

## FIRST CONFIRMED RECORDS OF *AGROSTIS SCABRA* (POACEAE, AGROSTIDINAE) IN THE CHINESE FLORA

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**Abstract.** The first confirmed records of *Agrostis scabra* Willd. are reported from a northeastern Chinese province, Jilin. This extends the native range of the species into China. The recent *Flora of China* does not include *A. scabra*. The detailed morphological characters, diagnostic comparisons and habitat are presented, along with a distribution map of *A. scabra* in East and Northeast Asia.

**Key words:** *Agrostis clavata*, Asia, distribution, misidentification, taxonomy

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### INTRODUCTION

The lead author and collaborators in a series of papers have clarified numerous lower-level taxonomic issues among several Eurasian taxa of *Agrostis* L. (Paszko 2012, 2014b; Paszko & Pendry 2013; Paszko & Soreng 2013; Paszko *et al.* 2015), described new species (Paszko 2014a), and published new records (Nobis *et al.* 2014, 2016). Recently the first author located eight duplicates (KUN, PE) representing four separate collection events of *Agrostis*, incorrectly identified as *A. clavata* Trin. or else unidentified. They were collected from the vicinity of Mt. Changbai in China's northeastern Jilin Province; the Changbai mountain range is located on the border between China and North Korea. A detailed examination showed that they represent *A. scabra* Willd.

### MATERIAL AND METHODS

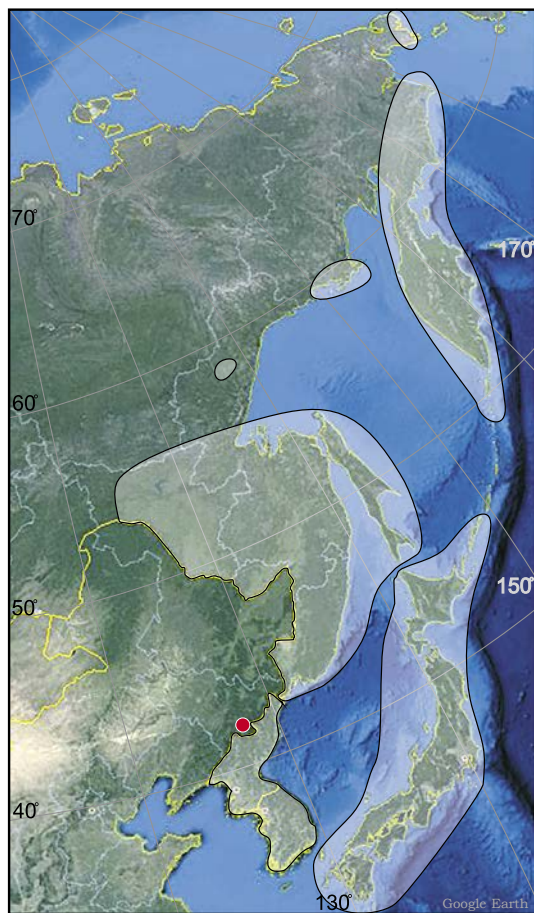
We studied specimens in KUN, P and PE (Thiers 2016). The distribution map of *Agrostis scabra* was created in Google Earth (Fig. 1). Approximate geographic coordinates were acquired using Google Earth (<http://www.google.com/earth/download/ge/>).

### TAXONOMIC TREATMENT

#### *Agrostis scabra* Willd.

Sp. Pl., ed. 4, 1(1): 370. 1797.

Perennial, caespitose. Culms 40–70 cm, erect, unbranched; nodes usually 4–5. Leaves (2nd from the top measured) 7–12 cm long, 1.2–2.3 mm wide, linear; adaxial surfaces deeply ribbed, scabrous; abaxial surfaces minutely scabrous. Sheaths usually smooth; collars smooth; ligules 4.3–4.8 mm long, truncate to acute, often lacerate. Panicle 20–33 cm long, broadly ovate in outline; branches in whorls of 2–7, the lowest panicle branches 12–16 cm long; branches scabrous, capillary, flexible, wide-spreading, branching beyond middle, spikelets somewhat distant, not crowded, clustered at distal ends of branches; pedicels 0.7–8.0 mm long, scabrous. Spikelets 2.2–3.0 mm long, 1-flowered; glumes unequal, lanceolate, 1-veined, scabrid on keel, apices acuminate, the lower 2.2–3.0 mm long and 0.73–0.87 mm wide, the upper 1.9–2.5 mm long and 0.60–0.77 mm wide and 0.82–0.93 times as long as lower glume; callus hairs 0.2–0.3 mm long, 0.12–0.19 times as



**Fig. 1.** Distribution of *Agrostis scabra* Willd. in East and Northeast Asia based on literature data (Ohwi 1965; Probatova 1985, 2006; Tzvelev 1976; Tzvelev & Probatova 2012), with its first records (red dot, covers 4 localities) in the vicinity of Mt. Changbai (Jilin, northeast China).

long as lemmas, sparse; lemma 1.4–1.7 mm long, 5-veined, 0.56–0.67 times as long as lower glumes, apices acute to obtuse, usually entire, sometimes minutely toothed, unawned; palea 0.27–0.33 mm long, 0.18–0.23 times as long as lemmas. Anthers 0.36–0.50 mm long.

**TAXONOMIC NOTE.** In China, *Agrostis scabra* can be misidentified as *A. clavata*. Both species are characterized by a tufted habit, short paleas, and usually awnless lemmas. *Agrostis scabra* differs from *A. clavata* by having longer ligules (4–5 mm vs. 0.5–4.0 mm long), and longer cal-

lus hairs (0.2–0.3 mm vs. often hairless, if hairy 0.05–0.2 mm long) (Paszko, unpubl.).

**DISTRIBUTION.** *Agrostis scabra* was described by Carl Ludwig von Willdenow (1797: 370) based on a collection from North America. This species is native to Northeast Asia, North America and Greenland, and is naturalized in Germany and Austria (Tutin 2010). *Agrostis scabra* is known from the U.S.A., Canada, Greenland, Mexico, Japan, the Korean Peninsula, and Russia (Far East) (Harvey 2001, 2007; Ohwi 1965; Probatova 1985, 2003, 2006; Tzvelev 1976, 1984; Tzvelev & Probatova 2012). A dot map provided by Probatova (1985, 2003) shows it to be common in the Russian Far East, with several dots along the Russian border with Heilongjiang and Jilin provinces of China, and North Korea.

The information about the distribution of *A. scabra* outside Russia given by Tzvelev (1976) is incorrectly translated in his English version (Tzvelev 1984). Both of them defined one of the regions as the Japan-China region, consisting of Japan, the Korean Peninsula and eastern regions of China. Tzvelev (1976) recorded the distribution of *A. scabra* only in two subregions of the Japan-China region: Japan and the Korean Peninsula. In the translated version (Tzvelev 1984) this information is translated as ‘Japan, China (Korean Peninsula and Japan)’, which is incorrect. This mistake does not refer only to *A. scabra* but also covers other species distributed in this region.

*Agrostis scabra* is not recorded in the most important treatments of *Agrostis* for the Chinese flora (Kitagawa 1979; Yang 1987; Qin 1995; Lu & Phillips 2006). However, in the earlier literature there are some notes about this species. Franchet (1884) recorded *Agrostis laxiflora* (Michx.) Richardson, *nom. illeg. hom.* (= *A. scabra* Willd.) from the vicinity of Pékin [French name for Beijing], based on the collection of *Father Armand David no. 578*. Rendle (in Forbes & Hemsley 1904: 391) repeated this information but had not seen the specimen.

The core of Armand David’s collection is housed at P, where David’s collection (P 02244207) was located by the first author. A detailed revision

showed that it represents *A. clavata*; therefore the record of Franchet (1884) and Rendle (in Forbes & Hemsley 1904: 391) should be treated as a mis-identification.

Kitagawa (1939) noted *Agrostis scabra* from Manchuria (in contemporary northeastern China) but without any details. In the revised version, Kitagawa (1979) did not record this species from this region. There is no further published specimen information reporting this particular species in China. Here we provide the first confirmed records from the vicinity of Mt. Changbai in Jilin Province, northeast China. We consider the Chinese occurrences to be part of the natural geographic range of the species.

**HABITAT.** *Agrostis scabra* occurs throughout a wide variety of habitats: moist to dry meadows, rock outcrops, forest openings, clearings and roadsides in the lowland to subalpine zones (Harvey 2001, 2007; Matthews 2016). In Jilin it was collected in grassland and wet places between 900 and 1800 m a.s.l.

**SPECIMENS EXAMINED** (Estimated geographic coordinates for localities are given in square brackets): CHINA. JILIN [first records]: Antu Co., Shibe(?) , Mt. Changbai, alt. 1800 m, [42.16554°N, 128.06675°E], 30 July 1957, *J.J. Qian 455* (KUN, PE); Fusong Co., hills near Manjiang town, wet place, alt. 900 m, [41.94934°N, 127.587425°E], 24 July 1957, *J.J. Qian 274* (KUN, PE); Fusong Co., Huapihe to Manjiang, grassland, [41.94934°N, 127.587425°E], 28 July 1950, *M. Noda et al. 677* (KUN, PE); Fusong Co., Neidaoli to Wenquan, grassland, alt. 1700 m, [42.161775°N, 127.19893°E], 21 July 1950, *M. Noda et al. 430* (KUN, 2 sheets).

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