Koleopterologische Rundschau	74	175 – 189	Wien, Juni 2004

On the Iberian species of *Geostiba* THOMSON III. New species, new synonymies, and new records (Coleoptera: Staphylinidae: Aleocharinae)

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Abstract

Material of *Geostiba* THOMSON, 1858 from the north of the Iberian Peninsula is revised. Six species are (re-)described and illustrated: *G. asturiensis* FAGEL, 1967, *G. roscidavallensis* PACE, 1990, *G. ossalensis* PACE, 1990, *G. melberi* sp.n., *G. urquillae* sp.n., and *G. neilae* sp.n. Two new synonymies are proposed: *G. asturiensis* (FAGEL, 1967) = *G. covadongaensis* (FAGEL, 1967); *G. roscidavallensis* PACE, 1990 = *G. orhyensis* PACE, 1990. Additional records of several other species are presented. The distributions of eight species are mapped.

Key words: Coleoptera, Staphylinidae, Aleocharinae, *Geostiba*, Spain, new species, new records, new synonymy, taxonomy.

Introduction

At present, 54 valid species and subspecies of *Geostiba* THOMSON are known from mainland Portugal and Spain. The fact that continuously new species are being discovered demonstrates that our current knowledge of the *Geostiba* fauna of the Iberian Peninsula is still far from complete. In addition, the types of most species have not been revised and the descriptions of several taxa are based on females, so that the identity and taxonomic status of many species require clarification.

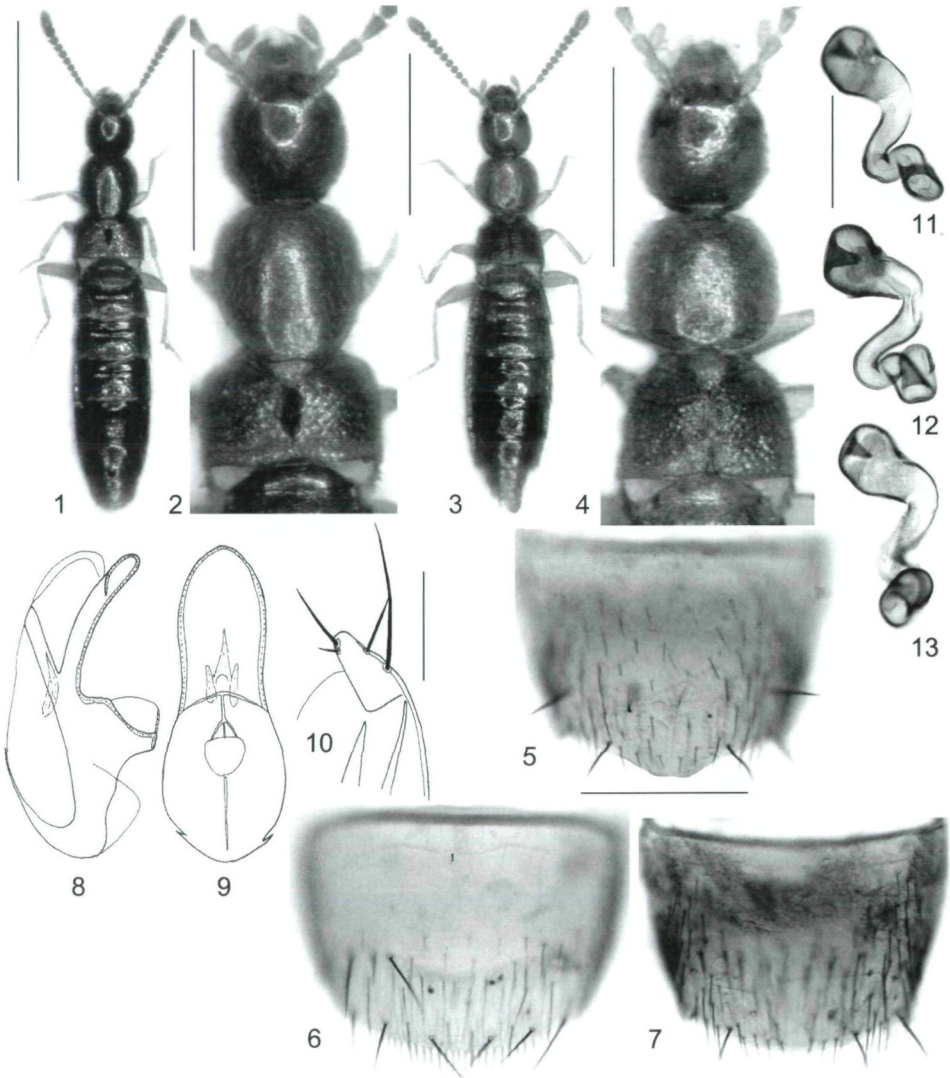
Against this background, it does not seem surprising that an examination of recently collected *Geostiba* material from northern Spain again resulted in the discovery of three undescribed species and two new synonymies, which are dealt with below. In addition, three species are redescribed. Their original descriptions do not sufficiently consider intraspecific variation and they lack illustrations of the genitalia (*G. asturiensis* FAGEL) or other important information, especially regarding the secondary sexual characters (*G. roscidavallensis* PACE, *G. ossalensis* PACE).

Abbreviations and acknowledgements

Types and non-type material deposited in the following collections were examined:

DEI Deutsches Entomologisches Institut, Eberswalde (L. Zerche)
IRSNB Institut royal des sciences naturelle de Belgique, Bruxelles (D. Drugmand)
cAss private collection V. Assing, Hannover
cFel private collection B. Feldmann, Münster
cWun private collection P. Wunderle, Mönchengladbach

I am much indebted to the colleagues indicated above for the loan of the material which this study is based on.



Figs. 1 - 13: *Geostiba vascona* PACE (1-2) and *G. roscidavallensis* PACE (3-13). 1, 3) habitus; 2, 4), forebody; 5) ♂ tergite VIII; 6) ♀ sternite VIII; 7) ♀ tergite VIII; 8, 9) median lobe of aedeagus in lateral and in ventral view; 10) apical lobe of paramere; 11-12) spermathecae of three specimens. Scale bars: 1, 3: 1.0 mm; 2, 4: 0.5 mm; 5-7: 0.2 mm; 8-9, 11-13: 0.1 mm; 10: 0.08 mm.

Geostiba (*Tropogastrosipalia*) *vascona* PACE
(Figs. 1-2, 67)

Geostiba (s.str.) *vascona* PACE, 1996: 8 ff.

MATERIAL EXAMINED: **Spain: País Vasco:** 2 ♂♂, 60 km SE Bilbao, Sierra de Urquilla, SE Arantzazu, peak of Aitzgorri, 42°57'17N, 02°19'38W, 1480 m, N-slope, grass roots, 10.VII.2003, leg. Assing (cAss); 1 ♀, same data, but 42°57'24N, 02°19'47W, 1470 m, N-slope, beech forest (cAss). **Navarra:** 2 ♂♂, 1 ♀, 50 km S San Sebastian, Sierra de Aralar, peak of Hachueta, 42°57'N, 01°58'W, 1320 m, litter of beech, grass roots, moss, 11.VII.2003, leg. Assing (cAss); 1 ♀, same data, 42°57'N, 01°59'W, 1150 m, beech forest, leaf litter and grass roots (cAss).

COMMENTS: This distinctive species was previously known only from the type locality, the Igitegi cave near Oñati (PACE 1996), and is probably endemic to the surroundings of the Sierra de Urquilla and the Sierra de Aralar (Figs. 67). Its habitus and forebody are illustrated in Figs. 1-2. Like most other congeners previously attributed to the subgenus *Geostiba*, *G. vascona* belongs to *Tropogastrosipalia* SCHEERPELTZ; for more details see ASSING (2003a). The locality where the species was found together with *G. urquillae* sp.n. is shown in Fig. 66.

Geostiba (*Sphenosipalia*) *numantiensis* PACE
(Fig. 67)

Geostiba (*Sphenosipalia*) *osellaiana numantiensis* PACE, 1983: 18.
Geostiba (*Sphenosipalia*) *numantiensis*: ASSING (2003).

ADDITIONAL MATERIAL EXAMINED: **Spain: Castilla y León:** 16 exs., Sierra de la Demanda, ca. 40 km ESE Burgos, S Valmala, Trigaza, 42°16'N, 03°15'W, 1720 m, beech forest, 12.X.2003, leg. Assing (cAss); 34 exs., same data, but 42°17'N, 03°16'W, 1540 m (cAss); 1 ex., same data, but Trigaza peak, 42°15'N, 03°15'W, 2020 m, grass, moss, *Juniperus*, *Calluna*, 17.X.2003 (cAss); 4 exs., same data, but 42°15'N, 03°15'W, 1950 m, *Pinus* litter, *Vaccinium*, *Juniperus*, *Calluna* (cAss); 7 exs., Sierra de la Demanda, ca. 40 km E Burgos, NE Valmala, Rábanos, 42°18N, 03°16W, 1190 m, oak forest with grass, 12.X.2003, leg. Assing (cAss); 2 exs., Sierra de la Demanda, ca. 40 km SE Burgos, SW Pineda de la Sierra, 42°13'N, 03°19'W, 1480 m, beech forest, 12.X.2003, leg. Assing (cAss); 26 exs., Sierra de la Demanda, Sierra de Urbión, Sierra de Freguela, Peña Negra, 42°03'N, 02°46'W, 1950 - 2000 m, grass, moss, *Pinus* litter, 15.X.2003, leg. Assing (cAss); 160 exs., same data, but 1750 - 1950 m, pine forest (cAss); 87 exs., Sierra de Neila, Laguna Negra de Neila, 42°03'N, 03°03'W, 1870 m, *Pinus* litter, *Erica*, grass, moss, 16.X.2003, leg. Assing (cAss); 54 exs., Sierra de la Demanda, E Neila, Cabeza Herrera, 42°05'N, 02°58'W, 1580 m, mixed oak, beech and pine forest, 16.X.2003, leg. Assing (cAss). **La Rioja:** 2 exs., Sierra de la Demanda, ca. 15 km SE Ezcaray, San Lorenzo, 42°14'54N, 02°58'38W, 2000 m, shrubs and grass roots in shade of rocks, 13.X.2003, leg. Assing (cAss); 29 exs., same data, but 42°16'N, 02°59'W, 1700 m, beech forest (cAss); 14 exs., same data, but 42°15'N, 02°59'W, 1640 m (cAss).

COMMENTS: The species is endemic to the Sierra de la Demanda, where it is one of the most common species of Staphylinidae (Fig. 67); a total of 436 specimens was found in practically all the samples taken in various forests and at various localities of this mountain range. The highest abundances were observed in montane beech and pine forests, but it was found also in a xerothermous oak forest at little more than 1000 m and in deforested biotopes above 2000 m. For taxonomic notes and additional records see ASSING (2003b).

Geostiba (*Sipalotricha*) *roscidavallensis* PACE
(Figs. 3-13, 68)

Geostiba (*Lioglutosipalia*) *plicatella roscidavallensis* PACE, 1990: 145ff.
Geostiba (*Lioglutosipalia*) *orhyensis* PACE, 1990: 147; **syn.n.**

MATERIAL EXAMINED: **Spain: Navarra:** 6 ♂♂, 9 ♀♀ [partly teneral; 1 ♀ with mature egg in the ovaries], 50km S San Sebastian, Sierra de Aralar, peak of Hachueta, 42°57'09N, 01°58'01W, 1320 m, litter of beech, grass roots, moss, 11.VII.2003, leg. Assing (cAss); 2 ♂♂, 1 ♀, 50 km S San Sebastian, Sierra de Aralar, peak of Hachueta, 42°57'14N, 1°59'18W, 1150 m, beech forest, leaf litter and grass roots, 11.VII.2003, leg. Assing (cAss); 2 ♂♂, 4 ♀♀, Col de Ibañeta, Ozanzurieta, 43°01N, 01°16W, 1450 m, beech forest, 28.V.1998, leg. Lompe (cAss); 2 ♂♂, 2 ♀♀, Puerto de Ibañeta, 13.V.1997, leg. Aßmann (cAss); 1 ♀, same locality, 1050 m,

9.IV.2001, leg. Starke (cAss); 2 ♂♂, Ibañeta-Ozanzurieta, 1450 m, 23.V.1997, leg. Starke (cFel); 1 ♂, Ozanzurieta, beech forest, 1550 m, 28.V.1998, leg. Hetzel (cFel). **País Vasco:** 1 ex., Sierra de Cantabria, ca. 25 km NNW Logroño, 42°36'N, 02°28'W, 1000 m, grass roots, *Alnus* litter, moss, 14.X.2003, leg. Assing (cAss).

COMMENTS: The original description of *G. orhyensis* is based on a single male from the Pic d'Orhy, which is very close to the type locality of *G. roscidavallensis*. The details indicated in the description of both names, especially the granulose puncturation along the suture of the male elytra, the morphology of the median lobe of the aedeagus (cf. figures 187 - 188, 193 - 194), as well as the identical shape and chaetotaxy of the apical lobe of the paramere leave little doubt that the types of both names are conspecific. *Geostiba roscidavallensis*, which was originally described as a subspecies of *G. plicatella* (FAUVEL), is here regarded as the senior synonym - both names were described in the same paper. The drawing of the median lobe of the aedeagus of *G. roscidavallensis* in PACE (1990: figures 187 - 188) is evidently based on a malformed specimen.

REDESCRIPTION: 2.4 - 3.0 mm. Habitus as in Fig. 3. Colour of body ferrugineous to brown, with abdominal segment VI infuscate and the appendages testaceous to light brown.

Head approximately as wide as long (length measured from anterior margin of clypeus) and relatively large in relation to pronotum; integument with distinct fine microreticulation and extremely fine and sparse puncturation; eyes relatively large, 0.4 - 0.5 times the length of postocular region in dorsal view (Fig. 4); antennae distinctly incrassate apically, antennomeres IV - X of increasing width and increasingly transverse, X about twice as wide as long (Fig. 3).

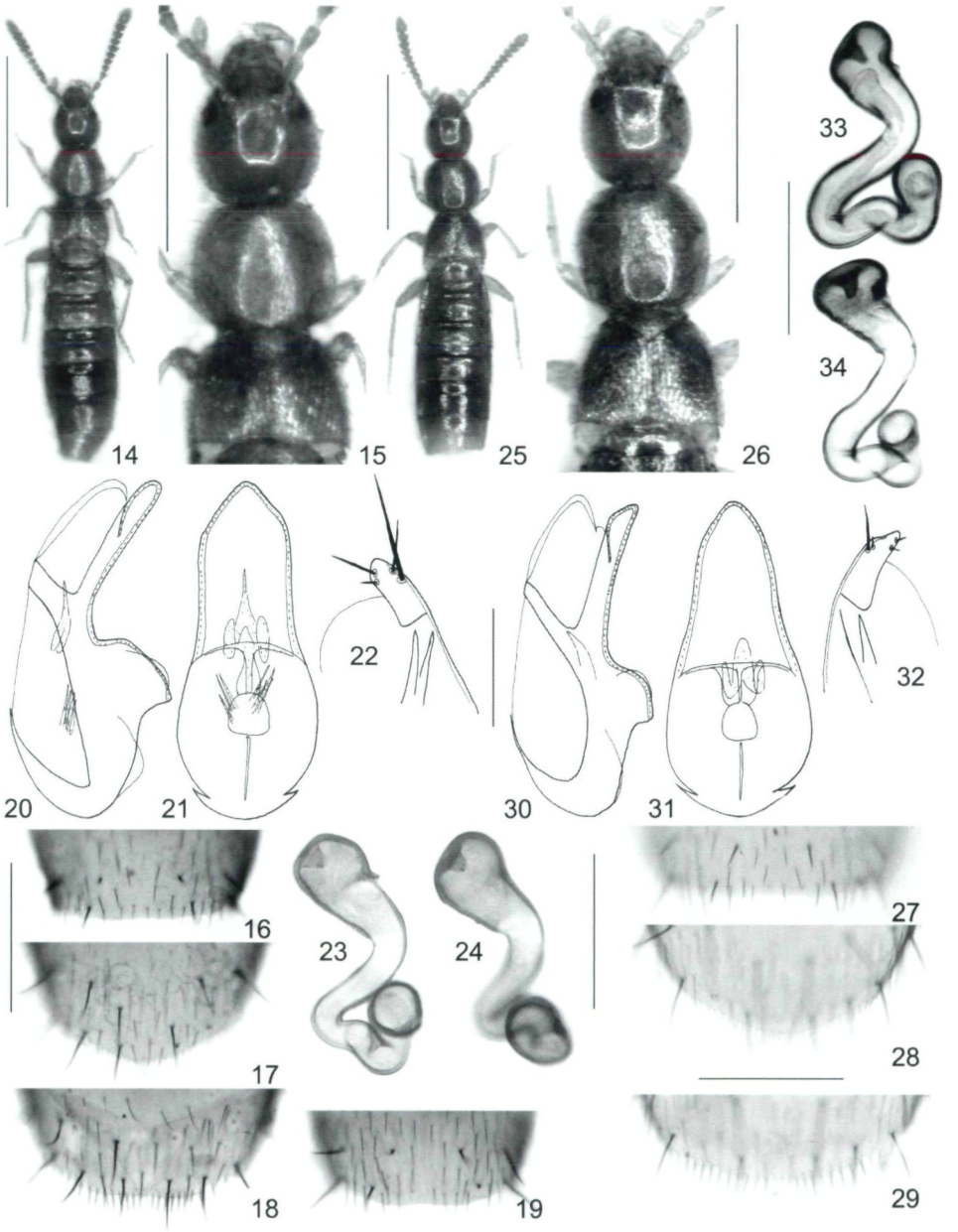
Pronotum 1.10 - 1.15 times as wide as long and approximately 1.15 times as wide as head; microreticulation pronounced, more so than that of head; puncturation extremely fine, barely noticeable. Elytra at suture approximately 0.6 times as long as pronotum; puncturation with sexual dimorphism; microsculpture shallow (Fig. 4). Hind wings reduced. Abdomen about 1.2 times as wide as elytra (Fig. 3), with distinct microsculpture, and with very fine and very sparse puncturation; posterior margin of tergite VII without palisade fringe; tergite VIII with distinct sexual dimorphism.

♂: elytra (in large males) near suture with distinctly granulose puncturation (Fig. 4); posterior margin of tergite VIII strongly projecting posteriad, in the middle often slightly concave (Fig. 5); sternite VIII posteriorly convex; median lobe of aedeagus with pronounced crista apicalis and crista proximalis (Figs. 8-9); apical lobe of paramere with one short and three long setae (Fig. 10).

♀: puncturation near elytral suture at most weakly granulose; posterior margin of tergite VIII weakly convex (Fig. 7); posterior margin of sternite VIII usually broadly convex, with weakly modified marginal setae (Fig. 6); spermatheca as in Figs. 11-13.

COMPARATIVE NOTES: Among other congeners currently attributed to *Sipalotricha* and occurring in the north of the Iberian Peninsula, *G. roscidavallensis* PACE is characterized especially by the modified male elytra, the shape of the male tergite VIII, by the morphology of the median lobe (especially the pronounced crista apicalis and crista proximalis; lateral view), by the shape and chaetotaxy of the apical lobe of the paramere, and by the shape of the spermatheca. For characters distinguishing it from the geographically close *G. melberi* and *G. ossalensis* see the comparative notes below those species.

DISTRIBUTION AND BIONOMICS: The species is relatively widespread from the western Pyrénées to the Sierra de Aralar (Fig. 68). The examined material was sifted from the leaf litter of beech forests at altitudes of 1000 - 1550 m. Part of the specimens collected in July were teneral. A dissected female taken in July had a mature egg in the ovaries.



Figs. 14 - 34: *Geostiba melberi* sp.n. (14-24) and *G. ossalensis* PACE (25-34). 14, 25) habitus; 15, 26), forebody; 16, 27) posterior part of ♂ tergite VIII; 17, 28) posterior part ♂ sternite VIII; 18, 29) posterior part of ♀ sternite VIII; 19) posterior part of ♀ tergite VIII; 20-21, 30-31) median lobe of aedeagus in lateral and in ventral view; 22, 32) apical lobe of paramere; 23-24, 33-34) spermathecae of different specimens. Scale bars: 14, 25: 1.0 mm; 15, 26: 0.5 mm; 16-19, 27-29: 0.2 mm; 20-21, 23-24, 30-31, 33-34: 0.1 mm; 22, 32: 0.08 mm.

Geostiba (Sipalotricha) melberi sp.n.
(Figs. 14-24, 68)

TYPES: **Holotype** ♂: "E - No. 11, Cantabria, 50 km SSE Santander, E Vega de Pas, 1300m, 43°10'15N, 03°39'16W, 15.VII.2003, V. Assing / Holotypus ♂ *Geostiba melberi* sp. n. det. V. Assing 2003" (cAss). **Paratypes:** 2 ♂♂, 6 ♀♀: same data as holotype (cAss, cWun); 1 ♂: same data, but 1250m (cAss).

DESCRIPTION: 2.0 - 2.6 mm. Habitus as in Fig. 14. Colour of body reddish yellow with the abdominal segment VI in most specimens weakly infuscate and the legs pale testaceous.

Head approximately as wide as long to weakly oblong (length measured from anterior margin of clypeus), of subcircular to oval shape (Fig. 15); integument with distinct fine microreticulation and extremely fine and sparse puncturation; eyes moderately small, more than one third the length of postocular region in dorsal view; antennae distinctly incrassate apically, antennomeres IV - X of increasing width and increasingly transverse, X more than twice as wide as long (Fig. 14).

Pronotum approximately 1.1 times as wide as long and 1.10 - 1.15 times as wide as head; microreticulation more pronounced than that of head; puncturation more distinct than that of head. Elytra very short, at suture 0.60 - 0.65 times as long as pronotum (Fig. 15); without sexual dimorphism; puncturation sparse and fine, not granulose; microsculpture very shallow. Hind wings reduced. Abdomen with distinct microsculpture and very fine puncturation; posterior margin of tergite VII without palisade fringe; tergite VIII without distinct sexual dimorphism, in both sexes posteriorly weakly convex or in the middle weakly concave (Fig. 16, 19).

♂: sternite VIII posteriorly obtusely pointed (Fig. 17); median lobe of aedeagus with almost straight (i.e. not curved) ventral process (lateral view) and with two clusters of weakly sclerotized spines in internal sac (Figs. 20-21); apical lobe of paramere as in Fig. 22.

♀: posterior margin of sternite VIII broadly convex (Fig. 18), in the middle weakly concave, and with weakly modified marginal setae; spermatheca as in Figs. 23-24.

ETYMOLOGY: This species is dedicated to Dr. Albert Melber, University of Hannover, whose contagious enthusiasm contributed significantly to my turning away from larger animals and focussing my interests on insects in the 1970s.

COMPARATIVE NOTES: The geographically closest congener of the subgenus *Sipalotricha* is *G. roscidavallensis* PACE, which is similar to *G. melberi* in general appearance, but distinguished especially by the elytral sexual dimorphism (♂♂ with coarsely granulose punctures near suture), by the sexual dimorphism of tergite VIII (posterior margin of ♂ tergite VIII projecting posteriad in middle), by the different morphology of the median lobe of the aedeagus (ventral process curved and less slender in lateral aspect, crista apicalis much more pronounced), by the less slender apical lobe of the paramere, as well as by the slightly different shape of the spermatheca.

DISTRIBUTION AND BIONOMICS: *Geostiba melberi* is probably endemic to the eastern parts of the Cordillera Cantábrica. The type locality, Portillo de Lunada, is about 15 km to the east of Vega de Pas (Fig. 68). Most of the type specimens were sifted from grass roots in the shade of big rocks at an altitude of almost 1300 m. One specimen was sifted from the leaf litter in a montane beech forest.

Geostiba (Sipalotricha) ossalensis PACE
(Figs. 25-34, 68)

Geostiba (Lioglutosipalia) ossalensis PACE, 1990: 144.

MATERIAL EXAMINED: 1 ♂, 2 ♀♀, France, Pyrénées-Atlantiques; Collado de la Piedra San Martín, beech forest near pass, 42°59'N 00°45'W, 7.VI.1998, leg. Lompe (cAss); 4 ♀♀: same locality, 1300 - 1500 m, 11.VI.1991, leg. Wunderle (cWun, cAss); 4 ♀♀: Spain, Navarra, Collado de la Piedra San Martín, 1600 - 1750 m,

11.VI.1991, leg. Wunderle, Zerche (cWun, cAss); 1 ♂, 2 ♀♀: France, Arette Pierre Saint-Martin, 1500 m, 11.VI.1991, leg. Zerche (DEI).

REDESCRIPTION: 2.2 - 3.0 mm. Habitus as in Fig. 25. Colour of body entirely testaceous or with weakly infuscate abdominal segment VI.

Head weakly oblong, about 1.1 times as long as wide (length measured from anterior margin of clypeus), of ovoid shape (Fig. 26); integument with shallow fine microreticulation and extremely fine and sparse puncturation; surface rather shining; eyes with weak pigmentation and very small, only about one fourth the length of postocular region in dorsal view; antennae distinctly incrassate apically, antennomeres IV - X of increasing width and increasingly transverse, X more than twice as wide as long (Fig. 25).

Pronotum approximately 1.1 times as wide as long and distinctly (1.2 - 1.3 times) wider than head; microreticulation slightly less shallow than that of head; puncturation usually slightly more distinct than that of head. Elytra very short, at suture about 0.6 times as long as pronotum (Fig. 26); without sexual dimorphism; puncturation relatively dense and more distinct than that of pronotum; microsculpture less shallow than that of pronotum. Hind wings reduced. Abdomen approximately 1.2 times as wide as elytra, with distinct microsculpture and very fine puncturation; posterior margin of tergite VII without palisade fringe; tergite VIII without distinct sexual dimorphism, posterior margin in both sexes truncate or in the middle weakly concave (Fig. 27).

♂: sternite VIII posteriorly convex (Fig. 28); median lobe of aedeagus with reduced crista apicalis and crista proximalis, apex of ventral process of median lobe in lateral view obliquely truncate (Fig. 30-31); apical lobe of paramere of distinctive shape and chaetotaxy, relatively slender, with one moderately long and three very short setae (Fig. 32).

♀: posterior margin of sternite VIII broadly convex, in the middle not concave, and with weakly modified, relatively thin marginal setae (Fig. 29); spermatheca as in Figs. 33-34.

COMPARATIVE NOTES: The geographically closest congener of the subgenus *Sipalotricha* is *G. roscidavallensis*, which is distinguished from *G. ossalensis* especially by the darker coloration, the relatively wider and less slender head, the larger eyes, the more pronounced microsculpture of head and pronotum, the sexual dimorphism of the elytra (in ♂♂ with coarsely granulose punctures along suture), by the sexual dimorphism of tergite VIII (posterior margin of ♂ tergite VIII projecting posteriad in the middle), by the different morphology of the median lobe of the aedeagus (especially the much more pronounced crista apicalis and crista proximalis), by the completely different chaetotaxy (one short and three long setae) of the slightly less slender apical lobe of the paramere, as well as by the differently shaped capsule and the longer duct of the spermatheca.

DISTRIBUTION AND BIONOMICS: *Geostiba ossalensis* is known only from the Collado de la Piedra San Martín, a pass at the border between Spain and France, about 75 km ENE of Pamplona, and the type locality Louvie-Juzon in the western Pyrénées (Fig. 68). The species is here recorded from Spain for the first time. The specimens collected at the Collado de la Piedra San Martín were sifted from leaf litter of a beech forest.

Geostiba (*Trachyglutosipalia*) *asturiensis* (FAGEL)
(Figs. 35-43, 69)

Sipalia (*Ditroposipalia*) *asturiensis* FAGEL, 1967: 213 f.
Sipalia (*Tachyglutosipalia*) [sic] *covadongaensis* FAGEL, 1967: 214 f., **syn.n.**

TYPES EXAMINED: *G. asturiensis*: **Holotype** ♂: "Asturias, Covadonga (Cangas de Onis), Lago Ercina, 1400m, VI.1965, G. Fagel / G. Fagel det. Sipalia. (Ditroposipalia) asturiensis / TYPE / R. I. Sc. N. B. I. G. 24885 / Vidit R.

Pace 1981 / Geostiba asturiensis Fagel det. V. Assing 2001" (IRSNB). **Paratypes:** 5 exs., same date and locality as holotype (IRSNB).

G. covadongaensis: **Holotype** ♂: "Asturias, Covadonga (Cangas de Onis), Lago Ercina, 1400m, VI.1965, G. Fagel / G. Fagel det. S. (Trachyglutosipalia) covadongaensis / TYPE / R. I. Sc. N. B. I. G. 24885 / Vidit R. Pace 1981 / Geostiba asturiensis Fagel det. V. Assing 2001" (IRSNB). **Paratypes:** 13 exs., same date and locality as holotype (IRSNB).

ADDITIONAL MATERIAL EXAMINED: **Spain:** 7 exs., Cantábria, W Reinosa, Tres Mares, 2000 - 2150 m, 4.VI.1991, leg. Wunderle (cWun, cAss); 8 exs., Asturias, SE Cangas de Onis, Covadonga, 1300 m, beech leaf litter and moss, 7.VI.1991, leg. Wunderle (cWun, cAss); 8 exs., Covadonga, Ref. Vega Redonda, 1650 m, 7.VI.1991, leg. Wunderle (cWun, cAss); 5 exs., Covadonga, Lago Ercina, Vega Bricial, 43°15N, 04°58W, 5.VI.1998, leg. Lompe (cAss).

COMMENTS: The descriptions of *G. asturiensis* and *G. covadongaensis* are based on material collected in the same locality. According to FAGEL (1967), both species are distinguished by the shapes of the head and pronotum, as well as by the male secondary sexual characters. A comparative study of the types and of additional material collected near the type locality, however, yielded no constant distinguishing characters. It appears that Fagel attributed the larger specimens - with more pronounced male secondary sexual characters and with a more transverse pronotum - to *G. asturiensis* and the smaller ones to *G. covadongaensis*. Therefore, the latter name is here synonymized with the former.

REDESCRIPTION: Habitus as in Fig. 35. Whole body more or less evenly testaceous to ferrugineous, often with the preapical abdominal segments indistinctly or weakly infuscate.

Head approximately as wide as long; with distinct microsculpture; puncturation very fine and sparse, barely noticeable; eyes small, not projecting from lateral outline of head, 1/4 to 1/5 the length of temples in dorsal view (Fig. 36). Antennae distinctly incrassate apically, preapical antennomeres about twice as wide as long (Fig. 35).

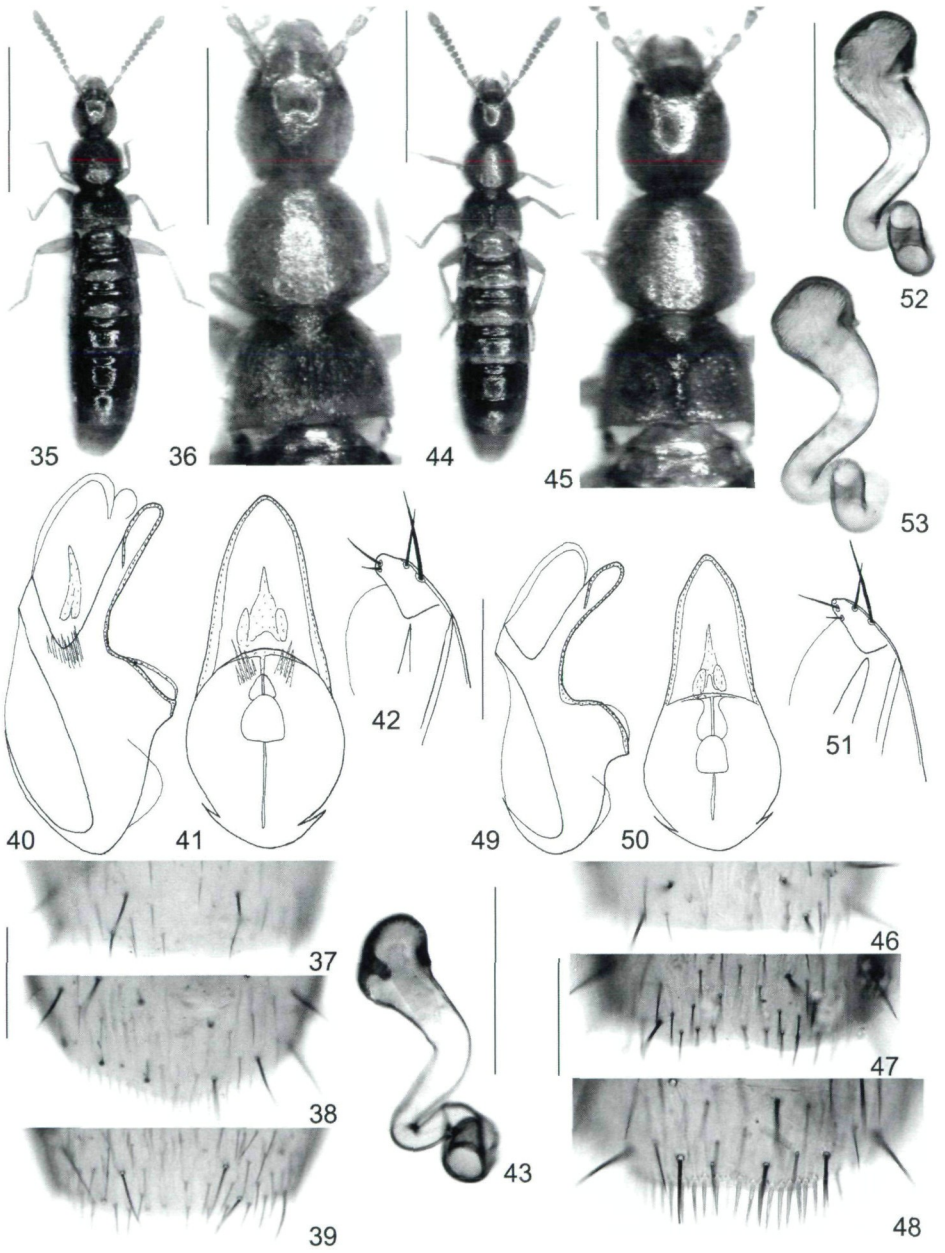
Pronotum of variable shape, in smaller specimens as wide as long or weakly transverse with weakly convex posterior margin, in larger specimens 1.10 - 1.15 times as wide as long and with weakly concave posterior margin; puncturation and microsculpture similar to those of head. Elytra with sexual dimorphism, slightly wider than and at suture about 0.55 times as long as pronotum (Fig. 36); microsculpture present; hind wings reduced.

Abdomen about 1.25 times as wide as elytra (Fig. 35); microsculpture distinct, but shallow; puncturation sparse and very fine; posterior margin of tergite VII without palisade fringe; tergite VIII with sexual dimorphism.

♂: elytra on either side of suture with oblong elevation covered with dense and strongly granulose punctures, this elevation decreasing in breadth and height posteriad; the remainder of elytral disc with relatively distinct and usually slightly granulose puncturation (Fig. 36); tergite VII in posterior half with or without two (or sometimes more), more or less pronounced, oblong granula, which may rarely form weak carinae; tergite VIII posteriorly weakly convex, in the middle weakly concave; posterior margin of sternite VIII obtusely pointed (Fig. 38); aedeagus with two clusters of spines in internal sac (Figs. 40-41); apical lobe of paramere as in Fig. 42.

♀: elytra without elevation and with very fine puncturation; tergite VII unmodified; tergite of similar shape as in male; posterior margin of sternite VIII broadly convex, in the middle not concave, with relatively thin marginal setae; spermatheca of very variable shape (Fig. 43).

DISTRIBUTION AND BIONOMICS: The species has become known from several localities in the Picos de Europa range (Asturias, Cantábria) (Fig. 67), where it was sifted from litter of shrubs and beech at altitudes of 1300 - 2150 m.



Figs. 35 - 53: *Geostiba asturiensis* (FAGEL) (35-43) and *G. urquillae* sp.n. (44-53). 34, 44) habitus; 36, 45), forebody; 37, 46) posterior part of ♂ tergite VIII; 38) posterior part ♂ sternite VIII; 39, 47) posterior part of ♀ tergite VIII; 48) posterior part of ♀ sternite VIII; 40-41, 49-50) median lobe of aedeagus in lateral and in ventral view; 42, 51) apical lobe of paramere; 43, 52-53) spermathecae. Scale bars: 35, 44: 1.0 mm; 36, 45: 0.5 mm; 37-41, 43, 46-50, 52-53: 0.1 mm; 42, 51: 0.08 mm.

Geostiba (*Trachyglutosipalia*) *urquillae* sp.n.
(Figs. 44-53, 69)

TYPES: **Holotype** ♂: "E - No. 2, País Vasco, 60 km SE Bilbao, Sierra de Urquilla, 1480 m, 42°57'17N, 02°19'38W, 10.VII.2003, V. Assing / Holotypus ♂ *Geostiba urquillae* sp. n. det. V. Assing 2003" (cAss). **Paratypes:** 4 ♂♂, 4 ♀♀: same data as holotype (cAss, cWun); 1 ♂, 1 ♀: "E - No. 3, País Vasco, 60 km SE Bilbao, Sierra de Urquilla, 1470 m, 42°57'24N, 02°19'47W, 10.VII.2003, V. Assing" (cAss).

DESCRIPTION: 1.9 - 2.6 mm. Habitus as in Fig. 44. Colour of body reddish yellow with the abdominal segment VI in most specimens at least weakly infuscate and the legs pale testaceous.

Head approximately as wide as long to weakly oblong (length measured from anterior margin of clypeus), dilated behind eyes (Fig. 45); integument with distinct fine microreticulation and extremely fine and sparse puncturation; eyes small, about one third the length of postocular region in dorsal view; antennae distinctly incrassate apically, antennomeres IV - X of increasing width and increasingly transverse, X more than twice as wide as long (Fig. 44).

Pronotum approximately 1.1 times as wide as long and 1.15 times as wide as head; microreticulation even more pronounced than that of head; puncturation more distinct than that of head. Elytra very short, at suture about 0.6 times as long as pronotum (Fig. 45); with sexual dimorphism; puncturation slightly granulose; microsculpture very shallow. Hind wings reduced. Abdomen with distinct microsculpture and very fine puncturation; posterior margin of tergite VII without palisade fringe.

♂: elytra with slightly more distinctly granulose puncturation, at suture and near scutellum distinctly elevated, in median area extensively depressed to weakly impressed (Fig. 45); abdominal tergite VII at posterior margin with or without weakly pronounced oblong tubercles; posterior margin of tergite VIII weakly convex to truncate in the middle (Fig. 46); sternite VIII posteriorly broadly convex and with long thin marginal setae; median lobe of aedeagus and apical lobe of paramere as in Figs. 49-51.

♀: elytra with finely granulose puncturation, at most only indistinctly elevated at suture and near scutellum; posterior margin of tergite VIII weakly concave in the middle (Fig. 48); sternite VIII posteriorly weakly concave in the middle and with modified stout marginal setae (Fig. 48); spermatheca as in Figs. 52-53.

ETYMOLOGY: The name (noun, genitive) is derived from the Sierra de Urquilla, where the type locality is situated.

COMPARATIVE NOTES: The geographically closest species of *Trachyglutosipalia* is *G. asturiensis* FAGEL, which is similar to *G. urquillae* in general appearance, but distinguished especially by the usually not infuscate abdominal segment VI, the different male secondary sexual characters (elytra at suture with coarsely granulose punctures, but not completely elevated; near suture without elevation; median elytral area not distinctly depressed or impressed), the different morphology of the aedeagus (not distinctly bent ventral process in lateral view, much more pronounced crista apicalis and crista proximalis), and also by the completely different shape and chaetotaxy of the apical lobe of the paramere.

DISTRIBUTION AND BIONOMICS: *Geostiba urquillae* is apparently endemic to the Sierra de Urquilla (Fig. 69), where the majority of the type specimens were sifted from grass roots in the shade of big rocks at an altitude of almost 1500 m (Fig. 66), together with several specimens of *G. vascona*. Two specimens were sifted from the leaf litter in a montane beech forest.

Geostiba (*Typhlusida*) *valentiana* PACE

Geostiba (*Tylosipalia*) *valentiana* PACE, 1990: 124.

MATERIAL EXAMINED: **Spain: Aragón:** 6 ♂♂, 2 ♀♀: 30 km S Teruel, Sierra del Javalambre, NE Javalambre, 40°09'07N, 01°00'23W, 1700 m, N-slope with scattered pine trees, 14.IV.2003, leg. Assing (cAss).

COMMENTS: This species has become known only from the Sierra de Javalambre.

Geostiba (Typhlusida) neilae sp.n.
(Figs. 54-65, 69)

TYPES: **Holotype** ♂: "E - No. 15, Castilla-León, 60 km SE Burgos, Sierra de Neila, 1870 m, 42°02'51N, 03°02'33W, 16.X.2003, P. Wunderle / Holotypus ♂ *Geostiba neilae* sp. n. det. V. Assing 2003" (cAss). **Paratypes:** 2 ♀♀: same data as holotype (cAss, cWun).

DESCRIPTION: 2.3 - 2.6 mm. Habitus as in Fig. 54. Head dark brown; pronotum and elytra brown to dark brown, slightly lighter than head; abdomen dark brown to blackish brown, with the anterior segments and the apex indistinctly lighter; antennae light brown; legs testaceous.

Head approximately as wide as long (length measured from anterior margin of clypeus); integument with shallow microreticulation and extremely fine and sparse puncturation; eyes small, less than half the length of postocular region in dorsal view (Fig. 55); antennae distinctly incrassate apically, antennomeres IV - X of increasing width and increasingly transverse, X approximately twice as wide as long (Fig. 54).

Pronotum approximately 1.15 times as wide as long and 1.15 times as wide as head; puncturation and microsculpture similar to those of head. Elytra very short, at suture about 0.65 times as long as pronotum (Fig. 55); puncturation with sexual dimorphism; microsculpture slightly more distinct than that of head and pronotum. Hind wings reduced. Abdomen with distinct microsculpture and very fine puncturation; posterior margin of tergite VII without palisade fringe.

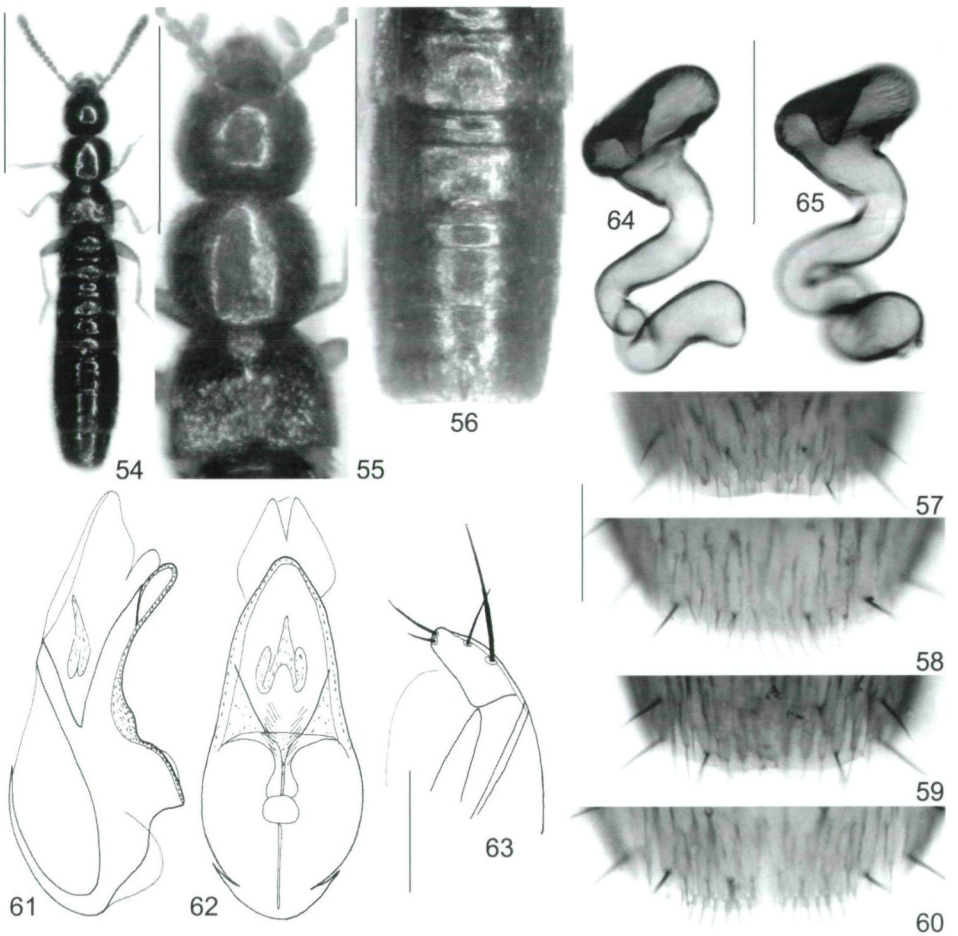
♂: elytra with a few coarsely granulose punctures near suture (Fig. 55); abdominal tergite VII at posterior margin with oblong tubercle (Fig. 56); posterior margin of tergite VIII weakly concave in the middle (Fig. 57); sternite VIII posteriorly broadly convex and with long thin marginal setae (Fig. 58); median lobe of aedeagus in lateral aspect with pronounced and distinctly sclerotized fold at base of ventral process (Fig. 61-62); apical lobe of paramere as in Fig. 63.

♀: elytra with very fine and sparse puncturation; posterior margin of tergite VIII as in Fig. 59; sternite VIII posteriorly weakly concave in the middle and with modified stout marginal setae (Fig. 60); spermatheca distinctive (Figs. 64-65).

ETYMOLOGY: The name (noun, genitive) is derived from the Sierra de Neila, where the type locality is situated.

COMPARATIVE NOTES: Among the species currently attributed to the subgenus *Typhlusida* CASEY, *G. neilae* is characterized especially by the morphology of the aedeagus (particularly the pronounced sclerotized fold at the base of the ventral process) and by the shape of the spermatheca (especially the the distinctive shape of the capsule). From *Geostiba valentiana* PACE, the geographically nearest congener from the Sierra de Javalambre, it is additionally distinguished by the darker coloration, the larger eyes, the unmodified male elytral suture, as well as by the lesser size and different position of the tubercle on the male tergite VII. For illustrations of *G. valentiana* see PACE (1990).

DISTRIBUTION AND BIONOMICS: Unlike *G. numantiensis*, *G. neilae* is apparently very rare and probably endemic to the Sierra de Neila (Fig. 69), where it was collected by sifting pine litter, grass roots, and moss at an altitude of almost 1900 m.



Figs. 54 - 65: *Geostiba neilae* sp.n. 54) habitus (♀ paratype); 55), forebody (♂ holotype); 56) ♂ abdominal tergites IV-VII; 57) posterior part of ♂ tergite VIII; 58) posterior part ♂ sternite VIII; 59) posterior part of ♀ tergite VIII; 60) posterior part of ♀ sternite VIII; 61-62) median lobe of aedeagus in lateral and in ventral view; 63) apical lobe of paramere; 64-65) spermathecae of the two paratypes. Scale bars: 54: 1.0 mm; 55-56: 0.5 mm; 57-62, 64-65: 0.1 mm; 63: 0.08 mm.

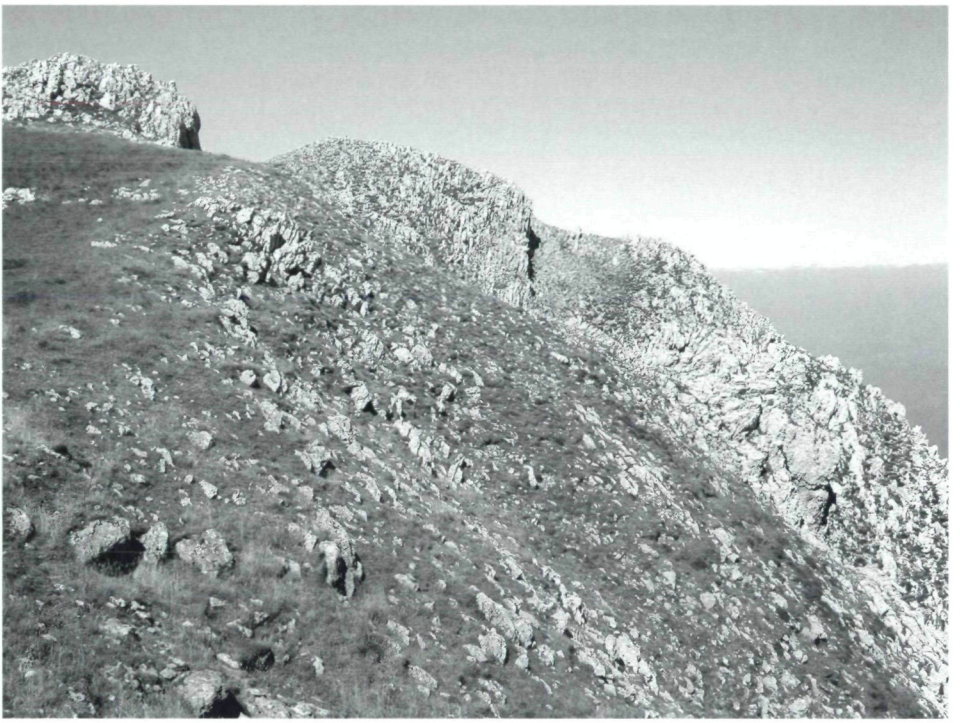


Fig. 66: Type locality of *Geostiba urquillae* sp.n.: Sierra de Urquilla, peak near Aitzgorri. Besides *G. urquillae*, *G. vascona* was found in this locality.

Zusammenfassung

Material der Gattung *Geostiba* THOMSON, 1858 aus dem Norden der Iberischen Halbinsel wird revidiert. Sechs Arten werden beschrieben bzw. redeskribiert: *G. asturiensis* FAGEL, 1967, *G. roscidavallensis* PACE, 1990, *G. ossalensis* PACE, 1990, *G. melberi* sp.n., *G. urquillae* sp.n. und *G. neilae* sp.n. Der Habitus und die Sexualmerkmale dieser Arten werden abgebildet. Zwei Namen werden synonymisiert: *G. asturiensis* (FAGEL, 1967) = *G. covadongaensis* (FAGEL, 1967), syn.n.; *G. roscidavallensis* PACE, 1990 = *G. orhyensis* PACE, 1990, syn.n. Für einige *Geostiba*-Arten werden weitere Nachweise gemeldet. Für acht Arten werden Verbreitungskarten erstellt.

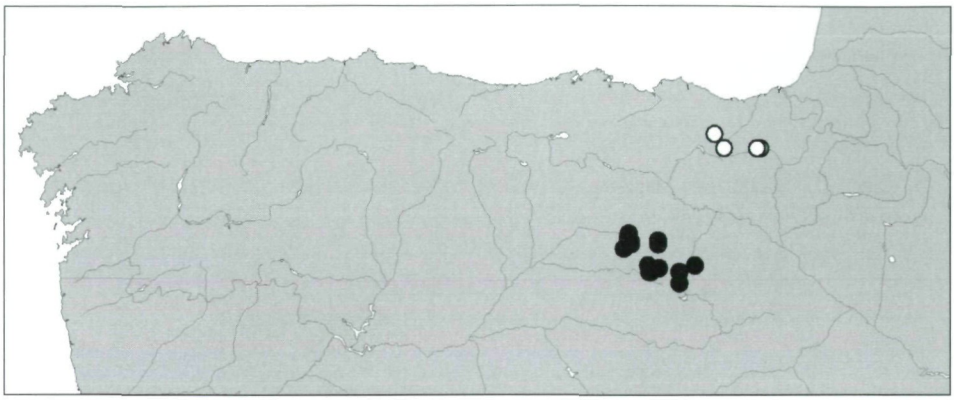


Fig. 67: Distributions of *Geostiba vascona* PACE (white circles) and *G. numantiensis* PACE (black circles) in northern Spain.

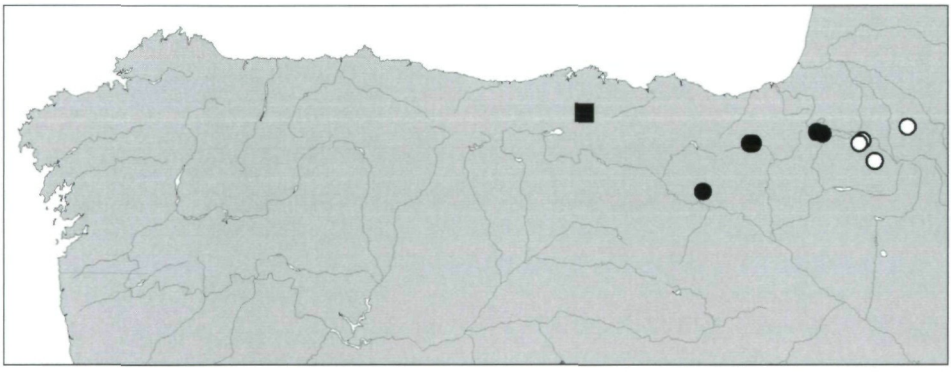


Fig. 68: Distributions of *Geostiba roscidavallensis* PACE (black circles), *G. ossalensis* PACE (white circles), and *G. melberi* sp.n. (black square) in the northern Iberian Peninsula.

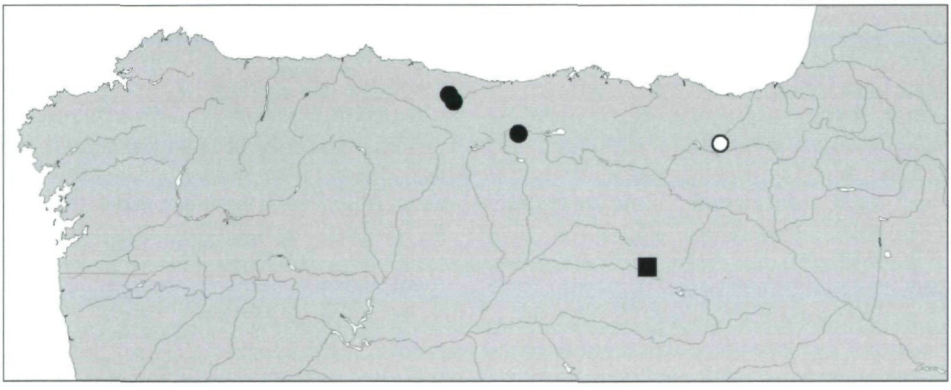


Fig. 69: Distributions of *Geostiba asturiensis* (FAGEL) (black circles), *G. urquillae* sp.n. (white circle), and *G. neilae* sp.n. (black square) in northern Spain.

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Jahr/Year: 2004

Band/Volume: 74_2004

Autor(en)/Author(s): Assing Volker

Artikel/Article: On the Iberian species of Geostiba THOMSON III. New species, new synonymies, and new records (Coleoptera: Staphylinidae: Aleocharinae). 175-189