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Some taxonomic and nomenclatural changes in American Mantodea (Insecta, Dictyoptera)—Part I

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Abstract

Multiple nomenclatural problems persist in mantodean taxonomy. This constitutes an important challenge for praying mantis systematics, its forthcoming development and future consolidation. In this first contribution, we attempt solving a number of issues involving mostly Neotropical praying mantis species described by Brazilian entomologists Paulo S. Terra, Cândido F. de Mello-Leitão, Salvador de Toledo Piza Junior and Lauro J. Jantsch. We provide evidence to justify the following nomenclatural changes. In Acanthopidae, *Acontiothespis travassosi* Jantsch, 1986 is a new synonym of *Raptrix perspicua* (F. 1787). Changes in Thespidae are: *Emboicy* Terra, 1982 is a new synonym of *Chloromiopteryx* Giglio-Tos, 1915, *E. mirim* Terra, 1982 is transferred to *Chloromiopteryx* as *C. mirim* (Terra, 1982) (new combination); *Musoniola plurilobata* Mello-Leitão, 1937 is transferred to *Chloromiopteryx* as *C. plurilobata* (Mello-Leitão, 1937) (new combination); *Metathespis modesta* Piza, 1968 is removed from synonymy with *Chloromiopteryx thalassina* (Burmeister, 1838) and considered valid as *C. modesta* (Piza, 1968) (new combination and status revalidated); *Metathespis precaria* Piza, 1968 is removed from synonymy with *Chloromiopteryx thalassina* (Burmeister, 1838) and considered a new synonym of *Miobantia rustica* (Fabricius, 1781); *Eumiopteryx magna* Jantsch, 1991 is transferred to *Anamiopteryx* as *A. magna* (Jantsch, 1991) (new combination). For Mantidae/Amelinae, *Tithrone corseuli* Jantsch, 1986 and *T. clauseni* Jantsch, 1995 are new synonyms of *Litaneutria minor* (Scudder, 1872); in Mantidae/Photinae *Coptopteryx gigliotosi* Piza, 1960 (*non* Werner, 1925), its replacement name *Coptopteryx ermannoi* Jantsch & Corseuil, 1988 and *Paraphotina precaria* Piza, 1966 (the latter currently placed within *Coptopteryx*) are all new synonyms of *Coptopteryx argentina* (Burmeister, 1838), whereas *Brachypteromantis bonariensis* Piza 1960 (currently placed among *Coptopteryx*) is a new synonym of *Coptopteryx gayi* (Blanchard, 1851); *Tithrone major* Piza, 1962 is transferred to *Orthoderella* as *O. major* (Piza, 1962) (new combination); *Orthoderella brasiliensis* Roy & Stiewe, 2011 is a new synonym of *Orthoderella major* (Piza, 1962); *Tithrone catharinensis* Piza, 1962 is a new synonym of *Photina vitrea* (Burmeister, 1838); *Margaromantis* Piza, 1982, *Rehniella* Lombardo, 1999, *Colombiella* Koçak & Kemal, 2008 and *Lombardoa* Özdikmen, 2008 are all new synonyms of *Photiomantis* Piza, 1968 (status revalidated); *Metriomantis planicephala* Rehn 1916 is transferred to *Photiomantis* as *P. planicephala* (Rehn, 1916) (new combination) and *Photiomantis silvai* Piza, 1968 is considered a new synonym of *Photiomantis planicephala* (Rehn, 1916); *Margaromantis nigrolineata* Menezes & Bravo, 2015 is transferred to *Photiomantis* as *P. nigrolineata* (Menezes & Bravo, 2015) (new combination). In Mantidae/Vatinae, *Uromantis amazonica* Jantsch, 1985 and *Uromantis paraensis* Jantsch, 1985 (currently placed among *Stagmomantis*), are new synonyms of *Chopardiella latipennis* (Chopard, 1911), while *Pseudovates hyalostigma* Mello-Leitão, 1937 and *Vates obscura* Toledo Piza, 1983 are new synonyms of *V. biplagiata* Sjöstedt, 1930. Lectotypes are designated for *Chloromiopteryx thalassina* (Burmeister, 1838) and *Orthoderella major* (Piza, 1962). Finally, we provide supplementary information about the works of S. de T. Piza and L. J. Jantsch, and a necessary critical assessment of their taxonomic contributions to the Mantodea.

Key words: Acanthopidae, Thespidae, Mantidae, taxonomy, nomenclature

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References

- Agudelo, A.A. (2014a) A new genus and species of Mantoididae from the Brazilian and Venezuelan Amazon, with remarks on *Mantoida* Newman, 1838. *Zootaxa*, 3797 (1), 194–206.
<http://dx.doi.org/10.11646/zootaxa.3797.1.14>
- Agudelo, A.A. (2014b) Intersexuality in the holotype of *Photina gracilis* (Mantodea, Mantidae, Photinae) and its taxonomic implications. *Zoologia (Curitiba)*, 31 (4), 408–411.
<http://dx.doi.org/10.1590/S1984-46702014000400014>
- Agudelo, A.A., Lombardo, F. & Jantsch, L.J. (2007) Checklist of the Neotropical mantids (Insecta, Dictyoptera, Mantodea). *Biota Colombiana*, 8 (2), 105–158.
- Battiston, R., Fontana, P., Agabiti, B. & García-García, P.L. (2005) Mantodea Collected in Mexico During an 8800 Km Orthopterological Trip (Insecta: Mantodea). *Atti della Accademia Roveretana degli Agiati*, 5 (3/255), 199–215.
- Battiston, R. & Picciau, L. (2008) Contribution to the knowledge of the Mantodea of Ecuador with the description of the male of *Pseudoxypops perpulchra* (Westwood, 1889) (Mantodea Mantidae, Stagmatoptera). In: Giachino, P.M. (Ed.), *Biodiversity of South America I. Memoirs on Biodiversity, Vol. 1*. World Biodiversity Association Onlus, Verona, p. 19–30.
- Beier, M. (1935) Mantodea. Subfamilie: Mantinae. In: Wytzman, P. (Ed.), *Genera Insectorum. Fasc. 203*, Bruxelles, pp. 1–146.
- Beier, M. (1970) Dictyoptera (Blattoidea et Mantoidea). In: Tuxen, S.L. (Ed.), *Taxonomist’s glossary genitalia in insects. Revised 2nd Edition*. Munksgaard, Copenhagen, pp. 37–40.
- Bortolus, A. (2008) Consequences of Using Bad Taxonomy in Ecology. *AMBIO: A Journal of the Human Environment*, 37 (2), 114–118.
- Burmeister, H.C. (1838) *Handbuch der Entomologie. Vol 2. Part 2. Mantodea*. Berlin, 756 pp.
- Cannings, R.A. (1987) The ground mantis, *Litaneutria minor* (Dictyoptera: Mantidae) in British Columbia. *Journal of the Entomological Society of British Columbia*, 84, 64–65.
- Cerdá, F.J. (1993) Valor taxonómico del complejo fálico en Mántidos Neotropicales (Dictyoptera: Mantodea). *Boletín de Entomología Venezolana, New Series*, 8 (1), 33–52.
- Chamorro-Rengifo, J. & Braun, H. (2010) The Tettigoniidae (Orthoptera) described by Salvador de Toledo Piza Jr. and deposited in the collection of the University of São Paulo, Escola Superior de Agricultura “Luiz de Queiroz”, Brazil. *Zootaxa*, 2635, 41–66.
- Chopard, L. (1911) Contribution de la faune des Orthoptères de la Guyane française. *Annales de la Société Entomologique de France*, 80, 315–350.
- Dorneles, A.L., Quadros, F.C., Jantsch, L.J. & Corseuil, E. (2005) Mantódeos (Insecta, Mantodea) registrados no Rio Grande do Sul, Brasil. *Biociências*, 13 (2), 221–225.
- Ehrmann, R. (2002) *Mantodea: Gottesanbeterinnen der Welt*. Münster: Natur und Tier Verlag, 519 pp.
- Flechtmann, C.A. & Rodrigues, S. (1994) Aspectos biológicos de *Thesprotia macilenta* Sauss. & Zehnt. e *Tithrone major* Piza (Mantodea). *Anais da Sociedade Entomológica do Brasil*, 23 (3), 479–486.
- Giglio-Tos, E. (1914) Mantidi esotici. VI. Vatinæ. *Bullettino della Società Entomologica Italiana*, 29 (684), 1–87.
- Giglio-Tos, E. (1915) Mantidi esotici. Generi e specie nuove. *Bullettino della Società Entomologica Italiana*, 46, 134–200.
- Giglio-Tos, E. (1917) Mantidi esotici. Generi e specie nuove. *Bullettino della Società Entomologica Italiana*, 48, 43–108.
- Giglio-Tos, E. (1927) Orthoptera-Mantidae. In: Schulze, F.E. & Kükenthal, W. (Eds.), *Das Tierreich*. Walter de Gruyter, Berlin,

- Gurney, A.B. (1950) Praying mantis of the United States, native and introduced. *Smithsonian Institution Annual Report*, 339–362.
- Hebard, M. (1923) Studies in the Mantidae and Phasmidae of Panama (Orthoptera). *Transactions of the American Entomological Society*, 48, 327–362.
- Hebard, M. (1928) The group *Luzarae* of the subfamily Phalangosinae (Orthoptera: Gryllidae). *Transactions of the American Entomological Society*, 54, 1–56.
- Hebard, M. (1932) New species and Records of Mexican Orthoptera. *Transactions of the American Entomological Society*, 58, 201–372.
- Hebard, M. (1935) Studies in the Orthoptera of Arizona. Part. II: A list of Dermaptera and Orthoptera. *Transactions of the American Entomological Society*, 61, 269–316.
- Isaac, N.J.B., Mallet, J. & Mace, G.M. (2004) Taxonomic inflation: its influence on macroecology and conservation. *Trends in Ecology and Evolution*, 19 (9), 464–469.
<http://dx.doi.org/10.1016/j.tree.2004.06.004>
- Jantsch, L.J. (1985) Descrição de duas espécies de Louva-a-Deus neotropicales (Mantodea, Mantidae, Mantinae, Mantini). *Revista Brasileira de Entomologia*, 29, 315–316.
- Jantsch, L.J. (1986) Descrições de duas novas espécies de Acontiothespini (Mantodea, Hymenopodidae, Acromantinae). *Revista Brasileira de Entomologia*, 30 (1), 13–15.
- Jantsch, L.J. & Corseuil, E. (1988) Espécies de louva-a-deus (Insecta, Mantodea) do Rio Grande do Sul, Brasil. *Revista Brasileira de Zoologia*, 5, 221–243.
<http://dx.doi.org/10.1590/S0101-81751988000200007>
- Jantsch, L.J. (1991) Nova espécie de *Eumiopteryx* do Pará (Mantodea, Mantidae, Pseudomiopteryginae). *Revista Brasileira de Entomologia*, 35, 577–578.
- Jantsch, L.J. (1995) Novos Mantódeos Americanos (Insecta; Mantodea). *Biociências*, 3, 145–153.
- Koçak, A.Ö. & Kemal, M. (2008) (Dictyoptera: Mantidae). Two replacement names in the genus group taxa of Dictyoptera from Colombia and Arabian Peninsula. *Centre for Entomological Studies Ankara, Miscellaneous Papers*, 145, 8–9
- Locke, J.M. & Coates, K.A. (2008) What are the costs of bad taxonomic practices: and what is *Madracis mirabilis*? *Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida*, 1348–1351.
- Lombardo, F. (1994) Mantodei Neotropicali. IV. Ritrovamento e descrizione del maschio di *Chopardiella latipennis* (Chopard, 1911) (Insecta, Mantodea). *Animalia*, 21, 49–51.
- Lombardo, F. (1999) Remarks on the genus *Metriomantis* Saussure & Zehntner and descriptions of two new species and a new genus: *Rehniella* gen. n. (Insecta: Mantodea). *Revue Suisse de Zoologie*, 106, 393–405.
- Lombardo, F. & Agabiti, B. (2001) The mantids from Ecuador, with some biogeographic considerations. *Journal of Orthoptera Research*, 10 (1), 89–104.
[http://dx.doi.org/10.1665/1082-6467\(2001\)010\[0089:TMFEWS\]2.0.CO;2](http://dx.doi.org/10.1665/1082-6467(2001)010[0089:TMFEWS]2.0.CO;2)
- Lombardo, F. & Ippolito, S. (2004) Revision of the species of *Acanthops* Serville, 1831 (Mantodea, Mantidae, Acanthopinae) with comments on their Phylogeny. *Annals of the Entomological Society of America*, 97, 1076–1102.
[http://dx.doi.org/10.1603/0013-8746\(2004\)097\[1076:ROTSOA\]2.0.CO;2](http://dx.doi.org/10.1603/0013-8746(2004)097[1076:ROTSOA]2.0.CO;2)
- Lombardo, F. & Marletta, A. (2004) Remarks on the genus *Raptrix* Terra 1995 (Mantodea, Acontiothespinae) with a description of two new species. *Journal of Orthoptera Research*, 13 (1), 21–33.
[http://dx.doi.org/10.1665/1082-6467\(2004\)013\[0021:ROTGRT\]2.0.CO;2](http://dx.doi.org/10.1665/1082-6467(2004)013[0021:ROTGRT]2.0.CO;2)
- Medellín, C. & Salazar, J.A. (2011) Notas sobre mántidos Colombianos con énfasis en la Subfamilia Vatinae (Insecta). *Boletín Científico del Museo de Historia Natural Universidad de Caldas*, 15 (1), 134–149.
- Mello-Leitão de, C.F. (1937) Un grylloide et deux mantides nouveaux du Brésil (Orth.). *Revista de Entomologia*, 7 (1), 11–18.
- Menezes, E. da C. & Bravo, F. (2015) A new species of *Margaromantis* Piza, 1982 (Insecta: Mantodea) from Brazil. *Biodiversity Data Journal*, 3, 1–9.
- Otte, D. & Spearman L.A. (2005) *Mantida species file, catalog of the mantids of the world*. Association of Insect Diversity, Philadelphia, 489 pp.
- Özdikmen, H. (2008) A substitute name for *Rehniella* Lombardo, 1999 (Mantodea: Mantidae). *Munis Entomology and Zoology*, 3 (2), 765–766.
- Piza, S. de T. Jr. (1961) Uma nova especie de Acontistinae do Brasil (Mantidae). *Revista de Agricultura*, 36 (3), 148.
- Piza, S. de T. Jr. (1962) Mais uma especie Brasileira de Acontistinae (Mantidae). *Revista de Agricultura*, 37 (1), 20.
- Piza, S. de T. Jr. (1968a) Um novo gênero de Mantida Brasileiro da Subfamilia Thespinae com duas especies novas. *Revista de Agricultura*, 43 (1), 1–2.
- Piza, S. de T. Jr. (1968b) Nova Photininae Brasileira (Mantidae). *Revista de Agricultura*, 43 (2), 49–50.
- Piza, S. de T. Jr. (1973) Novos matídeos do Brasil. *Revista de Agricultura*, 48 (2–3), 117–120.
- Piza, S. de T. Jr. (1982) A mantid new to Pernambuco (Mantodea, Mantidae, Eremiaphilinae) *Margaromantis margaritaria*, new taxa, Brazil. *Ecossistema*, 7 (1), 98.
- Piza, S. de T. Jr. (1983) Mais uma *Vates* (Mantodea–Vatinae) do Brasil. *Revista de Agricultura*, 58 (1–2), 1–2.
- Rehn, J.A.G. (1916) The Stanford Expedition to Brazil, 1911 Dermaptera and Orthoptera I, *Proceedings of the Academy of Natural Sciences of Philadelphia*, 42, 257–266.

- Rehn, J.A.G. (1935) The Orthoptera of Costa Rica. Part I. Mantidae. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 87, 167–271.
- Rivera, J. (2010a) Lost and Found: Rediscovery of the genus *Margaromantis* Piza, 1982 and the consequential nomenclatural changes in the genus *Colombiella* Koçak & Kemal, 2008 (Mantodea: Mantidae, Photinainae). *Zootaxa*, 2529, 65–68.
- Rivera, J. (2010b) A historical review of praying mantid taxonomy and systematics in the Neotropical Region: State of knowledge and recent advances (Insecta: Mantodea). *Zootaxa*, 2638, 44–64.
- Rivera, J., Yagui H. & Ehrmann, R. (2011) Mantids in the Mist – Taxonomy of the Andean genus *Pseudopogonogaster* Beier, 1942, a cloud forest specialist, with notes on its biogeography and ecology (Mantodea: Thespidae: Miopteryginae). *Insect Systematics & Evolution*, 42, 313–335.
<http://dx.doi.org/10.1163/187631211X595056>
- Roy, R. (1999) Morphology and Taxonomy. In: Prete, F.R., Wells, P.H. & Hurd, L.E (Eds.), *The Praying Mantids*. John Hopkins University Press, Baltimore, pp. 19–40.
- Roy, R. (2014) A historical review of nomenclature and high-level classification of praying mantises (Mantodea), including a provisional checklist of the names associated to suprageneric ranks. *Zootaxa*, 3797 (1), 9–28.
<http://dx.doi.org/10.11646/zootaxa.3797.1.5>
- Roy, R. & Ehrmann, R. (2009) Révision du genre *Zoolea* Audiner-Serville (Mantodea, Mantidae, Vatiniae). *Revue française d'Entomologie*, New Series, 31 (1), 1–22.
- Roy, R. & Stiewe, M.B.D. (2011) Révision du genre néotropical *Orthoderella* Giglio-Tos, 1897 (Mantodea, Mantidae, Photinainae). *Bulletin de la Société entomologique de France*, 116 (1), 43–56.
- Scherrer, M. (2014) A revision of *Miobantia* Giglio-Tos, 1917 (Mantodea: Thespidae, Miobantiinae), with molecular association of dimorphic sexes and immature stages. *Zootaxa*, 3797 (1), 207–268
<http://dx.doi.org/10.11646/zootaxa.3797.1.15>
- Svenson, G.J. & Branham, M.A. (2007) Case 3402. PHOTININI LeConte, 1881 (Insecta, Coleoptera) and PHOTININAE Giglio-Tos, 1915 (Insecta, Mantodea): proposed resolution of homonymy between family-group names. *Bulletin of Zoological Nomenclature*, 64 (4), 243–251.
- Svenson, G.J. & Whiting, M.F. (2009) Reconstructing the Origins of Praying Mantises (Dictyoptera, Mantodea): the roles of Gondwanan vicariance and morphological convergence. *Cladistics*, 25, 468–514.
<http://dx.doi.org/10.1111/j.1096-0031.2009.00263.x>
- Terra, P.S. (1982) Novos gêneros e novas espécies de Louva-a-Deus da América do Sul (Mantodea, Mantidae). *Revista Brasileira de Entomologia*, 26, 327–332.
- Terra, P.S. (1995) Revisão Sistemática dos Gêneros de Louva-a-Deus da Região Neotropical. (Mantodea). *Revista Brasileira de Entomologia*, 39, 13–94.
- Vickery, V.R. & Kevan, D.K.M. (1983) A monograph of the Orthopteroid insects of Canada and adjacent regions. *Memoirs of the Lyman Entomological Museum and Research Laboratory*, 1 (13), 216–237.
- Wieland, F. (2013) The phylogenetic system of Mantodea (Insecta: Dictyoptera). *Species, Phylogeny and Evolution*, 3 (1), 3–222.
- Yager, D.D. & Svenson, G.J. (2008) Patterns of praying mantis auditory system evolution based on morphological, molecular, neurophysiological, and behavioural data. *Biological Journal of the Linnean Society*, 94, 541–568.
<http://dx.doi.org/10.1111/j.1095-8312.2008.00996.x>

ANNEX

Type material examined (alphabetical order).

- Acontiothespis travassosi* Jantsch, 1986: ♀ holotype, BRAZIL, PA, Ponta de pedra, 20.x.1982, (M.F Torres leg.) (MPEG).
- Anamiopteryx grandis* Beier, 1942: ♂ holotype, BRAZIL, ES, ex coll., Fruhstorfer, vend. 6. III. 1898 (t.v. Brunn 1900, Sec., coll. Brunner v. W., nach *Miopteryx* vor *Pseudomiopteryx*) (ZMH).
- Brachypteromantis bonariensis* Piza, 1960: ♀ holotype, ARGENTINA, Buenos Aires, Col. M. Viana, n. 39901, MZLQ-I0066 (ESALQ).
- Coptopteryx gigliotosi* Piza, 1973: 2♂ holotype and paratype, Brazil, RS, Santa Maria, Col. Tarragó 1972, MZLQ-I0131 (ESALQ).
- Emboicy mirim* Terra, 1982: ♀ holotype, BRAZIL, SP, Iporanga, 11.x.1959 (Travasso Filho leg.) (MZUSP).
- Eumiopteryx magna* Jantsch, 1991: ♂ holotype and ♂ paratype, BRAZIL, PA, Serra Norte, 14–17. VIII. 1984, armadilha luminosa (Ig. Salobo leg.) (MPEG).
- Mantis argentina* Burmeister, 1838: ♂ and ♀ syntypes, ARGENTINA, Buenos Aires (ZMB).
- Mantis thalassina* Burmeister, 1838: ♂ lectotype (here designated), BRAZIL: Santa Catharina, “Eschs.,” [i.e. Johann Friedrich von Eschscholtz], Cat. No. 617 (*Stagmomantis thalassina* Burm.*); one additional ♂ (now, a paralectotype) “St. Cathar., Eschs. Cat. No. 617” Labeled as “*Stagmomantis thalassina* Burm.*” (ZMB).
- Metathespis modesta* Piza, 1968: ♂ holotype, BRAZIL, Rio de Janeiro, Petropolis [alto da cerra], 2.II.1960, D.Z.105.60 (Mielks-Herbert leg.) (ESALQ).