



## FOUR REPLACEMENT NAMES IN FOSSIL DEMOSPONGES (PORIFERA: DEMOSPONGIAE)

FILIPPO CECCOLINI

Zoology, “La Specola”, Natural History Museum, University of Florence, Via Romana 17, I-50125 Florence, Italy.  
*ceccolinif@virgilio.it*

FABIO CIANFERONI

Research Institute on Terrestrial Ecosystems (IRET), National Research Council of Italy (CNR), Via Madonna del Piano 10, I-50019 Sesto Fiorentino (Florence), Italy; Zoology, “La Specola”, Natural History Museum, University of Florence, Via Romana 17, I-50125 Florence, Italy. *fabio.cianferoni@cnr.it* (corresponding author)

**ABSTRACT** – The following replacement names in fossil Demospongiae are proposed: *Trinacriarbuscula* Ceccolini & Cianferoni nom. nov. = *Arbuscula* Parona, 1933 nec Bolívar, 1905; *Iberogilletia* Ceccolini & Cianferoni nom. nov. = *Gilletia* Lagneau-Herenger, 1962 nec Benderitter, 1923; *Teutomastophorus* Ceccolini & Cianferoni nom. nov. = *Mastophorus* Schrammen, 1924 nec Diesing, 1853; *Germanortmannia* Ceccolini & Cianferoni nom. nov. = *Ortmannia* Schrammen, 1924 nec Rathbun, 1901. Accordingly, the following new combinations are made: *Trinacriarbuscula contortiplicata* (Parona, 1933) comb. nov. = *Arbuscula contortiplicata* Parona, 1933; *Iberogilletia catalaunica* (Lagneau-Herenger, 1962) comb. nov. = *Gilletia catalaunica* Lagneau-Herenger, 1962; *Teutomastophorus arboreus* (Schrammen, 1924) comb. nov. = *Mastophorus arboreus* Schrammen, 1924; *Germanortmannia colligens* (Schrammen, 1924) comb. nov. = *Ortmannia colligens* Schrammen, 1924.

**Keywords:** Combinatio nova, demosponges, homonym, nomen novum, nomenclatural acts, sponges.

### INTRODUCTION

Sponges (Porifera) form a conspicuous phylum including metazoans without true tissues and organs that as adults are sessile benthic and filter-feeding. They colonized many aquatic habitats, mostly seawater (Thacker *et al.*, 2014). According to de Voogd *et al.* (2021), 9,443 valid living species are known; many fossil species have also been described, but very likely our knowledge is largely incomplete. Indeed, fossil records are quite satisfactory only for the taxa with a solid skeleton, but, for the others, paleontological documentation is extremely poor. Considering that most of the living species have no spicules or solid skeleton, hence it can be said that Porifera are generally poorly known from fossil records (Hooper *et al.*, 2011). Anyway, the number of fossil species described is relevant: although a global catalog of sponges is still lacking, some years ago Zhang (2013) reported, after Appeltans *et al.* (2012), 58 orders, 211 families, 2,046 genera

and 2,217 species, noting that these data are incomplete since 956 genera were without specific assignment.

Little is known about origin of sponges, but very likely they existed well before the Cambrian, when their fossils become well known: indeed, molecular studies suggested that Porifera is the sister group of all the others animals (Simion *et al.*, 2017; Redmond & McLysaght, 2021), whilst recently some Proterozoic fossils were doubtfully attributed to them (*e.g.*, Xiao, 2020; Turner, 2021). Anyway, fossil sponges are very significant in Paleontology for understanding both the early animal evolution and the origins of animal biomineralization (Xiao, 2020).

Approximately 80% of all known extant species of Porifera belong to Demospongiae (de Voogd *et al.*, 2021), but the same percentage is not maintained in the fossil records, in which demosponges are significantly less represented (Rigby, 2004; Hooper *et al.*, 2011). Within fossil Demospongiae we found some name genera which are junior homonyms. Thus, according to the International Code of Zoological Nomenclature (ICZN, 1999), they need to be replaced with new names.

### REPLACEMENT NAMES

#### I.

Parona (1933: 22) established the new sponge genus name *Arbuscula* to accommodate the new species *A. contortiplicata* from the Permian of Sicily. Although Branson (1948: 98) noted this name is “homonym of *Arbuscula* Bolívar, 1905, Insecta”, he did not propose a new replacement name; indeed, *Arbuscula* Parona is reported also in subsequent literature (*e.g.*, Flügel *et al.*, 1991) and it is still in use (Rees, 2021). In fact, Branson’s (1948) observation was correct, since Bolívar (1905: 110) used the name *Arbuscula* for a new genus of Orthoptera, including in it the new species *A. cambodjiana*. This name is currently accepted (Cigliano *et al.*, 2021). Thus, since the invalid name *Arbuscula* Parona does not

have available synonyms, according to ICZN (1999, Arts. 60.1, 60.2, 60.3), it needs to be replaced. Herein we propose *Trinacriarbuscula* Ceccolini & Cianferoni nom. nov.

**Etymology.** The new name refers to the ancient Greek name of Sicily (Τρινακρία), where the genus was found, adding the prefix *Trinacri-* to the original name. Feminine gender.

**Systematics**

Order LITHISTIDA Schmidt, 1870

Family *incertae sedis*

Genus *Trinacriarbuscula* Ceccolini & Cianferoni nom. nov.  
= *Arbuscula* Parona, 1933 nec Bolívar, 1905

Species *Trinacriarbuscula contortiplicata* (Parona, 1933)  
comb. nov. = *Arbuscula contortiplicata* Parona, 1933  
(type species)

**II.**

Lagneau-Herenger (1962: 170) described the new genus *Gilletia* to accommodate the new species *G. catalaunica* from the Aptian of Spain. The name is still accepted (Rees, 2021). However, it can no longer be used, since Benderitter (1923: 217) had already used the same name for a genus of Coleoptera Scarabaeidae Rutelinae. Although currently *Gilletia* Benderitter is considered a subjective junior synonym of *Lagochile* Hoffmannsegg, 1817 (GBIF Secretariat, 2021), it remains a senior homonym of *Gilletia* Lagneau-Herenger; thus, the latter is an invalid name. Since no synonym is available for it, a new replacement name is needed (ICZN, 1999, Arts. 60.1, 60.2, 60.3). Herein we propose *Iberogilletia* Ceccolini & Cianferoni nom. nov.

**Etymology.** The new name refers to the country from which the fossil sponge was discovered, adding the prefix *Ibero-* (from the name of the ancient region *Iberia*, including Spain) to the original name. Feminine gender.

**Systematics**

Order LITHISTIDA Schmidt, 1870

Family CORALLISTIDAE Sollas, 1888

Genus *Iberogilletia* Ceccolini & Cianferoni nom. nov. =  
*Gilletia* Lagneau-Herenger, 1962 nec Benderitter, 1923

Species *Iberogilletia catalaunica* (Lagneau-Herenger, 1962)  
comb. nov. = *Gilletia catalaunica* Lagneau-Herenger,  
1962 (type species)

**III.**

Schrammen (1924: 54) established the new genus name *Mastophorus* to allocate the new species *M. arboreus* from Late Cretaceous of Germany. Currently the name is accepted (Pisera, 2002; Świerczewska-Gładysz, 2006; Rees, 2021).

However, the name *Mastophorus* was already used by Diesing (1853: 34) in Nematoda, name still in use (see Gibson, 2013; Neupane *et al.*, 2018; Rees, 2021). Thus, *Mastophorus* Schrammen is a junior homonym of *Mastophorus* Diesing and it is an invalid name. Since no synonyms are available, according to ICZN (1999, Arts. 60.1, 60.2, 60.3), it must be replaced with a new name. Herein we propose *Teutomastophorus* Ceccolini & Cianferoni nom. nov.

**Etymology.** The new name refers to the ancient northern European tribe of Teutons who lived in the modern Germany, adding the prefix *Teuto-* to the original name. Masculine gender.

**Systematics**

Order TTRACTINELLIDA Marshall, 1876

Family THEONELLIDAE Lendenfeld, 1903

Genus *Teutomastophorus* Ceccolini & Cianferoni nom. nov.  
= *Mastophorus* Schrammen, 1924 nec Diesing, 1853

Species *Teutomastophorus arboreus* (Schrammen, 1924)  
comb. nov. = *Mastophorus arboreus* Schrammen, 1924  
(type species)

**IV.**

Schrammen (1924: 74) established the new genus name *Ortmannia* to accommodate the new species *O. colligens* from Late Cretaceous of Germany. The name is still in use (Rees, 2021).

More than 20 years earlier, Rathbun (1901: 120) used the same name for a new genus of crustacean Decapoda; currently this name is considered a subjective junior synonym of *Atyoida* Randall, 1840 (Rees, 2021), but it remains a senior homonym of *Ortmannia* Schrammen and thus makes it an invalid name. Since *Ortmannia* Schrammen does not have available synonyms, according to ICZN (1999, Arts. 60.1, 60.2, 60.3), it needs to be replaced. Herein we propose *Germanortmannia* Ceccolini & Cianferoni nom. nov.

**Etymology.** The new name refers to the latin name *Germania* which was the Roman term for the historical region in north-central Europe initially inhabited mainly by Germanic tribes, adding the prefix *German-* to the original name. Feminine gender.

**Systematics**

Order ASTROPHORIDA Sollas, 1887

Family *incertae sedis*

Genus *Germanortmannia* Ceccolini & Cianferoni nom. nov.  
= *Ortmannia* Schrammen, 1924 nec Rathbun, 1901

Species *Germanortmannia colligens* (Schrammen, 1924)  
comb. nov. = *Ortmannia colligens* Schrammen, 1924  
(type species)

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