Taxonomic Studies of *Cirsium* (Asteraceae) in Japan XI.  
A New Subsection and Two New Species Belonging to the Subsection, from Southern Kyushu

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Abstract  A new species of *Cirsium*, *C*. *nippoense*, is described from the border area between Miyazaki and Ōita Prefectures. *Cirsium nippoense* is characterized by the absence of basal leaves at anthesis, erect or oblique capitula, well-branched stem with divaricate branches, glutinous involucres with narrowly lanceolate glandular bodies and the chromosome number 2n = 68. *Cirsium tanegashimense* from Is. Tanegashima, Kagoshima Prefecture, is similar to *C*. *nippoense*, however the former is different from the latter in the absence of glandular bodies on involucres and 6-seriate involucral phyllaries. *Cirsium tanegashimense* is also described here because the name was a *nomen nudum*. A new subsection of Sect. *Onotrophe* (Cass.) DC., Subsect. *Ramosa*, comprising both *C*. *nippoense* and *C*. *tanegashimense*, is described. Subsect. *Ramosa* is endemic to Japan and is restricted to the southern part of Kyushu, southern Japan.

Key words: *Cirsium nippoense*, *Cirsium tanegashimense*, Japan, new taxa, Subsect. *Ramosa*.

In October of 2003 field studies on *Cirsium* (Asteraceae) were executed in Kyushu, southern Japan as a part of the taxonomic studies of Japanese *Cirsium* (Kadota and Nagase, 1988; Kadota, 1989–2003). As the result of the field works at the boundary area between Miyazaki and Ōita Prefectures *Cirsium* plants characterized by the absence of basal leaves at anthesis, well-branched stem with divaricate branches, erect to oblique capitula and glutinous involucres with narrowly lanceolate glandular bodies were found out. Later it was clarified that the thistle has the chromosome number of 2n = 68. Among the species of sect. *Onotrophe* in the genus *Cirsium* *C*. *umezawanum* Kadota from Hokkaido, northern Japan (Kadota, 1998) is the only species characterized by the absence of basal leaves at anthesis, erect to oblique capitula and 8–9-seriate involucral phyllaries except for the thistle at issue. Hence a comparison between the thistle and *C*. *umezawanum* was made. It is consequently clarified that the thistle is significantly different from *C*. *umezawanum* in the shape and division of cauline leaves, the arrangement of heads, the number of involucral subtending leaves and the presence of glandular bodies on involucres. As the result it is concluded that the thistle belongs to a distinct new species. This thistle will be described as *C*. *nippoense* after its locality name.

*Cirsium tanegashimense* from Is. Tanegashima, Kagoshima Pref., southern Kyushu, is morphologically similar to the above-mentioned *C*. *nippoense*, however the former is distinguished from the latter by having eglutinous involucres and 5-seriate involucral phyllaries. *Cirsium tanegashimense* is also considered to be a distinct species. However, the name *C*. *tanegashimense* has never been published. Hence *C*. *tanegashimense* will be described here as a new species.

*Cirsium nippoense* and *C*. *tanegashimense* share in common erect and well-branched stem, erect to oblique capitula and several subtending leaves of involucres. The two species resemble the species of subsect. *Amplexifolia* Kadota...
(Kadota, 1995, 1998) with respect to having erect capitula. However, \textit{C. nippoense} and \textit{C. tanegashimense} differ from the species of subsect. \textit{Amplexifolia} by the presence of several involucrel subtending leaves. As far as the distributional range is concerned the subsect. \textit{Amplexifolia} is restricted to northern Japan. It is therefore considered that \textit{C. nippoense} and \textit{C. tanegashimense} are included in a distinct subsection. The new subsection, Subsect. \textit{Ramosa}, will be also described in this paper.

This paper aims to describe the new subsection and the two new species which belong to the subsection.

\textbf{Taxonomic treatment}


Subsect. \textit{Ramosa} Kadota, subsect. nov.

\textit{Herba perennis, ramis divaricatis, foliis basalibus emarcidis sub anthesin, eis caulinis pinnatifidis, capitulis terminalibus erectis vel obliquis, involucris campanulatis vel crateriformibus, phyllariis involucrorum plus minusve recurvatis.}

\textbf{Type:} \textit{Cirsium nippoense} Kadota (see below).

\textit{A perennial herb, well-branched; branches divaricate; basal leaves withering at anthesis; cauline leaves pinnatilobate; capitula erect to oblique; involucres campanulate to bowl-shaped; involucral phyllaries more or less recurved.}

\textbf{Cirsium nippoense} Kadota, sp. nov. [Figs. 1, 2]

\textit{Herba perennis, 1–1.9 m alta. Caudex bene evolutus, crassus, horizontalis, circiter 10 cm in diametro. Caulis erectus, bene e medio ramosus, ramis extensis divaricatis vel raro non extensis, brunneo-pubescens, arachnoideus. Folia basalia emarcida sub anthesin. Folia caulinum mediorum coriacea, cinereo-viridi, late vel anguste ovata, 15–45 cm longa, 8–25 cm lata, pinnatilobata 3–8-jugatis, utrinque brunneo-pubescens, breviter petiolata vel sessiliflora. Flores in Octoberis. Capitula numerosa, in paniculam amplam disposita, erecta vel obliqua, pedunculis 0.5–1.5 cm longis arachnoideis, foliis subtensis (1–) 3–5 anguste lanceolatis vel linearibus 0.5–4 cm longis. Involucra campanulata vel crateriformia, glutinosa, 18–21 mm longa, 15–20 mm (in vivo) et 20–34 mm (in sicco) in diametro, arachnoideae. Phyllaria 8–9-seriata, subcoriacea, spinis acutis circiter 2 mm longis, vittis anguste lanceolatis phyllariis interioribus anguste ovatis 15–17 mm longis, eis exterioribus ovatis caudatis 3–7 mm longis recurvatis. Corollae dilute violacea, 19–20 mm longa, lobis 4–5 mm longis, faucibus 6 mm longis, tubis 8 mm longis. Achenia laete brunnea, 4 mm longa, laevigata, pappis sorditis 15–17 mm longis. Numerus chromosomatibus 2n=68.}

\textbf{TYPE:} JAPAN; Kyushu, Miyazaki Pref., Higashi-usuki-gun, Kitaura-chô, Nomi, alt. 10 m, 29 Oct. 2003, Y. Kadota 034915 (holotype–TNS!).

A perennial herb, 1–1.9 m tall. Rootstock well developed, stout, horizontal, ca. 10 cm in diameter, with cord-like roots. Stem erect, well branched from the middle part of the stem, up to 3 cm in diameter at the basal part, covered with brownish multicellular hairs and arachnoid in the upper half. Basal leaves withering at anthesis. Middle cauline leaves grayish green above, coriaceous, broadly ovate to narrowly ovate, 15–45 cm long, 8–25 cm wide, medially pinnatifoliate with 3–8-jugae, provided with sharp spines 5–10 mm long along margin, pubescent with brownish multicellular hairs along veins on both sides, shortly petiolate to sessile. Flowers in October. Capitula numerous in a panicule, erect to oblique; peduncles 0.5–1.5 cm long, arachnoid; subtending leaves (1–) 3–5, narrowly lanceolate to linear, 0.5–4 cm long, provided with sharp spines 2–5 mm long along margin, pubescent with brownish multicellular hairs along veins on both sides, shortly petiolate to sessile. Flowers in October. Capitula numerous in a panicule, erect to oblique; peduncules 0.5–1.5 cm long, arachnoid; subtending leaves (1–) 3–5, narrowly lanceolate to linear, 0.5–4 cm long, provided with sharp spines 2–5 mm long along margin, pubescent with brownish multicellular hairs along veins on both sides, shortly petiolate to sessile. Flowers in October.
mm long, recurved. Corollae pale violet, 19–20 mm long; lobes 4–5 mm long; throats 6 mm long; tubes 8 mm long, longer than the throats. Achene light brown, 4 mm long, smooth; pappi sordid, 15–17 mm long. Chromosome number 2n = 68.

Japanese name: Nippô-azami (nov.).

Distribution: S. Ôita and N. Miyazaki, Kyushu (endemic to Japan; Fig. 4, disc). In herbal stands of maritime mountains: the sea level to 120 m in elevation.


Cirsium umezawanum Kadota from Is. Rishiri, Hokkaido, northern Japan (Kadota, 1998) is similar to C. nippoense in having well-branched stem, erect to oblique capitula and 8–9-seriate involucral phyllaries. However, C. umezawanum is discriminated from C. nippoense by elliptic and usually coarsely dentate cauline leaves, several capitula arranged in a loose corymb, the absence or the sole incolucral subtending leaf and the absence of glandular bodies. The range of C. umezawanum is apart from that of C. nippoense by more than 1500 km in a beeline.

As mentioned in the description the well-branched stem with numerous divaricate branches is one of characteristics of C. nippoense. However, the branches do not extend on rare occasions by unknown factor(s) [e.g., Kadota 034909–034910, Ôita Pref., Kamae-chiô, Hatotsu-ura]. Such a phenomenon is sometimes ob-

Fig. 1. Type specimen of Cirsium nippoense Kadota (JAPAN: Miyazi Pref., Higashi-usuki-gun, Kitaura-chô, Nomi, Y. Kadota 034915, TNS). Left: Upper part. Right: Middle part.
Fig. 2. Habit of *Cirsium nipponense* Kadota (JAPAN: Miyazaki Pref., Higashi-usuki-gun, Kitaura-chô, Nomi, alt. 10 m, 29 Oct. 2003). Left corner inset: Close-up of head. Arrows show glandular bodies.
Fig. 3. Type specimen of *Cirsium tanegashimense* Kitam. ex Kadota (JAPAN: Kagoshima Pref., Is. Tanegashima, Z. Tashiro s. n., KYO). Left corner inset: Close-up of a head.
served in the other species of the genus *Cirsium* in Japan (e. g., *C. nipponicum* (Maxim.) Matsum., *C. fauriei* Nakai and *C. senjoense* Kitam.).

Ethymology: The specific epithet “nippoense” and the Japanese name “Nippô-azami” are derived from the locality name which covers both Miyazaki and Ôita Prefectures.

*Cirsium tanegashimense* Kitam., sp. nov.

*Cirsium tanegashimense* Kitam. in M. Hotta et al., Kagoshima Red Data Book 335, fig. 135 (2003), nom. nud., ut “*Cirsium* sp.”

Haec species *Cirsio nippoenso* affinis est, sed a *Cirsio nippoenso* phyllariis 6-seriatis et involucris vittis carentibus itaque eglutinosis distinguitur.


Stem at least 50 cm long, erect, robust, arachnoid, striate, branched; branches divaricate. Upper caule leaves narrowly ovate, 11 cm long, 4 cm wide, medially pinnately lobed, sessile and amplexicaul; lobes 2–3-jugate; spines strong, up to 2 cm long. Capitula erect, 3–4 cm in diameter in sicco. Involucres campanulate, 18–24 mm in diameter in sicco; phyllaries 6-seriate, strongly recurved, terminated with strong spines ca. 2 mm long; glandular bodies absent; subtending leaves ca. 5. Corollae 20 mm long; lobes 5 mm long; throats 6 mm long; tubes 9 mm long, clearly longer than the throats. Achenes brownish, 4.5 mm long, smooth; pappi sordid, 11–13 mm long.

Japanese name: Tanegashima-azami (Kitamura).

Distribution: Is. Tanegashima, Kyushu ( endemic to Japan; Fig. 4, star).

Specimen examined: JAPAN; Kyushu,


