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## MONOGRAPH OF *LEBIA* (*CHELONODEMA*) (COLEOPTERA, CARABIDAE)

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## MONOGRAPH OF *LEBIA* (*CHELONODEMA*) (COLEOPTERA, CARABIDAE)

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### ABSTRACT

The species of Neotropical *Lebiini* formerly placed in the genus *Lia* Eschscholtz, 1829 (type-species, *Lebia dorsalis* Dejean, 1826) are shown to form 2 distinct groups. *Lia* is synonymized with the subgenus *Lebia* Latreille, 1802. The bulk of the species, however, is kept in *Chelonodema* Castelnau, 1834 (type-species, *Lebia testacea* Dejean, 1831), a generic name formerly placed in the synonymy of *Lia* Eschscholtz, and now considered a subgenus of *Lebia* Latreille.

The following 4 species are transferred to *Lebia* s. str.: *decolor* (Bates), *dorsalis* Dejean (with its variety *unimaculata* Liebke as a synonym), *sellata* Dejean and *figurata* (Chaudoir). A related species, *pallida* (type-locality, Brazil, Amapá, Rio Cassiporé), is described.

The species of *Chelonodema* (39) are revised. The following new synonymies are established: *Lia zunilensis* Bates = *Lebia ocelligera* (Bates); *Lia quadrinotata* subsp. *longa* Liebke = *Lebia quadrinotata* Chevrolat; *Lia clavata* var. *cordobana* Liebke = *Lebia clavata* (Liebke); *Lia comma* Putzeys = *Lebia duodecimpunctata* Dejean; *Lia mystica* Liebke = *Lebia nigropicta* (Chaudoir); and *Lia sulcatula* Liebke = *Lebia signatipennis* Perty. The following 15 species are described as new (their type-localities as follows): from Brazil, *sagarana* (Goiás, Cabeceiras), *quipapa* (Pernambuco, Quipapá), *ytu* (São Paulo, Itu), *birai* (Minas Gerais, Serra do Caraça), *batu-ritea* (Ceará, Serra do Baturité), *omophoita* (Amazonas, Igarapé Belém), *cyclopica* (Pará, "Tapajoz"), *pujoli* (Bahia, Condeúba) and *mocorongia* (Pará, Santarém); *erolyoides* (Venezuela, Aragua, Rancho Grande); *azteca* (Mexico, Chiapas, Ocozucuctla); *balli* (Mexico, Oaxaca, Tehuantepec); *howdeni* (Colombia, Valle, Anchicaya Dam); *mathani* (Peru, San Martín, Moyobamba); and *passoura* (French Guiana, Passoura).

### INTRODUCTION

In the Neotropics the huge, cosmopolitan genus *Lebia* Latreille, 1802 (*Lebiini*) includes some 400 described forms. The structure of this genus, as characterized by Chaudoir in his World Monograph of the *Lebiini* (1870, 1871), was analyzed in a recent study of the Nearctic species (Madge, 1967). This author and Lindroth (1969) do not accept the splitting of *Lebia* as proposed by Chaudoir, and followed by some recent Carabidologists, especially the "French School". According to Madge most of Chaudoir's genera of *Lebiini* are heterogeneous, and some coincide with the definition of *Lebia*. They have to be considered either subgenera or synonyms.

The study of the *Lebiini* up to the present included in the Neotropical genus *Lia* Eschscholtz, 1829, brought to light interesting

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new data, and I have to concur with Madge's views in considering these species as belonging into *Lebia*.

As a first contribution to a monograph of the Neotropical *Lebia*, I give here a revision of the subgenus *Chelonodema* Castelnau, 1834. Originally it was planned as a monograph of the genus *Lia* Eschscholtz, 1829. However, as said above, I had to change my views on genera of Lebiini in the course of its preparation.

As usually understood, the concept of *Lia* goes back to Chaudoir, one of the great XIX Century Carabidologists, who presented the first systematic treatment of the genus (Chaudoir, 1871: 67-82, pl. III, figs. 149-163). In this revision *Lia* included 15 species, of which 7 were described as new.

Liebke (1928) published another revisionary study of *Lia* in the form of a somewhat extensive key, and including almost twice as many species as Chaudoir (25). In later contributions this same author added a few more forms.

The latest available catalog (Blackwelder, 1944) listed 29 species and 5 varieties, including, however, *Lia exorata* and *Lia mesoxantha*, both described as *Lia* from Peru by Kirsch (1873:127), but transferred to *Lebia* by Liebke (1941: 229).

In a recent paper on some Venezuelan Carabidae I listed some species of *Lia*, describing one as new (Reichardt, 1971: 79-81).

Stimulated by Madge's recent revision of *Lebia* north of Mexico (1967), I undertook a more careful study of the 40 odd known species of *Lia*. This led to the idea that *Lia*, as currently accepted, is a heterogeneous assemblage of species. The presence or absence of an upper protibial spur (figs. 79, 77) in the antenna cleaner (Madge, 1967: 146; Hlavac, 1971: 51), allied to the asymmetry or symmetry of male protarsi (figs. 73, 75), respectively, with a double row of papillate hairs diagonally or longitudinally placed on the ventral face of the protarsal segments I-III (figs. 74, 76), split the species formerly assigned to *Lia* in 2 groups.

The smaller group, which lacks the upper protibial spur, includes *dorsalis* Dejean, 1826, the type-species of *Lia* Eschscholtz (by original designation). These species share characters typical of *Lebia s. str.* (*apud* Madge, 1967; *in litt.*). Lindroth (1969: 1016), however, does not share Madge's opinion that *Lebia s. str.* is present in North America, and considers what Madge calls *Lebia s. str.* as equal to *Poecilothais* Maindron, 1905. The knowledge of the Neotropical *Lebia* is still too imperfect to permit a decision about this problem, which could bring up nomenclatorial problems, since *Lia* Eschscholtz would in that case have priority over *Poecilothais* Maindron.

Four of the species formerly included in *Lia*, and a new species, belong into this group, and are redescribed within *Lebia s. str.* at the end of the paper, for the sake of completeness.

The majority of the species formerly included in *Lia* forms a quite distinct and homogeneous group, which is here given subgeneric rank within *Lebia* Latreille, 1802. Since *Chelonodema* Castelnau, 1834

(considered as a synonym of *Lia* Eschscholtz, 1829, in the literature), with *Lebia testacea* Dejean, 1831, as type-species, is an available name, it is used for this group.

*Chelonodema* includes a total of 39 species, of which 15 are described as new. Undoubtedly this revision must be considered a preliminary one. Many species of *Chelonodema* may conceivably be hidden in *Lebia* (in the old sense) and related genera, and only a better knowledge of the Neotropical *Lebia* will expose them.

Up to the present the available material of *Chelonodema* has always been quite scarce, most species having been described upon single specimens. For this monograph I have seen, at some time or other, some of the most important collections (listed below), with close to 1,000 specimens. All species originally referred to *Lia* in the old sense, have been seen. A few of these forms have to be considered synonyms; the "varieties" listed in the literature (see Blackwelder, 1944: 56) are not considered as valid. As in the case of most Lebiini, these varieties have been defined on color characters, which are subject to very much intraspecific, apparently non-geographic variation.

Variation which seems to be geographic was noted in *nigropicta* Chaudoir. Typical specimens of *nigropicta* occur in Argentina (Misiones) and southern Brazil (Santa Catarina); a differently patterned form, described as a distinct species, *mystica* Liebke, has been recorded from the States of São Paulo, Rio de Janeiro and Minas Gerais in Brazil. The material at hand is not sufficient for a correct interpretation of the phenomenon, and, for the time being, I prefer to synonymize both, an action supported by the identical aedeagus of specimens from the southern and the northern parts of the range.

Some differences in elytral pattern were also found between Venezuelan and northeastern Brazilian specimens of *trifasciata* Chaudoir. No specimen from intermediate localities is known as yet, and Venezuelan specimens are scarce. Since no male specimen from Venezuela was available for dissection of the genitalia, which may be a good distinctive character, I prefer not to name the different forms at this stage.

Due to the poor knowledge of the other subgenera of Neotropical *Lebia* at this stage, this revision is limited to a redefinition of *Chelonodema*, without reference to the other subgenera. It is my opinion that the Neotropical *Lebia* will have to be revised stepwise, by subgenera, and only after this task has been accomplished, will it be possible to understand its structure.

The species of *Chelonodema* are tentatively segregated in six species groups, of which the last 2, of *Novemmaculata* and *Signatipennis* include species which do not fit into the other groups, and which should be considered as provisory.

#### MATERIALS

This monograph has been based on materials from several collections, as listed below. Abbreviation of the collections, as used here,

follows the proposal of Arnett & *al.* (1969: 11) for a standard 4-unit abbreviation.

I am grateful to the keepers of these collections.

- AMNH American Museum of Natural History, New York, United States (Mrs. Patricia Vaurie);
- BMNH British Museum (Natural History), London, England (Mr. P. Hammond and Dr. R. B. Madge);
- CCBC Carlos Bordon private collection, Caracas, Venezuela;
- CISC California Insect Survey, Berkeley, United States (Dr. J. A. Chemsak);
- CJNC Jacques Nègre private collection, Versailles, France;
- CLSC Museo de Historia Natural La Salle, Sociedad de Ciencias Naturales La Salle, Caracas, Venezuela (Mr. L. J. Joly T.);
- CNCI Canadian National Collection of Insects, Ottawa, Canada (Dr. J. M. Campbell);
- DZUP Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Paraná (Pe. J. S. Moure, C.M.F.);
- FAUC Instituto de Zoologia Agrícola, Facultad de Agronomía, Universidad Central de Venezuela, Maracay, Aragua (Drs. F. Fernandez Y., C. J. Rosales and J. Bechyné);
- IBSP Instituto Biológico, Secretaria da Agricultura, São Paulo (Pe. F. S. Pereira, C.M.F.);
- MACN Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires, Argentina (Mr. M. J. Viana);
- MCZC Museum of Comparative Zoology, Harvard University, Cambridge, United States (Dr. John F. Lawrence);
- MNHN Museum National d'Histoire Naturelle, Paris, France (Mme. A. Bons and Mlle. H. Perrin);
- MZSP Museu de Zoologia, Universidade de São Paulo;
- UASM Department of Entomology, University of Alberta, Edmonton, Canada (Drs. G. E. Ball and D. R. Whitehead).

#### TYPES

In the British Museum (Natural History), London, I studied the specimens on which Bates based his study published in the "Biologia Centrali-Americana". It is well known that only part of Bates' collection of the "BCA" is in London, the remainder being in the Museum National d'Histoire Naturelle, Paris. Bates usually labelled the holotype as "type"; other specimens were labelled "cotypes", but have to be considered paratypes. Holotypes of Bates are, as a rule, kept

in the British Museum, while some paratypes (often not marked as such) are in the Paris Museum. The specimens of *Chelonodema* in both collections have been accordingly labelled by me, even though, as occurred with all the material seen in the early phases of this work, all were labelled as *Lia*.

Types of Dejean's and Chaudoir's species were found in the Oberthür collection in the Paris Museum. Since most were not labelled as types, I have done so with specimens undoubtedly types. The type of *notata* Brullé is also kept in this collection.

Types of some other authors were not seen, especially because I did not consider it necessary to study a type when the species was easily characterized by its description. In a few cases I have written to the curators of the collections in which they are believed to be (especially according to Horn & Kahle, 1935); in a few cases types were located; others may have been destroyed. To make future work easier I mention below the types of species I have not seen, and which may be found in some collections.

*Bates, H. W.*: the holotype of *quadriannulata*, a species described earlier than the "BCA" species, was not located in the British Museum.

*Castelnau, F. L.*: the types of *scripta* and *variabilis* were not located in the Paris Museum collection, where most of his specimens are kept (Horn & Kahle, 1935: 38).

*Liebke, M.*: the remains of Liebke's private collection have been housed after World War II in the Polish Academy of Sciences (Mroczkowski, 1960); a large part, however, was destroyed during the war. The same is true for some of the Museum collections in Germany, where some of Liebke's types were deposited. Of *Lia* Mroczkowski only mentions the types of *novemmaculata* and *mystica*, as well a "cotype" of *piresa* (Mroczkowski, 1960: 391). A "cotype" of *toroana* and the "types" of *clavata* and *clavata* var. *cordobana*, originally stated to be in Liebke's collection, have probably been destroyed; the same fate must have happened to the "type" of *sulcatula*. The "type" of *toroana* is most probably preserved in the Berlin Museum; of the 2 "cotypes" of *quadrinotata* var. *longa*, stated to be in the Dresden Museum, a single specimen has recently been located (Dr. R. Hertel, *in litt.*). The holotype of *dorsalis* var. *unimaculata* is preserved in the Museu de Zoologia, Universidade de São Paulo.

*Mannerheim, C. G.*: according to Horn & Kahle (*l.c.*: 165), the type of *elegans* should be preserved in the Zoological Museum of Helsinki, along with the other species of this author. I have not tried to locate it.

*Motschulsky, V. von*: Horn & Kahle (*l.c.*: 183) state that Motschulsky's types are preserved in the Zoological Museum of the University of Moscow. I have not been able to get information on the type of *spissicornis*.

*Perty, J. A. M.*: Dr. H. Freude informed me that the ♀ holotype of *signatipennis* is preserved in the Zoologische Sammlung des Bayerischen Staates, München.

*Putzeys*, J. A. A. H.: I have not tried to locate the types of *albosinuata* and *comma*, which according to Horn & Kahle (*l.c.*: 217) should be kept in the Institut Royal d'Histoire Naturelle, Bruxelles.

*Sturm*, J.: according to Horn & Kahle (*l.c.*: 272) part of Sturm's collection should be in the Zoologische Sammlung des Bayerischen Staates, München. Dr. H. Freude was kind enough to inform me that only a very small part of Sturm's collection has been purchased by München, and that the types of the 2 species of *Lia* are not among these.

#### METHODS

The descriptions are mostly based on color characters, since the species are very similar morphologically. The subgeneric description is long, as to include all important characters.

Species of which enough males were available had their aedeagus dissected. Specimens from which aedeagi were dissected are marked throughout the text with an asterisk (\*). Aedeagi are glued on points kept together with the specimen. In all cases the aedeagus is shown in 2 views, lateral (with the left paramere visible) and dorsal. No attempts have been made to study the internal structure of the male genitalia.

In general the aedeagus is very uniform, but in a few cases it is a very valuable distinctive character.

Most species are illustrated, the illustrations of whole beetles having been made under camera lucida; sketches of elytra have been drawn directly from the specimen, and are not drawn to scale since they are only intended to give a general idea of the elytral pattern.

Literature references are as complete as possible, but I have not repeated catalog citations. These are given for the subgenus.

#### ACKNOWLEDGEMENTS

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Professor Howard E. Hinton, F. R. S., Department of Zoology, University of Bristol, England, kindly put laboratory facilities at my disposal. There the paper was developed as a side-project.

Special thanks are due to Dr. R. B. Madge, British Museum (Natural History), for interesting comments on the paper, and suggestions about the classification of *Lebiini*. Dr. R. D. Pope and Mr.



Bernard J. Clifton (British Museum, Natural History), and Mme. A. Bons (Museum National d'Histoire Naturelle) helped very much with specimens, but also with essential bibliography. I am very grateful for their help.

subgenus **Chelonodema** Castelnau, 1834, stat. n.

*Lia* Eschscholtz, 1829 (*pars*); Lacordaire, 1854: 130; Gemminger & Harold, 1868: 142 (Catalog); Chaudoir, 1870: 156 (In key); 1871: 67-68 (Redescription, with revision of species); Bates, 1883: 243 (Description of Central American species); Liebke, 1928: 133 (Key to species); Csiki, 1932: 1344 (Catalog); Blackwelder, 1944: 56 (Catalog); Jeannel, 1949: 882.

*Chelonodema* Castelnau, 1834: 49 (as genus; type-species, *Lebia testacea* Dejean, 1831, by original designation).

Relatively large Lebiini (from 10 to 15 mm, a few species smaller), of yellowish-testaceous color, in most cases with very variable, black markings on elytra.

*Head.* Relatively small, with large, bulging eyes; fronto-clypeal suture well marked; 2 pairs of ocular setae; one pair of setae on clypeus. *Mouthparts* (*Lebia ytu*, figs. 1-4). *Labrum* more or less quadrangular, with 6 relatively long setae on front margin; mandibles not completely covered by labrum. *Mandibles* strong and sharp, pointed. *Maxillae* normal, with well developed, 4-segmented palpi; galea with small, apical segment; penultimate segment and proximal half of last usually black, remaining parts testaceous. *Labium* with single basal tooth, 3-segmented palpi; glossae and paraglossae fused to form a spoon-shaped, not very much sclerotized ligula; proximal half of last palpal segment black. *Antennae* usually reaching the first third of elytra; 11-segmented; scape slightly larger than other segments; pedicel cylindrical, short; next 2 segments cylindrical and long; remaining segments slightly depressed; basal 3 and half of IV segment shiny, with few and sparse setae, remaining segments very finely and densely pubescent, except for a thin, glabrous and more or less shiny area in the middle of the segment, on both sides, parallel to sides. Antennae usually black, except for a variable number of basal segments which are usually testaceous; a rather constant character, even if varying in some species (as in *erotyloides*).

*Pronotum.* Wider than head and always wider than long. Usually widest at about the middle, curved from front angles (just next to neck) to basal angles; basal margin sinuate. Surface convex, deplanate at sides, with fine median line; never punctate. Two pairs of marginal setae, one at the widest point and one at the basal angle (the anterior setae usually well inside the lateral margin). In many species with a thin, black margin; some species with black, discal spots, usually 2, one on each side of the median line; 2 species (*cyclopica* and *clavata*) with a single, median spot, and one species (*scripta*) with 4 spots,

2 on each side of median line. Spots apparently a good, constant character.

*Scutellum*. Relatively small, triangular and always microrugose. Usually testaceous.

*Elytra*. Always much wider than pronotum, with well-developed humeri; widest in posterior third, then quickly narrowed until apical angle (sharp or rounded); apical margin usually concave-convex; without apical, transparent membrane; sutural angle sharp. Striate in all species, with short, scutellar striole and 9 complete striae; these usually finely punctate, in some species more impressed. Interstices very deplinate, impunctate in some species, finely punctate in others; very coarsely punctate in *erotyloides*. Glabrous, except for well developed marginal setae, and some setae on the III interstice (one slightly in front and one well behind the middle, and in some specimens a supplementary seta placed more or less in the middle of this interstice). Elytra usually differently patterned. *Hind wings* normally developed in all species.

*Abdomen* with 6 visible sternites, the III about as long as IV and V together. Sternites shiny and pubescent; the last sternite with a variable number of longer setae along the posterior margin.

Last sternite of males of most species with a small incision in the middle of the posterior margin (fig. 70); of *quadriannulata*, *piresa*, *championi*, *melanocrepis*, *boliviensis*, *omophoita* and *albovariegata* males were not available for checking this character; in *quadrinotata* and *signatipennis* (fig. 71) the last sternite lacks the incision in both sexes; in *fasciata* males and females have the incision, even though it is not as deep in females; in *novemmaculata*, of which I have only seen one female, the last sternite has a much larger and deeper incision (fig. 72).

Last tergite not completely covered by elytra, usually with 2 black spots, one on each side.

*Male genitalia* (figs. 5-8). Aedeagus well developed, differently shaped in the species, especially its apex; parameres small, right one much smaller than the left one.

*Legs*. Front and middle coxae spherical and prominent, very slightly separated from each other; hind coxae transverse. Hind trochanters about a third as long as femora; these strong, thickest in the middle. Tibiae as long as femora, multicarinate longitudinally and setose on carinae; front tibiae with upper spur (fig. 79) on antenna cleaner. Tarsi with deeply bilobed IV segment; claws well developed, pectinate. Segments I to III of protarsi of males asymmetric, biserially squamulose underneath (figs. 73-74). Meso-tibiae of males with a small pre-apical notch (fig. 78), which in a single species, *duodecimpunctata*, is variable, frequently almost absent.

#### GEOGRAPHY AND PHLOGENY

The species of *Chelonodema* occur throughout the Neotropical Region. The known northern limits are in Mexico, at about the Tropic

of Cancér (*Lebia quadrinotata* and *Lebia balli*, both recorded from Alamos in the state of Sonora, at about 29°N). The southern limits of the subgenus are less well defined. Very few species from the southern part of South America have been seen; *Lebia clavata* is the species collected in the southernmost localities, Rio Grande (Rio Grande do Sul, Brazil) and Cordoba (Cordoba, Argentina), both at about 32°S. Localities further south, especially in Argentina, are to be expected in the future.

As will be seen in the taxonomic part, the species of *Chelonodema* are assigned to 6 species groups. About 92% of the known species (36) belong in 4 groups, *i. e.*, *Quadrinotata*, *Testacea*, *Albosinuata* and *Fasciata*. The other 2 groups, *Novemmaculata* and *Signatipennis* include only 3 species, all of which occur in the area of the Atlantic Forest in Brazil.

Species group	Atlant. Forest (* only NE; ** also NE)	Amazonian Basin	Central Brazil	N and NW South America	Centr. America (* also NW South America)	Mexico
<i>Quadrinotata</i>			<i>sagarana</i>	<i>erotyloides</i> <i>houldeni</i>	<i>quadrinotata</i> <i>ocelligera</i> * <i>quadrinotata</i>	<i>asteca</i> <i>balli</i>
<i>Testacea</i>	<i>testacea</i> <i>quipapa</i> * <i>duodecimpunct.</i> <i>decemmaculata</i> <i>ytu</i> <i>birai</i> <i>baturitea</i> * <i>variabilis</i> ** <i>scripta</i>	<i>boliviensis</i> <i>toroana</i> <i>omophoita</i> <i>cyclopica</i>	<i>clavata</i> <i>nigromarginata</i>	<i>caligula</i> <i>championi</i> <i>melanocrepis</i> <i>passoura</i>		
<i>Albosinuata</i>	<i>albosinuata</i> <i>trifasciata</i> * <i>nigropicta</i>	<i>alloveriegata</i>		<i>trifasciata</i>		
<i>Fasciata</i>	<i>pujoli</i> <i>fasciata</i>	<i>nathani</i> <i>mocoronga</i>		<i>thomsoni</i>		
<i>Novemmaculata</i>	<i>pireca</i> <i>novemmaculata</i>					
<i>Signatipennis</i>	<i>signatipennis</i> *					

The bulk of species of *Chelonodema* occurs in South America (Table), and most belong to the *Testacea*, *Albosinuata* and *Fasciata* species groups (figs. 10, 11). Only 2 species of the *Testacea* species group, *championi* and *melanocrepis* occur in Panama. These, however, are considered as species from northern and northwestern South America which reach into the southern part of Central America.

Even though a total of 12 South American species are only known from their type-locality (and some only from the holotype), it is possible to distinguish a large number of species which occur along the eastern coast of Brazil, a distribution which roughly coincides with that of the Atlantic Forest (and in the southern states of Brazil the

*Araucaria* Forest), even though some species spread more into the interior than does the Forest, others reach into Argentina, and still others reach deep into northeastern Brazil.

Other species are typically Amazonian in distribution, and finally there are some which occur in northern South America, and are also found in the northwestern part of the Continent (west of the Andes), and may even enter Panama.

The species of the *Testacea* species group occur in all three areas (see table), but are especially common in the Atlantic Forest. Two of these occur in northeastern Brazil, and a single species, *baturitea*, occurs in a forest enclave in the middle of the xerophytic "caatinga" (Serra do Baturité; see Reichardt, 1971b: 176).

Two species of the *Testacea* group, *clavata* and *nigromarginata*, seem to be Central Brazilian species, but they also seem to spread into the neighborhood of the Atlantic Forest.

Of the 4 species of the *Albosinuata* group, 2 occur in the Atlantic Forest, and one each in the Amazonian Forest and northern South America (the latter, however, with an allopatric population in northeastern Brazil).

Of the 5 species included in the *Fasciata* group, 2 are Atlantic Forest species, 2 Amazonian and one apparently northern South American.

All typically Central American species (fig. 9) belong into the *Quadrinotata* group. Two are endemic to Mexico, but the majority occurs from Mexico south to Colombia and even Venezuela. A single species of this group, *sagarana*, is known from Central Brazil.

The *Quadrinotata* species group is very interesting from the evolutionary viewpoint. There has obviously been enough time for the group to evolve a few endemic forms, which are morphologically very similar to other species with much wider distribution. This is the case of *Lebia quadrinotata* and *Lebia balli*, as well as *Lebia ocelligera* and *Lebia howdeni*. *Lebia balli* and *Lebia howdeni* are most probably recent offshoots of *Lebia quadrinotata* and *Lebia ocelligera*, which still have a relatively restricted area of distribution. Species like *Lebia quadrinotata* and *Lebia ocelligera* must be regarded as old species, since they occur all over Mexico, from the western to the eastern coast, through the Central Plateau (fig. 9).

It seems plausible to admit that a South American ancestor of this group (*Quadrinotata*), of which a relict representative is *Lebia sagarana* in Central Brazil, gave origin on one side to the species of the *Quadrinotata* group, and on the other side to all the other groups of species still endemic to South America.

#### KEY TO SPECIES

1. Elytra reddish or testaceous, either unicolor or with yellow rings; sometimes with black apical margin ..... 2
2. Elytra always with spots, bands or other kinds of markings of a color different from the ground color ..... 6

2. Elytra reddish, each elytron with 2 large, yellow rings, one more or less in the middle, near margin, and one near apex, and a small, also yellow, humeral spot. Nicaragua, Costa Rica and Panama ..... *quadriannulata* (Bates, 1878) (p. 18)  
Elytra testaceous and unicolor, sometimes with black, apical margin or a short, black part of suture ..... 3
3. Apical fourth of elytral suture black; interstices very clearly but not very coarsely punctate; tibiae and tarsi black; antennal scape reddish. Mexico ..... *azteca*, sp. n. (p. 16)  
Elytra completely testaceous ..... 4
4. Smaller species (around 10 mm); only antennal scape testaceous; elytral interstices very finely and almost imperceptibly punctate. Brazil (Bahia to Rio de Janeiro) .....  
..... *testacea* Dejean, 1831 (p. 24)  
Larger species (around 15 mm); usually scape and pedicel testaceous (in some specimens pedicel black); elytral interstices very clearly punctate ..... 5
5. Elytra very deeply, irregularly and coarsely punctate; striation almost imperceptible. Panama, Venezuela and Peru .....  
..... *erotyloides*, sp. n. (p. 17)  
Elytral interstices clearly but not very coarsely punctate; striation clearly visible. Brazil (Goiás, Mato Grosso and Bahia)  
..... *sagarana*, sp. n. (p. 16)
6. Elytra with black, transverse bands, each with one or more yellow spots inside ..... 7  
Elytra marked otherwise ..... 8
7. Black band, on each elytron, with 2 anterior and 2 posterior, more or less circular, yellow spots; smaller species (10 mm). Peru ..... *mathani*, sp. n. (p. 46)  
Black band, on each elytron, with one anterior and 2 posterior yellow spots of irregular outline; larger species (15 mm). French Guiana ..... *thomsoni* (Chaudoir, 1871) (p. 46)
8. Elytra marked with irregular, yellowish spots with black borders ..... 9  
Elytra marked otherwise ..... 12
9. Elytra with 2 irregular, transverse bands of cream- or ivory colored spots with black margin ..... 10  
Elytra not with cream- or ivory colored spots and black margin ..... 11
10. Anterior and posterior bands continuous, very similar; pronotum with 2 black, discal spots. Brazil (Bahia to Santa Catarina) .....  
..... *albosinuata* (Putzeys, 1846) (p. 42)

- Posterior band broken up in 2 circular spots; pronotum without black spots. Brazil (Amazonas) and Peru .....  
 ..... *albovariegata* (Chaudoir, 1871) (p. 41)
11. Elytra with a median, orange, irregular and transverse band with black borders, 2 small and irregular black spots on each elytron, in front of the middle (often fused to forms a single, irregular stripe), and 3 small, black spots posteriorly; pronotum with 2 black, discal spots. Venezuela and northeastern Brazil ..... *trifasciata* (Chaudoir, 1871) (p. 43)
- Each elytron with a basal, black, triangular spot, a large, irregular spot in the middle, and 2 small posterior ones; pronotum without black spots. Brazil (Minas Gerais to Santa Catarina) and Argentina (Misiones) .....  
 ..... *nigropicta* (Chaudoir, 1871) (p. 44)
12. Elytral spots large, usually in small number ..... 13  
 Elytral spots small, dot-like, in a variable number ..... 18
13. Elytra with one or 2 large, transverse, band-like, black markings, one anterior and one slightly behind the middle, continuous or interrupted along the suture, and 2 small, black spots on each elytron, behind the median band; from these spots to the apex the ground color is lighter or darker; pronotum with a thin, black margin ..... 14  
 Elytra marked otherwise ..... 16
14. Elytra with one black band, more or less "X"-like, delimiting an almost triangular, yellow spot on each elytron, the apex of the triangle directed to the suture. Brazil (Pará) ....  
 ..... *mocorongá*, sp. n. (p. 49)  
 Elytra with 2 black bands ..... 15
15. Anterior and median black bands interrupted along the suture; knees and tarsi black. Brazil (Bahia) *pujoli*, sp. n. (p. 47)  
 Anterior and median black bands continuous along the suture; legs testaceous. Brazil (Pernambuco to Rio de Janeiro) ..  
 ..... *fasciata* (Sturm, 1843) (p. 48)
16. Elytra with 2 black spots, the anterior always smaller, near scutellum, laterally extending to the IV stria; both fused along suture; posterior spot sometimes reaching humeri along the VII and VIII interstices; elytra very deeply punctate-sulcate, interstices very convex. Brazil (Bahia and Minas Gerais) ..... *signatipennis* Perty, 1830 (p. 51)  
 Each elytron with 2 or 3 larger spots, each individualized, not fused along suture; pronotum with or without thin, black margin; elytral sulci not very deep ..... 17

17. Each elytron with 2, usually large, black spots; pronotum without black margin. Central America (Mexico to Nicaragua) ..... *quadrinotata* (Chevrolat, 1835) (p. 21)  
 Each elytron with 3 large, black spots; pronotum with fine, black margin. Brazil (Amazonas) .. *omophoita*, sp. n. (p. 37)
18. Species with small, more or less circular spots, one or more fused along the suture ..... 19  
 Species with small, more or less circular, black spots on elytra, these never fused along suture ..... 20
19. Larger species (13 mm), with 5 spots on each elytron, only one fused along the suture, placed in the middle; last abdominal sternite of ♀ with deep incision along posterior margin (fig. 72). Brazil (Guanabara and São Paulo) .....  
 ..... *novemmaculata* (Liebke, 1928) (p. 50)  
 Smaller species (9 mm), with 4 spots on each elytron, 2 fused along suture; one just behind the scutellum, the other in the middle. Brazil (São Paulo) *piresa* (Liebke, 1935) (p. 50)
20. Species with 4 or less spots on each elytron, some with a yellow ring around spots ..... 21  
 Species with 5 or more spots on each elytron ..... 30
21. Elytral spots surrounded by a yellow ring, which sometimes is very diffused ..... 22  
 Elytral spots simple ..... 23
22. Elytral interstices very shiny and smooth, with a single row of very fine punctures along the median line. Colombia ....  
 ..... *howdeni*, sp. n. (p. 20)  
 Elytral interstices finely but very densely punctate. Central America (Mexico) to Colombia and Ecuador .....  
 ..... *ocelligera* (Bates, 1883) (p. 19)
23. Each elytron with a single spot ..... 24  
 Each elytron with more than one spot ..... 25
24. Elytral spot large, longitudinal; sutural interstice black; pronotum with a black spot in the middle; head completely black. Brazil (Mato Grosso and Rio Grande do Sul) and Argentina (Cordoba) ..... *clavata* (Liebke, 1929) (p. 25)  
 Elytral spot very small, transverse; suture not black; pronotum without black spot; head reddish. Brazil (Pernambuco) ..  
 ..... *quipapa*, sp. n. (p. 25)
25. Each elytron with 2 black spots ..... 26  
 Each elytron with more than 2 spots ..... 28
26. One longitudinal and larger spot placed more or less in the middle of the elytron, and a much smaller, circular spot near

- the apex; pronotum with black margin and with a single spot in the middle. Brazil (Mato Grosso and Rio Grande do Sul) and Argentina (Cordoba) .. *clavata* (Liebke, 1929) (p. 25)
- Both spots more or less equally well developed; pronotum without black margin and unspotted ..... 27
27. Palpi and knees, tibiae and tarsi black; apical elytral margin black. Mexico and Nicaragua .....  
 ..... *quadrinotata* (Chevrolat, 1835) (p. 21)
- Palpi and legs reddish; apical elytral margin, except for a spot at outer apical angle, reddish. Mexico *balli*, sp. n. (p. 23)
28. Each elytron with 4 spots: one larger spot in front of the middle, fainter than the others, one small, circular spot in about the middle, and 2 small spots near apex. Brazil (Bahia to São Paulo) ..... *ytu*, sp. n. (p. 32)
- Each elytron with 3 spots ..... 29
29. Pronotum with a median, black spot; antennae completely black. Brazil (Mato Grosso and Rio Grande do Sul) and Argentina (Cordoba) ..... *clavata* (Liebke, 1929) (p. 25)
- Pronotum only with black margin; antennal scape, pedicel and base of III segment testaceous. Venezuela .....  
 ..... *caligula* (Reichardt, 1971) (p. 26)
30. Each elytron with 4 transverse rows of small, black spots, the spots of the anterior and posterior rows in part or completely fused to forms an irregular band; pronotum with 4 discal spots. Brazil (Bahia to São Paulo) .....  
 ..... *scripta* (Castelnau, 1834) (p. 39)
- Each elytron with 5, 6 or 7 spots only, placed in 3 transverse rows ..... 31
31. Each elytron with 7 spots; pronotum with black margin and a single, discal spot. Brazil (Pará) .. *cyclopica*, sp. n. (p. 39)
- Each elytron with 5 or 6 spots; pronotum either without or with 2 discal spots ..... 32
32. Each elytron with 6 spots ..... 33
- Each elytron with 5 spots ..... 38
33. Pronotum with 2 discal spots. Brazil (Pernambuco to São Paulo) .....  
 ..... *variabilis* (Castelnau, 1834) (p. 37)
- Pronotum without discal spots ..... 34
34. Legs completely reddish. Bolivia and Peru .....  
 ..... *boliviensis* (Chaudoir, 1871) (p. 33)
- Legs at least in part black ..... 35



35. Elytral spots very large, especially the median ones, which are much larger than the anterior and posterior ones. Brazil (Amazonas) ..... *omophoita*, sp. n. (p. 37)  
Elytral spots small, the median ones about as large as the anterior or posterior ones ..... 36
36. Suture black. Peru and Ecuador .. *toroana* (Liebke, 1941) (p. 34)  
Suture colored as elytra ..... 37
37. Palpi black; aedeagus as in fig. 56. Brazil (Minas Gerais to São Paulo) ..... *birai*, sp. n. (p. 35)  
Palpi testaceous; aedeagus as in fig. 57. Brazil (Ceará) .....  
..... *baturitea*, sp. n. (p. 36)
38. Pronotum with 2 discal spots. Brazil (São Paulo, Minas Gerais and Goiás) ..... *nigromarginata* (Chaudoir, 1871) (p. 27)  
Pronotum without discal spots ..... 39
39. Pronotum unicolor, in a single specimen with black front margin; legs reddish (in one specimen brown). Colombia, Panama and Costa Rica ..... *championi* (Bates, 1883) (p. 28)  
Pronotum with complete, black margin ..... 40
40. Legs reddish. French Guiana ..... *passoura*, sp. n. (p. 29)  
Legs at least in part black ..... 41
41. Tibiae testaceous, tarsi black ..... 42  
Tibiae and tarsi black ..... 43
42. Elytral suture black; anterior spot transverse and larger than any of the others; outer spot of median row larger than inner spot; posterior spot about as large as the inner one of the median row; maxillary palpi testaceous. Panama .....  
..... *melanocrepis* (Bates, 1883) (p. 29)  
Elytral suture not black; all spots more or less circular, the spots of the median and posterior rows variable in size; maxillary palpi in part black. Brazil (Bahia to Santa Catarina), Argentina (Misiones) and Paraguay .....  
..... *duodecimpunctata* Dejean, 1831 (p. 30)
43. Elytral suture yellow. Brazil (Rio de Janeiro to Santa Catarina) .....  
..... *decemmaculata* (Chaudoir, 1871) (p. 31)  
Elytral suture black. Brazil (Bahia to Rio Grande do Sul), Argentina (Misiones) ..... *ytv*, sp. n. (p. 32)

#### QUADRINOTATA SPECIES GROUP

Large species (10-18 mm), testaceous to reddish, some with 2 black spots on each elytron, and spots with yellow rings (in *quadrianulata* spots wanting). Pronotum without discal spots.

Mostly Mexican and Central American species, a few reaching into northwestern South America, and a single species in Central Brazil (fig. 9).

Species included:

1. *azteca*, sp. n.
2. *sagarana*, sp. n.
3. *erotyloides*, sp. n.
4. *quadriannulata* (Bates, 1878)
5. *ocelligera* (Bates, 1883)
6. *howdeni*, sp. n.
7. *quadrinotata* Chevrolat, 1835
8. *balli*, sp. n.

***Lebia (Chelonodema) azteca*, sp. n.**

(Figs. 9, 42, 73-74)

Holotype ♂. MEXICO, *Chiapas*: 11.6 mi S Ocozocuautila, 3,200 ft., 10-13.VI.1966 (G.E. Ball & D.R. Whitehead) (UASM).

Paratypes. MEXICO. *Chiapas*: *idem* (1 ♂\*, MZSP); 20-25 mi N Huixtla, 3,000 ft., 1-5.VI.1969 (H.J. Teskey) (1 ♀, CNCI). *San Luis Potosi*: Tamazunchale, 16.VII.1956 (D.H. Janzen) (1 ♀, CISC).

Orange-testaceous. Palpi black. Antennae black from pedicel. Knees, tibiae and tarsi black. Apical fourth of elytral suture black. Last abdominal tergite testaceous. Aedeagus (fig. 42). 18 mm.

Elytral striae very clearly and coarsely punctate; interstices punctate, punctures only slightly smaller than those of striae.

Notes

*Lebia azteca* is one of the large, testaceous species, well characterized by the very short, black suture near the apex; the punctuation of the elytral interstices is very similar to that of the Brazilian *Lebia sagarana*.

This is the only completely testaceous species of *Chelonodema* thus far recorded from Mexico.

***Lebia (Chelonodema) sagarana*, sp. n.**

(Figs. 9, 43)

Holotype ♀. BRAZIL, *Goiás*: Cabeceiras, Lagoa Formosa, 24-27.X. 1964 (Exp. Dep. Zool.) (MZSP).

Paratypes. BRAZIL, *Bahia*: Vitória da Conquista, 1890 (C. Pujol) (1 ♂\*, MNHN). *Mato Grosso*: Miranda, XI.1894-III.1895 (Andeer) (1 ♀, MNHN). *Espírito Santo*: no locality (1 ♂, MCZC).

Completely orange-testaceous. Palpi with basal segment and apical half of last segment reddish, remaining parts black. Antennae black from III segment. Knees and tarsi black, in the males the whole tibiae are black. Last abdominal tergite testaceous. Aedeagus (fig. 43). 14.5 mm.

Pronotum slightly wider than head, slightly narrowed from the middle to base; basal angles rounded; surface very finely and transversely rugose. Elytral striae clearly punctate; interstices punctate, punctures slightly smaller than those of striae.

#### Notes

*Lebia sagarana* is very closely related to another new species, *Lebia erotyloides*. It is easily distinguished from that species by the elytral punctures: while *Lebia erotyloides* has very coarse interstitial punctures, *Lebia sagarana* has the interstitial punctures smaller than those of the striae.

It is interesting to note that the 2 known males of this new species have completely black tibiae, while the 2 females have reddish tibiae and only black knees. There is no doubt, however, that the 4 specimens are conspecific.

The specific name refers to Guimarães Rosa's book "Sagarana", whose action takes place in the general area where the holotype was collected.

#### ***Lebia (Chelonodema) erotyloides*, sp. n.**

(Figs. 9, 12, 44, 78, 79)

*Lia testacea* (non Dejean, 1831) Reichardt, 1971: 80.

Holotype ♂. VENEZUELA, *Aragua*: Rancho Grande, 1,100 m, 9.VI.1955 (F. Fernandez Y & C. Rosales) (FAUC).

Paratypes. PANAMA, *Canal Zone*: Madden Dam area, 28.VII.1956 (Lundy) (1 ♀, AMNH)

VENEZUELA. *Monagas*: Jusepin, 4.VI.1967 (J. Salcedo & L. Rodriguez V.) (1 ♂\*, MZSP).

PERU. *San Martin*: Tarapoto, X-XII.1885 (M. de Mathan) (3 ♀ MNHN; 1 ♀, MZSP; 1 ♀, BMNH).

Completely orange-testaceous species. Palpi black, with apex of last segment reddish. Antennae black from III segment, in some specimens pedicel also black. Tibiae and tarsi black, in one ♀ from Tarapoto tibiae only black in apical half. Last abdominal tergite testaceous. Aedeagus (fig. 44). 14.5 - 15.8 mm.

Pronotum only slightly wider than head, very little narrowed from the middle towards base; basal angles very rounded; surface

finely, but very clearly and transversely rugose. Elytra very coarsely punctate on whole surface, interstitial punctures as large as those of striae, the latter barely distinguishable from the former.

#### Notes

When I first studied the Venezuelan specimens of this new species (Reichardt, 1971), I treated them as Dejean's *testacea*, though I was not sure about it because of lack of Brazilian specimens. *Lebia erotyloides*, which bears a superficial resemblance to certain Erotylidae, is actually quite distinct from *Lebia testacea* (a species in another species group), being in fact more closely related to *Lebia sagarana*.

*Lebia erotyloides* is distinguished from *Lebia sagarana* by several characters, of which the best is the type of elytral punctures. There are also differences in color of legs, but some variation was noted.

#### ***Lebia* (*Chelonodema*) *quadriannulata* (Bates, 1878), comb. n.**

(Figs. 9, 29)

*Lia quadriannulata* Bates, 1878: 607 (Type, Nicaragua, Chontales; not located); 1883: 244, pl. 12, fig. 9 (Panamanian specimens), Liebke, 1928: 152 (Key).

Completely reddish-testaceous species, each elytron with a more or less transverse, comma-shaped humeral spot and 2 rings, one in about the middle, extending from the IV stria to near margin, and one near apex, extending from the I to the VII striae; the rings are about as wide as one interstice; rings and humeral spot yellow. Last abdominal tergite also reddish-testaceous. 10 mm.

Elytra with very finely punctate striae; interstices microrugose and more finely and sparsely punctate than striae.

#### Material examined

NICARAGUA. *Chontales* (1 ♀, MNHN).

COSTA RICA. No locality (1 ♂, BMNH).

PANAMA. *Chiriqui*: Bugaba (1 ♂, 2 exs., BMNH); Volcan de Chiriqui, 2,500-4,000 ft. (2 ♀, MNHN).

#### Notes

*Lebia quadriannulata* is superficially very similar to *Lebia ocelligera*, which also occurs in Central America. *Lebia quadriannulata*, however, is easily characterized by its completely reddish-testaceous color, without black on elytra and appendages.

**Lebia (Chelonodema) ocelligera** (Bates, 1883), comb. n.

(Figs. 9, 30, 47)

*Lia ocelligera* Bates, 1883: 244, pl. 12, fig. 8 (Holotype ♂, Mexico, Veracruz, Misantla; BMNH, examined); Liebke, 1928: 135 (Key); 1929: 298 (Reference of specimen from "Brazil").

*Lia zunilensis* Bates, 1883: 244 (Holotype, Guatemala, Quetzaltenango, Cerro Zunil; BMNH, examined); Liebke, 1928: 135 (Key). *Syn. n.*

Reddish-brown. Antennae variable in color, usually black from IV segment (typical *occelligera*), in some specimens black from the III (typical *zunilensis* - the holotype of this form, however, with darkened pedicel). Each elytron with 2 black spots, each encircled by a yellow ring, which usually is very clearly marked (typical *occelligera*), but frequently is very diffused (typical *zunilensis*); spots somewhat variable in size, the anterior spot placed in the middle of elytra, extending from the V interstice or the VI stria to the VII interstice or the VII stria (the yellow ring, when very clearly marked, about half as wide as one interstice); posterior spot near the apex, extending from the II stria or the II interstice to the IV stria or slightly after it; the black spots sometimes (*zunilensis*) more or less irregular, not completely circular. Last tergite with a median, circular, black spot. Aedeagus (fig. 47). 12.7 mm.

Elytral striae very finely punctate, interstices with very fine and sparse punctures.

## Material examined

MEXICO. *San Luis Potosi*: 3.6 mi W El Naranjo, 1,200 ft. (1 ♀, UASM). *Veracruz*: Lago Catemaco (1 ex., CJNC; 1 ♀, AMNH; 1 ♂\*, MZSP); Misantla (holotype ♂, paratype ♀, BMNH); Orizaba (1 ♀ BMNH; 1 ♀, "cotype", MNHN); San Andrés (1 ex., CJNC); 2.5 mi W Sontecomapan, 100 ft. (1 ♀, UASM), *Chiapas*: 22 mi N Ocozocoautla (1 ♂, 1 ♀, CNCI).

BRITISH HONDURAS. Belize (2 ♀, BMNH). No locality (1 ♂, 2 ♀, MNHN).

GUATEMALA. *Alta Verapaz*: San Juan (1 ♂, "cotype", MNHN); Senahú (1 ex., BMNH; 1 ♂, "cotype", MNHN). *Quetzaltenango*: Cerro Zunil, 4,000-5,000 ft. (holotype and 1 paratype of *zunilensis*, BMNH; 2 ♀ "cotypes" of same form, MNHN).

COSTA RICA. No locality (1 ♀, MNHN).

COLOMBIA. *Districtho Especial*: Bogotá (1 ♀, MNHN), *Cundinamarca*: Canancha (2 ♀, MNHN). *Boyacá*: Muzo (1 ♀, MZSP).

ECUADOR. Salidero, 350 ft. (2 exs., MNHN); San Javier (1 ex., MNHN).

## Notes

Examination of the types of the 2 species led me to believe that the 2 were most probably synonyms. According to the description and type-material, *Lebia ocelligera* only differs from *Lebia zunilensis* by the color of the antennal segments; even in the type-series, however, I noted variation: the holotype of *zunilensis* has the pedicel darkened. The existing difference of black spots and yellow rings, but especially the latter, is not constant, and the material studied shows intense variability. I finally decided to synonymize the 2 forms described by Bates when I received the male and the female from Mexico, Chiapas in which the female has completely testaceous III antennal segment (typical *ocelligera*), and the male has the III segment darkened, almost black (typical *zunilensis*). Since both were collected at the same locality, the same day, there seems to be no doubt that the 2 forms are mere variants of a single species. Unfortunately the available material does not permit confirmation by the study of the male genitalia.

*Lebia ocelligera* is a very typical species, especially in regard to the yellow rings around the black spots. It is most closely related to the Colombian *Lebia howdeni*, but is easily distinguished by the characters in the key. These 2 species are also related to *Lebia quadriannulata* (which also occurs from Nicaragua to Panama), but the latter lacks the black spots of the elytra, and only the yellow rings are present; it also has a small, yellow, humeral spot, which is not present in the other 2 species. The punctate elytral interstices of *Lebia quadriannulata* suggest closer relations to *Lebia ocelligera* than to *Lebia howdeni*.

The genitalia of *Lebia quadriannulata* was not studied, but that of *Lebia ocelligera* (fig. 47) differs somewhat from that of *Lebia howdeni* (fig. 48).

Until now *Lebia ocelligera* (including records of *zunilensis*) was only known from Mexico and Guatemala. The present records from the other Central American countries, as well as Colombia and Ecuador, suggest that the species could also occur in northwestern Brazil, as indicated by the single specimen from "Brasilien", mentioned in the literature (Liebke, 1929: 298).

***Lebia (Chelonodema) howdeni*, sp. n.**

(Figs. 9, 48)

Holotype ♂\*. COLOMBIA, Valle, Anchicaya Dam, 70 km E Buenavista, 1,200 ft., 22.VII.1970 (H. & A. Howden) (CNCI).

Paratype. Same data, 18.II.1970 (H. Howden) (1♀, MZSP).

Reddish-brown. Antennae black from IV segment. Each elytron with 2 black spots, the anterior spot more or less in the middle, extending from the middle of the V to the middle of the VII interstices,

the posterior spot, slightly smaller, placed near the apex, extending from the II to the IV striae; both spots encircled by a very diffuse, but visible, yellow ring. Last abdominal tergite with a small, median and circular, black spot. Aedeagus (fig. 48). 15 mm.

Elytral striae very finely punctate; interstices very shiny, with a single row of very fine punctures in the middle.

#### Notes

As seen above *Lebia howdeni* is very similar to *Lebia ocelligera*, a species which also occurs in Colombia, however, *Lebia howdeni* has a single row of fine punctures along the middle of the interstice, while *occelligera* has densely punctate interstices. A slight difference is also found in the aedeagus.

I take pleasure in naming this new species after its collector, Professor Henry F. Howden.

#### *Lebia (Chelonodema) quadrinotata* Chevrolat, 1835

(Figs. 9, 45, 46)

*Lebia quadrinotata* Chevrolat, 1835, n.º 184 (Holotype ♂, Mexico, Mexico, Tultepec; Oxford University Museum, not seen); 1835, pl. 136.

*Lia quadrinotata*; Chaudoir, 1871: 77-78, pl. 3, figs. 158, 159; Bates, 1883: 236, 244, pl. 12, fig. 7 (Record from Nicaragua); Liebke, 1928: 135 (Key).

*Lia quadrinotata* subsp. *longa* Liebke, 1929: 297 (Types, 2 specimens, "Mexico"; 1 specimen in the Dresden Museum, not seen). *Syn. n.*

Reddish-brown. Palpi either completely black, or apex of last segment and basal segment of maxillary palpi, brownish. Antennae variable, black either from pedicel or from III segment. Each elytron with 2 spots, very variable in size and shape; in some specimens the spots are small, more or less circular, the anterior one placed near the middle, extending more or less from the V to the VII striae, and the posterior spot placed near the apex, between the II and the IV striae; in the other extreme the spots are very large, more irregular in outline, the anterior spot more or less oblique oval, extending from near the II stria well into the VII interstice, and the smaller, posterior spot extending from the I to the IV interstices. Intermediate specimens are also present. Apical margin of elytra always black. Last abdominal tergite with a median spot, and frequently also a smaller one on each side; last sternite without incision in males and females. Knees, tibiae and tarsi black. Aedeagus (fig. 45, specimen with small spots; fig. 46, specimen with large spots). Total length, 10.4 - 17.3 mm; maximum width, 4.5 - 7.9 mm.

Elytral interstices very coarsely and irregularly punctate; punctures of interstices about as large as those of striae, the latter frequently almost imperceptible.

#### Material examined

MEXICO. *Sonora*: Alamos (2 ♂\*, 1 ♀, CISC). *Durango*: Sierra de Durango (1 ex., BMNH). *Sinaloa*: 27 mi E Villa Union (1 ♂, 2 ♀, CNCI; 1 ♂, MZSP; 1 ♂, CISC). *Nayarit*: Compostela (1 ♀, AMNH). *Jalisco*: Chapala (1 ♀, CISC). *Puebla*: Atlixco (1 ex., BMNH); Rinconada (1 ♀, MNHN; 1 ♀, CISC). *Veracruz*: Cordova (2 exs., BMNH; 2 ♂\*, 1 ♀, CISC); Cotaxtla (1 ♂, 1 ♀, CISC); Misantla (3 exs., BMNH); Veracruz (1 ex., BMNH). *Morelos*: Cuernavaca (1 ex., BMNH; 1 ♂, 2 ♀, UASM); Tejalpa (1 ♂, 1 ♀, UASM). *Guerrero*: Acapulco (1 ♂, MNHN). *Oaxaca*: Tehuantepec (1 ♂, AMNH); 63 mi W Tehuantepec (1 ♂, 1 ♀, CISC); Temascal (1 ♂, 1 ♀, CISC). *Chiapas*: near Frontera Comalapa, 2,600 ft. (2 ♂, 5 ♀, UASM, MZSP); 20-25 mi N Huixtla, 3,000 ft. (1 ♂, CNCI); 21 mi W Lizardo Cardenas (1 ♀, CNCI); 25 mi E Zanatepec (1 ♀, MZSP). No locality (6 ♂, 3 ♀, MNHN; 1 ex., BMNH).

NICARAGUA. *Chontales* (1 ♂, MNHN).

"Darien", F. Geay, 33-96 (4 exs., MNHN).

#### Notes

*Lebia quadrinotata* is easily characterized by the 2 elytral spots. It is very closely related to another Mexican species, *Lebia balli*, with which it seems to be sympatric (fig. 9), at least in part of the area. *Lebia balli*, however, has completely reddish legs, and instead of having the black apical margin of the elytra, it only has a small black spot at the outer apical angle of each elytron.

*Lebia quadrinotata* is very variable, as already mentioned by Chaudoir (1871, pl. 3, figs. 158, 159); the specimen on which the original description was based has small elytral spots; I have seen specimens which fit into the 2 extreme types. Their aedeagi do not differ (figs. 45, small spotted specimen; 46, large spotted specimen).

There is also great variation in size (see measurements), and for this reason I am considering Liebke's form *longa* as a synonym of Chevrolat's species. Variation is apparently random.

The 4 specimens in the Paris Museum, collected by F. Geay in "Darien" (= Colombia) are very typical specimens, and there is no doubt that they belong here. The presence of this species in Colombia, however, needs confirmation. Unfortunately I have no references to localities in Colombia where Geay might have collected.

#### Notes on the types

The male holotype of *Lebia quadrinotata*, preserved in the Oxford University Museum (Col.: 124), according to informations received



from Dr. E. Taylor, is placed next to a drawer label which reads "Lia 4 notata Chev. Col. Mex. 2° C fas. 8.8 (Lebia) Mexico Toultepec Juin terre chaude D. Sallé".

Of Liebke's form *longa*, very briefly described upon 2 specimens from "Mexico", I have only located 1 specimen in the Dresden Museum. The second may have been kept in Liebke's own collection, and may have been destroyed during the war with part of the collection.

**Lebia (Chelonodema) balli, sp. n.**

(Figs. 9, 49)

Holotype ♂. MEXICO. *Oaxaca*: Tehuantepec, 11.VI.1964 (J.C. & D. Pallister) (AMNH).

Paratypes. MEXICO, *Sonora*: 7 mi W Alamos, 8.VIII.1964 (Chemsak & Powell) (15 ♂\*, 4 ♀, CISC, MZSP). *Sinaloa*: 5 mi N Mazatlán, 30.VII.1964 (W.C.McGuffin) (1 ♀, MZSP); *idem*, 5-7. VIII.1964 (J.E.H.Martin) (1 ♀ CNCI); *ibidem*, 24.VII.1964, 5.VIII.1964 (Chemsak & Powell) (2 ♀ CISC); 27 mi E Villa Union, 7., 26.VII.1964 (H. Howden) (2 ♀, CNCI, MZSP). *Oaxaca*: 19 mi S Matias Romero, 24-25.VI.1969 (D. Bright & J.M. Campbell) (1 ♂, CNCI); Tehuantepec, 12.VII.1965 (P. & C. Vaurie) (1 ♂, 1 ♀, AMNH, MZSP). *Chiapas*: 7.7 mi N Frontera Comalapa, 2,600 ft., 15-16.VI.1966 (G.E.Ball & R.D.Whitehead) (2 ♂, UASM).

Reddish-brown-brown. Antennae black from III segment. Each elytron with 2 black, circular spots, one placed in about the middle, extending from the IV to the VII striae, and the posterior spot near apex, extending from the middle of the I to the middle of the IV interstices; apical margin also reddish, except at the outer apical angle, which is black. Last abdominal tergite with a single, median and circular, black spot. Aedeagus (fig. 49). 13.9 mm.

Elytral interstices very coarsely and irregularly punctate, the punctures about as coarse as the strial ones, but the striae very clearly marked.

Notes

*Lebia balli* is very similar and very closely related to Chevrolat's *Lebia quadrinotata*, as discussed above. Even though a slight variation was also noted in the elytral spotting of *Lebia balli*, this is never as intense as *Lebia quadrinotata*.

The aedeagus of *Lebia balli* (fig. 49) is somewhat different from that of *Lebia quadrinotata*.

It gives me pleasure to name this new species after Professor George E. Ball.

TESTACEA SPECIES GROUP

Medium sized species (9 - 14 mm), testaceous-reddish, with 1 to 7 small, black dots on each elytron (*testacea* without spots, *scripta*

with a larger number of spots). Pronotum without, with 1, 2 or even 4 discal spots.

Most species of the *Testacea* species group occur in the Atlantic Forest (Table) or the Amazonian Basin (fig. 10); a few are in northern and northwestern South America, but only 2 reach into Panama.

Species included:

9. *testacea* Dejean, 1831
10. *quipapa*, sp. n.
11. *clavata* (Liebke, 1929)
12. *caligula* (Reichardt, 1971)
13. *nigromarginata* (Chaudoir, 1871)
14. *championi* (Bates, 1883)
15. *melanocrepis* (Bates, 1883)
16. *passoura*, sp. n.
17. *duodecimpunctata* Dejean, 1831
18. *decemmaculata* (Chaudoir, 1871)
19. *ytu*, sp. n.
20. *boliviensis* (Chaudoir, 1871)
21. *toroana* (Liebke, 1941)
22. *birai*, sp. n.
23. *baturitea*, sp. n.
24. *omophoita*, sp. n.
25. *variabilis* (Castelnau, 1834)
26. *cyclopica*, sp. n.
27. *scripta* (Castelnau, 1834)

***Lebia* (*Chelonodema*) *testacea* Dejean, 1831**

(Fig. 10)

*Lebia testacea* Dejean, 1831: 367-368 (Holotype ♂, "environs de Rio-Janeiro"; MNHN, examined).

*Lia testacea*; Chaudoir, 1871: 78 (Redescription; *spissicornis* Motschulsky synonymized); Liebke, 1928: 135 (Key).

*Lebidema spissicornis* Motschulsky, 1864: 227-228 (Type, "Brésil"; not located); Chaudoir, 1871: 78 (As synonym of *testacea* Dejean).

Completely orange-testaceous, with black palpi (apex of last segment reddish), II to XI antennal segments, knees, tibiae and tarsi, and 2 slightly elongate spots on last abdominal tergite. 10.9 mm.

Pronotum slightly wider than head, only very slightly narrowed from the middle to base; surface very finely and transversely rugose and very finely and sparsely punctate.

## Material examined

BRAZIL. *Bahia*: Santo Amaro, Terra Nova (1 ♀, MNHN). *Espírito Santo*: Rio Itabapoana (1 ex., CJNC). *Rio de Janeiro*: Mendes (1 ex., CJNC); Nova Friburgo (1 ♂, 1 ex., MNHN). No locality: 3 ♂, 4 ♀. Holotype ♂ (MNHN), not labelled, according to description from near Rio de Janeiro.

## Notes

Among the testaceous species of *Chelonodema*, *testacea* is well characterized by its small size, and the elytral structure, with very finely and sparsely punctate interstices.

***Lebia (Chelonodema) quipapa*, sp. n.**

(Fig. 10)

Holotype ♂. BRAZIL, *Pernambuco*: Quipapá, Peri-Peri, 5.VI. 1892 (E. Gounelle) (MNHN).

Reddish. Palpi black, with apex of last segment brownish. Antennae black from IV segment. Pronotum with very thin, black margin. Each elytron with a small, transverse, black spot, more or less in the middle, extending from the V to the VII striae, less than half as long as wide; apical margin and a very short, apical part of the suture, black. Last abdominal tergite with 2 elongate, more or less comma-shaped, black spots. Sides of posterior margin of III to V abdominal segments, as well as posterior margin of last segment, black. Knees and tarsi black. 11.6 mm.

Elytral striae very clearly, but very finely punctate; interstices with fine and sparse punctures.

## Notes

*Lebia quipapa* is a very typical species, especially well characterized by the single, transversely elongate spot on each elytron. Due to the scarce available material, the aedeagus was not examined.

***Lebia (Chelonodema) clavata* (Liebke, 1929), comb. n.**

(Figs. 10, 13, 31, 50, 70)

*Lia clavata* Liebke, 1929: 263-265, fig. (Holotype, Brazil, Santa Catarina, Lages, in Liebke's collection, most probably destroyed).

*Lia clavata* var. *cordobana* Liebke, 1935: 304 (Holotype and paratype, Argentina, Sierra de Cordoba; in the Liebke and Bruch collections respectively; paratype examined). *Syn n.*

Very opaque testaceous. Mouthparts and antennae black. Only frons and vertex of head testaceous. Pronotum with black margin and a single, black spot in the middle. Elytra with a single spot placed slightly behind the middle, on the IV and V interstices; whole margin black. Last abdominal tergite with 2 large, black spots. Meso- and metathorax infuscated; abdominal segments also very much, but irregularly darkened. Trochanters, apices of femora, tibiae and tarsi black. Aedeagus (fig. 50). 9.3 - 11.4 mm.

Elytral striae very finely punctate; interstices also with very fine and sparse punctures.

#### Material examined

BRAZIL. *Mato Grosso*: Barra do Tapirapés (1 ♀, MZSP). *Rio Grande do Sul*: Rio Grande (1 ♂, MNHN).

ARGENTINA. *Cordoba*: Alta Gracia (1 ♀, MACN); Cordoba (23 exs.\*, CJNC, MZSP). *Entre Rios*: no locality (1 ♀, MACN). Not located: Punta Lara (1 ♂, MACN).

#### Notes

*Lebia clavata* is a very variable species. The Argentinian specimens listed above agree with Liebke's variety *cordobana*, a form characterized by much more black areas on the body: the head is completely black, the pronotal margin is much broader, and the median spot is connected in front and back with the black margin; the sutural interstice of elytra is black, the elytral spot is longer and much wider (fig. 31); ventrally the specimens are completely black.

The male from Rio Grande (BMNH) agrees with Liebke's description of *Lebia clavata*, but besides the typical elytral spot (Liebke, 1929, fig.), there is a much smaller one placed towards the apex. The female from Mato Grosso (MZSP) has a third posterior, also small, black spot (fig. 13).

In spite of this variation, it seems to me that all forms should be considered as a single, very variable species. For the present the material available is too spotty for further conclusions, and unfortunately only males from Cordoba are available at present for the study of the aedeagus (fig. 50).

Among the spotted species *Lebia clavata* is well characterized by the single, pronotal spot, a character only found in *Lebia cyclopica*, a species with 7 spots on each elytron.

#### ***Lebia (Chelonodema) caligula* (Reichardt, 1971), comb. n.**

(Figs. 10, 51)

*Lia caligula* Reichardt, 1971: 80-81, fig. 7 (Holotype ♂, Venezuela, Lara, Terepaima; FAUC, examined).

Reddish-testaceous. Palpi black, with apex of last segment brownish. Antennae with distal half of III segment and following ones black. Pronotum with thin, black margin. Each elytron with 3 spots, a larger one just in front of the middle, extending from the IV to the VII striae, and 2 smaller ones near the apex, the inner one from the middle of the I interstice to the middle of the III, the outer one from the IV interstice to the VII stria; apical margin and a short part of suture black. Last abdominal tergite with 2 black spots. Knees, tibiae and tarsi black. Aedeagus (fig. 51). 10.9 - 11.7 mm.

Striae and interstices finely and somewhat irregularly punctate.

#### Material examined

VENEZUELA. *Distrito Federal*: El Limón (Paratype ♀, CCBC); Rio Caurimaro (Paratype ♂ \*, MZSP). *Lara*: Terepaima, near Cabuda (Holotype ♂, FAUC).

#### Notes

*Lebia caligula* is easily characterized by the elytral spots. The only other species with 3 elytral spots is *Lebia clavata*, a species which occurs in southern Brazil and Argentina, and which, besides having the elytral spots differently placed, has a single pronotal spot.

***Lebia (Chelonodema) nigromarginata* (Chaudoir, 1871), comb. n.**

*Lia nigromarginata* Chaudoir, 1871: 74 (Holotype ♀, "Brésil"; MNNH, examined); Liebke, 1928: 151 (Key).

Testaceous. Proximal half of last segment of palpi, and penultimate segment of maxillary palpi, black. Antennae black from the IV segment. Pronotum with a clear black margin and 2 discal spots. Each elytron with 5 spots; in front of the middle a single, larger spot, placed from the middle of the II to the middle of the V interstices; median row of spots slightly behind the middle, both spots more or less circular, slightly smaller than the anterior spot, the inner spot limited by the I and the II striae, the outer spot extending from the middle of the IV to the middle of the VI interstices; posterior row placed near the apex, with 2 small, circular spots, the inner spot extending from the middle of the I interstice to the III stria, the outer spot from the middle of the IV to the middle of the VI interstices. All elytral margins with fine, black margin. Last abdominal tergite with 2 black spots. Legs with black knees, tibiae and tarsi. 10 mm.

Striae very finely but very clearly punctate; interstices with much finer and almost imperceptible punctures.

## Material examined

BRAZIL. *São Paulo*: Piracicaba (1 ♂, MZSP). *Minas Gerais*: Serra do Salito (1 ♂, DZUP). *Goiás*: Jataí (1 ♂, MNHN). No locality (Holotype ♀, MNHN).

## Notes

*Lebia nigromarginata* is easily distinguished from the other species with 5 spots on each elytron by the 2 pronotal spots. It is most closely related to *Lebia ytu*, a species which lacks pronotal spots, and has black antennae from the pedicel.

***Lebia (Chelonodema) championi* (Bates, 1883), comb. n.**

*Lia championi* Bates, 1883: 243 (Holotype, Panama, Chiriqui, Volcan de Chiriqui; BMNH, examined); Liebke, 1928: 136, 157 (Key; specimen from Costa Rica).

Reddish-testaceous. Proximal half of last segment of palpi and penultimate segment of maxillary palpi, brown. Antennae black from IV segment. Pronotum black on anterior margin (opposite neck). Each elytron with 5 black spots, the anterior spot larger and transverse, not as dark as the other spots, extending from the middle of the II interstice to the VI stria; spots of the median row placed in the middle of the elytra, the inner spot smaller than the outer, extending from the middle of the I to the middle of the II interstices; outer spot limited by the V and the VII striae; spots of posterior row smaller than those of the median row, about equally distant from the middle of the elytra and the apex; inner spot extending from the middle of the I to the middle of the III interstices, outer spot from the V to the VII striae; all elytral margins finely black. Last abdominal tergite with 2 black spots. Legs with brown tarsi. 12.7 mm.

Elytral striae clearly punctate; interstices very finely and sparsely punctate.

## Material examined

PANAMA. *Chiriqui*: Volcan de Chiriqui, 3,000-4,000 ft. (Holotype and 1 paratype, BMNH; 1 ♂, paratype, MNHN); *idem*, 2,500-4,000 ft. (1 ♂, paratype, MNHN). *Panama*: Cerro Campana, 3,000 ft. (1 ♀ CNCI).

COLOMBIA. *Districto Especial*: Bogotá (1 ♀, MNHN).

## Notes

The above description is based upon the ♀ from Bogotá, which differs in some characters from the original description of *Lebia championi*, such as the brown tarsi (completely reddish legs in the

description) and by the black front margin of the pronotum (completely unicolor in the description). Nevertheless I think that this specimen must belong to the same species, which thus has a wider distribution than previously known, from Costa Rica to Colombia.

The Panamanian female from Cerro Campana (CNCI) agrees with typical *Lebia championi*, but is somewhat smaller (11 mm) and has brown tarsi (as the Colombian specimen).

In general shape and elytral pattern *Lebia championi* is very similar to *Lebia melanocrepis* a species also described from Volcan de Chiriqui. Taking only Bates' specimens, the 2 species are readily distinguished, since *Lebia melanocrepis* has a black margined pronotum and black tarsi. The Colombian specimen seems to suggest variation in regard to these characters, and the 2 are most possibly synonyms. More material is necessary for a final decision however.

***Lebia (Chelonodema) melanocrepis* (Bates, 1883), comb. n.**

*Lia melanocrepis* Bates, 1883: 244, pl. 12, fig. 10 (Holotype, Panama, Chiriqui, Volcan de Chiriqui; BMNH, examined); Liebke, 1928: 151 (Key).

Notes

I have only seen the holotype of this species, and no redescription of it was drawn up at the time. As seen above, *Lebia melanocrepis* is very similar to *Lebia championi*, and may possibly be a synonym.

*Lebia melanocrepis* is also very similar to *Lebia duodecimpunctata* from Brazil, but the former has a black suture and testaceous palpi, while the latter has testaceous suture and darkened palpi.

***Lebia (Chelonodema) passoura*, sp. n.**

Holotype ♂. FRENCH GUIANA. Passoura (E. Le Moul't 1905.6) (MNHN).

Reddish-testaceous. Antennae darkened from the middle of the IV segment, but not black. Pronotum with thin, black margin. Each elytron with 5 spots; anterior spot larger than the others, more or less transverse, not as dark as the other spots, limited by the II and the VI striae; median row of spots in about the middle of elytra, its inner spot slightly smaller than the outer one, the inner extending from the I to the III striae, the outer from the V to the VII; posterior spots smaller, the inner extending from the middle of the I interstice to the III stria, the outer from the V to the VII striae; all margins black. Last abdominal tergite with 2 black spots. 13.6 mm.

Elytral striae clearly punctate; interstices with fine and sparse punctures.

## Notes

*Lebia passoura* is a very distinctive species, well characterized among the species with 5 elytral spots by the black margined pronotum and the reddish legs. The brown antennae are a very unique character among the known species.

***Lebia (Chelonodema) duodecimpunctata* Dejean, 1831**

(Figs. 10, 14, 52)

*Lebia duodecimpunctata* Dejean, 1831: 368-369 (Holotype ♀, "Brésil"; MNHN, examined).

*Lia duodecimpunctata*; Chaudoir, 1871: 72-73, pl. 3, fig. 154; Liebke, 128: 151 (Key); 1936: 304 (Record from Argentina, Misiones).

*Chelonodema affinis* Castelnau, 1834: 50 (*non Lebia affinis* Dejean, 1831; Holotype ♀, "Brésil"; MNHN, examined); Chaudoir, 1871: 72 (proposed synonymy with *duodecimpunctata* Dejean).

*Lia decempunctata* Sturm, 1843: 326-327, pl. 1, fig. 3 (Type, locality not stated, not located); Chaudoir, 1871: 72 (proposed synonymy with *duodecimpunctata* Dejean).

*Lia comma* Putzeys, 1846: 379-380, (Holotype, "Brésil"; not located).

*Lia duodecimpunctata* var. *comma*; Chaudoir, 1871: 72, 73 (considered a variety of *duodecimpunctata* Dejean). *Syn. n.*

Testaceous. Penultimate segment of maxillary palpi, and proximal half of last segment of both palpi, black. Antennae black from the IV segment. Pronotum with thin, black margin. Each elytron with 5 black spots; the anterior spot larger than the others, slightly transverse, and not as dark as the other, extending from the III to very close the VI striae; the 2 spots of the median row more or less equally well developed, the inner spot placed from the I to the III striae, the outer spot from the V to the VII; spots of the posterior row smaller than the others, the inner spot extending from the middle of the I interstice to the III stria, and the outer spot from the V to the VII striae; posterior margin black; suture slightly blackened near scutellum and near apex. Last abdominal tergite with 2 black spots. Sides of posterior margin of III to V and last abdominal segments black. Legs with black knees and tarsi; mesotibiae of males with pre-apical notch only very slight, sometimes almost inexistant. Aedeagus (fig. 52). 10.9 - 13.2 mm.

Elytral striae clearly but finely punctate; interstices finely and very sparsely punctate.

**Material examined**

BRAZIL. *Bahia*: Campinarana (4♂, 4♀, MNHN); Condeúba (7♂\*, 12♀, MNHN, MZSP). *Minas Gerais*: Mar de Espanha (1♂, CJNC); Matozinhos (1♀, MNHN); Muriaé (1♀, CJNC); Santa Bár-



bara, Serra do Caraça (2♂, 5♀, MNHN; 1♀, MZSP). *Espírito Santo*: Alegre, Fazenda Jerusalem (1♀, CJNC); Córrego do Itá (1♀, DZUP); Guarapari (1♀, MZSP); Santa Teresa (1♀, MZSP). *Rio de Janeiro*: Cantagalo (1♀, MNHN); Nova Friburgo (3♂, 1♀, MNHN). *Guanabara*: Rio de Janeiro (3♂, 1♀, MNHN); *idem*, Represa Rio Grande (1♀, DZUP); *ibidem*, Corcovado (1♀, DZUP). *São Paulo*: Ribeirão Pires (1♀, MNHN); São Paulo, Cantareira (2 exs., CJNC); *idem*, Horto Florestal (1♀, MZSP); Vale do Rio Pardo (1♂, 2♀, 1 ex., MNHN; 1♀, MZSP). *Paraná*: Olho d'Água (1♀, DZUP). *Santa Catarina*: Chapecó, 600 m (1 ex., CJNC); Corupá (1♀, MNHN); Nova Teutônia (30 exs., CJNC; 1♂, 3♀, MZSP). No locality: holotype ♀ of *duodecimpunctata* (Beske coll., ? from Nova Friburgo; MNHN); holotype ♀ of *affinis* (MNHN); 1 ex., ex-Mus-Chaudoir, ? type of *comma* (MNHN); (2♂, 6♀, MNHN).

ARGENTINA. *Misiones*: Dos de Mayo, 300 m (1 ex., CJNC); Villa Lutecia, near San Ignacio (1♂, MNHN).

PARAGUAY. *Itapúa*: Hohenau (1 ex., CJNC).

#### Notes

*Lebia duodecimpunctata* is easily characterized among the species with 5 elytral spots by several characters, as seen in the key. Its closest relative seems to be *Lebia ytu*, a sympatric species which is very similar, differing especially by the antennae (black from the IV segment; in *Lebia ytu* only the scape is testaceous) and by the testaceous tibiae (black in *Lebia ytu*).

*Lebia duodecimpunctata* is extremely variable, usually with elytral spots as described above; in some specimens the spots are very small, especially the posterior ones; in the form described by Putzeys as *Lia comma* the inner spot of the median row is slightly longitudinal, comma-shaped. I have only seen one specimen of this form (a specimen without locality in Chaudoir's collection, perhaps the type), and it agrees with *duodecimpunctata* in all other characters. I prefer to consider *Lia comma* as a synonym.

Examination of the type of *affinis* Castelnau leaves no doubt that it represents the same species. Sturm's *decempunctata* has not been seen, but illustration and description of this species leave no doubt that it is a synonym of *duodecimpunctata*, as first suggested by Chaudoir.

#### ***Lebia* (Chelonodema) decemmaculata** (Chaudoir, 1871), comb. n.

(Figs. 10, 16, 53)

*Lia decemmaculata* Chaudoir, 1871: 73-74 (Holotype ♀, no locality given in the description, specimen labelled as from Brazil, Rio de Janeiro, Nova Friburgo; MNHN, examined); Liebke, 1928: 152 (Key).

Reddish-testaceous. Palpi black, with apex of last segment reddish. Antennae black from pedicel. Pronotum with black margin. Each elytron with 5 more or less circular, black spots; anterior spot larger than others, extending from the middle of the II interstice to the V stria; inner spot of median row placed more anteriorly than outer spot, extending from the I stria to the middle of the II interstice; outer spot extending from the V to the VII striae; posterior spots smaller than median ones, placed closer to apex than to the median spots; inner spot extending from the I to the III striae; outer spot from the V to the VII striae; apical margin black; suture shortly black near the scutellum and near apex. Last abdominal tergite with 2 longitudinal spots. Sides of posterior margin of III to V abdominal segments black; posterior margin of last segment also black. Legs with black knees, tibiae and tarsi. Aedeagus (fig. 53). 9 - 11.8 mm.

Striae very clearly and finely punctate; interstices with very fine and sparse punctures.

#### Material examined

BRAZIL. *Rio de Janeiro*: Itatiaia (1 ex., IBSP); Nova Friburgo (holotype ♀, MNHN). *São Paulo*: Barueri (1 ♂, DZUP); Campos do Jordão (1 ♂, MZSP); Pindamonhangaba, Eugênio Lefèvre (1 ♂, 1 ex., MZSP); Ribeirão Pires (1 ♂, MZSP; 4 ♂, 1 ♀, 1 ex., MNHN); São Bernardo do Campo (1 ex., IBSP); São Paulo, Cantareira (1 ex., CJNC); *idem*, Jabaquara (2 exs., CJNC); *Paraná*: Caúna (3 ♀, AMNH); Irati (1 ♂, DZUP); Olho d'Água (1 ♀, DZUP); Rio Negro (1 ex., IBSP); no locality (1 ♂, MNHN). *Santa Catarina*: Corupá (1 ♀, MNHN); Nova Teutônia (1 ♀, MZSP); Rio Vermelho (2 ♂ \*, 3 ♀, AMNH, MZSP); no locality (1 ex., CJNC).

#### Notes

*Lebia decemmaculata* is closely related to *Lebia duodecimpunctata* and *Lebia ytu*, with which it is, at least partially, sympatric (fig. 10). They are, however, easily distinguished by the characters used in the key.

The aedeagus of *Lebia decemmaculata* (fig. 53) is also very characteristic, and easily distinguished the species in question.

#### *Lebia (Chelonodema) ytu*, sp. n.

(Figs. 1-4, 10, 17, 54)

Holotype ♂ \*. BRAZIL, *São Paulo*: Itu, Fazenda Pau d'Alho, 28-29.X.1965 (Martins & Biasi) (MZSP).

Paratypes. BRAZIL. *Bahia*: Condeúba, XI-XII.1888 (E. Gounelle) (9 ♂, 1 ♀, MNHN, MZSP). *Minas Gerais*: Pouso Alegre, XII.1965 (F. S. Pereira) (1 ♀, MZSP). *São Paulo*: Barueri, 28.X.1954, XII.1958, 22.X.1961, X.1965 (K. Lenko) (4 ♀, MZSP), 19.XI.1962 (1 ♂,

MCZC); Campinas, 693 m, XII.1967 (C. J. Rosseto) (1 ♀, MZSP); Piracicaba, 540 m, 18.X.1965 (S. Neto & F. Wiendl) (1 ♀, MZSP); São Paulo, XI.1934, VI.1935, IX.1936 (1 ♂, 2 ♀, IBSP, MZSP). *Rio Grande do Sul*: Serro Azul, I.1939, XI.1948 (1 ♂, 2 ♀, CJNC, MZSP). No locality (1 ♂, MNHN).

ARGENTINA. *Misiones*: Dos de Mayo, XI.1964, III.1965 (2 ♀, CJNC, MZSP); San Ignacio (1 ♀, MACN).

Testaceous. Palpi black, with apex of last segment testaceous. Antennae black from pedicel. Pronotum with black margin. Each elytron with 5 black, more or less circular spots; anterior spot much larger than others, and not as dark, extending from the middle of the II to the middle of the V interstice; inner spot of median row more or less quadrangular in outline, extending from the I stria to the middle of the II interstice; outer spot extending from the V to the I striae; spots of posterior row much smaller than those of median row, placed nearer to apex than to median spots; the inner spot extending from the middle of the I interstice to the III stria, the outer spot from the V to the VII striae; suture and apical margin black. Last abdominal tergite with 2 more or less comma-shaped spots. Posterior margin of last abdominal segment and sides of posterior margin of last abdominal segment and sides of posterior margin of III to V segments black. Legs with black knees, tibiae and tarsi. Aedeagus (fig. 54). 10.9 - 11.8 mm.

Elytral striae clearly punctate; interstices with very fine and sparse punctures.

#### Notes

*Lebia ytu* is a very characteristic species, as seen in the key. As in most species with spotted elytra, there is a certain amount of variation, especially in size of the spots. A single specimen, from Piracicaba (MZSP) has only 4 elytral spots, the inner one of the median row being absent. As the other spots are also less blackened, it seems best to consider this specimen as a simple variant of *Lebia ytu*.

This new species is very closely related to *Lebia duodecimpunctata* and *Lebia decemmaculata*. The aedeagi of these species, however, are quite distinct.

The specific name is taken from the type-locality, a "Guarani" name meaning waterfall.

***Lebia (Chelonodema) boliviensis* (Chaudoir, 1871), comb. n.**

*Lia boliviensis* Chaudoir, 1871: 75-76, pl. 3, fig. 156 (Holotype, sex undetermined because of lack of front legs, "Bolivia"; MNHN, examined); Liebke, 1928: 152 (Key); 1941: 230 (in list of species).

Reddish. Antennae with reddish scape and pedicel, III segment dark brown (reddish in holotype), and remaining segments black. Pronotum with thin, black margin. Each elytron with 6, relatively large, black spots, all of about the same size; the 2 anterior spots placed just in front of the middle, the inner one closer to the middle, extending from the II to the IV striae, the outer one placed more anteriorly, and extending from the V to the VII striae; the median spots more or less in the middle of the elytra, also the inner spot placed more posteriorly in relation to the anterior one; the inner spot extending from the middle of the sutural interstice to the middle of the II; the outer spot extending from the middle of the IV interstice to the VII stria; the posterior spots placed more or less half way between the middle and apex of elytra, the inner spot extending from the middle of the I interstice to the middle of the III, and the outer spot extending from the middle of the IV to the middle of the VII interstices; lateral and apical margin finely black. Last abdominal tergite with 2 black spots. Sides of posterior margin of abdominal segments III to VI black. Legs completely reddish. 11.2 mm.

Elytral striae finely but very clearly punctate; interstices with finer and more sparse punctures.

#### Material examined

BOLIVIA. *Santa Cruz*: Sara, Nueva Moka (1 ♀, MZSP). No locality (holotype, MNHN).

PERU. *Loreto*: Pebas (1 ♀, MNHN).

#### Notes

*Lebia boliviensis*, up to now only known from the holotype, is easily distinguished from the other species with 6 elytral spots, as seen in the key. It is most probably very closely related to *Lebia toroana*.

#### *Lebia (Chelonodema) toroana* (Liebke, 1941), comb. n.

(Fig. 55)

*Lia toroana* Liebke, 1941: 248, fig. 1d (Types, 2 specimens, "Rio Toro, Peru" - see notes below; Berlin Museum and Liebke collection, the latter probably destroyed; not examined); 1951: 240, fig. 1d.

Reddish-testaceous. Labial palpi with proximal half of last segment infuscated; maxillary palpi with penultimate segment and proximal half of last also infuscated. Antennae black from IV segment. Pronotum with thin, black margin. Each elytron with 6 more or less circular, black spots, placed in 3 transverse rows; the anterior row just in front of the middle, its inner spot extending from the middle of the I interstice to the IV stria, and the outer one from the V to

the VII striae; the median row just behind the middle of the elytra, the inner spot placed a little more posteriorly than the outer one, the inner spot extending from the middle of the I interstice to the III stria, the outer spot from the middle of the IV interstice to the VII stria; the posterior row placed between the median row and the apical margin, its inner spot extending from the middle of the I interstice to the III stria, and the outer spot from the V stria to the middle of the VII interstice; all elytral margins, including the sutural margin, finely black. Last abdominal tergite with 2 large, black spots. Knees and tarsi black (sometimes only infuscated, but clearly darker than tibiae). Aedeagus (fig. 55). 10 - 12 mm.

Elytral striae clearly punctate; interstices finely and sparsely punctate.

#### Material examined

PERU. *San Martin*: Moyobamba (1 ♂ \*, 1 ♀, MZSP); Tarapoto (1 ♀, MNHN).

ECUADOR. *Santiago-Zamora*: Macas (1 ♂, MNHN).

#### Notes

The specimens on which the above description is based are identified as *toroana* with some doubts. Liebke does not mention some important and conspicuous characters, such as the color of the legs and the punctuation of the elytral interstices; furthermore Liebke gives the size of his specimens as 8 mm, while my specimens measure over 10 mm. There is, however, no doubt that the specimens are distinct from any other South American species.

*Lebia toroana* is most closely related to *Lebia birai*, from southeastern Brazil. The only conspicuous difference is the elytral suture, black in *toroana*, testaceous in *birai*.

In the original description Liebke considered *toroana* as related to *variabilis*, even considering the possibility of being a "Lokalrasse" of that species. *Lebia variabilis* is a quite distinct species, especially well characterized by the 2 pronotal spots, a character absent in all other species with 6 elytral spots.

I have been unable to locate the type-locality of *Lebia toroana*. I have, however, recorded a Rio Tomo in the Departamento de Madre de Dios.

#### ***Lebia (Chelonodema) birai*, sp. n.**

(Figs. 10, 18, 56)

Holotype ♂. BRAZIL, *Minas Gerais*: Santa Bárbara, Serra do Caraça, 1,380 m, XI.1961 (Exp. Dep. Zool.) (MZSP).

Paratypes. BRAZIL. *Minas Gerais*: same data as holotype (1 ♀, MZSP); *idem*, VII-XII.1884 (P. Germain) (1 ♂, MZSP); Rio Pira-

cicaba, II.1885 (P. Germain) (1 ♀, MNHN). *Rio de Janeiro*: Itatiaia, 850 m, II.1899 (E. Gounelle) (1 ♀, MNHN). *São Paulo*: Ribeirão Pires, XI.1898 (E. Gounelle) (1 ♂, MNHN). No locality (1 ♂ \*, 2 ♀, MNHN).

Reddish. Proximal half of last segment and penultimate segment of palpi black. Antennae black from IV segment. Pronotum with a thin black margin. Each elytron with 6 small, more or less circular, black spots; inner spot of front row larger than outer one, extending from the II to the IV striae, outer spot smaller, limited by the V and VI striae; inner spot of median row smaller than outer one, extending from the I stria to the middle of the II interstice; outer spot extending from the middle of the IV interstice to the VII stria; inner spot of posterior row smaller than the outer spot, extending from the middle of the I to the middle of the II interstices; the outer spot extending from the V to the VII striae; the inner spots, especially of the anterior and of the median rows, more posteriorly placed than the outer ones; lateral and apical margins black. Last abdominal sternite with 2 black spots. Pro- and mesosternal processes, as well as sides of posterior margin of III to VI abdominal segment, black. Knees and 4 distal tarsal segments black (I tarsal segment usually testaceous, sometimes slightly infuscated). Aedeagus (fig. 56). 10.9 - 11.2 mm.

Elytral interstices and striae finely, but clearly punctate.

#### Notes

As seen elsewhere, *Lebia birai* is most closely related to *Lebia toroana*. The latter, however, has black elytral suture. *Lebia baturitea* is also very similar, and distinguished but for the differently colored palpi.

I take pleasure in naming this new species after my friend and colleague, Ubirajara R. Martins, who collected the holotype at Serra do Caraça, a locality he helped to "rediscover" entomologically in this century.

#### ***Lebia (Chelonodema) baturitea*, sp. n.**

(Figs. 10, 57)

Holotype ♂ \*. BRAZIL, *Ceará*: Serra do Baturité, I.1895 (E. Gounelle) (MNHN).

Reddish. Antennae black from IV segment. Pronotum with thin, black margin. Each elytron with 6 small, more or less circular, black spots; spots placed about as in *Lebia birai*, and of about the same size and outline; lateral and apical margins black. Last abdominal sternite with 2 small, black spots. Ventrally reddish. Knees and tarsi black. Aedeagus (fig. 57). 12.5 mm.

Elytral striae and interstices finely, but clearly punctate.

## Notes

*Lebia baturitea* is extremely similar to *Lebia birai*, differing in fact only by the completely testaceous palpi (black in *Lebia birai*), and by the completely different aedeagus (fig. 57).

The type-locality, Serra do Baturité is a small enclave of forest within the xerophytic "caatinga" (orographic forests locally called "brejos"), with a very relict character (see also comments in Reichardt, 1971b: 179).

***Lebia (Chelonodema) omophoita*, sp. n.**

(Fig. 19)

Holotype ♀. BRAZIL, Amazonas: Igarapé Belém, Rio Solimões, 7-30.IV.1966 (B. Malkin) (MZSP).

Reddish-testaceous. Proximal half of palpi and penultimate segment of maxillary palpi, black. Antennae black from the IV segment. Pronotum with thin, black margin. Each elytron with 6 large, brownish-black spots placed in 3 transverse rows; the spots of the anterior row of irregular outline, more or less as long as wide, smaller than those of the median row; the inner spot of the anterior row extending from the middle of the I interstice to the IV stria, the outer spot from the V to the VII striae; spots of the median row very large and irregular, the inner spot extending from the I stria to the middle of the III interstice, and the outer spot from the IV stria to the VII interstice; posterior row with 2 much smaller, almost circular spots, the inner one extending from the middle of the I to the middle of the III interstices, and the outer one from the middle of the IV to the middle of the VII interstices; lateral and apical margins black; sutural margin infuscated. Last abdominal tergite with 2 small, black spots. Legs with black knees and tarsi. 11.8 mm.

Elytral striae finely but clearly punctate; interstices more finely and sparsely punctate.

## Notes

*Lebia omophoita* is well characterized by the large size of the elytral spots, especially the median ones, superficially resembling some species of *Omophoita* (Chrysomelidae). Even though having 6 spots on each elytron, *Lebia omophoita* seems not to be very closely related to the other species with 6 spots.

***Lebia (Chelonodema) variabilis* (Castelnau, 1834), comb. n.**

(Figs. 10, 20)

*Chelonodema variabilis* Castelnau, 1834: 49-50 (Type, "Brésil"; not located).

*Lia variabilis*; Chaudoir, 1871: 74-75, pl. 3, fig. 155; Liebke, 1928: 152 (Key); 1929: 298 (Notes on one specimen).

Testaceous. Proximal half of last segment of both palpi and penultimate segment of maxillary palpi, black. Antennae black from IV segment. Pronotum with a thin black margin and 2 black spots on disc. Each elytron with 6 spots, placed in 3 transverse rows; the anterior row in front of the middle, inner spot extending from the middle of the I interstice to the IV stria, outer spot smaller, extending from the V stria to the middle of the VI interstice; median row more or less in the middle of elytra, its inner spot extending from the I to the III striae, the outer spot from the middle of the IV interstice to the VII stria; posterior row close to apex, the inner spot extending from the middle of the I to the middle of the III interstices; the outer spot from the V to the VII striae. All elytral margins, including the sutural margin, finely black. Last abdominal tergite with 2 black spots. Posterior margin of last abdominal segment and sides of posterior margin of III to V segments, black. Legs with black knees and tarsi. 11.8 mm.

Striae and interstices finely and sparsely punctate.

#### Material examined

BRAZIL. *Pernambuco*: Quipapá, Peri-Peri (2♂, 1♀, MNHN). *Bahia*: Campinarana (1 ex., 1♂, MNHN; 1♀, MZSP); Vitória da Conquista (2♂, 1♀, MNHN). *Minas Gerais*: Mar de Espanha (2 exs., CJNC); Matozinhos (2♂, 1♀, MNHN); Santa Bárbara, Serra do Caraça (1♂, 2♀, MNHN). *Rio de Janeiro*: Cantagalo (1♀, MNHN); Nova Friburgo (2♀, MNHN). *São Paulo*: Eldorado (1♀, IBSP); Paranapiacaba (1♂, MZSP); Ribeirão Pires (2♂, MNHN); Salesópolis, Estação Biológica de Boracéia (1♀, IBSP). No locality (1♀, MNHN).

#### Notes

*Lebia variabilis* is characterized among the species with 6 elytral spots by the presence of pronotal spots (2).

There has been very much confusion with *Lebia variabilis* in the past. Apparently even Chaudoir confused the species; of the 4 specimens in his collection (Coll. Oberthür, Paris Museum; see also Chevrolat, 1844: 198), only 2 really belong to *Lebia variabilis*. As the specific name stresses, it is a variable species, especially in regard to the size of the elytral spots. In most specimens the spots are much smaller than in the specimen from Paranapiacaba, on which the above description was based.

Even though I was unable to locate the type of Castelnau, his description leaves no doubt about the true identity of the species.



**Lebia (Chelonodema) cyclopica**, sp. n.

(Figs. 10, 33, 58)

Holotype ♂ \*. BRAZIL, *Pará*: "Tapajoz" (Ex-Musaeo H. W. Bates, 1892) (MNHN).

Testaceous. Palpi darkened, with testaceous apex of last segment. Antennae black from distal half of III segment. Pronotum with thin, black margin, and a single, median, black spot. Each elytron with 7 spots, placed in 3 rows; front row, just in front of the middle, with 2 spots, the inner one, shaped like an up-side-down "V", starting at the I stria and extending to the IV stria, the outer spot more or less circular, extending from the V to the VII striae; the median row more or less in the middle of the elytra, with 3 spots, the inner one longitudinally elongate, extending from the I to near the III stria, and about twice as long as wide, the middle spot almost circular, extending from the middle of the III interstice to the V stria, and the outer spot also more or less circular, extending from the VI to the VIII striae (the middle spot of the median row placed slightly posteriorly in relation to the inner and the outer spots); posterior row with 2, almost circular spots, the inner extending from the I to the III striae, and the outer from the V interstice to the VII stria; only apical margin black. Last abdominal tergite with 2 more or less longitudinally elongate spots. Knees and tarsi black. Aedeagus (fig. 58). 9.8 mm.

Elytral striae finely but clearly punctate; interstices also punctate.

## Notes

The single known specimen of this species is very poorly preserved.

*Lebia cyclopica* is the only species with 7 elytral spots; the single pronotal spot is also a very distinctive character, only found in another, not closely related species of *Chelonodema*, *Lebia clavata* (Liebke).

The specific name is based on Cyclops, the one-eyed giant of greek mythology.

**Lebia (Chelonodema) scripta** (Castelnau, 1834), comb. n.

(Figs. 10, 21)

*Chelonodema scripta* Castelnau, 1834: 50 (Type, "Brésil"; not located).

*Lia scripta*; Chaudoir, 1871: 71-72, pl. 3, fig. 153; Liebke, 1928: 152 (Key).

*Lia multipunctata* Sturm, 1843: 326, pl. 1, fig. 2 (Type, no locality given; not located); Chaudoir, 1871: 71 (Proposed synonymy with *scripta* Castelnau).

*Lia multiguttata* (non Sturm); Gemminger & Harold, 1868: 142.

*Lebia notata* Brullé, 1834: 219 (Holotype ♀, "Brésil"; MNHN, examined); Chaudoir, 1871: 71 (proposed synonymy with *scripta* Castelnau).

*Lia scripta* ab. *notata*; Liebke, 1928: 152 (Key).

Reddish. Antennae black from the distal half of the III segment. Pronotum with thin, black margin and 4 spots, 2 on each side of the median line. Elytra with 4 transverse rows of small, almost circular spots; spots of the anterior row always fused to form a very irregular line, extending from the I to the VII striae; the median row, placed just in front of the middle, with 5 spots on each elytron, a very small on the sutural interstice, and the 1 each in the II, IV, VI and VIII interstices; the third row, placed just behind the middle, with 4 spots, in the I, III, V and VII interstices; posterior row, near apex, with a larger spot on the I and II interstices, and an irregular line, formed by the fusion of spots, extending from the IV to the VIII striae; lateral and apical margin of elytra finely black. Last abdominal tergite with 2 black spots. Sides of posterior margin of III to V abdominal segments black; posterior margin of last segment finely black. Legs with black knees. 11.2 - 13 mm.

Elytral striae finely but clearly punctate; interstices very finely and sparsely punctate.

#### Material examined

BRAZIL. *Bahia*: Maracás (1 ♀, MZSP); Vitória da Conquista (1 ex., MNHN). *Minas Gerais*: Diamantina, Fazenda das Melancias (1 ♀, MNHN); Matozinhos (1 ♂, ♀, MNHN); Rio Piracicaba (1 ex., MNHN); Santa Bárbara, Serra do Caraça (4 exs., BMNH; 5 ♂, 2 ♀, MNHN; 1 ♀, CJNC; 3 ♀, MZSP); no locality (1 ♂, 1 ex., MNHN). *Rio de Janeiro*: Nova Friburgo (2 ♂, 5 ♀, MNHN). *São Paulo*: Paranapiacaba (1 ♀, MZSP). No locality: holotype ♀ of *notata*, labelled "Museum Paris, Brésil, Beske 1835"; 3 ♂, 3 ♀, MNHN).

#### Notes

*Lebia scripta* is a very variable species in regard to the elytral pattern. In some specimens the spots are smaller, in others larger; in the ♀ from Paranapiacaba (MZSP) the spots of the 2 median rows are longitudinally elongate, and more or less fused together; in this same specimen the tarsi are also darkened, almost black (the same color of tarsi is found in the ♀ from Maracás, MZSP).

*Lebia scripta* is well characterized by the large number of elytral spots, and also by the 4 pronotal spots, a very unique character among the known species.

There is no doubt that Brullé's *notata* is a synonym of Castelnau's *scripta* (of which I have been unable to locate the type), as suggested by Chaudoir. There may be problems related to the date of publication

of the 2 names: both were apparently published in 1834, even though the date of Castelnau's paper is often given as 1835. It is furthermore strange that the holotype of *notata* is labelled "Museum Paris, Brésil, Beske 1835", a date of collection posterior to that of publication. Since, however, the name *scripta* has been used as a valid name for a long time, I prefer to follow this usage.

#### ALBOSINUATA SPECIES GROUP

Medium sized species (9-13 mm), testaceous, with irregular, transverse, black bands or spots, surrounded by ivory colored margins. Pronotum with 2 discal spots (wanting in *albovariegata*).

The species are distributed in the Atlantic Forest, the Amazonian Basin and Venezuela (fig. 11; table).

Species included:

28. *albovariegata* (Chaudoir, 1871)
29. *albosinuata* (Putzeys, 1846)
30. *trifasciata* (Chaudoir, 1871)
31. *nigropicta* (Chaudoir, 1871)

***Lebia* (*Chelonodema*) *albovariegata* (Chaudoir, 1871), comb. n.**

(Figs. 11, 38)

*Lia albovariegata* Chaudoir, 1871: 70-71, pl. 3, fig. 152 (Holotype ♀, Brazil, Amazonas, Tefé; MNHN, examined); Liebke, 1928: 152 (Key).

Reddish. Basal half of last segment of labial palpi black; penultimate segment and basal half of last segment of maxillary palpi black. Antennae black from IV segment. Pronotum with fine, black margin. Each elytron with an irregular, more or less trilobed, ivory-colored, transverse spot, which reaches from the I interstice to the VIII stria, and 2 posterior, circular spots of same color, one from the I to the III stria, and one from the V to the VIII; these ivory-colored spots with a continuous, black margin, that of the posterior ones connected along the IV interstice; apical margin black. Knees, front margin of pro- and mesotibiae and tarsi black. Sides of posterior margin of III to V abdominal segments black; whole posterior margin of last segment also black. 12.7 mm.

Elytral striae finely but clearly punctate; interstices with much finer and more irregular punctuation.

Material examined

BRAZIL. *Amazonas*: Tefé (Holotype ♀, 1 ♂, MNHN).

PERU. *Cuzco*. Chanchamayo (2 ♂, MNHN); *idem*, La Merced (1 ♀, MZSP). *Loreto*: Chambiruyaca, near Yurimaguas (1 ♀, MNHN).

## Notes

*Lebia albovariegata* is most closely related to *Lebia albosinuata*, a species from southeastern Brazil. Both are easily distinguished by the characters used in the key.

The elytral pattern of *Lebia albovariegata* and *Lebia albosinuata* is also similar to that of *Lebia figurata*, but the latter does not belong into the subgenus *Chelonodema*.

***Lebia (Chelonodema) albosinuata* (Putzeys, 1846), comb. n.**

(Figs. 11, 23, 60)

*Lia albo-sinuata* Putzeys, 1846: 280-281 (Holotype, "Brésil"; "Coll. Lacordaire", not located in MNHN).

*Lia albosinuata*; Chaudoir, 1871: 69-70, pl. 3, fig. 151; Liebke, 1928: 152 (Key).

Reddish. Apical half of last segment of labial palpi testaceous, base black; penultimate segment and basal half of last segment of maxillary palpi black. Antennae black from IV segment. Pronotum with fine, black margin, and 2 discal spots, one on each side of median line. Each elytron with 2 similar, ivory-colored, irregular and transverse bands, the anterior one placed more or less in the middle of the elytra, and extending from the II to the VIII striae, the posterior one near apex, also extending from the II to the VIII striae; both ivory-colored bands with black border. Apical margin of elytra black. Last abdominal sternite with 2 comma-shaped, black spots. Sides of posterior margin of III to V abdominal segments black. Knees and tarsi black. Aedeagus (fig. 60). 10.5 - 12.7 mm.

Elytral striae very finely and sparsely punctate; interstices with much finer and more sparse punctures.

## Material examined

BRAZIL. *Bahia*: no locality (2 exs., BMNH). *Minas Gerais*: Rio Piracicaba (1 ♂, BMNH). *Rio de Janeiro*: Itatiaia, 700 m (1 ex., BMNH); *idem*, 850 m (1 ♀, MNHN); Nova Friburgo (1 ex., BMNH; 1 ♀, MNHN). *Guanabara*: Rio de Janeiro (1 ♂, 2 ♀, MNHN); *idem*, Represa Rio Grande (1 ♀, MZSP). *São Paulo*: Queluz (1 ♀, MNHN); São Paulo, Cantareira (1 ♀, MZSP; 2 ♂, IBSP); *idem*, Jabaquara (4 ♀, MZSP; 1 ♂, IBSP; 1 ex., CJNC). *Paraná*: Curitiba (1 ♀, IBSP). *Santa Catarina*: Corupá (1 ♂, MNHN); no locality (1 ex., BMNH). No locality (2 ♂, 2 ♀, MNHN).

## Notes

*Lebia albosinuata* is most closely related to *Lebia albovariegata*, being easily distinguished by the different elytral pattern; while *Lebia*

*albovariegata* has 2 ivory-colored spots in the posterior half of each elytron, in *Lebia albosinuata* the 2 spots are fused to form a single spot, very similar in shape to the anterior spot.

The ♀ from Queluz (MNHN) lacks the 2 pronotal spots, but in other regards agrees completely with *Lebia albosinuata*.

***Lebia (Chelonodema) trifasciata* (Chaudoir, 1871), comb. n.**

(Figs. 11, 27, 61)

*Lia trifasciata* Chaudoir, 1871: 76-77, pl. 3, fig. 157 (Holotype ♂, "Venezuela"; MNHN, examined); Liebke, 1928: 152 (Key).

Testaceous. Palpi brownish, with apex of last segment testaceous. Antennae black from IV segment. Pronotum with thin, black margin and 2 small, black spots, one on each side of median line. Each elytron with 2 small, irregular and more or less transverse, black spots, one from the I to the IV striae, and the other from the V to the VII; more or less in the middle, with a transverse, irregular, orange band, which anteriorly and posteriorly has a dark brown margin; in posterior half with 3 small, more or less circular, also dark-brown spots. Whole elytral margin finely black. Last abdominal tergite with 2 lateral, comma-shaped, black spots, and one irregular, longitudinal spot along the median line. Sides of posterior margin of abdominal segments III to V black. Posterior margin of last segment completely black. Legs black, with orange-red femora, trochanters and coxae. Aedeagus (fig. 61). 9-10.9 mm.

Elytral striae and interstices more or less equally well but finely punctate.

Material examined

VENEZUELA. *Carabobo*: San Esteban (1 ♂, 2 ♀, MNHN, MZSP). No locality (Holotype ♂, MNHN).

BRAZIL. *Rio Grande do Norte*: Macaíba (1 ♀, MZSP); Natal (2 ♀, MZSP; 1 ♂, DZUP). *Paraíba*: Mamanguape (1 ♂, MZSP). *Per-nambuco*: Águas Belas, Serra do Comunati (1 ♂, 4 ♀, 2 exs., MNHN). *Bahia*: Condeúba (3 ♂ \*, 20 ♀, MNHN, MZSP).

Notes

*Lebia trifasciata* is somewhat similar to *Lebia scripta*, differing especially by having only 2 pronotal spots (4 in *scripta*), the completely different elytral pattern, and the different color of appendages.

Originally described from Venezuela, this species is now also recorded from northeastern Brazil. The 2 populations are apparently allopatric, and some differences have been noted: in the Venezuelan specimens the orange elytral band is narrower than in the Brazilian specimens, especially near the suture; in the typical specimens the

elytra have 2 spots in front of the middle (see description), while the Brazilian specimens have only a very irregular, transverse stripe, which goes uninterrupted from the I to VII interstices; in the Venezuelan specimens the last abdominal tergite has only 2 circular spots.

Unfortunately the Venezuelan material is very scarce, and the only available male from that country proved to be a tenereal specimen, its aedeagus having been very soft, making a comparison with the genitalia of the Brazilian specimens (fig. 61) impossible. The apex of the aedeagus, however, seems to be very similar, if different.

In spite of the noted differences I am, at least for the present, considering the 2 populations as representing a single species.

**Lebia (Chelonodema) nigropicta** (Chaudoir, 1871), comb. n.

(Figs. 11, 28, 41, 62)

*Lia nigropicta* Chaudoir, 1871: 314, pl. 2, fig. 162 (Holotype ♂, Brazil, "Santa Catarina"; MNHN, examined); Liebke, 1928: 136 (Key).

*Lia mystica* Liebke, 1937: 10 (Holotype, Brazil, Guanabara, Rio de Janeiro; Polish Academy of Sciences, not seen); Mroczkowski, 1960: 391 (notes on location of holotype). *Syn. n.*

Reddish-testaceous, blackened to a very variable degree. Mouthparts darkened, only with apex of last segment of palpi testaceous. Antennal scape brownish-yellow, segments II, III and basal third of IV, blackish; remaining segments brown. Head with a black, losangular spot on occiput, and black margin around eyes, and a more or less triangular spot on frons, near fronto-clypeal suture. Pronotum with a relatively wide, black margin, and a darkened line along the median line. Scutellum black. Elytra with a more or less triangular spot near base, its apex pointing towards front, and the basal margin very irregular; a second, larger and also black spot placed more or less in the middle of elytra, its front margin very irregular, with 2 indentations, one along the III interstice (which in typical specimens extends to near posterior margin of the spot, and in *mystica* is very short), and one along the V interstice; the posterior margin of the spot is connected with that of the opposite elytron, along the suture; basal margin of posterior spot also irregular, with 2 semi-circular indentations, in front of each of which is placed a small, also black spot; apical margin of elytra and suture, black; posterior part of elytra, placed between the posterior spot and the apical margin, lighter in color, almost cream-colored. Last abdominal tergite with 2 large spots. Ventrally irregularly black marked; posterior margin of abdominal segments black. Coxae, trochanters and femora yellowish; knees, tibiae and tarsi black. Aedeagus (fig. 62). 9 - 11.2 mm.

Elytral striae very finely and sparsely punctate; interstices with very irregular and finer punctures.

#### Material examined

BRAZIL. *Minas Gerais*: Santa Bárbara, Serra do Caraça (1 ♂, 3 ♀, MNHN); Virgínia, Fazenda dos Campos (1 ex., BMNH). *Rio de Janeiro*: Nova Friburgo (1 ♂, 1 ♀, MNHN). *São Paulo*: Pindamonhangaba, Eugênio Lefèvre (1 ♂ \*, MZSP). *Paraná*: no locality (1 ex., MNHN). *Santa Catarina*: Nova Teutônia (25 exs., \*, CJNC, IBSP, MZSP); no locality (Holotype ♂, MNHN). No locality (1 ♀, 1 ex., MNHN).

ARGENTINA. *Misiones*: Loreto (1 ♀, MZSP).

#### Notes

*Lebia nigropicta* is well characterized by the elytral pattern, as well as by being a very dark species. It seems to be most closely related to *Lebia trifasciata*.

Liebke's original description of *Lia mystica* mentions it being very similar to *nigropicta*, but differing by not having the darkened head, less black pronotum, and by the different elytral pattern (fig. 41). These differences seem to be only variations of the same species, a fact strengthened by the aedeagus of the 2 forms, which is identical.

It should be noted, however, that the specimens from the northern part of the range (Minas Gerais, Rio de Janeiro and São Paulo), are of the "*mystica*" type, while the southern specimens (Santa Catarina and Misiones) agree with typical *nigropicta*. The only specimen from Paraná I have seen, is more or less intermediate between the 2 forms. For the time being it seems best just to register this variation, and consider Liebke's *mystica* as a synonym of *nigropicta*.

#### FASCIATA SPECIES GROUP

Medium to large species (11-15 mm); reddish-testaceous, with large, black spots and cream- or ivory colored bands. Pronotum without discal spots.

Species distributed throughout the Amazonian Basin, except for *fasciata*, which occurs in the Atlantic Forest (fig. 11).

#### Species included:

32. *thomsoni* (Chaudoir, 1871)
33. *mathani*, sp. n.
34. *fasciata* (Sturm, 1843)
35. *mocoronga*, sp. n.
36. *pujoli*, sp. n.

***Lebia (Chelonodema) thomsoni* (Chaudoir, 1871), comb. n.**

(Figs. 11, 35)

*Lia thomsoni* Chaudoir, 1871: 69, pl. 3, fig. 150 (Holotype ♂, "Brésil"; MNHN, examined); Liebke, 1928: 135 (Key); 1929: 265 (Key).

## Original description

"Long. 15 mill. La tête manque. Corselet et élytres comme dans la *fasciata*. Elle diffère de celle-ci par la coloration des élytres dont le disque est noir avec le pourtour d'un jaune rougeâtre comme dans la *fasciata*, mais dont les bandes blanchâtres sont remplacées par les taches de même couleur que l'on voit sur la figure que nous en donnons (Pl. 3, fig. 150) et qui rappellent le dessin de l'*albomaculata*. Je ne connais que l'individu qui se trouve dans la collection de M. J. Thomson qui m'a autorisé à la décrire et l'avait reçu du Brésil".

## Material examined

FRENCH GUIANA. Gourdonville (1 ♀, MNHN).

(?) BRAZIL. No locality (Holotype ♂, MNHN).

## Notes

*Lebia thomsoni* is most closely allied to *Lebia mathani*, but has a quite different elytral pattern.

In the original description Chaudoir mentions the holotype as coming from "Brésil"; the "drawer label" in Oberthür's collection, however, reads: "Thomsoni Chaudoir Cayenne Coll. Thomson Brown". In view of the only other specimen known up to now having been collected in French Guiana, it seems probable that *Lebia thomsoni* occurs in northern South America.

***Lebia (Chelonodema) mathani*, sp. n.**

(Figs. 11, 36)

Holotype ♂. PERU, *San Martin*: Moyobamba, I-VI.1887 (M. de Mathan) (MNHN).

Paratype. Same data as holotype (1 ♀, MZSP).

Reddish-brown. Labial palpi with basal half of last segment black; maxillary palpi with penultimate segment and basal half of last black. Antennae black from IV segment, the III already darkened in the apical half. Pronotum with thin, black margin. Elytra with a median, transverse, somewhat irregular, black band, which on each elytron has 2 circular, testaceous spots in front and 2 behind the middle; black band not continuous across the suture; lateral and apical margins, as well as suture near scutellum and near apex, finely black; sides of



posterior margin of abdominal sternites III to V black; last abdominal tergite with 2 longitudinal, black spots; knees and tarsi black; in the ♀ the front margin of tibiae also black. 10.9 - 11.8 mm.

Elytral striae and interstices finely and sparsely punctate, punctures of interstices about as coarse as strial ones.

#### Notes

*Lebia mathani* shows some superficial resemblance to *Lebia thomsoni*. The 2 species are, however, easily distinguished by the completely different elytral pattern. The 2 species are also allopatric.

The species is named after its collector, Marc de Mathan, about whom very little is known, but who made wonderful collections of beetles in the whole Amazonian Valley around the turn of the last century.

### *Lebia (Chelonodema) pujoli*, sp. n.

(Figs. 5-8, 11, 39, 63)

Holotype ♂. BRAZIL, Bahia: Condeúba, 1890 (Ch. Pujol (MNHN)).

Paratypes. Same data as holotype (39 exs., MNHN; 10 exs.\*, MZSP).

Reddish-brown. Labial palpi black, with apical half of last segment reddish; maxillary palpi with basal segment and apical half of last segment reddish. Antennae black from IV segment. Pronotum with thin, black margin. Elytra reddish-brown, each with a large, black spot in front and one behind the middle, and 2 small ones near apex, the inner one almost circular, the outer one more or less comma-shaped; ground color of elytra, between the anterior spot and the 2 posterior ones, lighter, more or less testaceous; apical and lateral margins of elytra finely black. Last abdominal tergite with 2 circular, black spots. Knees and tarsi black. Aedeagus (fig. 63). 10.9 - 11.8 mm.

Elytra with finely punctate striae; interstices very finely micro-rugose, and with very sparse and very fine interstitial punctures.

#### Notes

*Lebia pujoli* is closely related to *Lebia fasciata* and *Lebia mocoronga*. From the latter *Lebia pujoli* is easily distinguished by the completely different elytral pattern; from *Lebia fasciata*, however, it is distinguished by very few characters. Both have a very similar elytral pattern, but in *Lebia pujoli* the large, black elytral spots are not connected across the suture, while they are in *Lebia fasciata*.

This new species is named after Ch. Pujol, its collector, who made very good collections of Coleoptera in some of the localities also collected by Germain and Gounelle.

**Lebia (Chelonodema) fasciata** (Sturm, 1843), comb. n.

(Figs. 11, 25, 64)

*Chelonodema elegans* Mannerheim, 1837: 32-33 (*non Lebia elegans* Gory, 1833; Type, "Brasilia interiore"; not located); Chaudoir, 1871: 69 (as synonym of *fasciata* Sturm).

*Lia fasciata* Sturm, 1843: 325-326, pl. 1, fig. 1 (Type, "Brazil"; not located); Putzeys, 1846: 381 (Notes); Chaudoir, 1871: 69, pl. 3, fig. 149 (Redescription).

*Lia elegans*; Liebke, 1928: 136, 156 (Key; nomenclatorial notes).

Reddish-orange. Antennae black from the IV segment. Pronotum with very thin, black margin. Elytra with 2 transverse, black bands, the median band continuous from one elytron to the other, the anterior band interrupted along the suture; slightly behind the posterior band, 2 small, transverse, black spots on each elytron; from here to apex the elytra are cream-colored; elytral margin, including suture, finely black. Sides of posterior margin of abdominal sternites III to V black; last abdominal tergite with 2 comma-shaped, black spots. Aedeagus (fig. 64). 11.8 - 15.4 mm.

Pronotum wider than head, very much narrowed from the middle to base; basal angles relatively sharp; surface very finely and transversely rugose. Elytra with clearly, but finely punctate striae; interstices with sparse and much finer punctures.

## Material examined

BRAZIL. *Pernambuco*: Quipapá, Peri-Peri (2♂, 1♀, MNHN). *Bahia*: Campinarana (1♀, MNHN). *Espírito Santo*: Córrego do Itá (1♀, DZUP). *Minas Gerais*: Matozinhos (3♂, MNHN); Rio Piracicaba (1♂, 1 ex., BMNH). *Rio de Janeiro*: Nova Friburgo (2 exs., 10♂\*, 12♀, MNHN, BMNH, MZSP). *Guanabara*: Rio de Janeiro (5 exs., BMNH; 1♀, MNHN). *São Paulo*: Queluz (1 ex., BMNH). No locality (5♂, 9♀, MNHN; 5♂, 6♀, AMNH).

## Notes

*Lebia fasciata* is closely related to *Lebia pujoli*, but easily distinguished from this species, as seen in the key and in the discussion under *pujoli*. The male genitalia of the 2 is very similar.

*Lebia elegans* (Mannerheim, 1837) being a junior homonym of *Lebia elegans* Gory, 1833 (from Brazil), must be replaced. *Lebia fasciata* Sturm, 1843 being an available name, is therefore resuscitated for this species. This must also have been the reason for Chaudoir (1871: 69) to use Sturm's name as the valid one, an action not understood by Liebke (1928: 156).

**Lebia (Chelonodema) mococonga**, sp. n.

(Figs. 11, 40, 65)

Holotype ♂\*. BRAZIL, *Pará*: Santarém (MNHN).

Paratypes. Same data as holotype (1 ♀, MNHN; 1 ♀, MZSP; 3 ♀, CJNC).

Reddish-brown. Antennae black from IV segment. Pronotum with very thin, black margin. Elytra reddish-brown, with a wide, transverse, black band, which in front of the middle has a more or less oval, testaceous spot, wide near margin, narrow near suture, and behind the middle an equally colored spot, which is about as wide near suture as near margin; anterior testaceous spot completely surrounded by the black band, posterior testaceous spot only surrounded by black anteriorly, posteriorly it is limited by a circular, black spot near suture, and a comma-shaped spot which towards the margin is connected with the remaining part of the black band; suture, apical margin and lateral margin finely black. Last abdominal tergite not visible; sides of posterior margin of abdominal sternites III to V black. Tarsi in some specimens darkened, almost black. Aedeagus (fig. 65). 13.6 - 14.5 mm.

Elytra with clearly indicated striae punctures; interstices sparsely and very finely punctate.

## Notes

*Lebia mococonga* is apparently most closely related to *Lebia fasciata* and *Lebia pujoli*. The 3 species are well characterized by the very dark reddish-brown color of the body, and by the elytral pattern. *Lebia mococonga* and *Lebia fasciata* are much larger than *Lebia pujoli*.

The specific name is the feminine form of "mococongo", a local designation for natives of Santarém.

## NOVEMMACULATA SPECIES GROUP

Reddish-testaceous, with large, black elytral spots, of which one or more are fused across the suture. Pronotum without discal spots.

A heterogeneous group, its species perhaps not as closely related as appears to be.

Both species occur in the Atlantic Forest.

Species included:

37. *piresa* (Liebke, 1935)

38. *novemmaculata* (Liebke, 1928)

**Lebia (Chelonodema) piresa** (Liebke, 1935), comb. n.

(Fig. 15)

*Eurycoleus piresus* Liebke, 1935: 164-165, fig. 1 (Types, 2 specimens, Brazil, São Paulo, Ribeirão Pires; "im Museum Paris und in meiner Sammlung"; 1 cotype in Polish Academy of Sciences, not seen; no specimen located in MNHN); Mroczkowski, 1960: 383 (notes on location of type).

Reddish-testaceous, with more testaceous elytra. Palpi black, with apex of last segment testaceous. Antennae black from III segment. Pronotum with very thin black margin. Each elytron with 4 black, more or less circular spots. One larger spot, placed just behind the scutellum, extending from the suture to the III interstice; a much smaller, circular spot placed in the middle of elytra, extending from the suture to the II stria; a third, also circular spot, placed slightly behind the second, and extending from the IV interstice to the VI stria; the fourth spot smaller than the others, placed near apex, on the I and II interstices; lateral and apical margins of elytra black. Posterior margin of last abdominal segment black. Knees, tibiae and tarsi black. 7.6 mm.

Elytral striae very finely but clearly punctate; interstices impunctate.

## Material examined

BRAZIL. *São Paulo*: São Paulo, Cantareira (1 ♀, MZSP; 1 ♀, IBSP).

## Notes

Liebke described this species in the genus *Eurycoleus*. As I have recently shown in a revision of that genus (Reichardt, 1972: 239), this species does not fit into *Eurycoleus*, and has to be included in *Chelonodema*.

*Lebia piresa* is well characterized by the unique elytral pattern, as well as by its quite small size for the subgenus.

**Lebia (Chelonodema) novemmaculata** (Liebke, 1928), comb. n.

(Figs. 32, 72)

*Lia novemmaculata* Liebke, 1928: 151, 155-156 (Holotype, Brazil, São Paulo; Polish Academy of Sciences, not seen); Mroczkowski, 1960: 391 (Notes on location of holotype).

Reddish-testaceous, with more testaceous elytra. Basal half of last segment of labial palpi black; penultimate segment and basal half of

last segment of maxillary palpi black. Antennae black from IV segment. Pronotum with very thin, black margin. Each elytron with 5 spots, one in front of the middle, almost circular in outline, extending from the I interstice to the VI; 2 large spots in the middle of the elytron, the inner one elongate and narrow, extending from the suture to the middle of the II interstice, connected anteriorly with the spot of the opposite elytron; the outer spot more or less circular, large, extending from the III to the VII interstices; the 2 posterior spots much smaller than the anterior and middle ones, the inner one from the I to the III interstices, the outer one from the V to the VII interstices; lateral and apical margins of elytra black; sutural margin darkened. Last abdominal tergite with 2 small, black spots (from description); last sternite of ♀ with large, round incision (fig. 72). Knees and tarsi black. 13.2 mm.

Elytral striae clearly punctate; interstices very finely and sparsely punctate.

Material examined

BRAZIL. *Guanabara*: Rio de Janeiro (1 ♀, MNHN).

Notes

*Lebia novemmaculata* is well characterized by its unique elytral pattern, with a total of 9 spots, one fused across the suture. Some characters, as for instance the reddish-testaceous head and the testaceous elytra, seem to indicate relations with species of the *Fasciata* group

The last abdominal sternite of the single available ♀ is very unique

#### SIGNATIPENNIS SPECIES GROUP

Testaceous, elytra with 2 large, common black spots; striae sulcate. Pronotum without discal spots.

The single species is distributed in the northern part of the Atlantic Forest.

#### *Lebia* (*Chelonodema*) *signatipennis* Perty, 1830

(Figs. 34, 59, 71)

*Lebia signatipennis* Perty, 1830: 3, pl. 1, fig. 7 [Holotype ♀, "habitat prope Tejuco Prov. Minarum (at present Diamantina, Minas Gerais) et versus fluv. S. Francisci"; Zoologische Staatssammlung, München, not seen]; Chaudoir, 1871: 153 (notes).

*Lia sulcatula* Liebke, 1928: 135, 155 [*non Lebia* (*Aphelogenia*) *sulcatula* Liebke, 1939; Holotype, "Brasilien"; originally in the Hamburg Museum, probably destroyed]. *Syn. n.*

Reddish-testaceous. Elytra with a small, black basal spot placed just behind the scutellum, and extending from the suture to the IV stria; a second, much larger and also black spot, covering the apical half of elytra, extending to the apical margin, and with the anterior margin irregular, and on sides, between the VII and the IX striae, reaching the umeri. Last abdominal sternite without incision in males and females (fig. 71). Aedeagus (fig. 59). 11.8 mm.

Elytra very deeply punctate-sulcate; interstices very convex, very finely microrugose, with a row of very fine and irregularly placed punctures.

#### Material examined

BRAZIL. *Rio Grande do Norte*; Baixa Verde (2 ♀, MZSP). *Bahia*: Campinarana (1 ♂, 1 ♀, MNHN); Condeúba (1 ♂\*, MZSP). No locality (1 ex., MZSP).

#### Notes

I have no doubt that Liebke's *Lia sulcatula* is a synonym of Perty's *Lebia signatipennis*. The latter has been placed in the genus *Grammica* (Csiki, 1932: 1344; Blackwelder, 1944: 56), but the validity of this genus is very uncertain.

Among the species of *Chelonodema*, *Lebia signatipennis* is a very unique species, especially well characterized by the elytral pattern (similar to that of *Lebia dorsalis*, formerly also placed in *Lia*), and by the elytral striation, which is very deep. Because of the deep striae, Liebke (1928: 155) related his *sulcatula* to Chaudoir's *Lia figurata*, a species which is at present being removed from the vicinity of the other species formerly assigned to *Lia*.

Neither Perty nor Liebke mention the larger, posterior elytral spot as reaching the umeri along the VII and VIII interstices, as in the specimens from Bahia here studied. Perty's illustration shows the spot as not continued towards the umeri. The specimens from Rio Grande do Norte, as well as the one without locality (MZSP) agree with this, and since there are no other differences, I think they all represent a single, variable species.

*Lebia signatipennis* has a quite different aedeagus (fig. 59), much smaller than that of the other species, and with lateral lobes, especially the right one, much larger than the other species. The absence of the small incision in the posterior margin of the last abdominal sternite of males is also a very strange character in the subgenus.

#### subgenus *Lebia* Latreille, 1802

*Lebia* Latreille, 1802: 85 (Type-species, *Carabus haemorrhoidalis* Fabricius, 1792, designated by Andrewes, 1935).

*Lia* Eschscholtz, 1829: 7 (Type-species, *Lebia dorsalis* Dejean, 1826, by original designation); Lacordaire, 1854: 130 (*pars*); Chaudoir.

1870: 156 (*pars*); 1871: 67-68 (*pars*); Bates, 1883: 243 (*pars*); Liebke, 1928: 133 (*pars*); Madge, 1967: 147 (proposed synonymy with *Lebia*).

As already noted by Madge (1967: 166, 167), the subgenus *Lebia* is very large, including extremely varied members. I refer to this author for the diagnosis of the subgenus.

A few of the species formerly included in Eschscholtz' *Lia*, including its type-species, share the characters of the subgenus *Lebia* and have to be removed to this subgenus. These species are redescribed below, without reference to the other Neotropical species of the subgenus, since these are not revised, and the only purpose is to have the status of the species of *Lia* settled.

As characterized by Madge, the subgenus *Lebia* is characterized mainly by the absence of the pro-tibial spur (fig. 77) and by the symmetric male protarsi (figs. 75-76).

***Lebia (Lebia) decolor* (Bates, 1883), comb. n.**

(Figs. 66, 75, 76)

*Lia decolor* Bates, 1833: 245 (Holotype ♀, Panama, Volcan de Chiriqui; BMNH, examined); Liebke, 1928: 135 (Key); Reichardt, 1971a: 80 (Venezuelan record).

Orange-testaceous, with apical margin of elytra black. Palpi: basal segment and apical half of last segment reddish, remaining parts black. Antennae black from the IV segment. Tibiae and tarsi black. Last abdominal tergite testaceous. Aedeagus (fig. 66). 12 - 13 mm.

Pronotum barely wider than head, very little narrowed from the middle to base; surface very finely and transversely rugose. Elytra with very clearly but finely punctate striae; interstices very finely rugose, impunctate.

**Material examined**

PANAMA. *Chiriqui*: Volcan de Chiriqui, 2,000-3,000 ft. (Champion) (Holotype ♀, BMNH); *idem*, 250-2,400 ft. (Champion) (Paratype ♀, BMNH; 1 ex. paratype, MNHN).

VENEZUELA. *Aragua*: Rancho Grande, 1,000 m (1 ex., FAUC; 1 ex., CLSC; 1 ♂\*, 1 ♀, MZSP).

**Notes**

*Lebia decolor* is very similar to the testaceous species of *Chelonodema*, but is easily distinguished by several characters; the absence of the upper tibial spur, as well as the symmetric pro-tarsi of males, make it necessary to separate this species from those of *Chelonodema*.

**Lebia (Lebia) pallida**, sp. n.

(Figs. 67, 77)

Holotype ♂\*. BRAZIL, *Amapá*: Rio Cassiporé, IX.1961 (J. & B. Bechyné) (MZSP).

Paratypes. FRENCH GUIANA. Cayenne (1 ♀, MNHN); Roches de Kourou, 1905-1906 (E. Le Moul't) (1 ♂, 1 ♀, MZSP); *idem* (1 ♂, MNHN); *ibidem*, 1862 (Audoit) (2 ♀, MNHN); *ibidem*, 1862 (Méli-non) (1 ♀, MZSP). No locality, 1863 (Méli-non) (1 ♀, MNHN).

BRAZIL. *Amapá*: "Haute Carsevenne" (= upper Calçoene), 1898 (F. Geay) (1 ♂, 1 ♀, MNHN); Regina, Serra Lombarda, IX.1961 (J. & B. Bechyné) (1 ♂, MZSP).

Testaceous. Palpi testaceous, in some specimens with basal half of last segment of labial palpi and penultimate and basal half of last segment, darkened, almost black. Antennae black from the IV segment. Elytra as in *Lebia dorsalis*, but in some specimens the posterior, large spot, is absent, only being indicated by a very slightly darker color. Last abdominal tergite not spotted. Knees and tarsi black; tibiae usually testaceous, but in some specimens infuscated. Aedeagus (fig. 67). 10.9 - 12.7 mm.

Elytral striae very closely punctate; interstices microrugose and impunctate.

## Notes

*Lebia pallida* is very variable. In some specimens the elytral markings are identical to those of *Lebia dorsalis*, in others the elytral spotting is reduced to the anterior spot, placed near the scutellum. The posterior spot is, in this case, only indicated by a slightly darker area; the posterior margin of the elytra is also only brownish, and not black.

*Lebia pallida* is most closely related to *Lebia dorsalis*. Specimens with only the anterior spot are easily distinguished; the others can be distinguished by other characters, especially the testaceous or infuscated tibiae (black in *dorsalis*), as well as by the more deeply impressed striae. The 2 species are allopatric; and their aedeagi are quite different (figs. 67, 68).

**Lebia (Lebia) dorsalis** Dejean, 1826

(Figs. 22, 23, 68)

*Lebia dorsalis* Dejean, 1826: 455-456 (Type, "Brésil"; MNHN, not located).

*Lia dorsalis*; Eschscholtz, 1829: 7, pl. 8, fig. 5 (Redescription and generic assignment); Gray, 1832, pl. 19, fig. 5; Chaudoir, 1871: 78-79, pl. 3, fig. 160 (Redescription); Liebke, 1928: 136 (Key).



*Lia dorsalis* var. *unimaculata* Liebke, 1929: 265, fig. (non *Lebis unimaculata* Motschulsky, 1864; Holotype ♀, Brazil, São Paulo, Rio Grande da Serra; MZSP, examined). *Syn n.*

Testaceous. Palpi black, with apex of last segment reddish. Antennae black from the pedicel (frequently segments II and III not completely black, but brownish). Elytra with a smaller, black, almost circular spot behind the scutellum, extending on each elytron from the suture into the V interstice; a second, larger and also black spot, placed just behind, and extending to near apex, and on sides to the VII interstice (in some specimens, described as variety *unimaculata* Liebke, the 2 elytral spots are fused, often incompletely so, with a small "window" of the testaceous ground color in the region of fusion). Apical margin of elytra and a short part of the suture, near apex, finely black (in some specimens completely testaceous). Last abdominal tergite with 2 large, black spots. Knees, tibiae and tarsi black. Aedeagus (fig. 68). 10.9 - 12.7 mm.

Elytral striae very finely punctate; interstices finely microrugose and impunctate.

#### Material examined

BRAZIL. *Bahia*: Salobro (1 ♀, MNHN). *Espírito Santo*: Rio Itapapoana (2 exs., CJNC); no locality (4 exs., BMNH). *Minas Gerais*: Diamantina, Fazenda das Melancias (*unimaculata*, 1 ♀, MNHN); Pouso Alegre (1 ♀, MZSP); Três Marias (*unimaculata*, 1 ♀, MZSP). *Guana-bará*: Rio de Janeiro (2 ♂, 2 ♀, MNHN); *idem*, Tijuca (1 ♂, 1 ♀, MNHN). *Rio de Janeiro*: Itatiaia (1 ♂, 1 ♀, MZSP; 2 exs., IBSP); 700 m (3 exs., BMNH); 850 m (3 ♀, MNHN). *São Paulo*: Barueri (1 ♂\*, 6 ♀, MZSP); Caraguatatuba (1 ♀, MZSP); Embu (1 ♀, MZSP); Itu, Fazenda Pau d'Álho (*unimaculata*, 1 ♀, MZSP); Juquiá (1 ♂, 1 ♀, MZSP); Pirassununga (*unimaculata*, 1 ♀, MZSP); Rio Grande da Serra (2 typical ♀ and holotype ♀ of *unimaculata*, MZSP); São Paulo, Cantareira (2 ♀, IBSP); *idem*, Ipiranga (1 ♂, MZSP); *ibidem*, Jabaquara (2 ♀, MZSP); no locality (2 ♀, MZSP). *Paraná*: Caúna (1 ♂, AMNH); Londrina (1 ♀, IBSP); Rolândia (2 ♀, AMNH; 1 ♀, DZUP). *Santa Catarina*: Corupá (3 exs., 1 ♀, MZSP). *Mato Grosso*: Três Lagoas (*unimaculata*, 1 ♀, MZSP). No locality (4 ♂, 5 ♀, 2 exs., MNHN).

BOLIVIA. *Santa Cruz*: Sara, Nueva Moka (1 ♀, MZSP).

ARGENTINA. *Misiones*: Dos de Mayo (*unimaculata*, 1 ex., CJNC; 1 ♀, MZSP); San Ignacio, Villa Lutecia (*unimaculata*, 1 ♀, MNHN).

#### Notes

Even though I am considering Liebke's *unimaculata* (fig. 23) a synonym of *dorsalis*, the real status of this form is not yet settled. The main reason for synonymizing it is the fact that the holotype of *unimaculata* was collected together with 2 other typical *dorsalis* females in the hollow trunk of a *Cecropia* sp. Unfortunately no male of *uni-*

*maculata* has been examined, and the genitalia could not be used as a character.

The 2 forms are sympatric, and there is some variation which could indicate some intergradation from one form to the other. Complete intermediates are not known at present.

*Lebia dorsalis* is a very typical species, closely related to *Lebia sellata* and *Lebia pallida*. From *Lebia sellata* it is easily distinguished by the absence of the humeral, comma-shaped spot. The differences between *Lebia dorsalis* and *Lebia pallida* are less evident, and have been discussed above. Apparently *Lebia dorsalis* is allopatric with the other 2 species, which seem to be restricted to Northern South America.

Liebke's *unimaculata* is a junior homonym of *Lebia unimaculata* Motschulsky, 1864, but as I am considering the form as a synonym, it seems unnecessary to change the name. If the form should prove distinct, however, a new name would be required for it.

### **Lebia (Lebia) sellata** Dejean, 1825

(Figs. 24, 69)

*Lebia sellata* Dejean, 1825: 259-260 (Holotype ♀, French Guiana, Cayenne; MNHN, examined).

*Lia sellata*; Eschscholtz, 1829: 7 (Generic assignment); Chaudoir, 1871: 313, pl. 3, fig. 161 (Redescription); Bates, 1883: 245 (Distribution); Liebke, 1928: 136, 157 (Key); Reichardt, 1971a: 79 (Distribution).

Testaceous. Palpi black, with reddish apex of last segment, and basal segment of maxillary palpi also somewhat brownish. Antennae black from the IV segment. Elytra with a smaller, black, almost circular spot behind the scutellum, extending on each elytron from the suture into the V interstice; a larger and also black spot placed behind this, extending to near apex, and on the sides into the VII interstice; a small, longitudinal, comma-shaped spot on the VII interstice, extending from humeri to near the posterior spot, and here widened, extending into the VI interstice. Apical margin black. Last abdominal tergite with 2 small, black spots. Knees and tarsi black. Aedeagus (fig. 69). 9 - 12.7 mm.

Elytral striae finely punctate; interstices very finely microrugose and impunctate.

#### Material examined

MEXICO. *Chiapas*: 20-25 mi N Huixtla, 3,000 ft. (1 ♀, CNCI).

NICARAGUA. *Chontales*: Jabali (1 ♀, MNHN); Santo Domingo (1 ♂, MNHN).

PANAMA. *Chiriqui*: Volcán de Chiriqui, 2,000-3,000 ft. (3 ♀, MNHN, BMNH).

VENEZUELA. *Aragua*: Rancho Grande, 1,100 m (1 ♀, FAUC). *Monagas*: Jusepin (1 ♀, FAUC). *Cojedes*: San Carlos Cojedes, 150 m (1 ♀, MZSP).

TRINIDAD. St. Augustine (1 ♀, BMNH).

GUYANA. Essequibo River, 1st Falls (1 ♂, BMNH).

FRENCH GUIANA. Cayenne (1 ♂, BMNH; holotype ♀, MNHN); Passoura (1 ♂, MNHN); Roches de Kourou (1 ♀, MNHN). No locality (1 ♀, MNHN).

PERU. *Loreto*: Chambiruyaca, near Yurimaguas (1 ♀, MNHN); Iquitos (1 ♀, MNHN). *Cuzco*: Cuzco (1 ♂, MNHN). *Huanuco*: Tingo Maria (1 ♀, AMNH).

BRAZIL. *Amapá*: Macapá, Rio Tracajatuba (1 ♀, MZSP); Serra do Navio (1 ♂\*, 1 ♀, MZSP). *Amazonas*: boca do Rio Cauaburi (1 ♂, FAUC). *Pará*: Santarém (2 exs., CJNC). *Bahia*: no locality (1 ♀, MNHN).

No locality (1 ♂, 3 ♀, MNHN).

#### Notes

*Lebia sellata* is very closely related to *Lebia dorsalis*, being easily distinguished by the different elytral pattern, as commented under the latter.

*Lebia sellata* occurs in northern South America, and reaches far into Central America and Mexico. *Lebia dorsalis* is restricted to southern South America. They are apparently allopatric, possibly occurring together only in the State of Bahia.

The single Mexican specimen I have seen differs from typical specimens in having the median spots of the elytra not connected along the suture, but reaching only to the I stria on each side; this specimen also has testaceous scape. Since there are no other differences, I think it best to mention the variation at this stage, without any further conclusion.

***Lebia (Lebia) figurata* (Chaudoir, 1871), comb. n.**

(Fig. 37)

*Lia figurata* Chaudoir, 1871: 81-82, pl. 3, fig. 163 (Holotype ♀, Brazil, Amazonas, Tefé; MNHN, examined); Liebke, 1928: 135 (Key).

Reddish-testaceous. Palpi with slightly infuscated basal segments. Antennae black from the IV segment. Elytra with irregular yellow and black markings: a yellow, humeral spot on the IV and V interstices; a transverse, irregular, yellow band in the middle, starting on the I stria and reaching the VIII interstice; apex of elytra yellow; a black, irregular spot next to the yellow humeral spot, on the II

and III interstices; irregular, black margins on front and posterior borders of the median, yellow band, anteriorly on the IV interstice, prolonged towards the yellow, humeral spot; front border of posterior, yellow part of elytra, with black margin, which along the II interstice is prolonged posteriorly, almost dividing the yellow spot in 2 semicircles; posterior margin of elytra finely black. Tarsi black. 11 mm.

Elytral striae well impressed, punctures more or less fused; the IV and V striae more deeply impressed than remainder; interstices very irregular, especially the III which is much wider than the others; interstices almost flat, depressed towards the IV stria. Interstices impunctate.

#### Material examined

BRAZIL. *Amazonas*: São Paulo de Olivença (1 ♀, MZSP); Tefé (Holotype ♀, 2 ♀, MNHN); no locality (1 ♀, MNHN).

#### Notes

*Lebia figurata* is well characterized by its elytral pattern, as well as by the IV elytral stria, which is much deeper than the others.

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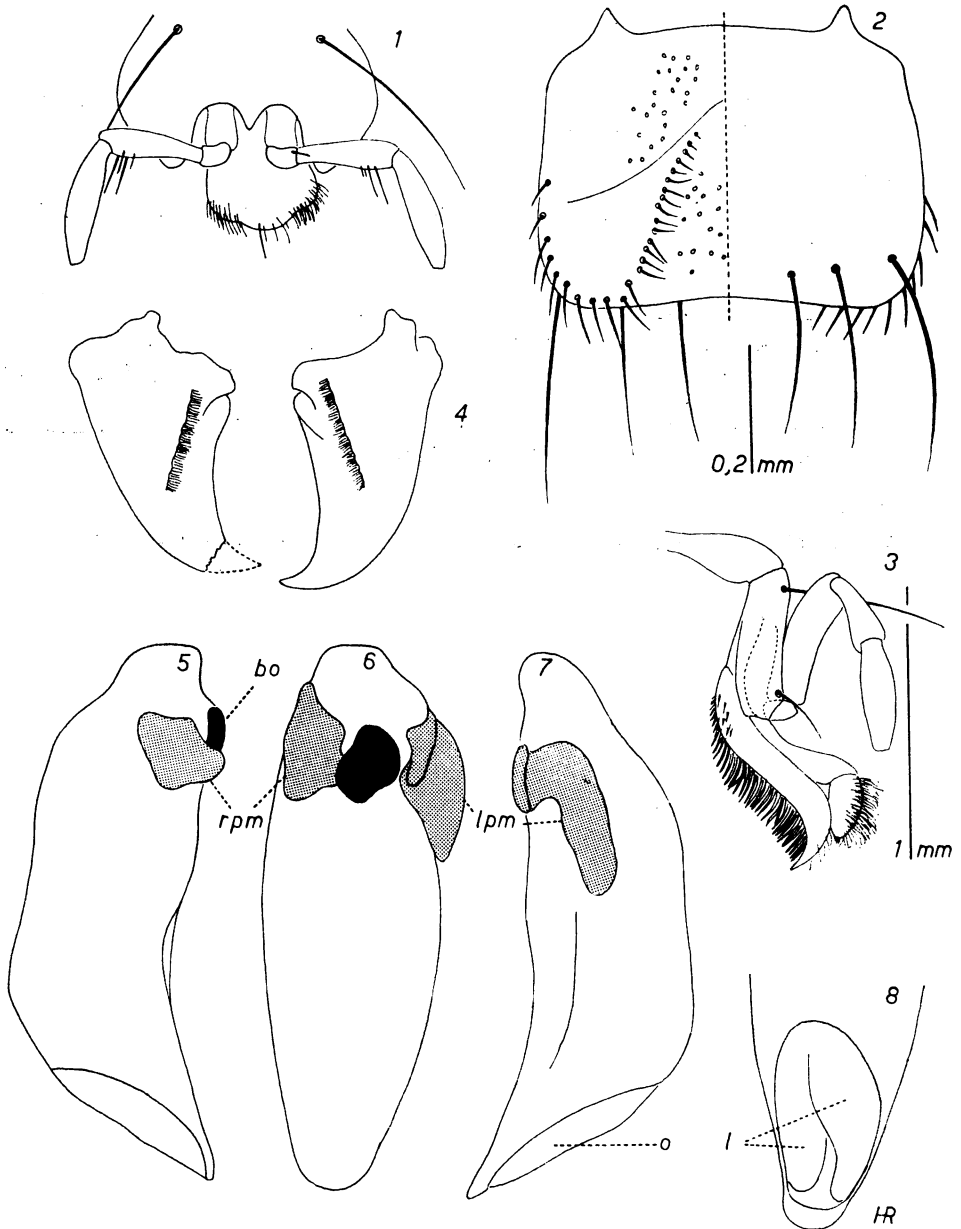
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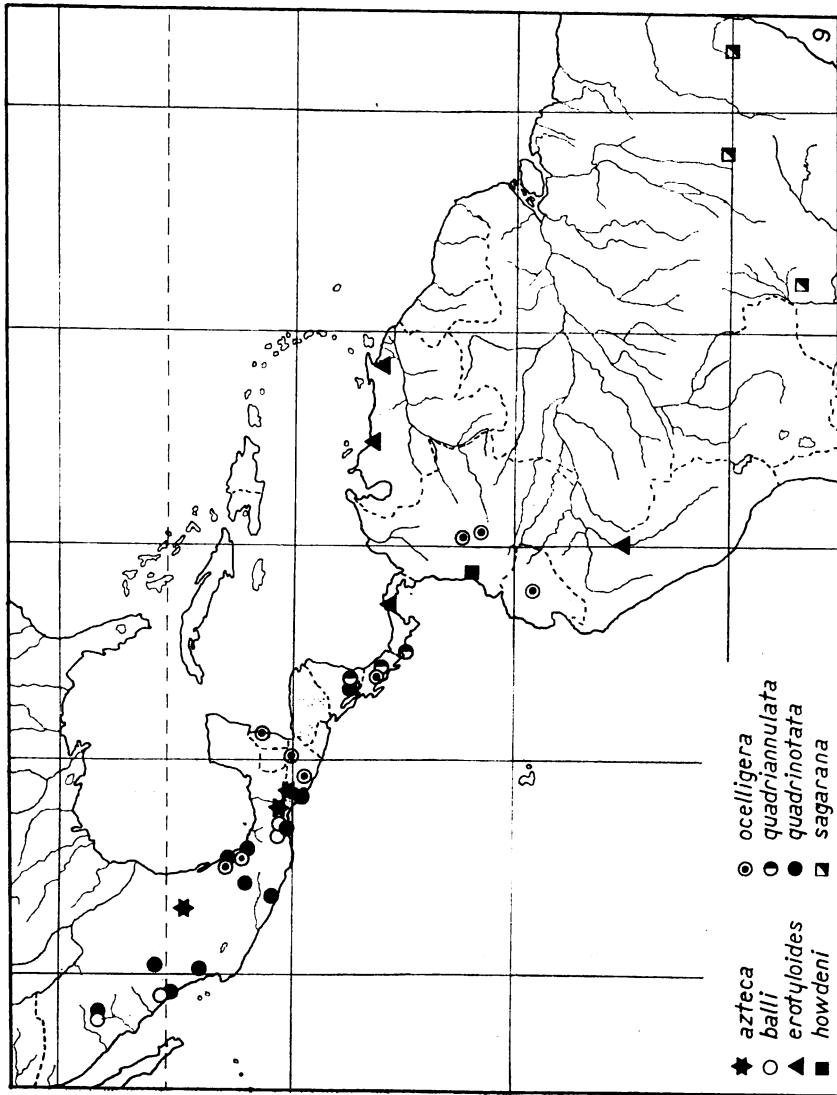
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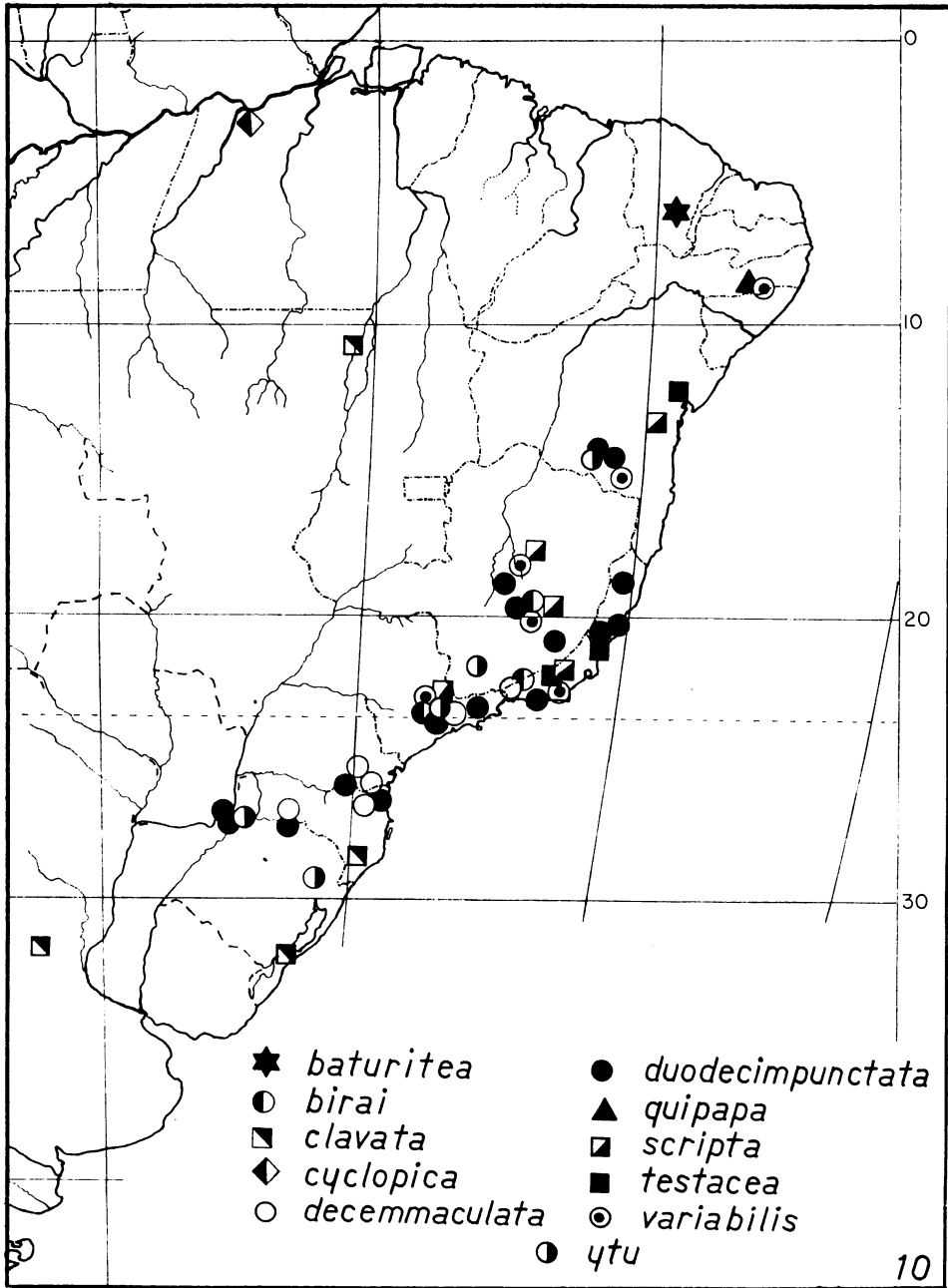


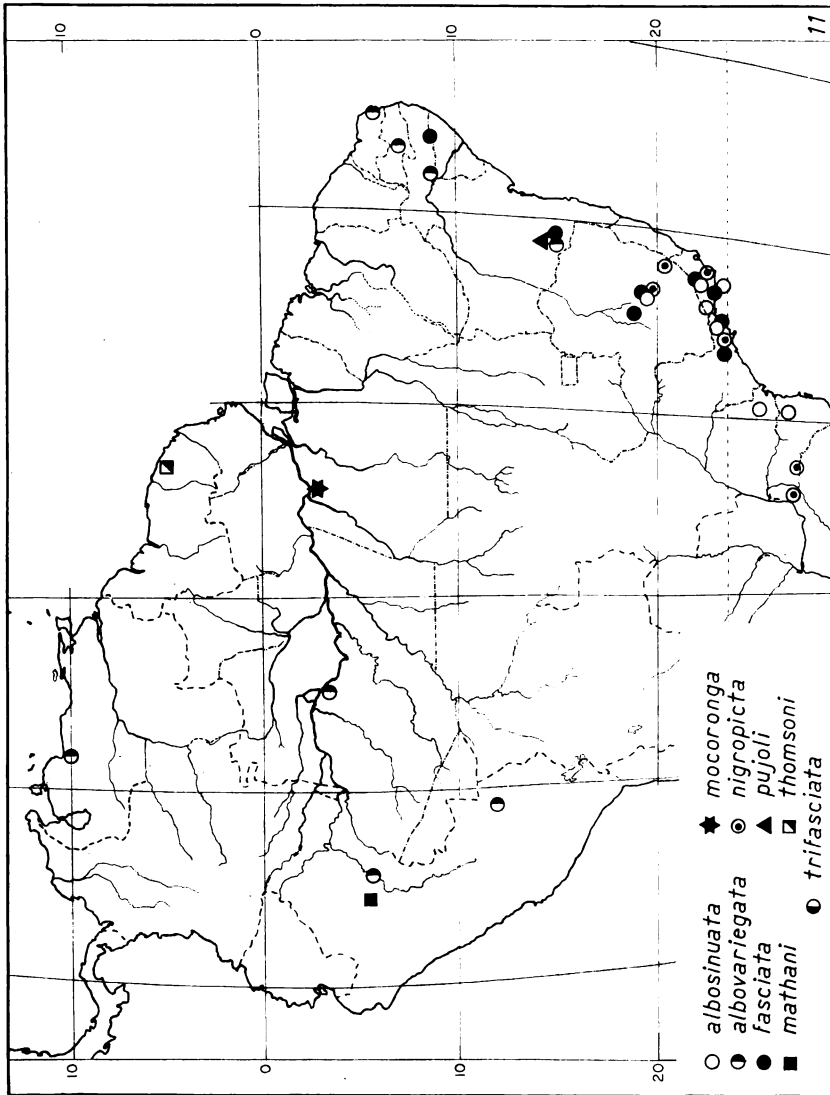
*Lebia ytu*, holotype, mouthparts: 1, labium; 2, labrum; 3, maxilla; 4, mandibles. *Lebia pujoli*, paratype, male genitalia: 5, lateral view with right paramere; 6, ventral view; 7, lateral view with left paramere; 8, apex in dorsal view. bo = basal orifice; rpm = right paramere; lpm = left paramere; o = ostium; l = ligulae.



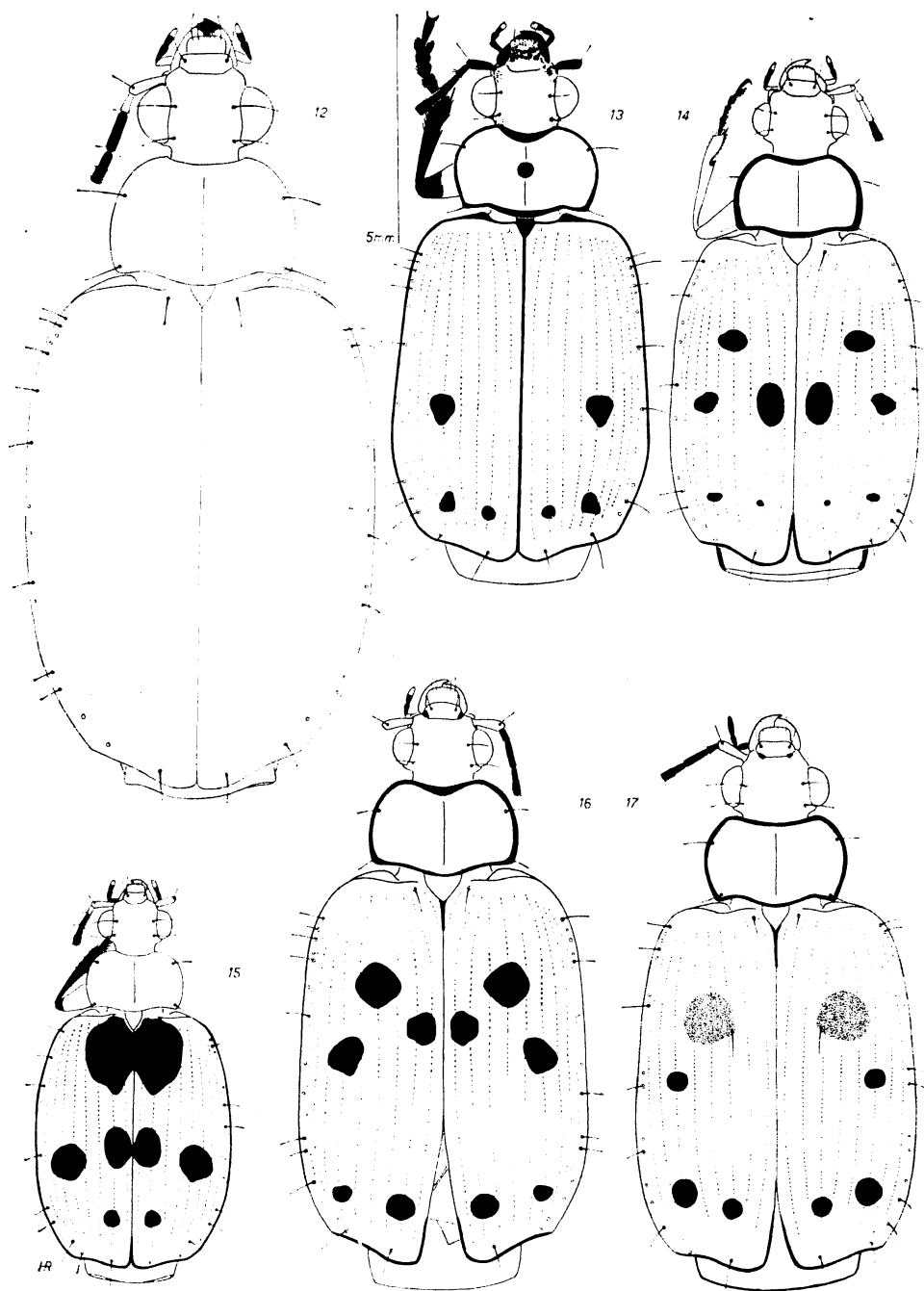


9, distribution of the *Quadrinotata* species group.

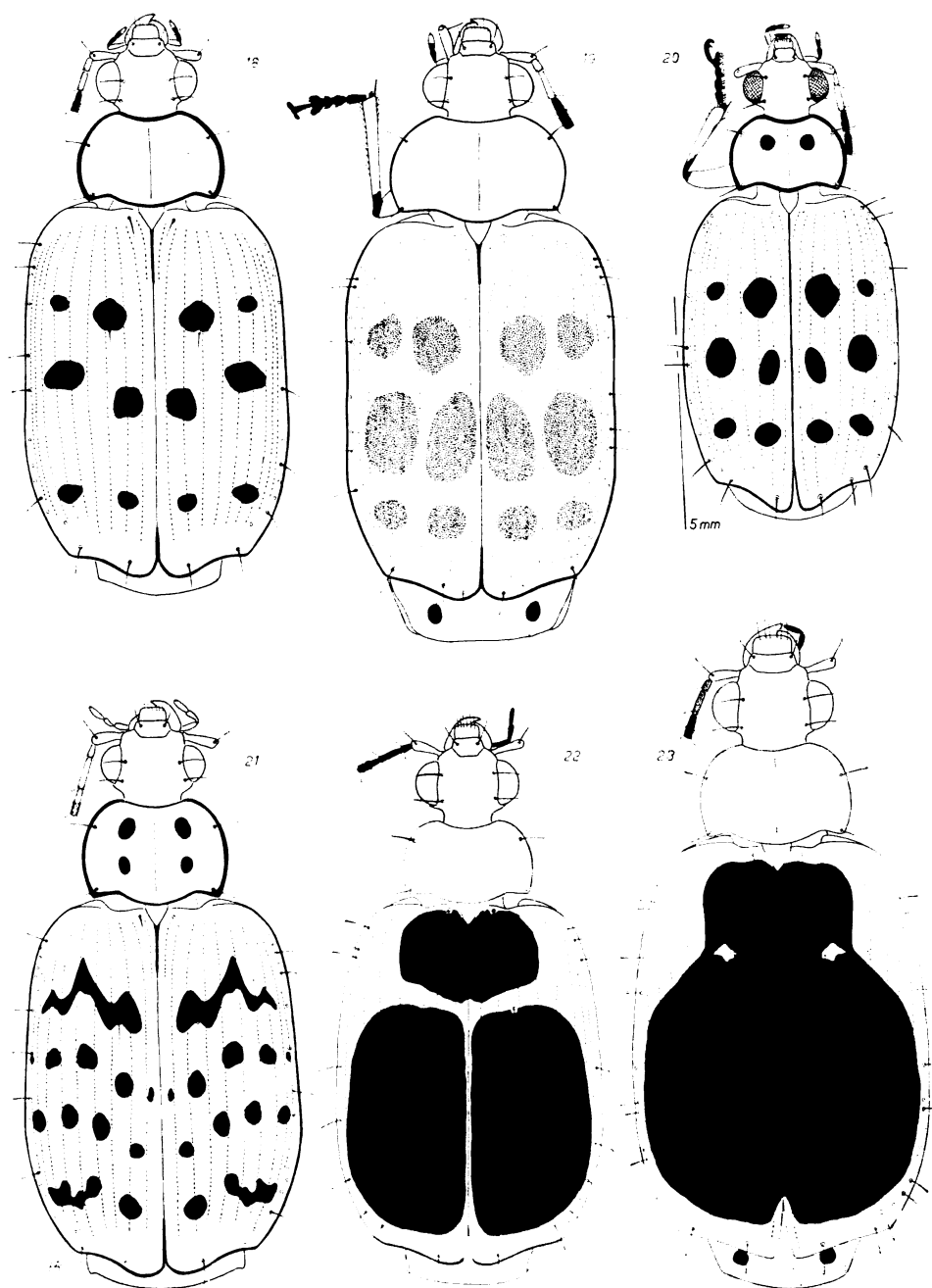
10, distribution of the *Testacea* species group.



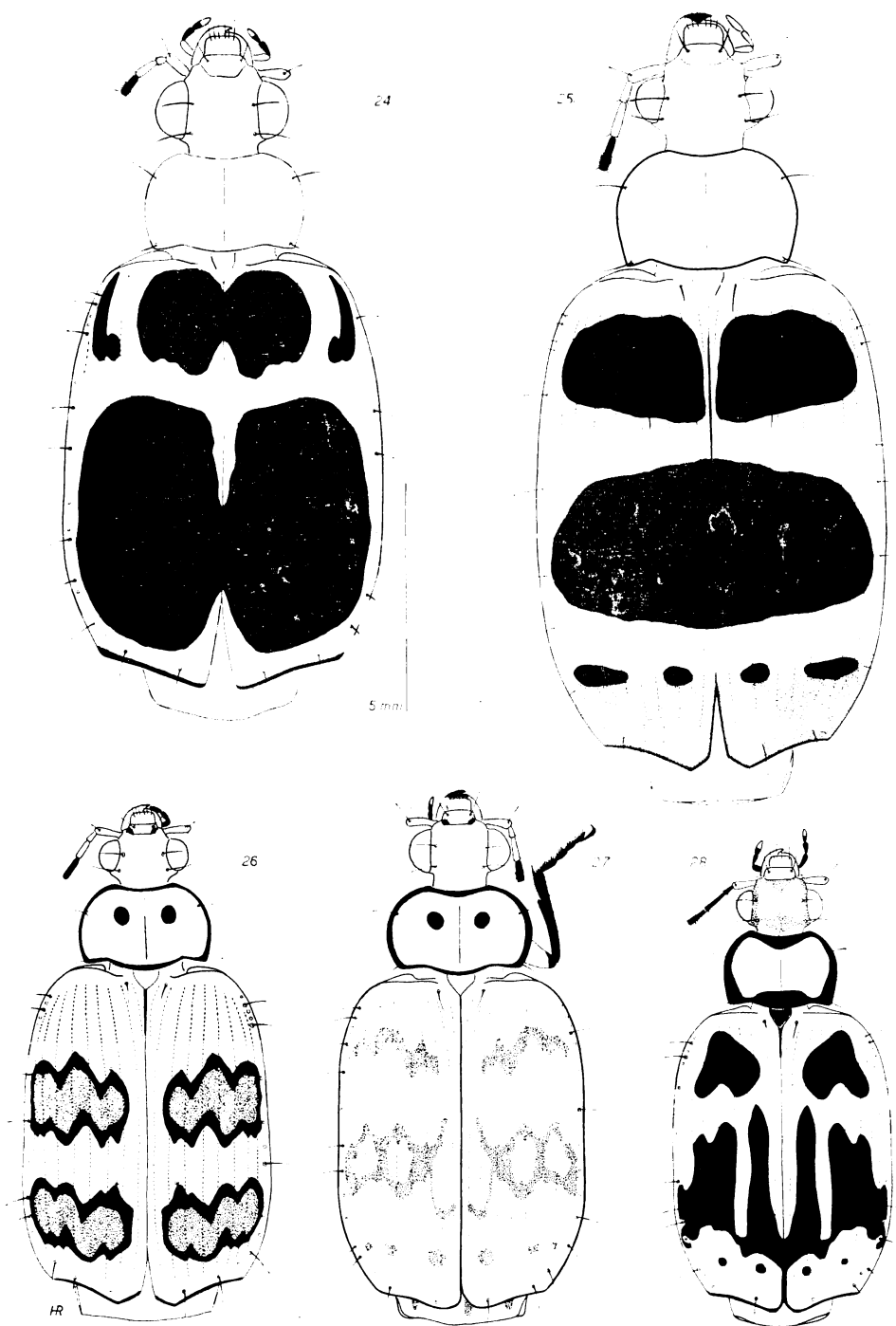
11, distribution of the *Albosinuata* and *Fasciata* species groups.



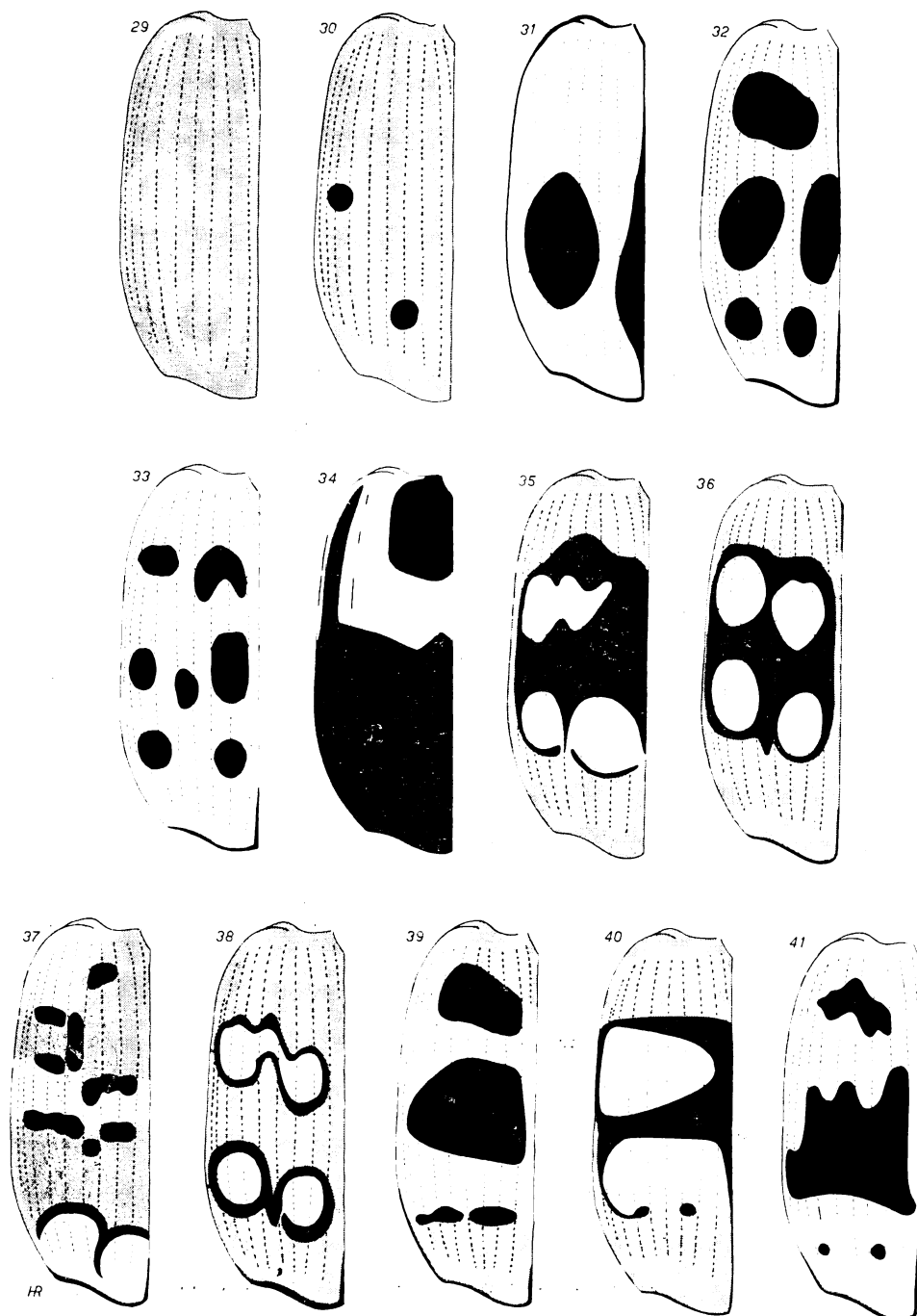
12, *erotyloides* (♂ from Jusepin); 13, *clavata* (♀ from Barra do Tapirapés); 14, *duodecimpunctata* (♀ from São Paulo); 15, *píresa* (♀ from São Paulo); 16, *decemmaculata* (♂ from Pindamonhangaba); 17, *ytu* (♀ from Piracicaba).



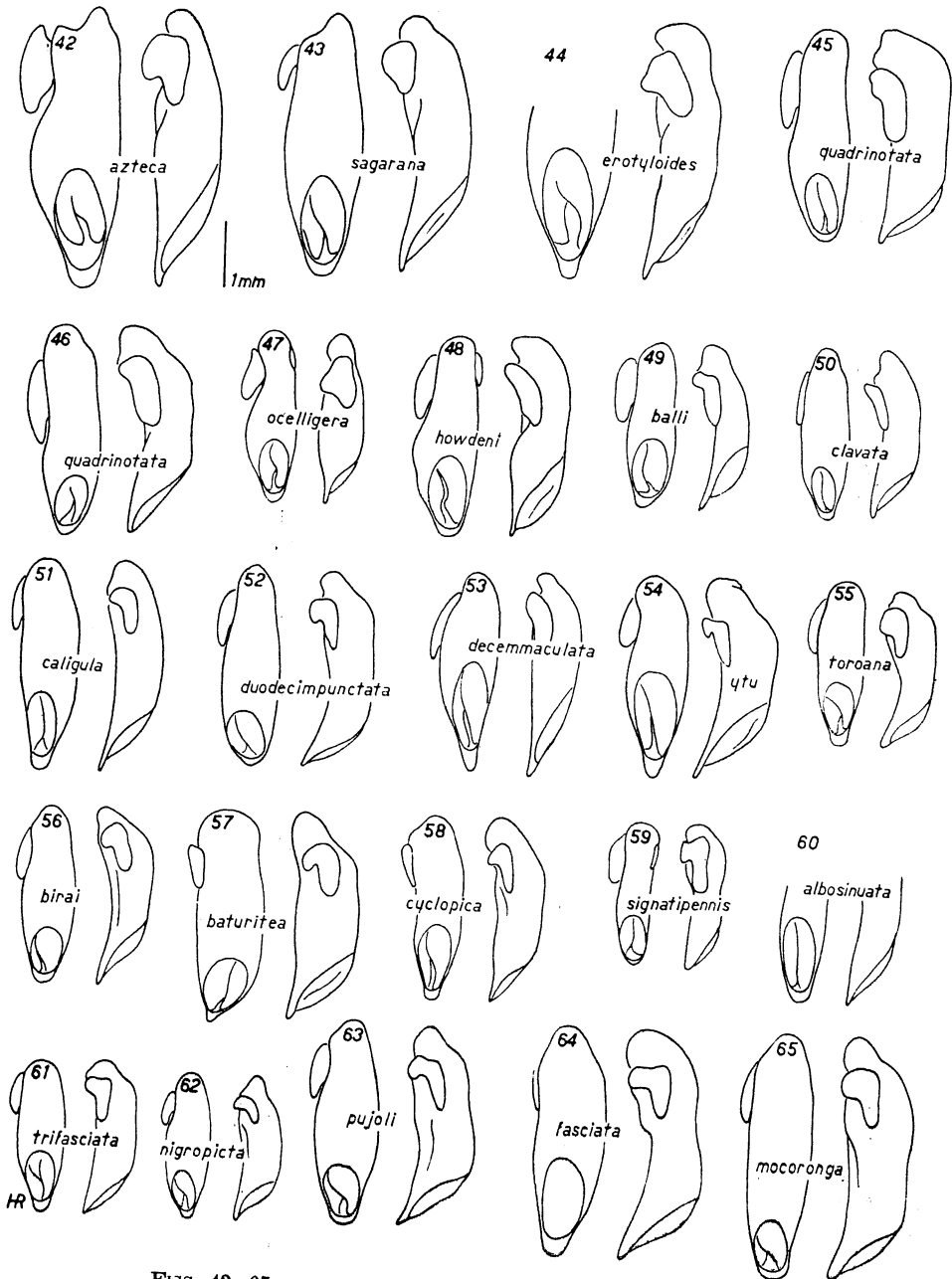
18, *birai* (♀ from Serra do Caraça); 19, *omophoita* (holotype ♀); 20, *variabilis* (♂ from Paranapiacaba); 21, *scripta* (♀ from Serra do Caraça); 22, *dorsalis* (♂ from São Paulo); 23, *dorsalis* (♀ from Pirassununga).



24, *sellata* (♀ from Macapá); 25, *fasciata* (♀ from Nova Friburgo); 26, *albosinuata* (♀ from, São Paulo); 27, *trifasciata* (♂ from Mamanguape); 28, *nigropicta* (♀ from Nova Teutônia).

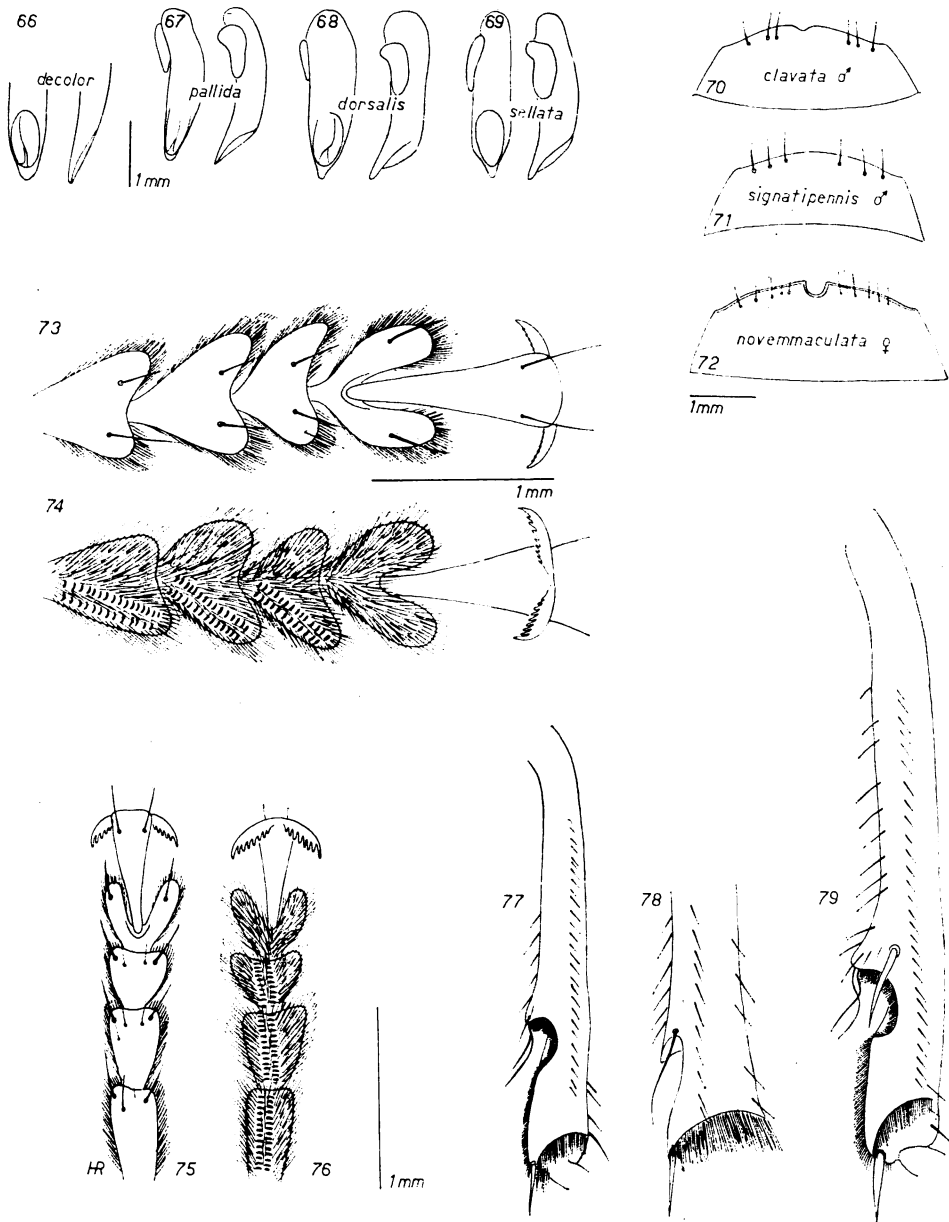


29, *quadriannulata* (from Chiriqui); 30, *ocelligera* (from Muzo); 31, *clavata* (from Cordoba); 32, *novemmaculata* (♀ from Rio de Janeiro); 33, *cyclopica* (holotype); 34, *signatipennis* (♂ from Condeúba); 35, *thomsoni* (holotype); 36, *mathani* (paratype); 37, *figurata* (♀ from São Paulo de Olivença); 38, *albovariegata* (♀ from La Merced); 39, *pujoli* (holotype); 40, *mocoronga* (holotype); 41, *nigropicta* (♀ from Serra do Caraça).



FIGS. 42-65, male genitalia of species of *Chelonodema*.





66-69, male genitalia of species of *Lebia* s.str.; 70-72, last abdominal sternite; 73-74, front tarsus of ♂ of *azteca*; 75-76, same of *decolor*; 77, pro-tibia of *pallida* (holotype ♂); 78, mesotibia of *erotyloides* (♂ from Jusepin); 79, pro-tibia of same specimen.