



## Two new synonymies in the genus *Praocis* (Coleoptera: Tenebrionidae)

GUSTAVO E. FLORES<sup>1</sup> & JAIME PIZARRO-ARAYA<sup>2</sup>

<sup>1</sup>Laboratorio de Entomología, Instituto Argentino de Investigaciones de las Zonas Áridas (IADIZA, CCT CONICET Mendoza), Casilla de correo 507, 5500 Mendoza, Argentina. E-mail: gflores@mendoza-conicet.gov.ar

<sup>2</sup>Laboratorio de Entomología Ecológica, Departamento de Biología, Facultad de Ciencias, Universidad de La Serena, Casilla 599, La Serena, Chile. E-mail: japizarro@userena.cl

The genus *Praocis* Eschscholtz, 1829 belongs to Praocini, an endemic Neotropical tribe of Pimeliinae from southern South America. According to the last revision (Kulzer 1958) *Praocis* comprises 77 species and 7 subspecies arranged in ten subgenera, distributed from central Peru to the southern part of Patagonia in Argentina and Chile.

Lacordaire (1830) described *Praocis rotundatus* collected by himself in Mendoza (Argentina): Paramillos de Uspallata. Later, Laporte (1840) described *Praocis rotundata* from Chile: Coquimbo. Both nominal species are available and they belong to different subgenera according to the current classification of Kulzer (1958).

*Praocis rotundata* Lacordaire, 1830 was interpreted by Solier (1840) as a synonym of *P. sulcata* Eschscholtz, 1829 (a Chilean species) based on a misidentification: he studied specimens of *P. rotundata* Lacordaire and concluded they were *P. sulcata*. It is evident because he stated that the specimens were from Argentina, and cited the following character states (among others): clypeal suture as horizontal deep groove covered by frons, and outer and marginal carinae fused forming a wide carina irregularly punctured (wide lateral margin). Due to the former character state, Solier (1840) placed this species (*Praocis sulcata*) in his second subdivision of the second division: *Orthogonoderes*, currently recognized as a subgenus of *Praocis* (Kulzer 1958). After examination of the type specimens of *Praocis sulcata* Eschscholtz in MNHUB, we agree with Kulzer (1958) in placing this species in the subgenus *Praocis* (*Praocis*) Eschscholtz on the basis of the opposite character states: clypeal suture as vertical shallow groove not covered by frons and lateral margin well marked with a finer edge.

Solier (1851) redescribed *Praocis rotundata* Laporte, which agrees with the description of *P. sulcata* Eschscholtz. In this opportunity, Solier (1851) placed *P. rotundata* in the section 1, *Praocis* [current subgenus *Praocis* (*Praocis*)].

All subsequent authors of catalogs listed twice the name *Praocis rotundata*: *P. rotundata* Lacordaire as synonym of *P. sulcata* Eschscholtz, and *P. rotundata* Laporte as a valid species. In his revision of the genus *Praocis*, Kulzer (1958) was not able to examine the type of *P. rotundata* Lacordaire, and he considered Lacordaire's original description as rather poor. Based on these facts, Kulzer (1958) stated that it is not clear if this species represented a synonym of *P. sulcata* or an own [a valid] species (translation from German of Bernd Jaeger, MNHUB). Concerning *P. rotundata* Laporte, Kulzer (1958) did not place this species in any of the 10 subgenera or in his list of species incertae sedis (p. 93-94). Both Kulzer (1958) and Peña (1966) cited only *Praocis rotundata* Lacordaire (as synonym of *P. sulcata*) in their respective studies.

The objectives of this note are to resolve a homonymy in the genus *Praocis*, existing since 1840 for the species *Praocis rotundata* Lacordaire and *Praocis rotundata* Laporte, and to propose two new synonymies in the genus *Praocis*.

The present study is based on examination of type specimens from the following collections and curators: Museum für Naturkunde der Humboldt Universität, Berlin, Germany (MNHUB, Manfred Uhlig, Bernd Jaeger), Muséum National d'Histoire Naturelle, Paris, France (MNHN, Claude Girard, Antoine Mantilleri), and Natural History Museum, Basel, Switzerland (NHMB, Eva Sprecher). Additional material was studied from Instituto Argentino de Investigaciones de las Zonas Áridas, Mendoza, Argentina (IADIZA, Sergio Roig-Juñent) and Laboratorio de Entomología Ecológica, Universidad de La Serena, La Serena, Chile (LEULS, Jorge Cepeda-Pizarro).

We examined the types of *Praocis sulcata* Eschscholtz, *P. soror* Kulzer, and for *P. rotundata* Lacordaire we studied two specimens from ex coll. Dejean housed in MNHUB and it is probable that these specimens were seen or studied by Lacordaire (Bernd Jaeger, pers. comm.). According to Horn & Kahle (1935) the types of Lacordaire should be in the Royal Belgian Institute of Natural Sciences (RBINS) but no Lacordaire types of Tenebrionidae were found there (Jerome Constant and Noël Mal, pers. comm.). The types of Laporte should be in the MNHN (Horn & Kahle, 1935) but even with the help of Claude Girard, we did not find any Laporte types. According to Cambefort (2006) the Heteromera specimens from Lacordaire's and Laporte's collections are at the MNHN, but no types of *Praocis* of these authors were found there (Antoine Mantilleri, pers. comm.).

**New synonymies in the genus *Praocis* Eschscholtz, 1829****Subgenus *Praocis* Eschscholtz, 1829*****Praocis sulcata* Eschscholtz, 1829**

(Fig. 1)

*Praocis sulcata* Eschscholtz, 1829: 7; Dejean, 1834: 180 (cat.); Dejean, 1836: 200 (cat.); Laporte, 1840: 187; Solier, 1840: 235 (rev.) (misidentif.); Lacordaire, 1859: 214; Gemminger & Harold, 1870: 1906 (cat.); Philippi, 1887: 733 (cat.); Gebien, 1910: 262 (cat.); Gebien, 1938: 400 (cat.); Blackwelder, 1945: 523 (cat.); Kulzer, 1958: 19 (rev.); Peña, 1966: 429 (cat.); Flores, 2007: 416 (lectot.).

*Praocis rotundata* Laporte, 1840: 187 (not Lacordaire, 1830: 284); Solier, 1851: 190 (rev.); Lacordaire, 1859: 213; Gemminger & Harold, 1870: 1905 (cat.); Philippi, 1887: 732 (cat.); Gebien, 1910: 261 (cat.); Gebien, 1938: 398 (cat.); Blackwelder, 1945: 523 (cat.). **New synonymy** based on redescription of *P. rotundata* Laporte by Solier, 1851.

Lectotype of *Praocis sulcata* (Fig. 1): [Type] [14893] [Hist.-Coll. (Coleoptera)/ Nr. 14893/ *Praocis sulcata* Eschsch./ Chili, Eschsch./ Zool. Mus. Berlin] [Syntypus/ *Praocis sulcata*/ Eschscholtz, 1829/ labelled by the MNHUB 2005] [Lectotypus/ *Praocis sulcata* Eschscholtz, 1829/ Des. G. Flores 2005] (MNHUB). One paralectotype same data as lectotype, except two first labels (MNHUB).

Notes: Flores (2007: 416) designated lectotype and paralectotype. Because *Praocis rotundata* Laporte, 1840 is now placed in synonymy, there is no need to propose a new name for this species which is a junior homonym of *Praocis rotundata* Lacordaire, 1830.

**Comments.** *Praocis rotundata* Laporte shares with *P. sulcata* Eschscholtz the following characters: elytron with two carinae well marked and three grooves bearing short, broad, golden, squamiform setae; carinae wider than grooves; lateral margin well demarcated with a finer edge; pseudopleuron with punctures. These characters were recognized by Solier (1851) in his redescription of *P. rotundata* Laporte and are diagnostic for *P. sulcata* as stated by Eschscholtz (1829).

Based on the examined material of this species housed in LEULS and IADIZA, we assign its geographical distribution to Chile, from Elqui Province (Coquimbo Region) to Concepcion Province (Bío Bío Region).

**Subgenus *Orthogonoderes* Gay & Solier, 1840*****Praocis rotundata* Lacordaire, 1830 resurrected**

(Figs. 2–3)

*Praocis rotundatus* Lacordaire, 1830: 284 (not Laporte, 1840: 187); Solier, 1840: 235 (rev.) [as synonym of *Praocis sulcata* Eschscholtz, 1829].

*Praocis rotundata*; Dejean, 1834: 180 (cat.); Dejean, 1836: 200 (cat.); Gemminger & Harold, 1870: 1906 (cat.) [as synonym of *Praocis sulcata*]; Philippi, 1887: 732 (cat.) [as synonym of *Praocis sulcata*]; Gebien, 1910: 262 (cat.) [as synonym of *Praocis sulcata*]; Gebien, 1938: 400 (cat.) [as synonym of *Praocis sulcata*]; Blackwelder, 1945: 523 (cat.) [as synonym of *Praocis sulcata*]; Kulzer, 1958: 19 (rev.) [as synonym of *Praocis sulcata*]; Peña, 1966: 429 (cat.) [as synonym of *Praocis sulcata*].

*Praocis soror* Kulzer, 1958: 77. **New synonymy.**

Material of *Praocis rotundata* Lacordaire studied by Lacordaire (MNHUB) (Fig. 2): two specimens, with labels: [14903] [Hist.-Coll. (Coleoptera)/ Nr. 14903/ *Praocis rotundata* Lacord./ Coquimbo, Melly (data error)/ Zool. Mus. Berlin] [*rotundata*/ Lacord./ Chili. Dej.] [*Praocis/ punctata* Sol./ det. H. Kulzer 1957].

Holotype of *Praocis soror* Kulzer (NHMB): [Villavencio/ Mendoza/ 3-11-52] [Argentinien/ leg. Wittmer] [Holotypus/ *Praocis/ soror* m./ det. H. Kulzer 1957] (Fig. 3).

**Comments.** Due to the misidentification of Solier (1840), who put *Praocis rotundata* Lacordaire in synonymy with *Praocis sulcata*, all the subsequent authors (listed above) assigned this species as inhabiting Chile. We remove *Praocis rotundata* Lacordaire from the Chilean fauna and based on the examined material (IADIZA, LEULS) we determine its geographical distribution as Mendoza and San Juan provinces of Argentina, being endemic to the Uspallata-Calingasta altitudinal valley between 1400 and 3630 m, in the biogeographic provinces of Monte, Altoandean, and Puna (Roig Juñent *et al.* 2003). The type locality “Paramillos de Uspallata” is located within this area, in the Precordillera at 3000 m, and it is part of the currently so-called “Reserva Villavencio”.

The aforementioned two specimens of *Praocis rotundata* Lacordaire (MNHUB) were previously determined by Kulzer as *Praocis punctata* Solier, which is indeed a different species. *Praocis punctata* Solier has elytra with carinae

**TERMS OF USE**

This pdf is provided by Magnolia Press for private/research use.

Commercial sale or deposition in a public library or website is prohibited.

weakly demarcated and lateral margin of pronotum with a row of long, golden setae (syntypes seen in MNHN). On the other hand, these specimens of *Praocis rotundata* and the holotype of *Praocis soror* have elytra with carinae well demarcated and elevated and lateral margin of pronotum glabrous (Figs. 2–3).

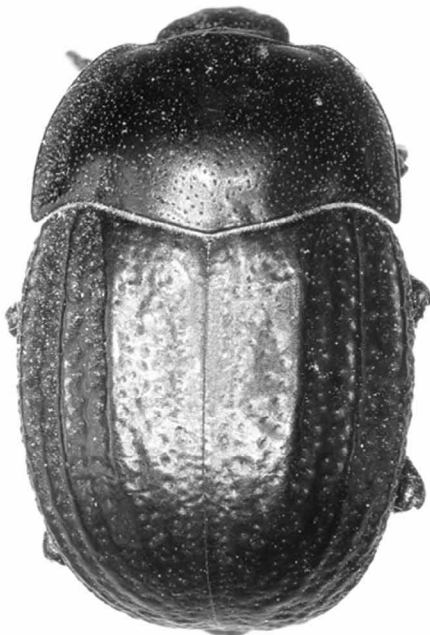
1



2



3



**FIGURES 1–3.** 1. *Praocis sulcata* Eschscholtz, lectotype, length: 8.5 mm ; 2. *P. rotundata* Lacordaire, length: 10.5 mm; 3. *P. soror* Kulzer, holotype, length: 10.0 mm.

## Acknowledgements

We acknowledge curators for the loan of type material, Luis E. Acosta for his advice on nomenclatural questions, Mariana Chani-Posse de Maus and two anonymous reviewers for suggestions improving this paper, and Bernd Jaeger (MNHUB) for his help in the location of material of ex Dejean collection. This study was supported by the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET, Argentina) and by a grant PIP 112-200801-00162 (CONICET, Argentina) (GEF), and by the project DIULS-PF07101 of the Universidad de La Serena, La Serena, Chile (JPA).

## References

- Blackwelder, R.E. (1945) Checklist of the coleopterous insects of Mexico, Central America, the West Indies and South America. Part 3. *Bulletin of the United States National Museum*, 185, 343–550.
- Cambefort, Y. (2006) *Des coléoptères, des collections et des hommes*. Publications Scientifiques du Muséum national d'histoire naturelle, Paris. 374 pp.
- Dejean, P.F.M.A. (1834) *Catalogue de Coléoptères de la collection de M. le Comte Dejean*. Deuxième édition [Livraison 3] Méquignon-Marvis Père et Fils, Paris, pp. 177–256.
- Dejean, P.F.M.A. (1836) *Catalogue de Coléoptères de la collection de M. le Comte Dejean*. Troisième édition, revue, corrigée et augmentée. [Livraisons 1–4] Méquignon-Marvis Père et Fils, Paris, pp. 1–384.
- Eschscholtz, J.F. (1829) *Zoologischer Atlas, enthaltend Abbildungen und Beschreibungen neuer Thierarten, während des Flottcapitains von Kotzebue zweiter Reise um die Welt, auf der Russisch-Kaiserlichen Kriegsschiff Predpriaeti in den Jahren 1823-1826*. Drittes Heft. G. Reimer, Berlin, 18 pp.
- Flores, G.E. (2007) New synonymies and lectotype designations in the Neotropical tribes Nycteliini, Praocini, and Scotobiini (Coleoptera: Tenebrionidae). *Annales Zoologici*, 57, 409–426.
- Gay, C. & Solier, A.J.J. In: Solier, A.J.J. (1840) Essai sur les Collaptèrides. 11e Tribu. Praocites. *Annales de la Société Entomologique de France*, 9, 207–370.
- Gebien, H. (1910) *Tenebrionidae*. II. In: Junk, W. & Schenkling, S. (eds.), *Coleopterorum Catalogus* 18, pts. 15, 22, 28, 37. W. Junk, Berlin, pp. 167–354
- Gebien, H. (1938) *Katalog der Tenebrioniden*. Teil II. *Mitteilungen der Münchner Entomologischen Gesellschaft*, 28, 397–428.
- Gemminger, M. & Harold, E.V. (1870) *Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus*. S. Gummi, Monachii, 7, 1801–2180.
- Horn, W. & Kahle, I. (1935-1937) Ueber Entomologische Sammlungen, Entomologen & Entomo-Museologie. Part 1. *Entomologische Beihefte aus Berlin-Dahlem* 2: 1–160, 1935; Part 2: ibidem. 3: 161-292, 1936; Part 3: ibidem, 4, 297–536, 1937.
- Kulzer, H. (1958) Monographie der südamerikanischen Tribus Praocini (Col.) (16 Beitrag zur Kenntnis der Tenebrioniden). *Entomologische Arbeiten aus dem Museum George Frey*, 9, 1–105.
- Lacordaire, T. (1830) Mémoire sur les habitudes des insectes coléoptères de l'Amérique méridionale. *Annales des Sciences Naturelles*, 20, 185–291.
- Lacordaire, T. (1859) *Histoire naturelle des insectes. Généra des coléoptères ou exposé méthodique et critique de tous les genres proposés jusqu'ici dans cet ordre d'insectes. Tome cinquième. Contenant les familles des Ténébrionides, Cistélides, Nilionides, Pythides, Mélandryides, Lagriides, Pédilides, Anthicides, Pyrochroïdes, Mordellides, Rhipiphorides, Stylopidés, Meloïdes et Oedémérides*. Librairie Encyclopédique de Roret, Paris, Première partie ([1] + pp. 1–400), Deuxième partie ([1] + pp. 401–750).
- Laporte, F.L.N.C. (Comte de Castelnau) (1840) *Historie naturelle des insectes*, vol. 2. P. Duménil, Paris, 564 pp.
- Peña, L.E. (1966) Catálogo de los Tenebrionidae (Coleoptera) de Chile. *Entomologische Arbeiten aus dem Museum George Frey*, 17, 397–453.
- Philippi, F.H. (1887) *Catálogo de los Coleópteros de Chile*. Anales de la Universidad de Chile, 71, 619–806.
- Roig-Juñent, S., Flores, G.E. & Mattoni, C. (2003) Consideraciones biogeográficas de la Precordillera (Argentina), con base en artrópodos epigeos. In: Morrone, J.J. & Llorente-Bousquets, J. (eds.), *Una perspectiva latinoamericana de la Biogeografía*. Las Prensas de Ciencias, Facultad de Ciencias, UNAM, México, D.F., pp. 275–288.
- Solier, A.J.J. (1840) Essai sur les Collaptèrides. 11e Tribu Praocites. *Annales de la Société Entomologique de France*, 9, 207–370.
- Solier, A.J.J. (1851) Fauna Chilena: Coleópteros. In: Gay, C. (ed.), *Historia Física y Política de Chile*. Imprenta de Maulde et Renou, Paris, vol. 5, 183–204.