

A Madagascan genus *Lechius* gen. nov.\*  
(Coleoptera: Tenebrionidae: Platynotini)

DARIUSZ IWAN

Museum and Institute of Zoology, Polish Academy of Sciences, Wilcza 64, 00-950 Warszawa, Poland

ABSTRACT. A new, endemic genus *Lechius* is described from Madagascar, with the type species *Lechius abacooides* (FAIRMAIRE, 1902) and *Lechius steineri* sp. nov.

Key words: entomology, taxonomy, new genus, new species, Coleoptera, Tenebrionidae, Madagascar.

INTRODUCTION

The first species of the tribe *Platynotini*, recorded from Madagascar, was *Opatrum attenuatum*, described by KLUG in 1833.

In their 1853 paper MULSANT and REY recorded from Madagascar and described two species of the genus *Opatrinus*: *O. insularis* and *O. madagascariensis* - a synonym of *Opatrinus attenuatus* (KLUG, 1833).

In four consecutive papers FAIRMAIRE (1895, 1899, 1901, 1902) described from Madagascar three genera (*Melanocratus*, *Styphacus*, *Madobalus*) with a total of nine species. In 1902 he described two more species of the genus *Selinus*: *abacooides* and *punctipennis*.

In GEBIEN'S (1938) catalogue, besides the above mentioned species of the *Platynotini*, also *Selinus menouxi* MULSANT et REY, 1853 is mentioned from Madagascar (patria), though there is no such record in the original description.

In his 1956 revision KOCH recorded from Madagascar only *O. insularis* and *O. attenuatus*, and listed *S. menouxi* after GEBIEN (1938). There is no information on *S. abacooides* and *S. punctipennis*, despite including *Selinus* in the revision of the

\*Papers Celebrating the 90th Birthday of Dr. Boleslaw Burakowski

whole tribe. A footnote on p.62 (KOCH 1956) contains an information that the paper on the genera *Melanocratus*, *Styphacus* and *Madobalus* is in press in the journal "Memoires Institut de Recherche Scientifique de Madagascar". The publication has never appeared.

In 1970 ARDOIN described a new genus *Hovademus* from Madagascar, with *andringitrensis* and *pauliani*.

#### ACKNOWLEDGEMENTS AND DEPOSITORIES OF THE MATERIAL STUDIED

I am grateful to the following curators and institutions for the loan of specimens used in this study:

MNHN - Muséum National d'Histoire Naturelle, Paris, France (C. GIRARD);  
 NMNH - National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA (R. D. GORDON);  
 TMB - Természettudományi Múzeum, Budapest, Hungary (O. MERKL);  
 MIZPAN - Muzeum i Instytut Zoologii, Polska Akademia Nauk, Warsaw, Poland.

The paper was sponsored by the State Committee for Scientific Research (grant no. 6 P204 027 04).

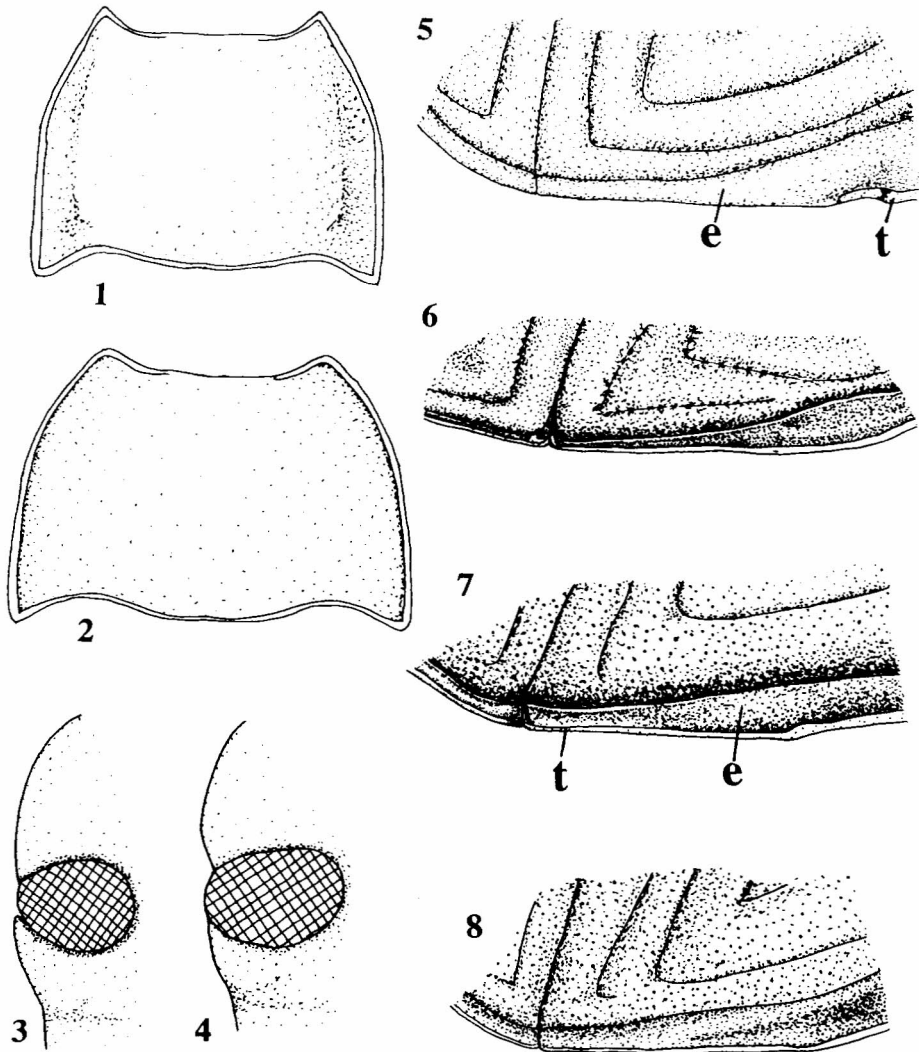
#### ABBREVIATIONS

pl/pb - pronotum length/breadth ratio;  
 el/eb - elytra length/breadth ratio;  
 el/pl - length ratio elytra/pronotum;  
 eb/pb - breadth ratio elytra/pronotum.

#### SYSTEMATICS

In 1956 KOCH divided the tribe *Platynotini* into subtribes and species groups. The structure of epipleura and pseudopleura were among the most important characters considered by that author in his studies. African species of the subtribe *Platynotina* were divided in the following groups: monotypic opatrinoid with the genus *Opatrinus*, anchophthalmoid, selinoid and trigonopoid. The opatrinoid and anchophthalmoid groups, according to KOCH, had elytral pseudopleura "complete", selinoid had them "abbreviate posteriorly", while nothing was said on the structure of pseudopleura and epipleura in the trigonopoid group.

Results of my recent studies and the literature data (DOYEN 1989, 1993, FIORI 1977) reveal that the hitherto accepted interpretation of the elytral structures, as well as their nomenclature, were erroneous (KOCH 1956, IWAN 1995). The part of elytra, called pseudopleura by KOCH (1956), is actually epipleura. On the inner margin of epipleura there is an additional thickening (roll-shaped), visible as a bordering of epipleura; this structure was called "tongue" by DOYEN (1993) (shown in cross-section). The characters are present in several states, which may be synapomorphies



1-2. Pronotum: 1 - *Selinus menouxi*, 2 - *Lechius steineri*. 3-4. Eye and lateral outline of head: 3 - *L. abacoides*, 4. - *S. menouxi*. 5-8. Apical part of elytra (e - epipleura, t - tongue, epipleura bordering): 5 - *Atrocates striatus*, 6 - *Zidalus latipes*, 7 - *L. steineri*, 8 - *L. abacoides*

useful for classification. A flat epipleura, comparatively broad, parallelsided and situated dorsally in the terminal part of elytra, is regarded as ancestral; its bordering reaches elytral apices (fig.8). Derived characters are: narrowing of epipleura (fig.6), and, independently, consecutive stages of increasing convexity to the point of assuming ventral position (figs 6-7); the upper margin of epipleura may be sharp or rounded; epipleura bordering disappears at the apex of elytra (fig.5).

Species of the newly described Madagascan genus *Lechius* are closely related to the continental African genus *Selinus* (structure of female copulatory apparatus). However, a considerable convexity of the elytral epipleura places *Lechius* close to *Anchophthalmus* and *Zidalus* (fig.6).

The remaining Madagascan endemics (*Melanocratus*, *Styphacus*, *Madobalus* and *Hovademus*), and also *Selinus punctipennis* FAIRMAIRE, 1902 have at the apex of elytra a broad, slightly concave and somewhat rounded epipleura, whose bordering does not reach the apices of elytra and terminates at the level of the third abdominal ventrite (fig.5). These characters, as synapomorphies, unite them with species of the trigonopoid group of *Platynotina* occurring on the African continent, mainly in the Cape Province.

The results of this and earlier (IWAN 1995) studies indicate that the systematics of the tribe *Platynotini* proposed by KOCH in 1956 should be revised. Besides verification of the existing data, further characters should be included in the studies, i.e. structure of the female copulatory apparatus and, as far as possible, structure of larvae. A revision of the trigonopoid group of *Platynotina* is also necessary, especially of Madagascan endemics known only from original descriptions from the turn of 19th c.

### ***Lechius* gen. nov.**

Type species: *Selinus abacoides* FAIRMAIRE, 1902.

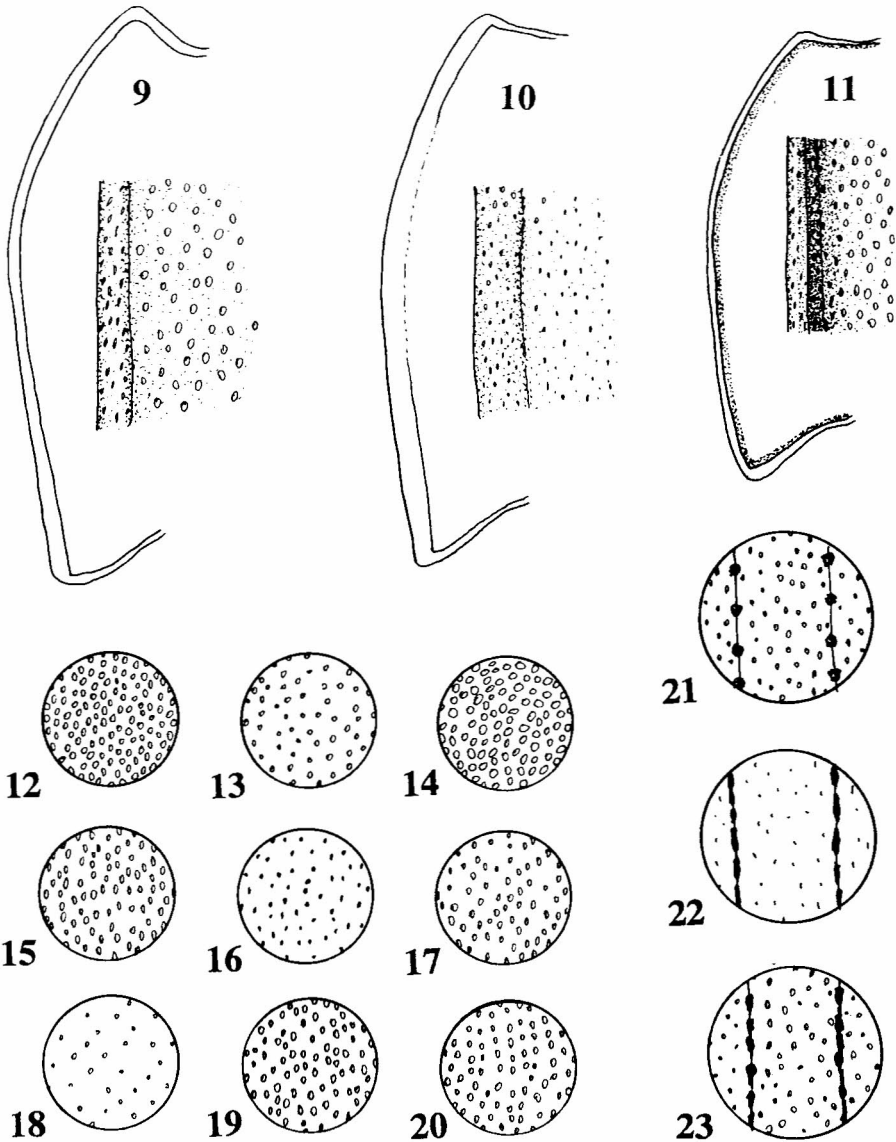
#### NAME DERIVATION

The genus is dedicated to my teacher and friend, an outstanding Polish entomologist Professor Lech BOROWIEC.

#### DIAGNOSE

The monophyly of this species group is evidenced by the presence of a groove below the ventral margin of eye (fig.3), absent in *Selinus* (fig.4), wide bordering of the last abdominal ventrite (fig.36), narrow in *Selinus* (fig.35).

*Lechius* differs from *Selinus* in the structure of spermatheca - the ducts only in their initial part are parallelsided, of a relatively small diameter, in the terminal part widened (in *Selinus* the ducts are parallelsided on their entire length, of a diameter smaller than that of efferent ducts of accessory glands), in puncturation of the body surface (figs 12-23), pronotum structure (figs 1, 2) and structure of mentum (figs 32-34).



9-11. Lateral edge of pronotum: 9 - *Selinus menouxi*, 10 - *Lechius abacoides*, 11 - *L. steineri*. 12-14. Puncturation of head: 12 - *S. menouxi*, 13 - *L. abacoides*, 14 - *L. steineri*. 15-17. Puncturation of pronotal disc: 15 - *S. menouxi*, 16 - *L. abacoides*, 17 - *L. steineri*. 18-20. Puncturation of prosternum: 18 - *S. menouxi*, 19 - *L. abacoides*, 20 - *L. steineri*. 21-23. Puncturation of elytra: 21 - *S. menouxi*, 22 - *L. abacoides*, 23 - *L. steineri*

## DESCRIPTION

Dorsal body side mat, with a greasy sheen. Head puncturation distinct, on pronotum and elytra puncturation delicate, vanishing. Ventral body side shiny, distinctly punctured.

Genal canthus wider than eyes, head behind eyes widened, below ventral eye margin a distinct "fault" visible as a groove. Mid part of mentum strongly widened, lateral wings comparatively narrow, tapered.

Pronotum evenly convex, with no broad depressions at lateral margins; its sides rounded, widened basally; pronotum base bordered, bordering of the anterior margin widely interrupted in middle; pronotum base widely sinuately emarginate, posterior angles reach beyond the middle of base. Prosternal process bordered.

Elytral rows formed of small, elongate punctures; elytral epipleura in its terminal part wide, convex; membraneous wings completely reduced.

Last abdominal ventrite widely bordered.

Male fore tibiae slightly widened, mid tibiae with a small apical denticle, male mid femora with no denticle.

External female copulatory apparatus (fig.37) similar to that in the genus *Selinus*, coxite 1 strongly convex, the last one discoidal, paraproct elongate, nearly as long as coxites. Spermatheca in its initial part built of parallelsided ducts of relatively small diameter; in their further section the ducts widen.

***Lechius abacoides* (FAIRMAIRE, 1902) comb. nov.**

*Selinus abacoides* FAIRMAIRE, 1902: ; GEBIEN 1938: 298.

## DESCRIPTION

Body length 10.0-13.5 mm, pl/pb = 0.60-0.65, el/eb = 1.31-1.38, el/pl = 2.35-2.64, eb/pb = 1.12-1.17. Dorsal body side mat, black, underside slightly shiny, from dark brown to black.

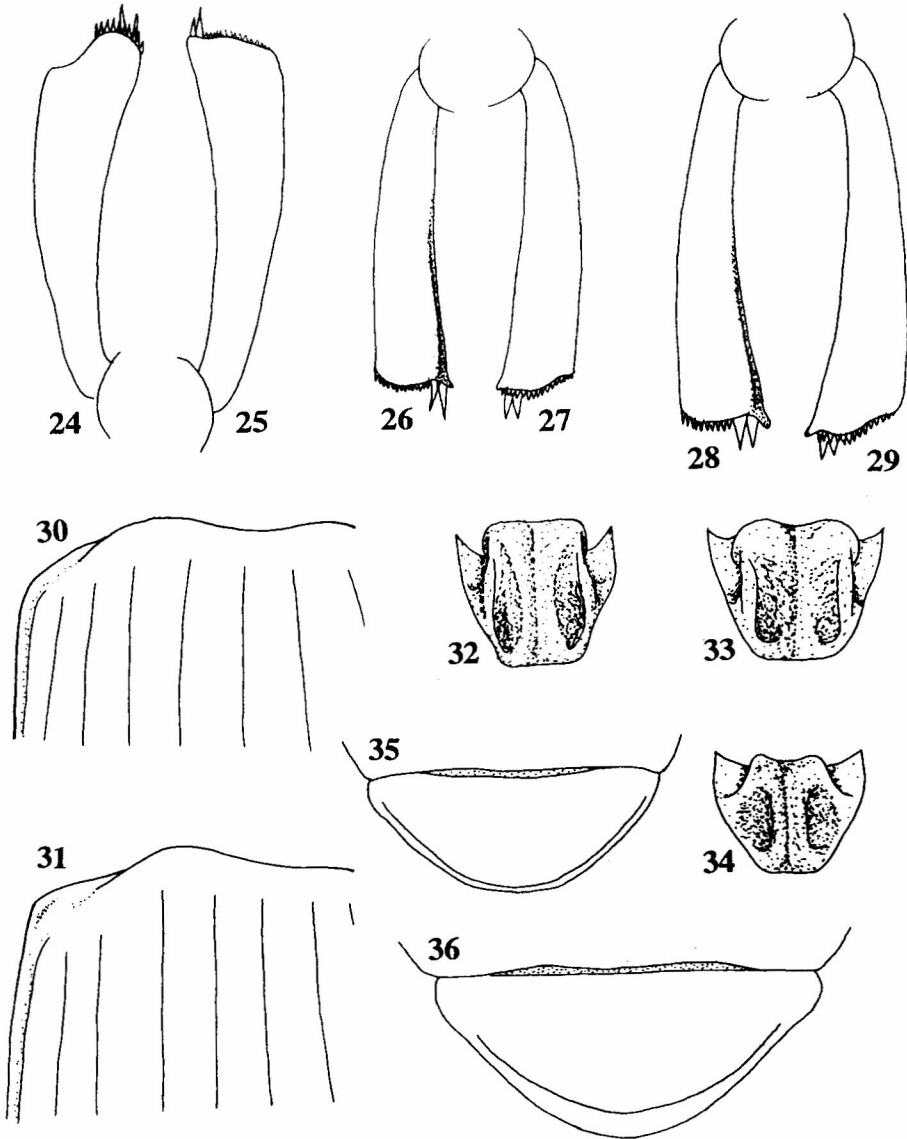
Head widened behind eyes, puncturation as in fig.13; clypeus shallowly, widely emarginate; mentum as in fig.33.

Pronotum moderately, evenly convex, delicately punctate (fig.16), mesosternum slightly shiny, puncturation distinct (fig.19).

Puncturation of elytral intervals vanishing (fig.22), humeral angles protruding (fig.31), elytral epipleura in its terminal part wide, slightly convex, the bordering disappears at the very apex of elytra (fig.8)

Male mid tibiae with a ridge on the inner side and a well visible apical denticle (figs 28, 29), hind tibiae simple.

Apical part of aedeagal tegmen divided longitudinally, flattened and curved inwards (figs 42, 43). Ovipositor as in fig.37.



24-25. Male protibia, *Lechius steineri*: 24 - dorsal view, 25 - ventral view. 26-29. Male mesotibia, ventral and dorsal view: 26-27 - *L. steineri*, 28-29 - *L. abacoides*. 30-31. Humeral angle of elytra: 30 - *L. steineri*, 31 - *L. abacoides*. 32-34. Mentum: 32 - *L. steineri*, 33 - *L. abacoides*, 34 - *Selinus menouxi*. 35-36. Last abdominal ventrite: 35 - *S. menouxi*, 36 - *L. steineri*

## TYPES

*Selinus abacooides* FAIRMAIRE, 1902: lectotype (present designation), male, "Madagascar, Sud, Andrahomana, ALLUAUD 1900 (38); Type; *Selinus abacooides*; Museum Paris 1906 Coll. Léon FAIRMAIRE", the specimen is deposited in the Muséum National d'Histoire Naturelle, Paris, France; paralectotypes: "Madagascar, Sud, Andrahomana, ALLUAUD 1900, Museum Paris, Coll. Ch. ALLUAUD" (MNHN) 6 m, 4 f and (TM) 1 f, "Museum Paris, Madagascar, Région De L'Androy, Ambovombe, Dr. J. DECORSE 1901; 30.Juill. 1900; Type; *Selinus abacooides* FAIRM, Ann. Fr. 1902; Muséum Paris 1906 Coll. Léon FAIRMAIRE" (MNHN) 1 f, "Museum Paris, Madagascar, Région De L'Androy, Ambovombe, Dr. J. DECORSE 1901; lau 15 sept. 00" (MNHN) 2 f; "Museum Paris, Madagascar, Androy Bas Mandrare De Behara a L'Otrokotroky, Dr. J. DECORSE 1901; 23 mai 1900" (MNHN) 2 m, 1 f, "Madagascar, Sud, Pays Androy, Nord, ALLUAUD 1900, (36), Museum Paris, Coll. Ch. ALLUAUD" (MNHN) 1 f.

## MATERIAL EXAMINED

MADAGASCAR: "Collection LE MOULT; Museum Paris, Coll. J. CHATANY 1914" (MNHN) 6 m, 4 f; "Museum Paris, A. SEYRIG" (MNHN) 1 m; "Vondrozo 1921; Muséum Paris 1952 Coll. R. OBERTHÜR" (MNHN) 1 m; Andrahomana, "Entre Fort-Dauphin Et Le Cap Sainte-Marie), R. DECARY 1926; Juin" (MNHN) 1 m, 3 f; Androy, "Imanombo, Cap Vacher 1901; déc. 1900 & janv. 01", (MNHN) 1 m, 3 f; Antanimora-Amboasary, "III-60, Randriamasy; Institut Scientifique Madagascar; Muséum Paris" (MNHN) 3 f; Antsihanaka (MNHN) 1 m, 1 f; Fort-Dauphin, "Poste Adm. Tsivory, III-60 Randriamasy; Institut Scientifique Madagascar; Museum Paris" 3 m, 2 f; Ikongo, "G. GRANDIDIER 1902" (MNHN) 5 m, 9 f; Lambomakandro Tuléar, "500 m, VII-57, Andria R; Institut Scientifique Madagascar; Museum Paris" (MNHN) 1 m, 1 f; "Museum Paris 1935 R. CATALA" (MNHN) 6 m, 4 f; Mahafaly, "11/12 km Ouest d'Ankalirano, 250 m, P. VIETTE et. A. PEYRIERAS; Museum Paris" (MNHN) 17 m, 13 f, (MIZPAN) 4 m, 4 f; "BASTARD 1900" (MNHN) 5 m, 2 f; Midongy (TM) 1 m; Sud Beloha, (MNHN) 2 m, 8 f; Tranomaro Androatsabo, "400 m, Peyrieras, XII-1971 - V-1972; Museum Paris, Madagascar Est, mission C.N.R.S.R.C.P. n°225" (MNHN) 8 m, 3 f.

## DISTRIBUTION

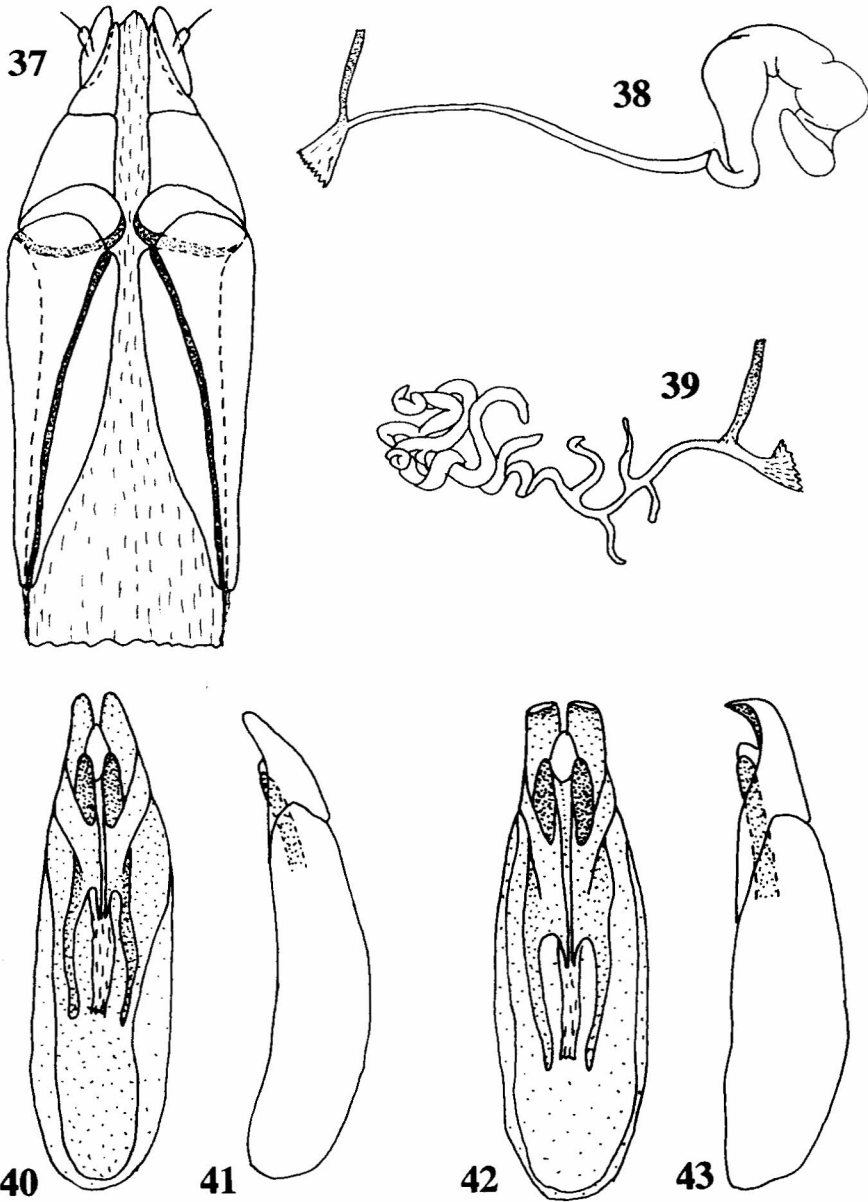
Madagascar (fig. 45).

*Lechius steineri* sp. nov.

## NAME DERIVATION

I dedicate this species to Warren STEINER, a collector and specialist in the *Tenebrionidae*.





37. *Lechius abacoides*, ovipositor. 38-39. Spermatheca: 38 - *L. abacoides*, 39 - *L. steineri*. 40-43. Aedeagus, ventral and lateral view: 40-41 - *L. steineri*, 42-43 - *L. abacoides*

## DIAGNOSIS

*L. abacooides*

1. Anterior angles of the mid part of mentum broadly rounded (fig.33)
2. Pronotum bordering delicate, in its anterior part on sides most often indistinct, vanishing (fig.10).
3. Elytral humeral angles protruding (fig.31)
4. Elytral epipleura slightly convex, upper margin rounded (fig.8).
5. Spermatheca simple (fig.38).
6. Processes of the apical part of aedeagal tegmen dorso-ventrally flattened and strongly curved inward (figs 42, 43).

*L. steineri*

1. Anterior angles of the mid part of mentum straight, slightly rounded (fig.32).
2. Pronotum bordering very distinct, formed by a deep parallelsided gutter (fig.11).
3. Elytral humeral angles truncate (fig.30).
4. Elytral epipleura strongly convex, upper margin sharp (fig.7).
5. Spermatheca dichotomously branched (fig.39).
6. Processes of the apical part of aedeagal tegmen club-like and somewhat curved forward (figs 40, 41).

## DESCRIPTION

Body length 10.5-13.0 mm, pl/pb = 0.68-0.72, el/eb = 1.42-1.46, el/pl = 2.23-2.31, eb/pb = 1.07-1.14. Upper side of body mat, black, underside slightly shiny (fig. 44).

Head widened behind eyes, puncturation distinct (fig.14); clypeus shallowly and broadly emarginate; mentum as in fig.32; last four antennomeres slightly widened.

Pronotum moderately convex (fig.2), distinctly punctate (fig.17), mesosternum slightly shiny, puncturation strong (fig.20).

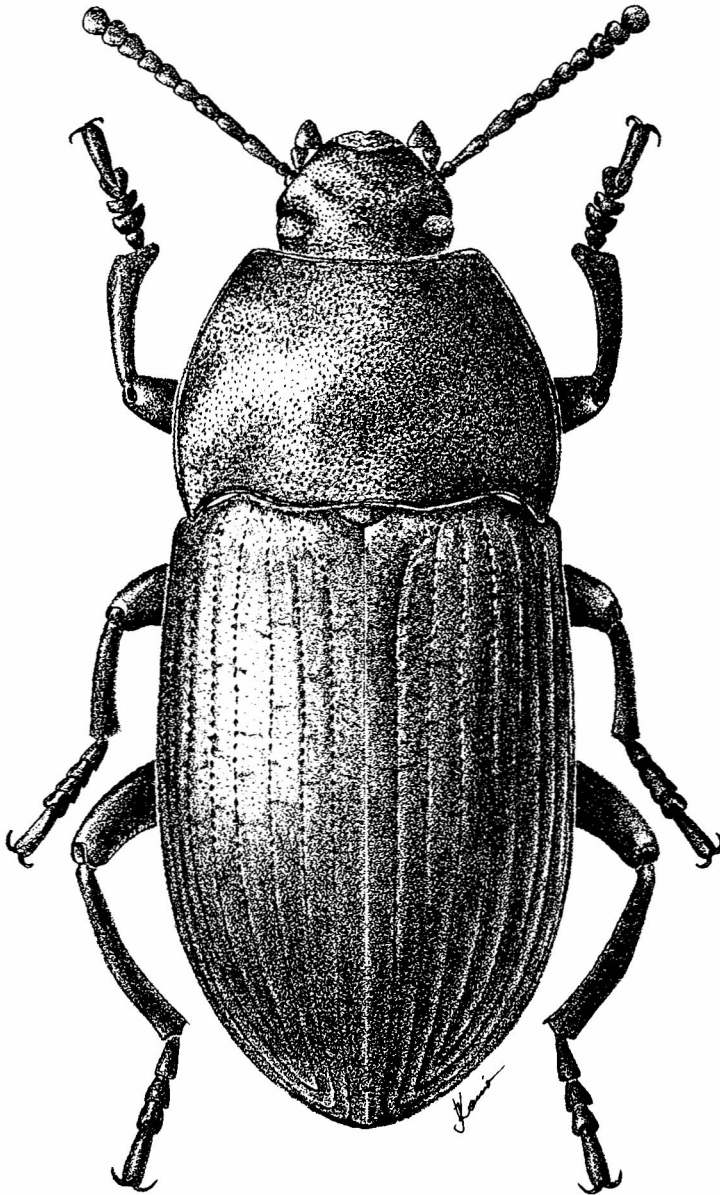
Puncturation of elytral intervals well visible (fig.23), humeral angles truncate, not protruding (fig.30), elytral epipleura in its terminal part broad, slightly convex, its bordering reaches the end of elytra (fig.7).

Male fore tibiae slightly widened (figs 24, 25), male mid tibiae with a ridge on inner side and a very small apical denticle (figs 26, 27), hind tibiae simple.

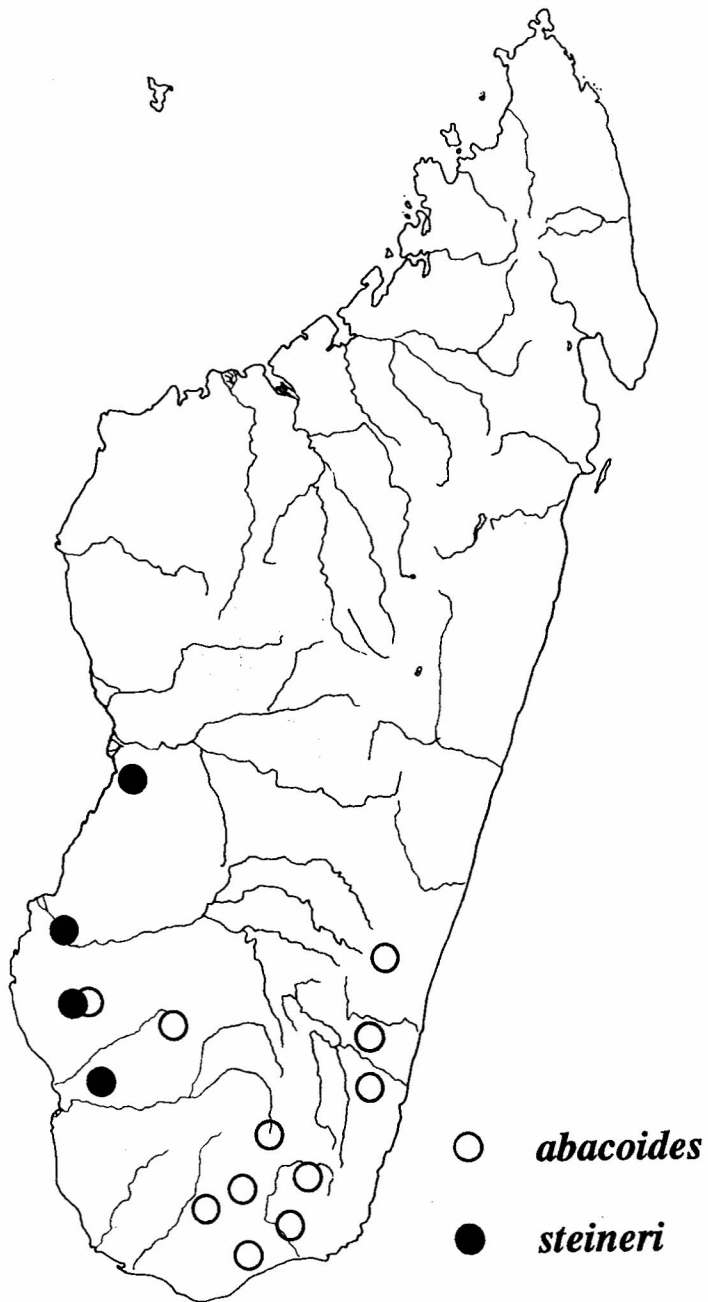
Apical part of aedeagal tegmen longitudinally divided, forming club-shaped processes slightly curved forwards (figs 40, 41). Ovipositor as in *abacooides*.

## TYPES

**Holotype:** male, "Madagascar: Province Toliara 4 km N Bemanonga 29 March. 1990; Under leaf litter on loose sandy soil in partial shade of trees and shrubs; W. E. STEINER, C. KREMEN, V. RAZAFIMAHATRATRA collectors", the specimen is deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA.



44. *Lechius steineri* n. sp. (by J. KANIA)

45. Distribution of *Lechius abacoides* and *L. steineri*

Paratypes: "Madagascar: Province Toliara 4 km N Bemanonga 29 March. 1990; Under leaf litter on loose sandy soil in partial shade of trees and shrubs; W. E. STEINER, C. KREMEN, V. RAZAFIMAHATRA collectores" (NMNH) 4 f, 1 m, (MIZPAN) 2 f; "Madagascar Sud-Ouest Lac Iotry 40 m, Morombe VII-57 ANDRIA R.; Institut Scientifique Madagascar; Muséum Paris" (MNHN) 2 m, 2 f, (MIZPAN) 1 m, 1 f; "Mahabo; Museum Paris, Madagascar, G. GRANDIDIER 1899" (MNHN) 1 f, 1 m; "Museum Paris, Madagascar, Pays Mahafaly BASTARD 1900" (MNHN) 1 f; "Museum Paris, Madagascar, Entre Ikongo Et Fort- Dauphin, G. GRANDIDIER 1902" (MNHN) 1 m; "Museum Paris, Madagascar, Prov. De Tuléar Bas Fiherena, F. GEAY 1906" (MNHN) 1 m; "Museum Paris, Madagascar (S-O) Plaines De Fiherena, F. GEAY 1905" (MNHN) 4 f; "Madagascar, Collection LE MOULT; Museum Paris, J. CHATANAY 1914" (MNHN) 2 m, 2 f (MIZPAN) 1 m.

#### DISTRIBUTION

Madagascar (fig. 45).

#### CONCLUDING REMARKS

According to my studies species of the tribe *Platynotini* found on Madagascar can be divided in three groups.

1. Species occurring both on Madagascar and in continental Africa. These are species of the distinct monophyletic genus *Zidalus*: *attenuatus*, *servus* and *insularis*, and *Selinus menouxi*.

These species have probably come to the island from the continent which is their original distribution area.

2. Species of the endemic Madagascan genus *Lechius* (*abacooides*, *steineri*), whose ancestor originated probably on the continent and came to Madagascar after the latter had separated from Africa.

3. Species of endemic Madagascan genera which form a monophyletic group related to African trigonopoid *Platynotina*.

Most probably they originate from ancestors which have survived on Madagascar since Cretaceous, i.e. the moment of separation of the island from the continent.

#### REFERENCES

- ARDOIN, P., 1970. Les *Tenebrionidae* du massif de L'Andringitra Madagascar centre. Annales de la Société entomologique de France, (N.S.), 6(2): 161-205.
- FAIRMAIRE, L., 1895. Descriptions de quelques Coléoptères de Madagascar. Annales de la Société Entomologique de Belgique, 39: 8-40.
- FAIRMAIRE, L., 1899. Matériaux pour la faune coléoptérique de la région Malgache. Annales de la Société entomologique de Belgique, 43: 511-539.
- FAIRMAIRE, L., 1901. Descriptions de quelques coléoptères recueillis par M. le Dr DECORSE dans le sud de Madagascar, plateau de l'Androy. Notes from the Royal Zoological Museum of the Netherlands at Leyden, 23: 65-74.
- FAIRMAIRE, L., 1902. Matériaux pour la faune coléoptérique de la région Malgache. Annales de la Société Entomologique de France, 71:327-344.

- GEBIEN, H., 1938. Katalog der Tenebrioniden. 16. *Pedinini*. Mitteilungen der Munchener Entomologischen Gesellschaft, **28**: 291-408.
- IWAN, D., 1995. Revision of the genus *Opatrinus* DEJEAN, 1821 (*Coleoptera: Tenebrionidae: Platynotini*). Genus, **6**(1): 1-90.
- KOCH, C. 1956. Exploration du Parc National de l'Upemba. II. *Tenebrionidae* (*Coleoptera, Polyphaga*), *Opatrinae*, First part: *Platynotini, Litoborini* and *Loensini*. Bruxelles, **40**, 472 pp., 282 ff., 335 pls.
- MULSANT, E., REY, Cl., 1853a. Essai d'une division des derniers Mélasomes. Pédinites. Opatrinaires. Mémoires de l'Académie des Sciences, belles-lettres et Arts de Lyon, **2**: 294-332.
- MULSANT, E. REY, Cl., 1853b. Essai d'une division des derniers Mélasomes. Pédinites. Opatrinaires. Opuscules Entomologiques, **4**: 69-107.