

**A valid type species designation for genus *Thorectes* Mulsant, 1842 under the provisions of the International Code of Zoological Nomenclature (Coleoptera, Geotrupidae)**

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The genus *Thorectes* was described by Mulsant (1842) and two nominal species were included as valid, namely, the only one considered as a French species, *Thorectes laevigatus* (Fabricius, 1798) (originally in *Scarabaeus*), and in the observations to this species, *Thorectes hemisphaericus* (Olivier, 1789) [sub *Thorectes haemisphericus*, sic!] is also considered to belong to this genus and combined with it. This latter species is a primary homonym of *Scarabaeus hemisphaericus* Pallas, 1781. The former species had also 5 new varieties described (*lineicollis*, *desjardinii*, *subgeminalis*, *subrugulosus*, *simplicidens*), which can hardly be considered available subspecific names, since they had no different type localities and relate to small individual variations; they are not mentioned further in this note. Later authors have always treated this genus as having a single originally included species, which is wrong.

From Mulsant's text itself, it is clear that *Thorectes laevigatus* was a misidentified species, since Fabricius (1798) described his species stating "Habitat in Tangier. D. Schousboe. Mus. Dom. de Sehestedt". The Fabrician species has been always correctly identified later (apparently, since we do not know of any author having studied its type material, François (1904) did not check these types himself) and its present distribution includes Morocco and Algeria (Baraud, 1985).

Mulsant's misidentified species is now considered to be a synonym of *Jekelius (Jekelius) intermedius* (O.G. Costa, 1839), described from Otranto (Italy) and distributed in Italy, Sicily, South France, Corsica, Sardinia and the Balearic Is. (López-Colón, 1995). This synonymy originates in Bedel (1903), who was the first to recognise that Mulsant's nominal species was misidentified.

The other species mentioned by Mulsant, *Thorectes hemisphaericus*, is now considered to be

a synonym of *Jekelius (Rudolfpetrovitzia) marginatus* (Poiret, 1787) (López-Colón, 1995). It is distributed in the Maghreb countries and Sicily. *T. hemisphaericus* was originally described from "... la côte de Barbarie" (Olivier, 1789), which fits closely. François (1904) considered *T. laevigatus* to be a valid species, different from *T. marginatus*, and he recognised as correct the statements made before by Bedel (1903) in relation to the identity and nomenclature of *T. laevigatus* sensu Mulsant.

Recently, Branco & Ziani (2006) have presented a lengthy discussion based on these same erroneous facts again, while synonymising, without further argumentation, the genera split from the large old genus *Thorectes*, apparently considering it a monophyletic, while it has already been pointed out that it is clearly polyphyletic (Palmer & Cambefort, 1997). In their treatment, they select as the true type species *Scarabaeus laevigatus* sensu Mulsant, 1842 (not Fabricius, 1798). This designation is faulty and invalid, since they fail to recognise that there was a former valid type species designation by Jekel (1866) on *Scarabaeus laevigatus* Fabricius, that this is a valid subsequent designation, and that there is no monotypy. Moreover, these authors fail to mention Art. 70.3.2 in their selection as type species of "the taxonomic species actually involved in the misidentification", as is mandatory, making their proposal unavailable.

Previous designations or mentions of type species for *Thorectes* have failed to recognise both facts: that there were two original species, so that any type species designation must be considered a subsequent designation, and that the species usually mentioned as the type of the genus, namely, *Scarabaeus laevigatus*, was misidentified by Mulsant.

Article 70.3 of the current International Code of Zoological Nomenclature allows any author that discovers that a type species was misidentified to select the species that will best serve stability and universality, either the nominal species previously cited as type species or the taxonomic species actually involved in the misidentification.

In the case of *Thorectes*, the second taxonomic species originally included is also the type species by original designation of *Jekelius* López-Colón, 1989, originally described as subgenus of *Thorectes*, and now considered, both in systematic and in ecological works, to represent a genus of its own (López-Colón, 1995; López-Colón *et al.*, 1997; Martín-Piera & López-Colón, 2000; Recalde Irurzun & San Martín Moreno, 2003; Moraza, 2004; Cárdenas & Hidalgo, 2006; Lobo *et al.*, 2006), with

three clearly differentiated subgenera (*Jekelius* s. str., *Reitterius* López-Colón, 1995 and *Rudolfpetrovitzia* Rey & López-Colón, 2003). Thus, the type species selection of *Thorectes laevigatus* sensu Mulsant intentionally made by Branco & Ziani (2006) would cause instability and confusion, since *Jekelius* would become a junior synonym of *Thorectes*, and *Reitterius* and *Rudolfpetrovitzia* should be considered as subgenera of *Thorectes* (or, as they do, without explaining their taxonomic criteria, simple synonyms). On the other hand, the genus *Thorectes* in the usual concept would have to be redescribed and a new name given.

To avoid this, we here refer to Art. 70.3 and 70.3.2 of the Code, quote that the type species has been previously designated subsequently as *Scarabaeus laevigatus* Fabricius, 1798 by Jekel (1866), that this species was incorrectly identified by Mulsant (1842), and that we select here the nominal species cited as such, that is to be known as *Thorectes laevigatus* (Fabricius, 1798) and not Mulsant's incorrectly identified taxonomic species (now *Jekelius intermedius* (O.G. Costa, 1839).

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