Bull. Natn. Sci. Mus., Tokyo, Ser. B, **30**(3), pp. 117–133, September 22, 2004

# Taxonomic Studies of *Cirsium* (Asteraceae) in Japan XII. Subsect. *Nipponensia*, Subsect. Nov. and a New Species, *C. hachimantaiense*, Belonging to the New Subsection

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**Abstract** A new species of *Cirsium*, *C. hachimantaiense* Kadota, is described from Mt. Hachimantai, located at the border area among Akita, Aomori and Iwate Prefectures, northern Japan. *Cirsium hachimantaiense* is characterized by the presence of basal leaves at anthesis, nodding large capitula, bowl-shaped and exceedingly glutinous 7–8-seriate involucres and corolla tubes almost as long as throats. Based on these attributes *C. hachimantaiense* belongs to subsect. *Schantarensia* (Kitam.) Kadota [=ser. *Schantarensia* Kitam.]. However, the type species of the subsection, *C. schantarense* Trautv. & C. A. Mey., has not basal leaves at anthesis. A new subsection, subsect. *Nipponensia* Kadota, is therefore proposed for the other species of the former subsect. *Schantarensia* except for *C. schantarense*. Subsect. *Nipponensia* is consisted of at least eight species and is distributed in Japan (northern to western Honshu) and Taiwan.
**Key words:** *Cirsium hachimantaiense*, Mt. Hachimantai, new taxa, subsect. *Nipponensia*, subsect. *Schantarensia*.

## Introduction

Aiming to accomplish a monograph of Japanese *Cirsium*, I have repeatedly executed field and herbarium examinations with the help of the collaborators. Until now I have published the results of the analyses (Kadota and Nagase, 1988; Kadota, 1989–2004). Here I will report the results of the study on the *Cirsium borealinipponense* group, which are characterized by having persistent basal leaves at anthesis, a few large nodding heads and glutinous involucres with well developed glandular bodies.

*Cirsium borealinipponense* (Nakai) Kitam. and the allied species have been treated as sect. *Onotrophe* (Cass.) DC. subsect. *Sinocirsium* Kitam. ser. *Schantarensia* Kitam. (Kitamura, 1934, 1937) or sect. *Onotrophe* subsect. *Schantarensia* (Kitam.) Kadota (1995). The original ser. *Schantarensia* was described by Kitamura (1934) based on *C. schantarense* Trautv. & C. A. Mey. [Fl. Ochot. **1**(2): 58, 1856] as the type species. However, *C. schantarense* is characterized by the absence of basal leaves at anthesis (*e. g.*, Icon. Corm. Sin. **4**: 611, fig. 6635, 1975). This fact is contradictory to the description of the subsect. *Sinocirsium* (*i. e.*, "Folia radicalia sub anthesin viva rosulata,....."). Therefore *C. schantarense* must be excluded from Kitamura's subsect. *Sinocirsium* ser. *Schantarensia*. On the other hand *C. borealinipponense*, *C. chokaiense* Kitam., *C. maruyamanum* Kitam. and *C. suzukii* Kitam., which were cited as the members of ser. *Schantarensia*, form a definite group characterized by having persistent basal leaves and large nodding heads. Consequently the species of Kitamura's ser. *Schantarensia* excluding *C. schantarense* will be treated here as a new subsection of sect. *Onotrophe*, subsect. *Nipponensia*. *Cirsium schantarense* is akin to *C. kamtschaticum* Ledeb. ex DC. [Prodr. **6**: 644, 1837]. Ser. *Schantarensia* Kitam. should be therefore reduced to be a synonym of Subsect. *Borealicola* Kitam. (1934).

In summer of 1997 Mr. K. Takahashi sent to me "*Cirsium chokaiense*" from Mts. Hachimantai, Iwate Pref., northern Honshu. However, the "*Cirsium chokaiense*" from Mts. Hachimantai was different from true *C. chokaiense* by having 7-8-seriate involucral phyllaries, corolla tubes nearly as long as throats and ovate glandular bodies on all the phyllaries. As stated below *C. chokaiense* is an endemic of Mt. Chôkaisan, on the border between Akita and Yamagata Prefectures. Field examinations revealed that he thistle from Mt. Hachimantai is distinguished also from *C. borealinipponense* by having bright reddish purple florets as well as the characters of involucral phyllaries, corollae and glandular bodies. The thistle from Mt. Hachimantai will be here described as a new species as a member of subsect. *Nipponensia*.

*Cirsium diabolicum* Kitamura [Cirs. Nov. Orient.–Asiat. 6 (1931) — *Cirsium japonicum* Fisch. ex DC. var. *diabolicum* (Kitamura) Kitamura ex Ohwi, Fl. Jap. rev. ed. 1376 (1965). TYPE: JAPAN: Honshu; Toyama Pref., Kurobe, Kanetsuri, 24 July 1929, G. Koidzumi s. n. (KYO-holo!; photo-TNS)] was considered to belong to ser. *Schantarensia* Kitam. (1934). *Cirsium diabolicum* is similar to *C. borealinipponense* in having nodding bowl-shaped capitula, however, differs from the latter in having well branched scapes, long peduncles and corolla tubes longer than throats. Since *C. diabolicum* has similar habit to the other members of subsect. *Nipponensia* Kadota, *C. diabolicum* is supposed to have basal leaves at anthesis. However, the type specimens are devoid of the basal parts. The original author Kitamura (1931) did not mention the presence or absence of basal leaves at anthesis in the protologue of *C. diabolicum*. There are no materials of *C. diabolicum* except for the type specimens under existing conditions. Consequently it is uncertain whether or not *C. diabolicum* does have basal leaves at anthesis. This issue should be solved in the field. *Cirsium diabolicum* will be accordingly excluded in the following treatment.

Sect. **Onotrophe** (Cass.) DC., Prodr. **6**: 644 (1837).

Subsect. **Nipponensia** Kadota, subsect. nov.

Ser. *Schantarensia* Kitam. in Acta Phytotax. Geobot. **3**: 4 (1934), pro parte majore.

Ser. *Schantarensia* auct. non Kitam.: Kadota in K. Iwats. *et al*., Fl. Jap. **3a**: 129 (1995), pro subsect. *Schantarensia* (Kitam.) Kadota.

Folia basalia persistentia sub anthesi, rosularia. Capitula nitantia. Involucra glutinosa, vittis linearibus vel lanceolatis aut anguste ovatis.

TYPE: *Cirsium borealinipponense* Kitam.

Basal leaves persistent at anthesis, rossett-like; capitula nodding; involucres provided with glandular bodies, glutinous.

**Key to the species of subsect. *Nipponensia***

1. Leaves not lanate beneath
   2. Involucral phyllaries 7–8-seriate
      3. Capitula in a compact corymb or solitary, with peduncules 1–6 cm long; leaves shallowly to medially lobed; plants of alpine meadow
         4. Glandular bodies ovate; florets bright reddish purple ...1. *C. hachimantaiense*
         4. Glandular bodies linear; florets pale pink ..... 2. *C. occidentalinipponense*
      3. Capitula in a loose raceme, peduncues 3–18 cm long; leaves deeply lobed; plants of wetlands in low elevation ..... ..... 3. *C. maruyamanum*
   2. Involucral phyllaries 5–6-seriate
      5. Involucral phyllaries 6-seriate; outer phyllaries narrowly ovate; basal leaves shallowly to medially pinnatilobate; capitula always nodding
         6. Involucres deep purple to blackish purple; glandular bodies oblong; florets bloody red ..... ..... 4. *C. chokaiense*
         6. Involucres purplish; glandular bodies linear; florets pale to dark pink
            7. Tubes of corollae 4–7 mm long, shorter than the throats....

Fig. 1. Habit of *Cirsium hachimantaiense* Kadota (JAPAN: Honshu; Iwate Pref., Iwate-gun, Matsu-mura, Mt. Hachimantai, Genta-shimizu spring, alt. ca. 1500 m, July 2002, photo taken by Mr. S. Miya). Left corner inset shows a close-up of a capitulum.

..... 5. *C. borealinipponense*
7. Tubes of corollae 7–8 mm long, slightly longer than or equal to the throats ..... 6. *C. okamotoi*
5. Involucral phyllaries 5-seriate; outer phyllaries linear-lanceolate; basal leaves deeply pinnatilobate; capitula suberect to oblique or nodding..... .....7. *C. nambuense*
1. Leaves lanate beneath; involucral phyllaries 7–8-seriate .....8. *C. suzukii*

**Enumeration of the species in subsect. *Nipponensia***

1. **Cirsium hachimantaiense** Kadota, sp. nov. [Figs. 1, 2]

Differt a *Cirsio chokaienso* phyllariis involucrorum 7–8-seriatis, tubis corollarum fauces aequrantes et vitiis ovatis; a *C. borealinipponenso* phyllariis involucrorum 7–8-seriatis, flosculis laete rubro-purpureis, foliis coriaceis et vitiis ovatis.

TYPE: JAPAN: Honshu; Iwate Pref., Iwate-gun, Matsuo-mura, Mts. Hachimantai, Genta-shimizu spring [39°57′125″N, 140°52′057″E], alt. 1520 m, 2 Sept. 2002, Y. Kadota 202302 (TNS-holotype).

A perennial herb, 0.6–1.2 m tall. Rootstock stout, horizontal; rhizomes well developed. Stem slightly declining, robust, sulcate, leafy, branched 1–5 times in the upper part, densely arachnoid and covered with short purplish hairs throughout the surface. Basal leaves yellow-grayish green, slightly lustrous, coriaceous, somewhat fleshy, persistent at anthesis and rosulate; blades broadly obovate to broadly elliptic in outline, up to 40 cm long, 26 cm broad, densely granulate-hairy on the adaxial side, sparingly arachnoid on the abaxial side, medially to deeply pinnatilobate, with petioles 12–14 cm long; lobes 5–7-jugate, narrowly ovate to ovate, 8–15 cm long, 4–8 cm broad, with sharp spines 2–4 mm long. Cauline leaves similar to the basal in shape, deminishing in size, clearly auriculate at the base, with sharp spines 4–10 mm long. Flowers in July to September. Capitula 2–5 in a compact raceme or solitary, nodding, with desnely arachnoid peduncles 3–6 cm long; subtending leaves 2–4, linear to ovate and deeply pinnatilobate, 1.5–3 cm long, with sharp spines 4–8 mm long. Involucres broadly campanulate to bowl-shaped, purplish black, 20–24 mm long, 20–25 mm (*in vivo*) or 40–50 mm (*in sicco*) in diameter, sparingly arachnoid to almost glabrous. Phyllaries 7–8-seriate, apressed with erect tips; glandular bodies narrowly ovate, on all the phyllaries, exceedingly glutinous; outer broadly ovate, 5–8 mm long, clearly shorter than the inner ones, herbaceous, terminated with weak spines ca. 1 mm long. Corollae bright reddish purple, 19–21 mm long; lobes 2–3 (–4) mm; throats 9–10 mm long; tubes 8–9 mm long, nearly as long as the throats. Achenes ivory white, 4–4.5 mm long; pappus sordid, 10–15 mm long.

Japanese name: Hachimantai-azami (nov.).

Distr.: N. Honshu (endemic to Mts. Hachimantai, on the border are among Akita, Aomori and Iwate Prefectures; Fig. 5, star). In alpine meadow; ca. 1500 m.

Specimens examined: **Iwate Pref**., Iwate-gun, matsuo-mura, Mts. Hachimantai, alt. 1600 m, 31 Aug. 1997, K. Takahashi s. n. (TNS); Mts. Hachimantai, 6 Aug. 1971, H. Koyama & F. Maeda 3527 (TNS); Mts. Hachimantai, Genta-shimizu spring, alt. 1490 m, 17 Sept. 2000, Y. Horii s. n. (TNS); Genta-shimizu, alt. 1520 m, 2 Sept. 2002, Y. Kadota 202301 (TNS).

At Genta-shimizu, Mts. Hachimantai, the type locality, there occurred a small population composed of ca. 70 individuals of *C. hachimantaiense*, together with *Cirsium ugoense*, *C. nipponicum* var. *nipponicum*, *Ranunculus acris* subsp. novus, *Pedicularis yezoensis*, *Salix integra*, *Petasites japonicus* subsp. giganteus, *Reynourtia japonica*, *etc*.

2. **Cirsium occidentalinipponense** Kadota in Bull. Natn. Sci. Mus., Tokyo, Ser. B, **23**: 115, Figs. 1–3 (1997).

TYPE: JAPAN; Honshu, Fukui Pref. (Prov. Echizen), Ôno-shi, the Ryohaku Mountain


Fig. 2. Type specimen of *Cirsium hachimantaiense* Kadota (JAPAN: Honshu; Iwate Pref., Iwate-gun, Matsuo-mura, Mts. Hachimantai, Genta-shimizu spring, alt. 1520 m, 2 Sept. 2002, Y. Kadota 202302, TNS, holotype).

Fig. 3. Habit of *Cirsium maruyamanum* Kitam. (JAPAN: Honshu; Hiroshima Pref., Miyoshi-shi, Shimo-Kawadachi, 6 July 2002, photo taken by Dr. M. Kubota). Right corner inset shows a close-up of a capitulum.

Range, Mt. San'nomine, alt. 1600 m, 2 July 1996, T. Wakasugi 43077 (Holotype-TNS 9027728!; Isotypes-TNS 9027724!, 9027726!, 9027729!).

A perennial herb, 30–80 cm tall. Rootstock stout, horizontal; rhizomes developed. Stem slightly declining, stout, leafy, branched in the apical part, densely arachnoid and covered with short brown hairs in the upper part, in particular conspicuously densely villose with long brownish hairs at the basal part. Basal leaves deep to light green on the adaxial side and glaucous on the abaxial side, thick and slightly fleshy, persistent at anthesis and rosulate; blades narrowly elliptic to narrowly ovate in outline, 18–25 cm long, 6–8 cm broad, sparingly covered with short brownish hairs on the adaxial side, arachnoid particularly along the midribs on the abaxial side, medially pinnatilobate to 1/2 way from the midribs, with petioles (1–) 4–6 cm long or subsessile; lobes 6–9-jugate, ovate to narrowly ovate, 2–4 cm long, 1–2 cm broad, with spines 1–2 mm long. Lower cauline leaves similar to basal in shape and size, widely auriculate at the base, with strong spines up to 10 mm long, upper cauline leaves smaller than the basal. Flowers in June to July. Capitula 2–4 or more in a compact raceme or aggregated, nodding, with thick, woolly and hence whitish peduncles (0–) 1–4 cm long; subtending leaves 2–3, lanceolate, 1.5–3 cm long, with spines 4–9 mm long. Involucres bowl-shaped to broadly campanulate-campanulate, purplish black to deep purple, (19–) 22–23 mm long, 17–21 mm (*in vivo*) or 33–40 mm (*in sicco*) in diameter, sparingly arachnoid or sometimes almost glabrous. Phyllaries 7(–8)-seriate; glandular bodies linear, on the abaxial side of all phyllaries, very glutinous; outer phyllaries narrowly ovate 9–13 mm long, half as long as the inner ones, herbaceous, terminated with spinules ca. 1 mm long, more or less ascending with gently or strongly recurved tips or sometimes appressed with suberect tips. Corollae reddish violet to pale violet, 20–22 mm long; lobes 3–4 mm long; throats 9–10 mm long; tubes 7–8 mm long, slightly shorter than the throats. Achenes brownish white, 2.8–3.1 mm; pappi sordid, 17–18 mm long.

Chromosome number 2n＝34.

Japanese name: Echizen-oni-azami.

Distr.: C. Honshu (endemic to Mt. San'nomine, Mts. Hakusan, Fukui Prefecture; Fig. 5, square). In alpine meadow; 1500–1900 m.

Photo: http://research.kahaku.go.jp/botany/azami/echizenoni-frm.html

Additional specimens examined: **Fukui Pref**., Ôno-shi, Mt. San'nomine, alt. 1800 m, 15 July 1996, T. Wakasugi 43516, 43519 (TNS).

*Cirsium occidentalinipponense* is closely related to *C. borealinipponense*, however, the former is discriminted from the latter by the number of involucral phyllaries (7–8-seriate *vs*. 6-seriate), the degree of development of glandular bodies on inner phyllaries (well *vs*. poor), the direction of middle and outer phyllaries (ascending or gently recurved vs. apressed and erct) and the relative length of corolla tube to throat (tubes as long as throats vs. tubes shorter than troats).

*Cirsium occidentalinipponense* is an endemic of Mt. San'nomine, Mts. Hakusan, the Ryôhaku Mountain Range, central Honshu. In the northern part of Mts. Hakusan *C. borealinipponense* is also found. At the type locality, Mt. San'nomine, sympatric occurrence of *C. occidentalinipponense* and *C. borealinipponense* has been observed. In the original description the two collections, Wakasugi and Ogawa 43394–43395 were cited as *C. occidentalinipponense*. However, these collections are characterized by 6-seriate involucres and shoul be ascribed to *C. borealinipponense*.

3. **Cirsium maruyamanum** Kitam. in Acta Phytotax. Geobot. **6**: 20 (1937); Compos. Jap. **1**: 75 (1937) — H. Hara, Enum. Sperm. Jap. **2**: 178 (1952) — Ohwi, Fl. Jap. 1213 (1953); Fl. Jap., rev. ed. 1377 (1965) — Kitam. *et al*., Col. Illust. Herb. Pl. Jap. **1**: 40, pl. 12, 84 (1980) — Kitam., Wild Flow. Jap. **3**: 216 (1981) — Ohwi (Kitag.), New Fl. Jap. 1528 (1992) — Kadota, Fl. Jap. **3a**: 130 (1995). [Fig. 3]

TYPE: JAPAN: Honshu; 'in pratis humidis crescens. Hondo. Prov. Hoki: Hagihara' [Tottori Pref., Hino-gun, Nichinan-cho, Hagihara], 31 July 1936, I. Maruyama s. n. (KYO!-holotype; photo-TNS). 'Prov. Bingo: Mitsuino' [Hiroshima Pref., Hiba-gun, Saijo-cho, Miino], 25 July 1936, I. Maruyama s. n. (KYO!-paratype). 'Prov. Idzumo: Torikami' [Shimane Pref., Nita-gun, Yokota-cho, Torikami], 24 May 1936, I. Maruyama s. n. (KYO!-paratype).

A perennial herb, 0.6–1.5 m tall. Rootstock horizontl, well developed. Stem slightly declining, branched in the upper part, sparingly arachnoid and covered with brownish hairs in the upper part. Basal leaves dull green, subcoriaceous, persistent at anthesis and rosulate; blades obovate to elliptic in outline, 20–40 cm long, 8–16 cm broad, glabrous on both sides or sometimes arachnoid on the abaxial side, deeply pinnatilobate, with petioles 3–7 cm long; lobes 7–9-jugate, narrowly ovate to ovate, 1–6 cm long, 0.5–1.5 cm broad, with spines 3–4 mm long. Cauline leaves several, smaller than the basal, auriculate. Flowers in May to July. Capitula 2–4 in a loose raceme or sometimes solitary, nodding, with peduncles 3–18 cm long; subtending leaves 2–4, lanceolate to linear, 1–3 cm long, with strong spines 2–5 mm long. Involucres campanulate, blackish purple to dark green, ca. 20 mm long, 15–25 mm (*in vivo*) 30–50 mm in diameter (*in sicco*), sparingly arachnoid. Phyllaries 7–8-seriate, appressed with ascending tips; glandular bodies linear to narrowly lanceolate, also on outer ones, very to slightly glutinous; outer lanceolate to linear, 3–5 mm long, clearly shorter than the inner ones, herbaceous, terminated with spines 1–2 mm long. Corollae deep to pale violet, 20–22 mm long; lobes 4–5 mm long; throats 7–8 mm long; tubes 8–9 mm long, longer than or as long as the throats. Achenes grayish brown, ca. 3.5 mm long; pappus sordid, 12–16 mm long.

W. Honshu (Tottori, Hiroshima and Shimane Prefectures; Fig. 5, diamond). Along stream in sunny grassland; 600–800 m. Endemic.

Japanese name: Murakumo-azami.

Specimens examined: **Hiroshima Pref.**, Miyoshi-shi, Shimo-Kawadachi, 15 June 2002, M. Kubota 0201 (TNS); Shimo-Kawadachi, 24 June 2002, M. Kubota 0203–0206 (TNS); Shimo-Kawadachi, 6 July 2002, Y. Kadota 200201–200202 (TNS). Kamo-gun, Toyosaka-cho, Asuka, 16 June 2002, M. Kubota 0202 (TNS); Daiwa-cho, Kuramune, 29 June 2002, M. Kubota (photo, TNS).

The type specimens of *Cirsium maruyamanum* were collected from the border region among Tottori, Shimane and Hiroshima Prefectures. After the collection of the type specimens in 1936 no materials of *C. maruyamanum* had been obtained from the border region. Field examinations were repeated also by me and my collaborator, Mr. Takao Wakasugi, the Director of the Fukui Botanical Garden, in the region, however, any plants ascribable to *C. maruyamanum* were never collected from the region. There is therefore a possibility that *C. maruyamanum* may be extinct in the region.

In 2002 *C. maruyamanum* was found by Dr. Masahiko Kubota in the western part of Hiroshima Prefecture. In this area the plants belonging to *C. maruyamanum* were observed as sporadic small populations along streams and ponds on the hills.

4. **Cirsium chokaiense** Kitam., Cirs. Nov. Or.-Asiat. 5 (1931); in Acta Phytotax. Geobot. **3**: 4 (1934); Compos. Jap. **1**: 74 (1937) — Nakai in Bot. Mag. Tokyo **46**: 623 (1932) — H. Hara, Enum. Sperm. Jap. **2**: 171 (1952) — Ohwi, Fl. Jap. 1213 (1953); Fl. Jap., rev. ed. 1377 (1965) — Masamune, Col. Illust. Fl. Jap. **6-II**: 317 (1974) — Kitam. *et al*., Col. Illust. Herb. Pl. Jap. **1**: 40, pl. 12, 84 (1980) — T. Shimizu, New Alp. Fl. Jap. **1**: 19, pl. 4–14 (1982) — Ohwi (Kitag.), New Fl. Jap. 1527 (1992) — Kadota, Makino's New Illust. Fl. Jap. 802, t. 3208 (1989); Fl. Jap. **3a**: 129 (1995).

TYPE: JAPAN; Honshu, Akita Pref., Mt. Chôkaisan, in the alpine zone, 5 Aug. 1929, G. Koidzumi s. n. (KYO!; photo-TNS).

*Cirsium maximowiczii* Nakai var. *glutinosum* Nakai in Bot. Mag. Tokyo **26**: 380 (1912), p. p.

minore.

A perennial herb, (0.4–) 1–1.5 m tall. Rootstock stout, horizontal; rhizomes well developed. Stem slightly declining, stout, leafy, branched once to twice in the upper part, densely arachnoid and covered with short purplish hairs throughout the surface. Basal leaves deep green, slightly lustrous, thick and somewhat fleshy, persistent at anthesis and rosulate; blades elliptic in outline, 20–40 cm long, 10–15 cm broad, sparingly covered with brownish short hairs on the adaxial side, pilose with brownish long hairs along midribs on the abaxial side, medially pinnatilobate, with petioles 2–12 cm long; lobes 5–7-jugate, narrowly ovate to ovate, 3–8 cm long, 1.5–3.5 cm broad, with spines 3–4 mm long. Cauline leaves smaller than the basal, clearly auriculate at the base, with sharp spines 4–8 mm long. Flowers in August to September. Capitula solitary or 2–5 in a loose raceme, nodding, with peduncles 3–14 cm long; subtending leaves 2–4, linear to ovate and deeply pinnatilobate, 1.5–3 cm long, with sharp spines 4–7 mm long. Involucres campanulate to broadly campanulate, deep purple to purplish black, 20–27 mm long, 15–20 mm (*in vivo*) or 30–45 mm (*in sicco*) in diameter, arachnoid. Phyllaries 6-seriate, suberect with ascending tips; glandular bodies oblong, on middle ones, glutinous; outer ovate to narrowly ovate, 8–10 mm long, clearly shorter than the inner ones, herbaceous, terminated with weak spines ca. 1 mm long. Corollae deep violet, 18–22 mm long; lobes 4–5 mm; throats 5–6 mm long; tubes 8–11 mm long, clearly longer than the throats. Achenes dirty brown, ca. 4 mm long; pappus sordid, 16–18 mm long.

Chromosome number: 2n＝34 (Matsuura and Suto 1935).

Japanese name: Chôkai-azami, Nebari-azami.

Distr.: N. Honshu (endemic to Mt. Chokaisan on the border between Akita and Yamagata Prefecture; Fig. 5, solid triangle). In alpine meadow; 1500–2000 m.

Photo: http://research.kahaku.go.jp/botany/azami/chokai-frm.html

Specimens examined: **Akita Pref.**, Mt. Chôkaisan, 24 Aug. 1906, K. Matsuo s. n. (TNS); Mt. Chôkaisan, 4 Aug. 1935, M. Matsuda s. n. (TNS); Mt. Chôkisan, 8 Aug. 1930, S. Okuyama 2866 (TNS); Mt. Chôkaisan, 8 Aug. 1941, Y. Yuki 4186 (TNS); Mt. Chôkaisan, Azami-zaka, 7 Aug. 1948, M. Sato s. n. (TNS); Mt. Chôkaisan, 2 Aug. 1959, K. Nishio s. n. (TNS). **Yamagata Pref.**, Mt. Chôkaisan, 26 Aug. 1916, H. Koidzumi 83364 (TNS) Akumi-gun, Yuza-machi, Mt. Chokaisan, Sumisatosawa, Shiraito-no-taki, alt. 1600 m, 6 Oct. 1997, Y. Kadota 975046-975048 (TNS).

5. **Cirsium borealinipponense** Kitam. *et al*., Col. Illust. Herb. Pl. Jap. **I** (ed. 5): 40 (1979), nom. nud.; Kitam. in Acta Phytotax. Geobot. **31**: 44 (1980); Wild Flow. Jap. **3**: 216, pl. 193-3 (1981) — Kitam. *et al*., Col. Illust. Herb. Pl. Jap. 1: 40, pl. 12, 84 (1980) — Kadota, Makino's New Illust. Fl. Jap. 802, t. 3207 (1989); Fl. Jap. **3a**: 130 (1995) — *Cirsium japonicum* DC. subsp. *yezoense* (Maxim.) Nakai var. *nipponense* Nakai in Bot. Mag. Tokyo **25**: 60 (1911) — *Cirsium maximowiczii* Nakai var. *nipponense* (Nakai) Nakai in Bot. Mag. Tokyo **26**: 380 (1912), p. p. — *Cirsium nipponense* (Nakai) Koidz. in Bot. Mag. Tokyo **38**: 93 (1924) — Kitam. Cirs. Nov. Or.-Asia. 5 (1931); in Acta Phytotax. **3**: 4 (1934); Compos. Jap. **1**: 72 (1937) — H. Hara, Enum. Sper. Jap. **2**: 179 (1952) — Ohwi, Fl. Jap. 1212 (1953); Fl. Jap., rev. ed. 1377 (1965) — Masamune, Col. Illust. Fl. Jap. **6-II**: 317 (1974) — Ohwi (Kitag.), New Fl. Jap. 1527 (1992).

LECTOTYPE (Kadota, 1997; Fig. 5): JAPAN: Honshu; Fukushima, G. Nakahara s. n. (TI!). PARATYPES: JAPAN: Honshu; Mt. Togakushiyama, 11 July 1884, no collector's name (TI!); 'Idesan' [Fukushima Pref., Mt. Iidesan], 13 Aug. 1879, no collector's name (TI!).

*Cirsium maximowiczii* Nakai var. *glutinosum* Nakai in Bot. Mag. Tokyo **26**: 380 (1912), p. p.

*Cirsium nipponense* (Nakai) Koidz. var. *spinulosum* Kitam., Compos. Jap. **1**: 74 (1937).

Japanese name: Oni-azami, Oni-no-azami.

A perennial herb, 0.5–1.5 m tall. Rootstock

stout, horizontal; rhizomes well developed. Stem declining, stout, leafy, simple or branched in the upper part, densely arachnoid and covered with short brown hairs in the upper part. Basal leaves deep green, thick and slightly fleshy, persistent at anthesis and rosulate; blades narrowly elliptic in outline, 35–65 cm long, 15–30 cm broad, sparingly covered with brownish short hairs particularly along the veins on both sides, medially to deeply pinnatilobate, with petioles 5–10 cm long; lobes 5–8-jugate, narrowly ovate to ovate, 7–10 cm long, 2–4 cm broad, with spines 2–3 mm long. Cauline leaves smaller than the basal, auriculate at the base, with strong spines up to 10 mm long. Flowers in June to October. Capitula 2–4 or more in a compact raceme or aggregated, nodding, with peduncles (0–) 1–5 cm long; subtending leaves 2–3, linear to lanceolate, 2–9 cm long, with spines 3–5 mm long. Involucres bowl-shaped to broadly campanulate, purplish to purplish black, 18–22 mm long, 20–30 mm (*in vivo*) or 30–40 cm (*in sicco*) in diameter, glabrous. Phyllaries 6-seriate, suberect with ascending tips; glandular bodies lanceolate, on particularly middle and inner ones, very glutinous; outer narrowly ovate, 10–15 mm long, slightly shorter than the inner ones, herbaceous, terminated with spines ca. 1 mm long, sometimes with spines along the margin. Corollae pale violet, 16–22 mm long; lobes 2–4 mm long; throats 9–11 mm long; tubes 4–7 mm long, shorter than the throats. Achenes brownish white, ca. 3.5 mm long; pappus sordid, 14–16 mm long.

Chromosome number: 2n＝34 (Kadota, 1994).

Distr.: N. and C. Honshu (from Iwate and Akita to Ishikawa Prefs., mainly on the Japan Sea side; Fig. 5, disc). In montane and subalpine meadow; 800–1800 m. Endemic.

Photo: Nakai, Icones Pl. Koishik. **1**: t. 21 (1912), as *C. maximowiczii* var. *nipponense*), t. 22 (1912), as *C. maximowiczii* var. *glutinosum*; Kitamura *et al*., Herb. Pl. **1**: t. 40 (1957); http://research.kahaku.go.jp/botany/azami/onifrm.html

Representative specimens examined: **Akita Pref.**, Senboku-gun, Tazawako-machi, Mt. Akita-Komagatake, 9 Aug. 1931, H. Koidzumi 31454 (TNS). Sen'hata-machi, Mt. Mahirudake, alt. 970 m, 15 July 1998, Y. Horii 1897 (TNS). **Miyagi Pref.**, Shiroishi-shi, Tobifudô, 2 July 1978, S. Yoshida s. n. (TNS). Igu-gun, Marumori-machi, Mt. Jirôtarôyama, alt. ca. 500 m, 11 July 1986, S. Mori 3071 (TNS). Kami-gun, Mt. Yakuraisan, 31 May 1936, H. Koidzumi 104075 (TNS).**Yamagata Pref.**, Mt. Naderasan, July 1911, G. Koidzumi s. n. (TI, syntype of *C. maximowiczii* var. *glutinosum*). Fukushima Pref., Mt. Azumasan, 12 June 1904, G. Nakahara s. n. (TI, syntype of *C. maximowiczii* var. *glutinosum*). Yamagata-shi, Shakadô, 28 June 1931, S. Okuyama s. n. (TNS). Minami-Murayama-gun, Kanaimura, fl. white, 12 June 1938, Y. Yuki 4959 (TNS). Nishi-Murayama-gun, Nishikawa-machi, Mazama, alt. 240 m, 4 June 1986, S. Tsugaru and T. Takahashi 34545 (TNS). **Fukushima Pref.**, Yama-gun, Atsushiokano-mura, Mt. San'nokuradake, alt. 800 m, on sunny grassy slope, 13 June 1970, M. Togashi s. n. (TNS). Minami-Aizu-gun, Tateiwa-mura, Yunohana Spa, 24 June 1962, K. Moriya s. n. (TNS). Yama-gun, Inawashiro-machi, Yokomuki Spa, fls. white, 29 June 1969, Y. Saito 3 (TNS). Nishi-Shirakawa-gun, Nishigô-mura, Kasshi Spa — Mt. Asahidake, 29 July 1958, S. Okuyama 14265 (TNS). **Niigata Pref.**, Kita-Kanbara-gun, Kurokawa-mura, Tainai-keikoku, 29 July 1971, S. Okuyama 23524 (TNS). Naka-Kubiki-gun, Myôkôkôgen-cho, Mt. , Myôkôsan, 4 Aug. 1943, K. Hisauti s. n. (TNS). Itoigawa-shi, Tengu-no-niwa — Renge Spa, 15 Sept. 1989, Y. Kadota 982001-982003 (TNS). **Nagano Pref.**, Kami-Minochi-gun, Togakushi-mura, Mt. Togakushiyama, 31 July 1960, S. Okuyama 22116 (TNS). Kita-Azumi-gun, Hakuba-mura, Happô-one, June 2002, S. Miya s. n. (TNS); Obinata [Kohinata] col, alt. ca. 1800 m, 14 Sept. 1989, Y. Kadota 893601-893605 (TNS). Kamishiro-mura, Mt. Ôtakiyama, 1 June 1930, H. Koidzumi 23140 (TNS). **Ishikawa Pref.**, Ishikawa-gun, Yoshinotani-mura, Hakusan Super-Rindo, alt. 1400 m, 15 July 1989, S. Tsugaru *et al*. 46631 (TNS). **Fukui Pref.**, Ôno-shi, Mt. San'nomine, alt. ca. 1700 m,

12 July 1996, T. Wakasugi & N. Ogawa 43394-43395 (TNS) ); Mt. San'nomine, alt. 1800 m, 15 July 1996, T. Wakasugi 43517-43518 (TNS); Mt. San'nomine, alt. 1700 m, 30 July 1996, T. Wakasugi 43087 (TNS).

A presumable hybrid between *C. borealinipponense* and *C. nipponicum* (Maxim.) Makino var. *shiroumense* Kadota was found at Obinata Col, Mts. Shiroumadake, Nagano Prefecture (Y. Kadota 939001, 9 Sept. 1993, TNS).

6. **Cirsium okamotoi** Kitam., Compos. Jap. **1**: 132 (1937), pro hybr. *C. nikkoense*×*C. nipponense* ; Wild Flow. Jap. 3: 216, pl. 193-2 (1981) - Kitam. *et al*., Col. Illust. Herb. Pl. Jap. **1**: 40, pl. 12, 84 (1980) — H. Hara in Bot. Mag. Tokyo **64**: 78 (1951); Enum. Sper. Jap. **2**: 180 (1952) — Kadota, Fl. Jap. **3a**: 130 (1995).

SYNTYPES: JAPAN: Honshu; Gunma Pref., Oze, Ayamedaira, 24 Aug. 1933, S. Okamoto s. n. (KYO!); Oze, Mt. Shibutsusan, 25 Aug. 1933, S. Okamoto s. n. (KYO!). Fukushima Pref., Oze, 9 Aug. 1935, J. Ohwi and M. Tagawa (KYO!).

A perennial herb, 0.3–1 m tall. Rootstock stout, horizontal; rhizomes well developed. Stem declining, stout, leafy, simple or slightly branched in the uppermost part, densely arachnoid and covered with whitish long hairs throughout the surface. Basal leaves yellowish green, slightly lustrous, thick and somewhat fleshy, persistent at anthesis and rosulate; blades elliptic to ovate in outline, 15–45 cm long, 6–16 cm broad, sparingly covered with brownish short hairs on the adaxial side, pilose with brownish long hairs along midribs on the abaxial side, medially pinnatilobate, with petioles 6–15 cm long; lobes 6–9-jugate, narrowly ovate to ovate, 5–7 cm long, 2–3 cm broad, with spines 3–6 mm long. Cauline leaves smaller than the basal, more or less auriculate, with strong spines up to 10 mm long. Flowers in August to September. Capitula solitary or 2–4 in a compact raceme or aggregated, nodding, with peduncles 0–2 cm long; subtending leaves 3–4, linear to ovate and deeply pinnatilobate, 1–4 cm long, with sharp spines 5–8 mm long. Involucres broadly campanulate, deep purple, 18–20 mm long, 15–20 mm (*in vivo*) or 25–30 mm (*in sicco*) in diameter, arachnoid. Phyllaries 6-seriate, suberect with ascending tips; glandular bodies linear to lanceolate, on middle and inner ones, very glutinous; outer narrowly ovate, 8–12 mm long, slightly shorter than the inner ones, herbaceous, terminated with spines ca. 1 mm long. Corollae pale violet, 17–18 mm long; lobes 3–4 mm long; throats 7–6 mm long; tubes 7–8 mm long, slightly longer than the throats. Achenes brownish white, ca. 4 mm long; pappus sordid, 14–16 mm long.

Chromosome number: 2n＝34 (Kurosawa 1980).

Japanese name: Jôshu-oni-azami.

Distr.: C. Honshu (Mikuni Range; Fig. 5, open triangle). In subalpine and alpine meadow; 1500–2000 m. Endemic.

Photo: http://research.kahaku.go.jp/botany/azami/josyuoni-frm.html

Specimens examined: **Fukushima Pref.**, Minami-Aizu-gun, Hinoemata-mura, Oze, 20 June 1933, D. Hoshi s. n. (TNS); Numayama-tôge Pass, 14 Aug. 1930, D. Hoshi s. n. (TNS); Numayama-tôge Pass, 28 July 1933, D. Hoshi s. n. (TNS); Numayama-tôge Pass, alt. 1720 m, 5 Sept. 2002, Y. Kadota 202315–202316 (TNS); Mt. Hiuchidake, 26 July 1955, C. Ôkawa s. n. (TNS); Mt. Hiuchigatake, alt. 2095 m, 31 Aug. 1999, Y. Kadota 996014–996016 (TNS). **Gunma Pref.**, Tone-gun, Katashina-mura, Shôbu-daira, 22 Aug. 1934, H. Koidzumi 93250 (TNS); Hatomachi-tôge Pass, 21 July 1934, S. Okuyama 102108 (TNS); Mt. Shibutsusan, Iwate, 7 Aug. 1949, N. Maruyama s. n. (TNS). Minakami-machi, Tenjin-tôge Pass, 24 June 1934, S. Okuyama s. n. (TNS); Mt. Tanigawadake, 5 Aug. 1934, H. Koidzumi 91840 (TNS). Niiharu-mura, Mikuni-tôge Pass — Mt. Mikuniyama, 11 July 1957, S. Okuyama *et al*. 13925 (TNS); Mikuni-tôge Pass, 26 July 1959, S. Okuyama 16619-16620 (TNS); Mikuni-tôge Pass, 12 July 1962, K. Someno s. n. (TNS). Agatsuma-gun, Kuni-mura, Nozori-ko lake, 27 July 1952, K. Hisauti and H. Hara s. n. (TNS); Nozori, 31 July 1964, K. Masukawa 1700 (TNS); Kamoshika-daira —

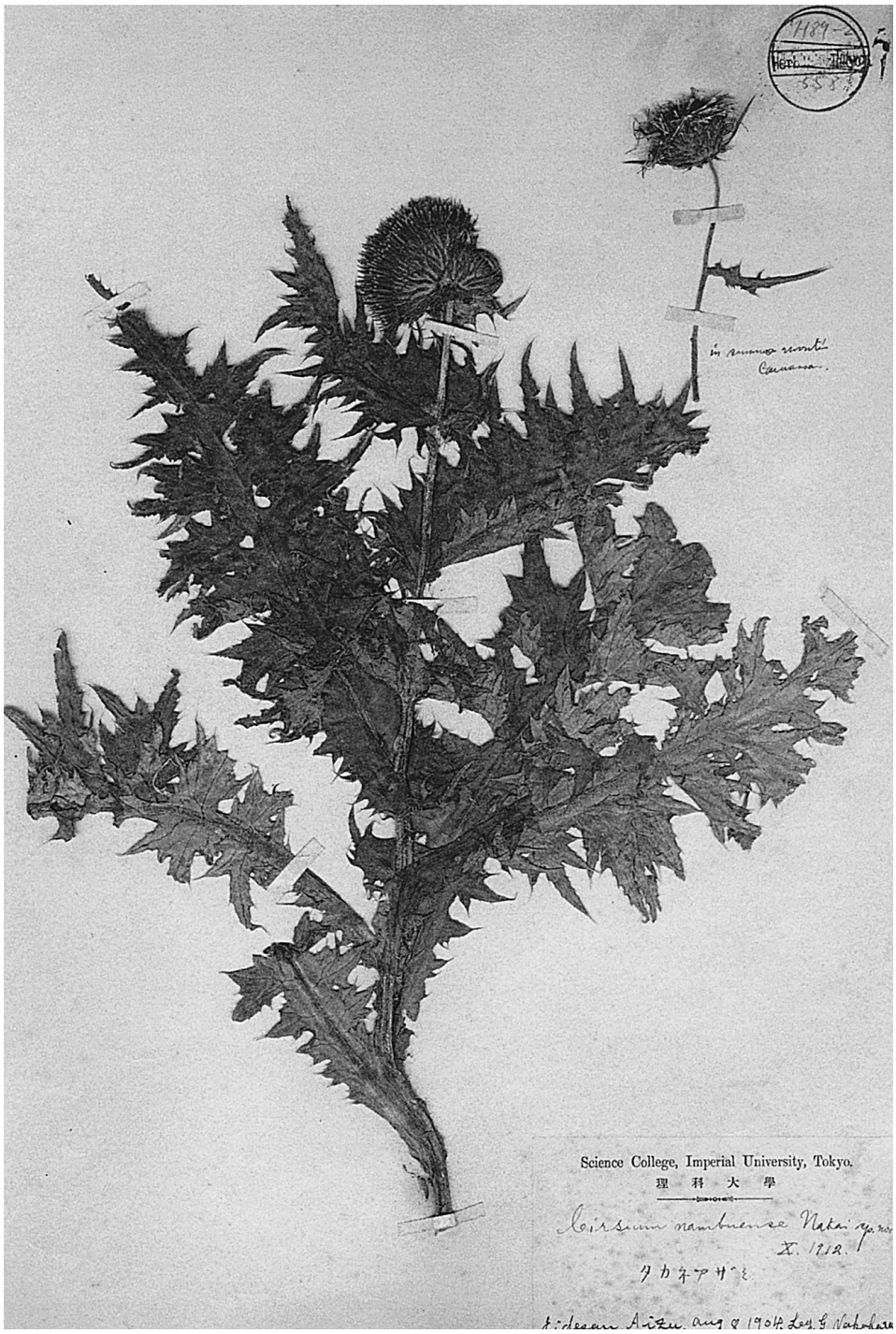


Fig. 4. Lectotype specimen of *Cirsium nambuense* Nakai (JAPAN: Honshu; Aidzu, Mt. Iidesan, 8 Aug. 1904, G. Nakahara s. n., TI).

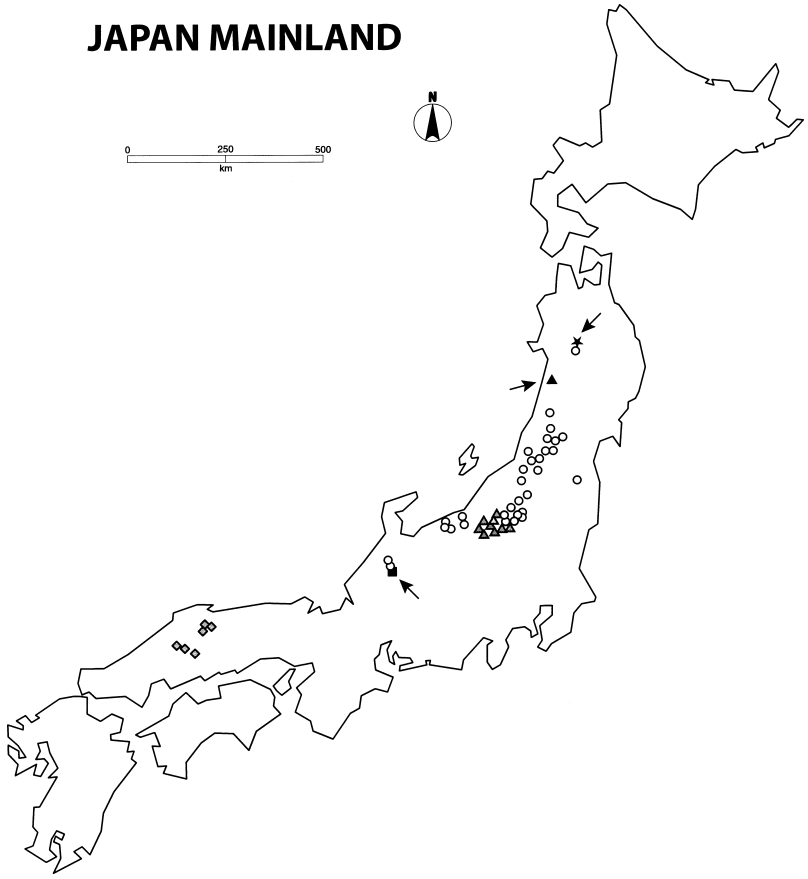


Fig. 5. Distribution of *Cirsium borealinipponense* and its allied species. Disc.: *C. borealinipponense*. Star: *C. hachimantaiense*. Solid triangle: *C. chokaiense*. Hatched triangle: *C. okamotoi*. Square: *C. occidentalinipponense*. Diamond: *C. maruyamanum*.

Nozori-ko lake, 26 July 1974, C. Ôkawa s. n. (TNS); Nozori-ko lake — Mt. Shirasunayama, 27 July 1974, C. Ôkawa s. n. (TNS); Mt. Shirasunayama, alt. 2110 m, 26 Aug. 1981, Y. Kadota 810826 (TNS). Kusatsu-machi, Mt. Shiranesan, Kagami-ike pond, alt. 2020 m, 9 Sept. 1981, Y. Kadota 810909-810910 (TNS). **Niigata Pref.**, Kita-Uonuma-gun, Irihirose-mura, Mt. Sumondakem alt. 1530 m, 7 Aug. 1981, Y. Kadota 81080 (TNS). Minami-Uonuma-gun, Yuzawa-machi, Mt. Naebasan, 1 July 1936, S. Okuyama s. n. (TNS); Mt. Naebasan, Kagura-mine, 19 Aug. 1953, Y. Satake & S. Ito s. n. (TNS); Mt. Naebasan, 9 Aug. 1951, T. Kawasaki s. n. (TNS); Mt. Naebasan, 8 Aug. 1958, S. Okuyama 17176 (TNS). **Nagano Pref.**, Shimo-Takai-gun, Yamanouchi-cho, Mt. Iwasugoyama, 18 July 1930, H. Koidzumi 23745-23746 (TNS).

*Cirsium okamotoi* is distinguished from *C. borealinipponense* by having deeply lobed basal leaves with strong spines and corolla tubes almost equalling to throats in length.

*Cirsium okamotoi* is restricted to the Japan Sea side of the Mikuni Mountain Range, central Honshu. On the Pacific Ocean side of the Mikuni Range presumable hybrids between *C. okamotoi* and *C. nipponicum* (Maxim.) Makino var. *incomptum* (Maxim.) Kitam. ex Ohwi have been found (*i.e.*, Kadota 961031, Gunma Pref., Tone-gun, Niiharu-mura, Kawaburu, alt. 700 m, 31 Oct. 1996, TNS 9027870). In Shiga Highland located in the westernmost part of the Mikuni

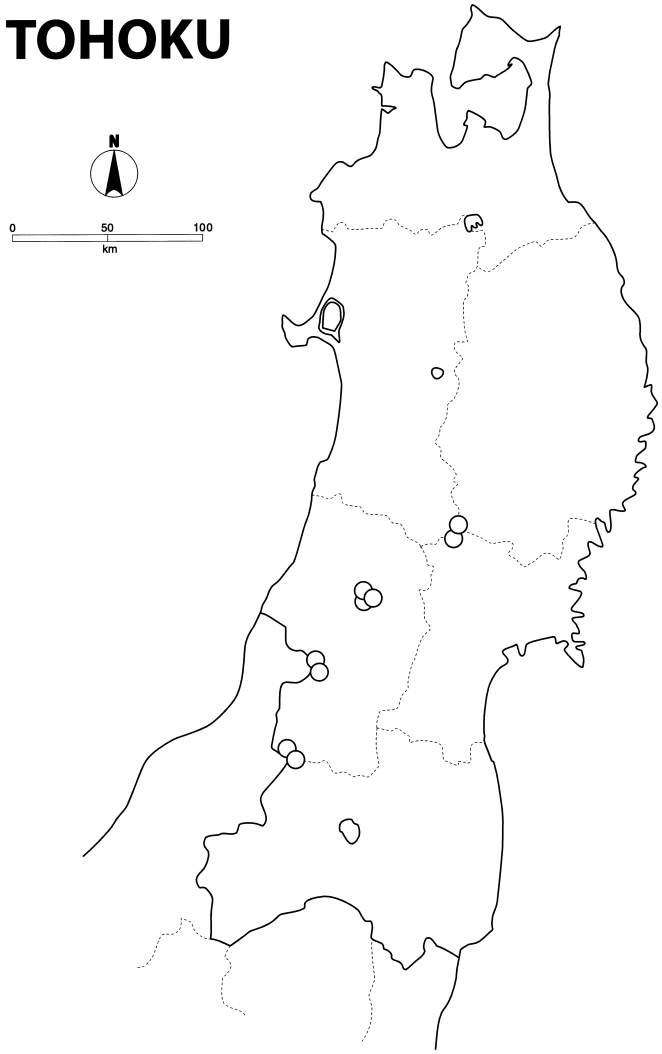


Fig. 6. Distribution of *Cirsium nambuense*.

Range sympatric occurrence of *C. okamotoi* and *C. borealinipponense* is observed.

f. **albiflorum** Kadota, f. nov.

Corollae albae cetera ut in typo.

TYPE: Gunma Pref., Agatsuma-gun, Kunimura, Nozori, 3 Aug. 1972, K. Masuda 4083 (TNS 383677).

Japanese name: Shirobana-Jôshû-oni-azami (nov.).

7. **Cirsium nambuense** Nakai in Bot. Mag. Tokyo **26**: 365 (1912), p. p. — Kitam. in Acta Phytotax. Geobot. **3**: 6 (1934); Compos. Jap. **1**: 127 (1937) — H. Hara, Enum. Sperm. Jap. **2**: 179 (1952) — Ohwi, Fl. Jap. 1385 (1953); Fl. Jap., rev. ed. 1377 (1965) — T. Shimizu, New Alp. Fl. Jap. **1**: 23, pl. 6-18 (1982) — Ohwi (Kitag.), New Fl. Jap. 1536 (1992) — Kadota, Fl. Jap. **3a**: 131 (1995). [Fig. 4]

LECTOTYPE (here designated): JAPAN: Honshu; Aidzu, Mt. Iidesan, 8 Aug. 1904, G. Nakahara s n. (TI!; Fig. 3). PARATYPES: JAPAN: Honshu; Mt. Iidesan, 14 Sept. 1906, G. Koidzumi s n. (TI!). The specimen cited as 'in sumno montis Guwassan [Mt. Gassan], 28 Sept. 1897, U. Faurie 174 (TI!)' is a fragment (Fig. 3,

the right top corner) and is reduced to *C. amplexifolium* Kitam., which is a common species in the Tohoku District. The specimen collected from Mt. Iwakisan, Aomori Pref., northern Honshu, should be ascribed to *C. alpicola*.

A perennial herb, 0.3–0.5 m tall. Rootstock stout, horizontal; rhizomes well developed. Stem erect or slightly declining, stout, simple or slightly branched in the upper part, leafy, densely covered with whitish multicellular hairs and arachnoid. Basal leaves persistent at anthesis. Cauline leaves deep green and slightly lustrous, amplexicaul, auriculate at the base but not decurrent; blades elliptic to ovate in outline, 14–21 cm long, 7–12 cm broad, sparingly pilose with multicellular whitish hairs or almost glabrous on both sides, deeply pinnatilobate; lobes 8–13-jugate, narrowly ovate to ovate 2–4.5 cm long, 1–2 cm broad, sometimes overlapped with each other, with sharp spines 3–10 mm long. Flowers in August to September. Capitula 2–5, aggregated or solitary, nodding or oblique; subtending leaves 1–2, 3–10 cm long, linear to narrowly ovate, with strong spines 3–10 mm long. Involucres campanulate purplish, 18–22 mm long, 18–23 mm (*in vivo*) or 23–32 mm (*in sicco*) in diameter, glabrous. Phyllaries 5-seriate, suberect with ascending tips; glandular bodies linear, situated on the midribs of the inner ones only; outer narrowly ovate, 12–16 mm long, almost equal to the inner ones in length, subcoriaceous, terminated with sharp spines ca. 2 mm long. Corollae violet, 15–16 mm long; lobes 4–5 mm long; throats 3–5 mm long; tubes ca. 6 mm long, slightly longer than the throats. Achenes dark brown, 4 mm long; pappus sordid, 12–14 mm long.

Japanese name: Nambu-takane-azami.

Distr.: N. Honshu (Iide and Asahi Ranges, Mt. Gassan, Mt. Chokaisan and Mt. Kurikomayama; Fig. 6). In alpine meadow; 1500–1900 m. Endemic.

Photo: http://research.kahaku.go.jp/botany/azami/nanbutakane-frm.html

Specimens examined: **Iwate Pref.**, Ichinosekishi, Mt. Kurikomayama, 16 Aug. 1930, G. Toba 501 (TI); Mt. Kurikomayama, 30 Aug. 1930, M. Kato 3833 (TI); Mt. Kurikomayama, 2 Aug. 1935, C. Suzuki 96848 (TNS). **Miyagi Pref.**, Kurihara-gun, Kurikoma-machi, Mt. Kurikomayama, 9 Aug. 1952, S. Okuyama 10937 (TNS); Mt. Kurikomayama, Iwakami-taira, 13 Sept. 1986, H. T. Im 9307 (TI). **Yamagata Pref.**, Mt. Chôkaisan, 26 July 1953, M. Sut_ s. n. (TI). Nishi-Murayama-gun, Nishikawa-machi, Mts. Gassan, 24 July 1887, R. Yatabe s. n. (TI); Mts. Gassan, 11 Aug. 1936, N. Suzuki s. n. (TNS); Mts. Gassan, 29 July 1940, Y. Ikegami 690 (TNS); Mts. Gassan, 22 July 1942, T. Yamazaki s. n. (TI); Mts. Gassan, 22 Aug. 1948, S. Okuyama 7387 (TNS); Mts. Gassan, Mt. Ubagatake, alt. 1500 m, on alpine slope, 7 Oct. 1971, fr., N. Kurosaki s. n. (TNS); Mts. Gassan, alt. 1700 m, 23 July 1964, T. Yamazaki 8806 (TI); Mts. Gassan, Mt. Midagatake, 11 Aug. 1998, S. Kato (TNS); Mts. Gassan, Yokomichi, 1500 m, 20 Aug. 1998, S. Kato s. n. (TNS). Higashi-Tagawa-gun, Asahi-machi, Mt. Asahidake, 17 Aug. 1931, M. Kato 4115 (TI); Mt. Ô-Asahidake, 28 July 1933, S. Okuyama s. n. (TNS); Mt. Asahidake, Gingyokusui, 4 Aug. 1959, K. Kogure s. n. (TNS); Mt. Asahidake, the summit, no date, M. Kato 83363 (TNS); Mt. Sankakumine, 1420 m, 3 Sept. 2002, Y. Kadota 202305-202312 (TNS). Nishi-Okitama-gun, Oguni-machi, Mt. Jigamiyama, 1880 m, 31 Aug. 1985, Y. Kadota 853101–853102 (TNS). **Fukushima Pref.**, Yama-gun, Yamato-machi, Mt. Iidesan, Aug. 1904, G. Nakahara s. n. (TNS); Mts. Iidesan, Mt. Onishidake, alt. ca. 2000 m, 31 July 1943, T. Yamazaki s. n. (TI); Mt. Iidesan, Tanemaki, 14 Aug. 1955, K. Kogure s. n. (TNS); Mts. Iidesan, 6–9 Aug. 1973, H. Ohba *et al*. 73052 (TI). Mt. Iidesan, 19 Aug. 1915, no collector's name (TI).

8. **Cirsium suzukii** Kitam. in Acta Phytotax. Geobot. **1**: 58 (1932); in Acta Phytotax. Geobot. **3**: 4 (1934); Compos. Jap. **1**: 73 (1937) — Li, Fl. Taiwan ed. 1, **4**: 836, pl. 1216 (1978) — Peng and al., Fl. Taiwan ed. 2, **4**: 911, pl. 430 (1998).

TYPE: TAIWAN: Prov. Taihoku, Mt. Taiheizan, Kashinokidaira, 2 April 1932, S. Suzuki 4122 (KYO-holotype!; photo-TNS).

A perennial herb, 0.3–1 m tall. Stem slightly declining, well branched in the upper part, densely arachnoid and covered with brownish hairs in the upper part. Basal leaves dull green, subcoriaceous, persistent at anthesis and rosulate; blades lanceolate in outline, 10–40 cm long, 2.5–10 cm broad, glabrous on the adaxial side, lanate on the abaxial side, medially pinnatilobate, with petioles 1–4 cm long; lobes 7–8-jugate, narrowly ovate to ovate, 0.7–3 cm long, 0.5–1.5 cm broad, with sharp spines 5–7 mm long. Cauline leaves several, smaller than the basal, auriculate. Flowers in April to July. Capitula 2–4 in a loose raceme or a compact corymb, nodding, with peduncles 1–6 cm long; subtending leaves 1–3, linear to lanceolate, 3–6 cm long, with strong spines up to 15 mm long. Involucres bowl-shaped, purplish, 13–20 mm long, 25–35 mm in diameter (*in sicco*), sparingly arachnoid. Phyllaries 7–8-seriate, appressed with erect tips; glandular bodies lanceolate, on all the phyllaries, glutinous; outer ovate, 3–5 mm long, clearly shorter than the inner ones, herbaceous, terminated with spines 1 mm long. Corollae violet, 12–17 mm long; lobes 3 mm long; throats 7 mm long; tubes 5–7 mm long, as long as or shorter than the throats. Achenes 3–3.5 mm long; pappus sordid, 11–16 mm long.

Japanese name: Suzuki-azami.

Distr.: N. Taiwan: 2000–3000 m. Endemic.

Specimens examined: **Taipei Pref.** 台北縣, p, Shuiyüan 水源, 13 April 1933, T. Suzuki 8560 (TNS); **Taichung Pref.** 台中縣, Mt. Nanhutashan 南湖大山—Piyanan col, 21 July 1933, K. Kojima and T. Shiomi 1639 (TNS).

## Acknowledgements

I am deeply indebted to Messrs. Kihei Takahashi, Iwate Prefecture, and Yûjiro Horii, Akita Prefecture, for their presents of specimens and valuable information of *Cirisum hachiantaiense* from Mts. Hachimantai; to Mr. Seiji Miya, Ishikawa Prefecture, for giving me beautiful photographs of *C. hachimantaiense*; to Dr. Masahiko Kubota, Hiroshima Prefecture, for his presents of specimens and photographs of *C. maruyamanum* and guidance to the localities of this thistle in Hiroshima Prefecture in 2002; to Mr. Takao Wakasugi, Fukui Prefecture, for his co-operation and useful information on *C. maruyamanum*. I should also thank the Curators of the Herbaria (KYO, TI and TNS).

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