

Juncus edgariae (Juncaceae) — a new species from New Zealand

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Abstract

L.A.S. Johnson and K.L. Wilson. (Royal Botanic Gardens, Mrs Macquaries Road, Sydney NSW 2000, Australia) 2001. *Juncus edgariae* (Juncaceae) — a new species from New Zealand. *Telopea* 9(2): 399–402. The new species ***Juncus edgariae*** (in section *Juncotypus*) is described from New Zealand. It is allied to *J. gregiflorus* (Australia) and *J. durus* (New Guinea).

Introduction

The genus *Juncus* in Australasia was studied over many years by the first author, with assistance from the second author. The death of LASJ in 1997 left half-completed manuscripts of a revision of the genus in Australasia and Malesia and also a *Flora of Australia* treatment, which KLW is now completing. Publication of this new species in the 'leafless' (i.e. with leaves reduced to cataphylls) section *Juncotypus* (formerly known as section *Genuini* — Kirschner et al. 1999) is needed in advance of the main papers so that it can be included in the family treatment in the IOPI Species Plantarum Project's *Flora of the World* series being completed by a team led by Jan Kirschner (Pruhonice).

Juncus edgariae L.A.S. Johnson et K.L. Wilson, sp. nov.

Affinis *J. gregifloro* sed culmis flavovirentibus nitentioribusque, medulla culmi densiori, minus interrupta, lacunis plusminusve ellipsoideis, capsulis fuscantioribus, differt.

Type: New Zealand: South Island: S of Waimakariri River mouth, *E. Edgar* 8, 25 May 1960; holo NSW; iso CHR 113606.

Strongly rhizomatous perennial. Culms terete, more or less hard (i.e. relatively difficult to compress), shining, yellow-green, 40–130 cm long, 0.6–2.5 mm diam.; striations 22–60; pith interrupted with irregular, more or less circular or longitudinally ellipsoidal gaps, occasionally continuous above. Leaves reduced to basal cataphylls (mucro plus sheath) 5–18 cm long, lax around the culm, abaxially golden brown to dark yellow-brown or dark red-brown at base, adaxially golden brown. Inflorescence 2–6 cm long, diffuse, with densely clustered flowers, 3–20 per cluster and 1–20 clusters per inflorescence; lowest inflorescence bract erect, culm-like, 6–21 cm long, exceeding inflorescence. Flowers subtended by 2 bracteoles. Tepals 6, acute to acuminate or mucronate, straw-brown, occasionally tinged red-brown; outer tepals 1.7–2.6 mm long, exceeding inner tepals, with very narrow hyaline margins; inner tepals with broad hyaline margins. Stamens 3, shorter than outer tepals; anthers 0.4–0.6 mm long, less than or equalling filament length. Capsule 3-locular, slightly shorter than to slightly exceeding outer tepals, ellipsoid, dark golden brown, obtuse, shortly apiculate. Seeds 0.4–0.5(–0.6) mm long.

Illustrations: Figure 1; also Edgar (1964: figs 4, 18); Edgar in Moore & Edgar (1970: fig. 13); Healy (1970: fig. 34) (all as *J. gregiflorus*).

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Fig. 1. *Juncus edgariae*: a, flower; b, inflorescence; from B.G. Briggs, 5 Feb 1966 (NSW 90837). *J. gregiflorus*: c, flower; d, inflorescence; from K.L. Wilson 953 & L.A.S. Johnson (NSW). *J. durus*: e, flower; f, inflorescence; from R.D. Hoogland 7595 & R. Schodde (NSW). Scale bar = 3.5 mm (a, c, e), = 4 cm (b, d, f).

Distribution and habitat: Endemic to New Zealand (North Island, South Island, Stewart Island, Kermadec Islands, and Chatham Islands), at altitudes ranging from sea level to 1000 m; in damp, often disturbed, open areas such as roadside ditches, pastures and margins of swamps, in soils ranging from sandy to clay-loam. This is the most widely occurring and abundant of the 'leafless' rush species in New Zealand according to Healy and Edgar (1980: 98, as *J. gregiflorus*), who also comment that it is the most weedy of the native species in this group. This situation is similar to that in Australia, where many of the native *Juncus* species seem to have spread much more widely thanks to human disturbance in the last two centuries (Johnson 1991), and some are considered weedy in pastures (commonly in those that are over-grazed). Introduced to Great Britain in wool shoddy, but probably not persistent there.

Notes: This common New Zealand species was formerly included in the concept of *J. gregiflorus* L. Johnson, which is here considered to be restricted to Australia. Records of *J. gregiflorus* in New Zealand (e.g. Edgar (1970), Healy (1970), Healy and Edgar (1980)) and most or possibly all wool shoddy records under that name in Great Britain refer to this new species. This species is also morphologically similar to the New Guinean *J. durus* L. Johnson & K.L. Wilson, ined. (Wilson and Johnson, this issue). All three species have tough culms with dense pith (variously interrupted) and loose cataphylls that are dark golden brown both abaxially and adaxially.

In the *Flora of New Zealand* (vols 2 and 3; Edgar 1970, Healy and Edgar 1980) and in Healy (1970), this species would key to *J. gregiflorus*.

Juncus edgariae differs from *J. gregiflorus* sens. strict. in having culms that are more yellow-green and shinier when dried, with the pith in the culms denser and less interrupted, with the lacunae in the pith more or less circular to longitudinally ellipsoid in shape. Capsules are usually darker golden brown at maturity. The new species also tends to have the abaxial brown colour of the cataphylls extending higher towards the stramineous apex and tapering off more gradually than in *J. gregiflorus*. *J. durus* and *J. gregiflorus* differ from *J. edgariae* in having finer culm striations (c. 0.05 mm wide) that are all similar (in the latter, the striations are mostly broader (to c. 0.1 mm wide) but mixed with some finer as well). The pith in *J. edgariae* culms has smaller lacunae than in *J. durus*, while the pith in *J. gregiflorus* differs from both in being usually much more reduced: to mere septa-like plates of pith separating very large lacunae. The pith of *J. edgariae* is illustrated in Healy (1970: fig. 34, as *J. gregiflorus*), both a section that has partly continuous pith (presumably from near the apex of a culm) and also a more typical section with irregular gaps.

Sykes (1977: 180) discussed the occurrence of the species on the volcanic Kermadec Islands, where he considered it to be native on Raoul Island. Specimens seen from there have consistently small flowers (outer tepals only 2.0–2.2 mm long), but occasional specimens from other areas also have smallish flowers. The significance of this needs further study in the field - it may be the consequence of a limited genetic base in the Raoul Island population.

The species is named for Dr Elizabeth Edgar of Christchurch, who has contributed so greatly over many years to systematic knowledge of numerous monocot groups in New Zealand, including this family and particularly the genus *Luzula*, which she has also studied in Australia.

Selected collections examined: NEW ZEALAND: North Island: Lake Tutira, *Braggins*, Feb 1967 (WELTU); Moanatuatua Swamp, S of Hamilton, *Briggs*, 31 Jan 1966 (CHR, NSW 90828); Kaiaka, *Carse K14*, 25 Dec 1913 (K); Wallaceville, Upper Hutt, *Harris*, 12 Aug 1944 (CHR 83485, 83488, NSW); Awanui, Northland, *Johnson 7499*, 15 Nov 1971 (CHR, NSW); Marchant Ridge, Tararua Range, *McNeill-Adams*, Jun 1968 (WELTU); Tangitaroria, 12 miles [19 km] ENE of Dargaville, Hobson County, *Melville 5187 and Moore*, 6 Nov 1961 (CHR, K, NSW); Manukau County, c. 10 miles [16 km] ESE of Clevedon, *Orchard 3284*, 25 Apr 1972 (AK, K, NSW); Bunnythorpe, *Zotov*, 6 Mar 1930 (CHR 3611, NSW).

South Island: Cobden, *Allan*, 26 Feb 1941 (CHR 33291, NSW); 4 miles [6.4 km] SE of Kumara, West Coast, *Briggs*, 9 Feb 1966 (CHR, NSW 90820); Devils Staircase, Lake Wakatipu, c. 14 miles [22 km] N of Kingston, *Briggs*, 18 Feb 1966 (CHR, NSW 90821, 90855); east foothills of Porters Pass, 1 mile [1.6 km] W of crossing of Kowhai River, *Briggs*, 6 Feb 1966 (CHR, NSW 90853); 4 miles [6 km] SE of Kumara, West Coast, *Briggs*, 9 Feb 1966 (CHR, NSW 90820); Glenhu Bay, Lake Wanaka, *Briggs*, 11 Feb 1966 (CHR, NSW 90809); Lincoln near golf course, *Edgar* 18, 20 Dec 1960 (CHR, NSW); Lake Georgina, Canterbury, *Edgar* 26, 27, 4 Jan 1961 (CHR, NSW); Saltwater Creek, *Edgar*, Nov 1960 (CHR 113614, CHR 113615, NSW); summit road above Gebbies Pass, c. 500 ft [150 m], Banks Peninsula, *Johnson* NZ3, 27 Sep 1969 (CHR, NSW 106568); Lake Rotoiti, *Mason* 9722, 21 Jan 1963 (CHR 145761); 2 miles [3.2 km] W of Motukarara, 10 miles [16 km] SE of Lincoln, Canterbury, *Melville* 5741A and *Melville*, 25 Dec 1961 (K, NSW); near Pearl Harbour, Lake Manapouri, *Tindale*, 25 Jan 1962 (NSW 60738); Stewart Island, *CHR 120162* (CHR).

Chatham Islands: Chatham Islands, *Burke*, Apr 1967 (WELTU); Maunganui, *Entomology Division Expedition*, Mar 1967 (CHR 176535).

Kermadec Islands: Sunday Id, *Oliver*, Nov 1908 (K); Denham Bay, Raoul Id, *Sorenson* 127, 1944 (CHR); crater, Raoul Id, *Sykes* 696/K, 17 Jul 1969 (CHR 193681); Blue Lake, Raoul Id, *Sykes* 1222/K, 3 Dec 1976 (CHR 309181).

***GREAT BRITAIN:** Wyboston, Eaton, *Dony*, 11 July 1948 (K); East Bedfont, *Dony*, Sep 1946 (K); 4 km E of Bedford, gravel pit, Vice-County 30, *Melville* 54/22, 54/28, 54/30 and *Dony*, 23 July 1954 (K, NSW); Cople, *Milne-Redhead and Dony* 718, Dep 1945 (LUTON); Eaton Socon, *Taylor* 718/0763, 20 July 1946 (K), *Wilmott and Dony s.n.*, Aug 1945 (LUTON).

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