

A taxonomic review of species of the Neotropical pericaline genus *Oreodicastes* Maindron, 1905 (Coleoptera: Carabidae: Lebiini)

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Abstract. Based on adult character states, a key is provided to the seven known species of *Oreodicastes* Maindron 1905 (type species *Oxyglossus subcyaneus* Chaudoir 1843). Two new species (with type locality) are described: *O. virginia* (Fazenda dos Campos, Virginia, state of Minas Gerais, Brazil) and *O. zikani* (Macieiras, Itatiaia, state of Rio de Janeiro, Brazil).

Introduction

The genus *Oreodicastes* Maindron probably is a phylogenetic relict, based on its restricted generally primitive features, loss of flight capability and markedly restricted geographical distribution. With its few known species facing extinction resulting from habitat destruction (montane forest in the Atlantic Forest region of southeastern Brazil), it seems important to provide as complete a record of the group as possible. We attempted to do just that, in our recently completed treatment of the Western Hemisphere Pericalina (Shpeley and Ball 2001: 29-36).

However, within days of final review of page proof of that review, the second author found, in the collections of The Natural History Museum, London, 10 specimens of *Oreodicastes* that had not been seen by us, previously. Careful examination of these specimens showed that four species were represented. To our surprise, if not chagrin, two of the species seemed to be undescribed.

With the task incomplete of making known the diversity of *Oreodicastes* and with knowledge of pericalines still fresh in our minds because of our recently completed study, we decided it would be desirable to make available knowledge of this new material forthwith. To provide a context for treatment of the new species, we offer a diagnosis of *Oreodicastes* and a key that includes the now seven known species of the genus.

Material and Methods

Material. This study features 10 specimens of *Oreodicastes* from the collections of the Natural History Museum (Cromwell Road, London SW7

5BD, United Kingdom), but includes data based on material in our previous study of the genus (Shpeley and Ball 2001: 30-36).

Methods. See Shpeley and Ball (2001: 5-7) for a full account of methods. Here, we report details about numerical data, which are of immediate use in interpreting Table 1, and in using the key to species.

Measurements. Measurements were made with an ocular micrometer in a Wild M-5 microscope, at 25 X. These, with abbreviations used in the text are:

head length (**HL**)- linear distance from base of left mandible to posterior margin of left eye;
width of head (**Hw**)- maximum linear distance across head, including eyes;
width of frons (**Fw**)- linear distance across head, between eyes;
length of pronotum (**Pl**)- linear distance from anterior to posterior margin, along midline;
pronotum, maximum width (**Pwm**)- greatest linear transverse distance across pronotum; and
length of elytra (**El**)- linear distance from basal ridge to apex of longer elytron, measured along the suture.

Standardized Body Length (**SBL**, mm), used as an expression of overall size, is the sum of **HL**, **Pl**, and **El**.

Descriptions. Descriptions are brief because of a paucity of morphological features to characterize the species. Measurements and ratios provide some indication of proportions, and figures illustrate features important in identification.

Oreodicastes Maindron

Oreodicastes Maindron 1905: 95. - Shpeley and Ball 2001: 30.

Type species. *Oxyglossus subcyaneus* Chaudoir, 1843: 95 (by monotypy).

Recognition. The genus *Oreodicastes* is a thyreopteroid pericaline. Its adults are black, with shiny dorsal surface, of moderate size (SBL ca. 8-13 mm), without lateral pronotal setae, metepisternum as wide or wider than long (indicating a small metathorax and absence of functional flight muscles), and with metathoracic wings small (thus incapable of sustaining flight). Males are without the patches of setae on the femora, pterosternum and abdominal sterna which are characteristic of many species of the related genus *Stenognathus* Chaudoir. Also, the median lobe of the male genitalia is pleuropic (Figs. 1H-M).

Description. Not required here. For details, see Shpeley and Ball (2001: 30-31). To the generic description we add: tarsal claws serrate or smooth.

Geographical distribution. The known range of this precinctive South American genus is confined to the Atlantic Forest of eastern Brazil, between 20°-23° S latitude and 42°-46° W longitude (see Shpeley and Ball 2001: 52, Fig. 21). The species occupy three mountain ranges: Serra dos Orgaos; the proximate Serra da Mantiqueira, across the Paracibaca Basin; and to the north, the more distant Serra Caraça, a small eastern outlier of the extensive Serra do Espinhaço.

Included species. This genus includes seven species, each known from few (1-12) specimens. The two new species are described below; notes about *O. gounellei* Maindron and *O. subcyaneus* (Chaudoir) are provided. The species treatments are arranged in a sequence reflecting our views about their relationships, from primitive to derived.

Key to the species of *Oreodicastes* Maindron, based on character states of adults

1. Elytron with surface of disc distinctly iridescent; microlines hardly evident at 50X; sculpticells markedly transverse, extended across entire width of intervals. Geographical range: Serra

- Caraça, state of Minas Gerais, Brazil
..... *O. rhadamanthus* Shpeley and Ball
- 1'. Elytron with surface of disc shining, but not iridescent; microlines distinctly visible at 50X; sculpticells transverse, 2X-4X longer than wide. Geographical range: Serra da Mantiqueira or Serra dos Orgaos 2
- 2(1'). Elytron with basal ridge markedly sinuate, humerus (Fig. 1F) projected angularly anteriorly 3
- 2'. Elytron with basal ridge slightly sinuate (Fig. 1G), humerus broadly rounded, not projected anteriorly 4
- 3(2). Head with eyes more projected (ratio Hw/Fw 1.468-1.499); pronotum relatively wide (ratio Hw/Pwm 0.704-0.723)
..... *O. minos* Shpeley and Ball
- 3'. Head with eyes flatter (ratio Hw/Fw 1.312-1.389); pronotum relatively narrow (ratio Hw/Pwm 0.769-0.818) *O. gounellei* Maindron
- 4(2'). Pronotum with lateral groove narrow throughout length (Fig. 1A-B). Geographical range: Serra da Mantiqueira 5
- 4'. Pronotum with lateral groove distinctly widened posteriorly (Fig. 1E). Geographical range various 6
- 5(4). Pronotum with lateral margin evenly rounded; posteriolateral area widely depressed (Fig. 1B). Pronotum relatively narrow (ratio Pl/Pwm 0.818) *O. virginia*, new species
- 5'. Pronotum with lateral margin not evenly rounded; posteriolateral area not widely depressed (Fig. 1A). Pronotum relatively narrower (ratio Pl/Pwm 0.846) *O. aeacus* Shpeley and Ball
- 6(4'). Pronotum relatively broad, ratio Hw/Pwm more than 0.650. Size smaller, SBL of males less than 10.50 mm, of females, less than 12.10 mm. Geographical range: Serra do Orgaos (vicinity of Nova Friburgo, state of Rio de Janeiro)
..... *O. subcyaneus* (Chaudoir)
- 6'. Pronotum relatively broader (Fig. 1E), ratio Hw/Pwm less than 0.650. Size larger, SBL of male 12.13 mm, of female, 12.67 mm. Geographical range: Serra da Mantiqueira (vicinity of Parque Nacional do Itatiaia, state of Rio de Janeiro) .
..... *O. zikani*, new species

***Oreodicastes virginia*, new species**
Fig. 1B

Type material. One specimen. HOLOTYPE female, labelled: "S.- Minas Geraes/ Virginia: Fazd.a

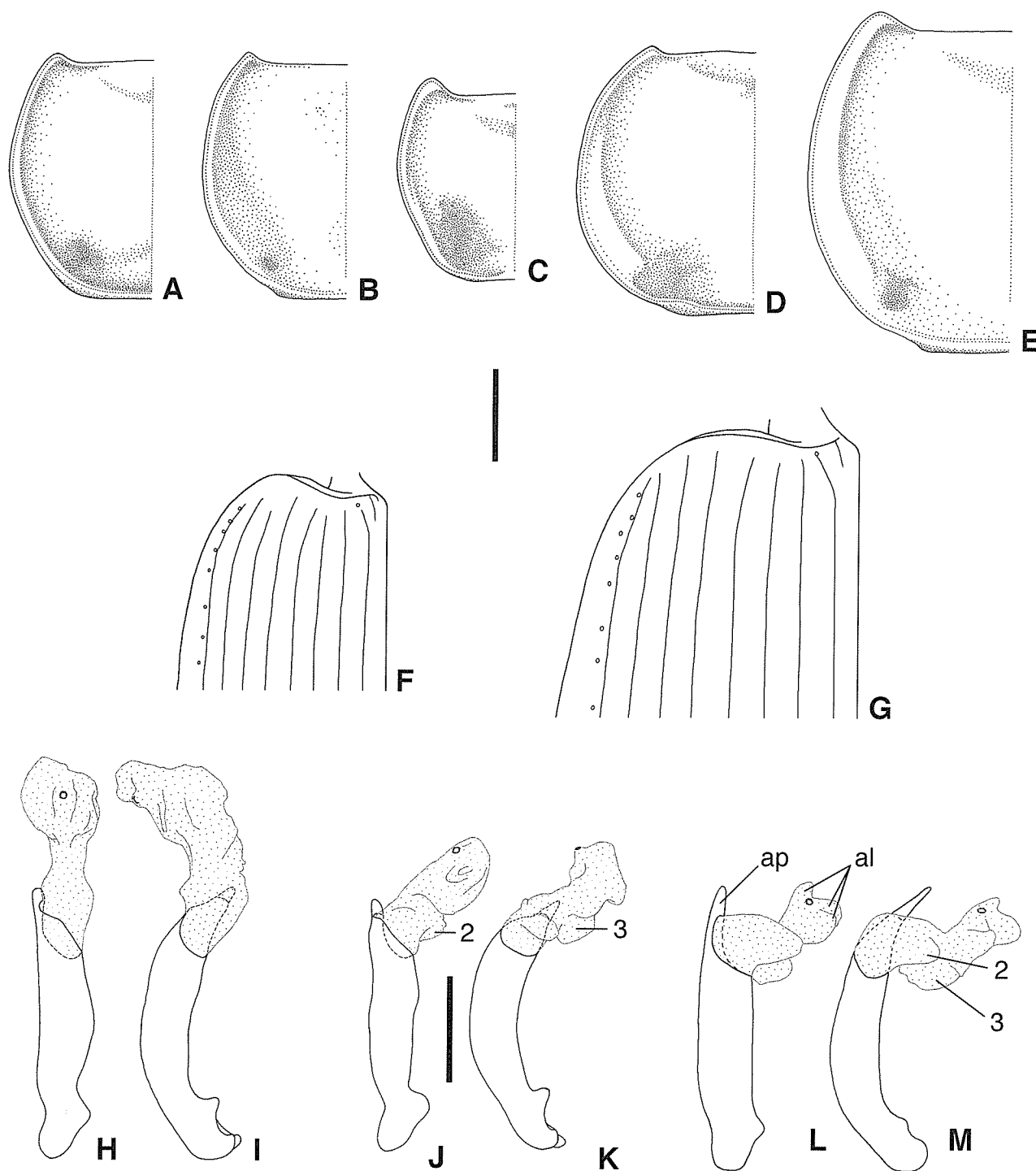


Figure 1. Line drawings of selected structures of species of *Oreodicastes*. A-E, left half of pronotum, dorsal aspect, of: A, *O. aeacus* Shpeley and Ball; B, *O. virginia*, new species; C, *O. gounellei* Maindron; D, *O. rhadamanthus* Shpeley and Ball; and E, *O. zikani*, new species. Figures 1A and 1C-D from Shpeley and Ball 2001: 34. F-G, left elytron basal portion, dorsal aspect, of: F, *O. minos* Shpeley and Ball; G, *O. zikani*, new species. H-M, male genitalia (median lobe with internal sac expanded and everted)—H, J, and L, dorsal aspect and I, K, and M, left lateral aspect, respectively, of: H-I, *O. gounellei* Maindron; J-K, *O. rhadamanthus* Shpeley and Ball; and L-M, *O. zikani*, new species. Figures 1H-K from Shpeley and Ball 2001: 35. Scale bars = 1 mm. Legend: ap, median lobe, apical portion; al, internal sac, apical lobes; 2, 3, internal sac, basal lobes.

Table 1. Measurements and ratios of body proportions for the species of *Oreodicastes* Maindron

Name of Taxon	N	Males Range	Mean	N	Females Range	Mean
SBL (mm)						
<i>O. aeacus</i> Shpeley & Ball				1	10.96	
<i>O. virginia</i> , new species				1	9.76	
<i>O. gounellei</i> Maindron	1	8.84		5	9.12-9.57	9.40
<i>O. minos</i> Shpeley & Ball	1	8.92		2	9.36-9.40	9.38
<i>O. subcyaneus</i> (Chaudoir)	3	9.66-10.36	10.13	6	9.96-12.08	10.16
<i>O. rhadamanthus</i> Shpeley & Ball	6	9.60-11.24	10.48	6	9.80-11.80	10.79
<i>O. zikani</i> , new species	1	12.13		1	12.67	
Hw/Fw						
<i>O. aeacus</i> Shpeley & Ball				1	1.404	
<i>O. virginia</i> , new species				1	1.404	
<i>O. gounellei</i> Maindron	1	1.389		1	1.312-1.385	1.350
<i>O. minos</i> Shpeley & Ball	1	1.468		2	1.470-1.499	1.492
<i>O. subcyaneus</i> (Chaudoir)	3	1.425-1.499	1.470	6	1.396-1.488	1.470
<i>O. rhadamanthus</i> Shpeley & Ball	6	1.464-1.543	1.506	6	1.277-1.499	1.484
<i>O. zikani</i> , new species	1	1.400			1.354	
Hw/Pwm						
<i>O. aeacus</i> Shpeley & Ball				1	0.756	
<i>O. virginia</i> , new species				1	0.750	
<i>O. gounellei</i> Maindron	1	0.769		5	0.788-0.818	0.799
<i>O. minos</i> Shpeley & Ball	1	0.723		2	0.704-0.722	0.713
<i>O. subcyaneus</i> (Chaudoir)	3	0.659-0.698	0.685	6	0.676-0.716	0.694
<i>O. rhadamanthus</i> Shpeley & Ball	6	0.634-0.692	0.656	6	0.649-0.679	0.668
<i>O. zikani</i> , new species	1	0.636		1	0.548	
Pl/Pwm						
<i>O. aeacus</i> Shpeley & Ball				1	0.846	
<i>O. virginia</i> , new species				1	0.818	
<i>O. gounellei</i> Maindron	1	0.769		5	0.767-0.818	0.792
<i>O. minos</i> Shpeley & Ball	1	0.800		2	0.722-0.761	0.741
<i>O. subcyaneus</i> (Chaudoir)	3	0.756-0.772	0.762	6	0.742-0.773	0.751
<i>O. rhadamanthus</i> Shpeley & Ball	6	0.753-0.785	0.769	6	0.739-0.767	0.750
<i>O. zikani</i> , new species	1	0.785		1	0.756	
Pl/El						
<i>O. aeacus</i> Shpeley & Ball				1	0.373	
<i>O. virginia</i> , new species				1	0.360	
<i>O. gounellei</i> Maindron	1	0.338		5	0.328-0.350	0.337
<i>O. minos</i> Shpeley & Ball	1	0.356		2	0.333-0.351	0.342
<i>O. subcyaneus</i> (Chaudoir)	2	0.359-0.370	0.365	6	0.339-0.363	0.349
<i>O. rhadamanthus</i> Shpeley & Ball	6	0.375-0.409	0.393	6	0.363-0.384	0.371
<i>O. zikani</i> , new species	1	0.388		1	0.357	

dos/ Campos. 1500 m/ 23.7.19. Zikan"; "f. Best. 11.1935/ von Zikan"; F. van Emden/ Bequest/ B.M. 1960-129" [BMNH].

Type locality. Fazenda dos Campos, near Virginia, Minas Gerais, Brazil.

Specific epithet. The specific epithet is a noun in apposition, based on the name of the town near the type locality. "Virginia" is used as the name of several localities in Minas Gerais. On the basis of altitude given on the locality label of the holotype, we infer that Fazenda dos Campos is near the Virginia located in the Serra da Mantiqueira, at 22°20'S 45°06'W.

Recognition. The holotype of *O. virginia* is most similar to that of *O. aeacus*. They differ slightly in size (*O. virginia* is smaller, about 1 mm less in length and with a slightly relatively narrower pronotum), but principally in details of the lateral margin and posteriolateral portion of the pronotum (Fig. 1B; cf. Fig. 1A).

Description. With character states of *Oreodicastes*, restricted or amplified as follows. For body size and values for ratios Fw/Hw, Hw/Pwm, Pl/Pwm, and Pl/El, see Table 1.

Microsculpture. Elytron, dorsal surface of disc, with microlines seen easily at 50X, mesh pattern transverse, sculpticells 2 to 4 times longer than wide.

Luster. Elytron with dorsal surface shining, slightly coppery tinged in indirect light, but not iridescent.

Pronotum (Fig. 1B). Relatively narrow; lateral grooves each side widened posteriorly, more or less continuous each side with adjacent depressed area, and with shallow posteriolateral impression.

Elytra. Elytron with basal ridge slightly sinuate, humerus broadly rounded, not projected anteriorly.

Habitat. Probably montane forest.

Geographical distribution. This species is known from its type locality, only.

Chorological affinities. This species is isolated from the known ranges (i.e., localities) of other species of *Oreodicastes*, though only by about 69 km from the locality for *O. aeacus* and *O. minos*.

Phylogenetic relationships. Much like the putatively primitive *O. aeacus*, the pronotum of *O. virginia* is more derived in surface sculpture. Thus, this species seems to be between *O. aeacus* and the remaining species of the genus.

Material examined. Holotype only. For details, see above.

Oreodicastes gounellei Maindron

Figs. 1C, and 1H-I

For details about this species, see Shpeley and Ball (2001: 32). Previously, Shpeley and Ball (2001: 32) indicated the type locality of this species as being in "Parque Agulhas Negras", whereas the correct name is Parque Nacional do Itatiaia. This error was based on a misinterpretation of a locality label ("Parque Agulhas Negras") on one specimen of *O. gounellei*. Based on advice received from a Brazilian colleague, we are convinced that "Parque" on that label refers to Parque Nacional do Itatiaia, with "Agulhas Negras" referring to the mountain ("Pico") of that name, which is situated within, and a prominent feature of, said national park. Numerical data for the specimens in the collections of The Natural History Museum were incorporated with previously reported data, and entered in Table 1.

Material examined. BRAZIL, State of Rio de Janeiro. Four females: Alto Itatiaia, 2200 m, 30.VI. 1933, J.F. Zikan (BMNH).

Oreodicastes subcyaneus (Chaudoir)

For details about this species, see Shpeley and Ball (2001: 35-36). Numerical data for the specimens in the collections of The Natural History Museum were incorporated with previously reported data, and entered in Table 1.

Material examined. BRAZIL, Bowr Tatum, 6.3.47* (BMNH): male, Rio; female 43/86.

Oreodicastes zikani, new species Figs. 1E, 1G and 1L-M

Type material. Two specimens. HOLOTYPE male, labelled: "Itatiaia- 1960m/ Macieiras./ 20.-VII.1933/ J.F. Zikan"; "f. Best. 11.1935/ von Zikan"; "161"; "gen.n. sp.n/ bei Oreodicastes" (handwritten); "F. van Emden/ Bequest/ B.M. 1960-129" (BMNH). ALLOTYPE female, labelled same as holotype except without determination label [BMNH].

Type locality. Macieiras, Itatiaia, state of Rio de Janeiro, Brazil. Probably this locality, like the one for *O. gounellei*, is in (or near) Parque Nacional do Itatiaia.

Specific epithet. The specific epithet is an eponym based on the Latinized (genitive case) surname of the collector of the type material, the late José Francisco Zikán, a distinguished Brazilian entomologist of the first half of the 20th Century, who was naturalist (1933-1949) at the Parque Nacional do Itatiaia. See Araujo (1954).

Recognition. The most striking feature about this species is relatively large size (SBL more than 12 mm), and broad pronotum (Fig. 1E, cf. Fig. 1D). In the latter respect, the specimens of *O. zikani* are much like those of *O. rhadamanthus*. Additionally, this is the only known species of *Oreodicastes* with smooth tarsal claws. Males are distinctive in that the apical portion of the median lobe (Fig. 1L, ap) is more slender and longer than in other species (cf. Figs. 1H and 1J), and the inflated internal sac is more elaborately lobed. Note also that, although this species and *O. gounellei* have virtually the same type locality, they differ markedly in size,

proportions, and males differ in form of the median lobe and lobing of the internal sac (Figs. 1L-M; cf. Figs. 1H-I).

Description. With character states of *Oreodica*, restricted or amplified as follows. For body size and values for ratios Fw/Hw, Hw/Pwm, Pl/Pwm, and Pl/El, see Table 1.

Microsculpture. Elytron, dorsal surface of disc, with microlines seen easily at 50X, mesh pattern transverse, sculpticells 2 to 4 times longer than wide.

Luster. Elytron with dorsal surface shining, slightly coppery tinged in indirect light, but not iridescent.

Pronotum (Fig. 1E). Relatively broad; lateral grooves each side markedly widened posteriorly, more or less continuous each side with adjacent depressed area and with shallow posteriolateral impression.

Elytra. Elytron with basal ridge slightly sinuate, humerus (Fig. 1G) broadly rounded, not projected anteriorly.

Legs. Tarsal claws smooth.

Male genitalia (Figs. 1L-M). Median lobe pleuropic, in dorsal aspect (Fig. 1L) with apical portion (**ap**) relatively long and narrow, apex narrowly rounded; in left lateral aspects (Fig. 1M) slightly curved, without abrupt deflection. Internal sac inflated and everted extended at about right angles to median lobe, with two basal lobes (**2** and **3**); apical portion (**al**) trilobed.

Habitat. Probably montane forest.

Geographical distribution. This species is known from its type locality, only.

Chorological affinities. This species and *O. gounellei* are both known from the vicinity of Parque

Agulhas Negras. It seems likely that they are sympatric, though they may be isolated from one another altitudinally.

Phylogenetic relationships. Similarity in body form and in details of the internal sac of the male genitalia suggest a close relationship between *O. zikani* and *O. rhadamanthus* (Figs. 1L-M; cf. Figs. 1J-K), even though the two species seem to be widely separated geographically.

Material examined. Type material only. For details, see above.

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