Nos. 023

Yutaki falls, River Yu-kawa, Tochigi Pref., Japan.

[36°47'42.2" N, 139°25'42.1" E]

EC: 130, pH: 7.8, WT: 4.8.

Date: 16/iii/2008.

Coll. A. Tuji (duplicate of TNS-AL- 56354m in TNS).

Gomphoneis herculeana (Ehrenb.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, **26(2)**: 73. 1984

≡ *Gomphonema herculeanum* Ehrenb. Ber. Akad. Wiss. Berlin, **1845**: 59, 78. 1845.

(Figs 1-6)

Type locality: Mackinac Island, Michigan.

Ecology: seems to prefer cool water (Patrick & Reimer 1975).

Reference: Kociolek, J.P. & Stoermer, E.F. 1988. Taxonomy, ultrastructure and distribution of *Gomphoneis herculeana, G. eriense* and closely related species (Naviculales: Gomphonemataceae). Proc. Acad. Nat. Sci. Phil. 140(2): 24-97.

Diatoma mesodon (Ehrenb.) Kütz., Kies. Bacill. 47. 1844.

≡ *Fragilaria mesodon* Ehrenb. Abh. Akad. Wiss. Berlin **1838**: 57. *pl. 2(1). f. 9.* 1839.

(Figs 7-8)

Ecology: saproxenous, alkalibiontic.

Reference: Williams D. M. 1985. Morphology, taxonomy and inter-relationships of the ribbed araphid diatoms form the genera *Diatoma* and *Meridion* (Diatomaceae: Bacillariophyta). Biblioth. Diat. vol. 8. J.Crammer.

Gomphoneis calcifuga (Lange-Bert. et E. Reichardt) Tuji, Bull. Natn. Sci. Mus. Tokyo ser. B. **31**: 92. 2005.

≡ *Gomphonema calcifugum* Lange-Bert. & E.Reichardt in Lange-Bert., *Iconogr. Diatomol*. **6**: 53. 1999. (new name)

≡ *Gomphonema olivaceum* var. *minutissimum* Hust. in Pascher, *Süssw.-Fl., ed. 2,* **10**: 378, *f. 720.* 1930.

=? *Gomphonema separatipunctatum* H.Kobayasi, Bull. Chichibu Mus. Nat. Hist. **12**: 74, *pl. 15, f. 57*, 1964. nom. nud.

(Figs 9-10)

Holotype: S1/52. Passau, Brunnen. (micrographs Photographs presented in Simonsen 1987: Plate 195/8-11).

Type locality: Bayern (springs near Passau), Germany

Distribution: Europe (Carter and Bailey-Watts 1981 as *G. olivaceoides*), USA (Patrick and Reimer 1975), The far east of Russia (Watanabe personal data), Japan. Freshwater lakes and rivers.

Reference: Tuji, A. 2005. Type examination and taxonomy of *Gomphoneis tetrastigmata* species complex from Europe and Japan. Bull. Natn. Sci. Mus. Tokyo ser. B. **31**: 89-108.