M. simplicifolia* (Fig. 7), which was far more widely cultivated then than now, and possibly *M. integrifolia*, although the involvement of the latter in this hybrid process seems to me to be highly doubtful.

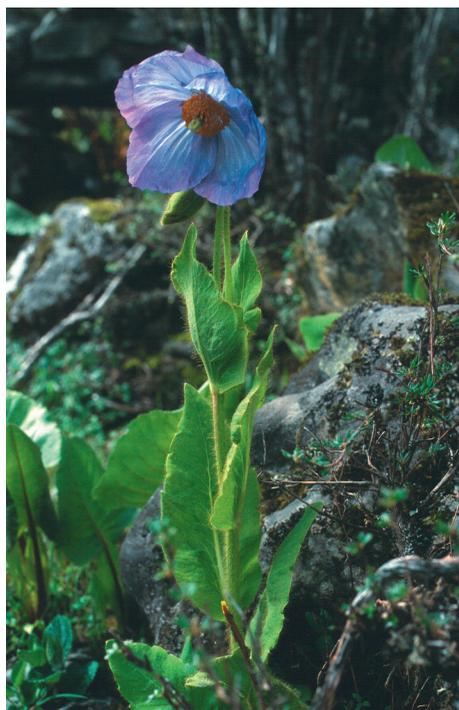


Fig. 6 *Meconopsis grandis* subsp. *orientalis*; north-west Arunachal Pradesh close to the Bhutan frontier. Photo: Ann Chambers.



Fig. 7 *Meconopsis simplicifolia*; Bhutan, west of Laya, 4,700m. Photo: Toshio Yoshida.

MECONOPSIS GRANDIS IN CULTIVATION

As has already been pointed out, the history of this fine species in cultivation is rather confused and somewhat fragmentary, especially compared with that of the widely grown *M. baileyi* (Fig. 8) (*M. betonicifolia* of gardens). It is at least known that its introduction to cultivation in the UK was in the late nineteenth century, for it first flowered at RBGE in 1895. The introduction is credited to David Prain (1906). Prain had in the same year described the species, basing his description on various collections made by native

collectors (1887), by George Watt (1881) and George Alexander Gammie (1892). All these collections had been made in the Jongri district of Sikkim, and observations made at the time indicate that the plant was in all probability cultivated around summer enclosures used by the local shepherds and herdsmen. This plant is attributable to subsp. *grandis*, restricted to eastern Nepal and perhaps Sikkim (if it is considered to be native there: see earlier note on the AGS expedition to Sikkim).

According to Taylor, “The Nepal form flowered in cultivation for the first time in 1932, and from a horticultural point of view was regarded as distinctly disappointing, being of much smaller stature than is widely associated with *M. grandis* and with flowers of a very inferior wine-purple. There are indications that this form will improve in cultivation and opinions regarding its horticultural merit may require modification. It may be

observed that in the natural state the occurrence of both colour forms (blue or purple) is confirmed by the statements of native collectors.” (Taylor, 1934).

Unfortunately, the persistence in cultivation of these early introductions is not recorded. We do know that it was still in cultivation in the early 1930s because a fine plate of it, painted by Lilian Snelling, was reproduced in *Curtis’s Botanical Magazine* (146, tab. 9304) in 1933 with an accompanying text by Otto Stapf. Incidentally, the black-and-white plate (Pl. 16) of the species in Taylor (1934) shows a fine stand of *M. grandis* (subsp. *grandis*) in a bed at RBGE. This photograph had in fact been taken early in the twentieth century, and the original print is still in the archives at RBGE.

However, it was the introductions of the Bhutanese forms (subsp. *orientalis*) that firmly established the species in cultivation. It was discovered in that country in 1933 by the famous collecting partnership of Frank Ludlow and George Sherriff, and over the next 15 years they made repeated forays into that country and also southern Tibet (Xizang). Their first gathering of *M. grandis* was made on the Me La in the north-east of the country under the collection number 387, the flowers described as “bright sky blue”. However, of their collections of *M. grandis* several stand out; *Ludlow and Sherriff* 600 (often referred to as ‘Sherriff 600’ or *grandis* GS600, as Sherriff was collecting alone at the time in the company of Danon, a local Lepcha) gathered on the Nyuksang La just south of Sakden in 1934; *Ludlow, Sherriff & Hicks* 20671 (‘Betty Sherriff’s dream



Fig. 8 *Meconopsis baileyi* in cultivation. Photo: Plant Images/Christopher Grey-Wilson.

poppy'; see below for the story of Betty Sherriff's dream), found in north-east Bhutan close to Shingbe in 1949, which Fletcher (1975) describes as "... certainly one of the supreme gems of the Ludlow and Sherriff collections"; Ludlow, Sherriff & Hicks 20801 collected on the Cho La, north-east Bhutan, also in 1949; Ludlow, Sherriff & Hicks 21069, also from the Me La near Shingbe. Other collections made by Ludlow & Sherriff are represented in herbarium collections, but it is not known whether or not these were accompanied by seed collections. They were all gathered in north-east Bhutan in the vicinity of the Cho La (on the Bhutan–Tibet border), Me La and around Sakden and Shingbe in what is a relatively small area of the Himalaya. Ludlow, Sherriff & Taylor collected the species (L & S6416) on the Po La just north of the Bhutan border in southern Tibet in 1938, while Kingdon-Ward collected the species on the Orka La east of Sakden under the number KW13711 on the Bhutan–Assam border (Arunachal Pradesh in north-east India) in 1938.

Dr J.H. Hicks, of the Ludlow, Sherriff and Hicks collection 20671, returned in the autumn of 1949 to the site and collected seed; he had joined Ludlow and the Sherriffs as Medical Officer. He was also responsible for collecting seed under the number 21069 and probably also 20801. Full credit should be given to this stalwart doctor who almost alone should be credited for the fine forms of *M. grandis* introduced into gardens and included under the Ludlow & Sherriff 'umbrella'. However, as with so many of these introductions, little is recorded as to their success or indeed permanence in cultivation. Although we can be reasonably certain that GS600 played a significant and lasting part in the unwitting development of the big perennial blue poppies, much detail has been lost. The fact is that plants have been grown in diverse gardens and passed on to fellow gardeners under the number GS600 for many years now. However, it is now uncertain whether these plants all share the same origins. Certainly quite a few different plants are to be found under that number today, although some have been singled out and given distinct cultivar names. The doubts creep in when it is realised that the original plant was fertile (otherwise how would all the hybrids arrive?) and that plants grown under that number today are sterile. This surely leads one to suspect that hybridity has tainted the collection at some point over the years. Only detailed DNA analysis might be able to solve this dilemma. Added to this is the very real possibility that the original seed collection of GS600 gave rise to quite a number of similar but not identical offspring. This of course can apply to any seed collection, and this is what makes them inherently tricky to maintain in cultivation.

The picture is extremely complicated. While some of the hybrid poppies are simple crosses between two distinct species, others would appear to have more complex origins. Hybrids between *M. baileyi* and *M. grandis* will probably always be triploid because of the discrepancy in the chromosome numbers between the two species. Such plants are sterile and so can only be reproduced by vegetative means. However, fertile hybrids have arisen within the hybrid group by a process of chromosome doubling, giving rise to allohexaploid plants from the triploid stock. Such a process will have the effect of isolating the different hybrids from one another, either because of reduced fertility or chromosome incompatibility.

Meconopsis grandis subsp. *orientalis* is certainly one of the most fabled flowers of the Himalaya, particularly in the finest forms, found in Bhutan and the adjacent regions of Tibet. Two collections in particular stand out:

Ludlow & Sherriff 600

The first was Ludlow & Sherriff 600, known widely by aficionados of *Meconopsis* cultivation affectionately as ‘Sherriff 600’ or as *M. grandis* GS600. The story of its finding is related in Fletcher (1975): “On the Nyuksang La, Sherriff found a plant that surpassed in beauty all the primulas and every other plant on the pass – a most magnificent form of *Meconopsis grandis* (600) which he and Ludlow had recorded from Bhutan for the first time in 1933. It was occupying open stony ground beside *Primula waltonii*. Well might Sherriff have echoed the remarks of Kingdon-Ward when he collected Bailey’s Blue poppy, *Meconopsis betonicifolia* [*baileyi*], near Tumbatse in SE Tibet in 1924; ‘Among a paradise of primulas the flowers flutter out from amongst the sea green leaves like blue and golden butterflies’. Perhaps the collection of *M. betonicifolia* [*baileyi*] is the achievement best associated with Kingdon-Ward’s name, for it is now firmly established in cultivation both in the UK and overseas. And it could well be that the discovery, and the introduction to cultivation, of ‘Sherriff 600’, as this marvellous plant is now known to horticulture, will be ranked as Sherriff’s greatest achievement. It is a finer plant by far than *M. betonicifolia* [*baileyi*]; and it is a finer plant by far than the form *M. grandis* from Sikkim which grew for many years in the rock garden at RBGE and which carried only a solitary nodding flower on a 12- or 18-inch flower stem. Sherriff 600 grows to twice that height, sometimes higher, and bears several glorious deep blue flowers often as much as 6 inches [15cm] across.”

Betty Sherriff’s Dream Poppy

The second is the sort of story that legends are made of and, although well known to *Meconopsis* aficionados, I relate it here for completeness, quoting from Fletcher (1975). In May 1949 Mrs Betty Sherriff, along with Hicks and a Bhutanese, Tsonpen, were encamped in north-east Bhutan. Fletcher takes up the account:

“Their collecting at Shingbe began auspiciously – and in somewhat surprising circumstances. During the night of 25 May, Betty Sherriff dreamt that her husband walked into her tent, stood beside her camp bed, and gave her instructions for collecting on the following day. She was to seek out below the camp a small track leading to the Me La; to follow the track for about three miles until it bifurcated; to take the right hand fork and walk some 300 yards to a large rock mass. On the far side of the rock she would see a poppy she hadn’t seen before. As Sherriff left the tent he turned, shook a finger at her, and said ‘Be sure you go’. The next morning, at their usual 5.00 a.m. breakfast, when she told Hicks and Tsonpen the substance of her dream, they were both very sceptical and urged her to keep to their original plan of collecting in

a particular valley they called the Glacier Valley. But the dream, and especially the shaking finger, had been so vivid and the instructions so clear and positive, that she determined to leave the rest of the party to seek her dream poppy. She had no problems; she found the track easily; she found the mass of rock easily; and behind it she found a glorious blue meconopsis which she hadn't collected before, a form of *Meconopsis grandis* (20761). Hicks, at first unbelieving, returned to the spot the next day and took several photographs. More important, in the autumn he succeeded in collecting seed of what is certainly one of the most supreme gems of the Ludlow and Sherriff collections; when plants from these seeds flowered in some Scottish gardens they became known as 'Betty's Dream Poppy' ..." (Fletcher, 1975).

While this is a good story it has been disputed. Those who have been lucky enough to read through Betty Sherriff's diaries of the period report that on the days in question no mention is made of the dream or the poppy.

The big perennial blue poppies have arisen in gardens since the collections of Ludlow & Sherriff and their accompanying collectors. It is reasonable to assume that they have all got there by chance, for few deliberate recordable crosses were made during the period (primarily the 1940s to the 1980s). That we have so many different ones in cultivation today is the result of three main factors: first, the ease with which the parent species hybridised in gardens; second, the robust nature of the majority of these hybrids (many are infertile) allowing them to be readily vegetatively propagated and distributed amongst growers in favoured parts of the country (the phenomenon is almost exclusively a Scottish and Irish one); and third, the dedication of the Meconopsis Group in analysing and cataloguing the clones (see Stevens, 2006 for a description of the work of the Group), giving the finest and most distinct cultivars names, although some clones, like the Irish 'Slieve Donard' (Fig. 9), dating back to 1935, were known long before the Group was initiated.

It is generally assumed that all these big blue poppies, beautiful and enticing as they are, are hybrids between two prime species, *M. grandis* and *M. baileyi* (*M. betonicifolia* of gardens). *M. betonicifolia sensu stricto* is restricted to south-western China and was not in cultivation at the time, so it can be safely removed from the hybrid equation. However, other species could have been involved, most notably *M. simplicifolia*, which was present in many collections during the critical period. Another species, *M. integrifolia*, was also in many *Meconopsis* collections at the time and has often been suggested as another parent in the 'hybrid pot'; however, I see no evidence in any of the big perennial blue poppies to suggest this, besides which most hybrids involving this yellow-flowered species and blue species such as *M. simplicifolia* (*M. × harleyana* G. Tayl.) or *M. betonicifolia* (*M. × sarsonsii* Sarsons ex Gard. Chron.) produce pale yellow, cream or white flowers, not blue. The known hybrid involving *M. grandis* with a yellow species is with *M. integrifolia* (*M. × beamishii* Prain), and Taylor (1934) points out in his monograph of the genus that "Of the known hybrids in the genus between blue-flowered and yellow-flowered species this is the only one which shows any indication of blue in the flower colour [they are yellow throughout or with a purple blotch towards

the base of each petal].” This strongly suggests that yellow is dominant over blue in these species.

The case for excluding *M. simplicifolia* from the ‘hybrid pot’ is far less sure. Certainly, chromosome studies (unpublished data) undertaken on behalf of the Meconopsis Group in the last few years indicate the probable hybrid nature of many of the perennial big blue poppies. *M. baileyi* has 82 chromosomes, it seems likely that *M. grandis* has double that number at 164, while the hybrids have intermediate numbers, around 110–120 or 123. However, *M. simplicifolia* also has 82 chromosomes so it cannot be eliminated at this stage. Further work, especially more chromosome counts and DNA analysis of the species involved, is required before more positive pronouncements can be made.

Interestingly, while all these big perennial blue poppy hybrids were arising inadvertently in gardens, one of their progenitors, *M. grandis* subsp. *grandis* and subsp. *orientalis*, was gradually disappearing, and, despite more recent introductions, it is today rather rare in cultivation. This only emphasises the vigour of the hybrids and their sustainability in gardens. The impact of this species on the big blue poppies is paramount; without its input these wonderful plants would not exist.

The first hybrid recorded between *M. grandis* subsp. *grandis* and *M. baileyi* (*M. betonicifolia* of gardens) was named *M. × sheldonii* by George Taylor (1936). It is safe to assume that this hybrid was between the Sikkim or Nepalese form of the former (subsp. *grandis*) and *M. baileyi*. This is borne out by the leaf characters and flower characters, which are at an almost intermediate point between those of the parent species. *M. × sheldonii* was a sterile hybrid and could only be propagated by vegetative division of the parent clump. *M. × sheldonii* had first been raised by W.G. Sheldon (Oxted, Surrey) in 1934. In fact it is recorded in Taylor (1936) that this interesting hybrid arose on several occasions in different gardens, apparently both unintentionally and deliberately.

The famous and widely popular ‘Sieve Donard’ fits in here. It is recorded (Cobb, 1989) that the cross was also made by Alec Curle of Edinburgh and that a plant given to Edrom Nursery was named ‘Ormswell’. Other plants



Fig. 9 *Meconopsis × sheldonii* (Infertile Blue Group) ‘Sieve Donard’. Photo: Plant Images/Christopher Grey-Wilson.



Fig. 10 *Meconopsis* Fertile Blue Group ‘Lingholm’. Photo: Plant Images/Christopher Grey-Wilson.

from the same cross were transferred via Hugo Patten and Marjorie Dickie to the Slieve Donard Nursery in Ireland. One of these was at first invalidly called *M. grandis* ‘Prain’s Variety’ but this was later changed appropriately to ‘Slieve Donard’. This stresses the importance of seedling variation in any batch of hybrid seedlings. It appears that from *M. × sheldonii*, in all likelihood, fertile allohexaploids (counts show that these plants have 246 chromosomes or near that number) arose spontaneously in gardens and have been named ‘Lingholm’ (Fig. 10), a cultivar readily raised from seed and now widely available. As expected, it shows some seedling variation. This fine cultivar is classified in the Fertile Blue Group. ‘Kingsbarns’ is similar and, along with several other cultivars, which may or may not be directly related, is classified in the same Group.

This has an important bearing on the input of *M. grandis* in these hybrids. Of course further cytological studies will undoubtedly tell us more but the current picture as I see it is thus:

Meconopsis grandis subsp. *grandis* and *M. baileyi* were established in gardens by the mid-1930s, the former with a chromosome number of $2n=164$, the latter with $2n=82$.

A hybrid between these taxa gave rise to *M. × sheldonii*, a sterile hybrid with a chromosome count of $2n=123$. A number of similar plants that were placed in the recent classification in the Infertile Blue Group have been named: ‘Bobby Masterton’, ‘Bryan Conway’ and ‘Maggie Sharp’ clearly should be placed under *M. × sheldonii*, but it is not yet clear whether or not other cultivars collected into this Group should be referred

to *M. × sheldonii*. The important point is that plants in this Group would appear all to be descended from an original hybrid or hybrids between *M. grandis* subsp. *grandis* and *M. baileyi*, but until cytological studies reveal otherwise, *M. simplicifolia* cannot be ruled out of the equation, especially with regard to the other cultivars named within the Group.

Given the date and timing of introductions it is impossible that *M. grandis* subsp. *orientalis* was involved in *M. × sheldonii*, and this implies that it has no input into the Infertile Blue Group. However, the introduction of this fine subspecies from Bhutan between 1935 and 1949 almost certainly gave rise to what is classified today as the George Sherriff Group. Hybrids between *M. grandis* subsp. *orientalis* and *M. baileyi* should not be placed under *M. × sheldonii*. The two subspecies have given rise to very different groups of plants. In the case of the George Sherriff Group (which are sterile or practically so; very occasionally a few seeds are produced) many of the plants are closer to the *M. grandis* parent in their leaf and flower characteristics than they are to *M. baileyi*. It has been assumed that these stemmed solely from the introductions of *Ludlow & Sherriff 600* (GS600) collected in Bhutan in 1934. However, I see no real evidence that all have arisen from this number, although, having said that, it is quite clear that this collection has played a significant and dominant role in the evolution of the George Sherriff Group. In the broad range of characters that the George Sherriff Group presents, many have more features in common with the latter introductions, and it would be wise to look at the seed collections of Dr J.H. Hicks under the *Ludlow, Sherriff and Hicks* numbers 20671, 29801 and 21069 (see above) as potential parent material.

What of *M. grandis* in cultivation today? It is regrettable that many fine introductions, especially those from Bhutan, have disappeared from cultivation, overwhelmed no doubt by their more versatile hybrid offspring. Considering the number of seed collections made in eastern Nepal in the past 30 years it is perhaps surprising how few plants survive these introductions. One of the earliest was *Polunin, Sykes & Williams 5423* (or PSW5423). This was collected in west Nepal at Barbare Lekh, north-east of Jumla, and was cultivated for a number of years, so is referable to subsp. *jumlaensis*. The herbarium specimen located at the Natural History Museum clearly records that this was a seed collection. Plants raised from this source were available for quite a few years and then it apparently disappeared. However, the Meconopsis Group records that since it was last listed in the *RHS Plant Finder* (1998) a plant has come to light. In brief, it came via Dr Jim Gauld of Aberdeen, who had in turn purchased it from Jack Drake's nursery at Inshriach in the Cairngorms. Plants were handed to the Meconopsis Group for study and analysis. The plant in question, a vigorous clone, possesses the prime features of the Nepalese plant in its narrow leaves and glabrous fruits and it can have up to three flowers per stem. This is a fine plant, but some doubt must, however, remain as to its authenticity, as this clone is apparently sterile and some hybrid contamination cannot be ruled out.

Another collection, this time from eastern Nepal, is singled out simply as 'Single-headed Blue' and this may be the same as the plant now being grown, probably incorrectly, as 'Sikkim Form'. This is another very persistent clone and is fertile: seed has been distributed from it via seed exchanges for the last few years as true *M. grandis*

(now subsp. *grandis*). Even here there seems to be at least two forms: to quote Evelyn Stevens: “I think it is the same as one of the two fertile true *grandis* that I have ... one has frilly, gappy flowers (‘Single-headed Blue’) and is still present at Cluny, and the other has rounded petals and looks like the plant of *M. grandis* illustrated in Alf Evans’ *The Peat Garden*.” (Stevens, pers. comm.)

In addition, mention has already been made of recent seed collections (of subsp. *orientalis*) made in Arunachal Pradesh by Peter Cox and his party in 2004, and a number of plants from this source are still in cultivation. As well as these there are plants in cultivation of subsp. *grandis* derived from the 1989 Kew Edinburgh Kanchenjunga Expedition (KEKE).

One problem facing anyone trying to describe these beautiful and tantalising plants is defining the flower colour. While pure tones are the exception, most of the blue poppies have petals flushed or infused with colours other than blue: hints of pink, mauve, purple, lilac and lavender can creep into the blooms. In addition to this flowers can change colour from first opening to maturity and those growing in stronger light may well fade long before the petals fall. Also, the same plant can appear to be a different colour at different times of day, while divisions of a single clone planted in different gardens, or indeed in different parts of the same garden, can seem to be different. It is not surprising that blue poppies prove to be such fickle plants to photograph. In addition to this, the same plant in the same location can change colour subtly from one year to another. All this seems to indicate that it is perhaps not the soil type or pH that causes these fluxes in colour. It has been suggested that the pH of the pigments that control flower colour can be affected by temperature and unstable weather conditions during bud development, causing the variation in colour that we observe. To understand this, a detailed scientific laboratory study is required.

CONCLUSION

Whilst I realise that insufficient recording, coupled with insufficient data, regarding the origin of the big perennial blue poppies reads like poor science, it is important to realise that in the last 20 years or so our understanding of this group of plants has made major strides forward thanks to the work of the Meconopsis Group and others. Many of the problems regarding identities and naming amongst the clones of the big blue perennial poppies in cultivation have been clarified; however, many remain unresolved. Foremost there is a need to establish a firm scientific basis and for this it is necessary to make further significant progress in examining the chromosomes and DNA of wild plants or, at least, of plants of known wild origin. Several samples need to be taken from a number of different populations in the wild to gauge the amount of variability in a particular taxon. As far as *M. grandis* is concerned, samples are required from all three subspecies. Samples of populations of *M. baileyi*, *M. betonicifolia* and possibly *M. simplicifolia* will also be required. Only then can a proper analysis be made of the role played by these species in the origins of the big perennial blue poppies. While some work has

already been done, much remains: it would be an excellent PhD research subject. In the meantime, we have many fine poppies to admire. In addition, the Meconopsis Group has produced for its members a series of relevant reports on talks given at Group meetings. Many of these have a great deal of interesting and factual information on the genus. All the reports are housed in the Group's archive. Further information and membership details are available on the website: www.meconopsis.org

Yet one question above all remains in my mind which I feel only these studies will tell us, that is, are some of these so-called hybrid poppies actually the true wild species in disguise in cultivation?

THE CULTIVATION OF *MECONOPSIS GRANDIS**John Mitchell*⁶

Species and cultivars of *Meconopsis* are not the easiest of plants to grow. Consideration of the conditions in which they live in the wild – high altitude, extreme temperatures, high light levels, monsoon conditions and snow cover – are certainly part of the problem. Trying to relate these conditions to cultivation in parts of the UK can be a real challenge. The west coast of Scotland can provide two of the four conditions, while the climate of the east coast can emulate one. Conditions in the south of England, where it is warmer and drier, make growing *Meconopsis* more of a challenge as virtually none of the conditions match the requirements of the plants; however, it is not impossible to succeed.

Growing *M. grandis* from seed can prove to be a problem as, over the years, it has been hard to obtain new, wild-source seed (as opposed to seed continually harvested from cultivated material). However, if one is lucky enough to get hold of any newly collected seed the best time for sowing it is December to March. Seed should be sown on top of seed compost and then very lightly sprinkled with further seed compost. Chick flint (2mm in diameter) should then be added to cover the soil as this helps to prevent drops of water splashing the seed from the compost, and also helps to prevent the growth of moss if the seeds do not germinate quickly. Seed pots should be placed out in a covered cold frame and checked daily for germination. If the seed is viable and the conditions are right the seeds should germinate within a couple of months. If this is the case it is important to keep an eye on them until they are big enough to prick out. This is best done when two young leaves have emerged, and seedlings should be pricked out into either plug trays or individual pots. For best results it is better to only pot them on once and then plant out in September. If space is available, it is best to keep them in the nursery over winter and plant out the following spring.

Once the young plants are ready for planting the next challenge is to find the best possible position. At RBGE experience has shown that growing *Meconopsis* in moist soils with slight dappled shade gives the best results. However, finding such conditions is not always easy and it is probably best to find the dappled shade as a priority, as the moisture element can easily be added with artificial irrigation later. Incorporation of organic matter is beneficial and leaf mould has proved to be the best source. If the soil is heavy, grit should be added as *Meconopsis* perform best on well-drained fertile soils. The planting distance should be about 300–400mm. Some enthusiasts believe that it is worth aborting flowering in the first year by removing the flower bud, as they believe that this produces a better and stronger plant which promotes better flowering in subsequent

6. John Mitchell is Alpine Department Supervisor at the Royal Botanic Garden Edinburgh.
Address: 20A Inverleith Row, EH3 5LR
Email: j.mitchell@rbge.org.uk

years. If plants already appear to be large and vigorous, an alternative strategy could simply be to remove half of the flower buds.

Once *M. grandis* has flowered the seed pods should be watched carefully. They should become fat and swollen, and when the top starts to peel back from the upper side of the seed pod they should be cut and placed in a paper bag along with all the records and information about the plant, such as the accession number and collector number. At this point the seed should be placed in a small seed tray lined with paper and the seed allowed to ripen and dry out slightly. Once this has taken place the seeds should be put in a seed packet and placed in a refrigerator until December and then sown.

Experience has shown that it is always best to keep some seed back just in case germination is poor or the plants do not survive outside, as this gives the option of resowing or longer storage. Long-term storage requires a bit of extra work as the seed will have to be further desiccated. This involves placing the seed in an airtight container with silica gel in the bottom and leaving it for three weeks, after which the seed can be removed, placed in airtight packets or glass jars and put in the freezer at about -18°C . Treated in this way, it can be stored for many years, which means that if supplies of fresh seed run out it is possible to tap into these stored reserves. If these notes are followed it should be possible to enjoy growing *Meconopsis grandis* for many years.

ACKNOWLEDGEMENTS

Christopher Grey-Wilson is extremely grateful to Christopher Brickell and Evelyn Stevens for their painstaking review of this paper and for their support and comments. My greatest thanks are extended to Dr Robert Mill of the Royal Botanic Garden Edinburgh for providing the Latin diagnoses of the new subspecies.

REFERENCES

- COBB, J.L.S. (1989). *Meconopsis*. Christopher Helm, London; Timber Press, Portland, OR.
- EVANS, A. (1974). *The Peat Garden*. J.M. Dent & Sons Ltd. in association with the Royal Horticultural Society, London.
- FLETCHER, H.R. (1975). *A Quest for Flowers*. Edinburgh University Press, Edinburgh.
- GREY-WILSON, C. (1995 reprint). *Poppies*. B.T. Batsford, London.
- MALCOLM WATSON, W. (1998). *RHS Plant Finder 1998–99 12th edition*. Emerald Group Publishing Limited, Bingley.
- POLUNIN, O. & STANTON, A. (1984). *Flowers of the Himalaya*. Oxford University Press, Oxford.
- PRAIN, D. (1906). A Review of the genera *Meconopsis* and *Cathcartia*. *Annals of Botany*, 20, 323–410.
- RATTER, J.A. (1968). Cytological studies in *Meconopsis*. *Notes from the Royal Botanic Garden at Edinburgh*, 28, 191.

- STAPF, O. (1933). *M. grandis*. *Curtis's Botanical Magazine*, 146, tab. 9304. Royal Botanic Gardens, Kew.
- STEVENS, E. (2006). The *Meconopsis* Group, the big perennial blue Himalayan poppies and RHS awards. *Sibbaldia*, 4, 31–58.
- TAYLOR, G. (1934). *An account of the Genus Meconopsis*. New Flora & Silva Ltd., London.
- TAYLOR, G. (1936). New *Meconopsis* hybrids. *Gardener's Chronicle*, 3(96), 9.
- YOSHIDA, T. (2005). *Himalayan Plants Illustrated*. Yama-kei Publishers, Tokyo.