



# ZOOTAXA

2861

***Megalomma* Johansson, 1925 (Polychaeta: Sabellidae)  
from America and other world-wide localities,  
and phylogenetic relationships within the genus**

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Magnolia Press  
Auckland, New Zealand

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(*Zootaxa* 2861)

71 pp.; 30 cm.

29 Apr. 2011

ISBN 978-1-86977-721-0 (paperback)

ISBN 978-1-86977-722-7 (Online edition)

FIRST PUBLISHED IN 2011 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: [zootaxa@mapress.com](mailto:zootaxa@mapress.com)

<http://www.mapress.com/zootaxa/>

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ISSN 1175-5326 (Print edition)

ISSN 1175-5334 (Online edition)

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## Abstract

The present study deals with the revision of type and non-type material from 14 species of *Megalomma* Johansson, 1925 (Polychaeta: Sabellidae) which have been described from America: *M. bioculatum* (Ehlers, 1887), *M. carunculata* Tovar-Hernández and Salazar-Vallejo, 2008, *M. circumspectum* (Moore, 1923), *M. coloratum* (Chamberlin, 1919), *M. fauchaldi* Giangrande, Licciano and Gambi, 2007, *M. gesae* Knight-Jones, 1997, *M. heterops* Perkins, 1984, *M. lobiferum* (Ehlers, 1887), *M. modestum* (de Quatrefages, 1866), *M. pacifici* (Grube, 1859), *M. perkinsi* Tovar-Hernández and Salazar-Vallejo, 2006, *M. pigmentum* Reish, 1963, *M. roulei* (Gravier, 1908b) and *M. splendidum* (Moore, 1905); five from other worldwide localities: *M. acrophthalmos* (Grube, 1878), *M. claparedei* (Gravier, 1908a), *M. lanigera* (Grube, 1846), *M. mushaense* (Gravier, 1908a), *M. sp.*; and the formal description of a new species: *Megalomma georgiense* n. sp., from USA. The genus *Megalomma* was amended based on radiolar, peristomial and chaetal features. *Megalomma roulei* (Gravier, 1908b) is declared *incertae sedis*. *Megalomma clara* (Chamberlin, 1919) is synonymized with *M. coloratum* (Chamberlin, 1919). *Megalomma pigmentum* Reish, 1963 and *M. monoculata* Hartmann-Schröder, 1965 are cryptic. A key is included to the American species of *Megalomma*. A cladistic analysis was conducted based on examination of type material from the species reviewed in this study and from twelve species based on original descriptions (*M. cinctum* Fitzhugh, 2003, *M. inflata* Capa & Murray, 2009, *M. interrupta* Capa and Murray, 2009, *M. kaikourense* Knight-Jones, 1997, *M. messapicum* Giangrande and Licciano, 2008, *M. miyukiae* Nishi, 1998, *M. multioculatum* Fitzhugh, 2002, *M. nechamae* Knight-Jones, 1997, *M. phyllisae* Capa and Murray, 2009, *M. trioculatum* Reish, 1968, *M. quadrioculatum* (Willey, 1905) and *M. vesiculosum* (Montagu, 1815)). The phylogenetic reconstruction of *Megalomma* using parsimony analysis of 32 morphological characters yielded 26 equally most parsimonious trees (CI= 0.38, RI= 0.56). The hypotheses by Capa and Murray (2009) that considered species with dorsal collar margins fused to the faecal groove (Knight-Jones's group 1) as part of an apomorphic clade, and those with dorsal collar margins unfused to the faecal groove (Knight-Jones's group 2) as plesiomorphic, are not supported in this present study. In our analysis, species nested in group 2 comprises one of the most derived clades, while the clade containing species of group 1 was not recovered. DNA barcoding of *M. coloratum*, *M. lobiferum* and *M. carunculata* is included.

**Key words:** *Megalomma*, feather duster worms, America, cladistics, barcode

## Resumen

El presente estudio representa la revisión del material tipo y no tipo de 14 especies de *Megalomma* Johansson, 1925 (Polychaeta: Sabellidae) que han sido descritas para América: *M. bioculatum* (Ehlers, 1887), *M. carunculata* Tovar-Hernández y Salazar-Vallejo, 2008, *M. circumspectum* (Moore, 1923), *M. coloratum* (Chamberlin, 1919), *M. fauchaldi* Giangrande, Licciano y Gambi, 2007, *M. gesae* Knight-Jones, 1997, *M. heterops* Perkins, 1984, *M. lobiferum* (Ehlers, 1887), *M. modestum* (de Quatrefages, 1866), *M. pacifici* (Grube, 1859), *M. perkinsi* Tovar-Hernández y Salazar-Vallejo, 2006, *M. pigmentum* Reish, 1963, *M. roulei* (Gravier, 1908b) y *M. splendidum* (Moore, 1905); cinco especies de otras localidades del mundo (*M. acrophthalmos* (Grube, 1878), *M. claparedei* (Gravier, 1908a), *M. lanigera* (Grube, 1846), *M. mushaense* (Gravier, 1908a) y *M. sp.*) y la descripción de una nueva especie: *Megalomma georgiense* n. sp., de EUA. El género *Megalomma* fue modificado con base en caracteres radiolares, peristomiales y setales. *Megalomma roulei* (Gravier, 1908b) es declarada *incertae sedis*. *Megalomma clara* (Chamberlin, 1919) es sinonimizada con *M. coloratum* (Chamberlin, 1919). *Megalomma pigmentum* Reish, 1963 y *M. monoculata* Hartmann-Schröder, 1965 son crípticas. Se incluye un clave para las especies americanas de *Megalomma*. El análisis cladístico se basó en la examinación de los materiales tipo de las especies revisadas en este estudio y doce basadas en su descripción original (*M. cinctum* Fitzhugh, 2003, *M. inflata* Capa y Murray, 2009, *M. interrupta* Capa y Murray, 2009, *M. kaikourense* Knight-Jones, 1997, *M. messapicum* Giangrande y Licciano, 2008, *M. miyukiae* Nishi, 1998, *M. multioculatum* Fitzhugh, 2002, *M. nechamae* Knight-Jones, 1997, *M. phyllisae* Capa y Murray, 2009, *M. trioculatum* Reish, 1968, *M. quadrioculatum* (Willey, 1905) y *M. vesiculosum* (Montagu, 1815)). La reconstrucción filogenética de *Megalomma* usando análisis de parsimonia de 32 caracteres morfológicos proporcionó 26 árboles igualmente más parsimoniosos (CI= 0.38, RI= 0.56). Las hipótesis de Capa & Murray (2009) que agrupan a las especies con los márgenes dorsales del collar fusionados al surco fecal (grupo 1 de Knight-Jones) en un clado apomórfico y a las especies con los márgenes dorsales del collar no fusionados al surco fecal (grupo 2 de Knight-Jones) en un clado plesiomórfico no se respaldan en el presente estudio. En nuestro análisis las especies anidadas en el grupo 2 comprenden uno de los clados más derivados mientras que el clado que contenía las especies del grupo 1 no fue recuperado. Se incluye el código de barras ADN de *M. coloratum*, *M. lobiferum* y *M. carunculata*.

**Palabras clave:** *Megalomma*, gusanos plumero, América, cladística, código de barras