VULPIA (GRAMINEAE) IN MALESIA

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ABSTRACT
SUMADIJAYA, A. & VELDKAMP, J. F. 2009. Vulpia (Gramineae) in Malesia. Reinwardtia 12(5): 343–346. — A brief account of Vulpia (Gramineae) in Malesia is which consisting of V. bromoides and V. myuros is provided here, based on material seen primarily by JFV in BO, K, L, CANB.

Keywords: Malesia, Vulpia bromoides, Vulpia myuros

INTRODUCTION
During a field trip to the Mount Gede Pangrango National Park, Kartonegoro made two collections of Vulpia bromoides (L.) Gray at ca. 2700 m asl. This species was known in Malesia from Mt. Rinjani (Lombok), Luzon (Mountain Prov.), and Mt. Wilhelm (Papua New Guinea), and it is a new generic record for Java. Previous collections suggest a rather ephemeral occurrence, but on Mt. Gede Pangrango the species appears to be well-established in the grasslands and along rivulets of the Suryakencana (ARK 138) and Mandalawangi meadows (ARK 50). How it got there is of course an enigma. It could have been introduced by local tourists, as the areas are used as camping sites. This would suggests that it occurs in similar habitats in Java.

The genus is close to Festuca L. and has been incorporated into it in the past. Intergeneric hybridization has been reported. However, in grasses this is generally not accepted as an argument for the merging of genera. On the contrary, recent studies have supported their generic distinctness. Vulpia C.C. Gmel. differs primarily by the annual habit, narrow and little-branched panicles, markedly unequal glumes, very gradually tapering and long-awned lemmas, usually 1 stamen in cleistogamous florets, and narrower caryopses.

Molecular research has suggested that Festuca is paraphyletic and that Vulpia is polyphyletic (Catalán et al. 2007). When split up, Vulpia remains distinct or as separate groups and is embedded within Festuca s.s. (Catalán et al. 2007; Charmet et al.1997; Inda et al. 2008).

VULPIA C.C. Gmel., Fl. Bad. 1: 8 (1805)


Tufted annuals, rarely perennials. Ligules membranous. Panicles more or less secund. Spikelets shortly pedicelled, laterally compressed, disarticulating above the glumes, 3–10-flowered, uppermost floret(s) imperfect. Glumes unequal, shorter than the spikelet; lower glumes 0 or 1–nerved; upper glumes 1–3-nerved. Rachilla prolonged beyond uppermost female-fertile floret. Lemmas firmer than the glumes, not indurated, with a cuneate base, callus obtuse, glabrous, dorsally rounded, faintly 5-nerved, awns apical, straight. Anthers 1–3. Ovary sometimes with a

**Distribution.** 22 species in the temperate and subtropical Northern hemisphere; 2 species and 1 non-typical forma are introduced in Malesia.

Key to the taxa of *Vulpia* in Malesia

1a. Panicles long-exserted from the uppermost sheath, often erect, 2–9 cm long. Lower glumes 2–5.5 mm long, 0.5–0.85 times as long as the upper one (without the awn). Upper glumes 3-nerved. Lower lemmas 1.3–1.9 mm wide. 1. *V. bromoides*

1b. Panicles enclosed by or shortly exserted from the uppermost sheath, usually curved or nodding, up to 30 cm long. Lower glumes 0.75–1.5 mm long, 0.1–0.4 times as long as the upper one (without the awn). Upper glumes 1(–3)-nerved. Lower lemmas 0.5–1.3 mm wide. 2. *V. myuros f. megalura*

2a. Margins of lemma setose

2b. Margins of lemma glabrous

1. **VULPIA BROMOIDES** (L.) Gray (Fig. 1 & 2).


Culms up to 0.5 m tall, tufted or solitary. Ligules 0.2–0.5 mm long, collar-shaped. Blades 2–15 cm X 0.3–3 mm, usually involute, stiff to flaccid, glabrous, linear. Panicles 5–35 cm long, lax to dense, enclosed by or shortly exserted from the uppermost sheath, usually curved or nodding, lowermost longest branch usually many times shorter. Spikelets 6–10 mm long (without the awns), usually cleistogamous, with 2–5 fertile florets and 1 or 2 distal sterile florets. Callus rounded, glabrous. Lower glumes 0.7–1.5 mm long, 0.2–0.45 times as long as the upper glumes, lanceolate. Upper glumes 3.5–5 mm long, linear-lanceolate, 1(–3)-nerved. Lower lemmas 5–7 X 0.5–1.3 mm, margins glabrous or setose, awns 8–16 mm long, 1.7–2 times as long the lemma.

**Distribution.** Probably originally from western Europe, introduced elsewhere; Malesia: Java (summit area Gede Pangrango), Philippines (Luzon: Pauai), Lesser Sunda Isl. (Lombok: Rinjani), Papua New Guinea: Simbu Prov. (Wilhelm).

**Habitat.** Damp, partly shaded and lightly trampled ground, 1980–3490 m.

**Vernacular Names.** Squirrel-tail or Barren fescue, Silver grass.

**Notes.** *Vulpia* species are usually said to be annual. However, the collection by Kartonegoro (ARK 138, BO, L) from the Suryakencana meadow below the summit of the Gede Pangrango has sterile shoots, suggesting a perennial. In areas without distinct seasons and with equal day lengths as in the tropics, so-called annual species may actually prove to be long-lived.


2. **VULPIA MYUROS** (L.) C.C. Gmel.

Culms to 0.5 m tall, tufted or solitary. Ligules 0.2–0.5 mm long, collar-shaped. Blades 2–15 cm X 0.3–3 mm, usually involute, stiff to flaccid, glabrous, linear. Panicles 5–35 cm long, lax to dense, enclosed by or shortly exserted from the uppermost sheath, usually curved or nodding, lowermost longest branch usually many times shorter. Spikelets 6–10 mm long (without the awns), usually cleistogamous, with 2–5 fertile florets and 1 or 2 distal sterile florets. Callus rounded, glabrous. Lower glumes 0.7–1.5 mm long, 0.2–0.45 times as long as the upper glumes, lanceolate. Upper glumes 3.5–5 mm long, linear-lanceolate, 1(–3)-nerved. Lower lemmas 5–7 X 0.5–1.3 mm, margins glabrous or setose, awns 8–16 mm long, 1.7–2 times as long the lemma.
Stamen 1, anthers 0.3–1 mm long. 2n = usually 42.

**Notes.** Three lemma indument types exist, which specialists distinguish as distinct taxa, even when mixed populations have been reported. Two of these occur in Malesia. We believe that these taxa should be recognized as forma since there is information on the population genetic structure.

One or another of these have been cultivated in Lawang, East Java, by Buyssman [Teysmannia 23 (1912) 768], but has not been collected again.


**Diagnose.** Margins of lemma setose.

**Distribution.** Europe, naturalized elsewhere, e.g. in Malesia: Philippines (Luzon: Benguet).

**Habitat.** Open grasslands, fields, reported for 2000 m in Sabah.

**Uses.** Sometimes used as a forage grass.

**Vernacular Name.** Rat's-tail fescue.

**Specimens Examined.** Lesser Sunda Island, Timor Leste, G. Tatamailau, Rao et al. 90 (herbarium not noted); Sabah, Kinabalu, *SAN 151258* (Laegaard) (AAU, L !, SAN).

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**REFERENCES**


Figure 1. *Vulpia bromoides* (L.) Gray

Figure 2. Spikelet *Vulpia bromoides* (L.) Gray