Research Article

Classification, Natural History, and Evolution of Tarsosteninae (Coleoptera: Cleridae)—Part I: Generic Composition of the Subfamily and Key and Phylogeny of Genera

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Four new genera and one new species of the subfamily Tarsosteninae (Coleoptera: Cleridae) are described. The new genera are: *Agapetilus* Opitz, gen. nov., *Fallopylus* Opitz, gen. nov., *Globoclava* Opitz, gen. nov., and *Pseudopylus* Opitz, gen. nov. The new species involves *Agapetilus vietus* Opitz, sp. nov. *Liostylus* Fairmaire is synonymized with *Rhopaloclerus* Fairmaire. New combinations, *Fallopylus pallipes* (MacLeay, 1872), comb. nov., *Globoclava quadrimaculata* (Chevrolat, 1876), comb. nov., *Parapylus sedlaceki* (Kolibáč, 2003), comb. nov., *Pseudopylus okei* (Elston, 1929), comb. nov., and *Rhopaloclerus pictus* (Fairmaire, 1902), comb. nov., are established. A key and phylogeny of the genera of Tarsosteninae is provided.

1. Introduction

According to Opitz [1] there are six subfamilies in the Cleridae whose specimens have the fourth tarsomere reduced. The elucidation of the generic composition of these subfamilies, and their intrasubfamilial relationships, is the focus of the research program of the author. This contribution involves Tarsosteninae. It is the fourth of a series of works that makes known the generic composition of the six subfamilies referenced above. The first three contributions involve Epiphloeinae Kuwert [2], Neorthopleurinae Barr [3], and Korynetinae Laporte [4]. The revisions of the remaining two subfamilies, the Peloniinae Opitz and Enopliinae Gistel, are in various stages of preparation.

2. Taxonomic History

The majority of the generic taxa herein classified in Tarsosteninae were originally grouped under other subfamilies:

Rhopaloclerus Fairmaire in Tillinae [5]; *Abeliella* Peracchi, *Curacavi* Solervicens, *Apteropilo* Lea, and *Neopylus* Solervicens in Enopliinae [5]; *Apopylus* Kolibáč, *Blackburniella* Chapin, *Parapylus* Blackburn, *Pylus* Newman, *Tarsostenodes* Blackburn, *Thriocera* Gorham; *Riotenerus* Pic in Peloniinae [1]; *Tarsostenosis* Heller and *Thriocerodes* Wolcott & Dybas in Korynetinae [6]. It is likely that the monotypic *Pallenothriocera* Pic, presently classified in Korynetinae, also belongs in Tarsosteninae. However, the specimen representing this nominal genus has not been found.

3. Material and Methods

For the most part the entire inventory of species of each genus was examined and several nonconspecific specimens of genera were disarticulated to examine the more cryptic structures of the integument. Methods and concepts involving dissection, measurements, terminology, specific and generic

delimitations, and preparation of illustrations were similar to those implemented in [1].

4. Systematics

4.1. Phylogenetics of Genera. The concepts of Hennig's phylogenetics were implemented in this treatise [7]. This involved the preparation of a suite of character states and a character matrix (Table 1), which was analyzed via NONA [8] in combination with Winclada version 1.00.08 [9]. The analysis generated 58 trees, with 46 steps, index of consistency of 58, and an index of retention of 74. The 58 trees were examined and the one selected (Figure 24) most closely approximates a tree prepared manually. Heuristic analysis (maximum trees (hold) = 100, number of replications 9 (mult) = 100, and multiple TBR (mult max)) was used.

4.2. Character States. Twenty-seven character states were used to analyze the phylogenetic relationships among the genera of Tarsosteninae. Outgroups included taxa of Korynetinae [4]. Character states valued "0" are considered plesiotypic, whereas those assigned a value of "1" are interpreted as apotypic (Table 1). The methods by which the phylogenetic state of a characteristic is determined are well documented [10, 11].

Character 0

Unguis denticle: (0) absent; (1) present

Character 1

Pronotal tubercle: (0) absent; (1) present

Character 2

Pronotal tubercle: (0) slightly developed; (1) highly developed

Character 3

Asetiferous punctations: (0) present; (0) absent

Character 4

Ninth row of elytral asetiferous punctations: (0) not reduced; (1) reduced

Character 5

Elytral 2°: (0) present; (1) absent

Character 6

Terminal maxillary palpomere: (0) digitiform; (1) somewhat securiform

Character 7

Terminal maxillary palpomere: (0) subsecuriform; (1) securiform

Character 8

Tibial spur formula: (0) 2-2-2; (1) 0-1-1

Character 9

Tibial spur formula: (0) 2-2-2; (1) 1-2-1

Character 10

Tibial spur formula: (0) 2-2-2; (1) 0-0-0

Character 11

Tarsal pulvillar formula: (0) 3-3-3; (1) third pulvillus reduced

Character 12

Ommatidia: (0) large; (1) small

Character 13

Capitulum: (0) compact; (1) lax

Character 14

Pronotal sides: (0) smooth; (1) crenulated

Character 15

Eye: (0) large; (1) small

Character 16

Ocular plate: (0) small; (1) large

Character 17

Elytral asetiferous punctations nodes: (0) absent; (1) present

Character 18

Pronotal indentations: (0) absent; (1) present

Character 19

Pronotal collar: (0) not extended; (1) extended

Character 20

Elytral asetiferous punctations: (0) to elytral apex; (1) to elytral half

Character 21

Pronotal disc: (0) without glabrous elevations; (1) with glabrous elevations

Character 22

Pronotal disc: (0) without glabrous spots; (1) with glabrous spots

Character 23

Pronotal disc: (0) without narrow glabrous streaks; (1) with narrow glabrous streaks

Character 24

Gular process: (0) not confluent; (1) confluent

Character 25

Pronotal commissure: (0) absent; (1) present

Character 26

Capitulum: (0) not much shorter than rest of antennal length; (1) much shorter than rest of antenna.

4.3. Key to Genera of *Tarsosteninae*.

1 Unguis with denticle (Figure 15(j))	2
1'. Unguis without denticle (Figure 15(i))	4
2(1). Last antennomere globose, about three times larger than penultimate antennomere (South Africa)	<i>Globoclava</i> gen. nov
2'. Last antennomere only slightly larger than penultimate antennomere	3
3(2'). Body form oblong narrow (Figure 22(b)), pronotum oblong (Tanzania)	<i>Agapetilus</i> gen. nov
3'. Body form oblong broad (Figure 23(h)), pronotum transverse (Democratic Republic of the Congo, Kenya, Mozambique, South Africa, Tanzania)	<i>Thriocera</i> Gorham
4(1'). Pronotal sides without vestige of tubercle (Figure 14(b))	5
4'. Pronotal sides with shallow (Figure 1(d)) or with well defined projecting tubercle (Figure 4(c))	7
5(4). Pronotum subquadrate (Madagascar)	<i>Rhopaloclerus</i> Fairmaire
5'. Pronotum distinctly oblong	6
6(5'). Elytral disc with 8 rows of punctations; pronotal disc uniformly scabrous (Bolivia, Brazil, Uruguay)	<i>Abiliella</i> Peracchi
6. Elytral disc with 10 rows of punctations; pronotal disc with glabrous streaks (Cosmopolitan)	<i>Tarsostenus</i> Spinola
7(4'). Pronotal sides with shallow tubercle (Figure 1(d))	8
7'. Pronotal sides with well defined projecting tubercle (Figure 4(c))	14
8(7). Last maxillary palpomere distinctly securiform (Figure 12(a))	9
8'. Last maxillary palpomere subsecuriform (Figure 6(c))	13
9(8). Pronotal side margins serrulated (Chile)	<i>Curacavi</i> Solervicens
9'. Pronotal side margins not serrulated	10
10(9'). Metabasitarsal pulvillus well developed	11
10'. Metabasitarsal pulvillus not well developed or absent	12
11(10). Pronotum distinctly oblong (Australia)	<i>Tarsostenodes</i> Blackburn
11'. Pronotum quadrate (Australia)	<i>Blackburniella</i> Chapin
12(10'). Elytral asetiferous punctations nodulated (Australia)	<i>Apopylus</i> Kolibáč
12'. Elytral asetiferous punctations not nodulated (New Caledonia).	<i>Tarsostenosis</i> Heller
13(8'). Pronotum distinctly oblong (Argentina)	<i>Riotenerus</i> Pic
13'. Pronotum subquadrate (Australia)	<i>Thriocerodes</i> Wolcott & Dybas
14(7'). Apical maxillary palpomere distinctly securiform	15
14'. Apical maxillary palpomere subsecuriform	17
15(14). Rows of elytral asetiferous punctations not defined (Chile)	<i>Neopylus</i> Solervicens
15. Rows of elytral asetiferous punctations clearly defined	16
16(15). Pronotum with glabrous tumescences (Australia)	<i>Apteropilo</i> Lea
16. Pronotum without glabrous tumescences (Australia)	<i>Pseudopylus</i> gen. nov.
17(14'). Elytral base with tumescence (Australia)	<i>Parapylus</i> Blackburn
17'. Elytral base without tumescence	18
18(17'). Tibial spur formula 2-2-1 (Australia)	<i>Pylus</i> Newman
18'. Tibial spur formula 1-2-2 (Australia)	<i>Fallopylus</i> gen. nov.

4.4. Description of *Tarsosteninae*

Type Genus. *Tarsostenus* Spinola [12].

Diagnosis. These beetles have a reduced 4th tarsomere, do not have a pair of pronotal trichobothria, and have long capitate antennae in which the funicular antennomeres are filiform and the length of the capitulum is not as long as the combined length of the remainder of the antennomeres. The incomplete dorsolateral pronotal carina is confluent with the pronotal hem at the posterior angles of the pronotum.

Description. *Shape:* ranges from narrow rectangulate to short rectangulate. *Size:* length 2.2–14.0 mm; width 0.6–6.0 mm. *Integumental color:* Varies from uniformly reddish-brown to multicolored conditions where the integument is mostly dark brown and the elytral disc shows a paler fascia, in very few cases the integument may be shiny blue or shiny multicolored with red, yellow and brown. *Head:* transverse, strongly deflexed, usually narrower than pronotum, surface usually finely punctated; epistomal suture faintly indicated; internal epistomal ridge poorly developed; clypeus bipartite, comprised of pigmented upper region and nonpigmented

TABLE 1: Character matrix for 27 morphological characters of Tarsosteninae genera.

Taxa	Characters																											
	0	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Outgroup	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
<i>Abeliella</i>	0	0	0	0	0	0	1	1	1	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1
<i>Agapetilus</i>	1	0	0	1	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Apopylus</i>	0	1	0	0	1	1	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
<i>Apteropilo</i>	0	1	1	0	0	0	1	1	0	0	0	0	0	0	1	1	1	1	1	0	0	1	1	0	0	0	1	
<i>Blackburniella</i>	0	1	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
<i>Curacavy</i>	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	
<i>Fallopylus</i>	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	
<i>Globoclava</i>	1	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Neopylus</i>	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	
<i>Parapylus</i>	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	
<i>Pseudopylus</i>	0	1	1	0	1	1	1	0	0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	
<i>Pylus</i>	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	
<i>Rhopaloclerus</i>	0	0	0	0	0	0	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Riotenerus</i>	0	1	0	0	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Tarsostenodes</i>	0	1	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	
<i>Tarsostenosis</i>	0	1	0	0	0	0	1	1	0	1	0	1	0	1	0	0	0	0	0	0	1	1	0	1	0	0	1	
<i>Tarsostenus</i>	0	0	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	
<i>Thriocera</i>	1	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Thriocerodes</i>	0	0	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	

lower region; antenna comprised of 11 antennomeres, capitate, capitulum shorter than length of combined other antennomeres, noncapitular antennomeres filiform; frontal preantennal angle not acute; eyes coarsely to finely faceted, slightly notched anteriorly; labrum shallowly incised, transverse tormal processes fused contiguous; epipharynx not complex; last palpomere of maxillary and labial palpus boldly or slightly securiform; mandible with well-developed dens, basal notch not large; gula large, gular processes widely separated, gular sutures strongly converging. *Thorax*: pronotum usually transverse-quadrate, or elongate, lateral tubercle absent or strongly developed, anterior transverse depression present or not, dorsolateral carina incomplete or complete, always posteriorly confluent with pronotal hem, pronotal commissure absent; pronotal projections vary in lengths, prointercoxal process linear or expanded distally; pronototergosternal suture complete; procoxal cavity open, procryptosternum incomplete; metendosternite with furcal lamina; elytral form usually elongate rectangulate or short rectangulate, anterior margin with carina, disc with asetiferous punctations, 1° and 2° setae usually present, epipleural fold laterally positioned, gradually narrowing to elytral apical four-fifths, elytral punctations, plain, or bimodal or tetranodal; metathoracic wings present or not; legs, tarsal formula 5-5-5, cursorial, tibial spur formula 2-2-2, 2-2-1, 1-2-2, 1-2-1, 0-2-2, or 0-0-0, tarsal pulvillar formula 3-3-3 or 3-3-2; unguis with (Figure 15(j)) or without denticle (Figures 2(f) and 15(i)); wedge cell of metathoracic wing present or not, when present closed or open. *Abdomen*:

comprised of 6 visible sternites, 6th visible sternite usually beneath 5th, robust and compact; pygidium quadrate or scutiform; aedeagus sometimes inverted, well sclerotized, tegmen tubular very sclerotized or lightly sclerotized, bilobed distally, tegminal lobes usually fimbriate, phallobasic rod variously developed, phallobasic apodeme well developed, phallic plates variously developed; spicular fork well developed, intraspicular plate linear, spicular apodeme variously fused; ovipositor not longer than abdomen, with multilobed dorsal and ventral lamina; oblique and ventral bacculi well developed. *Alimentary canal* (Figure 18(m)): stomodaeum short, proventricular valve comprised of 4 primary lobes (Figure 18(j)); ventriculus well developed, ventricular crypts poorly developed; 4 cryptonephridial Malpighian tubules; proctodaeum short in males and long in females. *Mesodermal male reproductive organs*: typically with two pairs of accessory glands, rarely with one pair of glands; testes comprised of multiple follicles. *Mesodermal female reproductive organs*: spermathecal capsule from faintly to highly sclerotized, spermathecal gland attached to apex or subapex of spermathecal capsule; saccular bursal copulatrix well developed bursal sclerite present or not; ovaries comprised of multiple follicles.

4.5. Descriptions of Genera of Tarsosteninae

4.5.1. *Abiliella* Peracchi (Figures 1, 2, and 22(a)). *Abiliella* Peracchi [13]. *Type species*: *Abiliella fasciata* Peracchi [13]. By monotypy.

FIGURE 1: Various organs of *Abiliella fasciata*. (a, b) Head ((a) ventral, (b) dorsal). (c, d) Pronotum ((c) ventral, (d) dorsal). (e) Antenna. (f) Metathoracic wing. (g) Metendosternite. (h) Mandible. (i) Aedeagus. (j) Spiculum.

Synapotypic Characteristics. Pronotum elongate, elytral punctations binodal, epipleural margin serrulated, unguis without denticle, phallic plates very broad, and phallobasic lobes not fimbriate.

Diagnosis. Specimens of *Abiliella* are distinguishable from the superficially similar specimens of *Tarsostenus* by having only eight rows of elytral punctations; the elytral disc of *Tarsostenus* specimens have 10.

Description. Size: length 4.0–9.0 mm; width 1.2–2.8 mm. Form (Figure 22(a)): oblong rectangulate, about 3 times longer than broad. Vestiture: disc of cranium and pronotum

vested with white setae, elytral disc vested with 1° setae and shorter profusely distributed 2° setae. Head (Figures 1(a), 1(b), and 2(a)): cranium quadrate, frons wider than or narrower than width of eye, indented with large setiferous punctations that give cranium rugose appearance; gula (Figure 1(a)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, medial incision shallow, transverse tormal processes curvate, not confluent, epipharyngeal plate very small; mandible (Figure 1(h)), body short, anterior, medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla (Figure 2(b)), laterolacinia present, terminal palpomere securiform; labium (Figure 2(b)), ligula not deeply incised, terminal palpomere

FIGURE 2: Various organs of *Abiliella fasciata*. (a) Head. (b) Mouthparts. (c) Pronotum (posterolateral angle). (d) Elytral surface (shows binodal asetiferous punctations). (e) Metatarsus. (f) Metatarsal unguis (shows absence of denticle).

securiform; eyes small or large, coarsely faceted, ocular notch large; antenna (Figure 1(e)), capitate, capitulum lax and narrow, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres filiform, capitular antennomeres narrow, antennomeres 9 and 10 subrectangular, antennomere 11 ovoid. *Thorax*: pronotum (Figures 1(c), 1(d), and 2(c)), elongate, convex, side margins slightly sinuous, sculptured with large round setiferous punctations, dorsolateral ridge extends from posterior angle to anterior angle (Figure 2(b)), surface smooth and not fractured by coarse punctations, prebasal fissure well developed, prointercoxal process not expanded distally; pronotal projections short; elytron sculptured with large spheroid asetiferous punctations, latter seriate and binodal (Figure 2(d)),

1° setae always adjacent to asetiferous punctations, 2° setae present, arranged serially, epipleural fold laterally positioned, extended to elytral apex, margin minutely serrulated, anterior margin carinate; metathoracic wing (Figure 1(f)), wedge cell open; metendosternite (Figure 1(g)), with furcal lamina, furcal anterior plate diminutive, acuminate; legs, tibial spur formula 0-1-1, tarsal pulvillar formula 3-3-3 (Figure 2(e)), unguis without denticle. *Abdomen*: aedeagus (Figure 1(i)), shorter than length of abdomen, phallobase lobate distally, lobes not fimbriate; phallic lateral plates very broad, spicular plates triangular, acuminate, rarely, spicular apodemes not fused (Figure 1(j)), intraspicular plate rod shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised,

distal margin of male 6th sternite slightly incised. *Alimentary canal*: no information available. *Male mesodermal internal reproductive organs*: not studied. *Female mesodermal internal reproductive organs*: not studied.

Distribution. The members of this genus have been found only in Brazil and Bolivia.

Species Examined. *Abiliella fasciata* Peracchi and one new undescribed species.

4.5.2. *Agapetilus* gen. nov. (Figure 22(b)). Type species: *Agapetilus vietus* Opitz, sp. nov. Herein designated.

Synapotypic Characteristics. Pronotal wrinkles.

Diagnosis. The pronotal disc is profusely sculptured with wrinkles.

Description. Size: length 5.2 mm; width 1.2 mm. *Form* (Figure 22(b)): oblong, narrow rectangulate, about 5 times longer than broad. *Vestiture*: disc of cranium and pronotum densely vested with pale setae, elytral disc vested with 1° setae, 2° setae absent. *Head*: cranium quadrate, frons much wider than width of eye, indented with large setiferous punctations; gula large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, tormal processes not examined, epipharyngeal plate not examined; mandible, body short, anterior and medial dens well developed, posterior dens not well developed, penicillus not verified; maxilla well developed, laterolacinia not verified, terminal palpomere subsecuriform; labium, ligula deeply incised, terminal palpomere securiform; eyes small, coarsely faceted, ocular notch large; antenna, capitate, capitulum compact, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres filiform, capitular antennomeres slightly expanded, antennomeres 9 and 10 subtriangular, antennomere 11 ovoid. *Thorax*: pronotum oblong, disc sculptured with many wrinkles, prebasal fissure shallow, prointercoxal process not expanded distally, pronotal projections long; elytron sculptured with small setiferous punctations, basal tumescences present, asetiferous punctations absent, 1° setae present, 2° setae concentrated into medial fascia, interstitial spaces smooth, epipleural fold laterally positioned, very narrow to elytral apex, anterior margin not carinate; metathoracic wing not examined; metendosternite not examined; legs, tibial spur formula 0-2-2, tarsal pulvillar formula 3-3-3, unguis with denticle. *Abdomen*: aedeagus shorter than length of abdomen, phallobase not reduced, not lobate nor fimbriate; phallic lateral plates broad, phallobasic rod absent, phallic apex robust, spiculum not examined; ovipositor not examined. *Alimentary canal*: not studied. *Male mesodermal internal reproductive organs*: not studied. *Female mesodermal internal reproductive organs*: not studied.

Distribution. This monotypic genus is known only from Tanzania.

Species Examined. *Agapetilus vietus* Opitz, sp. nov.

Etymology. The generic name *Agapetilus* stems from the Latin *petilus* (=slender) and the intensive prefix *aga-* (=very). I refer to the slender body form of the type species.

4.5.3. *Agapetilus vietus* Opitz, sp. nov.

Type Material [Holotype ♂]. Tanzania, Tanga, Lushoto Dist., Mazumbai For. Res. 4°49'S 38°29'E, 1650–1730 m, 27. XI.1995, Fog 29 II, Zmuc Denmark (Institute Royal des Sciences Naturelles de Belgique).

Description. *Form*: oblong slender. *Size*: length 5.2 mm; width 1.2 mm. *Integumental color*: Antenna, legs, and posterior half of elytral disc, and abdomen yellow-brown, forebody, pterothorax, and anterior half of elytral disc brown, with white fascia across middle of elytral disc. *Male genitalia*: Aedeagus very short, tegmen without lobes and posterior limit not fimbriate; phallic plates broad and apex pronounced.

Distribution. Known only from Tanzania.

Etymology. The specific epithet *vietus* (=wrinkled) is a Latin adjective. I refer to the extensive wrinkling on the pronotal disc.

4.5.4. *Apopylus Kolibáč* (Figures 4(h) and 22(c)). *Apopylus* Kolibáč [6]. Type species: *Apopylus unumgarensis* Kolibáč [6]. By monotypy.

Synapotypic Characteristics. The restriction of the tetranodal punctations to the posterior four-fifths of the elytral disc is a uniquely derived characteristic of this genus.

Diagnosis. The restriction of the tetranodal punctations to the posterior four-fifths of the elytral disc will conveniently distinguish the members of this genus within Tarsosteninae.

Description. *Apopylus* Kolibáč and its type species were adequately described by Kolibáč [6]. The metendosternite of *Apopylus unumgarensis* specimens have well-developed laminae.

Species Examined. *Apopylus unumgarensis* Kolibáč and one undescribed species.

4.5.5. *Apteropilo* Lea (Figures 5(a)–5(h), 6(e), 6(f), and 22(d)). *Apteropilo* Lea [14]. Type species: *Apteropilo pictipes* Lea [14]. By monotypy. Corporaal [5]. Kolibáč [6] (*Pylusopsis* Elston), Bartlett [15].

Synapotypic Characteristics. Pronotal disc with two glabrous tumescences, pronotal sides with two extraordinarily large setiferous punctations, metendosternite without furcal anterior plate.

Diagnosis. The combination of glabrous tumescences on the pronotal disc present, elytral punctations binodal, and each side of the pronotum with two large setiferous punctations will conveniently distinguish the members of this genus within Tarsosteninae.

Description. *Size:* length 3.5–6.0 mm; width 1.2–2.0 mm. *Form:* Figure 22(d) oblong short rectangulate, rarely hind body suboval, about 2.5 times longer than broad. *Vestiture:* disc of cranium and pronotum vested with pale setae, elytral disc vested with 1° setae and shorter profusely distributed 2° setae. *Head* (Figures 5(a) and 5(b)): cranium quadrate, frons wider than width of eye, indented with large setiferous punctations that give cranium rugose appearance, or cranial indentations small and widely separated; gula (Figure 5(a)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, transverse tormal processes not confluent, epipharyngeal plate very small; mandible (Figure 5(d)), body short, anterior, medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla, laterolacinia present, terminal palpomere securiform; labium, ligula not deeply incised, terminal palpomere securiform; eyes small, coarsely faceted, ocular notch small; antenna (Figure 5(h)), capitate, capitulum lax or not, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres filiform, antennomeres 9 and 10 triangular, antennomere 11 ovoid. *Thorax:* pronotum (Figures 5(c) and 5(g)), transverse, disc with two glabrous tumescences that sometimes are confluent with other elevations, side margins with distinct tubercles, usually two round punctations particularly large near sides, rest of disc with large round setiferous punctations, dorso-lateral ridge extends from posterior angle to anterior angle, surface coarse and fractured by coarse punctations, sclerotized region above pronotal projection glabrous, prebasal fissure well developed, prointercoxal process not expanded distally; pronotal projections short; elytron sculptured with large spheroid asetiferous punctations, latter seriate and binodal, 1° setae always adjacent to asetiferous punctations, 2° setae densely distributed, not arranged serially, epipleural fold laterally positioned, extended to elytral apex, anterior margin carinate; metathoracic wing (Figure 5(f)), rarely absent, wedge cell open; metendosternite (Figure 5(e)), with furcal lamina, furcal anterior plate absent; legs, tibial spur formula 0-2-1, tarsal pulvillar formula 3-3-3, unguis without denticle (Figure 6(f)). *Abdomen:* Aedeagus shorter than length of abdomen, phallobase reduced, lobate distally, lobes fimbriate; phallic lateral plates very broad, spicular plates narrowly triangular, acuminate, spicular apodemes not fused, intraspicular plate rod-shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male sixth

sternite slightly incised. *Alimentary Canal:* Not studied. *Male mesodermal internal reproductive organs:* not studied. *Female mesodermal internal reproductive organs:* Spermathecal capsule well sclerotized, tubular, elongate, spermathecal gland attached to apex of spermathecal capsule.

Distribution. The members of this genus have been found in southeastern and Western Australia and on Kings Island, off the Bass Strait.

Species Examined. *Apteropilo chrysocome* (Elston), *A. pictipes* Lea, *A. raldae* Bartlett, and *A. volans* Bartlett.

Notes. Bartlett [15] provided habitus illustrations of each species and drawings of male genitalia.

4.5.6. *Blackburniella* Chapin (Figures 7(a)–7(h), 12(a), 12(b), and 22(e)). *Blackburniella* Chapin [16]. *Type species:* *Thanasimomorpha intricta* Blackburn [17]. By original designation. Corporaal [5]. Matthews [18]. Kolibáč [6].

Erolestus Wolcott [19]. Synonymized by Wolcott, 1947.

Synapotypic Characteristics. Spermathecal duct very long, tuft of setae on elytral umbo, phallic apex extended.

Diagnosis. The tuft of black setae on the elytral umbo will distinguish the members of this genus from others in the subfamily.

Description. *Size:* length 4.2–8.0 mm; width 1.2–2.0 mm. *Form:* Figure 22(e), oblong long rectangulate, about 4 times longer than broad. *Vestiture:* disc of cranium and pronotum vested with pale setae, elytral disc vested with 1° setae and shorter profusely distributed 2° setae, elytral umbo covered with tuft of black setae, elytral setae very densely distributed in elytral apical half. *Head* (Figures 7(a), 7(b), and 12(a)): cranium quadrate, frons wider than width of eye, indented with large setiferous punctations that give cranium rugose appearance; gula (Figure 7(a)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, transverse tormal processes confluent, epipharyngeal plate very small; mandible, body short, anterior, medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla (Figure 12(b)), laterolacinia present, terminal palpomere securiform; labium, ligula not deeply incised, terminal palpomere securiform; eyes small, coarsely faceted, ocular notch large; antenna (Figure 7(g)), capitate, capitulum lax, somewhat narrow, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres subfiliform, capitular antennomeres somewhat narrow, antennomeres 9 and 10 triangular, antennomere 11 ovoid. *Thorax:* pronotum (Figures 7(c) and 7(d)), from subquadrate to longer than broad, disc indented with large setiferous punctations, side margins sinuous, rounded near middle, dorsolateral ridge spans posterior third of pronotal sides, ridge surface coarse, sclerotized

region above pronotal projection glabrous, prebasal fissure shallow, prointercoxal process not expanded distally; pronotal projections short; elytron sculptured with large spheroid asetiferous punctations in basal half, punctations minute in distal half, punctations seriate in basal half, not binodal, 1° setae always adjacent to asetiferous punctations, 2° setae densely distributed, not arranged serially, epipleural fold laterally positioned, extended to elytral apical three-fourths, anterior margin carinate; metathoracic wing (Figure 7(f)), wedge cell open; metendosternite (Figure 7(e)), with furcal lamina, furcal anterior plate prominent; legs, tibial spur formula 1-2-1, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen*: aedeagus shorter than length of abdomen, phallobase not reduced, lobate distally, lobes fimbriate; phallic lateral plates narrow, phallic apex extended, spicular plates very narrow, spicular apodemes fused at extremity, intraspicular plate rod-shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male sixth sternite slightly incised. *Alimentary canal*: not studied. *Male mesodermal internal reproductive organs*: Not studied. *Female mesodermal internal reproductive organs* (Figure 7(h)): spermathecal capsule capitates, well sclerotized, spermathecal gland attached to base of spermathecal capsule, spermathecal duct very long, saccular bursa copulatrix present.

Distribution. The members of this genus have been found only in Australia.

Species Examined. *Blackburniella intricata* (Blackburn) and one new species.

Notes. Kolibáč [6] provided drawings of the male genitalia and female mesodermal reproductive organs.

4.5.7. *Curacavi Solervicens* (Figures 3(a)–3(h), 6(a) and 6(b)). *Curacavi Solervicens* [20]. *Type species*: *Curacavi dentatus Solervicens* [20]. By monotypy.

Synapotypic Characteristics. Pronotal punctations elongate, epipleuron in ventral position.

Diagnosis. The serrulated lateral margins of the pronotum will distinguish the members of this genus within Tarsosteninae.

Description. *Size*: length 4.0 mm; width 1.8 mm. *Form* (Figure 3(a)): oblong rectangulate, about 3 times longer than broad. *Vestiture*: disc of cranium and pronotum vested with dark setae, elytral disc vested with 1° setae and shorter sparsely distributed 2° setae. *Head* (Figure 6(a)): cranium quadrate, frons much wider than width of eye, indented with small setiferous punctations and larger asetiferous punctations; gula large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, medial incision shallow, mandible, body short, anterior and medial dens well developed, posterior

dens not well developed, penicillus well developed; maxilla, laterolacinia present, terminal palpomere subsecuriform; labium, ligula not deeply incised, terminal palpomere securiform; eyes very small, coarsely faceted, ocular notch large; antenna (Figure 3(d)), capitate, capitulum lax and narrow, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres filiform, capitular antennomeres narrow, antennomeres 9 and 10 near capitate, antennomere 11 ovoid. *Thorax*: pronotum (Figures 3(b), 3(c), and 6(b)), transverse, convex, lateral margins serrulated, sculptured with large round setiferous punctations at anterior of disc, punctations elongate in remainder of disc, prebasal fissure well developed, prointercoxal process not expanded distally; pronotal projections short; elytron sculptured with large spheroid asetiferous punctations, latter seriate and binodal, 1° setae always adjacent to asetiferous punctations, 2° setae present, arranged serially, epipleural fold ventrally positioned, extended to elytral apex, margin minutely serrulated, anterior margin carinate; metathoracic wing with open wedge cell; metendosternite (Figure 3(e)), with furcal lamina, furcal anterior plate large, transverse; legs, tibial spur formula 2-2-2, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen*: aedeagus as long as length of abdomen, phallobase lobate distally (Figure 3(g)), lobes acuminate, not fimbriate; phallic lateral plate not very broad (Figure 3(h)), acuminate, with preapical uncus, spicular plates slender, with lateral uncus, spicular apodemes not fused (Figure 3(f)), intraspicular plate rod-shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male sixth sternite slightly incised. *Alimentary canal*: stomodaeal valve comprised of four primary lobes, dorsal lobe very broad and half as long as other three lobes. *Male mesodermal internal reproductive organs*: Not studied. *Female mesodermal internal reproductive organs*: spermathecal capsule well sclerotized, barrel shaped, spermathecal gland attached to apex of spermathecal capsule.

Distribution. The members of this genus have been found only in Chile.

Species Examined. This is a monotypic genus.

Notes. For illustrations see *Solervicens* [21].

4.5.8. *Fallopylus* gen. nov. (Figures 8(a)–8(j), 12(c), 12(d), 21(f), and 22(f)). *Type species*: *Pylus pallipes* MacLeay [22]. Kolibáč [6].

Synapotypic Characteristics. Bursal sclerites cyclic.

Diagnosis. *Blackburniella* Chapin, *Tarsostenodes* Blackburn, *Tarsostenus* Spinola, and *Fallopylus*, gen. nov., are all characterized by a 1-2-1 tarsal spur formula. However, in specimens of *Fallopylus* there is a distinct tubercle on the lateral margins of the pronotum, which is not the case in specimens of the other three aforementioned genera.

Description. *Size:* length 4.0–7.5 mm; width 1.4–3.2 mm. *Form* (Figure 22(f)): oblong short rectangular, about 3 times longer than broad. *Vestiture:* disc of cranium and pronotum vested with pale setae, elytral disc vested with 1° setae and shorter 2° setae. *Head* (Figures 8(a) and 8(b)): cranium quadrate, frons slightly wider than width of eye, indented with very small setiferous punctations; gula (Figure 8(a)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, transverse tormal processes confluent, epipharyngeal plate very small; mandible (Figure 8(g)), body long, anterior and medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla, laterolacinia present, terminal palpomere securiform or subsecuriform; labium, ligula deeply incised, terminal palpomere securiform; eyes large, coarsely faceted, ocular notch small; antenna (Figure 8(e) and 21(f)), capitate, capitulum lax, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres subfiliform, capitular antennomeres expanded, antennomeres 9 and 10 capitate, antennomere 11 ovoid, rarely acuminate. *Thorax:* pronotum (Figures 8(c) and 8(d)), transverse, disc indented with small setiferous punctations, lateral margins with tubercle sinuous, dorsolateral ridge extends from posterior angle to anterior angle, not fractured by coarse punctations, prebasal fissure prominent, prointercoxal process expanded distally; pronotal projections long; elytron sculptured with small or large bimodal asetiferous punctations, punctations seriate and extend to elytral apex, 1° setae always adjacent to asetiferous punctations, 2° setae sparsely distributed, arranged serially, epipleural fold laterally positioned, narrowed to elytral apex three, anterior margin carinate; metathoracic wing (Figure 8(h)), wedge cell closed; metendosternite (Figure 8(f)), with furcal lamina, furcal anterior plate prominent; legs, tibial spur formula 1-2-2, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen:* aedeagus (Figure 8(j)), shorter than length of abdomen, phallobase reduced, lobate and narrowed distally, lobes not fimbriate; phallobasic rod transverse, phallic lateral plates very spinous, phallic apex minute, spicular plates very narrow (Figure 8(i)), spicular apodemes not fused at extremity, intraspicular plate rod shaped; ovipositor, ventral and dorsal laminae unilobed, laminar rod present; distal margin of pygidium not incised, distal margin of male sixth sternite slightly incised. *Alimentary canal:* not studied. *Male mesodermal internal reproductive organs:* not studied. *Female mesodermal internal reproductive organs:* spermathecal capsule ovoid, well sclerotized, spermathecal gland attached to base of spermathecal capsule, spermathecal duct long, saccular bursa copulatrix present, with cyclic basal sclerites.

Distribution. The members of this genus have been found only in Australia.

Species Examined. *Fallopylus pallipes* (MacLeay) (new combination) and three new undescribed species.

Etymology. The generic name *Fallopylus* stems from the Latin *fallo* (=deceive) and the name of the genus *Pylus* Newman.

Notes. Kolibáč [6] provides drawings of the female mesodermal reproductive organs.

4.5.9. *Globoclava* gen. nov. (Figure 22(g)). *Type species:* *Pilus* (=Pylus) *quadrifasciata* Chevrolat [23]. Shifting *Pilus quadrifasciata* Chevrolat from synonymy to a valid species of *Globoclava* represents a *new status* and *new combination*.

Synapotypic Characteristics. Last antennomere very large.

Diagnosis. The extensively globose development of the last antennomere will distinguish the members of this genus from other genera.

Description. *Size:* length 4.0–5.5 mm; width 1.2–1.6 mm. *Form* (Figure 22(g)): oblong short rectangular, about 3 times longer than broad. *Vestiture:* disc of cranium and pronotum vested profusely with erect setae, elytral disc vested with tall erect setae and shorter decumbent setae. *Head:* cranium quadrate, frons much wider than width of eye, indented with large setiferous punctations; gula large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, transverse tormal processes confluent, epipharyngeal plate very small; mandible, body short, anterior and medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla, laterolacinia not studied, terminal palpomere subsecuriform; labium, ligula not incised, terminal palpomere subsecuriform; eyes large, finely faceted, ocular notch large; antenna, capitate, capitulum compact, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres filiform, capitular antennomeres expanded, antennomeres 9 and 10 expanded, antennomere 11 very large and ovoid. *Thorax:* pronotum quadrate, disc indented profusely with large setiferous punctations, lateral margins convex, lateral tubercle poorly developed, dorsolateral ridge extends from posterior angle to anterior angle, not fractured and with smooth surface, sclerotized region above pronotal projection glabrous, prebasal fissure shallow, prointercoxal process expanded distally; pronotal projections short; elytron sculptured with asetiferous punctations, punctations subseriate, epipleural fold laterally positioned, narrowed at elytral posterior two-thirds, anterior margin carinate; metathoracic wing not studied; metendosternite not studied; legs, tibial spur formula 0-1-1, tarsal pulvillar formula 3-3-3, pulvillus of metabasitarsomere very reduced, unguis with denticle. *Abdomen:* not examined. *Alimentary canal:* not studied. *Male mesodermal internal reproductive organs:* not studied. *Female mesodermal internal reproductive organs:* not studied.

Distribution. Known only from South Africa.

FIGURE 3: Various organs of *Curacavi dentatus*. (a) Habitus. (b, c) Thorax ((b) ventral, (c) dorsal). (d) Antenna. (e) Metendosternite. (f) Spiculum. (g) Tegmen. (h) Phallus.

Species Examined. *Globoclava anthicides* (Newman) (new combination).

Etymology. The generic name *Globoclava* stems from the Latin *globus* (=sphere) and the Latin *clavus* (= nail). I refer to the shape of the antenna in this beetle.

4.5.10. *Neopylus Solervicens* (Figures 9, 10, 12(e), and 22(h)). *Neopylus Solervicens* [24]. *Type species:* *Neopylus nahuelbutensis* Solervicens [24].

Synapotypic Characteristics. Pronotal and elytral disc vested with small white setal wisps.

Diagnosis. The small wisps of white setae on the dorsum of these beetles will distinguish them from superficially similar specimens of the Australian genus *Pylus* Newman.

Description. *Size:* length 9.0–10.0 mm; width 3.5–4.0 mm. *Form* (Figure 9): oblong long rectangular, robust about 3 times longer than broad. *Vestiture:* disc of cranium vested profusely with white recumbent setae, pronotum and elytral disc vested with small wisps of white setae pale setae, elytral disc vested with 1° setae and shorter 2° setae. *Head* (Figures 10(a), 10(b), and 12(e)): cranium quadrate, frons wider than width of eye, indented with large setiferous punctations that give cranium rugose appearance; gula (Figure 10(a)), large, trapezoidal, sutures oblique,

FIGURE 4: Various organs. (a)–(g) and (h)–(l) of *Pseudopylus okei*. (a, b) Head ((a) ventral, (b) dorsal). (c, d) Pronotum ((c) ventral, (d) dorsal). (e) Antenna. (f) Metathoracic wing. (g) Metendosternite. (h) Metendosternite of *Apopylus unumgarensis*. (i) Spiculum. (j) Mandible. (k) Male mesodermal internal reproductive organs. (l) Aedeagus.

gular processes widely separated, processes in form of two setiferous tubercles; labrum (Figure 10(j)), short, not deeply incised, transverse toral processes confluent, epipharyngeal plate very small; mandible (Figure 10(k)), body short, anterior, medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla (Figure 10(i)), laterolacinia present, terminal palpomere securiform; labium (Figure 10(g)), ligula not deeply incised, terminal palpomere securiform; eyes small, coarsely faceted, ocular notch large; antenna (Figure 10(f)), capitate, capitulum lax, somewhat narrow, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres subfiliform, capicular antennomeres somewhat narrow, antennomeres

9 and 10 triangular, antennomere 11 somewhat truncate. *Thorax*: pronotum (Figures 10(c) and 10(d)), transverse, disc indented with large setiferous punctations, central lineal fissure, and with small elevations, side margins with distinct tubercle, dorsolateral ridge extends from posterior angle to anterior angle, not fractured but made coarse by coarse punctations, sclerotized region above pronotal projection with setiferous punctations at base, glabrous in remainder, prebasal fissure shallow, prointercoxal process expanded distally; pronotal projections long; elytron sculptured with large spheroid asetiferous punctations, punctations smaller near elytral apex, punctations not seriate, 1° setae always adjacent to asetiferous punctations, 2° setae not

FIGURE 5: Various organs of *Apteropilo chrysocome*. (a, b) Head ((a) ventral, (b) dorsal). (c) Pronotum (ventral). (d) Mandible. (e) Metendosternite. (f) Metathoracic wing. (g) Pronotum (dorsal). (h) Antenna.

arranged serially, epipleural fold laterally positioned, narrow near elytral apex, anterior margin carinate; metathoracic wing (Figure 10(e)), wedge cell closed; metendosternite (Figure 10(h)), with furcal lamina, furcal anterior plate prominent; legs, tibial spur formula 1-2-2, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen*: aedeagus (Figures 10(m) and 10(n)), shorter than length of abdomen, phallobase not reduced, lobate distally, lobes not fimbriate; phallic lateral plates broad, phallic apex stout, spicular plates narrow (Figure 10(l)), slightly acuminate, spicular apodemes fused, intraspicular plate rod shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male 6th sternite slightly incised. *Alimentary canal*: not studied.

Male mesodermal internal reproductive organs: not studied. *Female mesodermal internal reproductive organs*: saccular bursa copulatrix present, bursa with two basal sclerites.

Distribution. The members of this genus have been found only in Chile.

Species Examined. This is a monotypic genus.

4.5.11. *Parapylus* Blackburn (Figures 11(a)–11(l), 12(f), and 22(i)). *Parapylus* Blackburn [17]. *Type species*: *Parapylus bicinctus* Newman [25]. By monotypy.

FIGURE 6: Various organs. (a, b) *Curacavi dentatus* ((a) head, (b) pronotal disc). (c, d) *Pseudopilus okei* ((c) head, (d) mouthparts). (e, f) *Apteropilo chrysocome* ((e) head, (f) protarsus).

Synapotypic Characteristics. Tarsal spur formula 2-2-2, elytral disc vested with transverse setal fascia, only apex of spermathecal capsule visibly sclerotized.

Diagnosis. Transverse setal fascia on the elytral disc and a tarsal formula of 2-2-2.

Description. *Size:* length 4.0–7.0 mm; width 1.8–3.8 mm. *Form* (Figure 22(i)): oblong short rectangulate, robust, about 2 times longer than broad. *Vestiture:* disc of cranium vested profusely with dark setae, pronotum and elytral vested profusely with dark setae, elytral disc vested with 1° setae and shorter 2° setae, elytral disc narrow

fascia of white setae. *Head* (Figures 11(a), 11(b), 12(f)): cranium quadrate, frons wider than width of eye, indented with large setiferous punctations that give cranium rugose appearance; gula (Figure 11(a)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, transverse tormal processes confluent, epipharyngeal plate not discernible; mandible, body long, anterior, medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla (Figure 11(i)), laterolacinia present, terminal subdigitiform; labium (Figure 11(h)), ligula deeply incised, terminal palpomere securiform; eyes small, coarsely faceted, ocular notch large; antenna (Figure 11(e)), capitate, capitulum compact, wide, scape about as long as combined

FIGURE 7: Various organs of *Blackburniella intricata*. (a, b) Head ((a) ventral, (b) dorsal). (c, d) Pronotum ((c) ventral, (d) dorsal). (e) Metendosternite. (f) Metathoracic wing. (g) Antenna. (h) Female mesodermal organs.

length of pedicel and antennomere 3, funicular antennomeres subfiliform, capitular antennomeres wide, antennomeres 9 and 10 expanded laterally, antennomere 11 transverse. *Thorax*: pronotum (Figures 11(c) and 11(d)), transverse, disc indented with large setiferous punctations, with central linear fissure, and small paralateral elevations, side margins with distinct tubercle, dorsolateral ridge extends from posterior angle to anterior angle, not fractured but made coarse by coarse punctations, sclerotized region above pronotal projection setose, not glabrous, prebasal fissure well developed, prointercoxal process expanded distally; pronotal projections long; elytron sculptured with large spheroid asetiferous punctations, punctations smaller in elytral apical half, punctations not seriate, 1° setae adjacent to asetiferous punctations, 2° setae not arranged serially, epipleural fold

laterally positioned, narrows towards elytral apex, anterior margin carinate; metathoracic wing (Figure 11(f)), wedge cell closed; metendosternite (Figure 11(g)), with furcal lamina, furcal anterior plate prominent; legs, tibial spur formula 2-2-2, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen*: aedeagus shorter than length of abdomen, phallobase reduced, lobate distally, lobes fimbriate, phallobasic rod bifid distally; phallic lateral plates narrow, phallic apex minute, spicular plates triangular (Figure 11(j)), spicular apodemes not fused, intraspicular plate rod shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male 6th sternite slightly incised. *Alimentary canal*: not studied. *Male mesodermal internal reproductive organs* (Figure 11(k)): two pairs of accessory glands, lateral pair divided. *Female*

FIGURE 8: Various organs of *Fallopylus pallipes*. (a, b) Head ((a) ventral, (b) dorsal). (c, d) Pronotum ((c) ventral, (d) dorsal). (e) Antenna. (f) Metendosternite. (g) Mandible. (h) Metathoracic wing. (i) Spiculum. (j) Aedeagus.

mesodermal internal reproductive organs (Figure 11(l)): sacular bursa copulatrix present, bursa with two basal sclerites, only apex of spermathecal capsule sclerotized, spermathecal gland attached to apex of spermatheca.

Distribution. The members of this genus have been found only in Australia.

Species Examined. *Parapylus bicinctus* Newman and *P. sedlaceki* (Kolibáč) (new combination).

Notes. As *Parapylus* Blackburn Newman is characterized by having a tarsal spur formula of 2-2-2 its two species cannot be retained in *Pylus* Newman, which is characterized

by a tarsal formula of 2-2-1. Other differences involve smaller ommatidia and the elytra of *Parapylus* have short longitudinal ridges on the posterior half of the elytral disc, the elytra are setose-fascia and show a basal umbo. Kolibáč [6] provides illustrations of various organs of *Parapylus bicinctus* Newman.

4.5.12. *Pseudopylus*, gen. nov. (Figures 4(a)–4(g), 4(i)–4(l), 6(c), 6(d), and 23(a)).

Type Species. *Pylus okei* Elston [26]. Kolibáč [6].

Synapotypic Characteristics. Tibial spur formula 0-0-0.

FIGURE 9: Habitus of *Neopylus nahuelbutensis*.

Diagnosis. The absence of glabrous tumescences on the pronotal disc of specimens of *Pseudopylus* will distinguish them from those of *Apteropilo*.

Size: length 3.8–7.0 mm; width 1.4–3.6 mm. **Form** (Figure 23(a)): oblong short rectangulate, about 3 times longer than broad. **Vestiture:** disc of cranium and pronotum vested with pale setae, elytral disc vested with 1° setae and shorter profusely distributed 2° setae. **Head** (Figures 4(a), 4(b), and 6(c)): cranium quadrate, frons wider than width of eye, indented with large setiferous punctations that give cranium rugose appearance; gula (Figure 4(a)) large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, transverse tormal processes not confluent, epipharyngeal plate very small; mandible (Figure 4(j)), body short, anterior, medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla (Figure 6(d)), laterolacinia present, terminal palpomere sub securiform; labium, ligula not deeply incised, terminal palpomere subsecuriform; eyes small, coarsely faceted, ocular notch small; antenna (Figure 4(e)), capitate, capitulum compact, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres subfiliform, capitular antennomeres wide, antennomeres 9 and 10 triangular, antennomere 11 ovoid. **Thorax:** pronotum (Figures 4(c), and 4(d)), transverse, side margins with distinct tubercles, disc with large oblong or round setiferous punctations, dorsolateral ridge extends from posterior angle to anterior angle, surface coarse and fractured by coarse punctations, prebasal fissure well developed, prointercoxal process expanded distally; pronotal projections long; elytron sculptured with large spheroid asetiferous punctations, latter seriate, punctations bimodal, 1° setae always adjacent to asetiferous punctations, 2° setae arranged serially, epipleural fold laterally positioned, extended to elytral posterior

four-fifths, anterior margin carinate; metathoracic wing (Figure 4(f)), rarely absent, when present wedge cell closed; metendosternite (Figure 4(g)), with furcal lamina, furcal lamina may be reduced in size, furcal anterior plate present or absent; legs, tibial spur formula 0-0-0, tarsal pulvillar formula 3-3-3, unguis without denticle. **Abdomen:** aedeagus (Figure 4(l)), as long as length of abdomen, phallobase reduced, lobate distally, lobes fimbriate; phallic lateral plates very narrow, particularly long, spicular plates very narrow, spicular apodemes not fused (Figure 4(i)), intraspicular plate rod shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male sixth sternite slightly incised. **Alimentary canal:** six malpighian tubules. **Male mesodermal internal reproductive organs** (Figure 4(k)): two pairs of accessory glands, medial gland coiled, vesiculated at base, lateral gland digitiform, seminal vesicle bulbous, testis very small. **Female mesodermal internal reproductive organs:** spermathecal capsule well sclerotized, spermathecal gland attached near base of spermathecal capsule, saccular bursa copulatrix present, two denticulated basal bursal sclerites present.

Distribution. The members of this genus have been found only in Australia.

Species Examined. *Pseudopylus okei* (Elston) (new combination) and three undescribed species.

Etymology. The generic name *Pseudopylus* stems from the Greek *pseudo* (=fallacy) and the name of the genus *Pylus* Newman.

Notes. Kolibáč [6] provides excellent drawings of the aedeagus and female mesodermal internal reproductive organs of *Pseudopylus okei* (Elston). Note the poor development of the metendosternite of *P. okei* (Elston) (Figure 4(g)) a species in which the metathoracic wings are absent. The metendosternite is well developed in *A. unumgarensis* Kolibáč (Figure 4(h)) whose specimens show well-developed membranous wings.

4.5.13. *Pylus* Newman (Figures 13(a)–13(j), 16(a), 16(b), and 23(b)). *Pylus* Newman [27]. **Type species:** *Pylus fatuus* Newman [27]. Corporaal [5].

Ylotis Spinola [28]. Synonymized by Corporaal, 1950.

Ylotis Spinola [12]. Synonymized by Corporaal, 1950.

Synapotypic Characteristics. Spermathecal gland very long (Figure 13(i)).

Diagnosis. Within Tarsosteninae elytral disc punctations are serially rowed to the elytral apex in specimens of *Apopylus* Kolibáč, *Fallopylus* gen. nov., and in *Pylus* Newman. However, the tibial spur formula is 2-2-2 in *Pylus* Newman, 0-0-0 in *Apopylus* Kolibáč, and 1-2-1 in *Fallopylus* gen. nov.

FIGURE 10: Various organs of *Neopylus nahuelbutensis*. (a, b) Head ((a) ventral, (b) dorsal). (c, d) Thorax ((c) ventral, (d) dorsal). (e) Metathoracic wing. (f) Antenna. (g) Labium. (h) Metendosternite. (i) Maxilla. (j) Labrum. (k) Mandible. (l) Spiculum. (m) Phallus. (n) Tegmen.

Description. *Size:* length 5.0–15.5 mm; width 2.0–5.2 mm. *Form* (Figure 23(b)): oblong long rectangulate, robust, about 3 times longer than broad. *Vestiture:* disc of cranium vested profusely with dark setae, pronotum and elytral vested profusely with dark setae, elytral disc vested with short 1° setae and shorter 2° setae. *Head* (Figures 13(a), 13(b), and 16(a)): cranium quadrate, frons wider than width of eye, indented with large setiferous punctations that give cranium rugose appearance; gula (Figure 13(a)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, not deeply incised, transverse tormal processes confluent, epipharyngeal plate small; mandible, body long, anterior, medial dens well

developed, posterior dens not well developed, penicillus well developed; maxilla (Figure 16(b)), laterolacinia present, terminal subsecuriform; labium (Figure 16(b)), ligula deeply incised, terminal palpomere securiform; eyes large, coarsely faceted, ocular notch large; antenna (Figure 13(e)), capitate, capitulum compact, wide, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres subfiliform, capitular antennomeres wide, antennomeres 9 and 10 expanded laterally, antennomere 11 transverse. *Thorax:* pronotum (Figures 13(c) and 13(d)), transverse, disc indented with large setiferous punctations, with central fissure, and small paralateral elevations, side margins with distinct tubercle at middle and knob at

FIGURE 11: Various organs of *Parapylyus bicinctus*. (a, b) Head ((a) ventral, (b) dorsal). (c, d) Pronotum ((c) ventral, (d) dorsal). (e) Antenna. (f) Metathoracic wing. (g) Metendosternite. (h) Labium. (i) Maxilla. (j) Spiculum. (k) Male mesodermal reproductive organs. (l) Female mesodermal reproductive organs.

anterior angles, dorsolateral ridge extends from posterior angle to anterior angle, not fractured but made coarse by coarse punctations, sclerotized region above pronotal projection not glabrous, setose, prebasal fissure well developed, prointercoxal process expanded distally; pronotal projections long; elytron sculptured with large binoded asetiferous punctations, punctations seriate, extend to elytral apex seriate, 1° setae adjacent to asetiferous punctations, 2° setae serially arranged, epipleural fold laterally positioned, narrows towards elytral apex, anterior margin carinate; metathoracic wing (Figure 13(f)), wedge cell closed; metendosternite with furcal lamina, furcal anterior plate prominent; legs, first tarsomere may be slender, acuminate

and extended towards second tarsomere, tibial spur formula 2-2-1, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen*: aedeagus (Figures 13(h) and 13(j)), shorter than length of abdomen, phallobase reduced, lobate distally, lobes fimbriate, phallobasic rod not bifid distally; phallic lateral plates narrow, phallic apex minute, spicular plates narrow, with small rounded lateral extension, spicular apodemes not fused (Figure 13(g)), intraspicular plate rod shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male 6th sternite slightly incised. *Alimentary canal*: not studied. *Male mesodermal internal reproductive organs*: not studied. *Female mesodermal internal reproductive*

FIGURE 12: Various organs. (a, b) *Blackburniella intricata* ((a) head, (b) mouthparts). (c, d) *Fallopylus pallipes* ((c) head, (d) mouthparts). (e) *Neopylus nahuelbutensis* head. (f) *Parapylus bicinctus* head.

organs (Figure 13(i)): saccular bursa copulatrix present, bursa with two basal sclerites, spermathecal capsule well sclerotized, spermathecal gland very long, attached to base of spermatheca.

Distribution. The members of this genus have been found only in Australia.

Species Examined. *Pylus fatuus* Newman and one undescribed species.

Notes. Kolibáč [6] provides illustrations of various organs of *Pylus fatuus* Newman.

4.5.14. *Rhophaloclerus* Fairmaire (Figures 14(a)–14(g), 16(c), 16(d), and 23(c)). *Rhophaloclerus* Fairmaire [29, 30]. Type species: *Rhophaloclerus coquerelii* Fairmaire [29]. By monotypy. Kuwert [31]. Corporaal [5]. *Liostylus* Fairmaire [29]. *New Synonymy.*

Synapotypic Characteristics. Tibial spur formula 1-2-2.

Diagnosis. This is the only genus of Tarsosteninae with a tibial formula 1-2-2 and known to occur in Madagascar and the Comoros.

Description. *Size:* length 3.0–6.0 mm; width 0.7–3.0 mm. *Form* (Figure 23(c)): oblong rectangulate, most species

FIGURE 13: Various organs of *Pylus fatuus*. (a, b) Head ((a) ventral, (b) dorsal). (c, d) Pronotum ((c) ventral, (d) dorsal). (e) Antenna. (f) Metathoracic wing. (g) Spiculum. (h) Tegmen. (i) Female mesodermal reproductive organs. (j) Phallus.

narrow, about 3 times longer than broad. *Vestiture*: disc of cranium and pronotum vested with pale setae, elytral disc vested with 1° setae and shorter profusely distributed 2° setae. *Head* (Figures 14(a), 14(d), and 16(c)): cranium quadrate, frons much wider than width of eye, indented with very small setiferous punctations; gula (Figure 14(a)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, transverse tormal processes not confluent, epipharyngeal plate very small; mandible, body short, anterior and medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla, laterolacinia present, terminal palpomere securiform; labium, ligula not incised, terminal palpomere securiform; eyes large, finely faceted, ocular notch large; antenna (Figure 16(d)),

capitate, capitulum usually lax, rarely compact, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres subfiliform, capitular antennomeres expanded, antennomeres 9 and 10 expanded, antennomere 11 ovoid. *Thorax*: pronotum (Figures 14(b), and 14(c)), usually elongate, rarely transverse-ovoid, disc indented with small setiferous punctations, lateral margins variously convex, dorsolateral ridge extends from posterior angle to anterior angle, not fractured and with smooth surface, sclerotized region above pronotal projection glabrous, prebasal fissure shallow, prointercoxal process not expanded distally; pronotal projections short; elytron sculptured with shallow asetiferous punctations, punctations seriate and diminish in size to elytral apex, 1° setae always adjacent to asetiferous punctations, 2° setae densely distributed, epipleural

FIGURE 14: Various organs of *Rhopaloclerus coquerelii*. (a) Head (ventral). (b, c) Pronotum ((b) ventral, (c) dorsal). (d) Head (dorsal). (e) Metathoracic wing. (f) Metendosternite. (g) Spiculum.

fold laterally positioned, narrowed to elytral apex, anterior margin carinate; metathoracic wing (Figure 14(e)), wedge cell open; metendosternite (Figure 14(f)), with furcal lamina, furcal anterior plate prominent; legs, tibial spur formula 1-2-2, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen*: aedeagus shorter than length of abdomen, phallobase not reduced, lobate and narrowed distally, lobes fimbriate; phallic lateral plates narrow, phallobasic rod linear or transverse, furcated distally or not furcated, phallic apex minute, spicular plates very narrow (Figure 14(g)), spicular apodemes not fused at extremity, intraspicular plate rod shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised,

distal margin of male 6th sternite slightly incised. *Alimentary canal*: not studied. *Male mesodermal internal reproductive organs*: not studied. *Female mesodermal internal reproductive organs*: spermathecal capsule subovoid, well sclerotized, spermathecal gland attached to middle of spermathecal capsule.

Distribution. Known only from Madagascar and Comoros.

Species Examined. *Rhopaloclerus coquerelii* Fairmaire, *R. pictus* (Fairmaire) (new combination), *R. vadoni* Pic, and five species that may or may not be described.

FIGURE 15: Various organs. (a)–(h), and (k)–(m) *Riotenerus fossipenne*. (a, b) Head ((a) ventral, (b) dorsal). (c) Pronotum (ventral), (d) Metendosternite. (e) Mandible. (f) Spiculum. (g) Metathoracic wing. (h) Antenna. (i) and (j) Generalized unguis ((i) without denticle, (j) with denticle). (k) Pronotum (dorsal). (l) Tegmen. (m) Phallus.

Notes. By placing the description of *Rhopaloclerus* Fairmaire amidst descriptions of other Tillinae genera Fairmaire [29, 32] gave the impression to subsequent authors [5, 33] that the genus in question belongs in Tillinae. The reduced 4th tarsomere and the characteristics of the antenna clearly indicated that *Rhopaloclerus* Fairmaire is appropriately classified in Tarsosteninae.

4.5.15. *Riotenerus* Pic (Figures 15(a)–15(h), 15(k)–15(m), 16(e), 16(f), 21(e), and 23(d)). *Riotenerus* Pic [34]. Type species: *Pelonium fossipenne* Schenkling [21]. By monotypy. Solevicens [35]. Opitz [1].

Synapotypic Characteristics. Elytral disc devoid of 2° setae; aedeagus with uncinate projections; interspicular plate very long (Figure 15(f)).

Diagnosis. Distinguishable from the superficially similar specimens of *Abiliella* Peracchi by the lack of elytral 2° setae.

Description. **Size:** length 5.0–8.5 mm; width 2.0–2.5 mm. **Form** (Figure 23(d)): oblong rectangulate, about 3 times longer than broad. **Vestiture:** disc of cranium and pronotum vested with white setae, elytral disc vested with 1° setae, 2° setae absent. **Head** (Figures 15(a), 15(b), and 16(e)):

FIGURE 16: Various organs. (a, b) *Pylus fatuus* ((a) head, (b) mouthparts). (c, d) *Rhopaloclerus coquerelli* ((c) head, (d) antenna). (e, f) *Riotenerus fossipenneus* ((e) head, (f) mouthparts).

cranium quadrate, frons wider than width of eye, indented at middle and with large setiferous punctations that give cranium rugose appearance; gula (Figure 15(a)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, medial incision shallow, transverse tormal processes sinuous, confluent, epipharyngeal plate very small; mandible (Figure 15(e)), body stout, anterior, medial, and posterior dens well developed, penicillus well developed; maxilla (Figure 16(f)), laterolacinia present, terminal palpomere securiform; labium (Figure 16(f)), ligula not deeply incised, terminal palpomere securiform; eyes small, coarsely faceted, ocular notch small; antenna (Figures 15(h) and 21(e)),

capitate, capitulum lax and narrow, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres filiform, capitular antennomeres narrow, antennomeres 9 and 10 subrectangular, antennomere 11 ovoid. *Thorax*: pronotum (Figures 15(c), and 15(k)), elongate, convex, side margins sinuous, sculptured with large round setiferous punctations, dorsolateral ridge extends from posterior angle to pronotal midline, surface coarsely punctated, prebasal fissure well developed, prointercoxal process not expanded distally; pronotal projections short; elytron sculptured with large spheroid asetiferous punctations, latter sub seriate, 1° setae always adjacent to asetiferous punctations, 2° setae absent, epipleural fold

FIGURE 17: Various organs of *Tarsostenodes simulator*. (a, b) Head ((a) ventral, (b) dorsal). (c, d) Pronotum ((c) ventral, (d) dorsal). (e) Antenna. (f) Metendosternite. (g) Metathoracic wing. (h) Spiculum. (i) Tegmen. (j) Phallus.

laterally positioned, extended to elytral apex, anterior margin carinate; metathoracic wing (Figure 15(g)), wedge cell open; metendosternite (Figure 15(d)), with furcal lamina, furcal anterior plate diminutive, acuminate; legs, tibial spur formula 0-1-1, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen*: aedeagus (Figures 15(l), and 15(m)), shorter than length of abdomen, phallobase not lobate distally; phallic lateral plates very broad and uncinately distally; spicular plates small, triangular, acuminate, rarely, spicular apodemes not fused (Figure 15(f)), intraspicular plate rod shaped and very long; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male 6th sternite slightly incised. *Alimentary canal*: not studied. *Male mesodermal internal*

reproductive organs: not studied. *Female mesodermal internal reproductive organs*: not studied.

Distribution. The members of this genus have been found only in Argentina.

Species Examined. *Riotenerus fossipenne* (Schenkling).

4.5.16. *Tarsostenodes* Blackburn (Figures 17(a)–17(j), 20(a), 20(b), and 23(f)). *Tarsostenodes* Blackburn [36]. Type species: *Tarsostenodes simulator* Blackburn [36]. By monotypy. Corporaal [5]. Kolibáč [6]. Bartlett [37].

FIGURE 18: Various organs of *Tarsostenus univittatus*. (a, b) Head ((a) ventral, (b) dorsal). (c, d) Pronotum ((c) ventral, (d) dorsal). (e) Metathoracic wing. (f) Spiculum. (g) Aedeagus. (h) Metendosternite. (i) Antenna. (j) Stomodaeal valve (interior view). (k) Male mesodermal reproductive organs. (l) Female mesodermal reproductive organs. (m) Alimentary canal.

Synapotypic Characteristics. Procoxal cavity closed externally, pronotal projections wide, metathoracic wing cross veins rudimentary or missing, furcal lamina absent, epipleural fold narrow, elytra constricted at middle, phallobasic rod absent.

Diagnosis. The closure of the external aspects of the procoxal cavities (Figure 17(c)) will separate the members of this genus from any other within Tarsosteninae.

Description. *Size:* length 4.0–8.0 mm; width 1.0–2.0 mm. *Form* (Figure 23(f)): oblong, narrow rectangulate, about 4

times longer than broad. *Vestiture:* disc of cranium and pronotum densely vested with pale setae, elytral disc vested with 1° setae and shorter profusely distributed 2° setae. *Head* (Figures 17(a), 17(b), and 20(a)): cranium quadrate, frons much wider than width of eye, indented with large setiferous punctations; gula (Figure 17(a)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, transverse toral processes not confluent, epipharyngeal plate very small; mandible, body long, anterior and medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla (Figure 20(b)), laterolacinia present, terminal palpomere securiform; labium, ligula

FIGURE 19: Various organs. (a)–(f) *Thriocera pectoralis*. (a, b) Head ((a) ventral, (b) dorsal). (c, d) Pronotum ((c) ventral, (d) dorsal). (e) Spiculum. (f) Aedeagus. (g)–(j) *Thriocerodes bifasciatus*. (g, h) Head ((g) ventral, (h) dorsal). (i) and (j) Pronotum ((i) ventral, (j) dorsal).

deeply incised, terminal palpomere securiform; eyes large, coarsely faceted, ocular notch large; antenna (Figure 17(e)), capitate, capitulum usually compact, rarely lax, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres filiform, capitular antennomeres expanded, antennomeres 9 and 10 expanded, antennomere 11 ovoid. *Thorax*: pronotum (Figures 17(c), and 17(d)), elongate, usually campaniform, rarely suboval, usually deeply constricted at base, disc indented with large setiferous punctations, interstitial spaces (spaces between punctations), very elevated, dorsolateral ridge extends from posterior angle to anterior midpoint, fractured by coarse punctations, sclerotized region above pronotal projection glabrous, prebasal

fissure shallow, prointercoxal process very expanded distally, process confluent with pronotal projections (Figure 17(c)), latter particularly wide; elytron sculptured with deep asetiferous punctations, punctations seriate, rarely diminish in size to elytral apex, 1° setae always adjacent to asetiferous punctations, 2° setae densely distributed, interstitial spaces elevated, epipleural fold laterally positioned, very narrow to elytral apex, anterior margin not carinate; metathoracic wing (Figure 17(g)), cross veins rudimentary or missing; metendosternite (Figure 17(f)), without furcal lamina, furcal anterior plate prominent; legs, tibial spur formula 1-2-1, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen*: aedeagus (Figures 17(i), and 17(j)), shorter

FIGURE 20: Various organs. (a, b) *Tarsostenodes simulator* ((a) head, (b) mouthparts). (c, d) *Tarsostenus univittatus* ((c) head, (d) mouthparts). (e, f) *Thriocera pectoralis* ((e) head, (f) mouthparts).

than length of abdomen, phallobase not reduced, lobate, lobes fimbriate; phallic lateral plates wide, phallobasic rod absent, phallic apex robust, spicular plates very narrow (Figure 17(h)), spicular apodemes fused, intraspicular plate rod shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male 6th sternite slightly incised. *Alimentary canal*: not studied. *Male mesodermal internal reproductive organs*: not studied. *Female mesodermal internal reproductive organs*: spermathecal capsule tubular, well sclerotized, spermathecal gland attached to middle of spermathecal capsule.

Distribution. Known only from continental Australia and Lord Howe Island.

Species Examined. *Tarsostenodes albonotatus* Pic, *T. cribripennis* Schenkling, *T. guttulus* (White), *T. howensis* Bartlett, *T. leucogramma* Elston, *T. simulator* Blackburn, and four undescribed species.

4.5.17. *Tarsostenosis* Heller (Figure 23(e)). *Tarsostenosis* Heller [38]. Type species: *Tarsostenosis tricolor* Heller [38]. By monotypy. Corporaal [5].

Synapotypic Characteristics. Pronotum with linear glabrous elevations.

Diagnosis. Specimens belong to this genus if their pronotum shows a poorly developed lateral tubercle, the pronotum has

FIGURE 21: Various organs. (a, b) *Thriocerodes bifasciatus* ((a) head, (b) mouthparts). (c) *Thriocera pectoralis* antenna. (d) *Tarsostenus univittatus* antenna. (e) *Riotenerus fossipenneus* antenna. (f) *Fallopilus pallipes* capitulum.

shallow linear glabrous elevations, and the elytra are devoid of 2° setae.

Description. *Size:* length 3.5–5.0 mm; width 1.0–1.5 mm. *Form* (Figure 23(e)): oblong, narrow rectangulate, about 4 times longer than broad. *Vestiture:* disc of cranium and sides of pronotum densely vested with pale setae, pronotal middle sparsely setose, elytral disc vested with 1° setae, 2° setae absent. *Head:* cranium quadrate, frons much wider than width of eye, indented with large setiferous punctations; gula large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, transverse toral processes confluent, epipharyngeal plate very small; mandible, body short, anterior and medial dens well developed, posterior

dens not well developed, penicillus well developed; maxilla, laterolacinia present, terminal palpomere securiform; labium, ligula deeply incised, terminal palpomere securiform; eyes small, coarsely faceted, ocular notch small; antenna, capitate, capitulum lax, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres filiform, capitular antennomeres slightly expanded, antennomeres 9 and 10 subtriangular, antennomere 11 ovoid. *Thorax:* pronotum quadrate, disc at sides indented with large setiferous punctations, disc at middle sparsely punctate, with linear glabrous elevations, dorsolateral ridge extends from posterior angle to anterior midpoint, fractured by coarse punctations, sclerotized region above pronotal projection not glabrous, prebasal fissure shallow, prointercoxal process not expanded distally, pronotal projections

FIGURE 22: Habitus. (a) *Abiliella fasciata*. (b) *Agapetilus vietus*. (c) *Apopylus unumgarensis*. (d) *Apteropilo pictipes*. (e) *Blackburniella intricata*. (f) *Fallopylus pallipes*. (g) *Globoclava quadrimaculata*. (h) *Neopylus nahuelbutensis*. (i) *Parapylus bicinctus*.

FIGURE 23: Habitus. (a) *Pseudopylus okei*. (b) *Pylus fatuus*. (c) *Rhopaloclerus coquerelii*. (d) *Riotenerus fossipennes*. (e) *Tarsostenosis tricolor*. (f) *Tarsostenodes simulator*. (g) *Tarsostenus univittatus*. (h) *Thriocera pectoralis*. (i) *Thriocerodes bifasciatus*.

FIGURE 24: Phylogeny of genera of Tarsosteninae.

short; elytron sculptured with round asetiferous punctations, punctations seriate and extend to elytral distal two-thirds, 1° setae always adjacent to asetiferous punctations, 2° setae absent, interstitial spaces smooth, epipleural fold laterally positioned, very narrow to elytral apex, anterior margin carinate; metathoracic wing with open wedge cell; metendosternite with furcal lamina, furcal anterior plate shallow; legs, tibial spur formula 1-2-1, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen*: aedeagus shorter than length of abdomen, phallobase not reduced, not lobate but fimbriate; phallic lateral plates narrow, phallobasic rod linear, phallic apex robust, spicular plates narrow, slightly acuminate, spicular apodemes not fused, intraspicular plate rod shaped; ovipositor not examined. *Alimentary canal*: not studied. *Male mesodermal internal reproductive organs*: not studied. *Female mesodermal internal reproductive organs*: not studied.

Distribution. Species are known from Australia and New Caledonia.

Species Examined. *Tarsostenosis hilaris* (Westwood), (new combination), *T. tricolor* (Heller), and one undescribed species.

4.5.18. *Tarsostenus Spinola* (Figures 18(a)–18(m), 20(c), 20(d), 21(d), and 23(g)). *Tarsostenus* Spinola [12]. Type

species: *Clerus univittatus* Rossi [39]. By monotypy. Corporaal [5]. Crowson [40]. Ekis and Gupta [41]. Matthews [22]. Opitz [42]. Kolibáč [6].

Synapotypic Characteristics. Aedeagus inverted, one pair of accessory gland.

Diagnosis. Specimens belong to this genus if their pronotum lacks a lateral tubercle, the dorsolateral ridge is present only in pronotal basal half, and the elytra are devoid of 2° setae.

Description. *Size*: length 3.5–8.0 mm; width 1.0–2.0 mm. *Form* (Figure 23(g)): oblong, narrow rectangulate, about 4 times longer than broad. *Vestiture*: disc of cranium and sides of pronotum densely vested with pale setae, pronotal middle sparsely setose, elytral disc vested with 1° setae, 2° setae absent. *Head* (Figures 18(a), 18(b), and 20(c)): cranium quadrate, frons much wider than width of eye, indented with large setiferous punctations; gula (Figure 18(a)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, transverse tormal processes confluent, epipharyngeal plate very small; mandible, body short, anterior and medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla (Figure 20(d)), laterolacinia present, terminal palpomere subsecuriform; labium, ligula deeply incised, terminal palpomere subsecuriform; eyes small, coarsely faceted, ocular notch small;

antenna (Figure 18(i)), capitate, capitulum lax, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres filiform, capitular antennomeres slightly expanded, antennomeres 9 and 10 subtriangular, antennomere 11 ovoid. *Thorax*: pronotum (Figures 18(c) and 18(d)), quadrate, disc at sides indented with large setiferous punctations, disc at middle sparsely punctated, dorsolateral ridge extends from posterior angle to anterior midpoint, fractured by coarse punctations, sclerotized region above pronotal projection not glabrous, prebasal fissure shallow, prointercoxal process not expanded distally, pronotal projections short; elytron sculptured with round asetiferous punctations, punctations seriate and extend to elytral distal two-thirds, 1° setae always adjacent to asetiferous punctations, 2° setae absent, interstitial spaces smooth, epipleural fold laterally positioned, very narrow to elytral apex, anterior margin carinate; metathoracic wing (Figure 18(e)), wedge cell open; metendosternite (Figure 18(g)), with furcal lamina, furcal anterior plate shallow; legs, tibial spur formula 1-2-1, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen*: aedeagus (Figure 18(g)), shorter than length of abdomen, phallobase not reduced, lobate, lobes fimbriate; phallic lateral plates narrow, phallobasic rod linear, phallic apex robust, spicular plates narrow, slightly acuminate, spicular apodemes not fused (Figure 18(f)), intraspicular plate rod shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male sixth sternite slightly incised. *Alimentary canal* (Figure 18(m)): no external evidence of ventricular crypts, four cryptonephridial malpighian tubules, stomodaeal valve comprised of four primary lobes, dorsal and ventral lobes reduced in size. *Male mesodermal internal reproductive organs* (Figure 18(k)): one pair of accessory gland. *Female mesodermal internal reproductive organs* (Figure 18(l)): spermathecal capsule ovoid, well sclerotized, spermathecal gland attached to apex of spermathecal capsule.

Distribution. *Tarsostenus univittatus* (Rossi) and *T. carus* (Newman) are cosmopolitan. Other species are known from Australia and New Caledonia.

Species Examined. *Tarsostenus carus* (Newman), *T. univittatus* (Rossi), and one undescribed species.

Notes. Kolibáč [43] presented a variety of illustrations about the organs of *T. univittatus* (Rossi).

4.5.19. *Thriocera* Gorham (Figures 19(a)–19(f), 20(e), 19(f), 21(c), and 23(h)). *Thriocera* Gorham [44]. Type species: *Corynetes pectoralis* Klug [45]. By original designation. Corporaal [5].

Synapotypic Characteristics. A uniquely derived characteristic has not been found.

Diagnosis. This is the only genus of Tarsosteninae which is oblong-short, lacks asetiferous punctations on the elytral disc, and has a 0-2-2 tibial spur formula.

Description. *Size*: length 3.6–7.0 mm; width 1.2–2.5 mm. *Form* (Figure 23(h)): oblong short rectangulate to narrow rectangulate, about 3 times longer than broad. *Vestiture*: disc of cranium and pronotum vested profusely with erect setae, elytral disc vested profusely with tall erect setae and shorter decumbent setae. *Head* (Figures 19(a), and 19(b)): cranium quadrate, frons much wider than width of eye, indented with very small setiferous punctations; gula (Figure 19(a)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, deeply incised, transverse tormal processes confluent, epipharyngeal plate very small; mandible, body short, anterior and medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla (Figure 20(f)), laterolacinia absent, terminal palpomere subsecuriform; labium, ligula not incised, terminal palpomere subsecuriform; eyes small, finely faceted, ocular notch large; antenna (Figure 21(c)), capitate, capitulum compact, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres filiform, capitular antennomeres expanded, antennomeres 9 and 10 expanded, antennomere 11 ovoid. *Thorax*: pronotum (Figures 19(c) and 19(d)), quadrate, disc indented profusely with small setiferous punctations, lateral margins variously convex, dorsolateral ridge extends from posterior angle to anterior angle, not fractured and with smooth surface, sclerotized region above pronotal projection glabrous, prebasal fissure shallow, prointercoxal process expanded distally; pronotal projections short; elytron sculptured with numerous setiferous punctations, punctations not seriate, basal uncus variously developed, with or without elongate setae, epipleural fold laterally positioned, narrowed abruptly narrowed at elytral posterior two-thirds, anterior margin carinate; metathoracic wing with wedge cell open; metendosternite with furcal lamina, furcal anterior plate not prominent; legs, tibial spur formula 0-2-2, tarsal pulvillar formula 3-3-3, unguis with denticle. *Abdomen*: aedeagus (Figure 19(f)), shorter than length of abdomen, phallobase not reduced, not lobate, not fimbriate; phallic lateral plates narrow, phallobasic rod linear, phallic apex globose, spicular plates triangular and acuminate, spicular apodemes fused in posterior third (Figure 19(e)), intraspicular plate rod shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male sixth sternite slightly incised. *Alimentary canal*: not studied. *Male mesodermal internal reproductive organs*: not studied. *Female mesodermal internal reproductive organs*: not studied.

Distribution. Known only from Africa.

Species Examined. *Thriocera pectoralis* (Klug) and 12 other species which may or not be described.

4.5.20. *Thriocerodes* Wolcott & Dybas (Figures 19(g)–19(j), 21(a), 21(b), and 23(i)). *Thriocerodes* Wolcott & Dybas [46]. Type species: *Incorinetes bifasciatus* Pic [47]. Designation by Kolibáč [6]. Corporaal [5].

Synapotypic Characteristics. Phallic apex digitiform, CuA vein oblique.

Diagnosis. *Blackburniella* Chapin, *Fallopylus* gen. nov., *Tarsostenodes* Blackburn, *Tarsostenus* Spinola, and *Thriocerodes* Wolcott & Dybas are characterized by having a 1-2-1 tibial spur formula. Specimens of *Thriocerodes* may be distinguished from specimens of the other aforementioned genera by having a transverse pronotum.

Description. *Size:* length 3.0–6.0 mm; width 1.0–2.0 mm. *Form* (Figure 23(i)): oblong short rectangulate, about 3 times longer than broad. *Vestiture:* disc of cranium and pronotum vested profusely with pale setae, elytral disc with serially arranged asetose punctations and with 1° setae and shorter serially arranged 2° setae. *Head* (Figures 19(g), 19(h), and 21(a)): cranium quadrate, frons much wider than width of eye, indented with very small setiferous punctations; gula (Figure 19(g)), large, trapezoidal, sutures oblique, gular processes widely separated, processes in form of two setiferous tubercles; labrum short, not deeply incised, transverse tormal processes confluent, epipharyngeal plate very small; mandible, body short, anterior and medial dens well developed, posterior dens not well developed, penicillus well developed; maxilla (Figure 21(b)), laterolacinia present, terminal palpomere subsecuriform; labium, ligula incised, terminal palpomere subsecuriform; eyes large, coarsely faceted, ocular notch large; antenna, capitate, capitulum lax, scape about as long as combined length of pedicel and antennomere 3, funicular antennomeres subfiliform, capitular antennomeres slightly expanded, antennomeres 9 and 10 expanded, antennomere 11 subquadrate. *Thorax:* pronotum (Figures 19(i) and 19(j)), subquadrate, lateral margins with median tubercle, dorsolateral ridge extends from posterior angle to anterior angle, sclerotized region above pronotal projection glabrous, prebasal fissure shallow, prointercoxal process not expanded distally; pronotal projections short; elytron sculptured with serially arranged asetiferous punctations, epipleural fold laterally positioned, narrowed to elytral apex, anterior margin carinate; metathoracic wing with wedge cell open, CuA vein oblique; metendosternite with furcal lamina, furcal anterior plate prominent; legs, tibial spur formula 1-2-1, tarsal pulvillar formula 3-3-3, unguis without denticle. *Abdomen:* aedeagus shorter than length of abdomen, phallobase not reduced, lobate, not fimbriate; phallic lateral plates narrow, phallobasic rod linear, phallic apex digitiform, spicular plates triangular, not acuminate, spicular apodemes fused or not, intraspicular plate rod shaped; ovipositor, ventral and dorsal laminae unilobed, laminal rod present; distal margin of pygidium not incised, distal margin of male sixth sternite slightly incised. *Alimentary canal:* not studied. *Male mesodermal internal reproductive organs:* not studied. *Female mesodermal internal reproductive organs:* spermathecal capsule well sclerotized, spermatheca gland attached to subapex of spermathecal gland, saccular bursa copulatrix well developed.

Distribution. This genus is known from Australia.

Species Examined. *Thriocerodes bifasciatus* (Pic), *T. bipartitus* (Pic), *T. corporaali* Wolcott & Dybas, *T. pygmaeus* (Blackburn), *T. pyloides* Kolibáč, *T. rolciki* Kolibáč, and four undescribed species.

Notes. Kolibáč [6] provides illustrations of species of *Thriocerodes*.

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