Flowering of *Fargesia nitida* in the UK

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The first reported flowering of the Chinese bamboo cultivated in the west under the name *Fargesia nitida* was noted in this newsletter two years ago (Renvoize, 1993). This bamboo was grown in the UK from seed collected by Russian botanists in 1886, sent through St. Petersburg to James Veitch & Sons' Royal Exotic Nursery in Chelsea in April 1889. The Director of the Imperial Botanic Garden of St Petersburg, Dr Batalin, stated in 1895 in a letter to Kew that it had been collected in north Sichuan by Potanin. E. Bretschneider, in a letter from St Petersburg to Kew in 1898, asserted that Potanin knew nothing about the seed, and that it had actually been collected by Berezowski in S Gansu in 1886. This is not as important as it might appear as both botanists were on the same team collecting in the border area where southern Gansu meets northern Sichuan.

The first valid publication of the name *Arundinaria nitida* was in 1896 by Otto Stapf in the Kew Bulletin. Publication of the name in the Gardener's Chronicle by Mitford in 1895 was not valid as there was no adequate description. Although Mitford later gave a full description in his book "The Bamboo Garden" in 1896, it was only published in April, after Stapf had already described it in the Kew Bulletin in January. Therefore *Arundinaria nitida* Stapf is the valid name.

When he described *Arundinaria nitida* Stapf was actually describing material from two different species. He had before him the living plants growing in the Bamboo Garden, a collection of a leaf-bearing branch from the plants grown in St. Petersburg, sent by Dr Batalin, labelled Potanin, north Sichuan in 1889, and also some of the actual seed from which it had been raised, labelled as collected by Berezowski in south Gansu in 1886. Unfortunately, he also had a collection of a completely different bamboo found by Henry in Hupeh Province, and he lumped the two bamboos together, citing both Potanin's collection and that made by Henry.

McClure looked at both these collections in 1936 and annotated the "Potanin" collection sent by Batalin with his opinion that it ought to be chosen as the type of *Arundinaria nitida.* He separated the collection made by Henry as a separate species and later named it (McClure, 1940) as *Indocalamus confusus.* Henry's collection defines that species, now known as *Yushania confusa* (McClure) Z.P. Wang & G.H. Ye. It seems that the designation of the "Potanin" collection sent by Batalin as the lectotype of *Arundinaria nitida* Stapf has never been formalised.

The application of the name *nitida* is extremely important as it typifies and therefore defines the genus *Sinarundinaria*. If the Potanin collection is used to typify *nitida,* then whatever genus our western Fountain Bamboo belongs to will be synonymous with *Sinarundinaria.* I have always assumed that it would turn out to be a species of *Fargesia*. As *Fargesia* was published before *Sinarundinaria* it would take precedence, and *Sinarundinaria* is "sunk" as a synonym of *Fargesia.* Of course, we cannot be sure which genus our Fountain Bamboo belongs to conclusively until it flowers. If on the other hand the Henry collection were designated lectotype then *Yushania confusa* would have to be called *Yushania nitida*, and as *Sinarundinaria* was published before *Yushania* we would have to change all our *Yushania*

names to *Sinarundinaria*. Therefore it is very important to formalise the lectotypification of *Arundinaria nitida* Stapf as soon as we are sure that this bamboo really belongs in *Fargesia.*

Treatments of these bamboos by Chinese taxonomists have been inconsistent. *Fargesia nitida* has usually been recognised as a distinct species. However, it has sometimes been treated as a synonym of *F. spathacea* (Wang & Ye, 1981; Yi, 1983), although Yi later seemed to change his mind and recognised *F. nitida* as a distinct species (Yi, 1985). Without flowers of *F. nitida* as cultivated from Potanin or Berezowski's seed this would obviously be a difficult synonomy to prove satisfactorily. Chao, Chu, & Hsiung (1981) looked at wild Chinese sterile material that they assumed to represent *nitida*, and as they found it to have "long" (no length specified) rhizome necks, they decided that it must actually be a species of *Yushania*. Therefore they decided to treat *Yushania* as a synonym of *Sinarundinaria* and still continue to use the name *Sinarundinaria nitida* (Chao, 1993). However, they have never seen its real flowers.

In 1993 two culms of a bamboo clump at Carwinion in Cornwall produced some interesting and distinctive flowers. Although they were very similar indeed to the tight unilateral spathed inflorescences of *F. murieliae* they showed substantial differences, suggesting that they represented the same genus, *Fargesia*, but a different species. Now stored in the herbarium at Kew they are intriguing, but not conclusively *Fargesia nitida*, as they have neither culm sheaths nor culms. As it is so important, Chinese taxonomists looking at the Carwinion collection at Kew are still dubious, thinking it may just be *F. murieliae.* It is hoped that some vegetative material from the same clump is being gathered to complete the collection.

Meanwhile Mike Bell passed me the information in May that Cliff Dadd of Ballaheannagh Gardens in the Isle of Man had a few clumps in flower and that he identified some of them as *Fargesia nitida* rather than *F. murieliae*. Relishing an opportunity for a busman's holiday I dropped everything, including David Helliwell's bamboo booklet, and went over to the island for a short break. It was practice week for the TT, and not quite the best time for me to have set out going the wrong way round the TT course on the road across the mountain, looking for Ballalheannagh. German motorbikes doing 150mph in the opposite direction on the wrong side of the road can be rather daunting. However, on the eastern flank of the mountain at the top of picturesque Glen Roy I found a charming garden, beautifully laid out with miles of stone steps beside cascading streams, and lavishly planted up over the last 15 or so years with a multitude of interesting young trees and flowering shrubs. Oriental influences are strong, and against the backdrop of a little Japanese bridge over a waterfall I found the first of several flowering bamboo clump, nearly leafless and clearly in full bloom for the second year.

The dark colour of the entire clump was striking, culms and flowers burnt a deep purple by exposure to the winter wind without the protection of foliage. At an elevation of 200m next to the sea and the fells, this is quite an exposed site, despite the palms on the sea-front in Laxey just a mile away. The densely bunched spathed inflorescences with spikelets arranged along one side of the rhachis showed it to be a *Fargesia* species. However familiar one is with a bamboo during its long vegetative period of growth, it is always difficult to recognise the same plant conclusively when it is in full bloom, and I had to look very carefully, trying hard to judge whether it was just more *Fargesia murieliae* or whether it could be *Fargesia nitida*. The culms were indeed very erect, not bending over much, but without the weight of foliage *Fargesia murieliae* would also not bend over. The leaves of *F. nitida* would of course not have the long drawn-out apices of *F. murieliae* but the only leaves were very new and small, and

not really conclusive. The culms of *F. murieliae* are not usually as thin or as dark as this, but with the effect of the cold at this elevation on bare stems, who knows?

Pressing on up the steps to get a better feel for the site, three further species were quickly encountered, one Himalayan *Thamnocalamus spathiflorus*, one African *Thamnocalamus tessellatus*, and a *Fargesia murieliae*, conveniently also in flower to help me see what it and its flowers looked like in this exposed location. Seeing is believing, and with the two clumps so close all doubts went from my mind. The lower clump was clearly *Fargesia nitida* with thinner greyer culms and much darker flowers. Going back and forth other differences were soon highly apparent. The culm sheath scars on the upper clump (*murieliae*) were much larger, and the wax on the culms much thinner. The culm sheaths of the *F. murieliae* were tougher, shorter relative to the internode, wider at the top, more asymmetrical, and lacked the prominent reddish colouration along the ribs. The lower clump really was *nitida*.

Back at Kew the flowers quickly went under the microscope, and they have several characters in common with the 1993 flowers from Carwinion that also distinguish them from the flowers of *F. murieliae*. Clearly this is a separate species, the vegetative differences with which we are all familiar being supported by several floral characters as well. The lemmas are much smoother, with only a light covering of spine-like hairs towards the apex. The paleas are only shortly divided at the apex, while those of *Fargesia murieliae* are deeply cleft. The stamens have a nice distinctive characteristic, for eyes that have looked at lots of bamboo stamens anyway, having little nipple-like points, even at the base, while those of *Fargesia murieliae* are generally blunt at both ends.

Therefore we can now say conclusively that the Fountain Bamboo is a species of *Fargesia* Franchet. Although Yi Tong-pei made an attempt to publish the combination *Fargesia nitida* (Yi, 1985), because the original publication of *Arundinaria nitida* by Stapf was not cited, the combination was not valid. *Fargesia nitida* was in fact first validly published by Keng f. in 1987, in which he cited Stapf's basionym.

It is very useful to have flowers of more than one species of *Fargesia*, as it helps us to judge the flowers of the mysterious little-known type species *F. spathacea*. It is now easier to assess its similarity to *F. murieliae*, with which it was considered synonymous for a while (Soderstrom, 1979). The differences between the flowers of *Fargesia murieliae* and those of *F. spathacea* were sufficient to convince me (Stapleton, 1995) that they were two different species, and to conjecture that the latter species was probably more like *F. nitida* in stature and vegetative characteristics. The flowers of *spathacea* differed from those of *murieliae* mainly in having fewer sheaths subtending the spikelets and ciliate spathes. So what of the flowers of these plants that I am now satisfied are indeed *F. nitida*? No prizes for guessing – they have very few sheaths subtending the spikelets and prominently ciliate spathes. Looking at the lemmas they are also less scabrous than those of *F. murieliea* and the stamens have small points at the apices, although they are not as markedly pointed at the base. Another characteristic of the *spathacea* collection was the solid branchlets. These are not quite solid in *nitida*, but they are nearly solid, and definitely thicker-walled than similarly-sized branchlets in *murieliae*.

The inflorescence of *Fargesia dracocephala*, kindly sent by Max Riedelsheimer, is also very useful. It is readily recognisable by the densely pubescent bracts, which like the glabrous bracts of *Fargesia murieliae*, are found at the base of nearly every spikelet, and by the tougher and extremely densely scabrous florets. We now have a good indication of the magnitude of variation to expect between the flowers of different *Fargesia* species.

The obvious conclusion from all this is that the bamboos named *F. spathacea* and *F. nitida* are not only very similar, they are close enough to be considered the same species. The very small differences in the flowers are well within the variation that could be accepted within a species, and the similarities in the fine detail of the inflorescence are substantial, relative to the differences between those of *nitida*, *dracocephala* and *murieliae.* The evidence is starting to stack up against *nitida*. So get ready for the next bamboo name-change. I'm really sorry about this but it looks as though it will have to be goodbye *nitida* and hello *spathacea*. This time, however, we hope to be giving the name to the right bamboo, the Fountain Bamboo rather than the Umbrella Bamboo, and we will be putting it into the right genus, *Fargesia* instead of *Thamnocalamus*.

There were two clumps of *F. nitida* in flower at Ballaheannagh, both in full bloom, with no new shoots, and looking very much as though they would never recover after flowering. There was also no seed, and a thorough search of the ground revealed only a single seedling. Interestingly it was growing right against a lump of cement, the least acid or possibly even alkaline spot in this clearly acidic site, where Cliff says the soil pH is about 6. Thus it looks as though after about 110 years the Fountain Bamboo is also about to flower gregariously and die. This is obviously not good news for those with a presently attractive clump, or those who had intended to sell stocks of the now doomed plants.

Steve promised me a half-day's leave in lieu of the time spent looking at the flowering clumps in the Isle of Man, rising to a full day if I came back with flowers of *nitida.* I think it was worth a full day if I've proven the generic affinity of *nitida*, sunk *Sinarundinaria* conclusively, and solved the mystery of the real identity of *spathacea.* However, I don't expect any thanks from all those who may have to start using the name *spathacea* instead of *nitida*.

Fargesia spathacea Franchet, Bull. Mens. Soc. Linn. Paris 2: 1067 (1893).
Type: China, Sichuan Province, Tchen-Keou-Tin, *Farges*, 567 (holo. P; iso. K,E,US).
Syn.: *Thamnocalamus spathaceus* (Franchet) Soderstrom, Brittonia 31(4): 495 (1979) pro parte; *Arundinaria spathacea* (Franchet) McClintock, Garden (London) 105 (12): 502 (1980) pro parte.

Arundinaria nitida Stapf, Kew Bull. of Misc. Info. 1896: 20. Type: '*Potanin* N. Szechuan', [cult. St. Petersburg, ii 1895, *Batalin* s.n.], excluding seed, ex China, N. Sichuan/S. Gansu, 1886, *Potanin/ Berezowski* (lectotype K, selected here); *Sinarundinaria nitida* (Stapf) Nakai, Journ. Jap. Bot. 1935, xi, 1; *Fargesia nitida* (Stapf) Keng f., J. Bamboo Res., 6(4): 14 (1987); *Thamnocalamus nitidus* (Stapf) Demoly, Bambou 9: 13 (1991).

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