
Validation of *Amphiroa peruana* (Lithophyllaceae, Rhodophyta) by W.R. Taylor (1945) and its lectotypification

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“*Amphiroa peruana* Areschoug” has been cited by many authors (e.g., Farlow, 1902; Howe, 1914; Taylor, 1945; Dawson *et al.*, 1964; Silva, 1966; Price *et al.*, 1986; Ramírez & Santelices, 1991; Garske, 2002; Ruiz & Ziemmeck, 2011). Generally, “Areschoug 1854, no. 41” was cited as the apparent place of validation. This reference is to no. 41 of Areschoug’s exsiccata “*Phyceae Extra-europeae exsiccatae*” (1854-1856). On the basis of Art. 30.8, Ex.12 of the ICN (Turland *et al.*, 2018), *Amphiroa peruana* was effectively published by Areschoug in 1854 in Fascicle 2 of “*Phyceae Extra-europeae exsiccatae*” because each specimen was accompanied by a printed label and because the exsiccata was distributed before 1 January 1953. According to Sayre (1969), there were only 20 copies of this exsiccata issued. An example of Areschoug’s Exsiccatae No. 41 is **BKL** 031379, currently **NY** 02421759, and the label has “41. Amphiroa Peruana Aresch. Littoral Peruana” but lacks a validating description or diagnosis (Fig. 1). Areschoug (1854) also published a paper with descriptions of many new species from around the world, but “*Amphiroa peruana*” was not included in that lengthy publication. The Farlow Herbarium also has two collections that appear to have been sent to Farlow by Areschoug and bear the label data “Ex Coll. W.G. Farlow Amphiroa Peruana Aresch. PERU. Ex dono [gift] Areschoug.”

On the basis of his own collections made in the Galapagos Islands, Ecuador, Taylor (1945: 190.pl. 50: figs 1, 2) provided a description and images of what he called “*Amphiroa peruana* Areschoug”, citing “Areschoug, Phyc. Extraeurop. no. 41”. Taylor apparently believed that Areschoug had already described this taxon, but this is clearly not the case. He inadvertently validated *Amphiroa peruana* in that his description meets the requirements of Art. 38.1 of the Shenzhen Code (Turland *et al.*, 2018) and he is thus the author of this name. Taylor cited his only collection no. 34-231, 17 Jan. 1934, from Black Beach Archipelago, Isla Santa María, Archipiélago de Colón, Ecuador. One of the three specimens [**MICH** 675214] is here designated as lectotype of *Amphiroa peruana* Areschoug ex W.R. Taylor (Fig. 2), and the other two are designated as isolectotypes [**MICH** 675076, 675215]. The Macroalgal Herbarium Portal [<https://macroalgae.org/portal/index.php>] shows that another isolectotype is located in the Farlow Herbarium (**FH** 00777507).

According to Taylor (1945), this is a “very large and striking species” of *Amphiroa*, conspicuous because of the alternating black and pink bands of its articulated construction. The segments are “rose pink, compressed, simple, subcuneate to slightly bifurcate”, and to 6 mm long and 1-3 mm wide, whereas the flexible joints [= nodes] are prominent and nearly 1.5 mm long.

“*Algae Floridanae*” is an exsiccata composed of specimens collected by Mrs Floretta A. Curtiss (Wynne, 1996) and distributed by her son, Allen H. Curtiss. The exsiccata included specimens of “*Amphiroa Peruana* Aresch.”, which was most likely identified by her correspondent in Lund, Sweden, the eminent phycologist J.G. Agardh. The printed label indicates that Mrs Curtiss collected these specimens from “Oceanus, Florida. July, 1896”. “Oceanus” is now known as Cocoa Beach, Brevard County, Florida. On the basis of a Curtiss specimen of “*Amphiroa peruana*” in US, Dawes & Mathieson (2008) later identified this collection as *Amphiroa beauvoisii* J.V. Lamouroux. A second specimen of Curtiss’s “*Amphiroa peruana*” from “Oceanus, Florida” is in the Farlow Herbarium (**FH** 00777505). Attached to this specimen is a note that “in [a] letter of Jan. 20, 1890, Bornet thinks this is not *A. Peruana* Aresch. But possibly a form of *A. exilis* Harv. which grows in Brazil.” Although at that time Bornet (1892) had regarded *Amphiroa exilis* Harvey to be a later synonym of *A. beauvoisii*, these two species are currently treated as distinct (Harvey *et al.*, 2013).

The University of California Herbarium (UC) has nine collections of so-called “*Amphiroa peruana*” made by the University of Cape Town Ecological Survey and by G.F. Papenfuss of specimens from Cape Agulhas and from St. James, Cape Peninsula, apparently all determined by the coralline expert Artemio Manza (1896-1964). However, most of these determinations now bear queries. Seagrief (1984) cited a record of *A. peruana* made by Stephenson (1948). After his entry of *A. peruana*, Seagrief has “Areschoug 1854, Nova Acta R. Soc. Scient. Upsal.” and “pl. 38, fig. B”, which gives the mistaken impression that Areschoug (1854) validated that name in that journal. The “pl. 38, fig. B” actually refers to the figure in the Dawson et al. (1964) publication.

There are further reports of *Amphiroa peruana* from several West African countries (Ivory Coast, Ghana, and Liberia) (Price *et al.*, 1986; Lawson & John, 1987; John *et al.*, 2003, 2004), but it has not been possible to verify their accuracy at this time.

On the basis of inspection of images of specimens on the Macroalgal Herbarium Portal, the following appear to be reliable additional determinations of *Amphiroa peruana* from Ecuador and Peru:

FH 00777506 Collection by Snodgrass & Heller, Dec. 1898. Wenman [= Wolf] Island, Galapagos Islands, Ecuador.

NHA 566241. Collection by F. Murphy, 21 Jan. 1969, Pta Ripid, Pisco, Prov. Pisco, Peru, 21.

UC 1402359. Collection by Cesar Acleto No. 883, 8 Nov. 1964, Isla Chincha Sur, Depto. Ica, Prov. Pisco, Peru. 1 m depth.

I am grateful to Professor Wm. J. Woelkerling for his helpful comments on the manuscript.

Areschoug, J.E. (1854). *Phyceae novae et minus cognitae in maribus extraeuropaeis collectae quas descriptionibus observatinibusque. Nova Acta Regiae Societatis Scientiarum Upsaliensis*, ser. 3, 1: 329-372.

Areschoug, J.E. (1854-56). *Phyceae Extra-europeae exsiccatae. Fasc. I-III. No. 1-90.* Uppsala, Sweden.

Bornet, E. (1892). Les algues de P.-K.-A. Schousboe. *Mémoires de la Société des Sciences Naturelles et Mathématiques de Cherbourg* 28: 165-376, pls I-III.

Dawes, C.J. & Mathieson, A.C. (2008). *The seaweeds of Florida*. pp. [i]- viii, [1]-591, [592], pls I-LI. Gainesville, Florida: University Press of Florida

Dawson, E.Y., Acleto, O.C. & Foldvik, N. (1964). The seaweeds of Peru. *Beihefte zur Nova Hedwigia* 13: 1-111, 81 pls.

Farlow, W.G. (1902). Algae. *Proceedings of the American Academy of Arts and Sciences* 38(4): 89-99.

Garske, L.E. (2002). Macroalgas marinas. In: Danulat, E. & Edgar, G. J. (eds.) Reserva Marina de Galápagos: línea base de la biodiversidad. Fundación Charles Darwin/Servicio Parque Nacional Galápagos, Santa Cruz, Galápagos, Ecuador. Pp. 419-439.

Harvey, A.S., Woelkerling, W.J., Huisman, J.M. & Gurgel, C.F.D. (2013). A monographic account of Australian species of *Amphiroa* (Corallinaceae, Rhodophyta). *Australian Systematic Botany* 26: 81-144.

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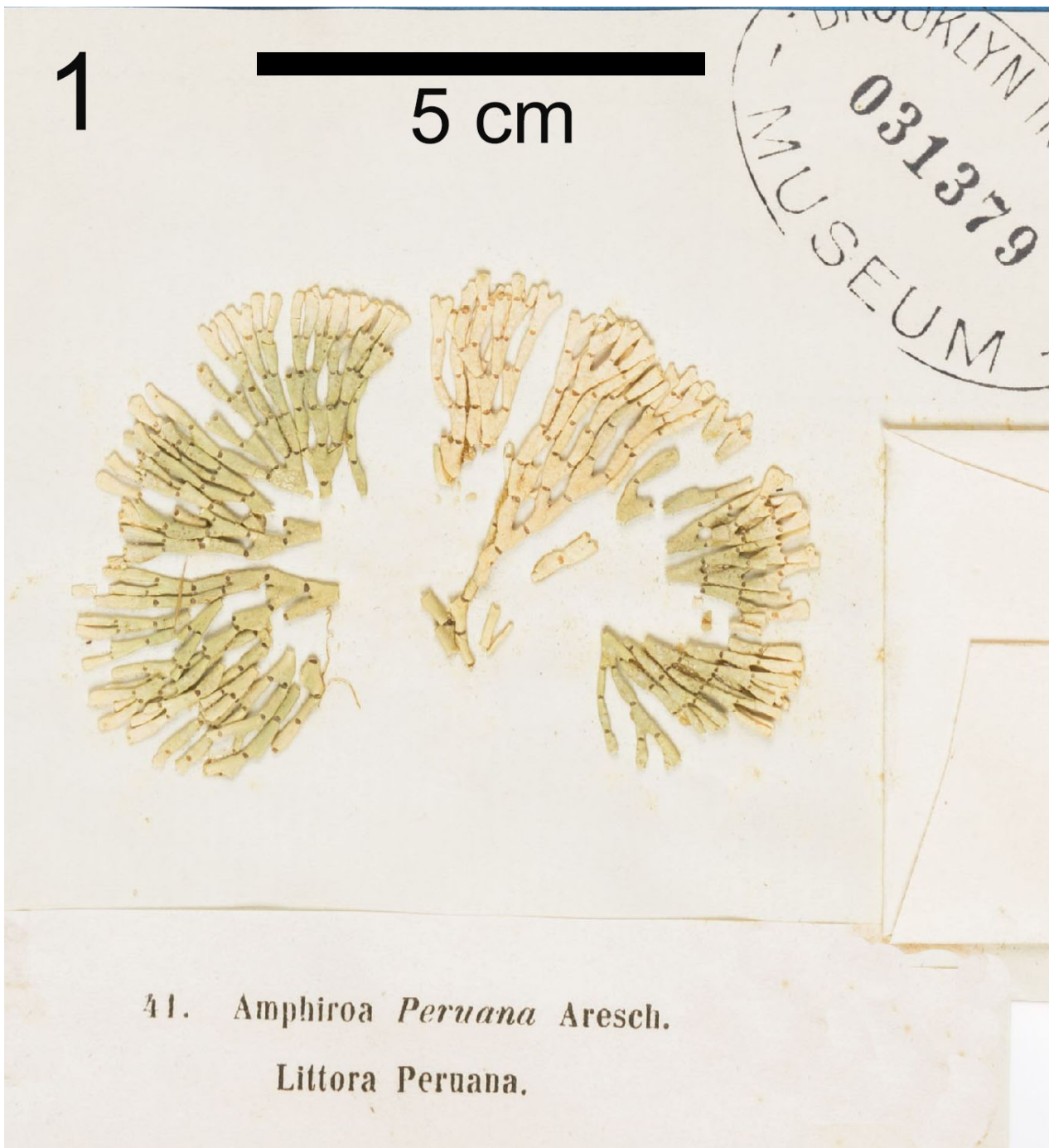


Fig. 1. Areschoug's "Phyceae Extraeuropaeae Exsiccatae" No. 41 NY 02421759.



Fig. 2. Lectotype of *Amphiroa peruana* Areschoug ex W.R.Taylor. no. 34-231. MICH 675214.