

MALUS BHUTANICA – comb. nov.

J. B. PHIPPS*

Malus toringoides (Rehd.) Hughes, 1920, is shown to be the same as *Pyrus bhutanica* W.W. Smith, 1911, therefore requiring a new name, *Malus bhutanica*, which is hereby provided.

Sorbus bhutanica (W.W. Smith) Balakrishnan, based on *Pyrus bhutanica* W.W. Smith, does not appear in the world Maloid checklist (Phipps et al., 1990) as the cut-off date of 1986 for this paper had precluded searching in Grierson & Long's (1987) *Flora of Bhutan*, Vol. 1, Part 3. Further, the species included in the Maloid checklist were predicated on appearing in significant floras and revisionary works rather than among the enormous array of pertinent names to occur as proto-logues and new combinations and which may be found in *Index Kewensis*. The name *Sorbus bhutanica* was kindly brought to my attention by Keith Rushforth while he was preparing his account of *Sorbus* for Bhutan (Rushforth, 1991, 1992). Rushforth doubted that the taxon in question was truly a *Sorbus* and I encouraged him to omit it from his account.

The type material, described as *Pyrus bhutanica* W.W. Smith, has been lent to me by the Royal Botanic Gardens, Kew. It is *J.C. White*, s.n. (K# H481/92 1 and 2), from Lalung Gumpa [I retain the collector's spelling of the place-name of the type specimen, which is varied by later authors], 'Bhutan', 27.vi.1906. Though labelled 'Bhutan', the type is actually from Tibet, as White's (1910) map indicates. As can be verified on modern maps, Lalung Gumpa is about 90°40'E and 28°24'N on the Lhobrak Chu. It is sited somewhat below 13,000ft altitude in a deep ravine. The type locality was given as 'Lhakang Gumpa' by W.W. Smith (1911) and it then appeared as 'Lhalung' in both Balakrishnan (1970) and Long in Grierson & Long (1987). The spelling 'Lhalung' together with the annotation '(approximate location)' appears on the U.S. Army Corps of Engineers 1:250,000 topographical series Yamdrog Tsho sheet 1954. Interestingly this map also shows a place called 'Guru Lhakang' (? the place intended by Smith) only 4km to the west of Lhalung. The two duplicated type sheets are quite good quality flowering specimens with many inflorescences and a fair number of well-developed trilobed leaves. The facies is immediately reminiscent of the well-known Chinese apple species *M. toringoides* (Rehd.) Hughes and careful dissection of a flower confirms that the plant is a *Malus*. Critical comparison with authentic herbarium material (see Appendix) and descriptions (e.g. Bean, 1973; Yü, 1974) leaves no doubt that the plant in question is an exact match for *M. toringoides*. The White specimen represents the most westerly record known for the species.

Since the name *Pyrus bhutanica* (1911) antedates *Malus toringoides* (1920) the epithet *bhutanica* must be combined with the generic name *Malus* to create a new and valid name for the species.

* Department of Plant Sciences, The University of Western Ontario, London, Ontario, Canada N6A 5B7.

***Malus bhutanica* (W.W. Smith) Phipps, comb. nov.**

Syn.: *Pyrus bhutanica* W.W. Smith, in Rec. Bot. Surv. India 4: 265 (1911).

Malus toringoides (Rehd.) Hughes, in Kew Bull. 1920: 205 (1920).

Malus transitoria (Batal.) Schneid. var. *toringoides* Rehd., in Sargent, Pl. Wilson. 2: 286 (1916).

I regard it as an unfortunate consequence of the legalism of the International Code of Botanical Nomenclature that so obscure a name, only associated with its type description, should be able to override the widely and generally used *Malus toringoides*.

The discrimination of genera in Maloideae has long been controversial due in part to poor understanding of the fundamental features involved. *Malus* and *Pyrus*, for instance, share many features of morphology of the leaf, inflorescence and fruit, including a tendency to deep lobing of the leaf, particularly on juvenile material or extension shoots. However, there are good separating characters for these two genera (e.g. Robertson et al., 1990) and they are hardly ever confused in the modern literature. In *Pyrus* the free styles emerge through a hole in the concave base of the hypanthial bowl, a feature which should have been known to Smith, but in *P. bhutanica* each of the five styles reaches well down a longish hypanthial tube, to a point where, towards the ovary, they unite, characteristic of *Malus*. This is a distinction actually noted by Balakrishnan (1970) for *Malus sikkimensis* in the very article where he created *Sorbus bhutanica*. Detailed tertiary venation of the leaves of *Pyrus* and *Malus* also differs, as do characteristics upon drying, observable in herbarium specimens in the blackish nature of the pressed foliage of most pear specimens. One of the most commonly given differentia, viz. stone cells present in the fruit of pear vs. none in apple, does not, however, hold comprehensively for apples (Rohrer et al., 1991). It is difficult to see what grounds there were for transferring *Pyrus bhutanica* to *Sorbus* whether the latter genus was considered in the narrow or the broad sense. *Malus* and *Pyrus* both differ from the extended *Sorbus* in having a deeply inferior ovary with a usually well-developed core in fruit. In *Sorbus torminalis*, the *Sorbus* species most superficially similar to *Pyrus bhutanica*, and which could be described as having a semi-inferior ovary, the ovary is completely exposed at the apex within the hypanthium, in contrast to *Malus* and *Pyrus* where hypanthial tissue overgrows the ovary making it indisputably inferior. In addition, the leaf of *Pyrus bhutanica* is only a very general match to some *Sorbus*, specifically the hybridogenous group *Lobatae* Gabrielian (1978: 119) and the service trees of the nearly monotypic section *Torminalia*. In both these last-mentioned taxa, and particularly the former, the lobed leaf-shape is fundamentally different from that of *Pyrus bhutanica*. *Pyrus bhutanica* is, therefore, clearly an apple and it is intriguing in this context to note that, *pace* Long in Grierson & Long (*op. cit.*), it is easy, and perhaps easier, to assign *Pyrus bhutanica* to *Malus* in flower than in fruit.

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APPENDIX

SPECIMENS STUDIED

China, Kansu (all HUH)

T'ao R. basin, Kadjaku valley, 8600', Tree 60'–80', vi 1925, *J.F. Rock* 12483; T'ao R. basin, Kadjaku valley, beyond Tatzuto, 8600', Tree 50', vii 1925, *J.F. Rock* 13132; T'ao R. basin, Kadjaku valley, 8600', Tree 25', vii 1925, *J.F. Rock* 13133; T'ao R. basin, 9000', Tree 15–25', ix–x 1925, *J.F. Rock* 13559; T'ao R. basin, Kadjaku valley, Tatzuto, Tree 35', vi 1925, *J.F. Rock* 12478; T'ao R. basin, east of Choni, banks of T'ao R., 8300', Tree 25', vi 1925, *J.F. Rock* 12215; T'ao R. basin, east of Choni, banks of T'ao R., 8500', Tree 40', 20 x 1926, *J.F. Rock* 14923; Lower Tebbu country, Mayaku, along stream nr Zehga, 8000', ix–x 1926, *J.F. Rock* 15074; T'ao R. basin, 9000', Tree 15–20', x 1925, *J.F. Rock* 13568; T'ao R. basin, Poyuku, 9500', Tree 15–20', x 1925, *J.F. Rock* 13565; T'ao R. basin, Kadjaku valley en route to Tebbu, 9200', Tree 50–70', ix–x 1925, *J.F. Rock* 13543 (= 13132); T'ao R. basin, Kadjaku valley en route to Tebbu, 9200', Tree 15–20', ix–x 1925, *J.F. Rock* 13544 (= 13133).

China, Sichuan (all HUH)

(Sikang), between Taining (Ngata) and Taofu (Dawo), 10km S of Taofu, 4m tree, 3200m, 14 ix 1934, *Harry Smith* 12695; west of Tachienlu, 10–11,000', Tree 15–25', x 1908, *E.H. Wilson* 1285*; nr Tongolu, west of Tachien-lu, 3000–3600m, x 1904, *E.H. Wilson (Veitch Exped. 3494)*, 2 specs.; 29°29'N 101°33'E, 14 ix 1983, 11,300', *P.W. Bristol* MK/K75.

UK, Cult. (all UWO)

Kew, Royal Botanic Gardens K #101-13.10119, 15 v 1985, *J.B. Phipps* 5612; Kew, Royal Botanic Gardens #101-13-10119, 6 x 1985, *K.R. Robertson & Obriot* 3922; Hillier Arboretum, H.A. #80-0710, 15 viii 1985, *K.R. Robertson* 3776.

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