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Validation of two names of diatom species in the genera *Planothidium* Round & Bukhtiyarova (*Achnanthes*) and *Placoneis* Mereschkowsky (*Cymbellaceae*) observed in Guyane

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The transfer of *Achnanthes boudoui* Metzeltin & Lange-Bertalot, described from Brazil (Metzeltin & Lange-Bertalot 1998: 18), to the genus *Planothidium* Round & Bukhtiyarova (Round & Bukhtiyarova 1996) and of the east-African species *Navicula perlatooides* Hustedt (1966: 814) to the genus *Placoneis* Mereschkowsky (Mereschkowsky 1903) was proposed by Coste & al. (2010a: 9, “*perlatooides*” in error as “*peltoides*”) and at the occasion of the 2010 ADLaF (*Association des Diatomistes de Langue Française*) meeting in Québec (Coste & al. 2010b: 23). Both proposals were invalid as the publications in which they appeared do not meet the requirements of ICN Art. 29.1 (Turland & al. 2018) as they did not have ISBN or ISSN numbers. Each designation is validated here.

Achnanthes boudoui presents the characteristics of the genus *Planothidium*, such as multiseriate striae, the unilaterally bent terminal raphe fissures and the presence of a cavum on the rapheless valve, and thus clearly belongs to that genus (Metzeltin & Lange-Bertalot 1998: pl. 70: figs 1, 4). *Navicula perlatooides*, on the other hand, should be placed within the genus *Placoneis*, based upon the presence of the radiate striae on the entire valve, composed of a simple row of externally rounded areolae (but slightly elongated in *P. perlatooides*), slightly dissimilar deflected external terminal raphe fissures, and the presence of a small stigmatic, placed between the central raphe endings, although this feature is not always present in all *Placoneis* species (see Cox 1987).

Planothidium boudoui (Metzeltin & Lange-Bertalot) M.Coste, Eulin-Garrigue, O.Monnier & Delmas, *comb. nov.* (Figs 1–8)

Basionym: *Achnanthes boudoui* Metzeltin & Lange-Bertalot, *Iconographia Diatomologica* Vol. 5, p. 18; pl. 69: figs 9–14; pl. 70: figs 1, 4. 1998.

Registration: <http://phycobank.org/104484>

Holotype (designated by Metzeltin & Lange-Bertalot 1998: 18): Praep. AmS-573 in coll. Lange-Bertalot (FR).

Type locality: Rio Tapajós near Santarém, Brazil.

Etymology: Dedicated to Prof. A. Boudou, Université de Bordeaux, France.

Distribution in Guyane rivers: widely distributed (Approuague, Bagot, Comté, Kourou, Mana, Maroni, Oyapock, Sinnamary).

Placoneis perlatooides (Hustedt) M.Coste, Eulin-Garrigue, O.Monnier & Delmas, *comb. nov.* (Figs 9–16)

Basionym: *Navicula perlatooides* Hustedt, *Die Kieselalgen Deutschlands, Österreichs und der Schweiz unter Berücksichtigung der übrigen Länder Europas sowie der angrenzenden Meeresgebiete*. Bd. VII: Teil 3: Lieferung 4 in Rabenhorst's *Kryptogamen Flora von Deutschland, Österreich und der Schweiz*, p. 814, fig. 1786. 1966.

Synonym: *Navicula gastrum* [var. *turgida*] f. *stigmata* O.Müller, *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 45(1), p. 97, pl. 2, fig. 24. 1910.

Registration: <http://phycobank.org/104485>

Holotype (designated by Simonsen 1987: 171): N10/43, Tanganikasee (under *Navicula perlata* Hustedt).

Type locality: Lake Tanganyika.

Distribution in Guyane rivers: widely distributed (Approuague, Comté, Kourou, Maroni, Marouini, Oyapock, Sinnamary).

Nomenclatural note: Hustedt (1966) intended to give “*Navicula perlata*” Hustedt a new name because of *Navicula perlata* T.Marsson (1900: 33, 64) having priority. However, “*Navicula perlata*” Hustedt (in Schmidt & al. 1934: pl. 398: fig. 43–48) was invalidly published since it lacks a formal description. Hustedt (1944: 282) later provided a description and validated the name that then became illegitimate. When Hustedt published *Navicula perlatoides* Hustedt (1966: 814), he cited Müller’s validly published forma, *Navicula gastrum* [var. *turgida*] f. *stigmata* O.Müller (Müller 1910), that should be treated as replaced synonym at the rank of species. At that time the species epithet ‘*stigmata*’ was no longer available under *Navicula* because of *Navicula stigmata* M.F.Rich (Rich 1937: 213, pl. IX [9]: figs A-C). Thus, *Navicula perlatoides* Hustedt is the legitimate and valid name for Müller’s taxon at the rank of species under *Navicula* and is available as a basionym. Simonsen (1987, pl. 273: figs 11–16) provided images for Hustedt’s type.

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Coste M., Boutry, S., Delmas, F., De Mérona, B. & Cerdan, P. (2010a). *Diatomées des eaux courantes de Guyane. Essai de biotypologie et application au diagnostic du bon état écologique*. Rapport Cemagref, octobre 2010, 70 p., 10 pls.

<https://hal.inrae.fr/hal-02594399/file/pub00030855.pdf>

Coste, M., Sellier E., Boutry, S., Delmas, F., Eulin-Garrigue, A., Cerdan, P. & De Mérona, B. (2010b). *Approche floristique des diatomées des eaux courantes de Guyane Française, premiers résultats et perspectives d'évaluation du bon état écologique*. In 29^{ème} Colloque de l'Association des Diatomistes de Langue Française (ADLaF), I. Lavoie (ed.), INRS, Québec (Canada), 7-10 Sept. 2010, oral comm., Programme et résumés, p. 23.

Cox, E.J. (1987). *Placoneis* Mereschkowsky: the re-evaluation of a diatom genus originally characterized by its chloroplast type. *Diatom Research* 2(2): 145–157.

Hustedt, F. (1944). Neue und wenig bekannte Diatomeen. I. *Berichte der Deutschen Botanischen Gesellschaft* 61: 271–290.

Hustedt, F. (1966). Die Kieselalgen Deutschlands, Österreichs und der Schweiz unter Berücksichtigung der übrigen Länder Europas sowie der angrenzenden Meeresgebiete. Bd. VII: Teil 3: Lieferung 4. In: *Rabenhorst's Kryptogamen Flora von Deutschland, Österreich und der Schweiz*. (Anon. Eds), pp. 557-816. Leipzig: Akademische Verlagsgesellschaft m.b.h.

Marsson, T. (1900). Diatomaceen von Neu-Vorpommern, Rügen und Usedom. *Zeitschrift für Angewandte Mikroskopie und klinische Chemie* 6: 29-46.

Mereschkowsky, C. (1903). Über *Placoneis*, ein neues Diatomeen-Genus. *Beihefte zum Botanischen Centralblatt* 15(1): 1–30.

Metzeltin, D. & Lange-Bertalot, H. (1998). Tropical diatoms of South America I: About 700 predominantly rarely known or new taxa representative of the neotropical flora. *Iconographia Diatomologica* 5: 1–695, 220 pls.

Müller, O. (1910). Bacillariaceen aus dem Nyassaland und einigen benachbarten Gebieten. IV Folge, Naviculoideae-Naviculeae-Naviulinae, Fragilarioideae-Fragilarieae-Fragilarineae,



Fragilarioideae-Fragilarieae-Eunotiinae. *Botanische Jahrbücher für Systematik, Pflanzengeschichte, und Pflanzengeographie* 45(1): 69–122.

Rich, [M.]F. (1937). Contributions to our knowledge of the Freshwater Algae of South Africa. Some Diatoms from Victoria Falls. *Transactions of the Royal Society of South Africa* 24(3): 207–220.

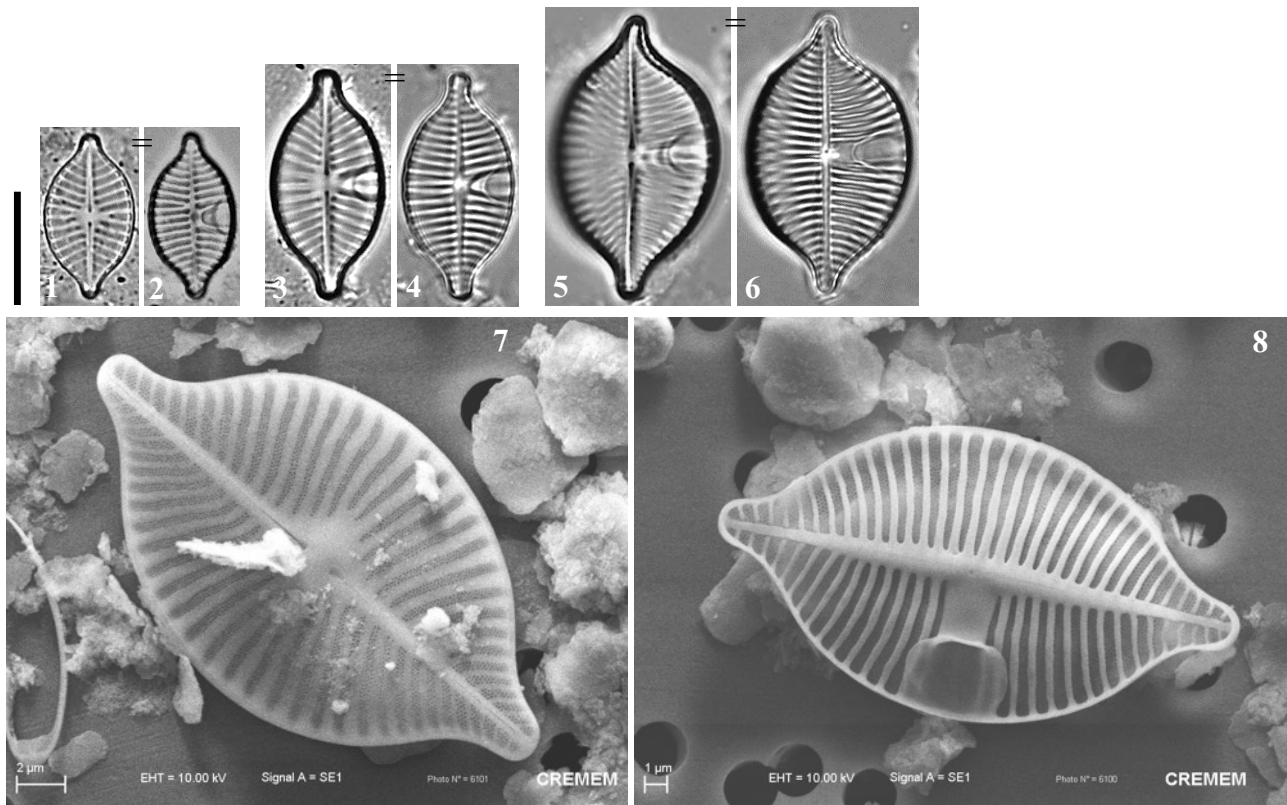
Round, F.E. & Bukhtiyarova, L. (1996). Four new genera based on *Achnanthes* (*Achnanthidium*) together with a re-definition of *Achnanthidium*. *Diatom Research* 11(2): 345–361.

Schmidt, A. (1934). *Atlas der Diatomaceen-kunde*. Leipzig, O.R. Reisland, Ser. VIII (Heft 99–100), pls. 393–400.

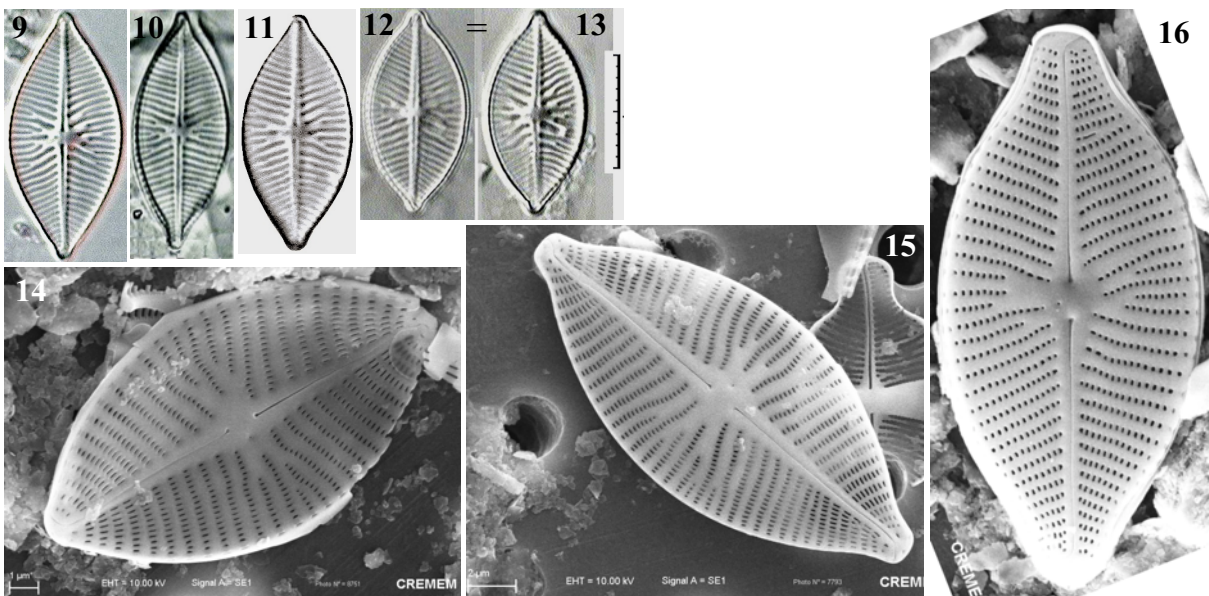
Simonsen, R. (1987). *Atlas and catalogue of the diatom types of Friedrich Hustedt*. Vol. 1.

Catalogue, 525 p., Vol. 2. pls. 1–395, Vol. 3. pls. 396–772. Berlin & Stuttgart, J. Cramer.

Turland, N.J., Wiersema, J.H., Barrie, F.R., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Kusber, W.-H., Li, D.-Z., Marhold, K., May, T.W., McNeill, J., Monro, A.M., Prado, J., Price, M.J. & Smith, G.F., editors (2018). *International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code)* adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. *Regnum Vegetabile*, Vol. 159. Pp. [i]–xxxviii, 1–253. Glashütten: Koeltz Botanical Books.



Figs 1–8. *Planothidium boudoui* (Metzeltin & Lange-Bertalot) M.Coste & al., *comb. nov.* **Figs 1–6.** LM micrographs, scale bar = 10 µm. **Figs 1, 2.** River Mana at Saut Fracas, 2009. **Figs 3, 4.** River Kourou at Léodate, 2009. **Figs 5, 6.** River Sinnamary at Saut Dalles, 2009. **Figs 1, 3, 5.** Raphe valves. **Figs 2, 4, 6.** Rapheless valves. **Figs 7, 8.** SEM micrographs, River Oyapock at Païra Itou, 2009. **Fig. 7.** Raphe valve plan outside view. **Fig. 8.** Rapheless valve inside view.



Figs 9–16. *Placoneis perlatoides* (Hustedt) M.Coste & al., *comb. nov.* **Figs 9–13.** LM micrographs, scale bar = 10 µm. **Figs 9–11.** River Maroni at Apsik Icholi Litani, 2009. **Figs 12, 13.** River Oyapock at Saut Maripa, 2009. **Figs 14–16.** SEM micrographs, plan outside views. **Fig. 14.** River Maroni at Twenke, 2009. **Figs 15, 16.** River Oyapock at Païra Itou, 2009.