

New Records of Leskeaceae from Xinjiang (Post-print)

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Abstract

Through investigation and identification of bryophytes in Zhaosu County, West Tianshan, Xinjiang, we report one newly recorded genus—*Orthoamblystegium* Dixon & Sakurai—in the family Leskeaceae from Xinjiang, along with two newly recorded species: *Orthoamblystegium spurio-subtile* (Broth. & Paris) Kanda & Nog. and *Leskea scabrinervis* Broth. & Paris. This paper provides detailed descriptions and records of the morphological characteristics, habitat, and distribution of the two newly recorded species, and presents micro-morphological anatomical illustrations.

Full Text

New Records of Mosses of Leskeaceae to Xinjiang

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Abstract

Based on an investigation and identification of bryophytes collected from Zhaosu County in the West Tianshan Mountains, Xinjiang, we report one genus and two species of Leskeaceae new to Xinjiang: *Orthoamblystegium* Dixon & Sakurai, *Orthoamblystegium spurio-subtile* (Broth. & Paris) Kanda & Nog., and *Leskea scabrinervis* Broth. & Paris. This paper provides detailed descriptions of the

morphological characteristics, habitat, and distribution of these two new record species, along with photomicrographs of their anatomical structures.

Keywords: Leskeaceae; new records; Xinjiang

Leskeaceae is a relatively large family of pleurocarpous mosses in the order Hypnales, distributed worldwide except Antarctica. Currently, there are more than XX species worldwide, with XX species in China. The earliest record of Leskeaceae in Xinjiang was documented by Potier de la Varde in 1937, who reported *Pseudoleskeella catenulata* (Brid. ex Schrad.) Kindb. from Bogda Mountain. In 1993, Zhao Jiancheng reported XX species from the same region. In 2012, Mamtimin Sulayman et al. conducted a systematic study of Leskeaceae in Xinjiang and documented XX species.

In recent years, our research team has conducted extensive surveys of bryophytes in the West Tianshan region of Xinjiang. Through comprehensive literature review and careful identification of collected specimens, we discovered one new record genus and two new record species of Leskeaceae for Xinjiang. Excluding previously reported species that have since been transferred to other families (*Lescuraea* and *Pseudoleskeella*), there are now XX species of Leskeaceae recorded in Xinjiang. This paper aims to supplement the research data on bryophyte diversity in Xinjiang while enriching the information on Leskeaceae in China. All voucher specimens are deposited in the Herbarium of Xinjiang University (XJU).

1. New Record Genus: *Orthoamblystegium*

Orthoamblystegium Dixon & Sakurai, Bot. Mag. Tokyo 50: 260. 1936; Moss Fl. Japan 4: 810. 1991; Moss Fl. China 6: 119. 2002.

Orthoamblystegium was established in 1936 by Dixon & Sakurai as a monotypic genus; the generic characteristics are identical to those of the single species.

2.1 *Orthoamblystegium spurio-subtile* (Plate I)

Orthoamblystegium spurio-subtile (Broth. & Paris) Kanda & Nog., Misc. Bryol. Lichenol. 9: 135. 1982; Moss Fl. Japan 4: 810. 1991; Moss Fl. China 6: 119.

Plants are slender, dark green to yellowish green, glossy, and creeping (Plate I:a). Main stems measure 1–3 cm in length, with mostly short branches, though some branches can extend up to 0.5–0.7 mm. The stem cross-section is elliptical, lacking a differentiated central strand (Plate I:f). Stem leaves are ovate-lanceolate, 0.15–0.2 mm long, densely arranged when dry with apices curved (Plate I:b). Leaves gradually taper from an ovate-triangular base to a lanceolate apex; margins are slightly recurved; the costa is thick, yellow, smooth, ending near the leaf apex or slightly excurrent (Plate I:c). Leaf cells are long-rhomboidal or

nearly linear, smooth or with protruding front angles, with mid-leaf cells measuring 16–25 $\mu\text{m} \times$ 4–6 μm (Plate I:d). Alar cells are few and rectangular (Plate I:e). Branch leaves are smaller, ovate-lanceolate to linear-lanceolate (Plate I:b). Sporophytes were not observed.

Specimen examined: Xinjiang, West Tianshan, Zhaosu County, Husongtu Haersun Mongolian Autonomous Township, Muzhate River basin (42°33' 834 N, 80°19' 897 E), collected by Mamtimin Sulayman (24785, XJU).

Habitat: Growing on rock surfaces at an altitude of 2160 m.

Distribution: China (Xinjiang, Tibet [7], Beijing [8]), Japan [10].

Taxonomic notes: Sakurai established the genus *Orthoamblystegium* based on *O. nipponicum* Sakurai (Dix. et Sak.), initially placing it in Amblystegiaceae. However, Noguchi [10] noted that differences in peristome structure and upright capsules distinguished it from Amblystegiaceae, suggesting that the systematic position required further study. Kanda & Noguchi [9] conducted a systematic revision and formally named the species *Orthoamblystegium spurio-subtile* (Broth. & Paris) Kanda & Nog., transferring the genus to Leskeaceae.

2.1.2 Geographical Distribution and Habitat *Orthoamblystegium spurio-subtile* is primarily distributed in East Asian countries including China, Japan, and Korea, thus exhibiting an East Asian distribution pattern [11, 13–14]. Research on this genus in the Chinese bryoflora has been limited. It was first reported in China in *Bryoflora of Xizang* in 1985 [7]. In 2000, Lu Duanzheng et al. [8] reported bryophytes from the Labagoumen forest region in Beijing, documenting *Orthoamblystegium* as a new record for Beijing, though this distribution was not included in *Moss Flora of China* Vol. 6 [11]. The current discovery in the Muzhate River basin of Zhaosu, West Tianshan, represents a new record for Xinjiang. The habitat features abundant water resources, indicating a hygrophilous moss that prefers shady, moist environments.

The substrate for *O. spurio-subtile* includes bark and rocks. In China, this species primarily grows on rock surfaces, whereas Japanese records indicate it grows on tree trunks but not on rocks [7, 11, 14].

2.2 *Leskea scabrinervis* (Plate II)

Leskea scabrinervis Broth. & Paris, Rev. Bryol. 33: 26. 1906; Moss Fl. China 6: 106. 2002.

Plants are small, green or yellowish green, prostrate (Plate II:a). Main stems are prostrate, 1–2 cm long, with short and dense primary or secondary branching; branchlets are often arcuate (Plate II:b). Stem leaves are ovate-lanceolate, 1.0 mm long, spreading, with the upper part oblique or slightly secund; margins are entire; the costa is thick, ending below the apex, and rough on the dorsal surface (Plate II:c). Mid-leaf cells are rounded-hexagonal, 7–10 μm long, with thin walls (Plate II:d); basal marginal cells are flattened-rectangular, 11 μm wide

(Plate II:e). Branch leaves are similar to stem leaves but with a slightly thinner costa. Sporophytes were not observed.

Specimen examined: Same locality as above, collected by Mamtimin Sulayman (22705, XJU).

Habitat: Growing on rock surfaces and tree bark at altitudes of 2160-2660 m.

Distribution: Xinjiang, Shanghai [15], Fujian [16], Henan [17], Jiangxi [18]. Endemic to China.

Taxonomic notes: *Leskea scabrinervis* was described by Broth. & Paris in 1906 [14]. Bartram [15] first recorded this species from Shanghai, China, and provided a morphological description. The genus *Leskea* was established by Hedwig in 1801 with *L. polycarpa* Hedw. as the type species [20]. Currently, the genus contains XX species worldwide, with XX species in China [11, 16].

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