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KEYS TO THE IDENTIFICATION OF THE GENERA AND SUBGENERA OF ADULT *DYTISCIDAE* (*SENSU LATO*) OF THE WORLD (*Coleoptera Dytiscidae*)

ABSTRACT - PEDERZANI F., 1995 - *Keys to the identification of the genera and subgenera of adult* Dytiscidae (sensu lato) *of the world* (Coleoptera Dytiscidae).

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Simplified keys for collectors and amateurs . Noterids are included as a subfamily of *Dytiscidae* (s.l.). Genus-group taxa are updated about summer 1994. Traditional nomenclature and classification are followed as a rule. Recent proposals of changes not followed in the keys are reported in the notes. Some changes of classification are recommended, including the convenience to establish some new genera, but new genus-group names are not introduced in any case. Detailed summary at page 83.

KEY WORDS - *Coleoptera, Dytiscidae.*

RIASSUNTO - *Tabelle per il riconoscimento dei generi e sottogeneri degli adulti dei* Dytiscidae (sensu lato) *della fauna mondiale* (Coleoptera Dytiscidae).

La letteratura sulla tassonomia dei *Dytiscidae* (che si intendono estesi alla sottofamiglia *Noterinae*) è stata esaminata per costruire tabelle di determinazione dei generi e principali sottogeneri della fauna mondiale. I risultati sono raccolti in questo lavoro, con alcune integrazioni e modifiche. È adottata la nomenclatura della più recente revisione dei nomi di gruppo famiglia e di gruppo genere (NILSSON & al., 1989), tuttavia per salvaguardare il più possibile la stabilità si sono conservate la classificazione e la nomenclatura tradizionali in alcuni casi controversi. In particolare non è ripreso l'uso dei *nomina oblita* provenienti dai cataloghi faunistici WHITE (1847) e MOTSCHULSKY (1853), che per oltre un secolo non furono ritenuti utilizzabili ai fini del principio di priorità, cominciando da SHARP (1882) o prima. Si conservano pertanto i nomi dei generi *Hydrocoptus* Motschulsky e *Homoeodytes* Régimbart e si raccomanda l' uso di *Guignotus* Houlbert invece di *Hydroglyphus* Motschulsky (sensu Biström & Silverberg).

Per ragioni di simmetria tassonomica si attribuisce rango di genere a *Hypoclypeus* Guignot **(n.stat.)** e si pone il genere *Carabdytes* Balke & al. nella nuova tribù *Carabdytini* **(nova tribus)**.

Viene adottata solo in parte la riclassificazione del genere *Deronectes* (s.l.) proposta da NILSSON & ANGUS (1992). *Nebrioporus* e *Stictotarsus* sono riproposti nei loro limiti tradizionali e *Potamonectes* è reintegrato come genere distinto, tuttavia in base ai risultati

dello studio filogenetico degli AA. citati, il gruppo *griseostriatus* con parameri semplici di tipo idroporino viene rimosso dal sottogenere nominale *Potamonectes* s.str., che ha parameri modificati in parte membranosi, ed è unito al sottogenere *Trichonectes* insieme alla maggior parte dei *Potamonectes* nord americani, ad eccezione di quelli del gruppo *depressus*. *Trichonectes* è l'unico nome di gruppo genere disponibile per questo taxon di *Potamonectes* a parameri semplici.

I *Deronectes* (s.l.) del gruppo *roffii* ed il *Deronectes* (s.l.) *grammicus* Sharp e specie vicine, da qualche Autore considerati anche *Potamonectes* o *Stictotarsus*, costituiscono probabilmente due nuovi generi distinti, che non si ritiene opportuno denominare nel presente lavoro, anche perchè per il primo di essi la descrizione fu annunciata da ZIMMERMAN (1982) e per il secondo l' autore non dispone di materiale sufficiente.

Si propone infine di isolare in taxa di rango superiore (da denominare) le specie *Uvarus chappuisi* (Peschet) e *Deronectes bertrandi* Legros, che per diverse ragioni risultano mal collocate nei generi attuali. La descrizione dei nuovi taxa esula dagli scopi del presente lavoro.

PAROLE CHIAVE - *Coleoptera, Dytiscidae.*

The existing keys to the identification of the genera and subgenera of *Dytiscidae* Leach are scattered in a lot of different papers and often lack recently described taxa; moreover they are usually limited to the fauna of one zoogeographic region. That makes it difficult to identify material from unknown provenance and to realize the differences between similar genera from different parts of the World. This difficulty is a problem in the taxonomy of *Dytiscidae*, in spite of some praiseworth exceptions, such as the tribe *Bidessini*, that was revised by BISTRÖM (1988).

I have investigated the literature on *Dytiscidae* (sensu lato), to find suitable keys to an easy identification of the subfamilies, tribes, genera and subgenera of the world fauna, and I have condensed the results in this paper, with some additions and changes endeavouring to fill the gap of the available keys. The purpose of this paper is to facilitate the identification of material and the arrangement of collections, not surely to solve the taxonomic and phylogenetic problems of the family. The investigation was made for my personal use and copies were distributed to some colleagues, but later I was encouraged to publish an English translation of the keys, although they are far from satisfactory.

I have adopted as a rule the nomenclature from the review of the genus- and family-group names by NILSSON & al. (1989), except in a few cases of reinstatement of *nomina oblita* from the catalogues WHITE (1847) and MOTSCHULSKY (1853), which were not accepted as valid for the priciple of priority by the principal authors of the past, beginning from Sharp or before. Although that reinstatement of *nomina oblita* follows at the letter the new rules of the I.C.Z.N., it is likely to endanger

the universality of the nomenclature, since some of the authors are going on with the use of traditional names. In my opinion that reinstatement does not go by the spirit of the Code.

The classification adopted in the keys follows recent authors (updated approximately summer 1994) except in a few cases of reclassifications suggested by phylogenetic studies or cladistic analyses. In some cases the selection and the weight of the taxonomic characters considered by the phylogenetic studies or used as the input to cladistic analyses are just a matter of opinion and consequently the results represent subjective conclusions only.

The notes at the end of the paper [square brackets] explain the reasons why some advanced reclassifications and changes of names are not adopted in the keys. The cause of the conservative approach is that I believe stability must have priority in all debatable cases, for practical reasons. That is worth especially for amateur collectors, the principal addressees of the keys.

Frequent changes of names and classification give rise to confusion in the literature, misunderstandings and errors of identification and oblige to relabel and move materials, with high muddle-risk. In my opinion there is no hurry to follow novelties, as for changes of names and classification, and consequently I believe the traditional arrangement should be conserved in collections until the majority of authors share the latest changes.

There are some exceptions to the pursuit of stability, for instance the treatment of *Deronectes* Sharp (sensu lato). That genus was conveniently subdivided into different genera in the Old World by continental authors, but I believe it is still in need of rearrangement, especially in America. I will emphasize the convenience to establish some new genera from highly differentiated groups of *Deronectes* (sensu lato), however I deem this paper is not the right place to investigate the matter and to propose new genus-group names.

Noterids are treated in the keys as a subfamily of *Dytiscidae*, following the classic authors of Middle Europe, although most of the American and North European authors usually treat *Noteridae* as a distinct family. To prevent misunderstanding I call *Dytiscidae* (sensu lato) the wider family including *Noterinae*.

I aknowledge the friendly co-operation of Saverio Rocchi (Florence) and the late, beloved friend Nino Sanfilippo (Genoa), who read with patience and criticism the Italian text of the keys and suggested several improvements. I thank also dr. Roberto Poggi (Genoa) for his valuable advice and dr. Antonio Galvagni (Rovereto) and prof. Cesare Conci

(Milan) for their advice and the encouragement to the publication of this paper. Lastly I have to apologize for mistakes occasionally occurring in the English translation.

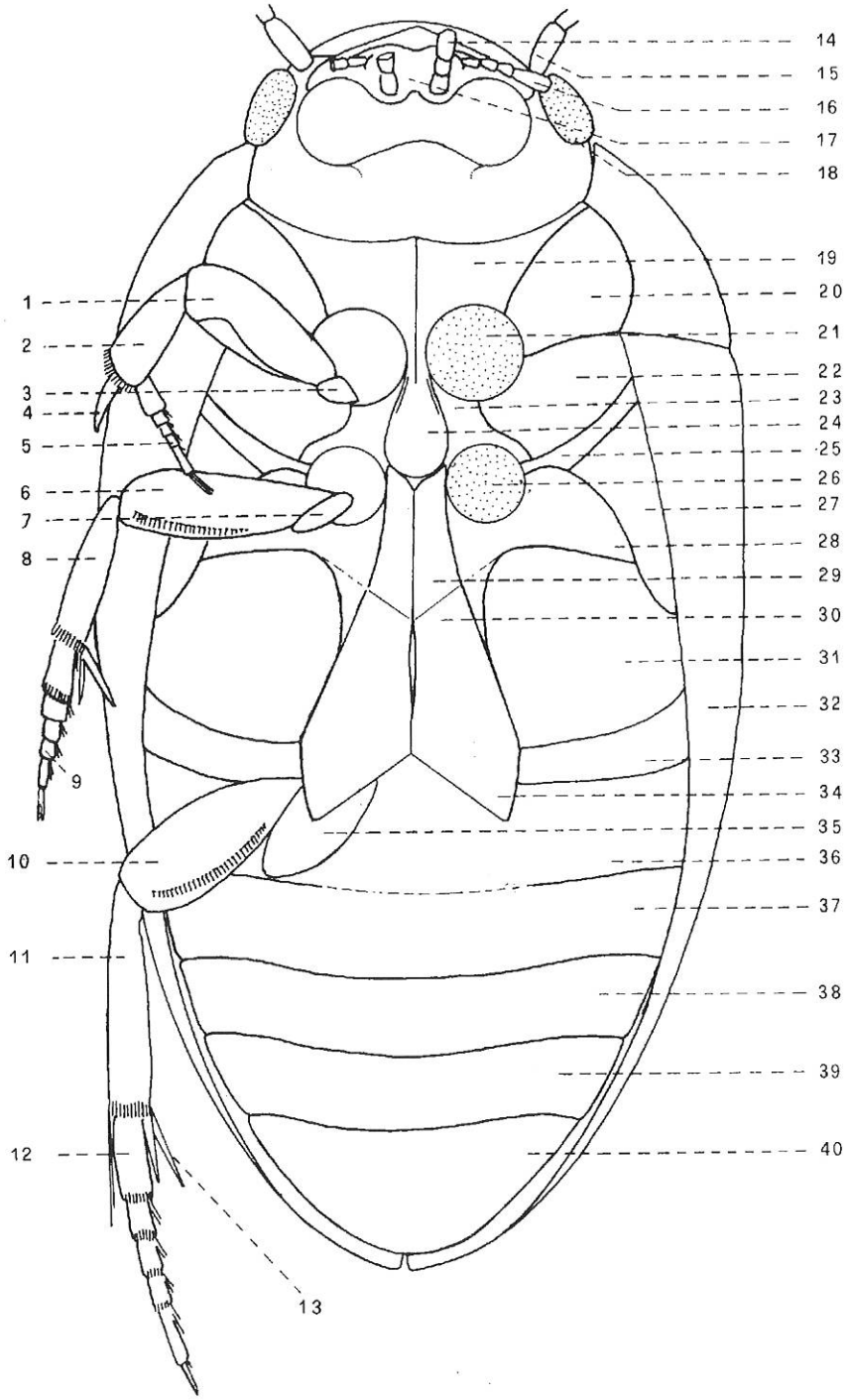
Family **DYTISCIDAE** (sensu lato)

Key to subfamilies [1]

1. Inner laminae of hind coxae raised above the outer laminae their whole length and expanded laterally into plates, which can shield hind femora in part. Hind coxal plates and metasternal process conjoinly forming a common ventral plate (fig. 1) in the same plane as prosternal process and its base. Underside almost flat at the middle; dorsum fairly convex **NOTERINAE** [2] (page 12)

– Inner laminae of hind coxae at the same level as outer laminae (fig. 2), hardly separated by coxal lines, which are sometimes incomplete or missing. Hind femora cannot be shielded by coxal plates. Sometimes the outer lobes of hind coxal process cover in part the bases of trochanteres. Underside more or less convex at the middle (**DYTISCIDAE** s. str.) **2**

Fig. 1 - Ventral aspect of a *Noterus* sp.
1. Profemur. 2. Fore tibia or protibia. 3. Fore trochanter. 4. Broad apical spur (hook) of fore tibia. 5. Fore tarsi. 6. Middle femur or mesofemur. 7. Middle trochanter. 8. Middle tibia or mesotibia. 9. Middle tarsi. 10. Hind femur. 11. Hind tibia. 12. Hind tarsi. 13. Hind tibial spurs. 14. Labial palp. 15. Antenna (basal segment). 16. Maxillary palp. 17. Labrum. 18. Eye. 19. Prosternum. 20. Episternum of prothorax. 21. Procoxal cavity (dotted area). 22. Episternum of mesothorax. 23. Mesosternum. 24. Prosternal process. 25. Epimeron of mesothorax. 26. Middle coxal cavity (dotted area). 27. Episternum of metathorax or metepisternum. 28. Lateral wing of metasternum. 29. Metasternum. 30. Common ventral plate, conjoinly formed by metasternal process and inner laminae of hind coxae. 31. Outer lamina of hind coxa. 32. Epipleuron. 33. First visible sternite. 34. Hind coxal process. 35. Hind trochanter. 36. Second sternite. 37. Third sternite (sometimes soldered to 2nd). 38. 4th sternite (it may appear 3rd). 39. 5th sternite (it may appear 4th). 40. Last abdominal segment.
The metepisternum (27) not reaching the coxal cavity (26) is a character of Dytisci Fragmentati. The hind coxal-metasternal plate (30) is a typical feature of Noterids.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2. Apex of elytra and last abdominal segment acutely pointed behind and produced into a sort of apical spine. Body form elongate; elytra parallel sided **METHLINAE** (page 18)

– Apex of elytra and last abdominal segment not acutely pointed behind or if so never spiniform; in that case (gen. *Hydrovatus* and *Pseudhydrovatus*) body form very broad and elytra not parallel sided **3**

3. Scutellum concealed, rarely a small tip visible **4**

– Scutellum fully exposed **6**

4. Fore and middle tarsi with 4th segment smaller than 3rd (fig. 3) or even concealed between apical lobes of 3rd, so that 5th segment appears to be 4th (tarsi pseudotetramerous)(fig. 4). Posterior (apical) margins of first four segments of hind tarsi transversely straight and lacking swimming hairs **HYDROPORINAE** (page 19)

– Fore and middle tarsi distinctly 5 segmented, 4th segment approximately as long as 3rd. Posterior margins of first four segments of hind tarsi sinuate, their outer half produced into an apical lobe (fig. 5)(*Laccophilinae*) or if not so, provided with swimming hairs (*Aubehydrinae*) **5**

5. Prosternal process in the same plane as prosternum, not projecting ventrally; its apex acuminate, either simple or three-pointed. First

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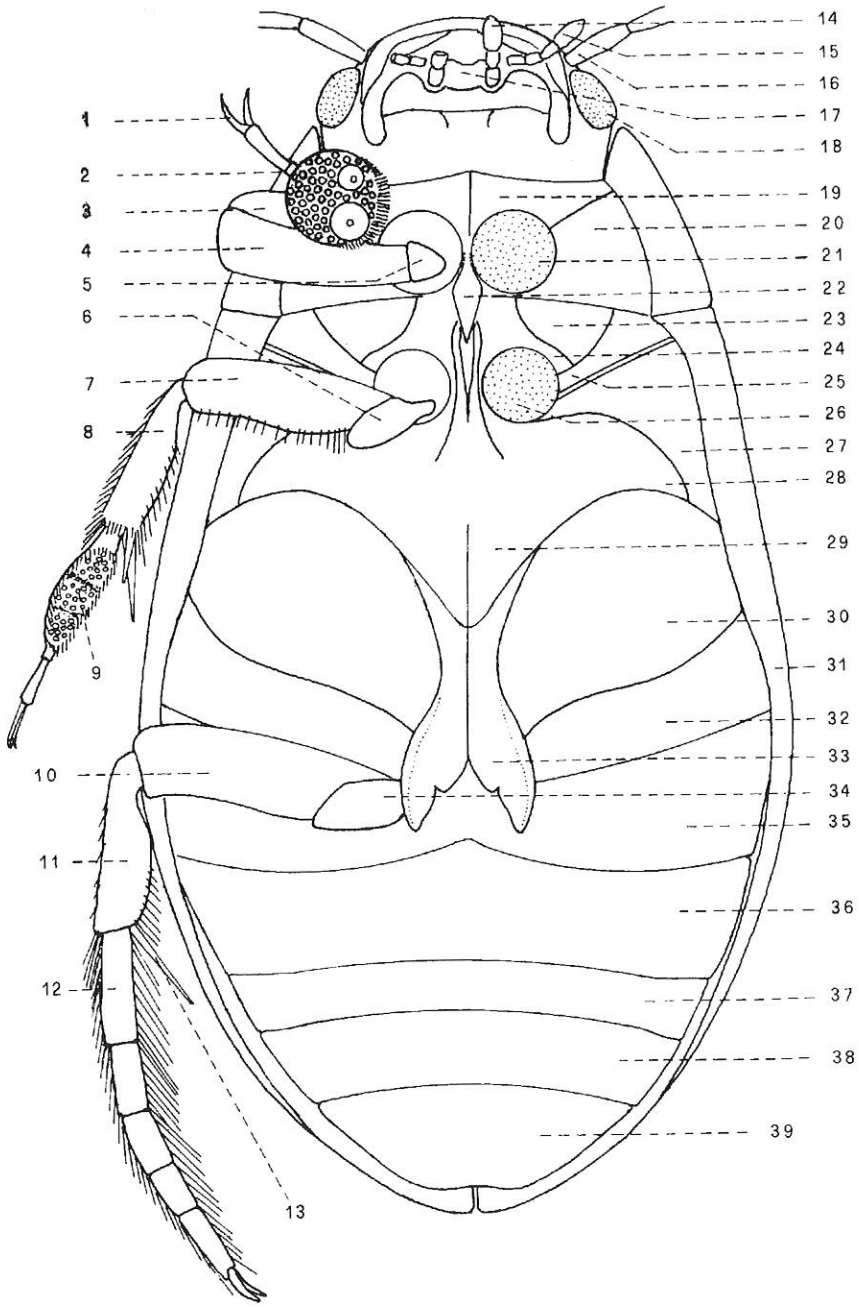
Fig. 2 - Ventral aspect of a male *Dytiscus* sp.
1. Fore claws. 2. Fore tarsi with first 3 segments forming an adhesive plate. 3. Fore tibia. 4. Profemur. 5. Fore trochanter. 6. Middle trochanter. 7. Middle femur. 8. Middle tibia. 9. Middle tarsi with first 3 segments broadened and adhesive. 10. Hind femur. 11. Hind tibia. 12. Hind tarsi. 13. Hind tibial spurs. 14. Labial palp. 15. Maxillary palp. 16. Antenna (basal segment). 17. Labrum. 18. Eye. 19. Prosternum. 20. Episternum of prothorax. 21. Procoxal cavity (dotted area). 22. Prosternal process. 23. Episternum of mesothorax. 24. Mesosternum. 25. Epimeron of mesothorax. 26. Middle coxal cavity (dotted area). 27. Episternum of metathorax or metepisternum. 28. Lateral wing of metasternum. 29. Metasternum. 30. Hind coxa. 31. Epipleuron. 32. First visible sternite. 33. Hind coxal process. 34. Hind trochanter. 35. Second sternite. 36. 3rd sternite. 37. 4th sternite. 38. 5th sternite. 39. Last abdominal segment.
Metepisternum (27) reaching middle coxal cavity (26) is a typical feature of Dytisci Complicati. The thickened fore margin of metepisternum simulates an additional piece.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four segments of hind tarsi produced into apical lobes in their outer half, without swimming hairs at their posterior margins
LACCOPHILINAE (page 42)

– Prosternal process not on a plane with prosternum, but obviously projecting ventrally (in lateral view) and with blunt apex, never trifid. Posterior margins of hind tarsi almost straight, without apical lobes, but provided with swimming hairs
AUBEHYDRINAE (page 44)

6. Eyes emarginate (fig. 6) above bases of antennae, the indentation caused by edges of clypeus. First three segments of fore tarsi of male broadened but not forming adhesive discs, although usually provided with plenty of very small adhesive tubes or setae
COLYMBETINAE (page 44)

– Eyes not emarginate above bases of antennae, their outline fairly round. First three segments of fore tarsi of male strongly modified and expanded into round or transversely-oval adhesive discs
DYTISCINAE (page 56)

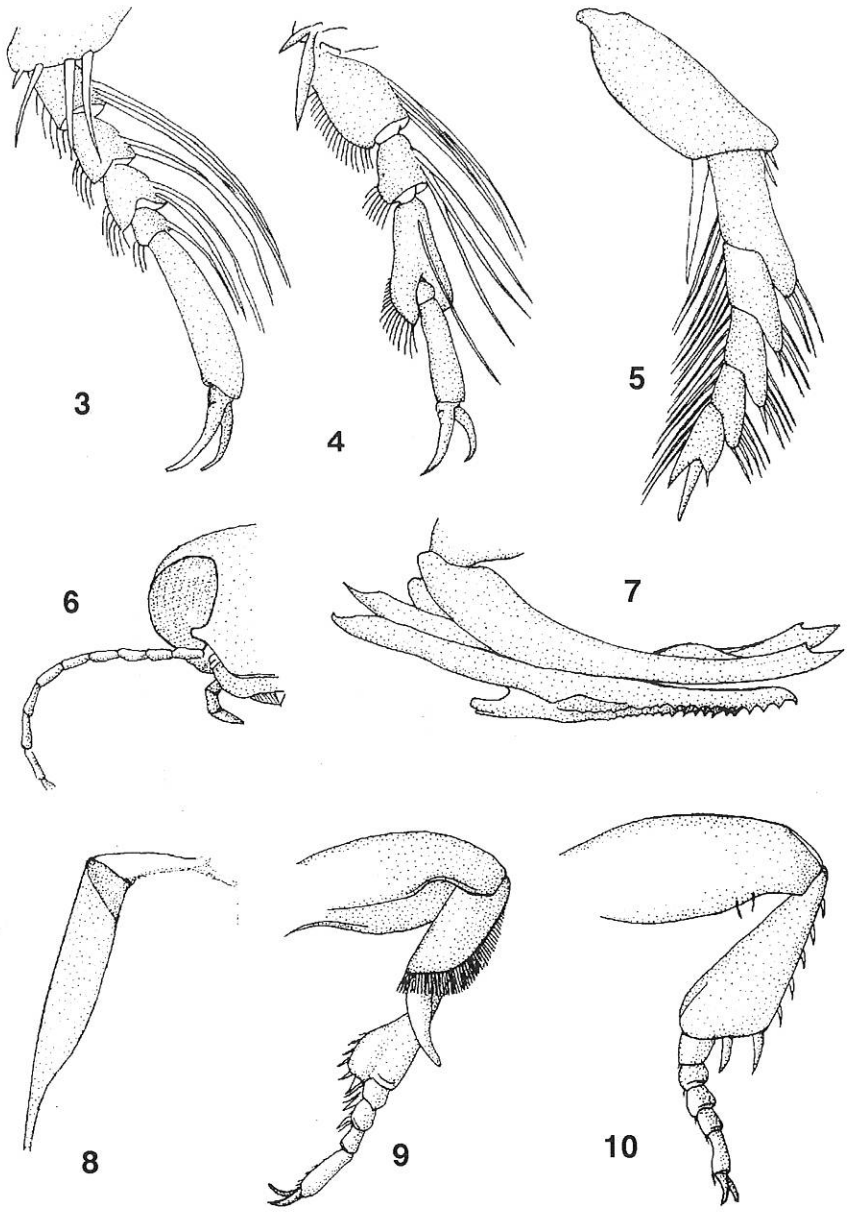
Subfamily **NOTERINAE**

Key to tribes [3]

1. Fore tibia expanded beyond base of tarsi, with a fringe of marginal spines and a strong hooked spur at the outer apical angle (figures 1 and 9) **2**

– Fore tibia not expanded beyond base of tarsi, with a few apical spines and weak apical spurs (fig. 10)
NOTOMICRINI (page 16)

Fig.3 - Fore tarsi of *Bidessonotus* sp. *Fig.4* - Pseudotetramerous fore tarsi of *Hydroporus* sp. *Fig.5* - Hind tarsi of *Laccophilus* sp. with outer apical lobes. *Fig.6* - Anterior aspect of the head of a Colymbetine, showing the indentation of the eye. *Fig.7* - Lateral aspect of the saw-like ovipositor of a Laccophiline. *Fig.8* - Right epipleuron of a *Coelambus* sp. showing the diagonal carina crossing near base; the same structure occurs in other *Hydroporini* and *Bidessini*. *Fig.9* - Fore leg of *Hydrocanthus* sp. with the broad apical spur of protibia. *Fig.10* - Fore leg of *Notomicrus* sp.
(Figures 3 to 6, 9 and 10 drawn from WHITE & al. in MERRITT & CUMMINS, 1984).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2. Body form very broad, almost hemispherical. Apex of elytra slightly produced behind (fig. 11), because of preapical indentations (elytra mucronate). Colour opaque black with irregular, confuse reddish marks. Pronotum never paler than elytra. Posterior margin of hind coxal process almost straight with two symmetric indentations on either side of median line **SUPHISINI** (page 14)

– Body form elongate, not hemispherical, usually narrowed behind. Elytra uniformly black, reddish brown or yellowish brown, either lacking marks or with well delimited yellowish spots, never with confuse reddish markings. Pronotum sometimes paler than elytra. Posterior margin of hind coxal process with one broad indentation medially **3**

3. Inner (posterior) margin of hind femur with a submarginal fringe of short setae (fig. 1), but lacking an isolated group of long setae at the inner apical angle **NOTERINI** (page 14)

– Inner (posterior) margin of hind femur with both a submarginal fringe of short setae and an isolated group of long setae at the apical angle **HYDROCANTHINI** (page 15)

Subfamily **NOTERINAE**

Tribe **SUPHISINI**

This tribe includes one genus. (fig. 11). Neotropical **Suphis**
(= *Colpius* sec. SPANGLER & FOLKERTS, 1973)

Subfamily **NOTERINAE**

Tribe **NOTERINI**

Key to genera [4]

1. Prosternal process trapezoid with hind margin subsinuate. Posterior margin of hind coxal process with some brittle setae **2**

– Prosternal process spatulate with hind margin rounded. Posterior margin of hind coxal process without setae **3**

2. Length less than 4 mm. Neotropical **Siolius**

– Length over 6 mm. African **Renotus**

3. Fore margin of pronotum with a simple and irregular row of punctures not engraved into a stria. African **Synchortus**

– Fore margin of pronotum with a fairly regular row of punctures engraved into a thin submarginal stria, usually interrupted at the middle. Palaearctic **Noterus**

Subfamily **NOTERINAE**

Tribe **HYDROCANTHINI**

Key to genera [5]

1. Prosternal process not broader than long; its apex about 2 to 2.5 times as wide as its breath between anterior coxae. Longer spur of hind tibia not serrulate. Length less than 3.5 mm **2**

– Prosternal process broader than long; its apex very broad, at least 2.5 to 3 times as wide as its breath between anterior coxae. Longer spur of hind tibia serrulate. Length over 3.5 mm. Tropical and subtropical, world-wide **Hydrocanthus**

Key to the subgenera of *Hydrocanthus* [6]

a. Row of punctures at anterior margin of pronotum deeply impressed. African, Oriental and Australian s.gen. **Sternocanthus**

– Row of punctures at anterior margin of pronotum weakly impressed. American **b**

b. Length less than 4.1 mm s.gen. **Guignocanthus**

– Length over 4.1 mm **Hydrocanthus** s.str.

2. Body form broadly oval, apically attenuate. Dorsal surface almost dull. Pronotum with thin lateral borders and short submarginal striae originating at hind angles and disappearing about the middle. Neotropical **Suphisellus**

– Body form oblong, apically attenuate. Dorsal surface shining. Pronotum with broader lateral borders but lacking submarginal striae at hind angles. Tropical and subtropical, world-wide **Canthydrus**

Key to the subgenera of *Canthydrus* [7]

a. Body elongate, almost lacking dorsal microsculpture. Metasterno-metacoxal plates almost inpunctate and smooth. Neotropical s.gen. **Liocanthydrus**

– Body fairly oblong but less elongate, with a weakly impressed dorsal microsculpture. Metasterno-metacoxal plates with setigerous punctures. African, Oriental and South Palaearctic **Canthydrus** s.str.

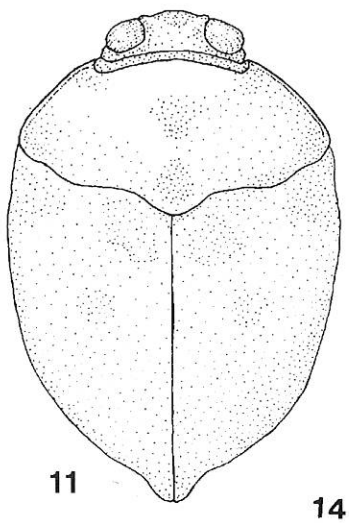
Subfamily **NOTERINAE**

Tribe **NOTOMICRINI**

Key to genera [8]

1. Hind femur with an isolate group of long setae at the inner (posterior) apical angle **2**

Fig.11 - Body outline of *Suphis* sp. showing the mucronate elytral apex. (drawn from WHITE & al. in MERRITT & CUMMINS, 1984). *Fig.12* - Dorsal aspect of *Copelatus* sp. with the elytral striae. Notice scutellum, missing in figures 11 and 13. *Fig.13* - Dorsal aspect of *Bidessus* sp. showing the cervical line between eyes, the latero-basal striae of pronotum and elytra and the sutural striae of elytra. *Fig.14* - Hind femur and trochanter of *Agabus* sp. with the preapical group of setae (drawn from BALFOUR-BROWNE, 1950). *Figures.15 to 22* - Posterior margin of hind coxal process in *Hydroporini*. *Fig.15 - Deronectes latus*. *Fig.16 - Oreodytes meridionalis*. *Fig.17 - Deronectes* (s.l.) *grammicus*. *Fig.18 - Potamonectes* (*Trichonectes*) *griseostriatus*. *Fig.19 - Potamonectes* (s.str.) *cerisyi*. *Fig.20 - Hydroporus* (s.str.) *palustris*. *Fig.21 - Hydroporus* (*Sternoporus*) *regularis*. *Fig.22 - Neoporus vittatipennis*.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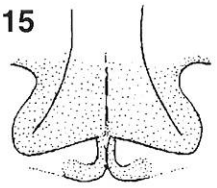
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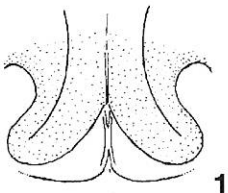
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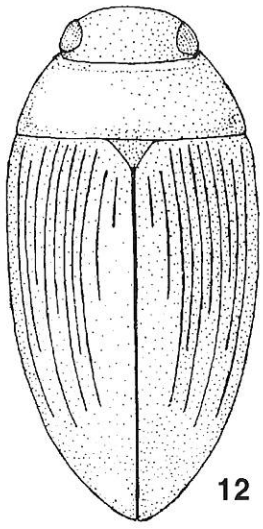
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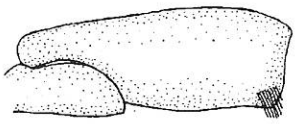
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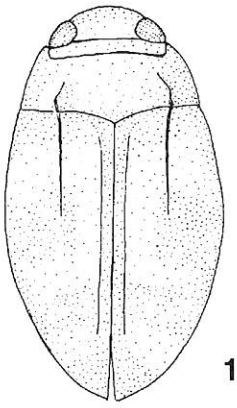
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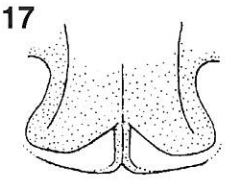
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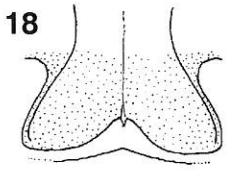
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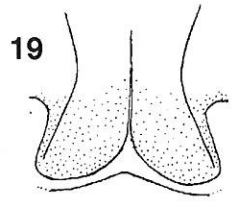
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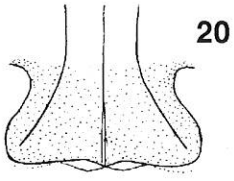
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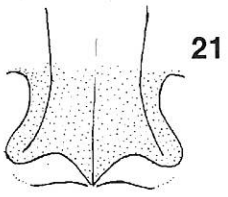
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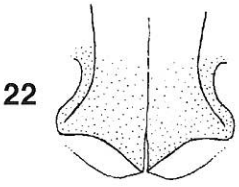
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– Hind femur without an isolate group of long setae at the inner (posterior) apical angle **3**

2. Metasternal plate (medially protruding process of metasternum) broadened in front. Fore tibiae short and stout, with outer apical angle fairly sharp. Neotropical **Pronoterus**

– Metasternal plate narrowed in front. Fore tibiae fairly long and slender, with outer apical angle almost rounded. Neotropical **Mesonoterus**

3. Side margins of metasternal plate not bordered by a lateral ridge. Sutural lines between metasternal and hind coxal plates disappearing at sides. Length less than 2 mm. Neotropical **Notomicrus**

– Side margins of metasternal plate with a lateral ridge. Sutural lines between metasternal and hind coxal plates distinct at sides. Length over 2 mm. African, Oriental and Australian **Hydrocoptus** [9]

(or *Neohydrocoptus* for those students who deem *Hydrocoptus* a junior synonym of *Hydroporus*).

Key to the subgenera of *Hydrocoptus* [10]

a. Hind coxal process with setigerous punctures and sharp apical angles. Oriental s.gen. **Neohydrocoptus**

– Hind coxal process without setigerous punctures and with rounded apical angles **Hydrocoptus** s.str.

Subfamily **METHLINAE** [11]

1. Scutellum entirely hidden by pronotum. African, Oriental and South Palaearctic **Methles**

– Scutellum fully exposed. Holamerican **Celina**

Subfamily **HYDROPORINAE**

Key to tribes

1. Metepisterna not reaching the mesocoxal cavities, excluded by mesepimera. Prosternal process not reaching metasternum but terminating in front of middle coxae, which are contiguous. Body oblong. Legs long and slender **VATELLINI** [12] (page 20)

– Metepisterna reaching the mesocoxal cavities (fig. 2). Apex of prosternal process reaching metasternum between the middle coxae, which are fairly separated, except for *Siettitiini* and the South African genus *Andex* **2**

2. Hind claws obviously unequal, the outer claw inconspicuous or almost invisible. Parameres with a long apical tuft of hairs. Body fairly convex **HYPHYDRINI** (page 21)

– Hind claws almost of equal length. Parameres without long apical hairs, usually with a few short setae apically. (*Lioporeus* has a long tuft of hairs inserted shortly before apex, not apically) **3**

3. Parameres formed by two or three segments **BIDESSINI** in part (page 26)

– Parameres formed by one segment **4**

4. Hind coxal process not in the same plane as abdomen, but protruding like a step, in lateral view **HYDROPORINI** (page 34)

– Hind coxal process in the same plane as the abdominal segments or if not so, linked to abdomen by a slope, without discontinuity or step in lateral view **5**

5. Prosternal process widened posteriorly and fairly broad at apex. Middle coxae widely separated. Apex of hind coxal process very broad, divided into three parts by two lateral indentations forming a wide depressed middle region and two extrarimal (beyond hind coxal lines) lateral lobes which cover in part the bases of trochanteres. Sides of hind tibiae almost straight from near base to apex. Parameres with a hook-like, inward bent apex **HYDROVATINI** (page 25)

– Prosternal process never widened toward apex. Middle coxae relatively approximated. Hind coxal process narrower, its apical margin not divided into three parts by two indentations at each side of midline and not covering the bases of hind trochanteres. Sides of hind tibiae sinuate or arcuate their whole length. Apex of parameres never hook-like bent onto the inner side **6**

6. Eyes reduced or absent. Body testaceous with long sensorial hairs. Wings reduced. Fore and middle coxae enlarged. Prosternal process short, not attaining metasternum. Hind coxal process linked to abdomen without a step-like discontinuity
(A polyphyletic tribe grouping troglobiontic genera from four Continents, which share adaptations to the subterranean habitat)
SIETTITIINI [13] (page 33)

– Eyes usually normal. Body not testaceous with long sensorial hairs. Tribes grouping genera not adapted to the subterranean habitat, as above. (*Terradessus* has reduced eyes but it does not share other characters of *Siettitiini*) **7**

7. Body outline fairly continuous. Pronoto-elytral angle weak. Mid of prosternum not in the same plane as prosternal process. Elytra without longitudinal grooves **BIDESSINI** in part [14] (page 26)

– Body outline discontinuous, strongly narrowed at base of pronotum. Pronoto-elytral angle fairly deep. Middle of prosternum in almost same plane as prosternal process. Each elytron with two wide, shallow longitudinal grooves **CARABHYDRINI** (page 33)

Subfamily **HYDROPORINAE**

Tribe **VATELLINI**

Key to genera [15]

1. Ventral sutures of abdomen deeply incised. Neotropical **Vatellus**

– Ventral sutures of abdomen not very deep, sometimes disappearing at the middle **2**

2. Mesosternum very largely visible. Length 5 to 8 mm. Neotropical **Macrovatellus**

– Mesosternum but little visible. Length less than 5 mm. Tropical, world-wide, mostly African **Derovatellus**

Key to the subgenera of *Derovatellus* [16]

a. Pronotum broadest near base. Lateral borders broad. Colouring uniformly dark brown or black. Spermatheca including a globular piece s.gen. **Varodetellus**

– Pronotum broadest in the middle. Lateral borders narrow. Mostly bicoloured species with head and pronotum lighter than elytra. Spermatheca without globular piece **Derovatellus** s.str.

Subfamily **HYDROPORINAE**

Tribe **HYPHYDRINI**

Key to genera [17]

1. Posterior margins of hind coxae not soldered to the first abdominal segment; their sutural lines distinct. This group of genera is distributed only in the Old World and Australia **2**

– Posterior margins of hind coxae completely soldered to the first abdominal segment; their sutural lines obsolete. This group of genera comprises the American *Hyphydrini*, the African genus *Heterhydrus* and three small hydrovatoid genera from East Asia, less than 2.3 mm long **8**

2. Hind tibia narrowed toward base. Apical segment of fore tarsi about twice as long as 3rd. South African genera **3**

– Hind tibia almost parallel sided. Apical segment of fore tarsi as long as 3rd or slightly shorter **6**

3. Epipleura gradually tapering from base to apex. Anterior margin of clypeus upturned and gently rimmed. Elytra with longitudinal costae **Darwinhydrus**

– Epipleura tapering from base to middle, hence inconspicuous to apex. Anterior margin of clypeus not bordered. Elytra without longitudinal costae **4**

4. Pronoto-elytral angle fairly deep. Prosternal process short, not attaining metasternum (that is an exception in *Hyphydrini*). South African **Andex**

– Pronoto-elytral angle open or indistinct. Prosternal process attaining metasternum between the middle coxae **5**

5. Anterior margin of clypeus rounded. Basal corners of pronotum obtuse and not prominent. South African **Hydropeplus**

– Anterior margin of clypeus truncate. Basal corners of pronotum acute and slightly prominent. South African **Primospes**

6. Fore margin of clypeus not bordered or with an obsolete rim. African and Oriental **7**

– Fore margin of clypeus obviously bordered. Palaearctic, African, Oriental and Australian **Hyphydrus**

Key to the subgenera of *Hyphydrus* [18]

a. Principal spur at apex of hind tibia straight or sinuate, never serrate. African, Oriental and Australian **b**

– Principal spur at apex of hind tibia serrate. Palaearctic, including South China and Tonkin **Hyphydrus** s.str. [19]

b. Clypeal border accompanied by a deep groove behind. African s.gen. **Aulacodytes** [20]

– Anterior margin of clypeus simply bordered; no parallel groove behind the marginal rim **c**

c. Outer face of hind tibia with irregular punctation, not forming a regular row. African s.gen. **Allophydrus** [21]

– Outer face of hind tibia with irregular punctation and a regular

row of setigerous punctures longitudinally at the middle. African, Oriental and Australian s.gen. **Apriophorus**

7. Prosternal process broadly triangular. Length over 3.2 mm. South African **Coelhydrus**

– Prosternal process not broadly triangular (not described in *Hyphovatus*). Length less than 3.2 mm. Very close to *Hyphydrus* **8**

8. Penis stout, with one medial point in dorsal view. Malagasy **Hovahydrus**

– Penis with a deep medial indentation, in dorsal view, and two lateral points, resembling long, irregular horns. Oriental **Hyphovatus**

9. Middle coxae conspicuously separated, by about width of a middle coxa. Prosternal process broad and short, spatulate, with obtuse or rounded hind margin. Body very convex **10**

– Middle coxae more approximate, separated by only one half width of a mid coxa. Prosternal process rhomboidal, about as broad as long, with acute termination, sometimes forked in male. Body either convex or slightly depressed **11**

10. On the undersurface of head the labrum is obviously exserted. African **Heterhydrus**

– Only the anterior border and fringes of labrum visibly exserted on underside of the head. Holamerican, principally Neotropical **Pachydrus**

11. Clypeus anteriorly bordered **12**

– Clypeus not bordered. Although some features link this group of genera to *Hydrovatini* (NILSSON & al., 1989), they are conventionally placed in *Hyphydrini* because of the different length of hind claws **13**

12. Body form almost hemispherical (hydrovatoid). Dorsal surface shining, smooth. Oriental (Sumatra) **Allopachria**

– Body form short ovate, moderately convex or slightly depressed. Dorsal surface more or less reticulate or iridescent. Holamerican **Desmopachria**

Key to the subgenera of *Desmopachria* [22]

a. Long spur of hind tibia stout, distinctly serrate on edges. Body form stout, convex. Length over 2 mm. Neotropical (Argentina to Mexico) s.gen. **Nectoserrula**

– Long spur of hind tibia usually slender, not serrate on edges. Body form variable, convex or flattened. Length 1 to over 3 mm **b**

b. Pronotum with impressed striae or fold-like furrows on either side of base. Body form ovate, somewhat flattened. Dorsum with distinct pattern of dark markings. Length over 2 mm. SW USA, Mexico, Florida s.gen. **Pachriodesma**

– Pronotum without impressed basal striae **c**

c. Elytra with impressed striae on either side of suture, variable in length but usually clearly detectible at middle 1/3 of elytra even if indistinct otherwise. Body form stout, convex. Length 1.6 to 2.8 mm. Neotropical (Brasil to Florida) s.gen. **Pachriostrix**

– Elytra without sutural striae, rarely with a few irregular punctures suggesting striae **d**

d. Elytra and usually head, pronotum and venter with distinctive microsculpture giving an iridescent sheen, or if not so (*Desmopachria minuta*), length less than 1.2 mm **e**

– Microsculpture, if detectible, without an iridescent sheen **f**

e. Dorsal punctation moderate to very coarse. Body form ovate, somewhat flattened. Male prosternal process forked, not reaching mesosternum at middle. Body length usually over 2 mm. Neotropical (Brasil to Trinidad) s.gen. **Pachiridis**

– Dorsal punctures very fine. Body form ovate, convex. Male prosternal process similar to that of female, but male clypeus

protuberant and expanded. Length less than 2 mm. Neotropical (Brasil to Ecuador) s.gen. **Hintonella**
(= *Hintonia* preoccupied)

f. Male prosternal process forked, not reaching mesosternum at middle. Length usually over 2 mm. Neotropical, extending to Western USA s.gen. **Portmannia**

– Prosternal process in male much as in female, the pointed apex reaching mesosternum. Length 1.3 to over 3 mm. Holamerican **Desmopachria** s.str.

13. Prosternal process lanceolate with rounded apex. Outer face of hind tibia with two rows of setigerous punctures. Oriental and SE Palaearctic **Microdytes**

– Prosternal process subdiscoidal, with apex obtuse. One row of setigerous punctures on the outer face of hind tibia. SE Palaearctic (Tibet to Japan) **Nipponhydrus**

Subfamily **HYDROPORINAE**

Tribe **HYDROVATINI**

Key to genera [23]

1. Clypeal margin almost semicircular and broadly bordered. Labrum concealed; only the labial fringe of cilia visible in ventral view. Posterior margin of hind coxal process with indentations fairly broad and shallow. Lateral extrarimal expansions of hind coxal process broad and covering bases of trochanteres. Neotropical **Queda**

– Clypeal margin gently rounded or truncate, with anterior border weak or obsolete. Labrum visible in part in ventral view. Posterior margin of hind coxal process with indentations relatively narrow and deep. Lateral extrarimal expansions of hind coxal process less widened and covering only in part the bases of trochanteres. World-wide **Hydrovatus** [24]
(= *Vathydrus*, debatable subgenus with obsolete clypeal rim)

Subfamily **HYDROPORINAE**

Tribe **BIDESSINI**

Key to genera [25]

1. Head without impressed cervical line **2**

– Head with impressed cervical line (fig. 13) **17**

2. Legs lacking swimming hairs. Not adapted to aquatic life. Living in forest litter **3**

– Aquatic. Legs with swimming hairs **5**

3. Elytra with five longitudinal costae. Pronotum with protruding posterior corners. Eyes absent. Parameres in one segment. Australian (endemic to New Caledonia) **Typhlodessus**

– Elytra without longitudinal costae **4**

4. Eyes not reduced. Parameres two-segmented. Oriental (endemic to India) **Geodessus**

– Eyes reduced. Parameres in one segment. Australian **Terradessus**

5. Pronotum with two latero-basal striae (fig. 13) **6**

– Pronotum without latero-basal striae (or striae obsolete) **15**

6. Epipleuron with a basal cavity in which middle knee can be housed, posteriorly limited by a diagonal carina (fig. 8). Australian **Limbodessus**

– Epipleuron without diagonal carina crossing near base **7**

7. Elytra flattened, with two discal rows of punctures. Australian (endemic to New Zealand) **Huxelhydrus**

– Elytra not depressed or slightly so, lacking two discal rows of punctures **8**

8. Elytra with discal striae, being the prosecution of the latero-basal striae of pronotum. Discal striae of elytra sometimes very short and reduced to small basal pits. Fore and middle tarsi pseudotetramerous (fig. 4), with 4th segment inconspicuous, so that 5th segment appears to be 4th **9**

– Elytra lacking both discal and sutural striae. Fore and middle tarsi with 4th segment small but not concealed between lobes of 3rd (fig. 3) **14**

9. Elytra with sutural striae **10**

– Elytra without sutural striae, or sutural striae reduced to indistinct preapical traces **11**

10. Surface dwelling, not normally confined to caves. Eyes normal. Palaearctic, Oriental and Australian **Guignotus** [26]
(= *Hydroglyphus*)

– Cavernicolous, confined to caves in Venezuela. Eyes reduced. Neotropical **Trogloguignotus**

11. Parameres three-segmented. Discal striae of elytra reduced to basal pits. One African species **Pseuduvarus**

– Parameres two-segmented. Discal striae of elytra not reduced to basal pits (longer than wide) **12**

12. Penis with conspicuous apical processes. Metasternum without rows of punctures parallel to midline. One Neotropical species
Microdessus

– Penis not strongly modified by apical processes. Rows of punctures parallel to midline of metasternum **13**

13. Surface dwelling, not normally confined to subterranean water. Eyes normal. Nearctic and African **Uvarus**

– Eyes reduced. Phreatobiontic. One West African species
Uvarus chappuisi (Peschet) [27]
(questionable taxonomic status: maybe a distinct genus)

14. Latero-basal striae of pronotum connected by a transverse furrow between them. Parameres with one segment. Neotropical **Amarodytes**

– Latero-basal striae of pronotum not connected by a transverse furrow. Parameres two-segmented. Neotropical and Australian **Bidessodes**

Key to the subgenera of *Bidessodes* [28]

a. Males with prosternal process carinate at the base (anterior to procoxae) and with a few apical spines at the fore (basal) end. Last two segments of labial palpi broad and subtriangular. Neotropical s.gen. **Hughbosdinius**

– Males with prosternal process not carinate and without spines at the anterior end. Last two segments of labial palpi slender and regular in outline **b**

b. Hind trochanteres widened and almost square in both sexes. Hind femora fairly broad. Neotropical (Colombia) s.gen. **Youngulus**

– Hind trochanteres and femora not modified as above, although somewhat widened in males. Neotropical and Australian **Bidessodes** s.str.

15. Latero-basal striae of pronotum missing. Parameres with one segment. Hind coxal lines fairly long and parallel, continuing on metasternum as rows of punctures. Colour pattern of elytra fasciate. Pronoto-elytral angle fairly deep. Neotropical **Hydrodessus** (= *Brinckius*)

– Latero-basal striae of pronotum almost obsolete but detectible at least as a few punctures or shallow depressions. Parameres two-segmented. Hind coxal lines slightly divergent anteriorly, not continued on metasternum as rows of punctures. Colour pattern maculate or uniformly black **16**

16. Prosternal process broadly oval. Body form almost laccophiline. Colour pattern maculate. Neotropical **Hypodessus** (= *Brachybidessus*)

– Prosternal process narrow and lanceolate. Body form almost hydroporine. Uniformly black. Neotropical (Venezuela) **Tepuidessus**

17. Prosternal process short and medially deeply grooved, not reaching metasternum between middle coxae. Base of pronotum narrower than base of elytra. Epipleuron without diagonal carina crossing near base. South African **Tyndallhydrus**

– Prosternal process fairly long, reaching metasternum. Base of pronotum almost as broad as base of elytra. Epipleura with or without carinae **18**

18. No striae either on pronotum or elytra. Epipleura with diagonal carina crossing near base. Neotropical **Hemibidessus**

– Pronotum with latero-basal striae **19**

19. Latero-basal striae of pronotum not continued on elytra, the latter lacking either discal striae or carinae, with the exception of *Pachynectes* s.gen. *Yoloides* from Madagascar (which has low and indistinct elytral carinae, formed beside fairly distinct elytral rows of punctures) **20**

– Latero-basal striae of pronotum continued on elytra, either as discal striae (sometimes very short) or discal carinae **24**

20. Epipleuron with basal cavity posteriorly limited by a diagonal carina crossing near base **21**

– Epipleura without basal cavities posteriorly limited by diagonal carinae **23**

21. Anterior margin of clypeus thickened, with minute tubercles. Neotropical, extending to Central America and USA **Brachyvatus**

– Anterior margin of clypeus not thickened and without tubercles; sometimes gently rimmed **22**

22. Metasternum with lateral carinae. Malagasy **Pachynectes**

Key to the subgenera of *Pachynectes* [29]

a. Elytra with indistinct discal carinae formed beside fairly distinct rows of punctures. Metasternum strongly depressed posterior to middle coxae s.gen. **Yoloides**

– Elytra without traces of carinae. Metasternum not depressed posterior to middle coxae **Pachynectes** s.str.

– Metasternum without lateral carinae. Oriental
Hypoclypeus stat.nov. [30]
(= *Hypodytes* preoccupied)

Hypoclypeus, here proposed as a distinct genus, may include also *Clypeodytes* (*Paraclypeus*) *hemani* Vazirani as a monospecific subgenus. In that case one may use the following key to the subgenera of *Hypoclypeus*:

a. Elytra with low submarginal carinae **Hypoclypeus** s.str.

– Elytral carinae inconspicuous or missing. (India)
(s.gen. **Paraclypeus**)

23. Anterior margin of clypeus not bordered. South African
Sharphydrus

– Anterior margin of clypeus bordered, although sometimes very finely so. African **Platydytes** [31]

24. Elytra lacking discal carinae but with distinct discal striae. Epipleura with or without diagonal carinae at the base **25**

– Elytra with discal carinae. Epipleura without diagonal carinae at the base **34**

25. Elytra with submarginal carinae, sometimes splitted into a marginal and a submarginal carina. Epipleura with or without basal diagonal carinae **26**

– Elytra without carinae. Bases of epipleura lacking diagonal carinae **27**

26. Epipleura with basal diagonal carinae. African, Oriental and Australian **Clypeodytes**

– Epipleura without basal diagonal carinae. African **Africodytes**

27. Anterior margin of clypeus bordered **28**

– Anterior margin of clypeus not bordered **29**

28. Metasternum with rows of punctures at midline. Elytral suture not thickened and lacking presutural rows of punctures. African and Oriental **Leiodytes**
(= *Lioclypeus*, unnecessary replacement name) [32]

– Metasternum coarsely punctured but lacking distinct rows of punctures at midline. Elytra with suture thickened and with presutural rows of punctures. Nearctic, extending to Central America **Neoclypeodytes**

29. Penis asymmetric, with laminar apex angulated almost at right angle. Fore and middle tarsi clearly 5 segmented, the 4th small but not concealed by lobes of 3rd. Remarkable sexual dimorphism. Middle tibiae of male arched. Neotropical, extending to Central America and USA **Bidessonotus**

– Penis not angulated at right angle. Fore and middle tarsi pseudotetramerous. Less dimorphic. Middle tibiae of male not distinctly arched **30**

30. Elytra with presutural striae along the whole length or only in the anterior half; this striae sometimes represented by rows of punctures. Palaearctic and African **Bidessus**

– Elytra lacking both presutural striae and presutural rows of punctures **31**

31. Each elytron with an accessory discal row of punctures between basal stria and suture. Neotropical, extending to Central America and USA **Neobidessus**

– Elytron without an accessory row of punctures between basal stria and suture **32**

32. Hind coxal lines short, separated by about their own length and not prolonged forward by rows of punctures. Australian (one species) **Gibbidessus**

– Hind coxal lines longer than distance between them **33**

33. Hind coxal lines prolonged forward by distinct rows of punctures, to metasternum. Australian (one species) **Allodessus**

– Hind coxal lines not prolonged forward by rows of punctures, to metasternum. Nearctic and East Palaearctic **Liodessus**

34. Latero-basal striae of pronotum connected by an inpunctate transverse depression. Elytra with suture not thickened and without presutural striae. Neotropical, extending to Central America and USA **Anodocheilus**

– Latero-basal striae of pronotum not connected by a transverse depression **35**

35. Body fairly globular or subrhomboidal, more convex at the ventral side, with elytral suture somewhat thickened. Discal carinae strong and well defined also at their outer sides. Elytra lacking rows of punctures between carinae and suture. Fore tarsi with 4th segment small, but fairly visible and not fully locked by lobes of 3rd (not pseudotetramerous), with the exception of the *Yola dohrni* group (formerly s.gen. *Yolula*). African and South Palaearctic, extending to India **Yola**

(= *Yolula*, a debatable subgenus)

– Body fairly oblong. Discal carinae low and not well defined at their outer sides. Each elytron with a row of punctures between discal carinae and suture. Fore tarsi pseudotetramerous. African and South Palaearctic (SW Asia) **Yolina**

Subfamily **HYDROPORINAE**

Tribe **CARABHYDRINI**

This tribe includes one genus. Australian **Carabhydrus**

Subfamily **HYDROPORINAE**

Tribe **SIETTITIINI**

Key to genera [33]

1. Pronotum with a longitudinally impressed line or stria on each side. Dorsal aspect of a pale *Graptodytes*. West Palaearctic (France) **Siettitia**

– Pronotum without submarginal impressed lines or striae **2**

2. Length less than 2.6 mm. Australian (New Zealand) **3**

– Length over 2.6 mm. From other Continents **4**

3. Anterior margin of clypeus rounded. Side margins of pronotum bisinuate, basal corners of pronotum acute. Elytra narrowed at base. Sides of elytra fairly curved **Phreatodessus**

– Anterior margin of clypeus subtruncate. Side margins of pronotum evenly arcuate, basal corners of pronotum right. Elytra almost parallel-sided **Kuschelydrus**

4. Length over 3.5 mm. Side margins of pronotum evenly arcuate. Elytra narrowed at base, sides curved. Nearctic (Texas) **Haideoporus**

– Length less than 3.5 mm. Side margins of pronotum sinuate with basal corners acute. Elytra parallel-sided. East Palaearctic (Japan) **Morimotoa**

Subfamily **HYDROPORINAE**

Tribe **HYDROPORINI**

Key to genera [34]

1. Fore and middle tarsi obviously pentamerous, with 4th segment smaller than 3rd but clearly visible and not locked by lobes of 3rd (fig. 3) **2**

– Fore and middle tarsi pseudotetramerous (fig. 4), with 4th segment rudimentary, concealed or locked by apical lobes of 3rd **4**

2. Posterior margin of hind coxal process incised medially. Hind coxal cavities approximated. Length over 4.2 mm. Australian **Necterosoma**

– Posterior margin of hind coxal process more or less prominent at the middle. Hind coxal cavities separated. Length less than 4.5 mm **3**

3. Mesosternum well exposed, almost in the same plane as metasternum. Fore tibiae strongly modified in male, usually also antennae. Australian **Sternopriscus**

– Mesosternum not in the same plane as metasternum, fairly difficult to observe. Fore tibiae and antennae not obviously modified in male. West Palaearctic (Madeira and Canarias) **Hydrotarsus**

4. Pronotum with rudimentary latero-basal striae (like in *Bidessini*). Each elytron with five pairs of longitudinal geminate striae, deeply incised with sharp edges. Length 4.2 to 4.5 mm. Australian **Barretthydrus**

– Pronotum without latero-basal striae. Elytra without deeply incised geminate striae, at most with shallow longitudinal depressions or longitudinal carinae **5**

5. Each epipleuron with a basal cavity, posteriorly limited by a diagonal carina crossing near base (fig. 8) **6**

– Epipleura without diagonal carinae crossing near base **13**

6. Epipleura gradually tapering from base to apex, not abruptly narrowed at the middle. Length over 4 mm. Australian **Chostonectes**

– Epipleura fairly broad at the base, abruptly narrowed at the middle, hence very thin to apex **7**

7. Fore margin of clypeus not bordered or exceptionally with traces of a rim, in a few Nearctic species of *Coelambus* **8**

– Fore margin of clypeus distinctly bordered, but the border is sometimes widely interrupted at the middle in some *Hyphoporus* and in *Herophydrus* s.gen. *Dryephorus* **9**

8. Hind coxal process with outer extrarimal lobes very narrow, not covering bases of trochanteres. Middle region of hind coxal process, between coxal lines, wide and prominent hindward at the middle. Hind coxal cavities widely separated. Inner face of each elytron lacking a preapical costa. Australian **Paroster**

– Hind coxal process with broader extrarimal lobes, covering bases of trochanteres in part. Middle region between hind coxal lines narrower and coxal cavities less widely separated. Inner face of each elytron with a conspicuous preapical costa. Holarctic **Coelambus** [35]

9. Prosternal process triangular, short and broad, tubercolate at base. Elytra slightly mucronate at apex (acutely projecting, like in some *Hydrovatus* sp.). African **Pseudhydrovatus**

– Prosternal process oval elongate; its base simple, not tubercolate. Apex of elytra not mucronate **10**

10. Fore margin of clypeus arcuate at the middle, gently bordered by a continuous rim. Body short and broad. Holarctic **Hygrotus**

– Fore margin of clypeus almost straight or slightly concave, broadly bordered but with border sometimes obsolete at the middle or even limited to traces near eyes **11**

11. Intermediate segments of antennae widened in both sexes; 2nd segment hardly longer than wide. Malagasy **Heroceras**

– Intermediate segments of antennae never widened; 2nd segment two or three times longer than wide **12**

12. Head with evenly distributed punctation. Penis asymmetric, slender and pointed at apex. African (NE African) and South Palaearctic (SW Asiatic) extending to India **Hyphoporus**

– Head with clypeal punctation obsolete. Penis symmetrical and not pointed at apex. African, Oriental and South Palaearctic **Herophydrus**

Key to the subgenera of *Herophydrus* [36]

a. Clypeal border widely interrupted at middle, sometimes reduced to traces near eyes s.gen. **Dryephorus**

– Clypeal border almost continue **Herophydrus** s.str.

13. Epipleura gradually tapering from base to apex, not abruptly narrowed at the middle **14**

– Epipleura broad at base, abruptly narrowed at the middle, hence very thin to apex **17**

14. Abdomen with transverse furrows and foveoles. Elytra with longitudinal carinae. African, extending to Pakistan and India **Peschetius**

– Abdomen without transverse furrows and foveoles. Elytra lacking carinae. Australian **15**

15. Hind tibiae with one row of setigerous punctures, otherwise almost smooth. Ventral side reticulate, usually shining. Fore tarsi of male with two claws **Megaporus** (= *Macroporus* preoccupied)

– Hind tibiae densely punctured. Ventral side microreticulate, dull. Fore tarsi of male with one claw **16**

16. Shoulders of elytra regularly rounded. Segments of fore tarsi with apical lobes fairly equal in size **Antiporus**

– Shoulders of elytra obliquely bent upwards. Inner (anterior) lobes of fore tarsi broader than outer lobes **Tiporus**
(= *Hypodes* preoccupied)

17. Posterior margin of hind coxal process either truncate or angularly prominent medially. (*Hydroporus* sensu lato) **18**

– Posterior margin of hind coxal process deeply emarginate medially. Sometimes bottom of median incision connected to abdomen by a median slope, joining hind coxal level with abdominal level (interlaminar bridge, in ZIMMERMAN, 1982). In that case, the median incision of hind coxal process appears to be splitted into a couple of lateral indentations at either side of the interlaminar bridge **23**

18. Eyes present, normal or reduced. Apex of the prosternal process exposed, ventral to metasternum, usually received into an impression of metasternum **19**

– Eyes absent. Apex of the prosternal process concealed, tucked below the anteromedial projection of metasternum, which lies ventral and rides in the medial groove of the prosternal process. Stygobiontic. Monospecific genus of Western USA **Stygoporus**

19. Metasternum deeply sulcate at midline. Posterior margin of hind coxal process prominent at the middle as a triangle with hollow sides (fig. 22). Elytral colour pattern maculate. Head and pronotum usually lighter than elytra. Nearctic **20**

– Metasternum not sulcate at midline. Posterior margin of hind coxal process either truncate or prominent at the middle **22**

20. Prosternal process not protuberant, in lateral view, in front of procoxae. Male with 4th or 4th and 5th antennal segments enlarged. Basal segment of male protarsus with a ventral cupule of sensillae. Parameres with a long preapical tuft of hairs and a few short apical setae. Length 3.5 to 4.5 mm. Nearctic **Lioporeus**
(= *Falloporus*)

– Prosternal process protuberant, in lateral view, in front of procoxae, except in a few species shorter than 3.3 mm (*Hydroporus vittatipennis* group) and other species longer than 5 mm (*Neoporus*

aulicus group). Male with 4th and 5th antennal segments not enlarged and basal segment of protarsus without a ventral cupule. Parameres lacking a long preapical tuft of hairs **21**

21. Body oblong, narrowed behind. Penis in dorsal view briefly forked at apex **Heterosternuta**
(= *Heterosternus* preoccupied)

– Body usually less narrowed behind. Penis in dorsal view simply pointed at apex **Neoporus**

22. Prosternal process broad, spatulate, slightly convex, without marginal rim, at the base lacking transverse file. Pronoto-elytral angle fairly deep. Length 4.5 to 5.5 mm. Palaearctic **Suphrodytes**

– Prosternal process less broad, subcarinate and usually not bordered. Base of prosternal process usually with a file of transverse rugae. Pronoto-elytral angle weak or negligible **23**

23. Eyes reduced, cavernicolous (Mexico) **Sanfilippodytes**

– Eyes normal, not cavernicolous. Holarctic **Hydroporus**

Key to the subgenera of *Hydroporus* [37]

a. Posterior margin of hind coxal process almost straight or gently bisinuate (fig. 20) **Hydroporus** s.str.

– Posterior margin of hind coxal process projecting hindward as a triangular process **b**

b. Triangular process with straight sides and apical angle obtuse s.gen. **Hydroporidius**

– Triangular process with hollow sides and apical angle right or acute (fig. 21), sometimes joined to abdomen by an exposed interlaminar bridge s.gen. **Sternoporus**
(= *Hydroporinus*)

24. Underside punctured, lacking other microsculpture **25**

– Underside either obviously reticulate or shagreened **26**

25. Scutellum hidden. Elytra without preapical denticles. West Palaearctic **Scarodytes**

– Scutellum usually exposed in part. Each elytron with a preapical denticle. African (Mt. Kilimanjaro) **Nebrioporus** [38]

26. Underside reticulate **27**

– Underside shagreened (alutaceous or granulate), never distinctly reticulate **33**

27. Pronotum and elytra alutaceous. West Palaearctic **Porhydrus**

– Pronotum and elytra reticulate **28**

28. Pronotum with a sublateral, longitudinally impressed stria on each side. (*Graptodytes* sensu lato) **29**

– Pronotum lacking sublateral impressed striae or creases **30**

29. Sublateral striae of pronotum as long as the whole length of pronotum. Penis with hooked apex. Palaearctic (West Mediterranean) **Rhithrodytes**

– Sublateral striae of pronotum fairly short, only present at the middle. Penis not hooked at apex. Western and Central Palaearctic **Graptodytes**

30. Prosternal process slender, long and narrow. Palaearctic (West Mediterranean) **Metaporus**

– Prosternal process stout, short and broad. (This group of genera may be included in a separate tribe, the *Laccornini*) [39] **31**

31. Parameres short and broad. African **Canthyporus**

– Parameres much narrower. Not African **32**

32. Dorsal punctation almost simple. Holarctic **Laccornis** (= *Agaporus*)

– Dorsal punctation obviously double. Neotropical **Laccornellus**

33. Apical segment of labial palpi deeply notched at tip. 4th segment of antennae smaller than adjacent ones. West Palaearctic **Stictonectes**

– Apical segment of labial palpi entire, not notched or emarginate at tip. 4th segment of antennae almost as wide as the adjacent ones. (*Deronectes* sensu lato) **34**

34. Elytral surface reticulate. Pronotum with a longitudinally impressed crease on each side. Holarctic **Oreodytes**

– Elytral surface alutaceous **35**

35. Prosternal process broadly oval, spoon-shaped, rounded at tip, with a weak rim at sides. East Palaearctic **Neonectes**

– Prosternal process lacking a median longitudinal depression and usually pointed at tip **36**

36. Body broad and convex, tapering hindward. Ratio length to width less than 1.77. Prosternal process behind fore coxae fairly round-shaped, flat or slightly concave, with a narrow medial ridge and with a briefly protruding pointed apex. Middle coxae widely separated (more so than in other *Deronectes* sensu lato). Hind coxae markedly corrugate. Hind coxal process with interlaminar bridge sometimes markedly exposed. Nearctic (SW USA and Mexico) **Deronectes** s.l. **roffii** (Clark) and its allied [40] (undescribed new genus)

– Body less broad. Ratio length to width over 1.77 : always so in species sympatric with *Deronectes* s.l. *roffii* and its allied. Prosternal process more or less lanceolate, never round-shaped with protruding pointed apex. Mid coxal cavities less widely separated. Hind coxae usually lacking strong corrugations **37**

37. Posterior margin of hind coxal process with a long interlaminar bridge at midline, apparently splitting the median emargination into lateral indentations at each side. Join of the interlaminar bridge to the abdomen widened into a double hook, separating the coxal cavities **38**

– Posterior margin of hind coxal process deeply emarginate medially, without exposed interlaminar bridge (figures 18 and 19). Hind coxal cavities contiguous. Holarctic and African
Potamonectes [41]

Key to the subgenera of *Potamonectes*

a. Parameres with an irregularly translucid median zone and apparently with a hook-shaped apex, the hook indentation being usually occupied by a membrane (potamonectine parameres). Elytra with or without preapical denticles. Colour pattern maculate or vittate **b**
(*Nebrioporus* in part, sensu NILSSON & ANGUS,1992)

– Parameres not modified as above, without translucid zones and with apex regularly pointed or rounded (hydroporine parameres). Elytra always lacking preapical denticles. Colour pattern of elytra usually vittate. This subgenus comprises all American *Potamonectes* s.l. except the *depressus* group (*depressus-machronychus* complex).
In Palaearctis it is represented by *Dytiscus griseostriatus* De Geer and its allied and by *Potamonectes* (*Trichonectes*) *otini* Guignot, the latter confined to Maroc. Holarctic
s.gen. **Trichonectes** s.l. [42]
(*Stictotarsus* in part, sensu NILSSON & ANGUS,1992)

b. Hind tibia with a row of setigerous punctures, plus other punctures sometimes forming an additional row. In the Old World only s.gen. **Zimmermannius** [43]
(= *Bistictus*)

– Hind tibia with one row of setigerous punctures, otherwise almost inpunctate. Holarctic **Potamonectes** s.str.

38. Punctation of hind tibiae consisting of setigerous punctures. Prosternal process narrow and strongly carinate. Western and Central Palaearctic (fig. 15) **Deronectes**

– Punctation of hind tibiae usually simple, sometimes with a median

row of setigerous punctures. Prosternal process flat or transversely convex but not obviously carinate **39**

39. Prosternal process behind fore coxae broad and flattened, without lateral rim. Pronoto-elytral angle fairly deep. Penis asymmetric. Valvae with a lobe near base (see FRANCISCOLO, 1979: figs. 1269 and 1270). West Palaearctic **Stictotarsus** [44]

– Prosternal process behind fore coxae transversely convex and finely bordered. Pronoto-elytral angle weak. Penis symmetric. Valvae without an additional lobe near base **40**

40. Each elytron with seven deep longitudinal furrows. One West Palaearctic species, endemic to Spain
Deronectes bertrandi Legros [45]
(probable distinct genus that needs a new genus-group name)

– Elytra not furrowed, with regular rows of punctures. A few Nearctic species recognizable by their coarsely punctured tibiae and the exposed interlaminar bridge. Maybe they constitute an undescribed new genus **Deronectes** s.l. **grammicus** Sharp, and its allied [46]

Subfamily **LACCOPHILINAE**

Key to genera [47]

1. Hind tibiae with one apical spur. Antennae widened and flattened in male. Neotropical (Ecuador) **Napodytes**

– Hind tibiae with two apical spurs. Antennae neither widened nor flattened in male **2**

2. Prosternal process three-pointed. Basal corners of pronotum spinose and projecting hindwards. African and Oriental
Neptosternus

– Prosternal process with one point. Basal corners of pronotum never spinose and not projecting **3**

3. Longer spur of hind tibia apically notched or bifid (usually also the shorter one). Cosmopolite **Laccophilus**

– Longer spur of hind tibia simple, apically acute 4

4. Pronotum projecting hindwards in a distinct angle at the middle of the base 5

– Base of pronotum almost straight 9

5. Prosternal process laterally compressed behind procoxae 6

– Prosternal process fairly broad behind procoxae 7

6. Length not exceeding 5 mm. Fore and middle femora and tibiae densely punctured. Prosternal process markedly carinate. South-East Palaearctic (endemic to Tibet) **Laccoporus**

– Length about 5.5 mm. Fore and middle femora as well as tibiae never densely punctured. Prosternal process only slightly carinate. African **Philodytes**

7. Prosternal process heart-shaped behind procoxae, rounded at apex. Oriental (SE Asia) **Laccosternus**

– Prosternal process triangular behind procoxae, pointed at apex, somewhat diamond-shaped 8

8. Body oval. Hind coxal lines not parallel. Neotropical, extending to Central America and Southern USA **Laccodytes**

– Body oblong, narrowed behind. Hind coxal lines fairly parallel. East Palaearctic **Japanolaccophilus**

9. Network of elytral reticulation consisting of longitudinal or broad polygonal meshes. Hind coxal lines almost parallel in front. African **Africophilus**

– Network on elytra consisting of small, transversal meshes. Hind coxal lines slightly diverging anteriorly 10

10. Hind coxal process reticulate with round meshes; its posterior margin bilobed. Australian **Australphilus**

– Hind coxal process reticulate with transversal meshes; its posterior margin not bilobed but fairly rounded. Anomalous distribution (Africa and New Guinea) **Philaccolus**

Key to the subgenera of *Philaccolus* [48]

a. Hind tarsi with outer apical lobes markedly widened. New Guinea s.gen. **Philaccolilus**

– Hind tarsi with outer apical lobes simply widened, like in other *Laccophilinae*. African **Philaccolus** s.str.

Subfamily **AUBEHYDRINAE**

This subfamily includes one genus. Neotropical **Notaticus** (=*Aubehydrus*)

Subfamily **COLYMBETINAE**

Key to tribes [49]

1. Hind femora with a group of more or less dense short setae situated in a linear depression on the ventral side, near the inner (posterior) apical corner (fig. 14) **AGABINI** (page 46)

– Hind femora without a group of setae in a linear depression on the ventral side as above, or with traces of a linear depression or a group of punctures without setae **2**

2. Basal four segments of hind tarsi with apical margin transversely straight or slightly sinuate, never forming a lateral lobe projecting hindwards onto the base of the next segment. Hind claws usually equal in length, except in tribe *Carabdytini* **3**

– Basal four segments of hind tarsi (only two segments in genus *Bunites*) with apical margin markedly sinuate, so that each segment

appears to be prolonged half its width, onto the base of the next segment. Hind claws fairly different in length **8**

3. Second pleurite with transverse rugae (elytron must be lifted up). Hind claws markedly different, outer claw about two third of the inner claw. Tribe comprising one genus from New Guinea **CARABDYTINI n.trib.** [50] (page 52)

– Second pleurite either smooth or with obsolete rugae. Hind claws of equal length **4**

4. Epipleura gradually tapering from base to apex, not abruptly narrowed at the middle **AGABINI** (genus *Platambus*) (page 46)

– Epipleura broad at base, abruptly narrowed at the middle, hence very thin to apex **5**

5. Ovipositor with ventral lobe serrulate (fig. 7), such as in *Laccophilinae*. Body outline continuous. Pronotum laterally not bordered. Elytra with a dense sculpture which consists of many short needle-shaped grooves. The abdominal sternite is traversed its entire length by two parallel grooves which make it almost carinate along the middle. One genus with anomalous distribution: USA and Iran **AGABETINI** [51] (page 52)

– Ovipositor not serrulate **6**

6. Ventral side of hind tibia with two rows of setigerous punctures, otherwise smooth or with a few punctures only. Body outline fairly continuous (fig. 12) **COPELATINI** (page 53)

– Ventral side of hind tibia with dense punctation. Body outline with a deep constriction between pronotum and elytra, forming a marked pronoto-elytral angle **7**

7. Ventral side of hind tibia with rows of setigerous punctures, otherwise covered with simple punctation. Hind femora with traces of a linear depression near inner apical corner, like in *Agabini*, but lacking group of setae. Hind claws slightly different in size, the inner claw shorter. Parameres narrowed at the middle. Tribe from the Southern Hemisphere **ANISOMERIINI** (page 53)

– Ventral side of hind tibiae covered with setigerous punctures. Hind femora without traces of a linear depression near the inner apical corner, but with a group of punctures in the same place. Hind claws of equal length. Parameres tapering to apex without median constriction. Tribe formed by one genus from the Northern Hemisphere **HYDRONEBRIINI** (page 54)

8. Hind tarsi with apical lobes at inner (posterior) corner. Base of prosternal process with a median longitudinal groove. Second pleurite without transverse rugae **MATINI** (page 54)

– Hind tarsi with apical lobes at outer (anterior) corner. Base of prosternal process convex or keeled, without longitudinal groove **9**

9. Palpi markedly modified, with apical segment notched or emarginate at tip. Pronotum narrowly bordered. Second pleurite lacking transverse rugae. Tribe formed by one genus from North America **COPTOTOMINI** [52] (page 54)

– Apical segment of palpi entire, not notched or emarginate at tip **10**

10. Elytral apex truncate. Parameres fairly short, rounded at apex and lacking hairs and setae. Penis asymmetric. Second pleurite lacking transverse rugae. Tribe formed by one genus from South America and Australia **LANCETINI** (page 54)

– Elytral apex conjoinly rounded. Parameres with hairs or setae, usually slender and gradually tapering, never broadly rounded at apex. Penis symmetric. Second pleurite usually corrugate transversely **COLYMBETINI** (page 54)

Subfamily **COLYMBETINAE**

Tribe **AGABINI**

Key to genera [53]

1. Epipleura abruptly narrowed at half their length, hence very thin to apex. Hind femora with a group of setae in a linear depression on the ventral side, near inner (posterior) apical corner **2**

– Epipleura gradually tapering from base to apex. Hind femora usually with a group of setae near apical corner, as above, but sometimes with setae reduced or missing or with a group of punctures taking place of the linear depression (in subgenera *Anagabus* and *Agraphis*). Palaearctic, extending to Northern India **Platambus**

Key to the subgenera of *Platambus* [54]

a. Body outline discontinuous. Pronoto-elytral angle fairly deep. Apex of elytra subtruncate. Central Palaearctic (Middle Asia and Himalaya) s.gen. **Anagabus**

– Body outline continuous. Pronoto-elytral angle open or negligible. Apex of elytra conjoinly rounded **b**

b. Elytra with coarse and deeply impressed punctation, dark unicoloured, without red or yellow pattern. South-East Palaearctic (North India and China) s.gen. **Agraphis**

– Elytra with normal rows of medium sized punctures, otherwise smooth or densely and finely punctured (in *Platambus wittmeri*, *lunulatus*, *angulicollis*, etc.). Colour pattern usually maculate. Palaearctic **Platambus** s.str.

2. Hind coxal lines almost straight, fairly long and deep and parallel. Hind coxal process parallel-sided, lateral margins straight to apex. Posterior border of hind coxal process triangularly produced hindwards. Nearctic **Agabinus**

– Hind coxal lines, if present, anteriorly divergent, not parallel. Hind coxal process not parallel-sided, lateral margins each forming a rounded lobe laterally. Posterior border of hind coxal process never triangularly produced hindwards **3**

3. Labial palpi markedly modified. Nearctic **4**

– Labial palpi not modified (somewhat widened only in the Palaearctic genus *Metronectes*) **5**

4. Labial palpi short and broad; apical segment quadrate. Hind claws of equal length. Nearctic **Hydrotrupes**

– Labial palpi with penultimate segment triangular in cross section, the faces concave and unequal. Hind claws slightly different in length. Nearctic **Carrhydrus**

5. Pronotum without lateral border or with a negligible rim. Neotropical **6**

– Pronotum usually bordered at sides, except in a few Asiatic *Platynectes*, which have an exceedingly thin border **7**

6. Hind coxal lines distinct. Neotropical **Leuronectes**

– Hind coxal lines absent. Neotropical **Agametrus**

7. Hind coxal lines indistinct or absent **8**

– Hind coxal lines distinct, at least behind **9**

8. Antennae and palpi short and stout. Hind coxal lines obsolete (traces may be perceivable). Pronotum lacking anterior submarginal row of punctures. West Palaearctic (endemic to the Tyrrhenian isles) **Metronectes**

– Antennae and palpi normal. Hind coxal lines absent. Pronotum with anterior submarginal row of punctures. Neotropical **Andonectes**

9. The linear depression with a group of setae on the ventral side of hind femur lies shortly before the inner apical corner. Parameres in one segment, lacking an apical lobe except in *Agabus* s.gen. *Eriglenus* **10**

– The linear depression with a group of setae lies at the apical corner. Parameres with an apical lobe. Body flattened. Lateral wings of metasternum narrow and almost parallel. Neotropical, Oriental and Australian **Platynectes**

Key to the subgenera of *Platynectes* [55]

a. Prosternal process narrow and carinate at least in the anterior half. Australian (group I of SHARP, 1882) s.gen. **Carinonectes**

– Prosternal process transversely more or less convex but not carinate **b**

b. Prosternal process with blunt or rounded apex. Parameres strongly bent at middle, fairly half-moon shaped. Neotropical (group III of SHARP, 1882) **Platynectes** s.str.

– Prosternal process sharp at apex. Parameres not strongly bent at middle (group II of SHARP, 1882) **c**

c. Hind coxal lines anteriorly obsolete, not reaching hind margin of metasternum. Penis somewhat asymmetric but with regular outline. Oriental and Australian s.gen. **Gueorguievtes**

– Hind coxal lines entire, reaching hind margin of metasternum. Penis markedly asymmetric, with small spines on the dorsal side and upturned tip. Australian s.gen. **Australonectes**

10. Hind claws of different length, the outer claw shorter. Posterior margins of first four segments of hind tarsi prolonged hindwards with an apical lobe in their outer half, the apical lobe fairly distinct in *Ilybius*, less distinct in *Colymbinectes*. (These two genera are separated sometimes as tribe *Ilybiini*) **11**

– Hind claws of almost equal length, although sometimes of different shape. Posterior margins of first four segments of hind tarsi almost straight or slightly sinuate, not forming a distinct apical lobe in their outer half. Holarctic and African **Agabus**

Key to the subgenera of *Agabus* [56]

a. Inner (posterior) apical corners of hind femora markedly produced in a thin plate. First segment of hind tarsi lacking inferior spines at lower margin. Palaearctic (Iran) s.gen. **Ranagabus**

– Inner apical corners of hind femora regularly rounded, not produced in a thin plate. First segment of hind tarsi with at least one series of small spines at lower margin **b**

b. Elytra with needle-shaped (acicular) sculpture consisting of short longitudinally impressed dashes on the basal half and short transversal dashes on the apical half. East Palaearctic and Nearctic s.gen. **Apator** [57]

– Elytra lacking acicular sculpture and more or less distinctly reticulate **c**

c. Lateral wings of metasternum narrow and subparallel **d**

– Lateral wings of metasternum broadly triangular **f**

d. First segment of hind tarsi more than twice longer than second and twisted. Antennal segments markedly widened (clubbed) in male. Holarctic **Agabus** s.str.

– First segment of hind tarsi twice as long as second, straight. Antennae of male simple or slightly serrate **e**

e. Upper side weakly reticulate. Hind coxal lines fairly long, reaching metasternum. Outer face of hind tibia lacking a row of setigerous punctures at the lower margin. Palaearctic s.gen. **Eriglenus**

– Upper side strongly reticulate. Hind coxal lines obsolete in front, not reaching metasternum. Outer face of hind tibia with a row of setigerous punctures at the lower margin. Nearctic s.gen. **Ilybiosoma**

f. Prosternal process round-shaped and flat. Pronotum heart-shaped, narrow at base, broadest in middle, without oblique impressions in front of basal corners. Pronoto-elytral angle very deep. It looks like a *Nebria* (*Carabidae*). African (Ethiopian) s.gen. **Nebriogabus**

– Prosternal process oval or lanceolate, never flat but either convex or carinate. Pronotum broadest at base or before middle. Pronoto-elytral angle usually weak or negligible, with the exception of some *Dichonectes*, which are easily identified by the oblique impressions in front of the basal corners of pronotum **g**

g. Row of punctures beside fore margin of pronotum interrupted in the middle. Pronotum with oblique impressions in front of basal corners **h**

– Row of punctures beside fore margin of pronotum sometimes less distinct in the middle but never interrupted. Pronotum with-

out oblique impressions in front of basal corners, rarely with shallow, indistinct impressions **i**

h. First two segments of fore and middle tarsi strengthened and felted in males. Palaearctic s.gen. **Dichonectes**

– First three segments of fore and middle tarsi strengthened and felted in males. Nearctic and African (?) (Ethiopian, teste GUIGNOT, 1959 b) s.gen. **Allogabus**

i. Inner elytral row formed by isolated groups of punctures, each group consisting of 5 - 6 small punctures. Hind tarsal segments markedly short and stout; first segment much shorter than apical spur of hind tibia; 2nd to 4th segments hardly longer than wide. Palaearctic and African (Ethiopian) s.gen. **Agabinectes** [58]

– Inner elytral row formed by isolated large punctures. Hind tarsal segments of normal length; first segment longer than apical spur of hind tibia; 2nd to 4th segments almost twice as long as wide **j**

j. Median segments of antennae slightly serrate. Fore tibiae triangularly widened and flattened. Last segment of fore and middle tarsi of the male fairly long and with a denticle on the ventral side. Holarctic s.gen. **Arctodytes**

– Median segments of antennae not serrate. Fore tibiae normal. Last segment of fore and middle tarsi of the male with straight margin on the ventral side **k**

k. Outer face of hind tibia with a scattered punctation consisting of setigerous punctures. Lateral margins of pronotum with a shallow indentation near the anterior corners, especially in the male, so that corners face outwards. First two segments (sometimes also 3rd and 4th) of hind tarsi of the male with a shallow longitudinal depression beside the outer margin. Hind claws slightly different in shape. Holarctic s.gen. **Parasternus**

– Outer face of hind tibia lacking setigerous punctures (except *Agabus tristis*, recognizable by hind femora with dense longitudinal dashes). Anterior corners of pronotum normal. First two

segments of hind tarsi of the male without longitudinal depression. Hind claws fairly alike. Holarctic and African (Ethiopian) s.gen. **Gaurodytes**

11. Prosternal process widely lanceolate. Body flattened, shining. Legs very stout. Hind tarsi widened. South-East Palaearctic (Southern China) **Colymbinectes**

– Prosternal process narrow, almost laterally compressed. Body fairly convex, usually mat. Legs normal. Hind tarsi not markedly widened. Holarctic. **Ilybius**

Key to the subgenera of *Ilybius* [59]

a. Elytra with small punctures at the crossing of the loops. Outer face of hind tibia with the marginal row and a basal goup of large punctures, otherwise smooth. Hind tarsi with outer apical lobes only slightly produced. This subgenus comprises two East Palaearctic species s.gen. **Agabidius**

– Elytra without small punctures at the crossing of the loops. Outer face of hind tibia with scattered punctation. Hind tarsi with outer apical lobes more evidently produced **Ilybius** s. str.

Subfamily **COLYMBETINAE**

Tribe **CARABDYTINI**

This tribe includes one genus from New Guinea **Carabdytes**

Subfamily **COLYMBETINAE**

Tribe **AGABETINI**

This tribe includes one genus. USA and Iran **Agabetes**

Subfamily **COLYMBETINAE**

Tribe **COPELATINI**

Key to genera [60]

1. Hind coxal lines well impressed, anteriorly divergent, nearly touching median line, then turning outward almost at right angle onto hind coxal process **2**

– Hind coxal lines obsolete or absent **3**

2. Pronotum narrowly but clearly bordered laterally. Cosmopolite **Copelatus**

– Pronotum without lateral borders. Neotropical **Agaporomorphus**

3. Hind femora with an apical indentation. Parameres with an apical parallel-sided lobe. Fore tarsi fairly widened in the male and with a dense fringe of cilia marginally. African and Neotropical **Aglymbus**

– Hind femora without an apical indentation. Parameres with an apical pear-shaped lobe. Fore tarsi not markedly widened in the male, and lacking dense fringe of cilia marginally. Oriental **Lacconectus** (= *Paralacconectus*, debatable subgenus) [61]

Subfamily **COLYMBETINAE**

Tribe **ANISOMERIINI**

Key to genera [62]

1. Pronotum with lateral border. Neotropical (Chile and South Pacific) **Anisomeria**

– Pronotum without lateral border. Neotropical (endemic to Tristan da Cunha) **Senilites**

Subfamily **COLYMBETINAE**

Tribe **HYDRONEBRIINI**

This tribe includes one genus. Nearctic **Hydronebrius**

Subfamily **COLYMBETINAE**

Tribe **MATINI**

Key to genera [63]

1. Epipleura in apical half as wide as the base of longer spur of hind tibia. Parameres almost parallel sided with rounded apex. Outer (shorter) hind tarsal claw straight. Nearctic **Matus**

– Epipleura in apical half more than twice as wide as the base of longer spur of hind tibia. Parameres abruptly narrowed near middle. Outer hind tarsal claw curved **2**

2. Elytra not reticulate, but densely and finely punctured. Australian **Batrachomatus**

– Elytra reticulate, lacking dense punctation. Australian **Allomatus**

Subfamily **COLYMBETINAE**

Tribe **COPTOTOMINI**

This tribe includes one genus. Nearctic **Coptotomus**

Subfamily **COLYMBETINAE**

Tribe **LANCETINI**

This tribe includes one genus. Neotropical, Australian and South Pacific **Lancetes**

Subfamily **COLYMBETINAE**

Tribe **COLYMBETINI**

Key to genera [64]

1. Prosternal process flat. Upper side of the body markedly flattened. Side margins of pronotum widely bordered. Nearctic **Hoperius**

– Prosternal process convex to carinate. Upper side more or less convex **2**

2. Metasternum anteriorly lowered, slightly furrowed in front, to receive apex of prosternal process. Elytral sculpture usually consisting of numerous parallel transverse grooves, with the exception of a few Asiatic species. Pronotum lacking lateral borders. Holarctic **Colymbetes**

– Metasternum not or slightly lowered anteriorly, but markedly furrowed longitudinally between middle coxae to match apex of prosternal process. Pronotum either bordered or not. Elytral sculpture never consisting of dense transverse grooves **3**

3. Elytral sculpture consisting of broad, deeply impressed irregular meshes. Fore tibiae emarginate near base at the inner side, particularly so in the male. Pronotum lacking lateral borders. Nearctic **Neoscutopterus**

– Elytral sculpture never consisting of broad, deeply impressed irregular meshes; meshes either small or squamose. Fore tibiae not or slightly emarginate near base at the inner side. Pronotum either bordered or not **4**

4. Last segment of hind tarsi much longer than penultimate. Elytral sculpture consisting of arcuate dashes that shape squamiform meshes. Pronotum lacking lateral borders. Colour black to brown. West Palaearctic **Meladema**

– Last segment of hind tarsi slightly longer than penultimate. Elytral sculpture consisting of small regular meshes. Pronotum usually with lateral borders, although sometimes very thin **5**

5. Body form oblong, with a weak pronoto-elytral angle. Base of pronotum slightly narrower than base of elytra. Only first and second segment of hind tarsi clearly produced into an apical lobe, in the outer half. Colour black. Neotropical **Bunites**

– Body form oval, with a continuous outline. Pronoto-elytral angle negligible. Base of pronotum as wide as base of elytra. First four segments of hind tarsi apically lobate **6**

6. Base of pronotum strongly sinuate, with basal corners acutely projecting hindwards. Colour black. Holarctic **Nartus**

– Base of pronotum not strongly sinuate, with basal corners not acutely projecting hindwards **7**

7. Outer face of hind tibia covered with setigerous punctures. Reddish-black unicoloured. West Palaearctic (endemic to Tyrrhenian countries) **Melanodytes**

– Outer face of hind tibia with rows of setigerous punctures, otherwise almost unpunctured. Usually yellow with dense black speckles on elytra, except a few species from America which are prevalently black or blackish brown, with a light pattern. Cosmopolite **Rhantus**

Subfamily **DYTISCINAE**

Key to tribes [65]

1. Posterior margins of first four segments of hind tarsi transversely with a coarse fringe of flat, adpressed, golden-yellow cilia or setae **2**

– Posterior margins of first four segments of hind tarsi without such fringe or with cilia only in the outer apical angle **4**

2. Prosternal process pointed at the end. Side margins of pronotum bordered. Side margins of elytra on the posterior half serrate with a series of spines **ERETINI** (page 57)

– Prosternal process rounded at posterior tip. Pronotum usually lacking lateral borders. Side margins of elytra not serrate on the posterior half 3

3. Main spur of hind tibia acute. Anterior outer margins of lateral wings of metasternum straight **HYDATICINI** (page 57)

– Main spur of hind tibia bifid. Anterior outer margins of lateral wings of metasternum strongly arcuate **THERMONECTINI** (page 58)

4. Hind tibia more than twice as long as wide; outer apical spur slender, as broad as inner or slightly thicker **DYTISCINI** (page 60)

– Hind tibia almost as long as wide; outer apical spur very thick, almost 2 - 3 times thicker at the base than the inner spur **CYBISTRINI** [66] (page 60)

Subfamily **DYTISCINAE**

Tribe **ERETINI**

This tribe includes one genus. Cosmopolite **Eretes**

Subfamily **DYTISCINAE**

Tribe **HYDATICINI**

Key to genera [67]

1. Hind claws of equal length. Anomalous distribution (SW Asia and Somaliland) **Prodaticus**

– Hind claws of different length; inner claw about twice as long as outer 2

2. Epipleura very wide to apex. Side margins of elytra flattened in the apical half, like in *Dineutus* (*Gyrinidae*). Dorsal surface uniformly black and mat. Oriental **Pleurodytes**

– Epipleura tapering to apex. Elytra not flattened laterally in the apical half. Dorsal surface usually black or brown with yellow pattern. Cosmopolite **Hydaticus**

Key to the subgenera of *Hydaticus* [68]

a. Outer (lower) face of hind tibia with deep oblong punctures on the whole surface, interspersed with small punctures. Hind femora with a dense, double punctation on the ventral side. Holarctic **Hydaticus** s.str.

– Outer face of hind tibia almost lacking small punctures between the deep oblong punctures. Hind femora either with simple, extremely fine punctation, or almost smooth on the ventral side **b**

b. Inner (upper) face of hind tibia with a row of setigerous punctures oblique as to the margins. Upper face of hind femora (facing abdomen) with a double or triple row of setigerous punctures. Cosmopolite (mostly Tropical) s.gen. **Guignotites**

– Inner face of hind tibia with one row of setigerous punctures parallel to the upper margin. Upper face of hind femora with an irregular row of simple punctures at the middle. Neotropical (one species) s.gen. **Hydaticinus**

Subfamily **DYTISCINAE**

Tribe **THERMONECTINI**

Key to genera [69]

1. Hind coxal lines obsolete behind on the coxal process, very thin in front or replaced by rows of punctures **2**

– Hind coxal lines clearly impressed on the coxal process **3**

2. Length less than 11 mm. Mid femora with hind margin provided with hairs as long as about 1/4 the length of a mid femur. African, Oriental and Australian **Rhantaticus**

– Length over 12 mm. Mid femora with hind margin provided with hairs almost as long as one half the length of a mid femur. Oriental and Australian **Sandracottus**

3. Dorsum shining, with very fine punctation, either simple or double. Fore tarsi of male with several large and numerous small suckers of similar structure. Female sometimes with a sexual sculpture not consisting of broad and shallow longitudinal grooves on elytra **4**

– Dorsum fairly mat, with dense double punctation. Fore tarsi of male with one large and 2 small suckers (or 3 suckers of equal size) and a large number of very small adhesive tubes. Elytron of female often with 4 broad longitudinal grooves covered with dense short hairs. Holarctic **Acilius**

Key to the subgenera of *Acilius* [70]

a. Larger punctation of pronotum spaced and not very strong, almost missing on the disc. Secondary (smaller) punctation prevailing. The broader sucker of male is less than twice as wide as the intermediate suckers. Female without elytral grooves. Holarctic (two species) s.gen. **Homoeolytrus**

– Larger punctation of pronotum very strong and dense. The broader sucker of male is up to 4 times as wide as the intermediate sucker. Female with furrowed elytra, except in two species (one from Japan and the other from N.America) **Acilius** s.str.

4. Middle tarsi of male with several small suckers (except in the palaearctic species *Graphoderus austriacus* which has no suckers at mid tarsi). Female sometimes with sexual sculpture on elytra, consisting of coarse broad granulations. Elytra with black and yellow speckles, usually not forming a definite colour pattern. Pronotum usually transversely fasciate. Holarctic **Graphoderus**

– Middle tarsi not modified in the male and lacking suckers. Female with sexual sculpture never consisting of coarse elytral granulations. Elytra with black and yellow speckles, usually forming a definite black and yellow colour pattern (except in a few *Thermonectus* from S.America, which greatly resemble *Graphoderus*) **5**

5. Hind margin of mid femora with series of stiff setae which are as long or longer than the femur is wide. Holamerican **Thermonectus** [71]

– Hind margin of mid femora with series of stiff setae which are only about 1/2 as long as femur is wide. African **6**

6. Outer face of hind tibia smooth and lacking spines. Inner face of hind tibia with an oblique series of bifid spines. This genus looks like *Eretes*. South African **Tikoloshanes**

– Outer face of hind tibia with some spines. Inner face of hind tibia with a series of bifid spines almost parallel to the posterior margin. African **Aethionectes**

Subfamily **DYTISCINAE**

Tribe **DYTISCINI**

Key to genera [72]

1. Clypeo-frontal suture obsolete at the middle. Sides of pronotum bordered. Elytra lacking yellow marginal band. Australian **Hyderodes**

– Clypeo-frontal suture distinct also at the middle. Pronotum not bordered. Elytra with yellow marginal band. Holarctic **Dytiscus**

Subfamily **DYTISCINAE**

Tribe **CYBISTRINI**

Key to genera [73]

1. Hind coxal lines distinct **2**

– Hind coxal lines missing. Hind tarsi with two claws, both in male and in female. Australian **Homoeodytes** [74] (= *Onychohydrus*)

Key to the subgenera of *Homoeodytes* [75]

a. Prosternal process with a deep longitudinal groove at midline of its base. Inner apical angle of hind femora almost right. One species s.gen. **Sternhydrus**

– Prosternal process with a shallow longitudinal depression in its basal part. Inner apical angle of hind femora acute **Homoeodytes** s.str.

2. Prosternum with a deep longitudinal groove at the middle. Anterior margins of hind coxae relatively approximate to mid coxal cavities; their distance is shorter than mid trochanter is long. Australian **Spencerhydrus**

– Prosternum without a longitudinal groove at the middle, but with a shallow longitudinal depression in some *Megadytes*. Anterior margins of hind coxae relatively distant from mid coxal cavities, at least as far from mid coxal cavities as the mid trochanter is long **3**

3. Hind tarsi with two claws in male **4**

– Hind tarsi with one claw in male. Female often with a second rudimentary claw. Cosmopolite **Cybister**

Key to the subgenera of *Cybister* [76]

a. Middle tarsi lacking adhesive sole in the male. Female with a double fringe of swimming hairs, both at the inner and the outer margin of hind tarsi. Palaearctic (two species) s.gen. **Trochalus**

– Middle tarsi with adhesive sole in the male. Female with one fringe of swimming hairs at the inner margin of hind tarsi **b**

b. Side margins of elytra without yellow lateral band. Pronotum either unicoloured or with an indistinct yellow or reddish longitudinal band at sides. Penis tapering to apex. Female sometimes with a second claw at hind tarsi s.gen. **Melanectes**

– Both elytra and pronotum with distinct yellow lateral band. Penis usually widened towards apex. Female usually with two claws at hind tarsi **Cybister** s.str. (= *Meganectes*)

4. Posterior margin of hind coxal process with a fringe of setae. Dorsum light green with scattered black dots. African **Regimbartina**

– Posterior margin of hind coxal process without a fringe of setae. Dorsum olive-green or greenish brown without scattered black dots. American or Australian **5**

5. Last segment of hind tarsi widened at base. Australian (one species) **Austrodytes**

– Last segment of hind tarsi not widened at base. Neotropical, extending to Central America and USA **Megadytes**

Key to the subgenera of *Megadytes* [77]

a. Shorter apical spur of hind tibia bifid or trifid at tip. Hind tarsal claws almost alike in male and female. Length 27 to 47 mm **b**

– Shorter apical spur of hind tibia acutely pointed at tip. Hind tarsal claws alike in male but different in female: inner claw distinctly smaller. Length 16 to 32 mm **c**

b. Shorter apical spur of hind tibia with two points. Very large: 39 to 47 mm s.gen. **Bifurcitus**

– Shorter apical spur of hind tibia with three points. Length 27 to 36 mm s.gen. **Trifurcitus**

c. Broader: 28 to 32 mm. Lateral wings of metasternum fairly short, about as long as one half of metasternum medially. First two segments of middle tarsi with felted soles of small adhesive tubes s.gen. **Paramegadytes**

– Smaller: 16 to 23 mm. Lateral wings of metasternum fairly longer, almost as long as metasternum medially. First three segments of middle tarsi with felted soles of small adhesive tubes **Megadytes** s.str.

NOTES

[1] The monospecific subterranean genus *Phreatodytes* Uéno, 1957 from Japan has some affinities with *Noterinae*, such as the common ventral plate of metasternum and hind coxae, and some characters of the larvae. Nevertheless it cannot be included in *Dytiscidae* sensu lato, because it has no metepisterna and the abdomen has only four visible segments. It is currently assigned to the family *Phreatodytidae*.

[2] The differences between *Noterinae* and other subfamilies of *Dytiscidae* extend far beyond the few characters mentioned in the key. Actually the principal differences concern both the morphology and the biology of the larvae. For instance, the larvae of Noterids feed by means of normal buccal pieces, while the larvae of other Dytiscids have a locked mouth and feed directly from mandibles through mandibular ducts. As a result of the above differences, the North American and North European authors usually keep the family *Noteridae* distinct from *Dytiscidae*. GUIGNOT (1947, page 3) argued in favour of the conservation of one family and since I believe his arguments have not been validly refuted, I continue using *Noterinae*. This is a pointless question.

[3] Key to tribes of *Noterinae* from GUIGNOT (1948), modified.

[4] Key to *Noterini* from GUIGNOT (1959 b) and BALFOUR-BROWNE (1969), modified.

[5] Key to *Hydrocanthini* from ZIMMERMANN (1919), ZIMMERMANN (1921) and GUIGNOT (1959 b).

[6] Key to the subgenera of *Hydrocanthus* from YOUNG (1985).

[7] Key to the subgenera of *Canthydrus* from GUIGNOT (1957).

[8] Key to *Notomicrini* from GUIGNOT (1948). The taxonomic position of *Pronoterus* and *Mesonoterus* is debatable. These two genera are often assigned to *Noterini* because of the submarginal fringe of short setae at the posterior margin of hind femur. The serrulate ovipositor of *Notomicrus* and *Hydrocoptus* is fairly distinctive (BURMEISTER, 1976). I have not seen the ovipositor of *Pronoterus* and *Mesonoterus*. I believe that such structure should be conclusive of their correct taxonomic position.

[9] *Hydrocoptus* Motschulsky, 1859 sensu SHARP (1882, page 834), following the current usage. The name *Hydrocoptus* was first used by MOTSCHULSKY (1853) in a list of species with some *Hydroporus* and no Noterids listed under that genus (NILSSON & al., 1989). For that reason *Hydrocoptus* Motschulsky, 1853 is a junior synonym of *Hydroporus*. Nevertheless the generality of authors, beginning from SHARP (1882), have deemed the catalogue MOTSCHULSKY (1853) not utilizable for the principle of priority, during more than one hundred years. The next paper by the same author (MOTSCHULSKY, 1859) is usually accepted as the valid publication of *Hydrocoptus*. In 1859 the genus included also *Hydrocoptus subvittulus*, later designated as the type species of *Hydrocoptus*.

[10] Key to the subgenera of *Hydrocoptus* from SATÔ (1972).

[11] Key to *Methlinae* from ZIMMERMANN (1919). FRANCISCOLO (1979) argued in favour of separating the subfamily *Celinae* Falkenström, 1938 from *Methlinae*, because of the different structure of the scutellum.

Some authors deem *Methlini* a tribe of *Hydroporinae* (NILSSON & al., 1989).

[12] The structure of the metepisterna was used by SHARP (1882) to subdivide *Dytiscidae* into Dytisci Fragmentati with metepisterna not attaining the middle coxae (*Noterinae*, *Laccophilinae* and tribe *Vatellini* of *Hydroporinae*) and Dytisci Complicati, including all other members of the family. The above subdivision is somewhat obsolete, but the structure of the metepisterna is still a fundamental character of *Vatellini*.

[13] *Siettitiini* Smrz, 1982 is a polyphyletic tribe that was introduced for grouping some subterranean *Hydroporinae* from four Continents, which separately reached convergent morphological adaptations to the phreatic environment. Their ventral structure is modified in such an extent that they cannot be included in either *Bidessini* or *Hydroporini*. Other cavernicolous genera of *Hydroporinae* with reduced eyes have conserved the principal features of *Bidessini* (*Trogloguignotus* and *Uvarus chappuisi*) or *Hydroporini* (*Sanfilippodytes*) and may be keyed in those tribes.

[14] Four genera with parameres in one piece, currently assigned to *Bidessini*, should be separated from *Bidessini* and reclassified (BISTRÖM, 1988). Their best placing is probably in new tribes ranging between *Bidessini* and *Hydroporini*. They all are very rare in collections and unknown to the author. The blind terrestrial genera *Typhlodessus* and *Terradessus*, in particular, have such anomalous characters as to be hardly assigned to *Hydroporinae*. In practice I suggest to maintain these four genera in the tribe *Bidessini* for classificatory purpose only, until their taxonomic position is defined.

[15] Key to *Vatellini* from SHARP (1882).

[16] Key to the subgenera of *Derovatellus* from BISTRÖM (1979).

[17] Key to *Hyphydrini* from various sources, principally GUIGNOT (1959 a) and LEECH & CHANDLER (1956).

[18] Key to the subgenera of *Hyphydrus* from GUIGNOT (1959 a). In his masterly revision of *Hyphydrus*, BISTRÖM (1982) overlooked the previous subdivision into subgenera, but I find that subdivision fairly natural and handy and insist upon its conservation for a better classification of *Hyphydrus*.

[19] *Hyphydrus* s.str. corresponds to the *Hyphydrus ovatus*-group in BISTRÖM (1982).

[20] *Aulacodytes* corresponds to the *Hyphydrus eremita-*, *impressus-* and *conradsi*-groups in BISTRÖM (1982).

[21] *Allophydrus* corresponds to the *Hyphydrus grandis*-group and in part to the *separandus-* and *schoutedeni*-groups in BISTRÖM (1982), the remaining species of these groups being members of the subgenus *Apriophorus*.

[22] Key to the subgenera of *Desmopachria* from YOUNG (1980).

[23] Key to *Hydrovatini* from SHARP (1882).

[24] That is *Hydrovatus* Motschulsky, 1855, following the current usage. This name was first introduced by MOTSCHULSKY (1853) in a list not accepted for the principle of priority by the generality of authors during more than one hundred years. NILSSON & al. (1989) argue in favour of adopting the first date (1853). In that case the only consequence is that a new type species of *Hydrovatus* should be designed. The genus was splitted by Guignot into subgenera: *Vathydrus* with clypeal border, and *Hydrovatus* s.str. without clypeal border. Unfortunately some species have an exceedingly weak clypeal border and cannot be easily assigned to either subgenus. Actually recent authors overlook the subdivision of *Hydrovatus* into subgenera.

[25] Key to *Bidessini* rearranged from BISTRÖM (1988), slightly modified.

[26] BISTRÖM & SILVERBERG (1981) reinstated the "nomen oblitum" *Hydroglyphus* Motschulsky, 1853 although the generality of authors did not accept the names from MOTSCHULSKY (1853) during more than one hundred years. The seven species listed under *Hydroglyphus* were recognized by BISTRÖM & SILVERBERG (1981) as one species of *Liodessus*, two *Guignotus* (including *Dytiscus geminus*) and four unidentified *nomina nuda*. From that mixture of species, *Dytiscus geminus* was chosen as the type species of *Hydroglyphus* and *Guignotus* was put in synonymy. Such a forcing of the I.C.Z.N.

rules resulted in an unnecessary confusion of names, since some authors accepted *Hydroglyphus* Biström & Silverberg, 1981 as the valid name of the genus, while other authors are still using *Guignotus*. I agree with SCHAEFLEIN (1993), who stressed to conserve *Guignotus*.

[27] I believe that the blind subterranean species *Uvarus chappuisi* deserves at least subgeneric status, but I deem it inopportune to assign new genus-group names in this paper.

[28] Key to the subgenera of *Bidessodes* from YOUNG (1986). *Hughbosdinius* and *Youngulus* were described as valid genera but a few years later they were incorporated in *Bidessodes*.

[29] Key to the subgenera of *Pachynectes* from BISTRÖM (1988).

[30] In the revision of *Bidessini*, BISTRÖM (1988) subdivided the formerly genus *Clypeodytes* s.l. (=sensu Guignot) into some genus-group taxa principally on the basis of the following three characters:

A = Transverse carina obliquely crossing near base of epipleura.
B = Discal impressed striae at the base of elytra.
C = Submarginal carinae (simple or double) at sides of elytra.

If value 1 is assigned to the presence of each A-B-C character, and value 0 to the absence, the genus-group taxa derived from *Clypeodytes* s.l. may be tabulated as follows:

	A	B	C
Clypeodytes	1	1	1
Leiodytes	0	1	0
Africodytes	0	1	1
Platydytes	0	0	0 ? see [31]
Hypoclypeus	1	0	1
Paraclypeus	1 ?	0	0 ? see below

Leiodytes and *Platydytes* differ principally in character "B" as well as *Clypeodytes* and *Hypoclypeus*. Since *Leiodytes* and *Platydytes* were given full generic rank, the same should apply to the case of *Clypeodytes* and *Hypoclypeus*, for symmetry. Therefore I propose to treat *Hypoclypeus* as a distinct genus, not a subgenus of *Clypeodytes*.

Little is known on the Indian species *Clypeodytes* (*Paraclypeus*) *hemani* Vazirani. If an oblique carina is present at the base of epipleuron (as in all Oriental *Clypeodytes* s.l.) in that case *Paraclypeus* is either a subgenus of *Hypoclypeus* or a distinct genus depending on whether it has either traces of a submarginal carina on elytron or not. That is an open question.

[31] The type species of *Platydytes* is *Clypeodytes coarctaticollis* Régimbart. GUIGNOT (1959 a) stated that it has a submarginal carina at the side of elytron. BISTRÖM (1988) stated that it has no carina. I studied some specimens and found a weak lateral keel (angulated margin) that can justify both statements.

[32] If *Leiodytes* is a homonym of *Liodytes* (preoccupied), then Guignot is right to propose the substitutive name *Lioclypeus* n.nov. However, as this case of homonymy does not apply to the genus-group names (Art.58 of the I.C.Z.N.), *Lioclypeus* is unnecessary and it is a junior synonym of *Leiodytes*.

[33] Key to *Siettitiini* made using of the original descriptions of the species.

[34] Key to *Hydroporini* from several sources, principally ZIMMERMANN (1919), ZAITZEV (1953), GUIGNOT (1959 b), WATTS (1978) and WOLFE & MATTA (1981). The key to the genera formerly belonging to *Deronectes* s.l. is original but incomplete, due to the presence of some unnamed new genera.

[35] Some characters of *Coelambus* and *Hygrotus* overlap for instance in *Coelambus masculinus* (Crotch) from North America, which has the habitus of *Coelambus* and the clypeal border of *Hygrotus*. The problematic separation of these two genera in North America may be the reason why the American authors usually treat *Coelambus* as a junior synonym of *Hygrotus*, whereas the European authors usually keep these genera distinct.

[36] Key to the subgenera of *Herophydrus* from GUIGNOT (1959 b).

[37] Key to the subgenera of *Hydroporus* from FRANCISCOLO (1979), simplified. Although NILSSON (1989 a) synonymized the subgenera of *Hydroporus*, I keep them distinct, as usual. *Hydroporidius* is poorly characterized indeed, but *Sternoporus* is a very distinctive taxon, both in the metacoxal and the genital structure, as well as in the ecological behaviour.

[38] Although a small tip of the scutellum is usually exposed in *Nebrioporus*, there is no doubt that it is a member of *Hydroporinae*. The only species of this genus is *Nebrioporus kilimandjarensis* Régimbart, endemic to Mt. Kilimanjaro. It developped acute marginal spines, close to the apex of the elytra, like other *Hydroporinae* such as some *Potamonectes*, *Oreodytes* and *Bidessodes*. It shares with *Potamonectes* s.str. the structure of the parameres "du type potamonectien", quoting GUIGNOT (1959 b). However some characters of *Nebrioporus* are so distinctive that I cannot accept merging this genus with *Potamonectes* (in part), as it was recently proposed by NILSSON & ANGUS (1992).

[39] *Laccornini* is a tribe of *Hydroporinae* proposed by WOLFE & ROUGHLEY (1990) for *Laccornis*, *Laccornellus* and *Canthyporus*.

[40] *Deronectes* s.l. *roffii* and some eleven closely related species belong to a new subgenus of *Deronectes* s.l. (or preferably to a new genus of *Hydroporini*) "to be described later", quoting ZIMMERMAN (1982). Unfortunately the announced description of the new taxon is still in print, as far as I know.

[41] The genus *Potamonectes* (sensu Auctorum) includes species with both potamonectine and hydroporine parameres (see description in the key). NILSSON & ANGUS (1992) splitted *Potamonectes* (sensu Auctorum) on the basis of the different structure of the parameres. The species with potamonectine parameres, including the type species of *Potamonectes* (*Dytiscus elegans* Panzer), were transferred to *Nebrioporus* and those with hydroporine parameres were transferred to *Stictotarsus*.

The students who deem *Nebrioporus* and *Stictotarsus* distinct genera and do not accept the above-said reclassification, may conserve the genus *Potamonectes*, however as a result of the phylogenetic analysis they should remove from *Potamonectes* s.str. the species with hydroporine parameres, viz. the *griseostriatus* group. In America *Potamonectes* s.str. includes only the *depressus* group. The species with hydroporine parameres formerly belonging to *Potamonectes* s.str. should be assigned to another genus-group taxon (see below).

[42] The species of *Potamonectes* (sensu Auctorum) with hydroporine parameres should be separated from those with potamonectine parameres. They are fairly homogeneous in habitus and in several other features and form a distinct taxon, at least at the rank of a subgenus of *Potamonectes*. I believe they cannot be transferred to *Stictotarsus*, which is exceedingly different from *Potamonectes*.
Since *Potamonectes (Trichonectes) otini* Guignot was included by NILSSON & ANGUS

(1992) in this group of species, I deem *Trichonectes* Guignot is the only genus-group name available for this taxon. It is given here a wider sense. It comprises besides *Potamonectes otini* also the Holarctic *griseostriatus* group and all Nearctic species of *Potamonectes*, except those belonging to the *depressus* group.

Unfortunately the name *Trichonectes* reminds the hairy dorsal surface of *Potamonectes otini* and may be somewhat misleading.

[43] *Bistictus* and *Zimmermannius* were synonymized by BALFOUR-BROWNE (1944). The inner row of punctures on the posterior tibia of *Bistictus* is often shortened and sometimes irregular. In that case, the punctation of the tibia of *Bistictus* is almost indistinguishable from the random punctation of *Zimmermannius*. I agree of course with that synonymy.

Bistictus was described shortly before *Zimmermannius* and should have priority. BALFOUR-BROWNE (1944) argued in favour of the conservation of *Zimmermannius* instead of *Bistictus*, because the former includes several species and the latter only one.

The separation of *Zimmermannius* from *Potamonectes* s.str. presents some difficulties in case of hind tibiae sparsely punctured or with a few punctures only. BALFOUR-BROWNE (1951) although treating *Zimmermannius* as a distinct genus, remarked this problem.

The presence of preapical teeth on the elytra cannot be an useful character to divide subgenera. Sometimes the teeth become obsolete, as it is the case, for instance, of *Potamonectes fenestratus* and *Potamonectes sardus*. The afore-said character may be helpful only to isolate groups of species. In conclusion I deem *Zimmermannius* poorly characterized and insignificant as a subgenus of *Potamonectes*, nevertheless I keep this subgenus in the key.

[44] In my opinion *Stictotarsus* Zimmermann is a distinctive West Palaearctic genus, containing two species only.

ZIMMERMAN (1982) used the generic name *Stictotarsus* for the American species of *Deronectes* s.l. with hind tibiae densely punctured and exposed interlaminar bridge, namely the *grammicus* group.

NILSSON & ANGUS (1992) used *Stictotarsus* in an even wider sense, ranging from *Stictotarsus* (sensu Auctorum) to *Deronectes bertrandi*, *Potamonectes (Trichonectes) otini*, the *griseostriatus* group and all Nearctic species of *Deronectes* s.l. previously assigned to *Potamonectes*, except the *depressus* group. For that reason one may find in literature plenty of recent combinations with the generic name *Stictotarsus*.

[45] In the description of *Deronectes bertrandi*, LEGROS (1956) wrote: "Je range avec doute et provisoirement cet Insecte ... dans le genre *Deronectes*". In fact it is fairly different from *Deronectes* s.str.. NILSSON & ANGUS (1992) put this species in *Stictotarsus* s.l., but I do not share that opinion. I deem *Deronectes bertrandi* a remarkable Iberian endemism, that deserves generic status.

This matter shall be better investigated later.

[46] *Deronectes grammicus* and *D. titulus* are somewhat intermediate between the s.gen. *Trichonectes* (sensu meo) of *Potamonectes* and *Stictotarsus*. They have densely punctured tibiae and exposed interlaminar bridge at the posterior margin of hind coxae, like *Stictotarsus*, whereas the genital structure and the elytral pattern resemble those of subgenus *Trichonectes*. I wonder whether they belong to a distinct genus. I have not seen the species of this group, but the revision by ZIMMERMAN (1982) provides a lot of magnificent photos and figures.

[47] Key to the genera of *Laccophilinae* from STEINER (1981) and BRANCUCCI (1983).

[48] Key to the subgenera of *Philaccolus* from GUIGNOT (1937).

[49] A key to the tribes of *Colymbetinae* is not available at the moment. The principal taxonomic character used to subdivide *Colymbetinae* into tribes (SHARP, 1882) was the group of setae at the apical corner of hind femur. That character is still valid with some exceptions, since NAKANE (1964) and BRANCUCCI (1988) put together *Anagabus* and *Agraphis* as subgenera of *Platambus*, although they have no preapical group of setae at the apex of hind femur.
ZIMMERMANN (1919) introduced a second taxonomic character into the key to *Colymbetinae*, that is the length of the hind tarsal claws. Unfortunately the hind tarsal claws have sometimes such a slightly different length that one cannot decide whether they are different or nearly alike. Other characters used by successive authors, such as the apical lobes at the posterior margins of hind tarsi and the transverse rugae on the second pleurite are sometimes unreliable as well (BRINCK, 1948) (BALFOUR-BROWNE, 1950).

[50] The statement concerning the length of the hind tarsal claws results from the figure 1 of BALKE & al. (1992). I propose the new tribe *Carabdytini* for *Carabdytes upin*, the remarkable endemism of New Guinea, that was originally placed in the tribe *Colymbetini*. The new tribe is recognizable by the straight posterior margins of hind tarsi and the body form closer to some primitive genera of *Agabini*.

[51] The taxonomic position of *Agabetes* is debatable. The genus was placed in its own tribe *Agabetini* van den Branden, but that tribe was overlooked by all major authors of our century, who accepted *Agabetes* as a member of *Copelatini* (GUEORGUIEV, 1968), until its unusual ovipositor with serrate margin suggested a closer relationship with *Laccophilinae* (BURMEISTER, 1976). The genus was even transferred to *Laccophilinae* (NILSSON, 1989 b) though all other features of *Agabetes* are closer to *Colymbetinae*. For that reason I have reinstated *Agabetini* in the subfamily *Colymbetinae*.

[52] The larvae of *Coptotomini* have distinctive respiratory organs. This tribe probably deserves a higher rank in the classification (BÖVING & CRAIGHEAD, 1931).

[53] Key to *Agabini* from BRINCK (1948) and LEECH & CHANDLER (1956), with some additions and changes.

[54] Key to the subgenera of *Platambus* from BRANCUCCI (1988).

[55] Key to the subgenera of *Platynectes* based on GUEORGUIEV & ROCCHI (1992), with *Carinonectes* reinstated as a subgenus.
Other subgenera usually not accepted are: *Hypoplatynectes*, *Metaplatynectes* and *Notoplatynectes*.

[56] Key to the subgenera of *Agabus* from GUIGNOT (1951) with some additions and changes. Only 12 of the 20 described subgenera of *Agabus* are keyed. Their validity and status are debatable. Some of them should be raised to distinct genera, while other should be put in synonymy, however they are convenient as to classification and are conserved in the key. The following subgenera are omitted: *Acatodes, Allonychus, Asternus, Dichodytes, Mesogabus, Neonecticus, Scytodytes* and *Xanthodytes*.

[57] *Apator* was excluded from the key to the subgenera of *Agabus* by GUIGNOT (1951) because it was considered a distinct genus. On the contrary, LEECH (1942) considered *Apator* a synonym of *Eriglenus*. I deem *Apator* should be provisionally reinstated as a subgenus of *Agabus*.

[58] As a consequence of a misprint, GUIGNOT (1931) published *Gabinectes* instead of *Agabinectes*. The misprint was promptly corrected by GUIGNOT (1932). That is an evident case of incorrect original spelling, since the subgeneric name is clearly derived from the generic name *Agabus*. The emended name *Agabinectes* should take the date of the first publication, that is *Agabinectes* Guignot, 1931.

[59] *Agabidius* was reinstated as a subgenus of *Ilybius* by LARSON (1987, page 407).

[60] Key to *Copelatini* from GUEORGUIEV (1968) with some changes.

[61] Synonymy by BRANCUCCI (1986).

[62] Key to *Anisomeriini* from BRINCK (1948).

[63] Key to *Matini* from MOUCHAMPS (1964) with several changes.

[64] Key to *Colymbetini* from GUIGNOT (1947) and SPANGLER (1972), with some additions and changes.

[65] Key to the tribes of *Dytiscinae* from GUIGNOT (1961).

[66] *Cybistrini* Sharp derives from the genitive of *Cybister*, *Cybistris*. *Cybisterini* Auctorum is an incorrect spelling.

[67] Key to *Hydaticini* from ZIMMERMANN (1919). Notice that *Pleurodytes*, usually accepted as a distinct genus, was regarded as a subgenus of *Hydaticus* by ROUGHLEY & PENGELLY (1981).

[68] Key to the subgenera of *Hydaticus* from GUIGNOT (1950).

[69] Key to *Thermonectini* from ZIMMERMANN (1919), with the addition of the genus *Tikoloshanes* and other minor changes.

[70] Key to the subgenera of *Acilius* from GUIGNOT (1932).

[71] I take for granted the conservation of the name *Thermonectus* (NILSSON & al., 1989).

[72] Key to *Dytiscini* from SHARP (1882) and ZIMMERMANN (1919).

[73] Key to *Cybistrini* from ZIMMERMANN (1919), BRINCK (1945) and WATTS (1978).

[74] *Onychohydrus* was created for *Onychohydrus hookeri* (formerly *Cybister hookeri*) in the catalogue WHITE (1847), without description and comments. The name was forgotten by the generality of authors. RÉGIMBART (1878) described the genus *Homoeodytes* and the successive authors, including SHARP (1882), accepted that name. WILKE (1920) discovered the "nomen oblitum" and stressed its priority. BRINCK (1945) confirmed *Homoeodytes* with the argument that *Onychohydrus* is only a "Katalogname", that is a *nomen nudum*. Other authors continued using *Homoeodytes*, until NILSSON & al. (1989) reinstated the debated "nomen nudum et oblitum". I believe that both names will remain alternatively in use, although I prefer the widely used *Homoeodytes*, that better serves stability.

[75] Key to the subgenera of *Homoeodytes* from BRINCK (1945).

[76] Key to the subgenera of *Cybister* from BRINCK (1945) and GUIGNOT (1961), modified by NILSSON & al. (1989) as follows: *Cybister tripunctatus* is reinstated as the type species of the genus, therefore *Meganectes* becomes a synonym of *Cybister* s.str. The senior subgeneric name available for *Cybister lateralimarginalis* and *C. japonicus* is *Trochalus*, an old name used also as a trivial name many years ago (FIGUIER, 1871). *Melanectes* is conserved. The remaining subgenera introduced by BRINCK (1945): *Megadytoides*, *Gschwendtnerhydrus*, *Alocomerus* and *Nealocomerus*, are principally based on a different coloration and are usually overlooked by recent authors.

[77] Key to the subgenera of *Megadytes* from TREMOUILLES & BACHMANN (1980).

CHECKLIST OF THE GENUS- AND FAMILY- GROUP TAXA OF **DYTISCIDAE** Leach, 1817 (sensu lato)

Arranged in the same order as in the keys

Subfam. **NOTERINAE** Thomson
(Thomson, 1860 Skand.Col. 2: 34)

Tribe **SUPHISINI** Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 267
Suphis Aubé, 1837 Icon.Hist.Nat.Col.Eur. 5: 209

Tribe **NOTERINI** Thomson, 1860 Skand.Col. 2: 34
Siolius Balfour-Browne, 1969 Proc.R.ent.Soc.Lond. 38(1-2): 5
Renotus Guignot, 1936 Bull.Soc.ent.Fr. 41: 10
Synchortus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 264
Noterus Clairville, 1806 Ent.Helvet. 2: 222

Tribe **HYDROCANTHINI** Sharp, 1882 Scient.Trans.R.Dubl.Soc.(2)2: 268
Hydrocanthus Say, 1823 Trans.Amer.Phil.Soc.(n.s.) 2: 105
s.g. **Sternocanthus** Guignot, 1948 Expl.Parc natn.Albert 16: 11
s.g. **Guignocanthus** Young, 1985 Proc.Acad.nat.Sci.Philad. 137: 91
Suphisellus Zimmermann, 1921 Arch.Naturgesch. 87: 187
Canthydrus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 269
s.g. **Liocanthydrus** Guignot, 1957 Rev.fr.Ent. 24: 42

Tribe **NOTOMICRINI** Zimmermann, 1919 Arch.Naturgesch. 83(1917): 111
Pronoterus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 263
Mesonoterus Sharp, 1882 Biol.Centr.-Amer.Col.1, 2: 4
Notomicrus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 260
Hydrocoptus Motschulsky, 1859 Etud.Ent. 8: 43 (sensu Auctorum)
s.g. **Neohydrocoptus** Satô, 1972 Annls Hist.-Nat.Mus.natn.Hung.64:144

Subfam. **METHLINAE** van den Branden
(van den Branden, 1885 Annls Soc.ent.Belg. 29: 65)

Methles Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 489
Celina Aubé, 1837 Icon.Hist.Nat.Col.Eur. 5: 219

Subfam. **HYDROPORINAE** Erichson
(Erichson, 1837 Käf.Mark Brandenb. (1)1: 166)

Tribe **VATELLINI** Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 258
Vatellus Aubé, 1837 Icon.Hist.Nat.Col.Eur. 5: 221
Macrovatellus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 282
Derovatellus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 286
s.g. **Varodetellus** Biström, 1979 Acta ent.fenn. 35: 13

Tribe **HYPHYDRINI** Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 320
Darwinhydrus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 373

Andex Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 371
Hydropeplus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 372
Primospes Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 372
Hyphydrus Illiger, 1802 Magazin Insektenk. 1(3-4): 299
    s.g. **Aulacodytes** Guignot, 1936 Mem.Mus.natn.Hist.nat.Paris 8: 12
    s.g. **Allophydrus** Zimmermann, 1930 Koleopt.Rdsch. 16: 65
    s.g. **Apriophorus** Guignot, 1936 Mem.Mus.natn.Hist.nat.Paris 8: 12
Coelhydrus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 373
Hovahydrus Biström, 1982 Ent.scand. 13: 430
Hyphovatus Wewalka & Biström, 1994 Koleopt.Rundsch. 64: 37
Heterhydrus Fairmaire, 1869 Annls Soc.ent.Fr. (4)9: 186
Pachydrus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 338
Allopachria Zimmermann, 1924 Ent.Mitt. 13: 195
Desmopachria Babington, 1841 Trans.ent.Soc.London 3: 16
    s.g. **Nectoserrula** Guignot, 1949 Bull.Soc.ent.Fr. 54: 152
    s.g. **Pachriodesma** Guignot, 1949 Bull.Soc.ent.Fr. 54: 152
    s.g. **Pachriostrix** Guignot, 1950 Bull.Inst.r.Sci.nat.Belg. 26: 3
    s.g. **Pachiridis** Young, 1980 Rev.Biol.trop. 28(2): 307
    s.g. **Hintonella** Young, 1981 Coleopts Bull. 35: 212
    s.g. **Portmannia** Young, 1980 Rev.Biol.trop. 28(2): 307
Microdytes Balfour-Browne, 1946 J.Bombay nat.Hist.Soc. 46: 106
Nipponhydrus Guignot, 1954 Revue fr.Ent. 21: 196

Tribe **HYDROVATINI** Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 319
Queda Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 336
Hydrovatus Motschulsky, 1855 Etud.ent. 4: 82 (sensu Auctorum)

Tribe **BIDESSINI** Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 320
Thyphlodessus Brancucci, 1985 Mitt.schweiz.ent.Ges. 58: 467
Geodessus Brancucci, 1979 Entomologica basil. 4: 214
Terradessus Watts, 1982 Mem.Qlnd.Mus. 20: 527
Limbodessus Guignot, 1939 Bull.Soc.Etud.Sci.nat.Vaucluse 10: 54
Huxelhydrus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 369
Guignotus Houlbert, 1934 Faun.Ent.Armor. : 53,54
Trogloguignotus Sanfilippo, 1958 Ann.Mus.civ.St.nat.Genova 70: 160
Pseuduvarus Biström, 1988 Acta zool.fenn. 184: 10
Microdessus Young, 1967 Coleopts Bull. 21: 79
Uvarus Guignot, 1939 Bull.Soc.Etud.Sci.nat.Vaucluse 10: 53
Amarodytes Régimbart, 1900 Ann.Mus.civ.St.nat.Genova 20: 524
Bidessodes Régimbart, 1900 Ann.Mus.civ.St.nat.Genova 20: 528
    s.g. **Hughbosdinius** Spangler, 1981 Pan-Pacific Ent. 57: 65
    s.g. **Youngulus** Spangler, 1981 Pan-Pacific Ent. 57: 69
Hydrodessus Balfour-Browne, 1953 Proc.R.ent.Soc.London (B) 22: 55
Hypodessus Guignot, 1939 Bull.Soc.Etud.Sci.nat.Vaucluse 10: 54
Tepuidessus Spangler, 1981 Aquatic Insects 3: 2
Tyndallhydrus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 370
Hemibidessus Zimmermann, 1921 Arch.Naturgesch. 87: 196
Brachyvatus Zimmermann, 1919 Arch.Naturgesch. 83 (1917): 134
Pachynectes Régimbart, 1903 Annls Soc.ent.Fr. 72: 7
    s.g. **Yoloides** Guignot, 1960 Natural.malgache 11 (1959): 97
Hypoclypeus Guignot, 1950 Rev.fr.Ent. 17: 97 **(stat.n.)**
    s.g. (?)**Paraclypeus** Vazirani,1971 J.Bombay nat.Hist.Soc. 68: 481

Sharphydrus Omer-Cooper, 1958 Proc.R.ent.Soc.London (B) 27: 21
Platydytes Biström, 1988 Acta zool.fenn. 184: 24
Clypeodytes Régimbart, 1894 Annls Soc.ent.Fr. 63: 230
Africodytes Biström, 1988 Acta zool.fenn. 184: 32
Leiodytes Guignot, 1936 Mem.Mus.natn.Hist.nat.Paris 8: 20
Neoclypeodytes Young, 1967 Coleopts Bull. 21: 78
Bidessonotus Régimbart, 1895 Annls Soc.ent.Fr. 64: 331
Bidessus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 344
Neobidessus Young, 1967 Coleopts Bull. 21: 79
Gibbidessus Watts, 1978 Aust.J.Zool.Suppl. 57: 51
Allodessus Guignot, 1953 Rev.fr.Ent. 20: 110
Liodessus Guignot, 1939 Bull.Soc.Etud.Sci.nat.Vaucluse 10: 53
Anodocheilus Babington, 1841 Trans.ent.Soc.London 3: 15
Yola Des Gozis, 1886 Recher.esp.typ.anc.Genr. : 8
Yolina Guignot, 1936 Mem.Mus.natn.Hist.nat.Paris 8: 25

Tribe **CARABHYDRINI** Watts, 1978 Aust.J.Zool.Suppl. 57: 16,26
Carabhydrus Watts, 1978 Aust.J.Zool.Suppl. 57: 26

Tribe **SIETTITIINI** Smrz, 1982 Acta Univ.Carol.Biol. 1980 : 289
Siettitia Abeille de Perrin, 1904 Bull.Soc.ent.Fr. : 226
Phreatodessus Ordish, 1976 N.Z.J.Zool. 3: 5
Kuschelydrus Ordish, 1976 N.Z.J.Zool. 3: 6
Haideoporus Young & Longley, 1976 Ann.ent.Soc.Amer. 69: 787
Morimotoa Ueno, 1957 Arch.Hydrobiol. 53: 260

Tribe **HYDROPORINI** Erichson, 1837 Käf.Mark Brandenb. 1(1): 166
Necterosoma Mac Leay, 1873 Trans.ent.Soc.N.S.W. 2: 124
Sternopriscus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 384
Hydrotarsus Falkenström, 1938 Ark.Zool. 30 A(19): 4
Barretthydrus Lea, 1927 Rec.S.Aust.Mus. 3: 279
Chostonectes Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 408
Paroster Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 391
Coelambus Thomson, 1860 Skand.Col. 2: 13
Pseudhydrovatus Peschet, 1924 Bull.Mus.natn.Hist.nat.Paris 30: 140
Hygrotus Stephens, 1828 Ill.Brit.Ent.Mandib. 2: 46
Heroceras Guignot, 1949 Bull.Soc.ent.Fr. 54: 150
Hyphoporus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 390
    s.g. **Dryephorus** Guignot, 1949 Bull.Soc.ent.Fr. 54: 150
Peschetius Guignot, 1935 Rev.fr.Ent. 2: 131
Megaporus Brinck, 1943 K.fysiogr.Saellsk.Lund Förh. 13(13): 4
Antiporus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 410
Tiporus Watts, 1985 Proc.Acad.nat.Sci.Philad. 137: 24
Lioporeus Guignot, 1950 Rev.fr.Ent. 17: 101
Heterosternuta Strand, 1935 Folia zool.hydrobiol. 7: 291
Neoporus Guignot, 1931 Miscnea ent. 33: 46
Stygoporus Larson & LaBonte, 1994 Coleopts.Bull. 48(4): 371
Suphrodytes Des Gozis, 1914 Miscnea ent. 21(1913): 110
Sanfilippodytes Franciscolo, 1979 Fragm.ent. 15: 233
Hydroporus Clairville, 1806 Ent.Helvet. 2: 182
    s.g. **Hydroporidius** Guignot, 1949 Bull.Inst.r.Sci.nat.Belg. 25: 10
    s.g. **Sternoporus** Falkenström, 1930 Zool.Anz. 87: 24

Scarodytes Des Gozis, 1914 Miscnea ent. 21(1913): 110
Nebrioporus Régimbart, 1906 Annls Soc.ent.Fr. 75: 237
Porhydrus Guignot, 1945 Bull.Soc.Etud.Sci.nat.Vaucluse 14 (1943): 6
Rhithrodytes Bameul, 1989 Annls Soc.ent.Fr.(n.s.) 25(4): 481
Graptodytes Seidlitz, 1887 Verh.naturforsch.Ver.Brünn 25: 57
Metaporus Guignot, 1945 Bull.Soc.Etud.Sci.nat.Vaucluse 14 (1943): 6
Canthyporus Zimmermann, 1919 Arch.Naturgesch. 83(1917): 147,160
Laccornis Des Gozis, 1914 Miscnea ent. 21(1913): 111
Laccornellus Roughley & Wolfe, 1987 Can.J.Zool. 65: 1347
Stictonectes Brinck, 1943 K.fysiogr.Saellsk.Lund Förh. 13(13): 6
Oreodytes Seidlitz, 1887 Verh.naturforsch.Ver.Brünn 25: 57
Neonectes Balfour-Browne, 1944 Entomologist 77: 189
Potamonectes Zimmermann, 1921 Ent.Blätt. 17: 87
s.g. **Zimmermannius** Guignot, 1941 Bull.Soc.Sci.nat.Maroc 21: 59
s.g. **Trichonectes** Guignot, 1941 Bull.Soc.Sci.nat.Maroc 21: 58
Deronectes Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 418
Stictotarsus Zimmermann, 1919 Arch.Naturgesch. 83(1917): 184,186

Subfam. **LACCOPHILINAE** Bedel
(Bedel, 1881 Faun.Col.Bass.Seine 1: 230)

Napodytes Steiner, 1981 Pan-Pacific Ent. 57: 251
Neptosternus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 317
Laccophilus Leach, 1815 Edinburgh Encycl. 9: 84
Laccoporus Balfour-Browne, 1939 Ann.Mag.nat.Hist. 11(3): 103
Philodytes Balfour-Browne, 1939 Linn.Soc.J.Zool. 40: 479
Laccosternus Brancucci, 1983 Aquatic Insects 5: 251
Laccodytes Régimbart, 1895 Annls Soc.ent.Fr. 64: 345
Japanolaccophilus Satô, 1972 Annot.Zool.Jap. 45: 57
Africophilus Guignot, 1947 Bull.Soc.ent.Fr. 52: 164
Australphilus Watts, 1978 Aust.J.Zool.Suppl. 57: 13
Philaccolus Guignot, 1937 Bull.Soc.ent.Fr. 42: 138
s.g. **Philaccolilus** Guignot, 1937 Bull.Soc.ent.Fr. 42: 138

Subfam. **AUBEHYDRINAE** Guignot
(Guignot, 1942 Bull.mens.Soc.linn.Lyon 11: 11)

Notaticus Zimmermann, 1928 Wien.ent.Ztg. 44: 182

Subfam. **COLYMBETINAE** Erichson
(Erichson, 1837 Käf.Mark Brandenb. 1(1): 149)

Tribe **AGABINI** Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 491
Platambus Thomson, 1859 Skand.Col. 1: 14
s.g. **Anagabus** Jakowlew, 1897 Abeille 29: 38
s.g. **Agraphis** Guignot, 1954 Rev.fr.Ent. 21: 199
Agabinus Crotch, 1873 Trans.Am.ent.Soc. 4: 397
Hydrotrupes Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 492
Carrhydrus Fall, 1922 Rev.N.Amer.Sp.Agabus : 35

Leuronectes Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 546
Agametrus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 547
Metronectes Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 492
Andonectes Guéorguiev, 1971 Izv.zool.Inst.Sofia 33: 166,174
Platynectes Régimbart, 1878 Annls Soc.ent.Fr. (5)8: 454,462
s.g. **Carinonectes** Vazirani, 1976 Rec.zool.Surv.India 71: 171
s.g. **Gueorguievtes** Vazirani, 1976 Rec.zool.Surv.India 71: 170
s.g. **Australonectes** Guéorguiev, 1972 Izv.zool.Inst.Sofia 34: 34,55
Agabus Leach, 1817 Zool.Misc. 3: 69,72
s.g. **Ranagabus** Balfour-Browne, 1939 Ann.Mag.nat.Hist. (11)3: 106
s.g. **Apator** Semenov, 1899 Horae Soc.ent.Ross. 32: 512
s.g. **Eriglenus** Thomson, 1859 Skand.Col. 1: 14
s.g. **Ilybiosoma** Crotch, 1873 Trans.Am.ent.Soc. 4: 413
s.g. **Nebriogabus** Guignot, 1936 Bull.Soc.ent.Fr. 41: 187
s.g. **Dichonectes** Guignot, 1945 Bull.Soc.ent.Fr. 50: 21
s.g. **Allogabus** Guignot, 1951 Bull.mens.Soc.linn.Lyon 20: 84
s.g. **Agabinectes** Guignot, 1931 Bull.Soc.ent.Fr. 36: 202
s.g. **Arctodytes** Thomson, 1874 Opusc.ent. 6: 541
s.g. **Parasternus** Guignot, 1936 Bull.Soc.ent.Fr. 41: 187
s.g. **Gaurodytes** Thomson, 1859 Skand.Col. 1: 14
Colymbinectes Falkenström, 1936 Lingnan Sci.J. 15: 97
Ilybius Erichson, 1832 Gen.Dyt.: 18,34
s.g. **Agabidius** Seidlitz, 1887 Verh.naturforsch.Ver.Brünn 25: 97,98

Tribus **CARABDYTINI (nova tribus)**
Carabdytes Balke, Hendrich & Wewalka, 1992 Ent.Ztg. 102(6): 93

Tribe **AGABETINI** van den Branden, 1885 Annls Soc.ent.Belg. 29: 87
Agabetes Crotch, 1873 Trans.Am.ent.Soc. 4: 398,401

Tribe **COPELATINI** van den Branden, 1885 Annls Soc.ent.Belg. 29: 82
Copelatus Erichson, 1832 Gen.Dyt. : 18,38
Agaporomorphus Zimmermann, 1921 Arch.Naturgesch. 87: 202
Aglymbus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 596
Lacconectus Motschulsky, 1855 Etud.Ent. 4: 83

Tribe **ANISOMERIINI** Brinck,1948 Res.Norw.sci.Exp.Tr.da Cunha17: 112
Anisomeria Brinck, 1943 K.fysiogr.Saellsk.Lund Förh. 13(13): 7
Senilites Brinck, 1948 Res.Norw.sci.Exp.Tr.da Cunha 17: 16

Tribe **HYDRONEBRIINI** Guignot, 1948 Bull.mens.Soc.linn.Lyon 17: 168
Hydronebrius Jakowlew, 1897 Abeille 29: 37

Tribe **MATINI** van den Branden, 1885 Annls Soc.ent.Belg. 29: 88
Matus Aubé, 1837 Icon.Hist.nat.Col.Eur. 5(1836): 189
Batrachomatus Clark, 1863 J.Ent. 2(7): 15
Allomatus Mouchamps, 1964 Bull.Soc.ent.Fr. 69: 137,140

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s.g. **Hydaticinus** Guignot, 1950 Rev.fr.Ent. 17: 104

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Rhantaticus Sharp, 1882 Scient.Trans.R.Dubl.Soc. (2)2: 691
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ALPHABETIC INDEX OF THE GENUS AND FAMILY-GROUP NAMES

Names in *Italics* are treated as synonyms

SUMMARY - PEDERZANI F., 1995 - *Keys to the identification of the genera and subgenera of adult* Dytiscidae *(sensu lato) of the world.*

The taxonomic literature on *Dytiscidae* (sensu lato), including Noterids as *Noterinae*, was investigated to find suitable keys to the identification of the subfamilies, tribes, genera and subgenera of the world fauna. The keys found in literature are assembled, with some additions and changes. The nomenclature adopted in the keys follows the recent review of the family- and genus-group names (NILSSON & al. 1989) with a few exceptions: the *nomina oblita* reinstated from catalogues WHITE (1847) and MOTSCHULSKY (1853) are not used in the keys. Those names have not been validated for the principle of priority during more than one century, beginnings from SHARP (1882) or before, and are likely to add confusion to the nomenclature of *Dytiscidae*; therefore the generic names *Hydrocoptus* Motschulsky and *Homoeodytes* Régimbart are conserved and *Guignotus* Houlbert is preferred to *Hydroglyphus* Motschulsky (sensu Biström and Silverberg).

For reasons of taxonomic symmetry *Hypoclypeus* Guignot **(n.stat.)** is raised to full generic rank and the genus *Carabdytes* Balke & al. is placed in a new tribe, the *Carabdytini* **(nova tribus)**.

The phylogenetic reclassification of *Deronectes* (s.l.) (NILSSON & ANGUS, 1992) is followed only in part. *Potamonectes* is restored as a distinct genus, while *Nebrioporus* and *Stictotarsus* are given their original limits. As a result of the phylogenetic analysis, the *griseostriatus* group of *Potamonectes*, with hydroporine parameres, is removed from the nominal subgenus *Potamonectes* s.str. (with potamonectine parameres) and put together with *Potamonectes* (*Trichonectes*) *otini* and most of the Nearctic *Potamonectes*, except the *depressus* group. Therefore the subgenus *Trichonectes* is given a wider sense. It comprises all *Potamonectes* with hydroporine parameres.

Deronectes (s.l.) *roffii* (Clark) and *Deronectes* (s.l.) *grammicus* Sharp and their allied are treated as members of two distinct unnamed genera. Neither of them is described in this paper: the former because its description was announced early by ZIMMERMAN (1982), the latter because the author has no materials at his disposal.

It is pointed out that both *Uvarus chappuisi* (Peschet) and *Deronectes bertrandi* Legros are badly placed in their present genera and should be assigned to distinct, genus-group taxa. Their descriptions and naming exceed the limits of this paper.

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