

**KITAMURIA, A NEW MONOTYPIC GENUS
FOR ASTER GLEHNII (ASTERACEAE: ASTEREAE)**

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ABSTRACT

Aster glehnii (Japan, Sakhalin, and the Kuriles) is morphologically isolated among Asian species of *Aster*. Molecular data position it as most closely related to *Bellis* and *Tripolium* groups and similarities between *A. glehnii* and species of the *Tripolium* group support the insight from DNA clustering. *Aster glehnii* is recognized here as *Kitamura glehnii* (F. Schmidt) Nesom, **comb. nov.**, constituting the monotypic **Kitamura** Nesom, **gen. nov.**

Aster glehnii F. Schmidt, endemic to Japan, Sakhalin, and the Kuriles, is distinct from species of Asian *Aster* in the combination of morphological features noted below. Tamamschyan (1959) separated it as the monotypic ser. *Glehnianae* in his treatment of Russian *Aster*. Ito (1995) placed it within sect. *Aster*.

Molecular analyses (Ito et al. 1994; Ito et al. 1998; Lim et al. 2003; Shin et al. 2014) have indicated that *Aster glehnii* is distantly related to species of Japanese *Aster* (sensu lato, including *Heteropappus*, *Kalimeris* and *Miyamayomena*). The DNA analysis of Brouillet et al. (2009) placed *A. glehnii* in a position coordinate (trichotomous) with two other clades — *Tripolium/Galatella/ Crinitaria* and *Bellis/Bellium/Bellidiastrum*. The Brouillet et al. analysis calls to attention similarities between *A. glehnii* and the *Tripolium* group, especially in their rhizomatous habit, corymboid inflorescence, and densely glandular leaves and achenes. The *Bellis* group is distinct in morphology and a morphological connection to the others is obscure, but all three groups are tentatively associated as subtr. Bellidinae in Nesom (2020), emphasizing the molecular data. Evidence for the evolutionary isolation of *Aster glehnii* is recognized here by separating it as a distinct genus.

KITAMURIA Nesom, **gen. nov.** **TYPE:** *Kitamura glehnii* (F. Schmidt) Nesom

Aster sect. *Amellus* ser. *Glehnianae* Tamamsch., Flora URSS 25: 92. 1959. **TYPE:** *Aster glehnii* F. Schmidt

Distinct among Asian species of *Aster* in the combination of its rhizomatous, herbaceous habit, tall stems, large, gland-dotted (abaxially) leaves, relatively few-flowered heads in a corymboid inflorescence, bright white rays, disc corolla lobes linear-lanceolate and cut nearly to the base of the limb, and elongate, compressed, gland-dotted achenes. Distinct from *Tripolium/Crinitina/Galatella* in its combination of large, petiolate, herbaceous leaves, ebracteate peduncles, bright white ray corollas, deeply cut disc corolla lobes, phyllaries of equal-length series, and pappus of basally distinct, persistent, non-acrescent bristles.

Kitamura glehnii (F. Schmidt) Nesom, **comb. nov.** *Aster glehnii* [as *glehni*] F. Schmidt, Reis. Amurland., Bot., 146. 1868. **TYPE: RUSSIA. Sakhalin.** "Insula Sachalin," 10 Aug 1861, *Peter von Glehn s.n.* (holotype: LE; isotypes: GH image, K image, NY image-Figs. 1, 3).

Aster korsakoviensis H. Lév. & Van. in Repert. Spec. Nov. Regni Veg. 7: 103. 1909. **TYPE: RUSSIA. Sakhalin.** "Sagalien: In silvis," Korsakof, Sep 1908, *U.J. Faurie* 752 (holotype: E image, Fig. 2).

Aster glehnii var. *hondoensis* Kitam, J. Jap. Bot. 11: 166. 1935. **TYPE: JAPAN.** [Nagano]. "Prov. Kaga, Dist. Hondo, Ichinose, in montibus," 27 Aug 1931, *S. Kitamura s.n.* (holotype: KYO, not seen).

Perennial herbs from a thick, creeping, woody rhizome. **Stems** erect, 70–150(–220) cm tall, with slightly zigzag nodes, softly hirsute. **Leaves** herbaceous, pinnate-veined (eucamptodromous to subbrochidodromous), basal withering at anthesis, cauline elliptic-lanceolate to lanceolate, 6–20 cm long, mostly 2.5–4 cm wide, petiole/petiolar region 2–15 mm long, apex long-acuminate-acute, base cuneate to cuneate-acute, margins shallowly serrate to serrulate-mucronulate with evenly spaced teeth, sometimes nearly entire, sparsely short-hirsute-strigose, gland-dotted abaxially. **Inflorescence** corymboid, heads on ebracteate (rarely bracteate) peduncles 4–20 mm long. **Involucre** 6–7 mm wide; receptacles alveolate, alveolar margins fimbriate; phyllaries narrowly lanceolate-oblong to narrowly lanceolate-elliptic, 4–5 mm long, in 2–3 series of equal to subequal length. **Ray flowers** fertile, 10–20, ligules bright white, 9–11 mm long, 1.5–2 mm wide, not coiling at maturity. **Disc flowers** fertile, ca. 6 mm long, becoming purplish with maturity, 5-lobed, lobes linear-lanceolate, cut 2/3 the length of the limb, recurving-coiling. **Achenes** narrowly oblanceolate-oblong, 3–3.5 mm long, strongly compressed, with 2 lateral nerves and sometimes a third on one of the faces, strigose-hirsute, gland-dotted; pappus of bristles in a single series, about equalling the disc corolla height, not accrescent, bristles apically acute. **Chromosome number**, $2n = 18$.

Flowering August–October; grasslands and forest edges, rocky places in river valleys. Japan (Honshu, Hokkaido), Russia (Kuriles, Sakhalin). Plants identified as *Aster glehnii* from Korea instead are *Aster pseudoglehnii* Lim et al., which is closely related to *A. ageratoides* (Lim et al. 2003; Shin et al. 2014).

The genus name commemorates Siro Kitamura (1906-2002), specialist in Asteraceae and author of a comprehensive study of Japanese *Aster* (Kitamura 1937). He graduated from Kyoto University in 1931 and continued there with postgraduate studies. In 1932, with his academic supervisor Prof. Genichi Koidzumi and fellow students, he helped to establish the new journal *Acta Phytotaxonomica et Geobotanica*. Kitamura was appointed a research assistant at Kyoto in 1938 and Professor of Botany in 1945. He took part in collecting expeditions to Japan, Korea, northeast China, and Taiwan, as well as to Pakistan and Afghanistan, subsequently editing volumes of *Flora of Afghanistan* and *Plants of West Pakistan and Afghanistan*. He also produced five volumes of *Coloured Illustrations* of Japanese trees and herbaceous plants. After serving for 25 years as Director of the Kyoto Botanical Institute, Kitamura retired in 1970 (information mainly from Iwatsuki 2002; Anonymous 2013).

Aster glehnii var. *hondoensis* has been recognized from Honshu on the basis of slightly smaller leaves and heads and reduced vestiture (Ito 1995). Most collections identified as var. *hondoensis* documented on the GBIF website (<https://www.gbif.org/occurrence/736054832>) are from the montane region of central Honshu (Gunma, Nagano, Saitama, Yamanashi), where they apparently are sympatric with typical plants. Tamamshyan (1959) also noted the occurrence of variants (stem and peduncle thickness, leaf size, margins and apex) on Sakhalin and Shikotan islands. Whether these are populational or clinal variants is unknown.

Kitamura glehnii has apparently convergent similarities to species of the eastern North American *Oclemena*. Plants of both genera are rhizomatous, herbaceous perennials and produce large, elliptic-lanceolate, abaxially gland-dotted leaves, few-rayed heads on ebracteate peduncles in corymbs, and elongate, gland-dotted achenes. *Oclemena* differs in its scale-like proximal cauline leaves, longer and nodding peduncles, erect, deltate disc corolla lobes, 4–8-nerved achenes with a 3-seriate inner pappus and short outer series.

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Figure 1. *Kitamura glehnii*. Details from the NY isotype of *Aster glehnii*.



Figure 2. *Kitamura glehnii*. Details from the holotype of *Aster korsakoviensis* (E).



Figure 3. *Kitamuraia glehnii*. NY isotype.



Figure 4. *Kitamura glehnii*. Photo from <www7a.biglobe.ne.jp>, photographer unidentified.



Figure 5. *Kitamura glehnii*. Photo by Takashi Hoshide, Flickr, identified as var. *hondoensis*.



Figure 6. *Kitamura glehnii* from Sakhalin. Photo by Galina Chulanova from Plantarium <<https://www.plantarium.ru/>>.



Figure 7. *Kitamuraia glehnii*. Photo by Sonny Ashimori, Flickr, identified as var. *hondoensis*.



Figure 8. *Kitamura glehnii*. Above: Japan, photo by Koichi Oda, Wikispecies. Below: Sakhalin, photo by Tatyana Karmanova from Plantarium <<https://www.plantarium.ru/>>.



Figure 9. *Kitamuraia glehnii*, cultivar "Agleni." Photo by Nora Goosen from Fotki.



Figure 10. *Kitamuraia glehnii*, cultivar "Agleni." Photo from Gross Potrems Perennial Garden, Mecklenburg-West Pomerania <<https://www.wildstaudenzauber.de/>>