

**Two new species of *Neohouzeoua* (Gramineae-Bambusoideae)
from Thailand and Myanmar**

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ABSTRACT. Two new species of *Neohouzeoua* A. Camus, *N. kerriana* and *N. fimbriata* from southern Thailand and Myanmar, are described and illustrated.

Neohouzeoua A. Camus is found in tropical mainland Asia. The genus was described in 1922 with two species, *N. mekongensis* A. Camus and *N. dulloa* (Munro) A. Camus (transferred from the genus *Teinostachyum* Munro). *A. Camus* differentiated it from *Teinostachyum* Munro, because the six stamens have connate filaments, glumes or reduced glumes are absent, the palea lacks keels, and from *Schizostachyum* Nees again because the filaments are connate, the palea lacks keels but has two long tips and because the rachilla extension is much reduced or absent.

When A. Camus described the genus, she did not include descriptions of the habit. Here extended descriptions are added, mainly based on the description of material of *N. dulloa* and recent collections of *N. mekongensis* (Dransfield, 1997). The genus possesses erect culms with thin walls, many branches of the same size at each node, indeterminate inflorescences with slender spikelets each containing one floret with the absence of a rachilla extension or with much reduced and slender rachilla extension. The spikelets are usually arranged in a group of four along the main and branch axis. In most bamboo genera possessing three stigmas, the top of the style is level where the stigmas are borne with spreading bases. In *Neohouzeoua* the style apex or top is level on one side, dipping down on the other side and filled with minute hairs. The stigmas are borne on the level part (Fig. 1, K1 & K2). This feature can be observed especially in mature spikelets and can be used to recognise *Neohouzeoua*.

The inflorescences in *N. mekongensis* and *N. dulloa* are much branched, with slender branches, but are also found terminating leafy branches; subtending sheaths/bracts are usually glabrous and the slender spikelets are arranged in a group of four (usually), with glabrous glumes. In the new taxa, the inflorescences are usually borne terminating the leafy branches, with short branches, similar to those of *Schizostachyum*; the subtending sheaths/bracts are covered with stiff hairs; the spikelets are not clearly arranged in four, are less slender, and the lemmas and paleas are covered

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with hairs. Superficially these new taxa do not resemble either *N. mekongensis* or *N. dulloa*, but we have included them in the genus, because the filaments are connate, the paleas have no keels on the back but bifid apices and two long tips, the rachilla extensions are absent and the stigma bases are erect or straight (Table 1).

It is interesting to note that in these two new species of *Neohouzeoua* the sheaths or subtending bracts in the inflorescences remain intact on the nodes of the main axis, and bear modified blades and auricles, similar to the culm-leaves. It is also remarkable that these two common bamboos, found growing along roadsides, have never been described before.

Neohouzeoua kerriana S. Dransf., R. Pattanavibool & S. Sungkaew, **sp. nov.** auriculis vaginae culmi magnis erectis, setis longis praeditis, setis 12 mm longis, laminis foliorum grandibus, auriculis grandibus erectis stramineis, setis brevibus, lemmatis dense hirsutis, apice lemmatis apicem paleae longiore/superanti distincta. Typus: Thailand, *Kerr* 12070 (holotypus K!). Fig. 1.

Sympodial bamboo. *Culms* straight and erect, tips arching almost to the ground or leaning on nearby vegetation, about 4(–8) m long, 1.1 cm in diam., with relatively thick walls, about 2 mm thick, internodes 20–25 cm long, covered with appressed pale hairs, the upper parts covered with dark brown hairs, becoming glabrous and smooth, the hollow internodes layered/lined with a white membrane (easily removed), girdle present. *Branches* several at each node, the same size, no dominant primary branch. *Culm-leaves* rigid, 8–12 by 4–5 cm, top horizontal or slightly curved in the middle, covered with light caducous brown hairs, becoming glabrous; blades lanceolate, tapering to long tips, spreading or deflexed, 12–15 cm long, 5–6 mm wide near the base, junction with sheath 4 mm wide, usually glabrous, pubescent near the base abaxially; auricles large, erect, 6 mm tall/wide, 21 mm long, glabrous, fringed with long bristles, bristles 12 mm long; ligule very short, minutely serrate. *Leaf-blades* 22–30 by 4–7 cm, glabrous, tapering to long tips, up to 7 cm long, base attenuate or slightly rounded, petiole 10–15 mm long; auricles large, thin or stramineous, glabrous, 10 by 4–5 mm, fringed with short curly hairs, hairs up to 5 mm long; sheaths glabrous; ligule very short, entire. *Inflorescences* borne terminally on leafy branches, or on leafless branches, up to 36 cm long, axis glabrous, internodes up to 9 cm long; pseudospikelets 2–3 cm long, cylindrical, arranged in a group (usually of four) at nodes of the main or/and branch axis, subtending bracts/sheaths up to 25 mm long, glabrous or glabrescent, bearing modified blades and erect auricles, auricles with short bristles. *Spikelets* ca. 25 mm long, cylindrical, with light brown hairs; lemma 16–18 by 8 mm, densely hairy towards the apex, otherwise glabrous, 13-nerved, acuminate, with long slender tips of ca. 6 mm long (resembling an awn), often exceeding palea apex; paleas not-keeled, 15–20 by 4–6 mm, glabrous, densely hairy near the apex, apex bifid, two tips of ca. 2 mm long, 12-nerved, connected with transverse nerves; lodicules not present; stamens 6, filaments joint, anthers with two short apiculate tips; ovary short, with long slender style, stigmas 3, erect/straight at the bases, tops plumose, spreading.

Thailand.— PENINSULAR Chumphon [Langsuan, Khao Nam Sao, alt. 800–1000 m, fl., 21 Feb. 1927, *Kerr* 12070 (holotype K!)]; Ranong [Muang, along the route Ranong-Chum Phon Date, alt. 58 m, sterile, 24 Feb. 2001, *Sungkaew & Pattanavibool* 13 (BKF!, K!)].

Distribution.— Southern Thailand.

Ecology.— Primary or secondary/disturbed forest, on slopes or river banks, up to 1000 m. alt.

Vernacular.— Phai Racha wang (from *Kerr* 12070).

Etymology.— This species is named in honour of Dr A.F.G. Kerr.

Notes.— In the field this species can be recognised by its bushy habit with arching slender young culms emerging over the clump, and large leaf-blades; the hollow internodes are lined with white membrane, and the auricles of culm leaves are large, erect, and fringed with long bristles. The sheath of the leaf-blade possesses a large auricle fringed with bristles.

N. kerriana can be found growing abundantly near streams along the road in Ranong. The type was collected from higher altitude. We believe this bamboo is widespread from Langsuan to Ranong.

Neohouzeoua fimbriata S. Dransf., R. Pattanavibool & S. Sungkaew, **sp. nov.** *N. kerrianae* S. Dransf. et al. laminis grandibus affinis, sed auriculis vaginae culmi magnis deflexis, setis longis praeditis, setis 25 mm longis, auriculis laminorum foliorum grandis chartaceis deflexis, lemmate minus dense hirsute, apice lemmatis apicem paleae brevior differt. Typus: Myanmar, *Parker* 2733 (holotypus K!). Fig. 2.

Scrambling, sympodial bamboo, up to 13 m long. *Culms* up to 3 cm in diam., internodes about 40 cm long, with relatively thin walls, light green with white wax and dark brown scattered hairs below the nodes, otherwise glabrous and smooth, a thin white membrane found inside the internode. *Branches* many at each node, of the same size, hairy on sheaths and auricles. *Culm leaves* 13–16 cm by 6.5–9 cm near the base, covered densely with appressed dark brown hairs, hairs caducous; blades ovate-lanceolate, deflexed, 13–21 cm long, about 12 mm wide near the base, 6 mm at the junction with the sheath, tapering to long tips, glabrous adaxially, hairy abaxially especially near the base; auricles large, deflexed/flared, 21 mm long, 9 mm tall/wide, caducous, with long bristles, bristles 25 mm long; ligule 4 mm long, lacinate. *Leaf-blades* 26–52 by 6–12 cm, tapering to very long fine tips, up to 3 cm long, base rounded, margins smooth or ciliolate, glabrous, often slightly scabrid towards the apex adaxially, with light brown hairs towards the petiole adaxially, petiole (pseudopetiole) 1 cm long, glabrous or with scattered pale hairs adaxially, base slightly swollen (above the junction with the sheath); sheaths covered with pale hairs, hairs caducous, margins ciliolate, ‘callus’ or outer ligules prominent, 3 mm long/tall; auricles thick or chartaceous, large, flared, 14 mm long, 4 mm high, margins with long curly bristles, bristles about 20 mm long; ligule (inner ligule) very short but with long fimbriae (6 mm long). *Inflorescences* borne terminating leafy branches, 13–30 cm long, main and branch axis glabrous, subtending bracts/sheaths up to 3.5 cm long, glabrous or pubescent,

bearing modified blades, blades spreading or deflexed, 1–3 cm long, and large auricles, auricles deflexed/flared, with long bristles, bristles up to 12 mm long; pseudospikelets arranged in group at each node of the inflorescence axis, 25–30 mm long, cylindrical, bracts/sheaths subtending buds with long light brown hairs near the apex, apex with long tips or with much reduced modified blades. *Spikelets* 20–25 mm long; lemmas 15–18 by 8 mm, acuminate with long tips, 6 mm long, not exceeding the palea, light brown hairs near the apex and along the middle vein and the margins, otherwise glabrous, 21-nerved; paleas 25 by 8 mm, light brown hairs near the apex, otherwise glabrous, apex bifid, tips 3 mm long, 22-nerved; lodicules absent; stamens 6, filaments fused; ovary small with long glabrous style, stigmas 3, base erect/straight, plumose. Young fruit obovoid, 12 mm long, 2.5 mm in diam., remains of the style 30 mm long.

Thailand.— PENINSULAR: Ranong [Between Kapong and Ranong, alt. 40 m, sterile, 26 Feb. 2001, *Sungkaew & Pattanavibool* 12 (BKF!, K!)]; Phangnga [Kopah, fl., 8 Dec. 1917, *Haniff & Noor* SNF2066 (K!, SING!)].

Myanmar.— Mergui, Yangwa Khlong, fl., 1 March 1927, *Parker* 2733 (holotype K!); l.c., sterile, 1 March 1927, *Parker* 2736 (K!); Mergui, Karathuri-Bokpyin Range, alt. 3 m, fl., 17 Feb. 1925, *Sukos* 7659 (K!); l.c., fl., 19 March 1925, *Scott* 951 (K!); Mergui, Maliwun, fl., 23 March 1930, *Su Koe* 10980 (K!); Tavoy, Maungpok Nwalabo ridge, alt. 1200 m, sterile, 6 Jan. 1919, *Rogers* 322 (K!).

Distribution.— Southern Thailand and southern Myanmar.

Ecology.— On slopes of secondary growth or forest.

Vernacular.— Yat-wan (Shan) (from *Parker* 2733).

Etymology.— The specific name is based on the long bristles found along the margins of the large auricles of culm-leaves, leaf-blades, and sheaths/subtending bracts in the inflorescences.

Notes.— This species resembles *Neohouzeoua kerriana* in having a bushy habit with young slender culms projecting above it, and large leaf-blades. It differs from the latter in having large deflexed or flared auricles of the culm leaves, fringed with long bristles, the ligule with long fimbriae, leaf-blades with large deflexed chartaceous auricles fringed with long bristles (25 mm long), and the tip of the lemma not exceeding the tip of the palea.

It seems that this bamboo is very common around Tavoy and Mergui in the southern part of Myanmar, and flowers frequently. In a letter to Mr Fisher (attached to the Parker specimens), R. N. Parker wrote that ‘it is a gregarious scrambling bamboo, occasionally climbing to a height of 40 ft, very common on the Yangwa range of hills where it flowered gregariously, the ground in the flowered areas being covered with seedlings’. In the letter it says that this bamboo is called *Dendrocalamus longifimbriatus* Gamble. In fact *Dendrocalamus longifimbriatus* was described based on mix specimens, the leafy branches match those of *Neohouzeoua fimbriata*, and the flowering branches, which is chosen as the type of *Dendrocalamus longifimbriatus*, are *Dendrocalamus* inflorescences (Dransfield & Wong, in prep.).

Table 1. Comparative morphology of *Neohouzeoua mekongensis* A. Camus, *N. kerriana* and *N. fimbriata*

	<i>mekongensis</i>	<i>kerriana</i>	<i>fimbriata</i>
Habit	erect	arching or scrambling	arching or scrambling
Culms	erect, thin walled	erect, then drooping to the ground, relatively thick walled	erect, then drooping to the ground, relatively thick walled
Auricle of culm-leaves	small, erect, with long bristles	large, erect, with short bristles	large, flared, with long bristles
Blades of culm-leaves	lanceolate, deflexed	lanceolate, deflexed	ovate-lanceolate, deflexed
Ligules of culm-leaves	3 mm, laciniate	very short, minutely serrate	4 mm long, laciniate
Leaf-blades	medium, glabrous	large, glabrous	large, hairy abaxially
Auricles of leaf-blades	small with long bristles	large, stramineous, erect, with short bristles	large, thick, flared with long bristles
Inflorescence	much branched racemose	racemose	racemose
Subtending bracts or sheaths	glabrous, rarely with modified blades	hairy, with or without modified blades and erect auricles	hairy, with modified blades and deflexed auricles
Spikelet	19 mm long	25 mm long	20 – 25 mm long
Lemma	glabrous	densely hairy towards the apex	pubescent near the apex
Palea	glabrous	densely hairy near the apex	hairy near the apex
Palea tip	2 mm long	2 mm long	3 mm long

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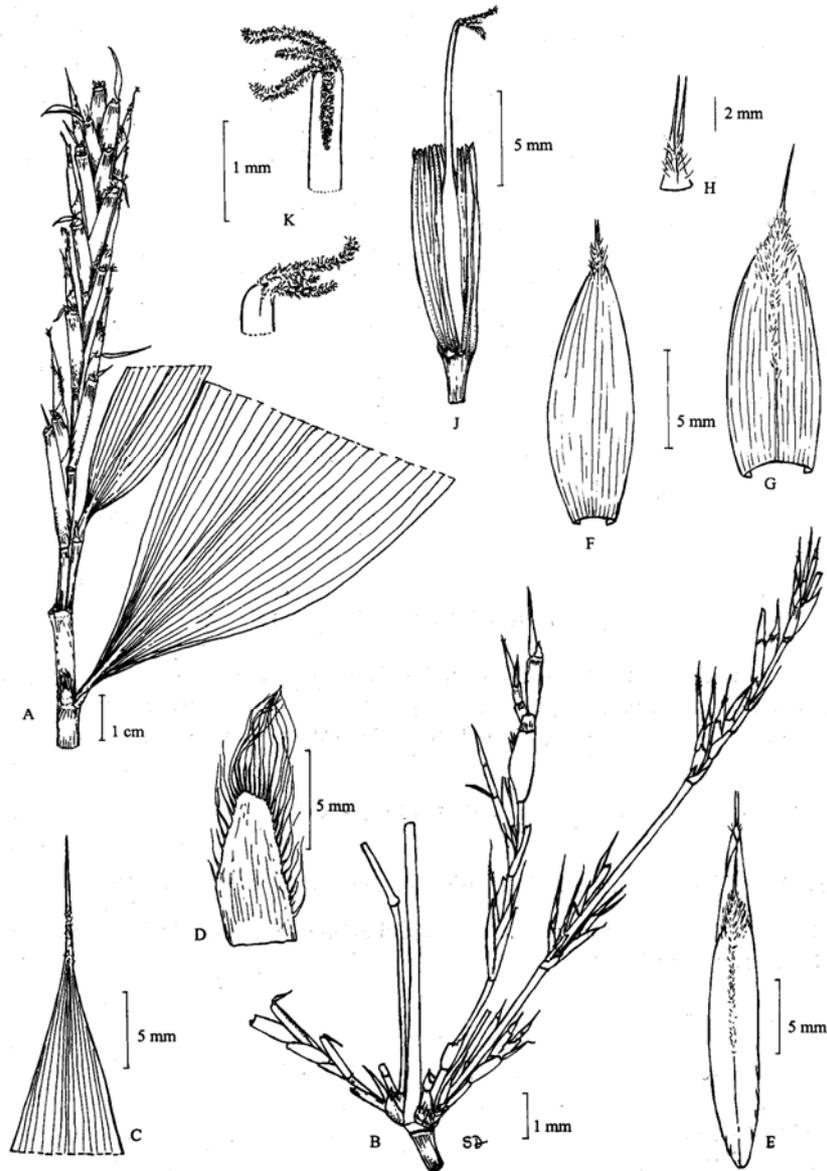


Figure 1. *Neohouzeoua kerriana*: A. inflorescence terminating leafy branch; B. part of inflorescence borne on leafless branch; C. tip of leaf-blade; D. auricle of leaf-blade; E. spikelet; F. lemma; G. palea; H. tip of palea; J. ovary and stamens; Ka. apex of style, front; Kb. apex of style, back. A, G–K from the type, C–D from *Sungkaew & Pattanavibool* 13. Drawn by Soejatmi Dransfield.

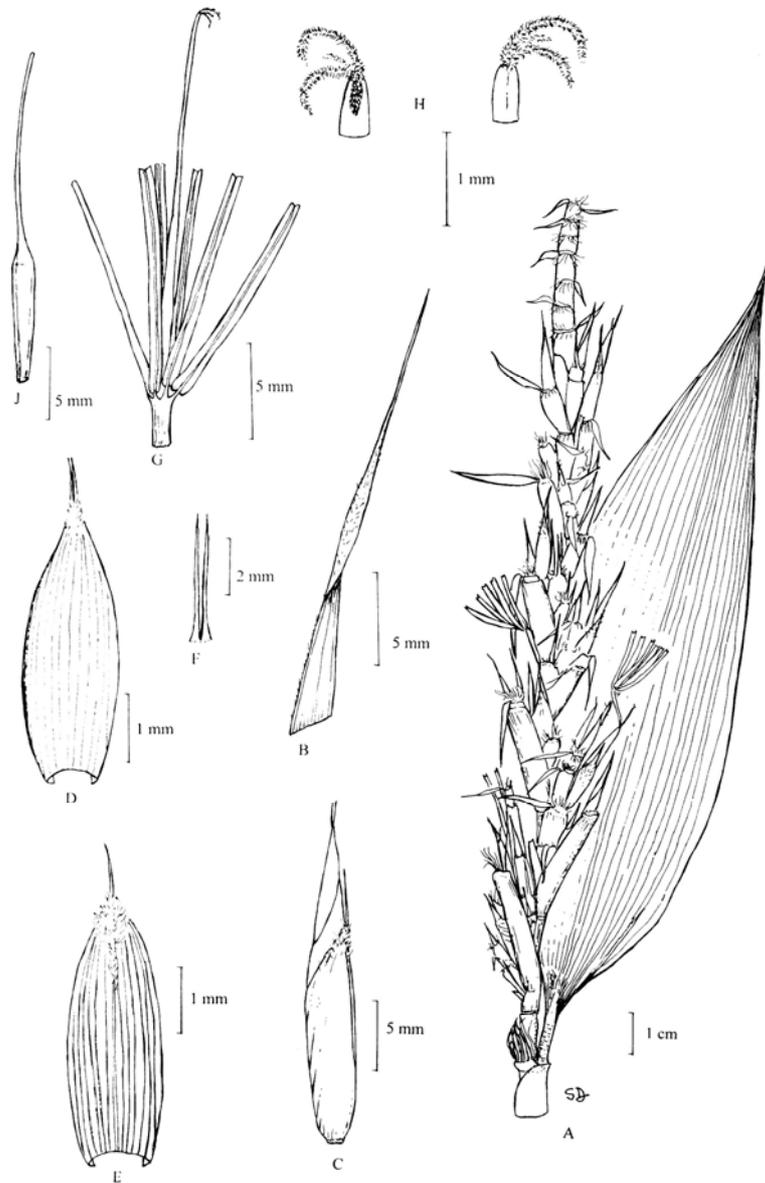


Figure 2. *Neohouzeoua fimbriata*: A. inflorescence; B. apex of leaf-blade; C. spikelet; D. lemma; E. palea; F. apex of pleat; G. ovary and stamens; H. apex of style; J. fruit. A, C–J from the type, B from *Sungkaew & Pattanavibool* 12. Drawn by Soejatmi Dransfield.