

“*Meconopsis horridula* and the Small Blue Poppies”
Christopher Grey-Wilson

(written up by Evelyn Stevens and approved by Chris Grey-Wilson)

In his second talk Chris Grey-Wilson started by saying that the small blue poppies form the largest group within *Meconopsis*. Many of them form the so-called “horridula complex” and many are not in cultivation. Early on in his talk Chris gave credit to all who had provided photographs used in his talk - see end of this report.

The *Meconopsis* “horridula complex” is incredibly variable, such that Chris feels it is nonsensical to regard it as all one species. To justify this statement he started by showing a number of pictures to illustrate the range of variability found in the complex, all of which were “lumped together” as *M. horridula* by George Taylor. In the wild: are found: (1) dwarf, scapose plants (with flowers all arising from the basal leaf rosette on separate stalks or scapes) and (2) racemose forms (possessing a well defined inflorescence with a central axis from which the flowers arise). Another interesting point is that in the “horridula complex” (and in some others) there are two main types of inflorescence: plants may have a simple raceme, or alternatively the inflorescence may consist of merged and partly or almost wholly fused scapes, “agglutinized” in George Taylor’s terminology. A close look at the anatomy of the latter shows that the apparent single stem comprises a number of individual scapes each arising from the base of the plant at soil level.. “Agglutination” is common in the *horridula* complex, but it also occurs in other *Meconopsis* species, e.g. *MM. venusta* and *impedita*. This condition is very different from the racemose forms in which there is a central main stem with flowers arising (each on its own pedicel) from the stem axis. In this racemose configuration, the pedicel of each of the flowers joins independently with the main stem. (slides 2 and 5 illustrate these two conditions).

Apart from the scapose versus racemose condition, Chris showed a number of slides depicting some of the other variability which occurs in this “horridula complex”: height (from tiny dwarfs up to 1.2 m), small or large flowers, varying shades of blue, number of flowers per plant, habitat variation (from exposed situations at very high altitudes to lower altitude growing in damp, shady places), some have toothed leaves, some with broad leaves, some glaucous leaves etc. Chris said it is therefore very difficult to come to terms with the idea of classifying them all as a single species as George Taylor proposed. (e.g. slides 2 – 5).

M. horridula is covered in sharp bristles – all parts except the petals. The bristles show quite a lot of variability. Some plants possess one type of bristle, i.e. large coarse bristles. Other plants have two types – large, coarse bristles with an “underfelt” of many tiny bristles. On the whole, the more westerly plants have just one type of bristle, while further east, the mixture of bristle types is commoner.

Following this introduction, Chris then went on to some of the related species. The first was *M. speciosa*. It has been in and out of cultivation, and in his view is one of the most beautiful species. It occurs in a wide range of blues, pale blue, azure, duck-egg etc to almost white. It is one of the few species to be well scented. It comes from SE Tibet (including not far from Lhasa) to SW China. It is a racemose species. The leaves show a readily recognised and typical dissected morphology. The amount of dissection of the leaves varies quite a lot. Height varies too; in especially fine specimens, the racemes can be up to 1 m in height. As occurs commonly in *Meconopsis*, the pedicels elongate greatly after flowering with the result that the height of the plants is often much greater when in fruit than when in flower. The reason for this is not known. In the best specimens of *M. speciosa* there may be 40-45 flowers (slide 6). In just two passes in southern Tibet plants are scapose rather than racemose.

The next species considered was *M. aculeata*, a closely related western Himalayan species. Like *M. speciosa* it occurs in a range of lovely blues or violets and similarly has dissected leaves. It is very variable, from quite dwarf to over 1 m tall, but is overall rather lanky and lax. The distribution is from NW Pakistan, just into Nepal, in Kashmir and in northern India (slide 7). In the west of its range (extending just into Afghanistan) plants are scapose and reduced: such plants have been described as a separate species, *M. neglecta*, but it is doubtfully distinct: this is another example of a ‘species’ occurring in either a racemose or scapose form.

Chris then showed again his “species association” slide shown in the first talk. It shows that a number of distinct ‘elements’ (populations of plants with features noticeably dissimilar from those in other areas) can be found within the overall variation within a particular taxon. Whether these can be regarded as distinct species is open to question. Paul Egan (in an earlier talk) had shown how some species can maintain their individuality by means of such mechanisms as different flowering times, pollen incompatibility and habitat etc.

Chris then attempted to simplify the situation with regard to the “*M. horridula* complex” with the aid of the next diagrammatic slide. The “horridula complex” has a huge distributional range: this comprises most of the Himalaya from west Nepal eastwards, Bhutan, all Tibet (including north Tibet), NW China (Qinghai and Gansu) and then south to SW China (Yunnan and S.Sichuan). It is typically a plant of the drier parts of the Himalaya and the dry Tibetan plateau. The “horridula complex” is very common - all herbaria have large collections of specimens (several hundred in Edinburgh, for example). Chris’s diagram showed that in the west of the distribution, the scapose forms are commoner, while racemose forms are commoner in the east. Within this species conglomerate you get other entities that are fairly uniform. One is around Lhasa and this is almost certainly a distinct taxon. In Bhutan, as with other species (e.g. *M. grandis* and *M. simplicifolia*) one finds especially fine forms of *M. horridula*. In SE Tibet there is *M. prainiana* that is also very distinct and occurs in quite a small area. In China and just going into Tibet is *M. prattii*, a low altitude plant. The species was first described from around Kangding: plants further south in the Zhongdian region may or may not be the same taxon. However, plants from this latter source, long-established in gardens have wrongly be called *M. horridula*. It is perhaps the easiest plant in this complex to cultivate. True *M. horridula* is a high altitude species and proves to be very difficult to grow and virtually impossible to maintain in cultivation. Then there is *M. rudis* found in NW Yunnan, northwards to Kanding in W Sichuan.

All the entities referred to in the paragraph above were sunk in *horridula* for many years until Chris resurrected them. He will keep most of them in the monograph. Even if these entities are recognised as distinct, there still remains a “horrible mish-mash” of plants that are proving very difficult to classify. One of the problems appears to be that one is looking at plants at just one point in time in their evolution, and that they happen to be in a state of active evolution at the present time. The different entities occur at great distances from one another, and this, together with considerable geographical barriers between them as well as markedly different habitats (from high dry, exposed areas to lower, wetter, woodland areas), means that there is restricted opportunity for gene flow between the different entities.

Chris then went on to discuss and show slides of the “easily-defined” species. First, *M. rudis* occurs on the Balang Shan and around Kanding in western Sichuan southwards into SW Sichuan and its stronghold in Yunnan. It is common on the Baima Shan, Yulong Shan, Haba Shan and all the other mountains in this part of China and possibly occurs just into Tibet and NE Myanmar (Upper Burma). It is a racemose species with very broad rather floppy, glaucous leaves, remarkably few bristles with no underfelt of smaller bristles. The flowers are relatively large and the whole plant is glaucous (which is unusual in this group of plants). There is usually a dark spot at the base of each bristle, but this is not constant. The presence or absence of the dark spots (raised warts at the base of the bristles) is characteristic of the whole complex, and adjacent plants may possess or lack these. Flower colour in *rudis* is variable from pale blue, azure and white, to even pink. *M. rudis* is a scree plant of quite high altitude at or above the tree-line (slides 8, 9, 10).

The circumscription of *M. prattii* is badly understood, but it occurs in typical form at Napa Hai and in surrounding areas in NW Yunnan. It is large, up to 1.2 m high and can have dozens of flowers, and these may all open at the same time. It rarely has basal scapes. The leaves of the basal rosette are large and undulate. It also occurs in W Sichuan in slightly different forms. It occurs well below the tree-line unlike *M. rudis* and is most often found in woodland and shrubberies or on open rocky slopes. It was collected and introduced by George Forrest and later by others. It is easy in cultivation. As in all *Meconopsis* it flowers from the top of the raceme downwards and in this case all the flowers may open at once. The anthers vary in colour (white, green or yellow) depending on provenance and age. Stem colour is also variable – from green to purple, so these are not good diagnostic characters (slides 11, 12, 13).

At Zhongdian (Chungtien), at the field station, they have introduced various *horridula* types and planted them near each other and the result is that a whole range of unattractive hybrids has arisen. Unfortunately, these are escaping into the wild and may damage the local wild populations by interbreeding with them.

The next species dealt with was *M. prainiana* from SE Tibet where it has a limited distribution. It was also called *calciphila* by Kingdon Ward who also found it in N Myanmar (Upper Burma) (*prainiana* is the earliest and therefore correct name). It also occurs in woodland and can be very tall - up to 1.2 m. The leaves are more upright, greener and fewer than in *M. prattii* and flowers always have 4, rarely 5 petals (not 6 as in *M. prattii*). (slide 14). It occurs in a primrose yellow form. The occurrence of yellow or blue forms within a given species is quite common in *Meconopsis*. *M. prainiana* may also occur with ruddy purple flowers..

The next species discussed was *M. horridula* in the strict sense. It was described from Sikkim and has since been found widely in the Himalaya and Tibet, nearly always being found on mountain moorland, heathland or in very exposed rocky terrain. Chris showed a number of pictures demonstrating the great variability that occurs within *M. horridula* sensu stricto. It is usually scapose, but can be racemose. The spiny leaves possess both large and small bristles. Dark spots may be present or absent on the leaves. Leaf shape, flower colour and shape are very variable. Plants can be very dwarf, especially a form that grows in Qinghai in very dry habitats, which is only a few cms high and has upward looking flowers. In Bhutan there are beautiful racemose forms traditionally called *M. horridula*, but which Chris calls *M. racemosa* sensu lato and which have well developed racemes (although this designation may need to be changed). The flowers are very large. Once again there is great variability in flower shape and colour within *M. horridula*. In W Sichuan northwards to Gansu and Qinghai, *M. racemosa* is found. It was first described from the Kangding area. It occurs on moorlands, often much grazed by yaks. The plants are invariably strongly racemose. If they have affinity with another species it is with *M. prattii*, but they grow at much greater altitude and have a few morphological differences. (Slides 15-22 are some of the slides which were used when discussing *MM. horridula* and *racemosa*). Still more examples of variability within the *M. horridula* aggregate were next illustrated and the problems in defining them discussed.

M. lancifolia is widespread in SE Tibet and west China (as far as west Sichuan and also to Qinghai). It has been much confused in the past in herbaria and in the literature with *M. horridula*. But it is a distinct species, although it is also quite variable. The inflorescence comprises a single thick stem with 2-5 flowers but there may also be a few basal scapes present, each with a single flower. The flowers range from pure blue to purple in colour. The leaves of the basal rosette are plain green and glabrous or covered with soft hairs and are never bristly as in *M. horridula* (slides 23, 24). The variant *eximea* comprises the vigorous, large-flowered forms which are found in the south of the range. *M. lancifolia* has been in and out of cultivation over the years.

M. forrestii is closely related to *M. lancifolia*. This has a very limited distribution, mainly in NW Yunnan around Lijiang, and it also reaches into southern Sichuan. It is up to 1m tall with up to 6 flowers high up on the stem. The fruits are very long and thin and quite unlike any other species (slide 25).

M. henricii is one of three species in which the filaments are not linear, but are expanded towards the base. The other two species with this feature are *M. sinomaculata*, fairly recently described by Chris and a new, as yet undescribed species recently discovered by Toshio Yoshida. *M. henricii* occurs in E. Tibet, Qinghai and W and NW Sichuan. It is scapose with a single or several large flowers. (Slides 26 - 28).

Surprisingly, *M. concinna* has been regarded as a subspecies of *lancifolia*, but it is quite distinct. It is a small species, with pinnately-lobed leaves, solitary scapose flowers and with up to 8 or 9 flowers per leaf-rosette. It is quite widely distributed in SE Tibet and W and SW China. Not many photographs have been taken of it in the wild. (Slide 29).

Another widespread species is *M. impedita*, but again not as much photographed as Chris would have expected from the numerous herbarium specimens which exist. It typically has jagged leaves with

serrations pointing towards the tip. The flowers are very nodding and umbrella-like and the colours are rather dingy, e.g. in blackish violet, dull purple or mauve, but never a good pure blue. It is scapose, maybe agglutinose, with several flowers per specimen. It has a distinctive, almost black ovary. *M. impedita* is found in SE Tibet and west China. (Slides 30 and 31).

The next species discussed was *M. pseudovenusta* that has been seen by a number of people in recent years. It is a high scree plant of NW Yunnan with masses of flowers (up to 26), and only 15 cm tall. It is easily confused with *M. venusta* and their distributions overlap. They differ markedly in their leaf dissections, but the only real difference is in the fruit capsules which are very different - in *pseudovenusta* they are short and stumpy, while they are long and thin in *venusta*. and the indumentums are rather different. Their exact status requires further investigation. (Slides 32 – 35).

The next species discussed was *M. bella* which is one of the few small blue poppies that is perennial. *M. bella* occurs right through Nepal and Himalaya to SE Tibet. But it does not get into China. The leaves may be entire or divided, these conditions often being found on the same plant or on adjacent plants in the wild. It is unique in *Meconopsis* in that the fruiting pedicels bend over on ripening and reach down to the ground. (Slides 36 and 37).

The last species shown were two new ones recently described and published by Toshio Yoshida. Toshio, namely *MM. castanea* and *bijiangensis* (slides 38, 39 and 40). Toshio Yoshida also has two other new species, not yet published. All of these he would be describing when he came to talk to the Group in May. They come from the border of Tibet/Myanmar/NW Yunnan area. They fit comfortably into the "*M. horridula* complex".

The discussion that followed is not reported as I could not hear the comments on the tape.

Picture credits. Chris was grateful to the following for the use of the photographs used in his talk, a selection of which are reproduced, with his and their permission, in the pdf which accompanies this report: John & Hilary Birks, Harry Jans, Tim Lever, Ron McBeath, John Mitchell, Henry & Margaret Taylor, Margaret and David Thorne, Martin Walsh and Toshio Yoshida. Some pictures are his own.