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THE NEW WORLD *BLEPHARIDA* GROUP, WITH A KEY TO GENERA AND DESCRIPTION OF A NEW SPECIES (COLEOPTERA: CHRYSOMELIDAE)

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Abstract.—Using external and internal adult morphology, clarification of status and determination keys are provided for *Blepharida* Chevrolat and the eight New World genera either related to it or placed near it in recent catalogues. The morphological reasons (e.g., pattern) for maintaining *Blepharida* and *Notozona* Chevrolat as separate genera are discussed. The Afrotropical genus *Blepharidina* Bechyné is lowered to subgenus status within the genus *Blepharida* in light of morphological similarities and differences with New World *Blepharida*. *Blepharida haitiensis* Blake is transferred to *Acrocyum* Jacoby. Morphological evidence (e.g., metatibial emargination, eye shape, and metafemoral spring shape) for placing the monotypic *Euplectroscelis* Crotch close to *Blepharida* is given. *Blepharida franclemonti* is described as a new species known to date only from the Yucatan Peninsula of Mexico.

In the catalogue-like checklist of Leaf Beetle genera of the world followed by most workers (Seeno and Wilcox, 1982), the Alticinae (Chrysomelidae) begin with a group of three genera, formerly Galerucinae (Decarthrocerini of Laboissiere, 1937). This group is followed by three groups of genera that are confused in keys and collections. The first of these groups consists of three Neotropical genera (*Elithia* Chapuis, *Procalus* Clark—originally in Galerucinae, and *Crimissa* Stål). The second group consists of 14 genera from around the world, including 7 found in the New World (Nearctic and/or Neotropical): *Blepharonycha* Fall; *Blepharida* Chevrolat; *Chrysogramma* Jacoby; *Acrocyum* Jacoby; *Notozona* Chevrolat; *Pseudorthygia* Csiki; and *Phydanis* Horn. The third group contains only two Afrotropical genera (*Diamphidia* Gerstaecker and *Polyclada* Chevrolat) which probably should be combined with the previous group. As stated by Seeno and Wilcox (1982), these groups (family-groups) are quite artificial and should not be considered as accepted groupings or tribal arrangements. Unfortunately the separation of these family groups in the Seeno and Wilcox (1982) checklist and their indication of nominate genera for most of these groups is very misleading and has caused some authors to refer to these family-groups incorrectly as tribes. In the present paper the author will attempt to clarify some morphological relationships among the New World genera of the above-mentioned family-groups surrounding the genus *Blepharida*.

Morphological relationships of most of these New World *Blepharida* relatives are apparent in Scherer's 1983 key to the Neotropical Alticinae (a translation of Scherer, 1962); *Pseudorthygia* and *Phydanis*, considered by Scherer to be Nearctic, were not included; however, these two genera are included in Arnett's (1971) keys to North American Alticinae. The genus *Euplectroscelis* Crotch is not included in Arnett (1971) or Scherer (1983), even though in Wilcox (1975) it is placed next to the *Blepharida*-related genera. The relationships of some of these genera have been questioned by

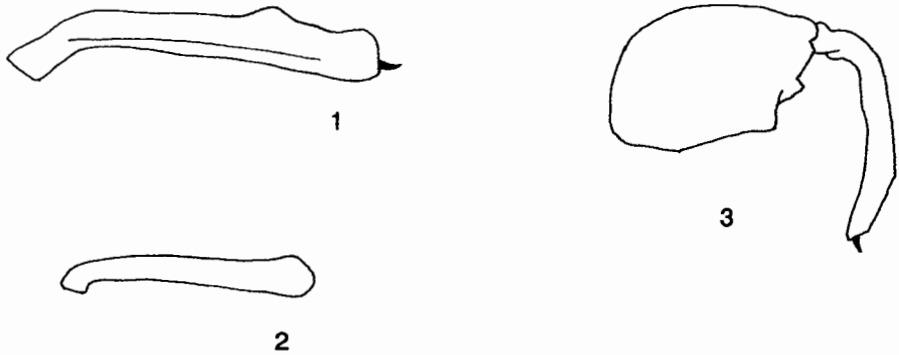
several workers. Bechyné (1968) considered the genera of the second family-group from Seeno and Wilcox (1982) to be the Blepharidini. He disagreed with Scherer's (1961) interpretation of the genus *Blepharida* as including the New World *Blepharida* (*sensu stricto*) together with the Old World *Calotheca* Heyden and *Blepharidella* Weise. Bechyné (1968) argued that chaetotaxy and other morphological details of the clypeus and the tarsal claws were good reasons for leaving these all as separate genera. Based on the presence of a transverse series of setiferous punctures along the anterior border of the clypeus and the absence of a transverse depression in the clypeus (forming a carina above), Bechyné (1968) claimed that only three species (*B. rhois* Forster, *B. irrorata* Chevrolat, and *B. haitiensis* Blake) formed the true *Blepharida* and that all other New World *Blepharida* were congeneric with *Notozona.*

Bechyné (1968) then created a new genus (*Blepharidina*) to encompass all non-New World *Blepharida,* i.e., Afrotropical and Madagascan, possessing bifid tarsal claws, closed procoxal cavities, prosternum with a non-emarginate apex, and a pro-epimeron separated at its lateral border by a deep groove from the edge of the pronotum. Bechyné (1968) considered *Blepharonycha* to be a valid genus because, although it shares the character of bifid tarsal claws with *Blepharida* and *Notozona,* it differs by having open procoxal cavities. He also considered *Acrocyum* to be congeneric with *Chrysogramma* which he wrote had appendiculate tarsal claws but variable procoxal cavities.

New World species of *Blepharida* and *Notozona* are very difficult to separate using the morphological characters used in traditional dichotomous keys. Baly (1865) separated these two genera using several characters which were not true for all species, especially the subapical tooth on the dorsal edge of the metatibiae (*Blepharida*) and the more swollen metafemora with a ventral tooth of *Notozona.* Chapuis (1875) separated these genera using the maxillary palps; narrow and filiform in *Blepharida* versus robust and claviform in *Notozona.* However, none of these or other single morphological characters work for separation of all species in these two genera, as pointed out by Jacoby (1885). Jacoby (1885, 1891) stated that because he could not find any structural differences between these two genera, *Notozona* might be included with *Blepharida,* but he still kept them as separate genera based on consistent color pattern differences. Scherer (1983) acknowledges Bechyné's (1968) treatment of *Blepharida,* but offers his opinion that the true *Blepharida* includes one Nearctic species [*B. rhois*] and many of the Afrotropical species. In his 1983 keys, Scherer stated that it is too early for him to form an opinion about the Neotropical species, but that many belong to *Notozona.* Although Scherer mentions several places in his 1983 keys the potential for confusing *Blepharida* and *Notozona,* he nevertheless does separate and list them based on the deep transverse impression in the anterior part of the frons. Most of Scherer's (1983) characters for separating *Blepharida* and *Notozona* from other genera seem to be based on description of Afrotropical *Blepharida.*

METHODS

Specimens including types were borrowed from a variety of institutions (see Acknowledgments). The metafemoral spring (a generic-level character) was studied for all the genera concerned using the methods described in Furth (1989) (see also Furth, 1985, 1988). In addition, the female spermatheca and male aedeagus were studied



Figs. 1–3. 1. *Blepharida mexicana* metatibia (Length = L = 2.89 mm). 2. *Notozona histrionica* metafemur (L = 3.55 mm) and metatibia (L = 3.37 mm). 3. *Elithia* sp. metatibia (L = 3.96 mm).

in more than one species of each genus whenever possible. These genitalic structures were extracted after prolonged heating (not boiling) of entire specimens in water. All dissections were made with Wild M5 stereomicroscope, including a calibrated reticle and camera lucida attachment. All photographs were made with a Wild M 400 Photomakroskop using Kodak TMAX 400 film.

Types of all the described species of New World *Blepharida* (*sensu lato*) and of *Notozona* have been studied by the author. Examples of three of the five described species each of *Elithia* and *Crimissa* and the two valid species (I. Askevold, personal communication) of *Procalus* were also examined. In addition the following number of species (of the known described species) were examined for this study: *Blepharonycha* (1 of 1); *Chrysogramma* (4 of 5); *Acrocyum* (2 of 4); *Euplectroscelis* (1 of 1); *Pseudorthygia* (1 of 2); and *Phydanis* (1 of 2).

KEY TO THE GENERA OF THE NEW WORLD BLEPHARIDA-GROUP

1. Apex of metatibia with dorsal edges emarginate or flattened (Figs. 1, 2); eyes oriented dorso-mesally, elliptical-shaped, large (dorso-ventral length equal to or greater than the dorsal interocular distance) (Fig. 4); metafemoral spring without recurve flange from ventral lobe, with an acute basal angle of ventral lobe, and with a long dorsal lobe extended arm (Fig. 8) [*Phydanis* has the first but not the second and third of the three characters listed above] 2
1′. Apex of metatibia not emarginate or flattened, but with continuous, morphologically unchanged dorsal edges (Fig. 3); eyes round, not oriented dorsally towards each other, small (diameter usually considerably less than interocular distance) (Figs. 5, 6, 7); metafemoral spring with different morphology than Figure 8, most (except *Acrocyum* and *Pseudorthygia*) with basal angle of ventral lobe obtusely angled or with recurve flange (Figs. 9, 10, 11, 12, 13, and 16—metafemoral spring morpho-groups #1 and #3, respectively, see Furth, 1989) 5
2. Tarsal claws simple ..... *Euplectroscelis*
2′. Tarsal claws appendiculate ..... *Phydanis*
2″. Tarsal claws bifid 3
3. Procoxal cavities open ..... *Blepharonycha*

4

6

5

7

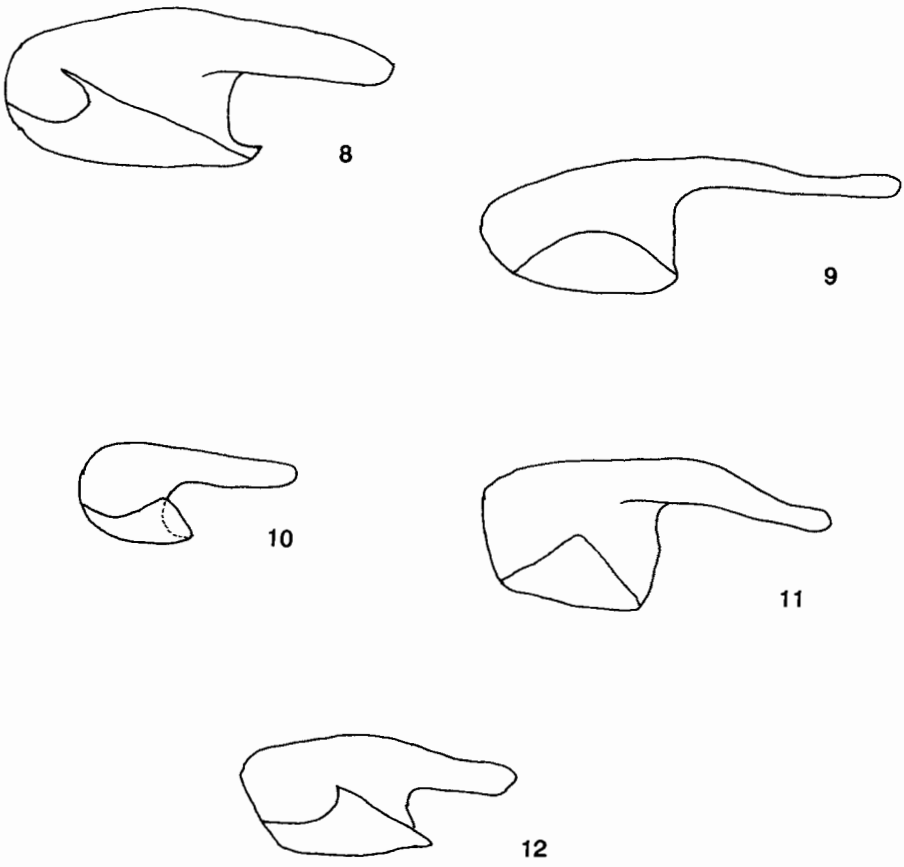
Figs. 4–7. 4. *Blepharida franclemonti* face and eyes (interocular distance dorsally = 1.04 mm). 5. *Procalus mutans* face and eyes (interocular distance = 1.18 mm). 6. *Crimissa cruralis* face and eyes (interocular distance = 1.78 mm). 7. *Chrysogramma pictipennis* face and eyes (interocular distance = 0.85 mm).

(*Blepharida flavocostata* keys to here, but has 6 thin, longitudinal stripes (costae) on non-striate elytra)

3'. Procoxal cavities closed (even very narrowly) 4

4. Elytral pattern mottled (irregular/variable, sometimes asymmetrical; one species, endemic to Baja California [Mexico] has all black elytra) (Figs. 23, 24, 25), occasionally with vague irregularly bordered, transverse bands or series of small/tiny light-colored spots; metatibial apex emarginated with a preapical tooth or protuberance on outer dorsal edge (Fig. 1); elytral punctures usually not striate (arranged in rows), but with some exceptions (e.g., *B. rhois*); clypeus (lower frons) often flat or only slightly impressed transversely; metafemur without ventral subapical teeth; metatibia not strongly curved ..... *Blepharida*

4'. Elytral pattern with distinct (large/wide) transverse bands or spots, variable in size, but never mottled (Figs. 26, 27, 28); metatibial apex with dorsum flattened, but not emarginate and without preapical protuberance (Fig. 2); elytral punctures striate, sometimes appearing as double puncture rows, punctures fine and close together; clypeus (lower frons) usually with a deep transverse impression; metafemur often with a subapical, ventral tooth and with metatibia strongly curved, especially in males (Fig. 2) ..... *Notozona*



Figs. 8–12. 8. *Blepharida mexicana* metafemoral spring (L = 1.23 mm). 9. *Elithia* sp. metafemoral spring (L = 1.41 mm). 10. *Procalus mutans* metafemoral spring (L = 0.81 mm). 11. *Crimissa cruralis* metafemoral spring (L = 1.15 mm). 12. *Pseudorthygia nigritarsis* metafemoral spring (L = 0.41 mm).

5. Tarsal claws bifid 6
5′. Tarsal claws simple 7
5″. Tarsal claws appendiculate 8
6. Procoxal cavities open; metafemoral spring with basal angle of ventral lobe somewhat obtuse (ca. 100°) (Fig. 10); body smaller (size 6–10 mm) and elongate oval in shape ..... *Procalus*
6′. Procoxal cavities closed; metafemoral spring with basal angle of ventral lobe obtuse (more than 120°) (Fig. 9); body larger (9–15 mm) and more spherical in shape ... *Elithia*
7. Procoxal cavities closed; metafemoral spring with basal angle of ventral lobe obtuse (Fig. 11); body larger (9–15 mm); elytral punctation confused; distributed in South America north to Panama ..... *Crimissa*
7′. Procoxal cavities open; metafemoral spring with basal angle of ventral lobe acute (Fig.

12); body smaller (ca. 4 mm); elytral punctation striate; distributed in Mexico ..... *Pseudorthygia*

8. Metatibial apex with dorsal edges flattened (Fig. 2); body smaller (3–4 mm); elytral punctation striate; elytral color solid blue/black (no pattern) ..... *Phydanis*

8′. Metatibial apex with dorsal edges continuous and morphologically unchanged (Fig. 3); body larger (4–8 mm); elytral punctation confused; elytra with distinct pattern of large dark spots or transverse bands on a light background 9

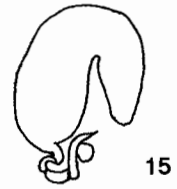
9. Procoxal cavities open (almost closed, but not); metafemoral spring with recurve flange from ventral lobe (morpho-group #3, see Furth, 1989) (Fig. 16); spermatheca with distinctly separate pump and receptacle and with spermathecal ductus simple and uncoiled (Fig. 17) ..... *Chrysogramma*

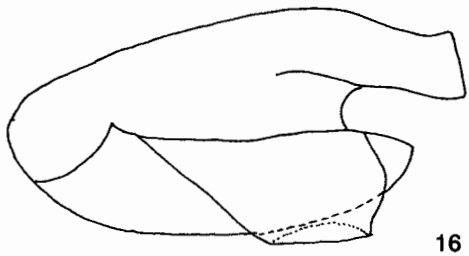
9′. Procoxal cavities completely closed; metafemoral spring (Fig. 13) without recurve flange from ventral lobe (morpho-group #1); spermatheca without distinctly separate pump and receptacle and some species with a coiled spermathecal ductus (Fig. 14, 15) ..... *Acrocyum*

RESULTS AND DISCUSSION

Admittedly the separation of *Blepharida* from *Notozona* is difficult. The combination of characters given in the key above should provide adequate means for separation of these two genera. Generally the reliance on color or pattern as a primary key character is not advisable; however, at present it appears to be the best possibility for these taxa. A variety of characters has been suggested for separation of *Blepharida* and *Notozona* by previous workers, but most have not proved 100% applicable. Therefore, it seems most practical to include several characters that each pertain to a majority of the species in each genus, the combination of which will yield almost complete reliability of determination. Some previous workers have also used a few other less reliable characters such as: antennal segment 2 distinctly shorter than segments 3 or 4 in *Blepharida,* whereas segments 2–4 subequal but shorter than the others in *Notozona*; and maxillary palpus narrow and filiform in *Blepharida,* but more robust/swollen and claviform apically in *Notozona.* These characters are of some use for separation of these two genera, but are quite variable in certain species. Further knowledge of the biology (e.g., Furth, 1982), foodplants, larvae, and other biological information may provide additional characteristics for the separation of *Blepharida* and *Notozona.* Preliminary information indicates that certain species in these genera feed on related foodplants (Furth, unpubl. data); however, foodplant preference testing, leaf biochemical differences, and even foodplant ecology may be useful for indicating relationships (Furth and Young, 1988). Also, the status of several species of *Blepharida* and *Notozona* will be changed in a species-level revisionary study of these two genera (Furth, unpubl. data). Therefore, the author prefers at this point to consider *Blepharida* and *Notozona* as valid separate genera in much the same way as Jacoby (1885, 1891) and Scherer (1983).

Bechyné (1968) states that the true *Blepharida* consisted of only three species based on a transverse series of setiferous punctures on the anterior clypeus and the absence of a transverse clypeal groove (with accompanying carina above). However, the author finds these characters present only in *B. rhois,* not in *B. irrorata* or *B. haitiensis.* In fact, the status of the last of these species is quite different, as discussed below. Bechyné (1968) lumped all other New World *Blepharida* (*sensu lato*) into *Notozona*; the present author disagrees and retains them as *Blepharida.*





Figs. 13–17. 13. *Acrocyum haitiensis* metafemoral spring (L = 0.56 mm). 14. *Acrocyum haitiensis* spermatheca (L = 0.59 mm). 15. *Acrocyum maculicollis* spermatheca (L = 0.59 mm). 16. *Chrysogramma pictipennis* metafemoral spring (L = 0.85 mm). 17. *Chrysogramma pictipennis* spermatheca (L = 0.70 mm).

In the present study the aedeagus, spermatheca, and metafemoral spring of several species of both *Blepharida* and *Notozona* are studied to look for generic level characteristics. The aedeagi of these two genera are quite variable at the species level and show no generic level characters. The spermathecae of *Blepharida* and *Notozona* are quite similar in the shape of the main body of the spermatheca—receptacle and pump (Figs. 19, 18, respectively), but they do show some species differences in the ductus shape. The metafemoral spring of *Blepharida* and *Notozona* is essentially identical belonging to metafemoral spring morpho-group #1 (see Furth, 1988, 1989)—a long extension (extended arm) of the dorsal lobe, the ventral lobe without a recurved flange and with an acute basal angle (pointed basally) (Fig. 8). These three internal characters (aedeagus, spermatheca, and metafemoral spring) were also examined for

all the genera included in this study to reveal generic level characters. The results of this are partially reflected in the above key and the associated figures. As with *Blepharida* and *Notozona,* the aedeagus reveals little obvious definitive, generic level characters; however, a more comprehensive survey of species in these genera is needed in order to be certain of this conclusion. The spermatheca and metafemoral spring are much more revealing as generic characters, as demonstrated in the above key.

As indicated in the Introduction, there has been some confusion and disagreement as to the proper inclusions for the genus *Blepharida.* Scherer (1961) basically followed the catalogue arrangement of Heikertinger and Csiki (1940) which was continued by Seeno and Wilcox (1982). These authors considered *Blepharida* to be composed of three subgenera: *Blepharida* (*sensu stricto*), from the New World, possessing bifid tarsal claws; *Calotheca,* from East and South Africa and the Celebes, with simple tarsal claws; and *Blepharidella,* from East and South Africa, with appendiculate tarsal claws. Bechyné (1968) raised these subgenera to generic status, divided New World *Blepharida* into *Blepharida* (*sensu stricto*) and *Notozona,* and created a new genus, *Blepharidina,* for the Afrotropical species with bifid tarsal claws. Seeno and Wilcox (1982) treat *Blepharidina* as a valid genus. In the present study it has become apparent that there is a group of external morphological differences between the Afrotropical and New World *Blepharida* that possess bifid tarsal claws, other than those mentioned by Bechyné (1968). The author considers Bechyné's *Blepharidina* to be only a subgenus of *Blepharida* from the Afrotropical and Madagascan Regions, with bifid tarsal claws and possessing the following external morphological characters: proepimeron laterally separated from pronotum by a deep grove or suture; frons with deeply impressed, sinuate grooves extending from lower to upper frons between antennae; pronotum with antero-lateral quadrants with a short row of sublateral, longitudinal punctures, usually connected to a transverse (horizontal) row of coarse punctures reaching the lateral pronotal border, thus forming a square or circle in the antero-lateral corners of the pronotum; elytra always striate; clypeus without transverse groove or carina; anterior border of clypeus without transverse series of setiferous punctures; elytral epipleuron with some relatively large, dark spots/pattern of color. Preliminary examination also indicates some characteristic differences of spermathecal morphology (e.g., relatively longer pump). These characters, or at least in combination, are not present in the New World subgenus *Blepharida* (*sensu stricto*).

Another change in status is *Blepharida haitiensis* Blake, considered to be a true *Blepharida,* especially by Bechyné (1968). The following characters place *B. haitiensis* as a species of *Acrocyum*: form of the metafemoral spring (Fig. 13); female spermathecal morphology (Fig. 14); male aedeagus short and stout in form; absence of any flattening or emargination of the dorsum of the metatibial apex; appendiculate tarsal claws; small round eyes; elytral pattern primarily composed of dark spots; and elytral punctation confused, very fine, sparse. Even though Bechyné (1968, unpubl. data) considered *Acrocyum* congeneric with *Chrysogramma,* evidence (i.e., metafemoral spring and female spermatheca) provided in the key above proves that they are truly separate genera.

The genus *Euplectroscelis* Crotch is a monotypic genus endemic to Baja California (Mexico). The six species described by Baly as *Euplectroscelis* and listed in Heikertinger and Csiki (1940) all belong to *Heikertingerella* Csiki. E. Riley and A. Gilbert (personal communication) have observed *Euplectroscelis* in nature. They report that

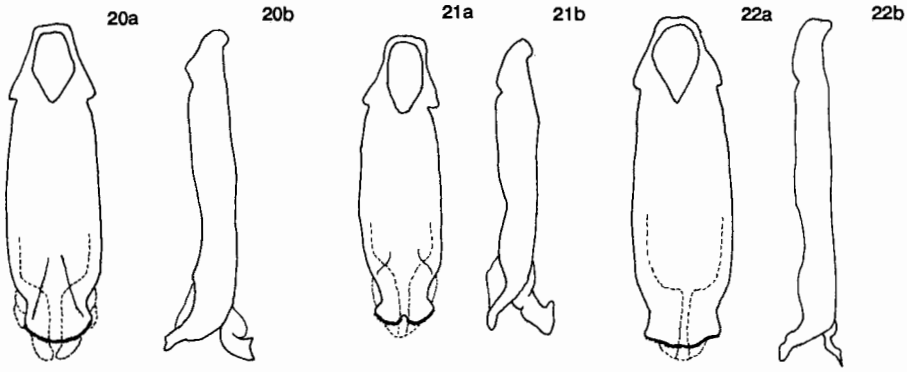
Figs. 18–19. 18. *Notozona histrionica* spermatheca (L = 1.22 mm). 19. *Blepharida francle-monti* spermatheca (L = 1.04 mm).

this and a *Blepharida* species feed on *Bursera* (Burseraceae) and that their larvae are similar morphologically and behaviorally to those of *Blepharida.* As indicated in the above key, the present study has revealed that *Euplectroscelis* adults are morphologically very similar to *Blepharida,* and that the placement of *Euplectroscelis* in catalogues or checklists should be just after *Blepharida* rather than far away near *Chaetocnema* Stephens as it is in Seeno and Wilcox (1982).

The author finds it curious that the arrangement of scientific names in catalogues or checklists (e.g., Heikertinger and Csiki, 1940, Seeno and Wilcox, 1982) is supposedly based on some type of similarities, presumably morphological; however, these similarities or the rationale of such catalogue arrangements is not explained or referred to and such "accepted" arrangements are often passed down through several generations. Admittedly, these traditional "catalogue phylogenies" are often convenient for curating collections and some doubtlessly reflect valid relationships; however, they must be viewed with great caution and restraint when inferring true phylogeny or broad-spectrum relationships. Therefore, until more is known about the true phylogeny of the *Blepharida*-group genera worldwide, for the convenience of such catalogue arrangements, the author proposes that (based on the present morphological study) the following order of New World genera be used in catalogues and checklists:

Blepharida Chevrolat, 1837
(*Blepharida* Chevrolat *sensu stricto*)
(*Blepharidina* Bechyné, 1968)
(*Calotheca* Heyden, 1887)
(*Blepharidella* Weise, 1909)
Notozona Chevrolat, 1837
Euplectroscelis Crotch, 1873
Blepharonycha Fall, 1927
Acrocyum Jacoby, 1885
Chrysogramma Jacoby, 1885

Genera from the Afrotropical, Madagascan, and Pacific Ocean regions should be



Figs. 20–22. 20. *Blepharida franclemonti* aedeagus. a) ventral view b) lateral view (L = 3.40 mm). 21. *Blepharida suturalis* aedeagus. a) ventral view b) lateral view (L = 3.22 mm). 22. *Blepharida mexicana* aedeagus. a) ventral view b) lateral view (L = 3.52 mm).

listed geographically after these New World genera, primarily for convenience, until their relationships to the other genera can be studied.

Elithia Chapuis, *Procalus* Clark, and *Crimissa* Stal should probably be left together as in the Seeno and Wilcox, 1982 checklist. Their relationship to the *Blepharida*-group genera is not apparent from the present study of external and internal morphology.

Pseudorthygia Csiki and *Phydanis* Horn are not related to the *Blepharida*-group and should not be included with them. Currently it is not clear where they should be placed in catalogues.

Blepharida franclemonti, new species
Figs. 4, 19, 20, 23

Antennae. color all yellow; average segment (1–11) lengths in millimeters 0.67, 0.23, 0.56, 0.59, 0.74, 0.56, 0.56, 0.52, 0.48, 0.44, 0.56.

Head. color yellow/light brown; clypeus smooth and impunctate; upper clypeus (lower frons) with deep transverse furrow, creating a prominent carina below (slightly wider in center); upper frons between antennal sockets with faint longitudinal carina, not raised, flattened with a few fine punctures, and only faintly delimited laterally by impressions; frontal bossae round, but poorly delimited, not raised and bordered only mesally and dorso-laterally by small depressions; a few very fine punctures along mesal eye margins; vertex with finely shagreened surface and very fine, sparse, confused punctures; eyes elliptical converging dorso-mesally (Fig. 4); average dorso-ventral eye length = 1.11 mm, average interocular distance (at dorso-mesal margins) = 1.04 mm.

Pronotum. color yellow/light brown; rectangular; lateral margins evenly, gradually rounded, slightly narrower at antero-lateral angles; antero-lateral angles obtuse, protruding laterally somewhat; punctation very fine, with a few sparse, coarser punctures antero-lateral to midline; surface smooth with slight evidence of shagrination;

23a

24a

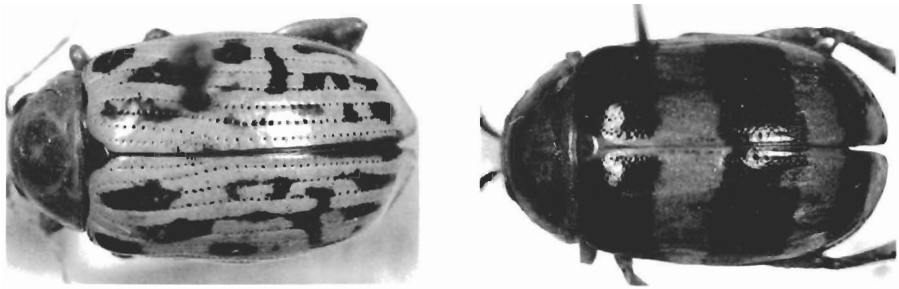
23b

24b

Figs. 23–24. 23. *Blepharida franclemonti* elytral pattern a) dorsal view b) lateral view (Length of elytra = Le = 6.80 mm). 24. *Blepharida suturalis* elytral pattern a) dorsal view b) lateral view (Le = 7.04 mm).

laterally often with small, gently depressed areas; average width at middle = 3.52 mm; average length at middle = 1.92 mm.

Elytra. striate with deep, medium-sized punctures; interstriae surface finely shagreened; background color chestnut/mahogany brown, with yellow markings; yellow pattern (Fig. 20a, b) often slightly assymetrical (fine details only); yellow pattern consisting mostly of yellow spots, sometimes contiguous, always on interstriae and distributed longitudinally, not forming transverse bands; third interstriae (between full puncture rows number 2 and 3 from suture, not including incomplete basal scutellar row) often with few or no spots; occasionally also small yellow spots near suture in middle or posteriorly; base of elytra with continuous, transverse yellow band (posterior borders irregular) surrounding the brown scutellum and continuous as a thin yellow longitudinal stripe along the base of the suture for approximately one quarter of elytral length; humeral callus prominent and surrounded by yellow (interstriae 6–9 with fused yellow spots surrounding brown humeral spot); fused yellow spots forming partial longitudinal stripes on interstriae 6 and 10 (lateral-most stria); spots on interstriae 6–10 often laterally forming small transverse bands of up to three interstriae wide; apically interstriae tapered and narrow, yellow spots often fused to form partial apical yellow band joining four or more interstriae; male elytral



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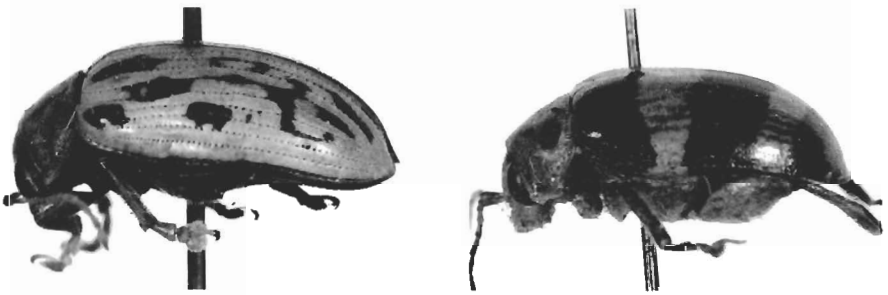


25b 26b

Figs. 25–26. 25. *Blepharida mexicana* elytral pattern a) dorsal view b) lateral view (Le = 7.52 mm). 26. *Notozona bifasciata* elytral pattern a) dorsal view b) lateral view (Le = 6.24 mm).

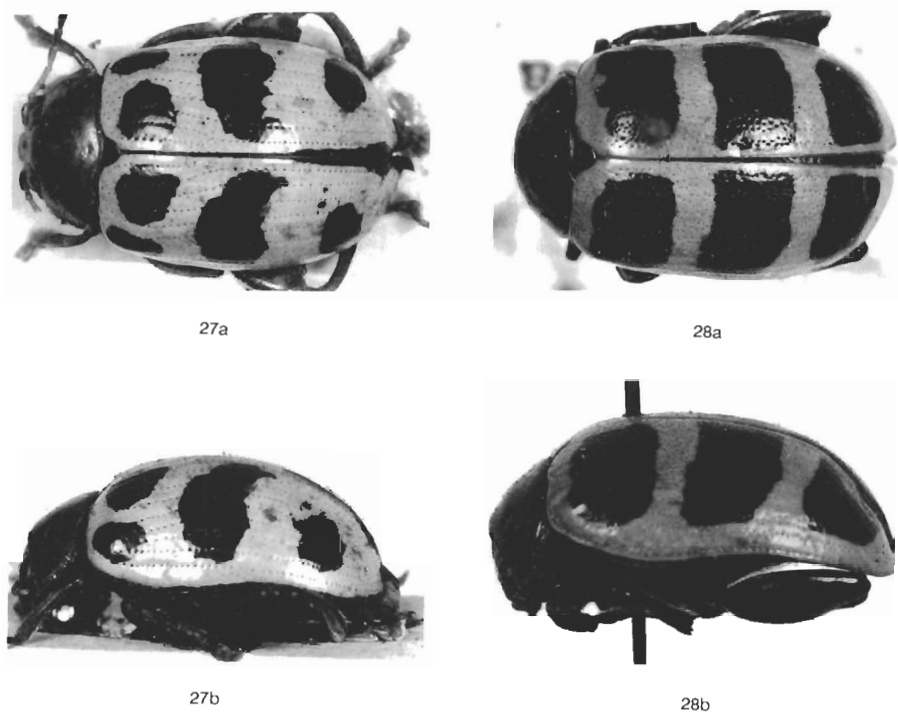
length = 6.72–6.96 mm, width (at middle) = 5.04–5.20 mm; female elytral length = 7.04–7.68 mm, width = 5.28–5.60 mm; general body form similar to Chrysomelinae.

Venter. color yellow/light brown; pubescent throughout; procoxal cavities narrowly closed; prosternal process flat, apically expanded; mesosternal process with posterior margin emarginate; mesosternum vertically oriented; male apical sternite sublaterally cleft forming median, U-shaped lobe; apical tergite U-shaped; all sternites finely, densely punctate.

Legs. male first fore and midtarsal segments greatly expanded; metafemora elongate-oval in shape; metatibial dorsal edges, apically strongly emarginate, each edge with preapical protuberance; tarsal claws strongly bifid.

Aedeagus. in ventral view (Fig. 20a) apex evenly rounded with very rugose margin, subapical ventral surface with triangular raised area, tapered basally (also evident in lateral view); in lateral view (Fig. 20b) apex almost at right angle (dorsum/venter), extreme apex with small step-like angle, dorsal apical projection broadly hook-like; in dorsal view surface flat, dorsal projection with centrally tapering, subparallel, sclerotized ribs expanding apically into a short, umbel-shaped, sclerotized structure.

Spermatheca. Figure 19; slightly twisted ductus, visible only from ductus (right) side.



Figs. 27–28. 27. *Notozona histrionica* elytral pattern a) dorsal view b) lateral view (Le = 7.20 mm). 28. *Notozona nicaraguensis* elytral pattern a) dorsal view b) lateral view (Le = 8.56 mm).

Differences from related species. B. franclemonti is closest to *B. suturalis* Jacoby, 1885 (page 385, plate 22, fig. 12) and quite similar to *B. mexicana* Jacoby, 1885 (page 386, plate 22, fig. 16) differing from these primarily in elytral pattern and aedeagus morphology. *B. suturalis* differs from the new species by having the following characteristics: **Elytra** (Fig. 24a, b): more elytral yellow pattern, especially often forming transverse bands at apex and just in front of the middle; the yellow pattern usually as longitudinal stripes, not spots, especially along the apical two thirds of the second interstriae; first (sutural) interstriae without any yellow markings on apical two thirds, thus forming an apical brown sutural stripe; subbasal large brown areas; humeral and posthumeral brown spots; apex almost always with fused yellow, submarginal stripes. **Aedeagus:** Ventrally (Fig. 21a) deeply emarginate apex with less rugose margin; more prominently raised area subapically, diverging before tapering basally. Laterally (Fig. 21b) apical part (dorsum to venter) obtusely angled; extreme apex without step-like angle; dorsal apical projection broadly hook-like in shape; subapical raised area prominent. Dorsally surface deeply concave; dorsal projection with subparallel, more broadly tapered, median, sclerotized ribs, expanding apically into broad, umbel-shaped, more sclerotized apex than in *franclemonti* (more bullet-shaped apex). **Distribution:** Guatemala; El Salvador; Nicaragua; and Costa Rica.

B. mexicana differs from *B. franclemonti* as follows: **Elytra:** pattern (Fig. 25a, b), especially by having mostly yellow pattern with only a humeral brown spot and a few brown longitudinal, partial stripes, most notably on interstriae 3 and 5; most of sutural and subsutural interstriae yellow; apex entirely yellow. **Pronotum:** more quadrate (relatively longer than wide) than in the other two species. **Aedeagus:** ventrally (Fig. 22a) has a less rugose, more sinuate apical margin; laterally (Fig. 22b) no subapical raised area; dorsal projection (only slightly hook-shaped) pointing straight out apically; dorsally flat surface, dorsal projection with narrow, subparallel ribs, diverging apically, expanding laterally into lightly sclerotized, subumbel-shape (almost T-shape) with lateral angles acutely pointed. **Distribution:** Mexico (Oaxaca and Vera Cruz States).

Etymology. This new species is named for Prof. Emer. John G. Franclemont (Cornell University) who offered me valuable guidance and encouragement during my first few instars as a coleopterist, including during my first research on the genus *Blepharida.*

Material examined. HOLOTYPE: male, (MCZ type number 33406), Mexico, label data: "Mex: Yucatan, Chichen Itza 18–19 V 1987 D. A. Rider, E. G. & T. J. Riley." Deposited in the Department of Entomology, Museum of Comparative Zoology (MCZ), Harvard University as a donation from Edward G. Riley (EGR). ALLOTYPE: female (MCZ type number 33406), "Mexico, Yuc. Merida VII 29-30 1964 Paul J. Spangler." Deposited in the Department of Entomology, Museum of Comparative Zoology (MCZ), Harvard University as a donation from the National Museum of Natural History, Washington, D.C.—(USNM). PARATYPES: male (EGR), female (J. E. Wappes), "Mex., Quin. Roo 18–24 km N. San Felipe Carr. pte. 5/27/–6/1/84, J. E. Wappes"; 3 males (1 EGR, 2 Robert Turnbow-RT), female (RT), "Mex, Quintana Roo, 18 km N. Carrillo Puerto, at lite. 31 May 1984 R. Turnbow"; 3 females (USNM), same data as Allotype; female (American Museum of Natural History, New York—AMNH), "Piste. Yucatan Mex. VI 8–10 59 P. & C Vaurie"; female (AMNH), "Mex., Yucatan Piste June 3–5, 59 P. & C. Vaurie"; female (The Natural History Museum, London), "55 24," "Jac," "Baly Coll"; female (MCZ), "Mex"; female (MCZ), "Yucatan."

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