Exploring Chinese Meconopsis. Alan Oatway.

Alan's talk was based on three separate visits to China.

He began the talk by introducing his musical sub-title: "There are more questions than answers and the more I find out the less I know". (*With apologies to Johnny Nash*) This sums up the difficulties in identifying many of the plants seen.

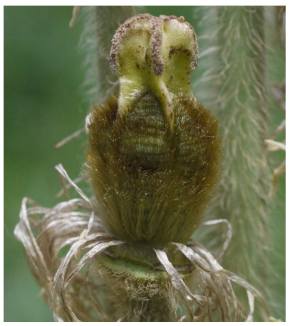
He spoke of the visits covering a large tract of country, from the far north of Sichuan to the far south of Yunnan. This is a distance of some 1,000 miles with the far north being the same latitude as Casablanca. Naturally, the climate and growing conditions vary hugely across such a large area.

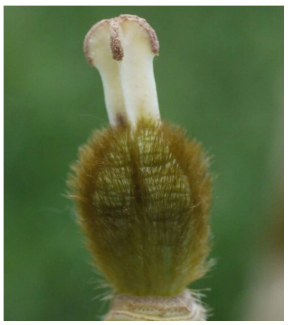
The first poppies he discussed were the large yellows. In the far north, Farrer's lampshade poppy, the yellow flowered *M. integrifolia ssp. integrifolia*, was seen, in meadows and scrub. This location accords with its distribution described in the monograph. Its key features being upward facing flowers, lower down they may be side facing, three parallel veins in the leaf and the style coming down onto the side of the capsule. The word to describe this feature is decurrent.

M. integrifolia was also seen from the boardwalk at Huanglong where it was difficult to get close enough to examine the plants in detail. Here the veins in the leaf were parallel, but the flowers were fully open and lateral-facing.

Further south, in the north of Yunnan, another yellow poppy was seen; *M. lijiangensis* where the flowers are described as either being upward or side facing. The leaf veins are parallel. The style is distinct, and may or may not be slightly decurrent.

Alan then showed photos of various fruit capsules, showing both decurrent and distinctive styles: all were from the same clump of plants, presumed to be *M.integrifolia ssp. integrifolia*. Naturally, he asked "If this feature is so variable, should it be used to distinguish between species and sub- species"?

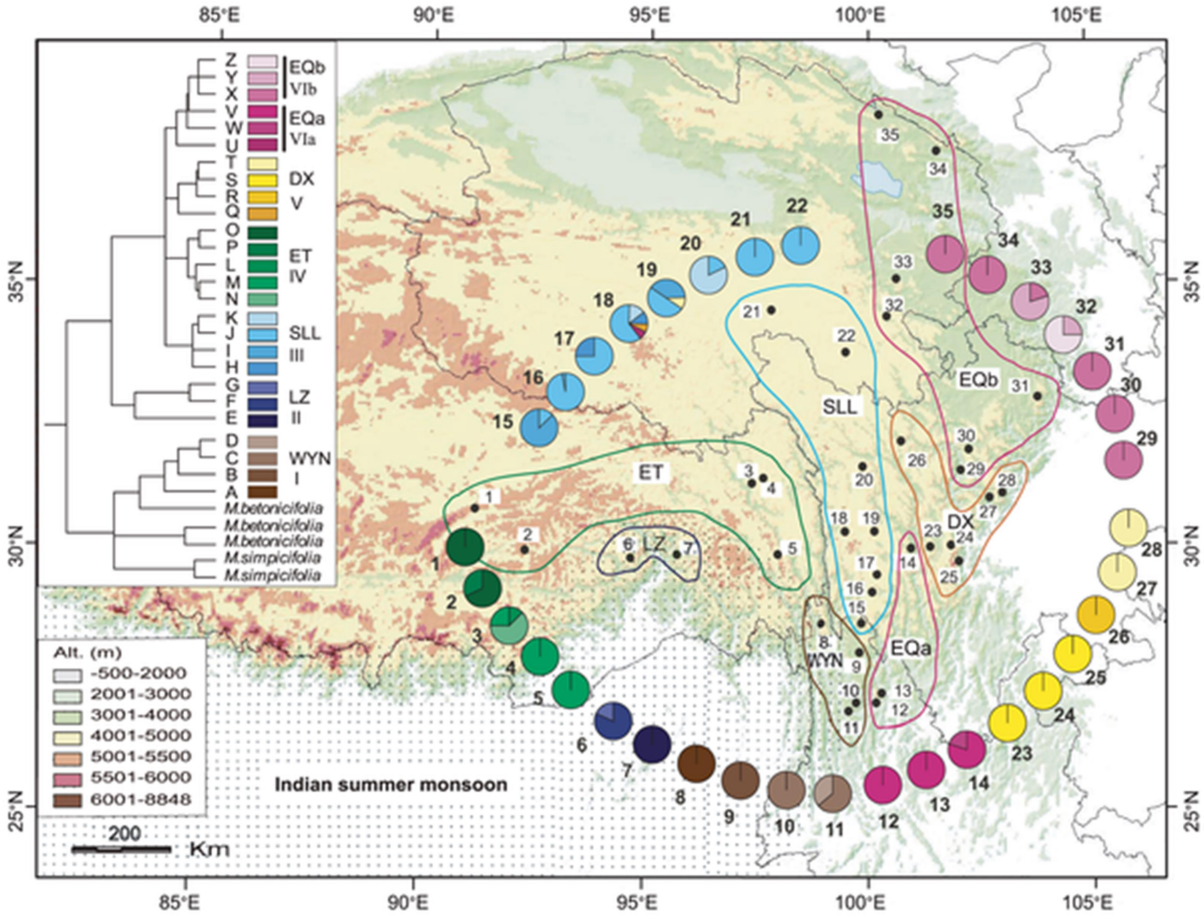




The third yellow poppy shown was *M. sulphurea,* from further south. The leaves have pinnate venation with no parallel veins. The style is distinct with no decurrence. The flowers are usually pendant. The capsule is clearly distinct from those of the other yellow poppies; indeed, the whole bearing of this species has more in common with the big blues than with the lampshades. Alan also thought that some of the plants he saw showed signs of being perennial, and given their affinity with big blues, he wondered if it might be worth preventing plants from flowering in their first year, to see if they bulk up into a perennial form. He saw this species in five different

locations near Shangri La (all east of the Yangtse), and three locations west of the Mekong. He commented that the former had a slender, glabrous capsule while the latter had a fatter, hairy capsule.

The next slide shown was taken from the paper **"Great Genetic Differentiation among Populations of *Meconopsis integrifolia* and Its Implication for Plant Speciation in the Qinghai-Tibetan Plateau."** Fu-Sheng Yang, Ai-Li Qin, Yu-Fei Li, Xiao-Quan Wang



(**NB The map above, and specific details of the locations, can be downloaded from the internet**.)

Alan commented that the paper seems to support the separation of yellow flowered Meconopsis into six or seven distinct groups. His images of *M. integrifolia ssp. integrifolia* were within the region labelled EQb, while those of *M. lijiangensis* were from location 15. All his images of *M. sulphurea* were from the area covered by Clade WYN, those with the slender capsules being from locations 8 and 9 and between, those with the fatter capsules being from west of locations 10 and 11.

Before moving on to other poppies, Alan then showed other plants seen in the Min Shan. A cable car gives access to the boardwalks alongside the Huanglong tufa pools, where thousands of slipper orchids were seen, mostly *Cypripedium tibeticum* and *C. flavum* plus a solitary *C.bardolphianum*. Also seen in the same general area were *Cypripedium calcicola* and the small species *C. palangshanense*.

Staying in the Min Shan, but returning to poppies, he showed the familiar *M.punicea* and *M.quintuplinervia*, the latter including some which had purple blotches on the back of the petals. Also from this area were *M. psilonomma* (Farrer's "Lonely Poppy") with its solitary flower on its single stem, and *M. sinomaculata* with a black anther with white pollen. This species has swollen dilated filaments clustering round the ovary which possibly act as insulators. Alan showed examples, one where the anthers were pure white, and in another there was no dilation of the filaments, nor did they cluster round the ovary.

In a recent paper Toshio Yoshida has re-named the plant with purple blotches as a sub-species of *M. psilonomma.*

Alan then showed an image (used with permission from Adrian Bottomley) from an area known to AGS journal readers as Stone Mountain, but to the Chinese it is part of the Golog Shan. This plant was identified as *M. barbiseta* and the Golog Shan is its type location. It has a near-identical description with *M. sinomaculata*, and Flora of China suggests that they may be the same. Alan's next two images showed hybrids with *M.punicea*, first with the Golog Shan plants, and then with those in the Min Shan. The inference being that *M.barbiseta* and *M.sinomaculata* are indeed conspecific.

There was a further rest from poppies while Alan showed photos of many of the Primula seen including *P. palmata*, *P biserrata*,(once *P. serratifolia*), *P. tangutica*, *P. orbicularis*, *P. bullata ssp. forrestii, P.agleniana, P. valentiniana* and the rarely seen *P.laciniata*.

Between the far north and south Yunnan, several small poppies were seen. Many plants of *M. henrici* were seen, mainly quite consistent with slightly hairy leaves and yellow pollen. The disposition of the flowers varied, some being upward facing, others side facing.

Two unidentified poppies were then shown. The first, with slightly hairy leaves and a single flower on each scape was seen on the Mengbi Pass. (Image, below left) The pollen was white. Harry Jans has images on his website, labelled *Meconopsis sp*. The second was by the roadside six or seven hundred feet lower down, a small multi-scaped meconopsis with glabrous leaves. (Image, below centre)

Next, Alan showed a meconopsis with that was quite variable. One example had a thick stem that was probably due to agglutination of the scape. It was *M xiangchengesis.(Image, above right)* Capsules varied between plants, some glabrous, some hairy. This species was seen on the Hong Shan, and it wasn't the expected *M. lancifolia,* although images from the area are frequently labelled as this taxon.

The Bijiang valley is the type location for *M exilis* which has almost pure white flowers with yellow pollen. The revision of this species and its allies explores differences in the shape of the leaves. Alan then showed two slides where the leaves were interchanged to see if we could tell the difference!!

Alan's final interlude was of images of liliaceae. After showing a selection, including *Lilium henrici, L. souliei, L. yapingense*, *Nomocharis saluensis* and *N.farreri*, he showed a *Nomocharis sp.* facing upwards as well as down depending on whether the sun was shining or whether it was raining. The change in disposition of flowers depending on external factors was further illustrated by examples of meconopsis growing in Cumbria. He described flowering *M. aculeata,* growing in the shade at the back of his house, with pendant flowers. Half an hour later, when he had moved it into a sunnier position in order to get a better photo, the flowers were facing upwards. Similarly, he showed photos of the flowers of *M. staintonii var. alba* and *M.horridula*(of hort.) facing upwards on sunny dry days. He concluded that characteristics can change in the lifetime of a plant and that plants change according to the conditions they find themselves in.

Alan then moved on to the prickly meconopsis. He considered the question why plants produce hairs and prickles? He had observed that drops of water formed on the hairs in dry conditions. He wondered if the prickles collect the moisture from the atmosphere. He showed examples from *M. dhwojii* and *M.paniculata* seedlings in his greenhouse, and an example of *M. sulphurea* taken in Yunnan on a hot sunny day: all showed many water droplets formed.

He then showed a range of prickly poppies, including *M horridula* in Tibet, scapose plants, with yellow pollen. In north Sichuan, *M. racemosa* was photographed, while near Shangri-La, *M. zhongdianensis,* a strong, robust plant with a two foot tall spike carrying plenty of buds. On limestone rocks in the Tian Bao Shan, smaller specimens of this were flowering. They were only six inches tall, presumably because they were growing in impoverished conditions. Finding these with no "normal" specimens in the vicinity made it hard to be confident of their identity.

A similar plant to *M prattii* was seen close to the roadway, Some of the plants in the area had purple blotches. There were buds in the axils of the leaves on extremely long stems. At least one plant was scapose, and there was no sign that a raceme had been present.

M. rudis, on both Baima Shan and Hong Shan, and *M. bijiangensis* on Biluo Xue Shan, were both shown, the characteristic purple colouration at the base of the prickles was not constant in either species. Just one flowering plant of the latter was

found and it did have strong purple blotching at the base of the prickles and yellow pollen. Other plants nearby had long narrow leaves, some without the purple.

M.zhongdianensis

M.zhongdianensis, dwarfed

M.rudis

All these encounters re-inforced the notion that the prickly poppies are confusing. Alan then referred to the 2015 paper 'Phylogenetic Analysis of Meconopsis and Evaluation of Two Controversial Taxonomic Species' by Wei Xiao and Beryl B. Simpson uses DNA to say that the splitting is not supported and that 'Taylor's 1934 concept of *M. horridula* is best considered as a species complex'.

The paper suggests the following taxa be included in that complex:

M. horridula, M. racemosa, M. rudis, M. prattii, M. prainiana, M. rigidiuscula, M. calciphila, M. pseudohorridula, M. bijiangensis, M. castanea, M. heterandra, M. balangensis, M. lhasaensis, M. zhongdiangensis.

Alan concluded with a couple of images of M.wilsonii ssp. australis, and then by listing the characters shown to be unreliable in determining species of meconopsis. They were: petal colour, purple blotching, prickles, leaf shape, plant stature and flower posture.

Jim thanked Alan for his interesting talk