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Taxonomy of the *Tetramorium weitzeckeri* species group (Hymenoptera: Formicidae) in the Afrotropical zoogeographical region

FRANCISCO HITA GARCIA, GEORG FISCHER & MARCELL K. PETERS

Systematic Zoology, Zoological Research Museum Koenig, Adenaueralle 160, 53113 Bonn, Germany
Emails: f.hita.zfmk@uni-bonn.de; Georg.Fischer@gmx.de; m.peters.zfmk@uni-bonn.de

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Abstract

The taxonomy of the *Tetramorium weitzeckeri* species group is revised for the Afrotropical zoogeographic region. The revision is based on morphology and morphometrics of the worker caste. Twenty six species are recognised of which twelve are described as new: *Tetramorium bendai* sp. n., *Tetramorium boltoni* sp. n., *Tetramorium intermedium* sp. n., *Tetramorium kakamega* sp. n., *Tetramorium mkomazi* sp. n., *Tetramorium philippwagneri* sp. n., *Tetramorium renae*. n., *Tetramorium robertsoni* sp. n., *Tetramorium rubrum* sp. n., *Tetramorium susannae* sp. n., *Tetramorium tanaense* sp. n., and *Tetramorium trirugosum* sp. n.. *Tetramorium akengense* (Wheeler, W.M. 1922) is revived from synonymy and *Tetramorium tersum* Santschi, *Tetramorium* (*Xiphomyrmex*) *kivuense* Stitz, and *Xiphmyrmex kivuense* st. *atrinodis* Santschi are proposed as junior synonyms of *Tetramorium edouardi* Forel. All other earlier synonymisations are confirmed here. The species group is redefined and subdivided into three species complexes which are defined and discussed: the *Tetramorium edouardi* complex (9 species), the *Tetramorium muralti* complex (8 species), and the *Tetramorium weitzeckeri* complex (9 species). An illustrated identification key to the Afrotropical species is presented, and for each species diagnosis, description, and taxonomic discussion are provided. Biogeography and important morphological characters of diagnostic value are discussed.

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References

Arnold, G. (1926) A monograph of the Formicidae of South Africa. Appendix. *Annals of the South African Museum*, 23, 191–295.

Belshaw, R. & Bolton, B. (1994) A survey of the leaf litter ant fauna in Ghana, West Africa (Hymenoptera: Formicidae). *Journal of Hymenoptera Research*, 3, 5–16.

Bernard, F. (1953) La réserve naturelle intégrale du Mt Nimba. XI. Hyménoptères Formicidae. *Mémoires de l'Institut Français d'Afrique Noire*, 19, 165–270.

Bolton, B. (1976) The ant tribe Tetramoriini (Hymenoptera: Formicidae). Constituent genera, review of smaller genera and revision of *Triglyphothrix* Forel. *Bulletin of the British Museum (Natural History) Entomology*, 34, 281–379.

Bolton, B. (1977) The ant tribe Tetramoriini (Hymenoptera: Formicidae). The genus *Tetramorium* Mayr in the Oriental and Indo-Australian regions, and in Australia. *Bulletin of the British Museum (Natural History) Entomology*, 36, 67–151.

Bolton, B. (1979) The ant tribe Tetramoriini (Hymenoptera: Formicidae). The genus *Tetramorium* Mayr in the Malagasy region and in the New World. *Bulletin of the British Museum (Natural History) Entomology*, 38, 129–181.

Bolton, B. (1980) The ant tribe Tetramoriini (Hymenoptera: Formicidae). The genus *Tetramorium* Mayr in the Ethiopian zoogeographical region. *Bulletin of the British Museum (Natural History) Entomology*, 40, 193–384.

Bolton, B. (1985) The ant genus *Triglyphothrix* Forel a synonym of *Tetramorium* Mayr. (Hymenoptera: Formicidae). *Journal of Natural History*, 19, 243–248.

Bolton, B. (1995) *A new general catalogue of the ants of the world*. Harvard University Press, Cambridge, 504 pp.

Brown, W.L., Jr. (1957) Is the ant genus *Tetramorium* native in North America? *Breviora*, 72, 1–8.

Deblauwe, I. & Dekoninck, W. (2007) Diversity and distribution of ground-dwelling ants in a lowland rain forest in southeast Cameroon. *Insectes Sociaux*, 54, 334–342.

Emery, C. (1895) Voyage de M. E. Simon dans l'Afrique australe (janvier-avril 1893). 3e mémoire. Formicides. *Annales de la Société Entomologique de France*, 64, 15–56.

Evenhuis, N.L. (2009) The insect and spider collections of the world website. http://hbs.bishopmuseum.org/codens [accessed 7 November 2010].

Fisher, B.L. (2002) Antweb. The California Adademy of Sciences, San Francisco, U.S.A. Available from http://www.antweb.org (accessed 13 September 2010).

Fisher, B.L. (2004) Diversity patterns of ants (Hymenoptera: Formicidae) along an elevational gradient on Monts Doudou in Southwestern Gabon. *California Academy of Sciences Memoir*, 28, 269–286.

Forel, A. (1891) Histoire naturelle des Hyménoptères. Deuxième partie: Les Formicides. *In:* Grandidier, A. (Ed.) *Histoire physique, naturelle, et politique de Madagascar.* L'Imprimerie Nationale, Paris, pp. 1–280.

Forel, A. (1894) Abessinische und andere afrikanische Ameisen, gesammelt von Herrn Ingenieur Alfred Ilg, von Herrn Dr. Liengme, von Herrn Pfarrer Missionar P. Berthoud, Herrn Dr. Arth. Müller, etc. *Mitteilungen der Sch-*

weizerischen Entomologischen Gesellschaft, 9, 64–100.
Forel, A. (1907) Ameisen von Madagaskar, den Comoren und Ostafrika. *Wissenschaftliche Ergebnisse Reise in Ostafrika*, 2, 75–92.
Forel, A. (1910a) Ameisen aus der Kolonie Erythräa. Gesammelt von Prof. Dr. K. Escherich (nebst einigen in West-Abessinien von Herrn A. Ilg gesammelten Ameisen). *Zoologische Jahrbücher, Abteilung für Systematik, Geographie und Biologie der Tiere*, 29, 243-274.
Forel, A. (1910b) Note sur quelques fourmis d'Afrique. *Annales de la Société Entomologique de Belgique,* 54, 421–458.
Forel, A. (1913) Fourmis de Rhodesia, etc. récoltées par M. G. Arnold, le Dr. H. Brauns et K. Fikendey. *Annales de la Société Entomologique de Belgique*, 57, 108–147.
Güsten, R., Schulz, A. & Sanetra, M. (2006) Redescription of *Tetramorium forte* Forel, 1904 (Insecta: Hymenoptera: Formicidae), a western Mediterranean ant species. *Zootaxa,* 1310, 1–35.
Hita Garcia, F., Fischer, G., Peters, M.K., Snelling, R.R. & Wägele, J.W. (2009) A preliminary checklist of the ants (Hymenoptera: Formicidae) of Kakamega Forest (Kenya). *Journal of East African Natural History,* 98, 147–165.
Hita Garcia, F., Fischer, G. & Peters, M.K. (2010) *Tetramorium snellingi* sp.n. – a new leaf-litter ant species (Hymenoptera: Formicidae) from a Western Kenyan rain forest. *Myrmecological News*, 13, 141–146.
Menozzi, C. (1924) Alcune nuove formiche africane. *Annali del Museo Civico di Storia Naturale "Giacomo Doria"*, 51, 220–227.
Robertson, H.G. (1999) Ants (Hymenoptera: Formicidae) of Mkomazi. *In:* M.J. Coe, N.C. McWilliam, G.N. Stone & M.J. Packer (Eds.), *Mkomazi: the ecology, biodiversity and conservation of a Tanzanian savanna*. Royal Geographical Society (with The Institute of British Geographers), London, pp. 321–336.
Robertson, H.G. (2002) Comparison of leaf litter ant communities in woodlands, lowland forests and montane forests of north-eastern Tanzania. *Biodiversity and Conservation,* 11, 1637–1652.
Santschi, F. (1911) Nouvelles fourmis d'Afrique. *Annales de la Société Entomologique de France*, 79, 351–369.
Santschi, F. (1914) Formicides de l'Afrique occidentale et australe du voyage de Mr. le Professeur F. Silvestri. *Bollettino del Laboratorio di Zoologia Generale e Agraria, Portici*, 8, 309–385.
Santschi, F. (1916) Description d'un nouveau Formicide (Hym.) de l'Afrique occidentale. *Bulletin de la Société Entomologique de France*, 1916, 50–51.
Santschi, F. (1919) Nouvelles fourmis du Congo Belge du Musée du Congo Belge, a Tervuren. *Revue de Zoologie Africaine*, 7, 79–91.
Santschi, F. (1924) Descriptions de nouveaux Formicides africains et notes diverses. II. *Revue de Zoologie Africaine (Bruxelles)*, 12, 195–224.
Santschi, F. (1928) Descriptions de nouvelles fourmis éthiopiennes (suite). *Revue de Zoologie et de Botanique Africaines*, 16, 191–213.
Santschi, F. (1932) Formicides sud-africains. *In:* Jeannel, R. (Ed.), *Société Entomologique de France, Livre du centenaire*. Société Entomologique de France, Paris, pp. 381-392.
Stitz, H. (1911) Formicidae. *Wissenschaftliche Ergebnisse der Deutschen Zentral-Afrika Expedition,* 3, 375–392.
Watt, A.D., Stork, N.E. & Bolton, B. (2002) The diversity and abundance of ants in relation to forest disturbance and plantation establishment in southern Cameroon. *Journal of Applied Ecology,* 39, 18–30.
Weber, N.A. (1943) The ants of the Imatong Mountains, Anglo-Egyptian Sudan. *Bulletin of the Museum of Comparative Zoology*, 93, 263–389.
Wheeler, W.M. (1922) Ants of the American Museum Congo expedition. A contribution to the myrmecology of Africa. II. The ants collected by the American Museum Congo Expedition. *Bulletin of the American Museum of Natural History*, 45, 39–269.
Yanoviak, S.P., Fisher, B.L. & Alonso, A. (2007) Arboreal ant diversity (Hymenoptera: Formicidae) in a central African forest. *African Journal of Ecology,* 46, 60–66.