

# Notes on nomenclature and typification of *Heteropogon fischerianus* and *H. contortus* var. *distichus* (Poaceae)

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**Abstract:** The authors analyse a confusion in two validly published names, *Heteropogon fischerianus* and *H. contortus* var. *distichus* and provide clarifications on their nomenclature and typification.

**Keywords:** Holotype, Lectotype, Synonym.

## Introduction

The genus *Heteropogon* Pers. includes six species distributed from Europe to tropical and subtropical regions of the World and all of the species are also known from India (Clayton *et al.*, 2020; Drisya & Pradeep, 2020). Singh *et al.* (2015) considered *H. fischerianus* Bor, *H. polystachyus* (Roxb.) Schult. and *H. ritchiei* (Hook. f.) Blatt. & McCann as endemic to India, overlooking the occurrence of *H. ritchiei* in Myanmar (Kress *et al.*, 2003). Further, Clayton *et al.* (2020) treated *H. polystachyus* as a heterotypic synonym of *H. contortus* which has a wide distribution. Therefore, in India the only endemic species in the genus is *H. fischerianus* which is confined to Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and Telangana (Siddabathula *et al.*, 2020).

Deshpande (1988) revised *Heteropogon* in India and treated *H. contortus* (L.) P.Beauv. ex Roem. & Schult. var. *distichus* C.E.C.Fisch. ('*distichous*') as a synonym of *H. fischerianus* as had Bor (1951) in describing *H. fischerianus*. Deshpande (1988) also cited the type as "Type: India: Kodaikanal, Pulneys, Jesmond hill, Bourne 2025, July 1, 1901 (K), (Isotype, CAL!);

Kodaikanal, Pulneys, Bourne 2026, July 1, 1901 (Paratype CAL! Photo MH!); Poonachi, Annamalais, C.A. Barber, Oct. 10, 1901 (Paratype, MH Photo!)" . This includes the types of two validly published names, *H. fischerianus* and *H. contortus* var. *distichus*, of which Bourne 2025 was designated as holotype of *H. fischerianus* by Bor (1951) and Bourne 2026 was selected as lectotype of *H. contortus* var. *distichus* by Siddabathula *et al.* (2020). Siddabathula *et al.* (2020) recently treated *H. fischerianus* as a new name for *H. contortus* var. *distichus* and stated "Bor (1951) described *Heteropogon fischerianus* as new species and treated *H. contortus* var. *distichus* C.E.C. Fisch. as synonym of his new species. However, as per the ICN (Turland *et al.*, 2018) the name *H. fischerianus* Bor should be treated as a new name (*nom. nov.*) for *H. contortus* var. *distichus* C.E.C.Fisch.". However, this statement is erroneous because there is nothing in the ICN that requires Bor to have treated *H. fischerianus* as a new name according to Art. 6.11 (Turland *et al.*, 2018). Bor (1951) did not propose *H. fischerianus* as a substitute for *H. contortus* var. *distichus*; rather he described it as a new species (at different rank). Thus, *H. fischerianus* is not a replacement name or new name of *H. contortus* var. *distichus* as it is not validated solely by reference to *H. contortus* var. *distichus*. As per Art. 6.13 of the ICN (Turland *et al.*, 2018), *H. fischerianus* is the name of a new taxon described by Bor.

*Heteropogon contortus* var. *distichus* was validly described by Fischer (1934) who cited "Anamallais at 3,500 ft. (Barber); Kodaikanal, 6,000–7,000 ft. (Bourne)" as the basis for the name (*i.e.* the original

material), but did not designate a type as it was not required then. Later, Bor (1951: 170) described *H. fischerianus* as a new species and cited “IND. OR.: Madras, Kodaikanal, Pulneys, 'Fairy Falls', 27 Apr. 1898, Bourne 1207; 'Jesmond Hill', 1 Jul. 1901, *ibid.* 2025 (typus in Herb. Kew.); *ibid.* 2026; Poonachi, Annamalais, 10 Oct. 1901, C. A. Barber” in the protologue. He also stated “This very distinct and remarkable species of *Heteropogon* was considered by Fischer to be merely a variety of *Heteropogon contortus* (Linn.) P.Beauv. to which he gave the name var. *distichus* C.E.C.Fischer. The habit of the species is, however, so unique and, moreover, the spikelets smaller than those of *Heteropogon contortus*, that there is no doubt that this plant merits specific rank”. Although Bor (1951) could have adopted the epithet ‘*distichus*’ used at varietal rank by Fischer, he had no obligation either to adopt Fischer’s epithet or to typify his name by an element available to Fischer according to Art. 11.2 (Turland *et al.*, 2018); instead of adopting ‘*distichus*’ he commemorated Fischer in the name of his new species, but he did in fact typify it by a specimen of one of the collections (2025 at K) cited by Fischer.

Bor (1951) had three options when publishing this new species: 1). Describing the species as new (Art. 6.9), in which case it would be normal, but not obligatory, to adopt a different epithet from that of the variety. As such its publication would require to satisfy all the requirements for valid publication of the name of a new species (see esp. Art. 38–40), including, after 1957, indication of type; 2). Publish a new combination based on *Heteropogon contortus* var. *distichus* (Art. 6.10). This would require the species to be called “*H. distichus* (C.E.C.Fisch.) Bor” and would necessitate to satisfy the requirements for valid publication of the name of a new combination (see esp. Art. 41). It would necessarily be typified by the type of its basionym (the varietal name) (Art. 7.3) regardless of the elements to which the later author applied it; 3). Publish a replacement name (“avowed substitute”) with *H. contortus* var. *distichus* as its replaced synonym (Art. 6.11); this would necessarily have a different epithet from that of the variety but would necessarily be typified by the type of its replaced synonym (the varietal name)

(Art. 7.3) regardless of the elements to which the later author applied it. It would also have to meet the requirements of Art. 41.

Among the above three options, the first option was chosen by Bor (1951). Moreover, Bor (1951) included “all [the] syntypes under Art. 9.6” of *H. contortus* var. *distichus*, but no type of *H. contortus* var. *distichus* C.E.C.Fisch. had been designated in 1951. As Bor (1951) had published a new species and “a name has no priority outside the rank at which it is published” (Art. 11.2), the name was validly published as a new species as he provided a Latin diagnosis (and description). He also indicated the type although that only became mandatory from 1958 onwards. If Bor had been publishing the name of a new variety and used the epithet ‘*fischerianus*’, that name would have been superfluous and illegitimate according to Art. 52.2(a), but, for a species name, *H. contortus* var. *distichus* was not “a name ... of which the epithet ought to have been adopted [by Bor], under the rules” (Art. 52.1) (Turland *et al.*, 2018).

### Notes on typification

There are four specimens of *Bourne* 2025, one each at CAL, G, K, US; three specimens of *Bourne* 2026 are at CAL, K, MH (one each); two specimens of *Barber* 3719 are at FRC, MH (one each). As Bor (1951) cited only *Bourne* 2025 (K) as type in the protologue and there is a single specimen belonging to this collection at K, *Bourne* 2025 (K) is the holotype of *Heteropogon fischerianus* and duplicates of this number are isotypes while the remaining cited specimens are paratypes of this name.

Siddabathula *et al.* (2020) treated *Heteropogon fischerianus* as a new name for *H. contortus* var. *distichus* which is erroneous and cited “Lectotype (designated here): India, Tamil Nadu, Kodaikanal, Pulneys (Palani), Jesmond hill, 1 July 1901, *Bourne* 2026 (K000245942!; isolectotypes CAL!, MH00002609!)”. Therefore, though they intended to typify *H. fischerianus*, actually they appear to have published an effective lectotypification of *H. contortus* var. *distichus*. Therefore, it has been concluded that the holotype of *H. fischerianus* is one

of the syntypes of *H. contortus* var. *distichus*. Both names, *H. fischerianus* and *H. contortus* var. *distichus* are validly published as a new species and a new variety respectively; the former having been typified (holotype) with Bourne 2025 (K000245941) by Bor while describing the species, and the latter with Bourne 2026 (K000245942) as lectotype by Siddabathula *et al.* (2020). Though Deshpande (1988) already treated *H. contortus* var. *distichus* as a synonym of *H. fischerianus*, Siddabathula *et al.*'s (2020) choice of one of the syntypes, Bourne 2026 as the lectotype of *H. contortus* var. *distichus*, precisely makes *H. contortus* var. *distichus* a heterotypic synonym (not homotypic) of *H. fischerianus*.

### Taxonomic treatment

***Heteropogon fischerianus*** Bor, Kew Bull. 6: 170. 1951. *Type*: INDIA, **Tamil Nadu**, Kodaikanal, Pulneys, Jesmond hill, 01.07.1901, Bourne 2025 (holo K [K000245941 digital image!]; iso CAL [CAL0000002320!], G [G00165923 digital image!], US [US00132611 image!]). INDIA, **Tamil Nadu**, Kodaikanal, Pulneys, Jesmond hill, 01.07.1901, Bourne 2026 (para K [K000245942 digital image!], CAL [CAL0000002306!], MH [MH00002609 *n.v.*]); Poonachi, Annamalais, 10.10.1901, C.A. Barber 3719 (para FRC *n.v.*, MH [MH00002608 *n.v.*]). Image of holotype available at: <http://specimens.kew.org/herbarium/K000245941>

*H. contortus* (L.) P.Beauv. ex Roem. & Schult. var. *distichus* C.E.C.Fisch. in Gamble, Fl. Madras 3: 1743 1934. *Lectotype* (designated by Siddabathula *et al.*, 2020): INDIA, **Tamil Nadu**, Kodaikanal, Pulneys, Jesmond hill, 01.07.1901, Bourne 2026 (K [K000245942 digital image!]); isolecto CAL [CAL0000002306!], MH [MH00002609 *n.v.*]. *Residual syntypes*: INDIA, **Tamil Nadu**, Kodaikanal, Pulneys, Jesmond hill, 01.07.1901, Bourne 2025 (CAL [CAL0000002320!], G [G00165923 digital image!], K [K000245941 digital image!], US [US00132611 digital image!]); Poonachi, Annamalais, 10.10.1901, C.A. Barber 3719 (FRC *n.v.*, MH [MH00002608 *n.v.*]). Image of lectotype available at: <http://specimens.kew.org/herbarium/K000245942>

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### Literature Cited

- BOR N.L. 1951. Some new species of Indian grasses. *Kew Bulletin* 6: 166–171.
- CLAYTON W.D., GOVAERTS R., HARMAN K.T., WILLIAMSON H. & M. VORONTSOVA 2020. World Checklist of Poaceae. Facilitated by the Royal Botanic Gardens, Kew. Available at: <http://wcp.science.kew.org/> (Accessed on 23.04.2020).
- DESHPANDE U.R. 1988. The genus *Heteropogon* Pers. (Poaceae) in India. *Bulletin of the Botanical Survey of India* 50: 120–125.
- DRISYA V. & A.K. PRADEEP 2020. On reinstating *Heteropogon allionii* (Poaceae: Panicoideae). *Phytotaxa* 429: 157–166. <https://doi.org/10.11646/phytotaxa.429.2.6>
- FISCHER C.E.C. 1934. *Heteropogon contortus* var. *distichus*. In: GAMBLE J.S. (ed.), *Flora of the Presidency of Madras*. Volume 3(10). Adlard & Son Ltd., London. pp. 1742–1743.
- KRESS W.J., DEFILIPPS R.A., FARR E. & D.Y.Y. KYI 2003. A checklist of the trees, shrubs, herbs and climbers of Myanmar (Revised from the original works by J.H. Lace and H.G. Hundley). *Contributions from the United States National Herbarium* 45: 1–590.
- SIDDABATHULA N., ARIGELA R.K., SINGH R.K. & L. PARAMESH 2020. The endemic tanglehead grass *Heteropogon fischerianus* Bor and the giant speargrass *Heteropogon triticeus* (R. Br.) Stapf ex Craib, new records for the flora of Telangana state, India. *NeBio* 11: 1–6.
- SINGHP., KARTHIGEYANK., LAKSHMINARASIMHAN P. & S.S. DASH 2015. *Endemic vascular plants of India*. Botanical Survey of India, Kolkata.
- TURLAND N.J., WIERSEMA J.H., BARRIE F.R., GREUTER W., HAWKSWORTH D.L., HERENDEEN P.S., KNAPPS., KUSBER W.-H., LI D.-Z., MARHOLD K., MAY T.W., MCNEILL J., MONRO A.M., PRADO J., PRICE M.J. & G.F. SMITH (eds.) 2018. *International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017*. Regnum Vegetabile 159. Koeltz Botanical Books, Glashütten. <https://doi.org/10.12705/Code.2018>.