

A guide to the Freshwater Fauna of Ceylon

Supplement 1

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Introduction

This is the first of what is hoped will be a series consequent to "A guide to the freshwater fauna of Ceylon" by A. S. Mendis and C. H. Fernando, Bull. Fish. Res. Stn. Ceylon No. 12, 160 pp. (1962). The purpose of this series is to make the above-mentioned work more comprehensive. As additional work is done on the fauna it will be necessary to make additions or deletions and also bring the nomenclature up to date. Where past work comes to notice alterations may become necessary. It is also hoped that gradually keys will become available for the identification of local species. Wherever possible notes on the biology of individual species or groups will be given.

The general format will be maintained as far as possible. Additional references to the fauna will be included even when not specifically dealt with in the supplement. The present supplement is restricted to the Arthropoda.

Class—CRUSTACEA

Sub-class—Cladocera

Ceriodaphnia rigaudi Richard

Oxyurella sinhalensis (Daday)

Delete *Alonopsis orientalis*. *Ceriodaphnia cornuta* = *C. rigaudi* and *Alonopsis sinhalensis* = *Oxyurella sinhalensis*.

A useful popular account and a generic key to the local forms is given by Johnson (1962).

Family—Atyidae

Atya spinipes Newport

Caridina gracilirostris de Man

Caridina nilotica var *zeylanica* Arud. and Costa

Delete *Atya typus* Milne Edwards. This is an unfortunate error; no such species exists even synonymy.

Class—INSECTA

Family Gerridae

Cryptobates raja (Dist.)

Family—Notonectidae

Anisops exigera Horv.

Anisops occipitalis Breddin

Delete *Anisops crinita* which is a misidentification of *A. exigera*

Family—Corixidae

Micronecta ludibunda Breddin*Micronecta prashadana* Hutch.*Micronecta punctinotum* Chen*Micronecta siva* (Kirk.)*Tropocorixa pruthiana* Hitch.

Micronecta ludibunda has been referred to as *M. albifrons* Motsch. However *Microrecta albifrons* has been described from Ceylon and is probably *M. fascioclavus* Chen. In addition the status of a closely related species *M. thelxinoe* Kirk. described from Ceylon has not been authenticated. It is also possible that *M. albifrons* is a good species.

Delete *Sigara substriata* which is a very doubtful record.

Family—Veliidae

Microvelia douglasi Scott

Coleoptera

Only the Gyrinidae, Haliplidae, Hydrophilidae, Dytiscidae and Noteridae have been dealt with so far. In this supplement the Noteridae are included in the Dytiscidae. The Hydrophilidae are subdivided into the Hydrophilidae and Hydraenidae and five new families are included namely, Psephenidae, Donaciidae, Helodidae, Dryopidae and Elmidae (Helmidae). Mention is also made of two other families whose members occur in aquatic habitats. They are the Ptilodactylidae and Curculionidae. Keys are provided for the separation of the aquatic species to family level. The records available are meagre and it is likely that even the genera have not been fully recorded. The Oriental fauna of the less common aquatic Coleoptera is poorly known as a whole and the keys given are therefore necessarily very tentative. It is hoped however that together with the illustrations they will prove a useful guide. The classification of many of the families is still very controversial. I have followed Pennak (1953) and the keys are modified from this publication. Illustrations include the larval forms of two common hydrophilids and of *Dineutes indicus* Aube in addition to the members of families specifically dealt with in the present work.

Family—Donaciidae

Only a few members of the large terrestrial group the chrysomelids are represented in aquatic habitats. They belong to the family Donaciidae and in Ceylon are represented by a single genus *Donacia*. The adults are characterised by the four segmented tarsi of which the third is deeply bilobed. They also have brilliant colours as is usual in the chrysomelids. The larvae are bottom dwellers and are somewhat atypical for coleopteran larvae. They have a reduced head and inconspicuous mandibles. At the posterior end are a pair of spines which are used to pierce the stems and roots of aquatic plants for obtaining air.

Two species have been recorded from Ceylon—

Donacia delesserti Guerin*Donacia javana* Weidemann

Family—Dryopidae

The adults are characterised by the antennae which form a pectinate club. The larvae are usually flattened and superficially resemble those of Psephenidae but the margins are not smooth as in the latter.

Only one species namely *Pachyparnus erichsoni* Champ. has so far been recorded from Ceylon. The genus *Helichus* occurs in India and Indonesia and very probably in Ceylon too.

Family—Psephenidae

Although no published records are available of their occurrence, they probably do. A common genus in the Indo-Malayan region is *Eubrianax* which is very common in Malaya and has been recorded in India.

The adults vary somewhat in size but are usually small and blackish in colour with depressed bodies. They are found in torrential streams creeping along the bottom. They are characterised by the great elongation of the last tarsal segment. In *Eubrianax* the antennae are short and stout. The larvae are easily recognised. They are referred to as "water pennies" and are flattened, oval and have a smooth outline. The dorsal surface is smooth but the segmentation is distinct. They adhere strongly to stones on the bottom and considerable force is necessary to release them. The ventral surface bears four tufts of gills in *Eubrianax*.

Family—Helodidae

This family includes a large number of species living close to the water as adults and in water in the larval stages. The adults have five segmental tarsi. The fourth segment is bilobed. A common form is *Scirtes* which is somewhat atypical of this group and has its hind legs modified for jumping with greatly expanded femur. They are usually dull coloured with filiform antennae and small head.

Fifteen species are on record from Ceylon—

- Cyphon affinis* Motsch.
- Cyphon flavescens* Motsch.
- Cyphon infuscatus* Motsch.
- Cyphon ovalis* Motsch.
- Cyphon pictus* Motsch.
- Cyphon rufithorax* Gemm.
- Hydrocyphon atratus* Motsch.
- Ora picta* F.
- Mescirtes gagantinus* Motsch.
- Parelodes mollis* Rettenb.
- Scirtes axillaris* Motsch.
- Scirtes canescens* Motsch.
- Scirtes convernisculus* Motsch.
- Scirtes grandis* Motsch.
- Scirtes nigropunctatus* Motsch.

Ptilodactyla humaralis Motsch. (Ptilodactylidae) recorded from Ceylon is sometimes included in the Helodidae. The Ptilodactylidae are a tropical family the larvae of which are sometimes aquatic. The adults have enlarged eyes and flabellate antennae with mid coxae closely approximated. The larvae are elaterid in form.

Note :—Members of the Curculiodidae (Weevils) also occur in aquatic habitats in Ceylon. They are easily recognised by the prominent "snout" bearing the antennae and terminally the mouthparts.

Family—Elmidae (Helmidae)

Small beetles with filiform antennae. In some forms the terminal portion of the antenna is expanded but never pectinate. The tarsal claws are prominent. Some species have patches of dense hairs or scale-like structures on the body. They can be separated from the Dryopidae by the antennae and from the Psephenidae (*Eubrianax*) by the lack of projecting fore coxae. The larvae are variable in form and are difficult to separate from the Dryopidae except on detailed morphological features.

Three species have been recorded from Ceylon—

Ancyronyx quadriplagiatus Motsch.

*Helmis** *foveicollis* Grouv.

Stenelmis ceylonica Motsch.

Family—Hydraenidae†

This family is sometime included with the Hydrophilidae but both larvae and adults are characteristic. The adults are usually small and flattened dorsoventrally. The antennae are clubbed. The club consisting of five distinct pubescent segments. In the hydrophilids there are never five pubescent segments in the club. The larvae are generally more streamlined than those of the Hydrophilidae. They have nine complete segments and a small and indistinct tenth. In the Hydrophilidae there are eight complete abdominal segments.

They occur in a wide range of habitats including streams and paddy fields.

Two genera are known from Ceylon and two species have so far been recorded.—

Hydraena fontana Orch.

Limnebius rufipennis Reg.

KEY TO THE ADULTS OF CEYLONESE AQUATIC
COLEOPTERA (FAMILIES)

1. Eyes completely divided into two. Surface swimmers	GYRINIDAE
Eyes not divided : Live in the water or damp places	2
2. Hind coxae forming large plates	HALIPLIDAE
Hind coxae not thus modified	3
3. Hind tarsi 4 segmented, third segment broadly bilobed	DONACIIDAE
	<i>Donacia</i>
Hind tarsi usually of more than 4 segments, third segment not broadly bilobed	4
4. (3) Antennae clubbed	5
Antennae not clubbed	7
5. Antennae with pectinate club	DRYOPIDAE
Antennae club of distinct separate segments	6
6. Antennal club of five pubescent segments	HYDRAENIDAE
Antennal club of less than five pubescent distinct segments	HYDROPHILIDAE

* The genus *Helmis* is supposed to be an European genus Pennak (1953).

† Included under the Hydrophilidae in the previous work. Bull. Fish. Res. Stn., Ceylon. No. 12, p. 92.

7. Fourth tarsal segment bilobed	HELODIDAE
Fourth tarsal segment not bilobed	
8. Hind legs flattened for swimming.....	DYTISCIDAE
Hind legs not thus modified	9
9. Fore coxae projecting	PSEPHENIDAE (<i>Eubrianax</i>)
Fore coxae not projecting	ELMIDAE

KEY TO THE LARVAE OF CEYLONESE AQUATIC
COLEOPTERA (FAMILIES)

1. Legs six segmented. Tarsus distinct with one or two claws	2
Legs five segmented with tarsus and claw fused or less than five segmented or vestigial	4
2. Tenth abdominal segment with four apical hooks	GYRINIDAE
No apical hooks on tenth abdominal segment	3
3. Ninth abdominal segment present	HALIPLIDAE
Ninth abdominal segment rudimentary or absent	DYTISCIDAE
4. Body flattened with smooth outline	PSEPHENIDAE
Body shape otherwise	5
5. Antennae longer than thorax	HELODIDAE
Antennae shorter than thorax	6
6. Mandibles short and inconspicuous	DONACIIDAE
Mandibles prominent	7
7. Ninth abdominal sternite with operculum covering terminal cloacal chamber and retractile gills	DRYOPIDAE, ELMIDAE
Ninth abdominal sternite simple	8
8. Nine complete abdominal segments and tenth present though sometimes indistinct	HYDRAENIDAE
Only eight complete abdominal segments	HYDROPHILIDAE

Class—ARACHNIDA

Order **Hydracarina** (Water mites)

Considerable changes in nomenclature of this group which the authors were not aware of has necessitated a revised list of names. Only two species have been added however to the list already given namely *Piona coccinea* var. *imminuta* (Piersig) and *Lamienra falcipes* Koenike.

Fifteen species are on record from Ceylon—

Arrhenurus ceylonicus Daday

Arrhenurus congenger Daday

- Arrhenurus madaraszi* Daday
Arrhenurus orientalis Daday
Arrhenurus rostratus Daday
Arrhenurus sinhalensis Daday
Eupatra silvestri (Daday)
Hydrachna dilatata Daday
Lamienia falcipes Koenike
Neumania nodosa (Daday)
Oxus ceylonicus (Daday)
Oxus pictus (Daday)
Piona coccinea var *imminuta* (Piersig)
Piona conglobata (C. L. Koch)
Piona horvathi (Daday)
Unionicola sinhalensis (Daday)

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This includes works which have provided material for this supplement or come within the Arthropoda. Other references to the fauna are included as an appendix.

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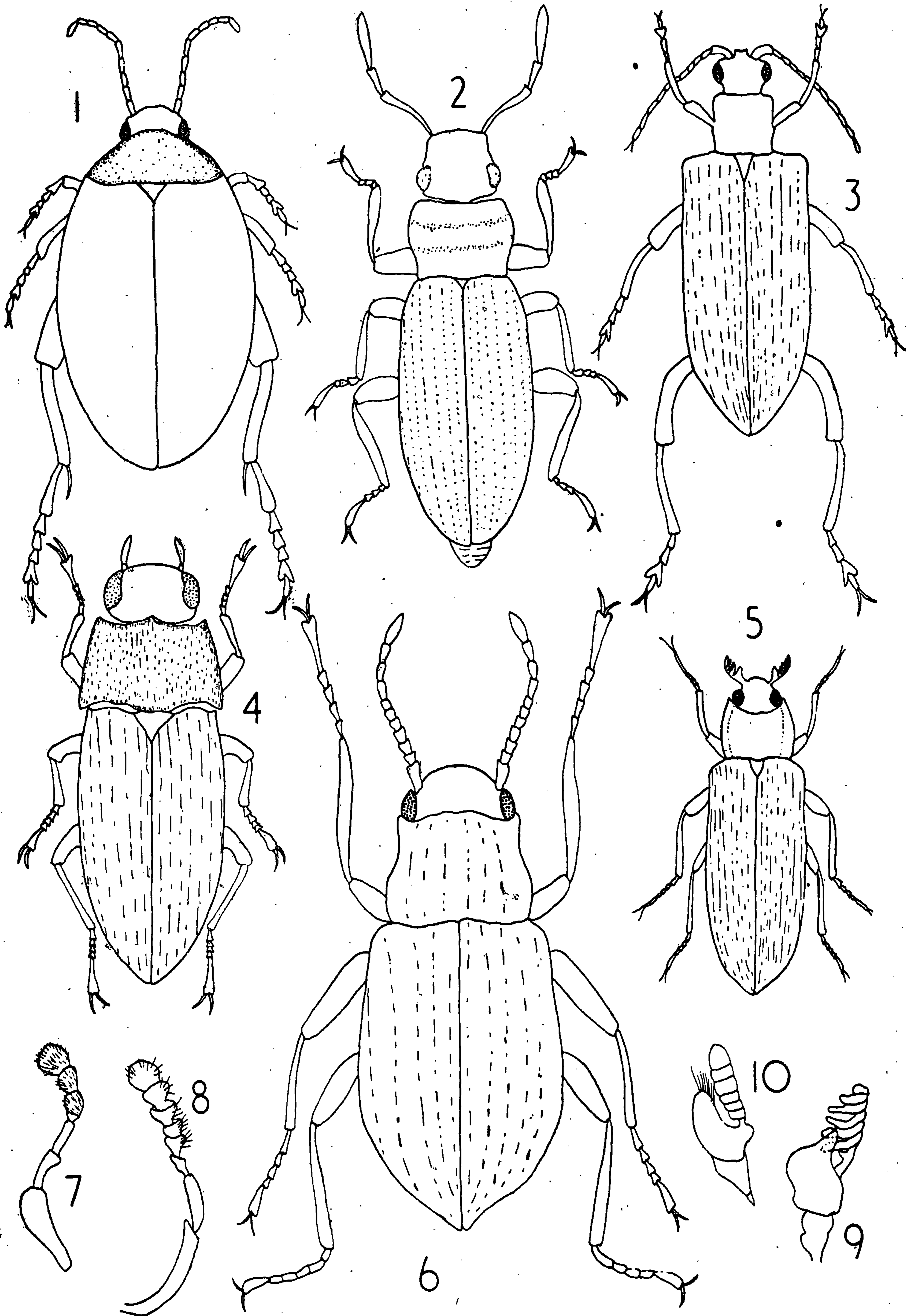
Appendix

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Explanation to figures on page 36

1. *Scirtes* sp.
2. *Hydraena* sp.
3. *Donacia* sp. (redrawn from Pennak)
4. *Eubrianax* sp.
5. *Helichus* sp. (redrawn from Bertrand).
6. *Stenelmis* sp. (redrawn from Pennak).
7. Antenna of Hydrophilidae (Adult).
8. Antenna of Hydraenidae (Adult).
9. Antenna of Dryopidae (Adult).
10. Antenna of Gyrinidae (Adult).

Figs. 7-10 after various authors.



Explanation to figures on page 38

1. Larva of *Dineutes indicus* Aube (after Tonapi).
2. Larva of *Donacia* (redrawn from Pennak).
3. *Helichus* Larva (after Bertrand).
4. Dryopid larva (after Bertrand).
5. Larva of *Scirtes* (after Bertrand).
6. Larva of *Eubrianax* (after Bertrand).
7. Elmid larva (after Bertrand).
8. Hydraenid larva 8A, antenna of *Hydraena*
9. Larva of *Sternolophus* (after Bertrand).
10. Larva of *Amphiops* (after Bertrand).
11. Gyrinid pupa.
12. Hydrophilid pupa.
13. Anterior end of Curculionidae showing antenna and "Snout".

Figs. 8, 11, 12, 13 semidiagrammatic, after various authors.

