

## A New Record of *Najas guadalupensis* var. *floridana* (Najadaceae) from Japan

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The Najadaceae of submerged aquatic annual or perennial plants consists of only one genus, *Najas*, which contains about 40 species. Species of *Najas* occur globally in temperate and warm regions. In Japan, eight species are known to be native. While some introduced aquatic species have been reported in Japan [e.g., *Elodea nuttallii* (Planch.) St. John (Hydrocharitaceae); *Egeria densa* Planch (Hydrocharitaceae); *Pistia stratiotes* L. (Araceae); *Cabomba caroliniana* A. Gray (Nymphaeaceae); Kadono 1994], to our knowledge, there are no records of introduced *Najas*. Here, we report an introduced *Najas* species that was found for the first time in Japan.

### Results and Discussion

A submerged plant was collected in a concrete ditch at Ushirono, Nakagawa, Fukuoka Prefecture, Japan (N33° 30' 27", E130° 25' 1") on 2 September 2002. The plant was cultivated in an outdoor aquarium at Kita-kyushu, Fukuoka Prefecture, and then transplanted to an indoor aquarium at the Tsukuba Botanical Garden, where it flowered and fruited in summer 2004. Based primarily on reproductive and vegetative characters, the plant was identified as *Najas guadalupensis* (Sprengel) Magnus var. *floridana* Haynes and Wentz, with reference to Rendle (1899), Haynes (1977, 1979) and Lowden (1986). The plant is compared to a description of Haynes and Wentz (1974) as follows. Where differences were found, observed data are given in parentheses.

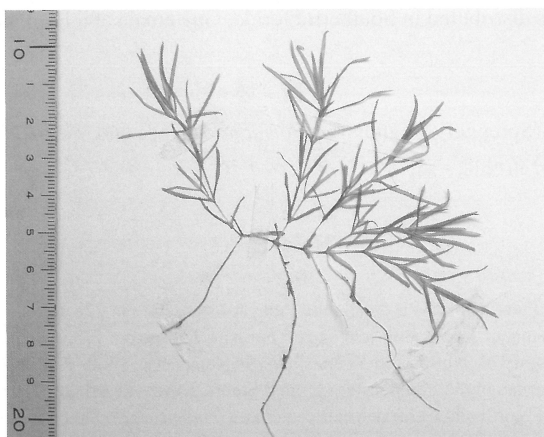


Fig. 1. *Najas guadalupensis* (Sprengel) Magnus var. *floridana* Haynes and Wentz (TNS-9524202).

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Stems 7–51 (ca. 10–30) cm long, 0.1–1.7 (0.5–0.8) mm in diameter. Leaves 0.9–3.3 (1.3–2.0) cm long; laminae 0.5–2.1 (0.9–2.0) mm wide, round obtuse to acuminate, with 18–42 (ca. 20) mm teeth per side; sheaths 1.2–2.5 (1.5–2.3) mm wide, round. Flowers: staminate flowers 1.5–2.4 (ca. 2.0) mm long, the anther elliptic, 1-loculed; carpellate flowers 1.0–3.5 (ca. 2.0) mm long.

The species is distributed in Southern Florida, Guatemala, and Hispaniola (Haiti and Dominican Republic; Lowden 1986). The voucher specimen was deposited in the herbarium of the National Science Museum, Tokyo (TNS-9524202~9524206). The living specimen is cultivated in the Tsukuba Botanical Garden (TBG-148532).

There is a possibility that the *Najas* plant was introduced as an aquarium plant. We have not confirmed whether this species has been distributed to the aquarium plants market in Japan. However, it is possible that the species has been distributed, because some other species of *Najas* have been distributed to the market. In September 2005, the ditch, in which the foreign *Najas* was found, was converted to a culvert and no other specimens of *N. guadalupensis* var. *floridana* have been observed in the area. It is uncertain when this plant disappeared, because continuous investigations were not conducted after its initial discovery. This species bears many flowers and fruits under cultivation, as do other *Najas* species. Although the plant had not borne fruits at the time that it was discovered, its seeds may have dispersed to other locations. The northern limit of the species distribution is zone 8a (USDA Plant Hardiness Zone Map), which includes the lowlands of Japan, except Hokkaido. Therefore, it will be necessary to carefully monitor future occurrences of this species in Japan.

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### Summary

*Najas guadalupensis* (Sprengel) Magnus var. *floridana* Haynes and Wentz (Najadaceae) was found for the first time in Japan. It is distributed in Southern Florida, Guatemala and Hispaniola.

### 摘 要

*Najas guadalupensis* (Sprengel) Magnus var. *floridana* Haynes and Wentz (イバラモ科) が日本で初めて確認された。その分布域は、南フロリダ、グアテマラ、イスパニョーラ島である。

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