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Chrysopogon gryllus (L.) Trin. (Poaceae), a new record for Thailand

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ABSTRACT. *Chrysopogon gryllus* (L.) Trin. (Poaceae), a new record for Thailand, is described and illustrated.

INTRODUCTION

The genus *Chrysopogon* Trin. (Poaceae) comprises about 45 species, nine of which have been enumerated in a revision for Thailand (Veldkamp, 1999). During a field trip in October 2004 to Phu Chi Fa, Chiang Rai, Northern Thailand, the first author collected a species that could not be identified with this treatment.

Consulting other literature (e.g. Bor, 1960; Chen & Phillips, 2006; Cope, 1982; Shukla, 1996) it soon became clear that this represented *C. gryllus* (L.) Trin. and therefore is a new record for Thailand. Additional collections from Lampang and Loei were found in CMU and QBG. This species is described and illustrated below.

DESCRIPTION

Chrysopogon gryllus (L.) Trin., Fund. Agrost.: 188. 1820.— Type: Rhaetia, *Séguier* s.n. in Herb. Linn. 1211.2. (lectotype **LINN!**, designated by Meikle, Fl. Cyprus 2: 1863. 1985).—*Andropogon gryllus* L., Cent. Pl. 2: 33. 1756.— *Chloris gryllus* Honck., Syn. Pl. Germ. 1: 437. 1792.— *Holcus gryllus* R. Br., Prodr.: 199. 1810., pro comb.— *Pollinia gryllus* Spreng., Pl. Min. Cogn. Pug. 2: 10. 1815.— *Apluda gryllus* (L.) P.Beauv., Essai Agrost.: 133, 150, 151, 164. 1812., pro comb., excl. t. 23, f. 6; C.Presl, Cyper. Gramin. Sicul.: 55. 1820, isonym.— *Rhaphis gryllus* Desv., Opusc. Sci. Phys. Nat.: 69. 1831.— [*Andropogon gryllus* L. subsp. *genuinus* Hack. & subvar. *typicus* Hack. in A.P.de Candolle, Monogr. Phan. 6: 551. 1889., nom. inval.].— *Sorghum gryllus* Kuntze, Rev. Gen. 2: 791. 1891.— [*Andropogon gryllus* L. subsp. *eugryllus* & forma *typicus* Asch. & Graebn., Syn. Mitteleur. Fl. 2: 44. 1899., nom. inval.]. Fig. 1.

Sometimes *Rhaphis gryllus* Trin. (Fund. Agrost.: 188. 1820) is cited, but Trinius did not make this combination.

Caespitose perennials. *Culms* erect, 1–1.6 m tall. *Leaf sheaths* keeled, 7–19 by 0.7–1 cm, glabrous. *Ligule* 0.1–0.2 mm high. *Leaf blades* conduplicate, 40–65 cm by 2–6 mm wide, sparsely pilose. *Panicle* 10–21 by 3–9 cm wide, with many spikelets, purplish, lowermost branches whorled, the longest one simple, 3–7 cm long. *Raceme* peduncles 2–5

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cm long, smooth. Racemes usually with 1 terminal triplet, sometimes with an additional proximal pair, joints 4.5–7 mm long, glabrous. *Sessile spikelets* 7–8.5 mm long (incl. callus), callus oblique, pungent, 1–1.5 mm long, setose, hairs c. 3.5 mm long, golden. *Lower glume* ovate–lanceolate, 5–6 by 1.3–1.5 mm, 5–nerved, smooth, but with a row of black tubercle-based hooks on both sides of the midrib, distally slightly setose, apex obtuse to bidentate. *Upper glume* ovate–lanceolate, ca 6 by 1.2–2 mm, midrib distally setose, without a dorsal fringe of hairs, awn 3–7 mm long. *Lower lemma* epaleate, lanceolate, 4–5 by 1–1.5 mm, margins ciliolate, apex obtuse. *Upper lemma* lanceolate, ca 5 by 1 mm, awned, awn exserted, geniculate with contorted column and straight arista, 20–40 mm long, column puberulous, hairs c. 0.1 mm long. *Stamens* 3. Anthers 1.5–3 mm long. Pedicel 4–5 mm long, the sessile spikelet, glabrous, smooth. *Pedicelled spikelets* with 1 male floret, 7.5–10 mm long. *Lower glume* smooth, glabrous, muticous to mucronate, mucro 0–5 mm long. *Upper glume* acuminate to mucronate, mucro 0–2 mm long. *Lower lemma* absent or epaleate, lanceolate, 0–7 by 0–1.1 mm, margin ciliolate, apex acute, muticous. *Upper lemma* ovate-lanceolate, ca 6 by 0.7 mm. *Anthers* 3–4 mm long.

Thailand.— NORTHERN: Chiang Rai [Phu Chi Fa Forest Park, 27 Nov. 2004, *Neamsuvan* 165 (**BCU**, **L**)], Lampang [Doi Luang National Park, 6 Nov. 1998, *Petrmitr* 33 (**CMU**)]; NORTH-EASTERN: Loei [Pha Ta Lern, Phu Luang Wildlife Sanctuary, 13 Oct. 2000, *Norsangsri* 1019 (**QBG**)].

Distribution.— Mediterranean to the Caucasus, Iraq and Arabia, Nepal, India (Assam, W Bengal, Bihar, Himachal Pradesh, Karnataka, Meghalaya, Nagaland), S China (S Xizang, Yunnan).

Ecology.— Open fire damaged grass land, bordering primary evergreen, seasonal forest on granite bedrock, 1250–1500 m alt.

Notes.— *Chrysopogon gryllus* is an interesting species in several ways. In "true" *Chrysopogon* species the ultimate partial inflorescence is reduced to a triad of one sessile and 2 pedicelled spikelets and this would distinguish it from *Vetiveria* Bory, where this inflorescence is a jointed raceme with several paired spikelets, the distal one being a triplet. In *C. gryllus* there are two main inflorescence types, one "typical" chrysopogonoid, the other vetiverioid, with two or three, sometimes even five joints (see Cope, 1980, 1982).

These two forms have their own, non-overlapping populations: the "typical" one disjunctly occurs around the Mediterranean, to the Caucasus, Iraq, and Arabia, and then in Nepal, and Assam, E India, S China. The "atypical" one form, early known as *C. echinulatus* (Nees ex Steud.) Will. Wats. occurs in the gap in between, from north-eastern Afghanistan to central Nepal with a disjunct population in the Nilgiri Hills of Karnataka, S India. However, as was noted by Cope, along the Himalayas there is a gradual west to east transition from "typical" *echinulatus* to "typical" *gryllus*. Although the two forms are floristically inseparable, Cope reduced *C. echinulatus* to a subspecies of *C. gryllus*. It is interesting to note that the inflorescences from the northern Thailand collections usually have triplets of spikelets, but in a few cases in the same inflorescence these are short racemes with one pair of spikelets below the triplet.

Obviously, the traditional use of the inflorescence structure to distinguish *Chrysopogon* from *Vetiveria* is untenable. See Veldkamp (1999) for a more extensive discussion and other examples.

Figure 1. *Chrysopogon gryllus* (L.) Trin.: A. habit; B. spikelet pair; C.–F. sessile spikelet: C. lower glume, D. upper glume, E. lower lemma, F. upper lemma; G.–J. pedicelled spikelet: G. lower glume, H. upper glume, I. lower lemma, J. upper lemma. All from *Neamsuvan* 165 (BCU, L). Drawn by O. Neamsuvan.

The species is immediately recognisable by the row of tubercle-based hooks on both sides of the midrib of the lower glume of the sessile spikelet and the glabrous pedicels about half as long as or more than the sessile spikelet.

The description above is based on the cited Thai specimens.

In Thailand *C. gryllus* is similar to *C. orientalis* (Desv.) A.Camus and the key below should help to distinguish between the two species:

Culms rather slender, up to 1 m tall. Blades 3–33 cm long, above glabrous to puberulous. Sessile spikelets: callus hairs 1.7–2.85 mm long. Lower glume smooth, glabrous to distally pilulose; upper glume with a 8–17 mm long awn. Pedicel hairy **C. orientalis**

Culms robust, more than 1 m tall. Blades 40–60 cm long, above sparsely pilose. Sessile spikelets: callus hairs ca 3.5 mm long. Lower glume smooth, but with a row of black spicules on each side of the midrib, distally sparsely setose; upper glume with a ca 6.5 mm long awn. Pedicel glabrous, smooth **C. gryllus**

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