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RESEARCH ARTICLE

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A new species of *Juncus* (*Juncaceae*) from Mt Kinabalu, Sabah – recent speciation after long-distance dispersal

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Key words

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Abstract A new species of *Juncus* (*Juncaceae*) from Mt Kinabalu, Borneo, is described and its presumed origin is discussed.

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I have previously (Veldkamp 1982) noted the presence of a curious form of *Juncus bufonius* L. (*Juncaceae*) in several disturbed places on Mt Kinabalu, Sabah. The first collection was by J.M.B. Smith in 1967 and he collected it again in two sites in July 1978. A number of collections between 3200 and 3810 m were made afterwards, indicating that the species persisted and has spread. Then, and later (Wilson & Johnson 2001: 374) there was some hesitation to formally name it, but I have the feeling that it was unfinished business needing a solution. Describing these as a distinct species seems a way to attract attention and stimulate research.

Had specimens been collected by Ms. Clemens during her explorations on Mt Kinabalu (1916–1917 and 1931–1933), no one would have hesitated to describe them as distinct and representing a 'native' taxon, but as the collections are from a much later date and near human habitation, only, it may be surmised that it was introduced after her visits.

This asks for some imaginative speculation about what may have happened. The uniform and aberrant morphology suggests the arrival of limited material, perhaps a single capsule or even a seed. After having overcome the settler's bottleneck of the accumulation of lethal alleles during the next generations, the population has undergone a fast genetic drift. *Juncus bufonius* is thought to be mainly cleistogamous (Wilson & Johnson 2001, Kirschner 2002: 9), but in the Kinabalu specimens studied no cleistogamy was observed. Whatever the cause, the result is that these plants differ from their cousins.

This then seems a nice example of speciation after long-distance distribution. Many of such instances are postulated in discussions on historical biogeography, without an explanation of the cause or vector. The mysterious 'rare event': drifting across oceans from one continent to the other, driven by storms and jet streams (but think of the extreme low temperatures and desiccation at those altitudes), volcanic eruptions that have blown diaspores over long distances, former 'land bridges', 'stepping stones', hiding among bird feathers, if not in the gizzard (but in migrating birds empty during the long flights), etc. Here the explanation seems more simple: accidental introduction by *Homo sapiens*.

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1. Outer tepals 8.25–20 mm long. Anthers 1–1.8 times as long as the filaments. — Cauline leaf blades 4–26 cm long . . . . . *J. batrachium*
1. Outer tepals 3–8 mm long. Anthers 0.25–1 times as long as the filaments. — Cauline leaf blades 1–12 cm long . . . . . *J. bufonius*

Juncus batrachium Veldk., *sp. nov.*

Junco bufonio similissimus, tepalis exterioribus multo longioribus (8.25–20 mm contra 3–8 mm), antheris filamentis 1–1.8-plo longioribus (contra 0.25–1) differt. — Typus: *M. Hotta 3905* (holo L; KYO).

Eponymy. Because of its similarity to *J. bufonius*, the epithet is the Greek equivalent: 'belonging to little frogs' (βατραχιον) and is a name in apposition not to be declined. *Juncus ranarius* Nees ex Songeon & E.P. Perrier (1860) was already published.

Annuals, 0.06–0.4 m long, glabrous. *Rhizome* and *stolons* absent. *Culms* tufted, branching intra-vaginally at base, with many narrow close-set ribs (i.s.), marrow not interrupted, rooting at the decumbent nodes and producing new tufts. *Basal sheaths* dull, brown; blades flat, not septate, 2–8.5 cm by 0.3–0.8 mm; cauline leaf blades flat, 4–26 cm by 0.3–0.9 mm. *Inflorescences* terminal, few-flowered. *Flowers* solitary or paired. *Bract* present; bracteoles 2. *Pedicels* 0.75–1.5 mm long. *Tepals* unequal, brown; outer ones falcately curved, 8.25–20 mm long; inner ones 5.25–7.5 mm long. *Stamens* 6; anthers 0.9–1.3 mm long, 1–1.8 times as long as the filaments. *Capsules* 3–5 mm long, 0.33–0.6 times as long as the outer tepals. *Seeds* 0.3–0.5 mm long.

Distribution — Only known from Mt Kinabalu, Sabah.

Habitat — Disturbed areas near tourist huts, 3200–3810 m altitude.

Specimens seen. Hotta 3905 (KYO, L), between Carson's Camp and Panalaban (Panar Laban), 2700–3400 m, 16 Jan. 1969; *Rao et al. 88* (SINU), Mt Kinabalu, 3810 m, 15 June 1976; *Salick et al. 9023* (K), Laban Ratu, 3265 m (in Beaman & Beaman 1998: 141, as 'Panar Laban'), 2 Oct. 1997; *Smith, J.M.B. s.n.* (K, KLU), Panar Laban, 3350 m (Veldkamp 1982: 25; Wilson & Johnson 2001: 373), 12 Aug. 1967; *Smith, J.M.B. 464* (KLU, L), Panar Laban, 3300 m, (Veldkamp 1982: 26), 28 July 1978; *Smith, J.M.B. 520* (KLU, L), Sayat-sayat Hut, 3670 m, (Veldkamp 1982: 26), 29 July 1978; *SNP 2249 (Phillipps)* (SNP), Panar Laban, 5 Aug. 1986.

Note — In Malesia, *J. bufonius* has been reported by Merrill (1922: 201: *Merrill 7794*) for Mt Santo Thomas, Benguet, Luzon, Philippines, at 1900 m along bridle trails in mossy

forest. He was followed by later authors, e.g. Backer (1951) and Kirschner (2002). This collection was presumably lost in PNH, but duplicates are in BM and K according to Wilson & Johnson (2001: 374). The absence of later records suggests that the species has not persisted.

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REFERENCES

Backer CA. 1951. Juncus. Flora Malesiana Ser. I, 4: 212–213. Noordhoff-Kolff, Jakarta.

Beaman JH, Beaman RS. 1998. The plants of Mount Kinabalu. 3. Gymnosperms and non-orchid monocotyledons: 141. Natural History Publications (Borneo), Kota Kinabalu.

Kirschner J. 2002. Species plantarum, Flora of the World 8. Juncaceae 3: Juncus subg. Agathryon: 1–192. Australian Biological Resources Study, Canberra.

Merrill ED. 1922. An enumeration of Philippine flowering plants 1: 1–458. Bureau of Printing, Manila.

Veldkamp JF. 1982. 158. Juncus bufonius Linné (Juncaceae) on Mt. Kinabalu, Sabah. In: Van Steenis CGGJ, Veldkamp JF, Miscellaneous botanical notes. XXVI. Reinwardtia 10: 21–27.

Wilson KL, Johnson LAS. 2001. The genus Juncus (Juncaceae) in Malesia and allied septate-leaved species in adjoining regions. Telopea 9: 357–397.