

## Studies upon the genus *Lagenoderus* White (Coleoptera, Curculionidae) from Madagascar

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In the paper redescription of genus *Lagenoderus* White is resulted. New synonyms: *Phymatolabus* Jekel, 1860, syn.n. for *Lagenoderus* White, 1841 and *Lagenoderus gnomoides* White, 1841, syn.n. for *Attelabus dentipennis* Gyllenhal, 1833 are presented.

Key words: Coleoptera, Curculionoidea, Attelabidae, Lagenoderini, *Lagenoderus*, *Phymatolabus*, new synonyms, Madagascar.

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### INTRODUCTION

Genus *Lagenoderus* White is the most original genus of the family Attelabidae. It distinguishes from other genera by an original morphological structure, and also very strong sexual dimorphism. As a result the males and females have been described as different genera owing to this sexual dimorphism. Genus *Lagenoderus* has been established for males. Females have been allocated to genus *Phymatolabus* Jekel. In later works (Jekel, 1860; Voss, 1925, 1965, 1966; Dalla Torre, Voss, 1930; Alonso-Zarazaga, Lyal, 1999; Legalov, 2003a) males and females have been considered as different genera. Hustache (1924) has placed all species in one genus but not established synonym. These genera have been placed in different subtribes (*Lagenoderina* Voss,

1925 and *Phymatolabina* Voss, 1925). These subtribes were considered as independent groups down till 2003 (Voss, 1925; Dalla Torre, Voss, 1930; Alonso-Zarazaga, Lyal, 1999; Legalov, 2002). The synonym of these subtribes has been established by the author (Legalov, 2003a) and these genera have been considered by him in one group (Legalov A.A. 2003b, 2004a, 2004b, 2005a, 2005b, 2005c, 2006). The pronotum length of males is very variable. It used to occur specimens are of one species with long or short pronotum. Specimens with short pronotum have been determined as females of genus *Lagenoderus* (White, 1841; Voss, 1966). As a result males of common species have been described as *Lagenoderus gnomoides* White, and females received name *Phymatolabus dentipennis* (Gyllenhal).

## MATERIAL AND METHODS

Type specimens are kept in the ISNB = Institut Royal des Sciences Naturelles de Belgique (Brussels), HNHM = Hungarian Natural History Museum (Budapest), MMM = the Manchester Museum, the University of Manchester (Manchester) and SMTD = Staatliches Museum für Tierkunde (Dresden).

## RESULTS

### Family Attelabidae Billberg, 1820

#### Subfamily Attelabinae Billberg, 1820

#### Supertribe Attelabinae Billberg, 1820

#### Tribe Lagenoderini Voss, 1925

#### Subtribe Lagenoderina Voss, 1925

Attelabini subtribe Lagenoderina Voss, 1925: 28 (type genus: *Lagenoderus* White, 1841)

Attelabini subtribe Phymatolabina Voss, 1925: 28 (type genus: *Phymatolabus* Jekel, 1860)

#### Genus *Lagenoderus* White, 1841 (figs. 1-17)

*Lagenoderus* White, 1841: 182

**Type species:** *Lagenoderus gnomoides* White, 1841 (= *Attelabus dentipennis* Gyllenhal, 1833)

*Attelabus* sect. *Phymatolabus* Jekel, 1860: 197, **syn.n.**; Type species: *Attelabus dentipennis* Gyllenhal, 1833

**Description.** Body brown, usual with copper lustre (stronger of males), with appressed, usually transversal, yellow or copper setae. Antennae, apex of the elytra, abdomen, apex of the protibiae, meso- and metatibiae, basis of the mesofemora, metafemora and tarsi yellow- or red-brown. Setae condensed on basal part of the rostrum of males, vertex of males, disk of the pronotum of females, disk of the elytra, mesothorax, ventrites and pygidium; they form 2 longitudinal strips on pronotal groove and near basis of the pronotum of males, weakly spots on sides of the pronotum, last quarter of the penultimate interval of the

elytra, apex of the elytra, near basis of the metepisternum, external party of the metafemora (including on tooth).

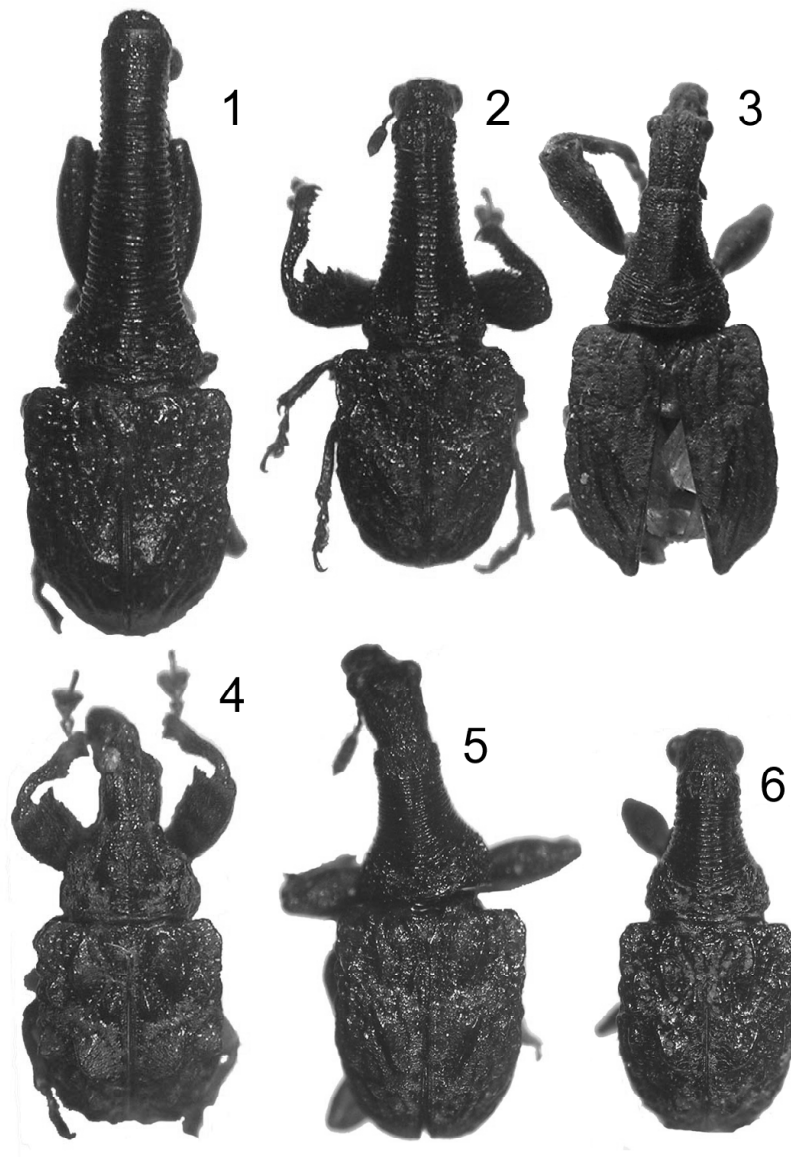
Head long. Rostrum long and weakly curved of males and short and stronger curved of females, expanded to apex, punctate, with carina near basis. Prementum with usual long tooth of males and 2 short teeth of females. Antennae located on middle of males and before middle of the rostrum of females. Eyes large, strongly convex. Forehead wide, roughly punctate, with pit on middle, larger of females. Temples elongated, roughly punctate-wrinkled. Vertex flattened, with rough striae, deeper and with striae on each side of females. Antennae long and thin, reaching pronotum of males, not reaching pronotum of females.

Scapus long-oval. 1st segment oval, narrower than funicle. 3rd-5th segments long-trapezoid, narrow. 2nd segment narrower and little more shortly than 1st segments. 6th segment almost tear-shaped. 7th segment trapezoid, extends to apex, wider than 6th segments. Clava compact, weakly expanded, with dense grey setae, more twice time shortly than funicle. 1st and 2nd segments of almost equal length of males. 2nd segment shorter than 1st segments of females. 3rd segment little longer than 2nd segments, weakly pointed.

Pronotum trapezoid, elongated, 1.04-2.33 times longer than basis, densely transversal wrinkled, sometimes rough rugosity-punctate near basis of males, campaniform, wide, 1.24-1.3 times wider than length, with rough sculpture, deep medial striae and greater protuberances on sides from it of females. Sides almost direct, densely transversal wrinkled of males, weakly rounded of females. Pronotal groove weakly flattened, wide, punctate of males, weakly, narrow of females. Postnotal groove very narrow.

Scutellum almost triangular, punctate, sharp at apex.

Elytra weakly elongated, narrowed to apex with the greatest width in humeri, with slanting cari-



Figs. 1-6. *Lagenoderus* sp. (dorsally): 1-2, 5-6 – *L. dentipennis* (male), 3 – *L. fairmairei* (male), 4 – *L. dentipennis* (female).

nas of males and more than 20 protuberances different size of females. Visible dorsally edge of the elytra sharp of males. Humeri angularity. Intervals weakly convex, finely punctate, narrow. Striae weakly. Points in them rarely, deep and rough, more rough and dense of females. 9th striae merge with 10th striae before metacoxa. Sides of

the elytra densely punctate and granulated. Suture convex before apex of males. Apex of the elytra flattened.

Precoxal part of the prothorax elongated, densely transversal-wrinkled of males, short and sparsely punctate of females.



Figs. 7-9. *Lagenoderus* sp. (laterally): 7 – *L. dentipennis* (male), 8 – *L. dentipennis* (female), 9 – *L. fairmairei* (male).

Meso- and metathorax with episternum densely rugosity-punctate. Mesepisternum narrow. Metepisternum wide.

Abdomen convex, finely and densely rugosity-punctate. 1st-4th ventrites narrow. 5th ventrite narrower. Pygidium convex, densely and finely punctate, almost smooth in basis.

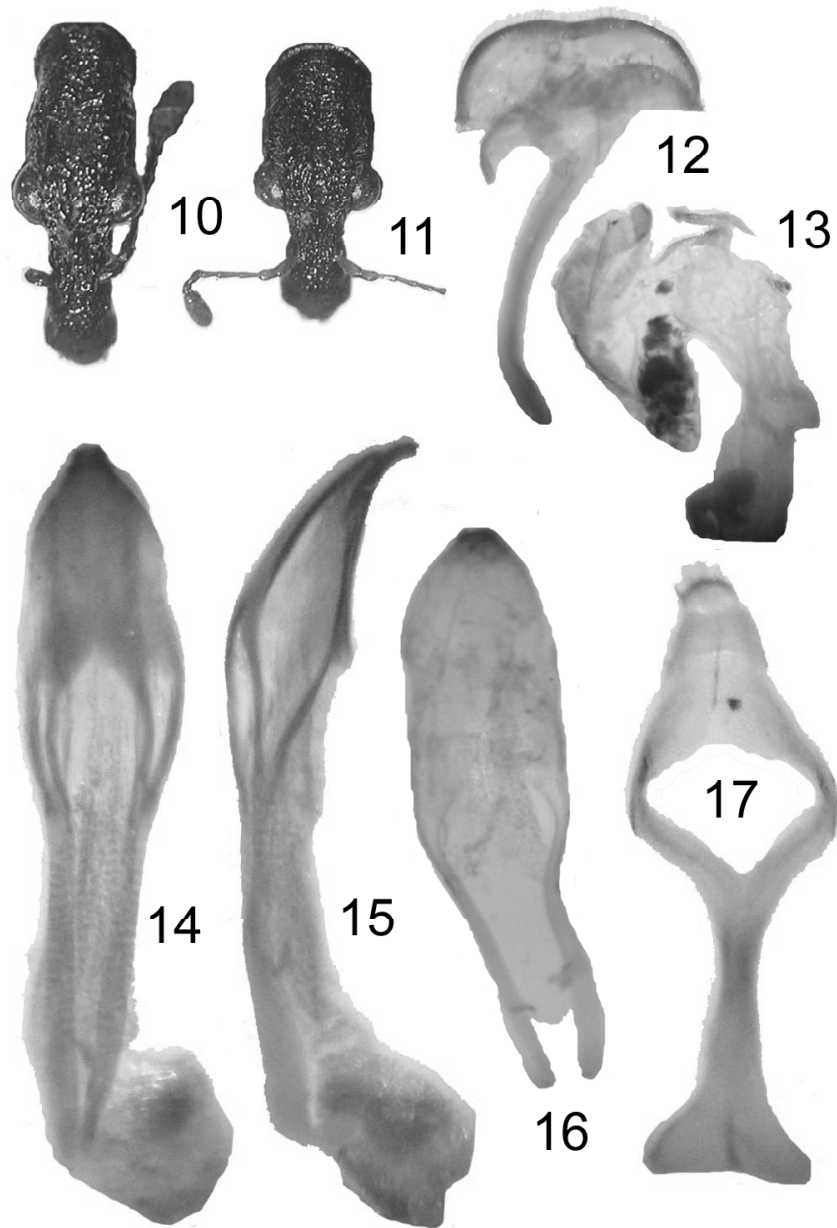
Legs long. Fore legs elongated. Procoxa oval, large, with small tooth at internal edge. Meso- and metacoxa wide. Femora widened and flattened. Profemora larger than meso- and metafemora, with two large teeth at basis and 10 protuberances on bottom edge. Meso- and metafemora with tooth before apex. Tibiae short, flattened, biconcave, crenate at internal edge, with long mucro of males, shorter and wide,

stronger biconcave of females. Protibiae of equal length to profemora. Meso- and metatibiae shorter than femora. Tarsi long. 1st segment triangular. 2nd segment wide-triangular. 3rd segment wide-bilobed. Clausal segment narrow, long. Claws long, sharp.

Length of body (without head): 5.5-11.0 mm (males), 5.0-7.0 mm (females).

**Distribution.** Madagascar.

**Remarks.** By the author is a serial material from Madagascar studied. It was shown that specimens with short pronotum are females and with long pronotum are males, and they belongs to one species. The other morphological characters and structure of them are identical. Males differ



Figs. 10-17. *Lagenoderus* sp.: 10 – head of *L. dentipennis* (male), 11 – head of *L. dentipennis* (female), 12 – 8th tergite of *L. dentipennis* (male, dorsally), 13 – genitalia of *L. dentipennis* (female), 14 – aedeagus of *L. dentipennis* (dorsally), 15 – aedeagus of *L. dentipennis* (laterally), 16 – aedeagus of *L. fairmairei* (dorsally), 17 – tegmen of *L. dentipennis* (dorsally).

from females by the elongated, transversal-wrinkled pronotum (female pronotum is with rough sculpture) and skewing carinas on elytra (female elytra with protuberances). As a result I am placed into synonymy *Phymatolabus* Jekel, 1860, **syn.n.** to *Lagenoderus* White, 1841 and *Lagenoderus gnomoides* White, 1841, **syn.n.** to *Attelabus dentipennis* Gyllenhal, 1833.

### List of species

**Remarks.** Species of this genus required in a revision.

***Lagenoderus brevicollis* Fairmaire, 1897**  
*Lagenoderus brevicollis* Fairmaire, 1897: 186

**Distribution.** Madagascar (Nossi-Be Is., Northeast, Center).

***Lagenoderus dentipennis* (Gyllenhal, 1839)**  
(figs. 1-2, 4-8, 10-15, 17)  
*Attelabus dentipennis* Gyllenhal, 1839: 315  
*Lagenoderus gnomoides* White, 1841: 183, **syn.n.**  
*Lagenoderus coniferus* Fairmaire, 1902: 382

**Distribution.** Madagascar (North, Northeast, south of Central part, east of Central part).

**Remarks.** By the author have been 14 males and 16 females these species from the collections SMTD, ISNB, HNHM and MMM studied.

For *L. gnomoides* by the author it is designated lectotype - male from the collection SMTD with labels "Madagascar", "cotype", "Paratype", "Samml. K. F. Hartmann, Ankauf, 1941", "Staatl. Museum für Tierkunde, Dresden", "*Lagenoderus gnomoides* Frm.", "Lectotype *Lagenoderus gnomoides* White, A. Legalov design. 2005". Paralectotype - male with labels "Madagascar", "Paratype", "Samml. K. F. Hartmann, Ankauf, 1941", "Staatl. Museum für Tierkunde, Dresden", "Paralectotype *Lagenoderus gnomoides* White, A. Legalov design. 2005".

Hustache (1924) considered before *L. gnomoides* and *L. dentipennis* as different species of one genus *Lagenoderus*.

***Lagenoderus fairmairei* Hustache, 1922** (figs. 3, 9, 16)  
*Lagenoderus fairmairei* Hustache, 1922: 418

**Distribution.** Madagascar (Northeast, south of Northern part, east of Central part).

***Lagenoderus ferrumequinum* (Fairmaire, 1897)**  
*Apoderus ferrumequinum* Fairmaire, 1897: 186

**Distribution.** Madagascar (Northeast, northeast of Central part).

***Lagenoderus problematicus* Voss, 1966**  
*Lagenoderus problematicus* Voss, 1966: 378

**Distribution.** Madagascar (Northeast).

***Lagenoderus vadoni* Voss, 1966**  
*Lagenoderus vadoni* Voss, 1966: 378

**Distribution.** Madagascar (Northeast).

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