



# An introduction to taxonomic publication

Courtesy to  
Yves Samyn  
RBINS  
Global Taxonomy Initiative

# Kinds of taxonomic publications

## 1. Description of new taxa:

- separated from revisional work, restricted scientific, but indefinite nomenclatural value
- preferentially only in well-studied groups where revisions are available

Thandar A.S. & Natasen Moodley M. 2003. Two new genera and a new species in the holothurian family Cucumariidae (Echinodermata: Holothuroidea). *African Zoology* 38: 279-284.

## 2. Synopses and reviews:

- brief summaries of current knowledge, not necessarily with new material or new interpretations
- mainly an utilitarian function

Segers, H., 1995. Nomenclatural consequences of some recent studies on *Brachionus plicatilis* (Rotifera, Brachionidae). *Hydrobiologia* 313/314: 121-122.

- Kinds of taxonomic publications
- Major features of a taxonomic description
- Making a taxonomic publication
  - Title + authors
  - Abstract & key words
  - Introduction
  - Materials and methods
  - Systematics
  - Synonymy
  - Type material
  - Differential diagnosis
  - Material examined
  - Description
  - Etymology
  - Other descriptors
  - Discussion
  - References
- Proof reading

# Kinds of taxonomic publications

## 3. Revisions:

- synopses and reviews including new material and interpretations

Samyn Y. and Massin C. 2003. The holothuroid subgenus *Mertensiothuria* (Aspidochirotida: Holothuriidae) revisited. *J. Nat. Hist.* 20:2487-2591.

Segers, H. & R.L. Wallace, 2001. Phylogeny and classification of the Conochilidae (Rotifera: Monogononta). *Zool. Scr.* 30(1): 37-48.

## 4. Monographs:

- full systematic treatment of the taxa in the group
- includes data on, *i.a.*, geographic variation, relatedness, evolution, distribution

Clark H.L. 1908. The apodous holothurians, A monograph of the Synaptidae and Molpadiidae. *Smithsonian Contributions to Knowledge* 35, 231 pp., 13 pls.

Van Goethem J.L. 1977. Revision systematique des Urocyclinae (Mollusca, Pulmonata, Urocyclidae). *Annales du MRAC, Série in-8°, Sciences zoologiques* 218: 355 pp., 720 figs, 4 pls.

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# Kinds of taxonomic publications

## 5. Atlases:

- emphasis on drawings rather than wording
- complete illustrations of the species of a taxonomic group

Jackson L.S., Thompson C.A. and Dinsmore J.J. 1996. The Iowa Breeding Bird Atlas. Distribution maps and b&w photos for 199 species breeding in the Hawkeye State. 484 pp.

## 6. Faunal (floral) works:

- limits dictated by geography rather than taxon
- the broader the area the more useful

Rour E., Chahlaoui A. and Van Goethem J.L. 2002. Etat actuel des connaissances de la malacofaune terrestre du Maroc. *Bulletin de l'Institut royal des Sciences naturelles de Belgique, Biologie*, 72: 189-202.

Samyn Y. 2003. Shallow-water Holothuroidea (Echinodermata) from Kenya and Pemba Island, Tanzania. *Studies in Afrotropical Zoology* 292:158 pp.

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# Kinds of taxonomic publications

## 7. Field guides and manuals:

- designed for field identification
- new species expressly excluded; emphasis on clear-cut key and recognition characters

Hickman, C.P. 1998. A Field Guide to Sea Stars and other Echinoderms of Galapagos. Galapagos Marine Life Series, Sugar Spring Press, Lexington, USA.

## 8. Handbooks and treatises:

- comprehensive works on selected taxa, particularly on their general biology
- often excellent starting points

Nichols, D. 1969. Echinoderms, Fourth edition. Hutchinson University Library, London.

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# Kinds of taxonomic publications

## 9. Catalogues and checklists:

- index to published taxa
- complete reference to the literature for both zoological and nomenclatural purposes

Rowe F.W.E. and Gates J. 1995. Echinodermata. *In* Wells A. (ed.), Zoological Catalogue of Australia, vol. 33: i-xiii, 1-510, CISRO Australia, Melbourne.

## 10. Others:

- contributions of interest to the professional taxonomist (e.g. on ecology, evolution, biogeography, ethology, physiology, ...)

Raup D.P. 1994. The role of extinction in evolution. *PNAS* 91: 6758-6763.

Mayr E. and Bock W.J. 2002. Classifications and other ordering systems. *J. Zool. Syst. Evol. Research* 40 :169-194.

Samyn Y. and Tallon I. 2005. Zoogeography of the shallow-water holothuroids of the western Indian Ocean. *Journal of Biogeography* 32: 1523-1538.

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# Major features of a taxonomic description

## 1. What is it?

- a more or less complete account of the characters of a taxon without special emphasis on those characters that distinguish it from coordinate units
- facilitates subsequent recognition and identification of the involved taxon (without needing reference to the type)

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# Major features of a taxonomic description

## 1. What is it?

- an original description serves to introduce a taxon to science and makes its new name officialy available

e.g. Samyn, Y., VandenSpiegel D. & Masin C. 2006. A new Indo-West pacific species of *Actinopyga* (Holothuroidea: Aspidochirotida: Holothuriidae). *Zootaxa* 1138: 53–68.

- a subsequent description serves to complement and/or ameliorate an existing description

e.g. Massin, C., Rasolonoforina, R., Conand, C & Samyn, Y. 1999. A new species of *Bohadschia* (Echinodermata: Holothuroidea) from the Western Indian ocean with a redescription of *Bohadschia subrubra* (Quoy & Gaimard, 1833). *Bulletin de l'Institut royal des Sciences naturelles de Belgique* 69: 151–160, 1 pl.

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# Major features of a taxonomic description

## 2. What is its style?

- a. telegraphic and concise (elimination of articles, verbs; choice of apt adjectives; correct usage of punctuation, capitals, paragraphs, ...)

The oral disc is surrounded by twelve tentacles which are conspicuous and which are supported by a well-developed calcareous ring

*less elaborate*

Oral disc with 12 tentacles, conspicuous, supported by well-developed calcareous ring

- b. sequence of characters according to diagnostic importance (for a diagnosis) or in standardized, 'natural' order (e.g. from anterior to posterior, from dorsal to ventral, from external to internal, from macro- to microscopic, ...)

→ authorative monographs usually adopt a standardized sequence; for easy comparison, follow it as far as possible

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# Major features of a taxonomic description

## 3. What are its contents?

- a. highly selective and in the nature of an expanded diagnosis, whereby poorly known groups obviously demand more detail
  - b. include as far as possible all characters (both positive and negative) which are known to be (potential) useful in distinguishing other taxa at the same taxonomic level
  - c. omit characters of higher categories (unless anomalous)
  - d. include numerical data (e.g. size of characters, number of tubercles, holes, spots, scales, ...) and variability thereof
  - e. include molecular data: sequences or reference
  - f. include all other data judged important (e.g. on sexual dimorphism, ecology, distribution, behavior, ...)
  - g. complement with the needed pictures and/or illustrations
- Account on variability of the taxon!

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# Major features of a taxonomic description

## 4. What is its form?

- a. systematics
  - b. scientific name, its author and the publication date
  - c. synonymy (see below)
  - d. bibliographic references (original description, synonymy, records)
  - e. type(s) (including type locality and repository)
  - f. diagnosis
  - g. material examined
  - h. description (aptly illustrated)
  - i. etymology
  - j. Known geographical distribution
  - k. ecological notes
  - l. discussion and / or remarks
- ➔ consult the work of accomplished taxonomists for appropriate style

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# Making a taxonomic publication – Choose the right journal

- Know yourself: how relevant is my paper?
- Know your field: which journals are read by my audience?
- Choose indexed journals: publicity
- Consider CSI<sup>®</sup> impact factors
- Stick to the « Instructions to Authors »
- Write in English. Don't hesitate to seek help if needed!
- Don't be shy. Think internationally, but be realistic

Genamics JournalSeek (<http://journalseek.net/>)

Directory of Open Access Journals (DOAJ) (<http://www.doaj.org/>)

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## LETTERS

## A lamprey from the Cretaceous Jehol biota of China

Mee-mann Chang<sup>1</sup>, Jiangyong Zhang<sup>1</sup> & Desui Miao<sup>2</sup>

Widespread nowadays in freshwater and coastal seas of the cold and temperal zones, lampreys are a jawless vertebrate group that has been in existence for more than 300 million years but left a meagre fossil record. Only two fossil lamprey species, namely *Mayomyzon pieckoensis*<sup>1,2</sup> and *Hardistiella montanensis*<sup>3-5</sup>, have been recognized with certainty from North American Carboniferous marine deposits<sup>6</sup>. Here we report a freshwater lamprey from the Early Cretaceous epoch (about 125 million years ago) of Inner Mongolia, China. The new taxon, *Mesomyzon mengae*, has a long snout, a well-developed sucking oral disk, a relatively long branchial apparatus showing branchial basket, seven gill pouches, gill arches and impressions of gill filaments, about 80 myomeres and several other characters that are previously unknown or ambiguous. Our finding not only indicates *Mesomyzon*'s closer relationship to extant lampreys but also reveals the group's invasion into a freshwater environment no later than the Early Cretaceous. The new material furthers our understanding of ancient lampreys, bridges the gap between the Carboniferous ones and their recent relatives, and adds to our knowledge of the evolutionary history of lampreys.

Class Agnatha  
Order Petromyzontiformes (Hyperoartii)  
Family Petromyzontidae  
*Mesomyzon mengae* gen. et sp. nov.

**Holotype**, IVPP (Institute of Vertebrate Paleontology and Paleoanthropology, Beijing, China) collection number V14719, a nearly complete adult specimen, without preservation of the tail.

**Referred material**, IVPP V14718A, B (part and counterpart), a complete specimen with the anterior tip of the snout unpreserved.

**Etymology**, the generic name derives from meso (Greek): Mesozoic; myzon (Greek), sucker. The species name honours Meng Qingwen from the University of Fisheries, Shanghai, whose lifelong studies on Chinese fishes have inspired us.

**Horizon and locality**, Yixian Formation, Lower Cretaceous; Ningcheng, Inner Mongolia, China.

**Diagnosis**, A small lamprey, body elongated, eel-shaped, length 12 times its depth, 4 times its head length; preorbital region fairly long, nearly one-third of the head length, 5 times the eye diameter; oral opening surrounded by radiating rectangular depressed areas, presumably covered by tooth plates with teeth, forming sucking disk; branchial basket well developed, with seven gill pouches, branchial apparatus obviously longer than preorbital region; first gill pouch posteroverentral to otic capsule; eight or nine preserved gonads of rounded shape, non-metameric; trunk muscle segments more than 80; paired fins and anal fin absent, dorsal fin above posterior portion of body, caudal fin diphycceral.

The two specimens of the new lamprey *Mesomyzon* are nearly of the same size. The body is elongated and eel-shaped (Fig. 1a-c). The anterior portion of the body is rounded, whereas the tail is more compressed laterally and tapers posteriorly. The body length

measured in the holotype of *Mesomyzon* V14719 (with the tail missing) is about 83.5 mm, whereas in V14718B (without the tip of the snout) it is 85 mm. Thus, the specimens of *Mesomyzon* are longer than those of *Mayomyzon* (33–61 mm) from Illinois<sup>1,2</sup>, but slightly shorter than the complete one of the three known *Hardistiella* specimens ("which does not exceed 10 cm in total length"<sup>3,5</sup>) from Montana, and much shorter than most recent lampreys<sup>7,8</sup>. Its ratio of body length to body depth is about 12 (on the basis of both V14718B and V14719). The corresponding ratio is 8 to 9 in *Mayomyzon*<sup>1,10</sup> in *Hardistiella* (inferred from Fig. 1A of ref. 2) and 12–20 in the recent lampreys from China<sup>9</sup> and elsewhere in the world<sup>7</sup>. *Mesomyzon* is thus obviously slenderer than the two Carboniferous lampreys and closer in body proportion to the living ones. In the holotype in which the head is well preserved, the ratio of body length to head length (measured from the tip of the snout to the posterior margin of the last gill pouch) is about 4, approaching that of the recent *Lampetra* from China (4.5–6.0)<sup>9</sup>. The snout (or preorbital region) is well developed. The head length is roughly 2.8 times the preorbital length in the holotype, falling in the range of the recent *Lampetra* from China (2.7–3.4)<sup>9</sup>. The length of the snout is five times of the eye diameter in the same specimen, and much longer in proportion than that in *Mayomyzon*, namely 3.5 (ref. 1).

The holotype lies, for the most part, on its flank but with its head and anterior portion of the body rotated (along its axis) slightly towards its left so that the right side of the head is turned somewhat upwards. As a result of the rotation, the right eye, as a round dark stain (l.e., Fig. 1d, e), is situated near the top line of the head, whereas the left eye, as a faint circle with rough interior (r.e., Fig. 1d, e), is situated under, and partly overlapped by, the right eye. A small circle in the middle of the bigger circle of the right eye may indicate the presence of the lens. The left and right otic capsules (l.ot., r.ot., Fig. 1d, e) are just behind the eyes and displayed in the same way as the fishes. The nasohypophyseal opening was not seen in either of the specimens because of the state of preservation.

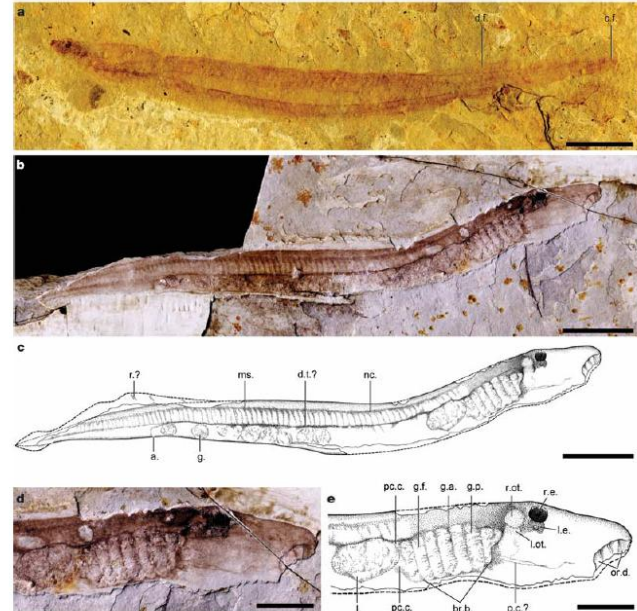
No parts or imprints of the endoskeleton of the cranium could be observed because it was neither calcified nor ossified. However, it is extremely fortunate that, on the holotype, a subterminal sucking oral disk (o.r.d., Fig. 1d, e) is clearly shown in the form of depressed rectangular areas divided by ridges, arranged in radiating rows around the oral opening. This is somewhat similar to the mouth structure of the enigmatic lamprey-like *Pipiscius* (see Figs 3–5 in ref. 9) from the Carboniferous period of Illinois<sup>10,11</sup>. We could count four or five such areas on the nearly half of the oral disk preserved on the holotype. These depressed areas presumably carried tooth plates with teeth when the animal was alive<sup>12</sup>, although no horny teeth were found on the specimens. If this were so, the oral tooth plates in *Mesomyzon* must be much bigger, and fewer in number, than in *Pipiscius*<sup>9</sup> and recent lampreys<sup>7,8,12</sup>.

The usually cartilaginous visceral skeleton in the form of the branchial basket (br.b., Fig. 1d, e) shows its distinct general outline and structure in light-grey stain on the holotype. The branchial

basket of lamprey has not previously been observed in fossils, although elongated branchial baskets with many branchial units have been seen in the Late Devonian anaspid-like form *Euphanerops longaevis* from Miguasha, Québec, Canada<sup>5,10</sup>. Not only are the outlines of the seven gill pouches (g.p., Fig. 1d, e) clearly visible but the impressions of the gill filaments (g.f., Fig. 1d, e) can also be traced in many places posterior to the vertical bars (gill arches, g.a., Fig. 1d, e) of the branchial basket. The length of the branchial apparatus obviously exceeds that of the preorbital region, whereas the gill pouches in *Mayomyzon* and *Hardistiella* are closely set and the branchial apparatus is hardly longer than the preorbital region<sup>4,10</sup>. The first gill pouch is situated posteroverentral to the otic capsule, as in recent lampreys but in sharp contrast to *Mayomyzon*<sup>1,2</sup> and *Hardistiella*<sup>3</sup>, in which it is situated close behind the eyes. Unfortunately, no distinct gill openings could be detected on the specimens, although we believe there should be seven separate ones because in other respects *Mesomyzon* is too similar to the extant lamprey. Posterior to the last gill pouch, faintly visible are the upper and lower parts of the anterior portion of the pericardial cartilage (p.c., Fig. 1d, e). Two thin lines, stretching forwards from the anterior part of the branchial apparatus, seem to enclose a rod-like structure. Conceivably, it could be interpreted as the piston cartilage (p.c.?, Fig. 1d, e) that supports the rasping tongue. Behind the anterior part

of the pericardial cartilage, the outline of the liver (l., Fig. 1d, e) can also be traced. As judged from the situation in recent lampreys, the liver might be longer than that in our illustration. The digestive tract (d.t.?, Fig. 1d, e) is probably represented by a thin dark band that extends backwards from the end of the branchial basket, along the upper border of the liver, to an area below the dorsal fin, where it bends down to the probable anus (a., Fig. 1c). However, the interpretation of the thin dark band as the dorsal aorta is not ruled out.

Filled with coarse sediments, lined in a row and situated in the posterior half of the abdomen are eight or nine circular spaces, here interpreted as gonads (g., Fig. 1c), although they might alternatively be interpreted as gut. They are not arranged metamerically. Lamprey females have a single horseshoe-shaped ovary, whereas the testis of males consists of leaf-like lobes<sup>13,14</sup>. The appearance of the gonads in the new form seems similar to that in the latter. Numerous myosepta (ms., Fig. 1c) are distinctly visible in the holotype. About 80 or more trunk myomeres can be counted. Under the dorsal margin of the body and parallel to the margin is the notochord (nc., Fig. 1c), a dark-stained thick band that stretches from the head region back to the end of the body. The traceability of the notochord in the fossils of many soft-bodied animals is certainly due to the more decay-resistant characteristic of its sheath<sup>15</sup>. The myoseptum that crosses



**Figure 1** | *Mesomyzon mengae* gen. et sp. nov. **a**, A complete fish (IVPP V14718A) in left view. **b**, Holotype (IVPP V14719) in right view. **c**, Drawing of the holotype, with the dorsal fin and caudal region reconstructed on the basis of IVPP V14718A. **d**, Photograph of head and anterior part of body of the holotype. **e**, Drawing of the same part as in **d**. Scale bars, 10 mm (**a-c**)

and 5 mm (**d, e**). Abbreviations: a., anus; br.b., branchial basket; c.f., caudal fin; d.f., dorsal fin; d.t.?, possible digestive tract; g., gonads; g.a., gill arches; g.f., gill filaments; l., liver; l.e., left eye; l.ot., left otic capsule; ms., myosepta; nc., notochord; o.r.d., oral disk; p.c.?, possible piston cartilage; p.c.c., pericardial cartilage; r.e., right eye; r.ot., right otic capsule.

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# Making a taxonomic publication – the title, an advertisement for your work

- Bibliographic prominence and significance!
- Adjust length so that:
  - informative and specific to the contents of the paper
  - allows easy indexing
- Incorporate key-words for indexing purposes
- Avoid punctuation unless essential to meaning
- Some important elements:
  - field involved
  - taxon involved
  - indication of the higher systematics (often between parentheses)
  - geographical area, fauna, or locality
- Originality suits ‘derived’ taxonomic papers better!

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# Making a taxonomic publication - title

## Bad titles

Studies in the Mollusca

Panning, A. 1944. Die Trepangfischerei. *Mitt. Zool. StInst. Hamb.* 49: 1-76, 40 figs.

## Good titles

Clouse R., Janies D., Kerr A.M. 2005. Resurrection of *Bohadschia bivittata* from *B. marmorata* (Holothuroidea: Holothuriidae) based on behavioral, morphological, and mitochondrial DNA evidence. *Zoology* 18: 27-39.

Segers H. 1994. Redescription of *Lecane fadeevi* (Neiswestnowa-Shadina, 1935) (Rotifera, Lecanidae). *Bull. Inst. r. Sc. Nat. Belg., Biologie* 64: 235-238.

## A parody

Moran, R. 1962. *Cneoridium dumosum* (Nuttall) Hooker f. collected March 26, 1960, at an elevation of about 1450 meters on Cerro Quemazon, 15 miles south of Bahia de Los Angeles, Baja California, Mexico, apparently for a southeastward range extension of some 140 miles. *Madrono* 16: 272

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# Making a taxonomic publication – author's name

- Always use the same form of *your* name

e.g. Didier Van den Spiegel opts for D. Vanden Spiegel as author name;  
if not...citing returns as

Van den Spiegel D. or den Spiegel V.D or Spiegel V.D.D or equivalent

e.g. Mrs. M. Kirsch-Volders thus not longer exist but still publishes...

- Order of authors should reflect the contribution each has made, whereby last author generally is the coordinator

e.g. Y. Samyn<sup>1,2</sup>, D. Vanden Spiegel<sup>4</sup>, A. Franklin<sup>1,2</sup>, A. Réveillon<sup>1,2</sup>, H. Segers<sup>1,3</sup> & J. Van Goethem<sup>1,2</sup>

- Mark author's affiliation (indicate address changes)

e.g. (from above)

<sup>1</sup>Royal Belgian Institute of Natural Sciences, Rue Vautier 29, B-1000 Brussels, Belgium; <sup>2</sup>Belgian Focal Point to the GTI; <sup>3</sup>Belgian Biodiversity Platform; <sup>4</sup>Royal Museum for Central Africa, Leuvensesteenweg 13, B-3080 Tervuren, Belgium

- Mark author to whom correspondance should be addressed

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# Making a taxonomic publication – abstract and key words

Abstract:

- ‘content’ abstract that summarises the findings rather than a description
- remember: an abstract often guides your public

Key words:

- use complementary wording as that in the title
- information from systematics, locality, nomenclature, ...

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# Making a taxonomic publication – title and abstract

## Checklist for the Title and Abstract

- Title is specific to project yet concise
- Abstract introduces topic
- Abstract mentions techniques used without going into experimental detail
- Abstract mentions most important results
- Abstract summarizes results

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# Making a taxonomic publication – introduction

- scope of the paper:
  - ✓ why did you perform the study?
  - ✓ what knowledge gap or controversy (if any) did you want to resolve?
- brief account on background (historical, existing literature) to place the work in perspective

→ do not confuse the discussion with the introduction!

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# Making a taxonomic publication – materials and methods

- What did you do and how did you do it?
- Give enough information so that others can *repeat* your study
- Can include data on collection locality, collection method, character retrieval, study method, ...

During recent surveys of the echinoderm fauna of KwaZulu-Natal (Republic of South Africa), several specimens belonging to a species new to science were found. Collecting was done by SCUBA-diving to depths of a maximum of 44 m, but specimens belonging to the new species were found between 17 and 20 m. Specimens were anaesthetized in 5% magnesium chloride for 4 hours, transferred to 100% buffered alcohol for 24 hours, and then to 70% buffered alcohol for permanent storage. They were studied according to conventional methods outlined by workers such as FISHER (1907), DEICHMANN (1948), ROWE & DOTY (1977) and MASSIN (1999), amongst others. Ossicles were removed in household bleach, washed in two changes of distilled water and illustrated with the camera lucida. For scanning electron microscopy, the ossicles were passed through two changes of absolute alcohol and transferred with a fine pipette together with a little alcohol onto a specimen stub to which they normally stick once the alcohol evaporates. They were then sputter-coated with gold for 5 minutes at 30-40 mA and photographed with a Philips SEM 500.

→ do not repeat redundant information, cite authoritative sources

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# Making a taxonomic publication – systematics

- List appropriate categories with full authority reference
- Avoid redundancy by listing alphabetically, e.g.

Class Hydrozoa Owen, 1843  
Subclass Athecatae Hincks, 1868  
Order Filifera Kuhn, 1913  
Superfamily Hydractinioidea Bouillon, 1978  
Family Stylasteridae Gray, 1847  
*Conopora* Moseley, 1879  
1. *Conopora adeta* Cairns, 1987  
2. Species two  
3. Species three  
Genus two

→ don't retake old classifications, use only the last authoritative source (last revision) or justify!

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# Taxonomic publications - synonymy

Synonyms are different names given to the same taxon

- a. Complete synonymy of every species and genus is necessary when a higher taxon is monographed or revised for the first time
- b. Complete synonymy however not always needed; list only names that were not at all, or erroneously, listed in previous standard treatments; list only genuine synonyms
- c. For first revisions, be as complete as possible (inclusive of flagging errors in literature)
- d. Respect the style for synonymy: punctuation is key!

→ consult the work of accomplished taxonomists for appropriate contents and style (journal dependent)!

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# Taxonomic publications - synonymy

- Latin abbreviations often encountered in synonymies
- learn at least the most frequently used ones
- use them with scholarship, but do not exaggerate with the acquired wisdom
- do not use terms/words you don't fully understand!

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# Taxonomic publications - synonymy

Some examples:

## *Actinopyga caerulea* Samyn *et al.*, 2006.

(Figures 1A-J, 2A-E, 3A-E, 4A-G, 5; plate 1A-C)

*Actinopyga crassa*; Cherbonnier & Féral 1984 : 664, fig. 3 A-K; Féral & Cherbonnier 1986 : 70-71; Erhardt & Moosleitner 1995: 1153 (non *A. crassa* Panning, 1944).

*Actinopyga* (?) *bannwarthi*; Erhardt & Baensch 1998: 1076 (non *A. bannwarthi* Panning 1944).

## *Dendrolimax osborni* Pilsbry, 1919

(pl. II, fig. 3-7; fig. 139-194; carte 8)

- *Dendrolimax osborni* Pilsbry, 1919, p. 291, pl. 8, fig. 5 (habitus), t. fig. 148a-c (génitalia). - Verdcourt, B., 1960b, p. 233. - Verdcourt, B. & Polhill, R., 1961, p. 34. - Forcart, L., 1967, pp. 558, 559. - Solem, A. & Van Goethem, J., 1974, pp. 2, 5, fig. 2, pl. III-IV, fig. 9-14 (radula).  
- *Dendrolimax greeffi*, Forcart, L., 1967, p. 559, fig. 41-43 (habitus, limacelle, génitalia), matériel de Rhodésie (non *D. greeffi* Simroth, 1889, p. 60).

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# Making a taxonomic publication – type material

Name-bearing type(s): designation, repository and type locality complement a diagnosis

e.g. a genus and a species (from Rowe & Gates 1995: 39)

*Patriella* Verrill, 1913

*Patriella* Verrill, A.E. (1913). Revision of the genera of starfishes of the sub-family Asterininae. *Amer. J. Sci.* (4)**35**: 477–485 [480, 483]. Type species: *Asterina (Asteriscus) regularis* Verrill, 1867 by original designation

*Patriella brevispina* H.L. Clark, 1938

*Patriella brevispina* Clark, H.L. (1938). Echinoderms from Australia. An account of collections made in 1929 and 1932. *Mem. Mus. Comp. Zool. Harv. Univ.* **55**: 1–596 figs 1–64 pls 1–28 [166, pl. 22(2–3)]. Type data: holotype MCZ 3305, paratypes AM J6181 (2 specimens) Type locality: Koombana Bay, Burnbury, WA.

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# Making a taxonomic publication – differential diagnosis

## *What is it?*

A brief comparison of the most important characters or character combinations that enable the reader to distinguish the taxon and by which it can be differentiated from other similar or closely related ones

e.g. from Samyn & Thandar 2003: 136

### *Massinium maculosum* Samyn & Thandar, 2003

Diagnosis: Medium-sized, U-shaped phylloporid with bloated mid-body and relatively short anterior and posterior ends. Anus surrounded by teeth and papillae, variously developed. Ossicles of body wall short, thick, flat, oval to round rosette-shaped rods and pseudobuttons, often with minute perforations. Introvert ossicles include tables and rosettes. Tentacles of outer ring without ossicles, of inner ring with rods and rosettes.

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# Taxonomic publications – material examined

An example:

**Material examined;** Union des Comores (Grande Comore, Ikoni), 22.XI.2003, 37 m depth, coll. Y. Samyn & D. VandenSpiegel, RMCA 1803 (holotype); Union des Comores (Grande Comore, H.L.M Langouste), 11.X.2004, 28 m depth, coll. Y. Samyn, D. VandenSpiegel & C. Massin, CNDRS 2004.09 (paratype 1); Union des Comores (Grande Comore, Itsandra), 20.XI.2003, 23 m depth, coll. Y. Samyn & D. VandenSpiegel, RBINS IG 30376 (paratype 2); Papua New Guinea (Madang Province, Madang's Reef, Wongat Island), 05.X.1996, 25 m depth, coll. C. Massin, RBINS, IG 28 455/22.

→ deposition of (especially) type material in different museums is an excellent idea

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# Taxonomic publications – description

An example (Erwin 2004: 790):

**Description.** (Fig. 2). Size small: ABL = 5.9 mm, SBL = 5.5 mm, TW = 2.3 mm. *Color:* Dorsum of head and prothorax and entire venter rufescent; mouthparts, antennomeres, and legs rufotestaceous. Metathorasic wings clear. *Luster:* Dorsal surface very shiny. *Microsculpture:* See Diagnosis. *Head:* Slightly narrower across eyes than pronotum; frontal furrows extended to level of anterior supraorbital seta, moderately impressed proximal to clypeus, margined laterally by well developed carina, surface near carina slightly rugose; eyes large, produced, gena absent; frons and occiput slightly convex; labrum slightly emarginate; labial palpomere 4 depressed, slightly shorter than maxillary palpomere 4. *Prothorax:* Pronotum cordiform, moderately convex, depressed along midline, side margins broadly explanate, markedly sinuate anterior to slightly obtuse hind angle, base slightly rounded, not lobed posteriorly. *Pterothorax:* Normal for Agrina, fully winged. *Legs:* Normal for Agrina. *Abdomen:* Sterna normal for Agrina, glabrous, except normal paired ambulatory setae on sterna III–V; female with 3 pairs long setae on sternum VI. *Male genitalia:* Unknown.

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# Taxonomic publications – etymology

- The codes of nomenclature give some basic rules about the formation of names
- See the requirements for proper publication and acceptance of new names (*available* according to the ICZN; *validly published* according to the ICBN)

(cf. [International Code of Zoological Nomenclature](#))

Some examples (Adamski 2005):

Etymology: The species epithet *nubis* is derived from the Latin “nubes,” meaning clouds.

Etymology: The species epithet *paenulae* is derived from the Latin “paenula,” meaning a traveling cloak.

Etymology: *Glyphidocera arakawae* is named in honor of Kuniko Arakawa, who provided the illustrations of the genitalia for this revision.

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# Taxonomic publications – other descriptors

- Molecular characterisation (if available)
- Ecological notes
- Behavioral notes
- Distribution (vertical and horizontal; see also specialised internet sites as <http://www.bioevolution.com/>)
- All other information deemed suitable for the future recognition of the taxon

➔ consult the work of accomplished taxonomists for type and style of information as is commonly utilised for your taxon

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# Taxonomic publications – discussion

## Generally:

- answers to ‘What do the results mean?’
- responds to questions, hypotheses raised in the introduction
- covers both theoretical and practical interpretation of the results
- points out anomalies and still-existing gaps in knowledge
- cites relevant literature

## For a taxonomic paper:

- subject to the same ethics as any other scientific publication
- provides arguments/evidence for the taxonomic judgement (e.g. naming a new species; change of rank; etc.)

→ gives you space to justify your taxonomic decisions with scientific bravoure; scrutinization assures more durability

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# Taxonomic publications – references

- Consult the journal in which you want to publish, prior to arranging your list (journal style!)
- Certain reference systems (e.g. EndNote, Reference Manager) allow easy storage and retrieval of references in the desired style
- Do not alter anything on reference, except (when requested by the journal) abbreviation of the periodical's name; consult standardized lists

→ correctly cited references provides referees with a (albeit narrow) window on the quality of your research!!!

[Link to Harvard system](#)

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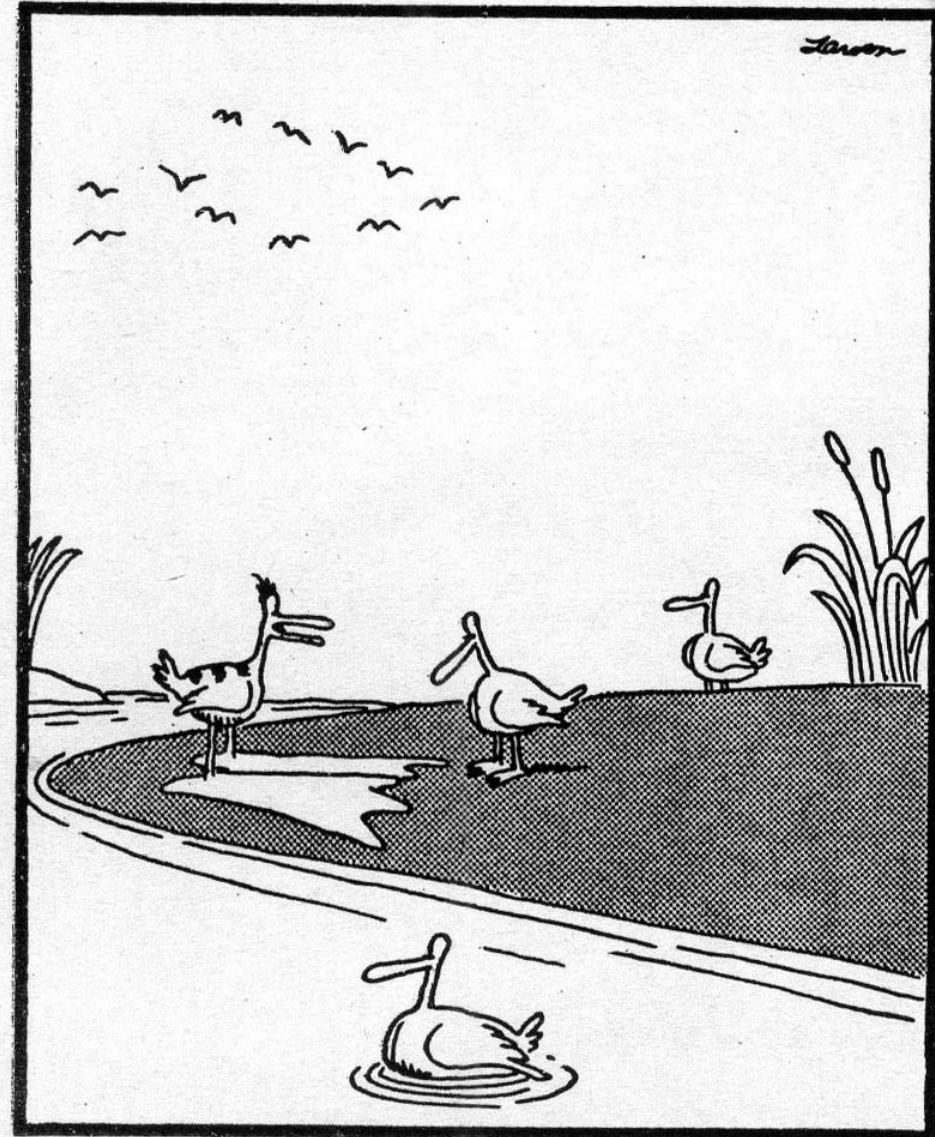


# Proof reading – the most common correction marks

<i>Instruction to printer</i>	<i>Textual mark</i>	<i>Marginal mark</i>
Leave unchanged	... under matter to remain	Stet
Insert in text the matter indicated in the margin	∧	New matter followed by ∧
Delete	⌋ through matter to be deleted	∧ ∧ ∧
Delete and close up	⌋ through matter to be deleted	∧ ∧ ∧
Substitute character or substitute part of one or more word(s)	/ through letter or ⌋ through word	New letter or new word
Change to italics	— under matter to be changed	F
Change to capitals	≡ under matter to be changed	≡
Change to small capitals	≡ under matter to be changed	≡
Change to bold type	~ under matter to be changed	~
Change to bold italic	≡ under matter to be changed	≡
Change to lower case	Encircle matter to be changed	⊕
Change italic to upright type	(As above)	⌋
Insert 'superior' character	/ through character or ∧ where required	∧ under character e.g. →
Insert 'inferior' character	(As above)	∧ over character e.g. ∨
Insert full stop	(As above)	•
Insert comma	(As above)	,
Insert single quotation marks	(As above)	↵ and/or ↵
Insert double quotation marks	(As above)	↵ and/or ↵
Insert hyphen	(As above)	⊕
Start new paragraph	∩	∩
No new paragraph	∩	∩
Transpose	∩	∩
Close up	linking ∩ letters	∩
Insert space between letters	∧ between letters affected	#
Insert space between words	∧ between words affected	#
Reduce space between letters	↑ between letters affected	↑
Reduce space between words	↑ between words affected	↑

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Thank you for  
your attention



**"I'm one of those species they describe  
as 'awkward on land.'"**