

Daphne kamtschatica (Thymelaeaceae), a New Record for Japan from Hokkaido

Noritoshi NITTA^{a,*} and Akitomo UCHIDA^{b,†}

^aForestry Research Institute, Forest Research Department, Hokkaido Research Organization,
Koshunaicho-Higashiyama, Bibai, Hokkaido, 079-0166 JAPAN;

^bShiretoko Museum, 49-2, Hon-machi, Shari, Hokkaido, 099-4113 JAPAN;

[†]Present address: Kitami, Hokkaido, 090-0817 JAPAN

*Corresponding author: nitta-noritoshi@hro.or.jp

(Accepted on September 7, 2020)

In the forests of eastern Hokkaido, Japan, we discovered *Daphne kamtschatica* Maxim. (*Thymelaeaceae*), which has been regarded as an endemic species of Kamchatka region in Russia. This is a new locality for Japan and the southernmost distribution for the species. This species has white flowers and long rhizomes for vegetative propagation and grows in understories of deciduous forests. It should be conserved because of its rarity.

Key words: *Daphne kamtschatica*, Hokkaido, Japanese flora, Kamchatka, new record, *Thymelaeaceae*.

Daphne L. sect. *Daphnanthes* C. A. Mey. subsect. *Pseudomezereum* Domke (*Thymelaeaceae*) includes four taxa, *D. pseudomezereum* A. Gray var. *pseudomezereum*, *D. pseudomezereum* var. *koreana* (Nakai) Hamaya, (= *D. koreana* Nakai), *D. jezoensis* Maxim. and *D. kamtschatica* Maxim. (Hamaya 1959). We discovered a strange species of *Daphne* in the understories of deciduous broad-leaved forests in eastern Hokkaido (Fig. 1A). We assumed it to be a species of subsect. *Pseudomezereum*, and repeated field observations and collecting specimens from early spring through late autumn to do a comparative study among this plant and the known four taxa. To reveal the identity of the poorly understood *D. kamtschatica*, extensive field research was carried out in Kamchatka, Russia. As a result, the strange plant in Hokkaido was found to be very close to *D. kamtschatica*. One of the authors, Nitta, reported this plant (Nitta et al. 2018), but refrained from critical identification.

In this paper, a summary of the field research and a taxonomic conclusion about *Daphne kamtschatica* is provided.

Since the protologue of *D. kamtschatica* by Maximowicz (1859: 237) cited two specimens, “In Kamtschatka: in Gebüsch unweit der Stadt Tigil; Mitte Juni blühend” and “Am untern Amur: im Nadelwalde beim Dorfe Kitsi, äusserst selten, 29 Mai 1855 (steril.)”, both Kamchatka and the lower Amur region were included in the distribution range of the species (Miyabe and Miyake 1915, Hultén 1929, Sugawara 1940, Pobedimova 1949, Hamaya 1955a, b, 1959) but later the lower Amur region was not included (Hamaya 1989, Murata 1989). Nedoluzhko (1995) stated that *D. kamtschatica* is a species endemic to Kamchatka and designated the specimen from Kamchatka as the lectotype from the above two syntype specimens, which was generally followed by recent authors (Smirnov 2002, Yakubov 2007, Barkalov 2009, Takahashi 2015, Yonekura 2017).

sincere thanks to Mr. Tadashi Hatano, the first discoverer of the Hokkaido population and Dr. Olga Chernyagina of the Kamchatka Branch of Pacific Geographical Institute, Petropavlovsk-Kamchatsky, for their guidance in the localities of Hokkaido and southern Kamchatka, respectively. We also thank Dr. Tomoko Fukuda for assisting our study variously and Dr. Ken Sato, Dr. Hideki Takahashi, Mr. Judd Abramson and Dr. Marc D. Abrams for checking our manuscript. This work was supported by Pro Natura Foundation Japan's 27th Pro Natura Fund.

References

- Barkalov V. 2009. Flora of the Kuril Islands. Dalnauka, Vladivostok.
- Hamaya T. 1955a. A dendrological monograph on the *Thymelaeaceae* plant of Japan. Bull. Tokyo Univ. Forest. **50**: 45–96.
- Hamaya T. 1955b. Some taxonomical notes on *Thymelaeaceae* from Japan and the adjacent region (1). J. Jap. Bot. **30**(2): 1–6.
- Hamaya T. 1959. Dendrological studies of the Japanese and some foreign genera of the *Thymelaeaceae*. Bull. Tokyo Univ. Forest. **55**: 1–80.
- Hamaya T. 1989. *Thymelaeaceae*. In: Satake Y., Hara H., Watari S. and Tominari T. (eds.), Wild Flowers of Japan Woody Plants **II**: 76–82. Heibonsha, Tokyo (in Japanese).
- Hultén E. 1929. Flora of Kamchatka and the Adjacent Islands **3**. Almquist & Wiksells Boktryckeri -A.B., Stockholm.
- Kikuzawa K. 1989. Floral biology and evolution of gynodioecism in *Daphne kamschatica* var. *jezoensis*. Oikos **56**: 196–201.
- Matsuura H. and Suto T. 1935. Contributions to the idiogram study in phanerogamous plants I. J. Fac. Sci. Hokkaido Imp. Univ., Ser. V, **5**(1): 33–75.
- Maximowicz C. J. 1859. Primitiae Florae Amurensis. Buchdruckerei der kaiserlichen Akademie der Wissenschaften, St. Petersburg.
- Miyabe K. and Miyake T. 1915. Flora of Saghalin. Government of Saghalin, Sapporo (in Japanese).
- Murata G. 1989. *Daphne kereana*, *D. jezoensis*, *D. pseudomezereum*. Acta Phytotax. Geobot. **40**(1–4): 6 (in Japanese).
- Murata J. 1999. *Thymelaeaceae*. In: Iwatsuki K., Boufford D. E. and Ohba H. (eds.), Flora of Japan **IIc**: 146–151. Kodansha, Tokyo.
- Nakai T. 1937. Notulae ad plantas Asiae orientalis (IV). J. Jap. Bot. **13**(12): 872–892.
- Nedoluzhko B. A. 1995. 75 *Thymelaeaceae* Juss. In: Charkevich S. S. (ed.) Plantae Vasculares Orientis Extremi Sovietici **7**: 212–214. Nauka, St. Petersburg (in Russian).
- Nishikawa T. 1990. Chromosome counts of flowering plants of Hokkaido (13). J. Hokkaido Univ. Educ., **40**(2), Sect. 2B: 99–110.
- Nitta N., Wakita Y., Tanahashi I., Narita A., Takeuchi F. and Hayamizu M. 2018. Taxonomic study and proposals for protection measures of the endangered *Daphne* plant (*Thymelaeaceae*) the distribution of which has not previously been observed in Japan. Annu. Rep. Pro Nature Found. Jap. **27**: 139–148 (in Japanese).
- Osawa J. 1913. On the development of the pollen-grain and embryo-sac of *Daphne*, with special reference to the sterility of *Daphne odora*. J. Coll. Agric. Imp. Univ. Tokyo **4**: 237–264.
- Pobedimova E. G. 1949. *Thymelaeaceae* Adans. In: Shishkin B. K., Bobrov E. G. (eds.), Flora SSSR **15**: 481–515. Izdatel'stvo Akademii Nauk SSSR, Moskva (in Russian).
- Smirnov A. 2002. Distribution of Vascular Plants in Sakhalin Island. Nauka, Yuzhno-Sakhalinsk (in Russian).
- Sugawara S. 1940. Illustrated Flora of Saghalien **III**. Illustrated Flora of Saghalien Publication Society, Tokyo (in Japanese).
- Takahashi H. 2015. Flora of the Kuril Islands. Hokkaido University Press, Sapporo (in Japanese).
- Yakubov V. 2007. Plants of Kamchatka. Knigakamchatka, Moscow.
- Yonekura K. 2017. *Thymelaeaceae*. In: Ohashi H., Kadota Y., Murata J., Yonekura K. and Kihara H. (eds.), Wild Flowers of Japan **4**: 36–42. Heibonsha, Tokyo (in Japanese).

新田紀敏^a, 内田暁友^{b,†}: 北海道から日本新産のカムチャツカナニワズ (ジンチョウゲ科) を報告

カムチャツカナニワズ *Daphne kamschatica* Maxim. (ジンチョウゲ科) を北海道東部の斜里町で確認した。本種はロシアのカムチャツカ地方に固有とされていたので、これは日本新産の報告となり、北海道は本種の分布南限に当たる。カムチャツカナニワズは白い花をつけ、長い

地下茎を伸ばして栄養繁殖することに特徴があり、落葉樹林の林床に生育していた。

^a北海道立総合研究機構森林研究本部林業試験場、

^b斜里町立知床博物館、

[†]現: 北見市