

### ZooBank Committee

At the meeting of the International Union of Biological Sciences (IUBS) in 2007, a meeting of Commissioners voted unanimously to pursue ZooBank as an activity of the ICZN, and an initial ZooBank Committee was established with an explicit statement that Commissioners and outside observers not present at the meeting would be allowed to join the Committee subsequently. However, the vote was never formalised, and thus needed to be formalised in this session. The ZooBank Committee established at the 2007 IUBS meeting was amended as indicated in Summary of Decisions & Committees. The Commission then voted to pursue the exploration of ZooBank and potential registration, and refer these items to the Editorial and ZooBank Committees.

### Reference

Polaszek, A., Agosti, D., Alonso-Zarazaga, M., Beccaloni, G., de Place Bjørn, P., Bouchet, P., Brothers, D.J., Earl of Cranbrook, Evenhuis, N., Godfray, H.C.J., Johnson, N.F., Krell, F.-T., Lipscomb, D., Lyal, C.H.C., Mace, G.M., Mawatari, S., Miller, S.E., Minelli, A., Morris, S., Ng, P.K.L., Patterson, D.J., Pyle, R.L., Robinson, N., Rogo, L., Taverne, J., Thompson, F.C., van Tol, J., Wheeler, Q.D. & Wilson, E.O. 2005. Commentary: A universal register for animal names. *Nature*, **437**: 477.

### Allotypes should be from the type series: a position paper for reinstating Recommendation 72A from the third edition of the Code that defines the term ‘allotype’

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**Abstract.** The purpose of this paper is to suggest reinstating the wording of the third edition of the Code for Recommendation 72A: ‘The term ‘allotype’ may be used to

designate among paratypes a specimen of opposite sex to the holotype. Authors are recommended to avoid using the term 'allotype' for specimens other than paratypes.' The Glossary in the next edition of the Code should change accordingly. This is to assure that allotypes always have unequivocal status as paratypes and, thus, are covered by Recommendation 75A as potential reserve name-bearers. Only type specimens should bear the root '-type'.

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## Introduction

Non-name-bearing specimens of the original type series are often considered nomenclaturally irrelevant (e.g. Simpson, 1960; Blackwelder, 1967; Fricke, 1985), being merely of taxonomic interest indicating the species concept of the original author. However, the Code recommends considering paratypes or paralectotypes as the first choice if a neotype needs to be designated (Recommendation 75A). They are potential or reserve name-bearers (Smith, 1983) in case the original name-bearers are lost or destroyed. As such, they are potentially relevant for nomenclatural purposes. Although Recommendation 75A recognises this potential relevance of paratypes, the current Code is unclear about the status of allotypes, a frequently used term in taxonomic literature in groups with sexual dimorphism. It is defined in Recommendation 72A: 'The term "allotype" may be used to indicate a specimen of opposite sex to the holotype'. This wording allows designation of allotypes subsequently to the original description and even from non-type material. According to the Glossary of the Code, the term allotype is not regulated by the Code, but Recommendation 72A is dedicated purely to allotypes and defines this term. Since allotype is a widely used term and covered by a Recommendation of the Code, its ambiguous definition and unclear status is undesirable. Defining allotype as a paratype of a different sex from the holotype would clarify its status as a paratype and, thus, as reserve name-bearer covered by Recommendation 75A.

## History

As originally proposed by Muttkowski (1910, p. 10) and occasionally adopted by others (e.g. Fernald, 1939; Viette, 1951; Gloyd, 1982; ICZN, 1999), an 'allotype' was considered to be the first specimen of the opposite sex from the holotype and was conceived as a useful tool for documenting sexual dimorphism. Banks & Caudell (1912) seem to be the first to have limited the use of the term 'allotype' as a paratype of the opposite sex from the holotype, thus from the original type series. This usage was promulgated by Durrant et al. (1921), Frizzell (1933), Mayr et al. (1953), Torre-Bueno (1962), Blackwelder (1967), ICZN (1985), and has been generally widely accepted amongst taxonomists (Smith, 1984).

However, several authors, recognising the value of limiting the application of the term 'allotype' to a member of the original type series, have introduced new terms for specimens of the opposite sex designated or described after the original description: 'neallotype' (Talbot, 1921), 'metallotype' (Munro, 1957; Smith, 1983), 'neoallotype' (Séguy, 1967). Dechambre (2001), in an attempt to avoid using the inappropriate root 'type' for non-type material, proposed the term 'alloréfèrent'. As is often the case for many new words coined for a special scientific use, none of these new terms have

gained broad acceptance. Additionally, they are nomenclaturally irrelevant and misleading, since they do not refer to type material.

The term allotype is not mentioned in the 1964 second edition of Code (ICZN, 1964). The 1985 third edition of the Code recommends (Rec. 72A) that 'The term 'allotype' may be used to designate among paratypes a specimen of the opposite sex to the holotype', and that 'Authors are recommended to avoid using the term 'allotype' for specimens other than paratypes'. The 1999 fourth edition of the Code simply recommends (Rec. 72A) that the term 'allotype' may be used to indicate a specimen of opposite sex of the holotype. An important difference between the 1985 and 1999 Codes is that the term allotype is a paratype in the third edition and simply a specimen of the opposite sex (with no type status) in the fourth edition.

By explicitly allowing the use of such a broadly defined 'allotype', it is possible for an author to designate, after the original description of the taxon in question, an allotype (or as called by some, a neoallotype) for the first representative of the opposite sex from the holotype. Examples of these are DeLong (1953) and DeLong & Martinson (1973) who described allotypes for previously described species of cicadellid leafhoppers; Brookhart & Muma (1981) who designated three 'allotypes' for previously described species of solifugids; Maes (1990) who designated six 'allotypes' for previously described species of stag beetles (Coleoptera: LUCANIDAE); Soula (1999, 2002) who designated 33 'neoallotypes' in the genus *Macraspis* MacLeay, 1819 and 46 'neoallotypes' in other genera of RUTELINAE (Coleoptera: SCARABAEIDAE); Alexis and Delpont (2001a, 2001b) who designated various 'neoallotypes' for species of CETONIINAE (Coleoptera: SCARABAEIDAE); Sanborn & Phillips (2004) who designated an 'allotype' to accompany a neotype of a cicada; and Özdikmen et al. (2007) who designated an 'allotype' for a leaf beetle (Coleoptera: CHRYSOMELIDAE) more than 30 years after its original description. Also, the term 'alloréférent' was used by Alexis & Delpont (2002) for a female paratype of a *new species* of cetonine scarab they described and by Soula (2006) for previously described species of ruteline scarab beetles. Thus, the term 'alloréférent', even when used, is not being applied consistently. None of these authors violated the Code, because the term 'allotype' was not regulated by Articles of the Code but only by a Recommendation. Maes (1990) and Soula (1999) did not follow Recommendation 72A in force at the time. Clearly, this broad array of designations is inconsistent and confusing.



Fig. 1. The holotype and allotype of a sexually dimorphic dung beetle species, with labels.

## Proposal

In order to promote stability and consistency in the use of terms containing the root 'type' for types, we suggest that the Commission consider for the fifth edition of the Code restricting the application of the widely used term 'allotype' to a specimen taken from the original type series and to return to the language of the third edition of the Code, to wit Recommendation 72A: 'The term 'allotype' may be used to designate among paratypes a specimen of the opposite sex to the holotype. Authors are recommended to avoid using the term 'allotype' for specimens other than paratypes.' The definition of allotype in the Glossary of the Code should be changed to: 'A term for a designated specimen amongst the paratypes of the opposite sex to the holotype [Recommendation 72A].' We further suggest that the terms 'neotype', 'neallotype' and 'metallotype' (or any other similarly intended word employing the root '-type') not be used, since they denote a non-type specimen. Authors interested in keeping a record of important specimens subsequent to the type series, such as the first member of the opposite sex, are encouraged to deposit them, as 'vouchers', in well-curated, accessible collections as defined in Recommendation 72F.

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## References

- Alexis, R. & Delpont, M. 2001a. Cetoniidarum specierum lexicon, Fiche 1. *Mawenzhena* nov. gen. *Cetoniimania*, **1**: 26–31.
- Alexis, R. & Delpont, M. 2001b. Cetoniidarum specierum lexicon, Fiche 6. *Ischiopsopha bruyini* Lansberge 1888. *Cetoniimania*, **1**: 33–38.
- Alexis, R. & Delpont, M. 2002. Cetoniidarum specierum lexicon, Fiche 3. *Protaetia* (*Celebesiana*) *kasriadii* nov. sp. (Insecta, Coleoptera, scarabaeidae (sic) pleurosticti, Cetoniidae). *Cetoniimania*, **2**: 85–90.
- Banks, N. & Caudell, A.N. 1912. *The entomological code. A code of nomenclature for use in entomology*. 26 pp. Judd and Detweiler Press, Washington, D.C.
- Blackwelder, R.E. 1967. *Taxonomy. A Text and Reference Book*. 698 pp. John Wiley & Sons, New York, NY.
- Brookhart, J.O. & Muma, M.H. 1981. The *pallipes* species-group of *Eremobates* Banks (Solpugida: Arachnida) in the United States. *Florida Entomologist*, **64**: 283–308.
- Dechambre, R.-P. 2001. Néotype ou alloréfèrent: de l'utilité de ce concept et de son bon usage. *Le Coléoptériste*, **43**: 163–164.
- DeLong, D.M. 1953. A synopsis of the tribe Neocoelidini in the Americas (Homoptera-Cicadellidae). *Lloydia*, **16**: 93–131.

- DeLong, D.M. & Martinson, C.** 1973. The genus *Maricaona* (Homoptera:Cicadellidae). *Entomological News*, **84**: 251–252.
- Fernald, H.T.** 1939. On type nomenclature. *Annals of the Entomological Society of America*, **32**: 689–702.
- Fricke, R.** 1985. Types of species-group taxa, and their nomenclatural status. *Zeitschrift für Zoologische Systematik and Evolutionsforschung*, **23**: 81–89.
- Frizzell, D.L.** 1933. Terminology of types. *American Midland Naturalist*, **16**: 637–668.
- Gloyd, L.K.** 1982. The original definition and purpose of the term ‘allotype’. *Systematic Zoology*, **31**:334–336.
- International Commission on Zoological Nomenclature (ICZN).** 1964. *International Code of Zoological Nomenclature adopted by the XV Congress of Zoology*. 176 pp. The International Trust for Zoological Nomenclature, London, UK.
- International Commission on Zoological Nomenclature (ICZN).** 1985. *International Code of Zoological Nomenclature. Third Edition*. 338 pp. The International Trust for Zoological Nomenclature in Association with British Museum (Natural History), London, UK and the University of California Press, Berkeley and Los Angeles, CA.
- International Commission on Zoological Nomenclature (ICZN).** 1999. *International Code of Zoological Nomenclature. Fourth Edition*. Available on-line at: <http://www.iczn.org/iczn/> (last accessed on 15 November 2008).
- Maes, J.-M.** 1990. Notas diversas sobre la taxonomía de los Lucanidae (Coleoptera). *Revista Nicaraguense de Entomología*, **11**: 1–34.
- Mayr, E., Linsley, E.G. & Usinger, R.L.** 1953. *Methods and principles of systematic zoology*. 328 pp. McGraw-Hill Book Co. New York, NY.
- Munro, H.K.** 1957. *Sphenella* and some allied genera (Trypetidae, Diptera). *Journal of the Entomological Society of Southern Africa*, **20**: 14–57.
- Muttkowski, R.A.** 1910. Catalogue of the Odonata of North America. *Bulletin of the Public Museum of the City of Milwaukee*, **1**: 5–207.
- Özdikmen, H., Güven, M. & Turgut, S.** 2007. A study on *Cryptocephalus pseudoreitteri* Tomov, 1976 (Chrysomelidae: Cryptocephalinae) with allotype designation. *Munis Entomology and Zoology*, **2**: 493–498. Available on-line at: <http://www.munisentzool.org/downloads.asp?olay=deta&id=122> (last accessed on 03 April 2008).
- Sanborn, A.F. & Phillips, P.K.** 2004. Neotype and allotype description of *Tibicen superbus* (Hemiptera: Cicadomorpha: Cicadidae) with description of its biogeography and calling song. *Annals of the Entomological Society of America*, **97**: 647–652.
- Séguy, E.** 1967. *Dictionnaire des termes techniques d'entomologie élémentaire*. 465 pp. Paul Lechavalier, Paris, France.
- Simpson, G.G.** 1960. *Principles of animal taxonomy*. Columbia University Press, New York, NY.
- Smith, H.M.** 1983. More on allotypes. *Systematic Zoology*, **32**: 454–455.
- Smith, H.M.** 1984. History of the term met-allotype. *Systematic Zoology*, **33**: 426–427.
- Soula, M.** 1999. Rutelini 2. Révision des Anthicheirina 1. Texte Français. *Les Coléoptères du Monde*, **26.1**. 116 pp. Sciences Nat, Venette, France.
- Soula, M.** 2002. Rutelini 2. Révision des Anthicheirina 2. Texte Français. *Les Coléoptères du Monde*, **26.2**. 296 pp. Hillside Books, Canterbury, UK.
- Soula, M.** 2005. Rutelini 2. Révision des Anthicheirina 3. Texte Français. *Les Coléoptères du Monde*, **26.3**. 409 pp. Hillside Books, Canterbury, UK.
- Soula, M.** 2006. Une révision des genres *Strigidia*, *Chalcoplethis*, *Epichalcoplethis*, *Sorochoa*, *Lasocala*, *Minilasiocala*, *Pseudochlorota*, *Homeochlorota*, *Paachacama* (Coleoptera: Scarabaeidae: Rutelinae: Rutelini: «Pelidnotina» et «Lasocalina»). *Les Coléoptères du Nouveau Monde*, **1**: 1–176.
- Talbot, G.** 1921. Introduction. *Bulletin of the Hill Museum*, **1**: 3–12.
- Torre-Bueno, J.R. de la.** 1962. *A Glossary of Entomology*. Third printing. 336+36 pp., 9 pls. Brooklyn Entomological Society, Brooklyn, NY.
- Viette, P.** 1951. Sur la nomenclature des «types». *L'Entomologiste*, **7**: 150–153.