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REVUE SUISSE
DE
ZOOLOGIE

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DE
ZOOLOGIE.

ANNALES

DE LA
SOCIÉTÉ SUISSE DE ZOOLOGIE
ET DU
MUSÉUM D'HISTOIRE NATURELLE
DE LA VILLE DE GENÈVE



GENÈVE
1998

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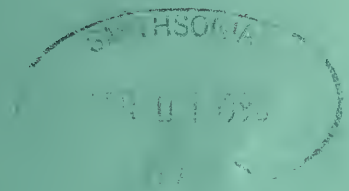
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Directeur du Muséum d'histoire naturelle de Genève

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CHARLES LIENHARD

Chargé de recherche au Muséum d'histoire naturelle de Genève

Comité de lecture

Président: Ivan LÖBL — Muséum de Genève

Il est constitué en outre du président de la Société suisse de Zoologie, du directeur du Muséum de Genève et de représentants des Instituts de zoologie des universités suisses.

Les manuscrits sont soumis à des experts d'institutions suisses ou étrangères selon le sujet étudié.

La préférence sera donnée aux travaux concernant les domaines suivants: biogéographie, systématique, écologie, éthologie, morphologie et anatomie comparée, physiologie.

Administration

MUSÉUM D'HISTOIRE NATURELLE

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Catalogue révisé des types primaires de la collection ichthyologique du Muséum d'histoire naturelle de la Ville de Genève (MHNG)

Claude WEBER

Muséum d'histoire naturelle, case postale 6434, CH-1211 Genève 6, Suisse.

Revised types catalogue of the ichthyological collection in the Natural History Museum, City of Geneva (MHNG).- The ichthyological collection of the MHNG includes primary type material of 130 species or subspecies. Complete type material (362 taxa), more detailed data and remarks concerning localities, collectors and origin of type specimens can be found under <http://www.ville-ge.ch/musinfo/mhng/erpi/cat2.html>

Key-words: Catalogue - types - Pisces - Hyperoartia - Elasmobranchii - Osteichthyes - Actinopterygii - Internet - MHNG

INTRODUCTION

Fondé en 1820, le Muséum d'histoire naturelle de la Ville de Genève (MHNG) s'installe en 1965 dans un bâtiment neuf qui offre alors les meilleures conditions pour la gestion des collections et les activités scientifiques. Dans ce contexte et conjointement à une augmentation significative des collaborateurs scientifiques, certaines structures sont remaniées: en 1971 est créé le département d'herpétologie et d'ichthyologie, issu de la division de celui des vertébrés. Les priorités muséologiques de ce nouveau département sont la mise en ordre des collections et la publication du catalogue des types de poissons, amphibiens et reptiles (MAHNERT 1976), qui ne compte alors que 26 espèces de poissons, holotypes et autres catégories comprises.

Depuis 1965, le MHNG a développé son activité scientifique: collaborations régulières avec des spécialistes suisses ou étrangers, formation d'étudiants, organisation de campagnes de récoltes, souvent associées à des programmes d'inventaires biologiques ou à des études d'impact, politique d'acquisition et d'échanges orientés aussi sur la recherche, sont des éléments qui ont largement contribué à l'accroissement spectaculaire des collections scientifiques. Avec un total de 362, le nombre des espèces ou sous-espèces de poissons représenté par des types a plus que décuplé depuis 1976, et un nouveau catalogue s'imposait.

Le présent travail consacré aux poissons *sensu lato*, constitue la deuxième partie de la révision du catalogue des types de MAHNERT (1976) après la publication du catalogue des types d'amphibiens et de reptiles par SCHÄTTI & PERRET (1997a).

MÉTHODES

La présente liste des types compte 130 taxa répertoriés par ordre systématique des ordres selon la classification d'ESCHMEYER (1990), et alphabétiques des noms de genres, espèces et sous espèces, selon la nomenclature originale. Elle ne mentionne que les types primaires (holotypes, lectotypes, néotypes et syntypes), sans autres indications que la catégorie de type, le numéro MHNG et le nombre de spécimens. Les espèces mentionnées par MAHNERT (1976) sont précédées d'un astérisque.

De même que le catalogue des types d'amphibiens et de reptiles possède une version plus détaillée sur serveur électronique (SCHÄTTI & PERRET 1997b), cette liste succincte est publiée conjointement à la création d'un accès Internet au catalogue complet des types (y compris paratypes et paralectotypes), détruits ou disparus inclus, avec mention détaillée des localités, dates de capture et récolteurs. Des précisions concernant leur historique sont ajoutées en remarques. Ce catalogue, régulièrement mis à jour, est accessible à l'adresse:

<http://www.ville-ge.ch/musinfo/mhng/erpi/cat2.html>

PRINCIPALES ADDITIONS AU CATALOGUE DES TYPES DEPUIS 1976.

L'apport le plus important provient de la fructueuse collaboration entretenue depuis 1971 avec Jacques Géry, spécialiste des poissons Characiformes. Sa participation à l'étude de nombreuses récoltes, dont celles réalisées par le MHNG, et surtout le dépôt, en 1984, de sa collection personnelle, qui ne compte pas moins de 20.000 spécimens, ont apporté une quantité considérable de matériel type, représentant 205 espèces ou sous-espèces, dont 43 par des types primaires. Géry est auteur ou coauteur de 130 d'entre-elles, les 75 autres (décrites par Cope, Eigenmann, Myers, Schultz, etc.) proviennent d'échanges réalisés avec des instituts nord-américains.

Plusieurs autres ichtyologistes ont contribué de l'extérieur à l'enrichissement de la collection des types: citons notamment Maurice Kottelat, qui a déposé des spécimens types de 21 espèces, dont 8 sont représentés par des types primaires, ainsi que Sven Kullander, qui étudie régulièrement les Cichlidés récoltés au cours des missions du MHNG, avec 13 espèces, dont 4 sont représentées par des types primaires.

Enfin, depuis le précédent catalogue, les collaborateurs du MHNG ont décrit 25 espèces, dont 14 sont représentées par des types primaires.

La révision des anciennes collections a mis en évidence quelques types ignorés et a surtout permis d'identifier du matériel type connu mais appartenant à des collections à problèmes (nomenclature confuse, mélanges de spécimens, etc.). Les types de Victor Fatio font partie de ces derniers. Ils sont maintenant revus, leur nomenclature est discutée en détail dans le travail de KOTTELAT (1997) et 16 taxa ont été retenus dans le catalogue.

Outre cela, la consultation de diverses archives du Muséum a mis en lumière l'existence d'une petite collection de poissons envoyés en échange par Achilles Valenciennes. Nombre d'entre eux sont des spécimens historiques, et 6 syntypes d'espèces décrites dans l'Histoire naturelle des Poissons de CUVIER ET VALENCIENNES (1828-1849) ont été retrouvés.

CATALOGUE**HYPEROARTIA**

Classe CEPHALASPIDOMORPHI

Ordre Petromyzontiformes

Petromyzon branchialis Linné, 1758

Neotype: MHNG 816.18

Petromyzon fluviatilis Linné, 1758

Neotype: MHNG 816.18

GNATHOSTOMATA

Chondrichthyes

Classe ELASMOBRANCHII

Ordre Myliobatiformes

***Pteroplatea binotata** Lunel, 1879

Holotype: MHNG 1213.89

Osteichthyes

Classe ACTINOPTERYGII

Ordre Osteoglossiformes

***Marcusenius cubangoensis** Pellegrin, 1936

Syntype: MHNG 858.85 (1)

Ordre Anguilliformes

***Gymnomuraena brevicauda** Regan, 1903

Holotype: MHNG 665.54

***Muræna grandimaculis** Regan, 1903

Holotype: MHNG 665.39

Ordre Clupeiformes

Alosa Finta var. **lacustris** Fatio, 1890

Lectotype: MHNG 656.48

Ordre Cypriniformes

Alborella maxima Fatio, 1882

Holotype: MHNG 815.80

Barbichthys laevis var. **sumatranus** Volz, 1904.

Syntype: MHNG 683.23 (1)

Barbus condei Mahnert & Géry 1982

Holotype: MHNG 1544.49

Barbus foerschi Kottelat, 1982

Holotype: MHNG 2058.98

Blicca intermedia Fatio, 1882

Holotype: MHNG 656.16

***Botia multifasciata** Regan, 1905

Holotype: MHNG 677.98

***Brama saussurii** Lunel, 1865

Holotype: MHNG 940.85

Ciprinus [sic] **agonus** Scopoli, 1786

Neotype: MHNG 656.48

Nemacheilus baenzigeri Kottelat, 1983

Holotype: MHNG 2081.32

Nemacheilus troglotaractus Kottelat & Géry, 1989

Holotype: MHNG 2407.54

Osteochilus pentalineatus Kottelat, 1982

Holotype: MHNG 2059.02

Pectenocypris korthausae Kottelat, 1982

Holotype: MHNG 2073.72

Phoxinellus libani Lortet, 1883

Syntypes: MHNG 611.24 (10)

Rasbora hobelmani Kottelat, 1984

Holotype: MHNG 2160.46

Rhodeus syriacus Lortet, 1883

Syntypes: MHNG 611.22 (2)

Ordre Characiformes

Anostomus anostomus longus Géry, 1961

Holotype: MHNG 2197.04

Asiphonichthys condei Géry & Knöppel, 1976

Holotype: MHNG 2229.05

Astyanax validus Géry, Planquette & Le Bail, 1991

Holotype: MHNG 2435.77

Axelrodia lindeae Géry, 1973

Holotype: MHNG 2229.08

Brycinus derhami Géry & Mahnert, 1977

Holotype: MHNG 1183.06

Brycinus fwaensis Géry, 1995

Holotype: MHNG 2572.07

Chilobrycon deuterodon Géry & de Rham, 1981

Holotype: MHNG 2045.13

Creagrutus paraguayensis Mahnert & Géry, 1988

Holotype: MHNG 2386.01

Geisleria junki Géry, 1971

Holotype: MHNG 2229.07

Hemigrammus aereus Géry, 1959

Holotype: MHNG 2181.86

Hemigrammus guyanensis Géry, 1959

Holotype: MHNG 2181.23

Hemigrammus mahnerti Uj & Géry, 1989

Holotype: MHNG 2412.82

Hemigrammus micropterus boesemani Géry, 1959

Holotype: MHNG 2181.80

Hemigrammus unilineatus cayennensis Géry, 1959

Holotype: MHNG 2179.61

Hemiodopsis huraulti Géry, 1964

Holotype: MHNG 2151.14

Hemiodopsis vorderwinckleri Géry, 1964

Holotype: MHNG 2151.20

Hypessobrycon arianae Uj & Géry, 1989

Holotype: MHNG 2412.79

Hypessobrycon guarani Mahnert & Géry, 1987

Holotype: MHNG 2366.99

Hypessobrycon procerus Mahnert & Géry, 1987

Holotype: MHNG 2385.68

Hyphessobrycon pytai Géry & Mahnert, 1993

Holotype: MHNG 2543.86

Hyphessobrycon simulans Géry, 1963

Holotype: MHNG 2171.19

Hyphessobrycon vilmae Géry, 1966

Holotype: MHNG 2229.04

Iguanodectes adujai Géry, 1970

Holotype: MHNG 2229.06

Iguanodectes geisleri Géry, 1970

Holotype: MHNG 2229.02

Jobertina eleotrioides Géry, 1960

Holotype: MHNG 2201.13

Laemolyta garmani macra Géry, 1974

Holotype: MHNG 2197.38

Laemolyta petiti Géry, 1964

Holotype: MHNG 2229.01

Leporinus leballi Géry & Planquette, 1983

Holotype: MHNG 2152.48

Micralestes ambiguus Géry, 1995

Holotype: MHNG 2572.08

Microbrycon Cochui Ladiges, 1950

Syntype: MHNG 2187.75 (1)

Microschemobrycon geisleri Géry, 1973

Holotype: MHNG 2229.09

Petitella georgiae Géry & Boutière, 1964

Holotype: MHNG 2150.28

Phenacogrammus bleheri Géry, 1995

Holotype: MHNG 2572.09

Phenacogrammus taeniatus Géry, 1996

Holotype: MHNG 2583.28

Piabarchus torrenticola Mahnert & Géry, 1988

Holotype: MHNG 2385.70

***Pseudochalceus longianalis** Géry, 1972

Holotype: MHNG 1226.90

Rhinopetita myersi Géry, 1964

Holotype: MHNG 2229.03

Steindachnerina varii Géry, Planquette & Le Bail, 1991

Holotype: MHNG 2435.76

Thayeria ifati Géry, 1959

Holotype: MHNG 2173.42

Tyttobrycon hamatus Géry, 1973

Holotype: MHNG 2172.30

Tyttobrycon xeruini Géry, 1973

Holotype: MHNG 2229.10

Ordre Siluriformes

***Amphilius platyichir** var. **cubangoensis** Pellegrin, 1936

Syntype: MHNG 858.86 (1)

Ancistrus pirareta Muller, 1989.

Holotype: MHNG 2450.10

Ancistrus piriformis Muller, 1989

Holotype: MHNG 2450.11

Callomystax schmidti Volz, 1904

Syntype: MHNG 683.22 (1)

Cetopsis candiru Spix et Agassiz, 1829

Syntype: MHNG 210.05 (1)

Dysichthys quadriradiatus Mees, 1989

Holotype: MHNG 2157.21

Erethistes maesotensis Kottelat, 1983

Holotype: MHNG 2096.63

Farlowella platorhynchus Retzer & Page, 1997

Holotype: MHNG 2389.57

Hypostomus dlouhyi Weber, 1985

Holotype: MHNG 2229.43

Hypostomus latifrons Weber, 1986

Holotype: MHNG 2256.67

Hypostomus microstomus Weber, 1987

Holotype: MHNG 2367.90

Hypostomus piratatu Weber, 1986

Holotype: MHNG 2265.03

Lepthoplosternum altamazonicum Reis, 1997

Holotype: MHNG 2551.01

***Macrones argentivittatus** Regan, 1905

Lectotype: MHNG 677.99

Macrones bimaculatus Volz, 1904

Syntype: MHNG 683.28 (1)

Mystus misrai Anuradha, 1986

Holotype: MHNG 603.95

***Phreatobius cisternarum** Gældi, 1904

Syntypes?: MHNG 1213.97 (1) et MHNG 1505.91 (3)

Ordre Gymnotiformes

Gymnorhamphichthys hypostomus petiti Géry & Vu, 1964

Holotype: MHNG 2167.15

Ordre Salmoniformes

Coregonus asperi dispar Fatio, 1885

Syntypes: MHNG 807.48 (3)

Coregonus asperi maraenoides Fatio, 1885

Syntypes: MHNG 816.42 (2)

Coregonus Balleus Fatio, 1885

Lectotype: MHNG 717.45

Coregonus candidus Goll, 1883

Neotype: MHNG 656.36

Coregonus crassirostris compactus Fatio, 1885

Syntypes: MHNG 715.93 (2)

Coregonus exiguus albellus Fatio, 1890

Lectotype: MHNG 816.22

Coregonus fatioi Kottelat, 1997

Lectotype: MHNG 809.59

Coregonus lavaretus (Linné, 1758)

Neotype: MHNG 2583.51

Coregonus nobilis Haack, 1882

Neotype: MHNG 656.56

Coregonus restrictus bondella Fatio, 1885

Lectotype: MHNG 656.36

Coregonus restrictus Nüsslini Fatio, 1885

Syntypes: MHNG 715.94 (2)

Coregonus Schinzii alpinus Fatio, 1885

Lectotype: MHNG 717.45

Coregonus Suidteri Fatio, 1885

Syntypes: MHNG 676.07 (1), MHNG 715.89 (1), MHNG 816.26 (1)

Coregonus Wartmanni Alpinus Fatio, 1890

Nom indisponible (Kottelat 1997), voir *Coregonus fatioi* Kottelat, 1997.

Coregonus Wartmanni dolosus Fatio, 1885

Lectotype: MHNG 656.53

Salmo lacustris var. **excelsa** Fatio, 1890

Syntype: MHNG 816.09 (2)

Salmo lacustris var. **meridionalis** Fatio, 1890

Lectotype: MHNG 656.06

Salmo lacustris var. **Rhenana** Fatio, 1890

Syntype: MHNG 806.96 (1)

Salvelinus salvelinus var. **profundus** Fuhrmann, 1903

Syntype: MHNG 809.61 (1)

Trutta variabilis Lunel, 1874

Syntypes: MHNG 807.35 (1), MHNG 816.07 (1), MHNG 816.06 (1)

Ordre Atheriniformes

***Bedotia madagascariensis** Regan, 1903

Holotype: MHNG 665.07

Ordre Cyprinodontiformes

Rivulus elongatus Fels & de Rham, 1981

Holotype: MHNG 2079.63

Rivulus intermittens Fels & de Rham, 1981

Holotype: MHNG 2079.33

Rivulus iridescens Fels & de Rham, 1981

Holotype: MHNG 2079.57

Rivulus rectocaudatus Fels & de Rham, 1981

Holotype: MHNG 2079.10

Rivulus rubrolineatus Fels & de Rham, 1981

Holotype: MHNG 2079.46

Rivulus speciosus Fels & de Rham, 1981

Holotype: MHNG 2079.68

Ordre Syngnathiformes

***Doryichthys multiannulatus** Regan, 1903

Holotype: MHNG 665.51

***Penetopteryx tæniocephalus** Lunel, 1881

Syntypes: MHNG 843.48 (3)

Ordre Scorpaeniformes

Apistus dracoena Cuvier, 1829

Syntype: MHNG 148.43

Ordre Perciformes

Aequidens patricki Kullander, 1984

Holotype: MHNG 2163.93

Ambassis alta Cuvier, 1828

Syntype: MHNG 148.06.

Ambassis Commersoni Cuvier, 1828

Syntype: MHNG 148.04

Apistogramma nijsseni Kullander, 1974

Holotype: MHNG 1595.82

Apogon rex mullorum, var. **Americana** Pictet, 1836

Syntype: MHNG 1060.89 (1)

Bujurquina ortegai Kullander, 1986

Holotype: MHNG 2205.27

Chromis magdalenae Lortet, 1883

Syntypes: MHNG 611.21 (2)

Chromis tiberiadis Lortet, 1883

Syntype: MHNG 611.19 (1)

Cichlasoma pusillum Kullander, 1983

Holotype: MHNG 2131.94

Datnia virgata Valenciennes, 1831

Syntype: MHNG 148.22

***Eleotris pectoralis** Regan, 1903

Holotype: MHNG 665.06

Gymnogeophagus setequedas Reis, Malabarba & Pavanelli, 1992

Holotype: MHNG 2518.19

***Heros octofasciatus** Regan, 1903

Holotype: MHNG 665.55

Lates nobilis Cuvier, 1828

Syntype: MHNG 148.01

***Novacula temporalis** Regan, 1905.

Holotype: MHNG 678.02

***Percichthys altispinis** Regan, 1905

Syntypes: MHNG 677.100 (2)

Polynemus longifilis Cuvier, 1829

Syntype: MHNG 148.24

***Sciæna (Bairdiella) bedoti** Regan, 1905

Syntype: MHNG 678.01 (1)

Ordre Pleuronectiformes

***Solea borbonica** Regan, 1905

Holotype: MHNG 678.03

Ordre Tetraodontiformes

***Balistes mauritanus** Regan, 1903

Holotype: MHNG 665.43

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Répartition géographique et morphologie fine de *Broelemanneuma gayi* (Diplopoda: Craspedosomatidae)

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Geographical distribution and micromorphology of *Broelemanneuma gayi* (Diplopoda: Craspedosomatidae). - The distribution and ecology of the craspedosomatid diplopod *Broelemanneuma gayi* Demange, 1968 is discussed and morphological characters are illustrated by SEM. Previously unknown characters on fore legs in both sexes are described and illustrated.

Key-words: *Broelemanneuma gayi* - Diplopoda - Craspedosomatidae - geographical distribution - secondary sexual characters.

INTRODUCTION

Lors d'explorations dans des grottes du bassin de Flaine, l'un de nous (P. M.) a procédé à la pose de pièges et nous avons eu la chance de récolter en abondance le Diplopode *Broelemanneuma gayi* Demange, 1968. Cela représente une nouvelle localité pour ce troglobie limité à la Haute-Savoie. Nous nous proposons de discuter sa répartition géographique et son écologie. D'autre part, l'examen de sa morphologie fine nous a permis de mettre en évidence un nouveau caractère sexuel secondaire présent chez les mâles ainsi que des peignes de soies modifiées sous les deux premières paires de pattes des deux sexes, que nous décrivons pour la première fois.

Au sujet de ce Diplopode Craspedosomatidae, une remarque d'ordre nomenclatural s'impose. L'orthographe du nom de genre est très variable suivant les sources: nous avons trouvé *Brolemanneuma*, *Brohlemanneuma*, *Brölemanneuma* ou *Broelemanneuma*. D'ailleurs, le dédicataire de ce genre orthographiait son nom indifféremment Broelemann ou Brölemann avant 1920, et Brolemann, sans tréma ni «œ» après 1920. Si nous nous référons à la description originale de VERHOFF (1905), l'orthographe est *Brölemanneuma*, soit *Broelemanneuma* puisque le code de nomenclature zoologique conseille de supprimer les accents dans les noms de taxa.

MATÉRIEL ET MÉTHODES

Les pièges (gobelets en plastique remplis de bière) ont été posés dans le gouffre du Calumet (bassin de Flaine) entre -50 et -60m de la surface (couche de calcaire urgonien, Fig. 1), soit dans un éboulis et entouré de cailloux pour en faciliter l'accès aux animaux (piège A), soit contre la paroi d'une marmite remplie d'argile (piège B). La pose des pièges a été effectuée le 11 août 1996 et la récolte le 2 novembre, soit 83 jours plus tard.

Pour notre étude en microscopie électronique à balayage, les exemplaires utilisés ont été déshydratés dans une série d'alcool, passés dans l'acétate de méthyle et séchés par la méthode du point critique dans du CO₂ liquide. Ils ont été métallisés par pulvérisation cathodique d'or et observés dans le MEB ZEISS 940A du Muséum de Genève.

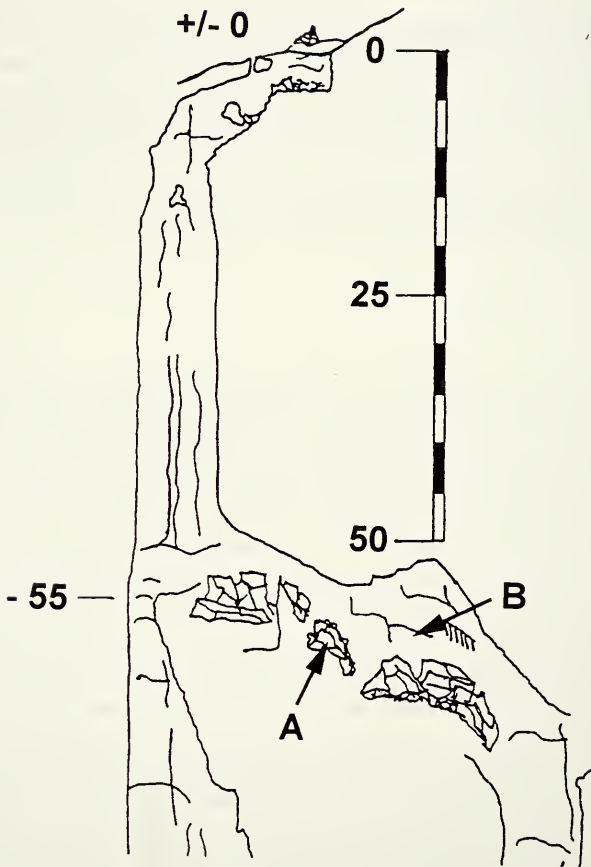


FIG. 1

Relevé topographique du début du gouffre du Calumet, indiquant l'emplacement des pièges (d'après FAVRE 1994, échelle en m).

RÉSULTATS

RÉCOLTES

Les récoltes ont été faites au Gouffre du Calumet, dans le bassin de Flaine par l'un de nous (P.M.). Le piège A, situé dans un éboulis peu stable de pierres de toutes tailles (Fig. 1) a donné un grand nombre (une cinquantaine) de Diplopodes, comprenant des mâles et des femelles, ainsi qu'un Diptère Trichoceridae du genre *Trichocera*. Ce genre est typique des grottes, et l'espèce *T. regelationis* (L.) est troglodyte et fréquemment signalée de grottes d'Europe centrale.

Dans le piège B (marmite avec argile, Fig. 1), nous avons récolté un Diplopode ♀ de même qu'un Diptère *Trichocera*.

Sur la base des gonopodes des mâles, ce Diplopode a pu être attribué à l'espèce *Broelemannuma gayi* Demange 1968, selon DEMANGE (1981). La récolte a été révisée par J.-P. Mauriès du Muséum de Paris.

Quelques exemplaires sont déposés dans les collections du MNHN de Paris. Le reste, soit 16 ♂, 5 ♂ immatures et juvéniles, 25 ♀ et juvéniles, est déposé au MHN de Genève.

Le Gouffre du Calumet constitue une localité nouvelle pour *B. gayi* (Fig. 2, point 1). Ce gouffre se trouve le long d'une faille qui part du col de Monthieu en direction de Flaine et son entrée se trouve à une altitude de 2150 m. Cette grotte est à considérer comme froide, comme toutes les cavités situées à plus de 1500m d'altitude. Il y a beaucoup de courants d'air en été. Par contre, pendant la saison hivernale, l'entrée est complètement obstruée par la neige et il n'y a donc plus de courants d'air.

RÉPARTITION GÉOGRAPHIQUE DE *B. gayi*

Cette espèce a été décrite de la grotte de la Diau, près d'Annecy (DEMANGE 1968). Elle n'aurait plus été signalée depuis selon DEMANGE (1981), et ne figure pas dans les listes récapitulatives de GEOFFROY & MAURIES (1992); aucune référence concernant ce genre ne se trouve non plus dans le Zoological Record entre 1981 (où figure l'ouvrage de DEMANGE (1981)), et 1996.

Pourtant, elle était déjà connue de la grotte de la Barne Froide (BOURNE 1975a), mais cette mention a paru dans un périodique plutôt confidentiel, sans préciser le nombre d'individus récoltés. Elle avait été précédée, dans la même grotte, de la capture d'une femelle "Craspédosomide indéterminable" selon Demange (BOURNE 1973). Il se pourrait qu'il s'agisse de la même espèce étant donné la localisation et l'appartenance à la même famille. D'autre part, DEMANGE (1970) la signale de deux grottes de Haute-Savoie, la grotte du Vieux Taquin et le gouffre de la Tournette et MEYSSONNIER *et al.* (1987) y ajoutent le Gouffre Jean-Bernard, la grotte et la mine de fer de Sambuy. M. Mauriès nous a signalé encore quelques exemplaires des collections du Muséum de Paris provenant de la Grotte de Charrieu à Tournette et de la Grotte du Désert de Platé. Ces indications ne modifient pas la chorologie de l'espèce. La grotte de Charrieu fait partie du complexe de cavités du massif de la

Tournette (point 3 de la Fig. 2). La grotte du Désert de Platé fait partie de l'ensemble de cavités de ce massif de lapiaz, comme la Barne Froide (point 4 de la Fig. 2). Nous complétons cette liste avec le Gouffre du Calumet dans le massif de Flaine (Fig. 2, point 1).



FIG. 2

Carte des localités où le Diplopode *Broelemanneuma gayi* a été signalé: 1. Gouffre du Calumet, 1996 (938,3; 119,1; 2150m) (Massif du Platé, Flaine) - 2. Gouffre Jean-Bernard, 1982-1983 (943,41; 132,15; 1860m) (Samoëns) (ARIGNANO 1982, 1983; GEOFFROY 1983) - 3. Gouffre de la Tournette, 1969 (To I; 907,50; 100,56; 1760m) (Massif des Bornes) (DEMANGE 1970); Grotte de Charriou, à Tournette, 28.11.71, coll. Deharveng, 1 ♂, 1 ♀ (dét. Mauriès). - 4. Grotte de la Barne Froide, (941,63; 118,88; 2060m) (Massif de la Barne Froide, vallon de Laouchet) (BOURNE 1973); Grotte du Désert de Platé, 12.7.64, coll. Guignard, 1 ♂ (dét. Mauriès) (Coll. MNHN Paris, inédit). - 5. Gouffre du Vieux Taquin, 1969 (1550m) (Mont Saxonnex) (DEMANGE 1970) - 6. Grotte de la Sambuy, 1984 (906,08; 84,51; 2020m) (Seythenex) (MEYSSONNIER 1984) - 6bis. Mine de fer de la Sambuy, 1986 (905,92; 84,84; 2045m) (Seythenex) (MEYSSONNIER *et al.* 1987) - 7. Grotte de la Diau, 1967 (905,80; 114,11; 962m) (Massif des Bornes, Mt Parmelan-Pertuis-Mt Terret) (DEMANGE 1968).

TABLEAU

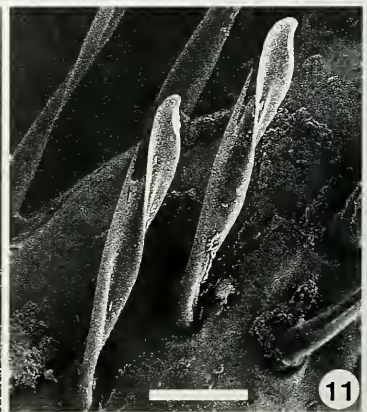
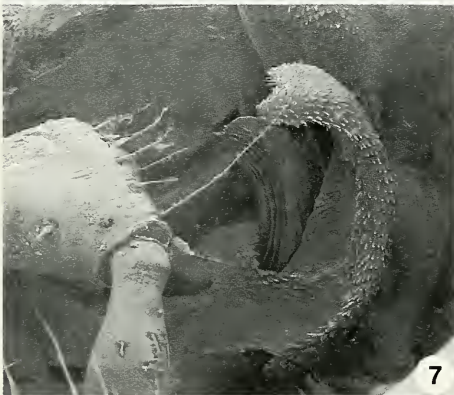
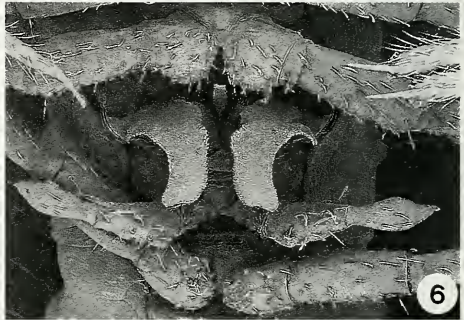
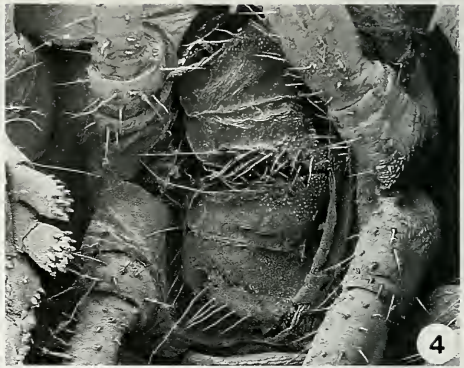
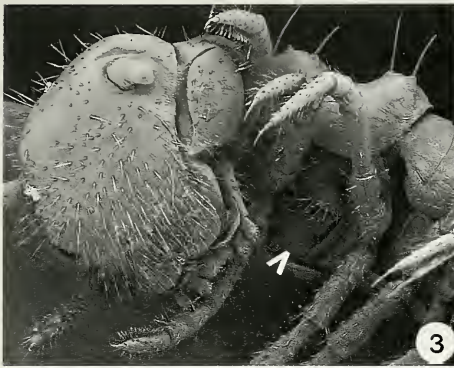
Distances (en km) entre les grottes où le Diplopede *Broelemannuma gayi* a été signalé.

	Calumet	Jean Bernard	Tournette I	Barme Froide	Vieux Taquin	Sambuy Seythenex	Sambuy Mine	Diau
Coord. X	938.3	943.41	907.5	941.63	919.01	906.1	905.92	905.8
Coord. Y	119.1	132.15	100.56	118.88	123.19	84.86	84.84	114.11
Altitude	2150	1860	1760	2060	1550	2020	2045	960
1. Calumet		14.01	35.94	3.33	19.71	47	47.14	32.88
2. Jean Bernard			47.82	13.38	25.99	60.23	60.36	41.71
3. Tournette I				38.73	25.38	15.76	15.79	13.65
4. Barme Froide					23.02	49.19	49.33	36.14
5. Vieux Taquin						40.44	40.52	16.02
6. Sambuy Seythenex							0.18	29.25
6bis. Sambuy Mine de fer								29.27
7. Diau								

MORPHOLOGIE FINE

L'adaptation à une existence troglobie est manifeste du fait que l'espèce est totalement blanche et aveugle (Fig. 3). Dans l'ordre des Craspedosomatida, ce sont les paires de pattes 8 et 9 du mâle qui sont modifiées en organes copulateurs (Figs 6 et 7). L'espèce est caractérisée par la forme des gonopodes 8 qui sont transformés en lames recouvertes de petits tubercules, absents chez les autres représentants du genre *Broelemannuma* (Figs 6 et 7). La seconde paire de gonopodes (pattes 9) est relativement peu modifiée et présente l'allure de pattes raccourcies (Fig. 6). Les orifices génitaux mâles se présentent comme deux papilles sur les coxae de la seconde paire de pattes (Fig. 5). Il n'y a pas de pénis dans la famille des Craspedosomatidae. L'orifice génital des femelles ne présente aucune ornementation spécifique pouvant aider à la détermination (Figs 3 et 4).

En examinant en détail des spécimens de *B. gayi*, nous avons découvert un nouveau caractère sexuel secondaire, qui concerne les pattes 3 à 7 du mâle. L'article tarsal terminal est dilaté à l'extrémité et pourvu, à sa face ventrale, d'une cinquantaine de soies modifiées (Figs 8 et 9). Portées par un court pédoncule, elles sont élargies en raquettes à l'extrémité. Placées sans ordre apparent, elles mesurent environ 12 μ de hauteur. Le type de cuticule, sur les faces de la raquette, semble différer de celui du pédoncule, ce qui pourrait indiquer des possibilités d'adhérence de la zone élargie qui pourrait constituer une sorte de ventouse. Les exemplaires juvéniles ne présentent pas ce caractère, même si les gonopodes 8 sont déjà différenciés. Dans les deux sexes, les pattes 1 et 2 portent, sous l'article tarsal terminal, une rangée d'une vingtaine de soies modifiées en bâtonnets aplatis présentant une torsion et munies d'une épine latérale (Figs 10 et 11). Ces soies sont dirigées vers l'arrière et mesurent 30-50 μ de longueur. Du côté antérieur de cette rangée, quelques soies modifiées sont placées plus ou moins en ligne. On en trouve également quelques-unes sous le premier article tarsal et sous le tibia; leur longueur atteint ici 100 μ . Les soies bordant ces rangées sont légèrement modifiées: elles présentent une épine latérale et sont aussi tordues. Dès la



troisième paire de pattes chez les femelles et sur les pattes postérieures aux gonopodes 8 et 9 chez le mâle, les soies sont droites et non modifiées.

DISCUSSION

Les organismes troglobies sont considérés comme peu mobiles une fois qu'ils se sont adaptés au milieu des grottes. L'éloignement des localités de captures (voir carte et tableau), leur localisation dans des massifs séparés par des vallées de basse altitude (vallée de l'Arve), font qu'il est difficile d'expliquer la répartition de *B. gayi*. Il n'est certainement pas limité à un seul système souterrain. Cependant, il semble bien que son aire géographique soit restreinte à la région de la Haute-Savoie. Mais la prospection d'autres grottes d'altitude dans les régions voisines (Valais, Savoie) pourrait apporter des éléments nouveaux à cette répartition, qui pourrait se révéler plus large, alpine par exemple. Ses préférences écologiques devront orienter les recherches vers des grottes d'altitude ou des grottes très froides, contenant des dépôts fins riches en matière organique permettant le régime géophage mis en évidence par BOURNE (1975b). La localisation de cette espèce dans des endroits sans courants d'air (BOURNE 1975a) est sujette à discussion, puisque la grotte du Calumet présente de forts courants d'air. L'utilisation de pièges contenant de la bière pourrait cependant constituer un appât attirant les diplopodes hors des zones protégées des courants d'air. Cette espèce n'a jamais été décrite à l'état vivant. Les récoltes pouvant parfois être massives, il serait intéressant de la voir en place, pour savoir si elle existe sous forme de populations denses et groupées et si elle présente un éventuel comportement grégaire. La récolte d'un seul individu dans un des pièges et de près de 50 individus dans l'autre piège, distant de quelque 10m, pose la question de la mobilité de cette espèce. De plus, la récolte massive vient d'une zone de cailloux, alors que le piège ayant fourni un seul individu se trouvait dans une zone d'argile, substrat de prédilection pour cette espèce selon BOURNE (1975a, b), qui précise les conditions écologiques de ses lieux de capture ainsi: "sol argileux, température constance à 2,5°C et absence de courants d'air". Ces conditions sont celles de la plupart des grottes dites d'altitude, ainsi que des localités mentionnées pour *B. gayi*, la grotte de la Diau (localité-type de la description de DEMANGE 1968) présentant ces mêmes conditions écologiques malgré une altitude nettement plus basse.

FIGS 3-11

3: Tête de *B. gayi* montrant le détail des pièces buccales et l'absence d'ocelles. On peut voir également l'orifice génital ♀ (flèche). - 4: Orifice génital ♀. - 5: Base des pattes 2 du ♂ montrant les orifices génitaux mâles sous la forme de deux papilles. - 6: Région des gonopodes de *B. gayi* montrant les pattes 8 fortement modifiées et les pattes 9 de morphologie nettement plus normale. - 7: Gonopodes 8 de *B. gayi* en vue latérale montrant leur surface antérieure couverte de tubercules. Ces gonopodes sont particulièrement larges chez cette espèce. - 8: Extrémité d'une patte antérieure aux gonopodes (P6) chez le ♂. L'article précédant la griffe terminale porte à sa face inférieure une série de sortes de petites ventouses. - 9: Détail d'une des ventouses terminales des pattes antérieures du ♂. - 10: Dernier article des pattes antérieures de la ♀ (P2) montrant les deux rangées de soies modifiées. - 11: Poils modifiés de la patte 2 de la ♀. Echelle = 400µ (Fig. 3), 150µ (Fig. 4), 40µ (Fig. 5), 200µ (Fig. 6), 90µ (Fig. 7), 23,5µ (Fig. 8), 5µ (Fig. 9), 115µ (Fig. 10), 16µ (Fig. 11).

En ce qui concerne la morphologie fine de *B. gayi*, la présence de structures particulières sous les articles terminaux des pattes antérieures constituant un caractère sexuel secondaire n'a jamais été mentionnée ni figurée. Mâles et femelles portent sous les articles terminaux des pattes 1 et 2 des lignes de soies modifiées en bâtonnets tordus, semblables dans les deux sexes. Cette structure pourrait faire penser au peigne de nettoyage des pièces buccales signalé chez les Iulidae sur les tibias et tarses des pattes 1 et 2, formé d'épines ordonnées en ligne (VERHOEFF 1926). Par contre, les mâles présentent des renflements caractéristiques des tarses II des pattes 3 à 7, recouverts de soies élargies en raquettes ou en ventouses. Ces soies modifiées du mâle ressemblent aux soies qu'on trouve à l'extrémité des pattes de nombreux insectes et qui leur servent à adhérer sur des surfaces lisses. On peut penser à des structures (éventuellement associées à des glandes) assurant une bonne adhérence sur le corps d'un partenaire pendant l'accouplement ou à des récepteurs sensoriels, qui pourraient être également impliqués dans l'accouplement. L'examen d'autres représentants du genre *Broelemanneuma* ou de la famille des Craspedosomatidae devrait permettre de vérifier la présence de ces structures et de l'utiliser éventuellement dans la caractérisation de ces taxa.

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Nous remercions M. Jean-Paul Mauriès, du Muséum national d'Histoire naturelle de Paris, qui a bien voulu examiner notre matériel, compléter nos informations et relire le manuscrit. La détermination du Diptère Trichoceridae est due à M. Jean-Paul Haenni, du Musée d'Histoire naturelle de Neuchâtel, auquel va toute notre gratitude. Notre reconnaissance va à M. Villy Aellen, directeur honoraire du Muséum d'histoire naturelle de Genève, et à M. Strinati, pour leurs conseils dans la rédaction de la présente note. Nous remercions M. Slim Chraïti pour le traitement informatique des figures 1 et 2.

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**A revision of the genus *Munatia* Stål, 1875
(Orthoptera, Caelifera, Romaleidae, Romaleinae).**

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A revision of the genus *Munatia* Stål, 1875 (Orthoptera, Caelifera, Romaleidae, Romaleinae). - The genus is redescribed. Keys to the genera of the Procolpini and to the species of *Munatia* are given. *M. punctata* Stål and *M. biolleyi* Carl are both redescribed, and a female allotype of the former designated. *M. decorata* Carl is synonymized with *M. punctata*. Lectotypes of both *M. decorata* Carl and *M. biolleyi* Carl are designated. Biological data on both valid species are provided. The younger larvae of at least *M. punctata* are gregarious and provided with a visually striking pattern.

Key-words: Orthoptera - Acridoidea - Romaleidae - Procolpini - taxonomy.

INTRODUCTION

The genus *Munatia* was created by STÅL (1875) with the new species *M. punctata* as the type. The same author later (1878) contrasted *Munatia* with his (1873) genus *Procolpia*, using the shape of the tips of the elytra and the prominence of the medial spine of the hind knee as distinguishing characters. REHN (1955) revised the genus *Procolpia*; he rejected Stål's discriminating characters while clarifying the distinction between the two genera on the basis of others, but did not revise or redescribe *Munatia*. REHN & GRANT (1959) included *Munatia* (along with *Procolpia* Stål, *Aeolacris* Scudder, *Prorhachis* Scudder and *Xomacris* Rehn) in a tribe Procolpini of the Romaleinae (a somewhat reduced successor to GIGLIO-TOS's (1898) group Procolpiae), which probably corresponds to a real clade.

Three further species of *Munatia* have been described since 1875. *Munatia australis* Bruner (1906) from Paraguay was synonymized with *Procolpia minor* Giglio-Tos, 1894 by REHN (1955). CARL (1916) erected two new species (*M. biolleyi* and *M. decorata*) on the basis of Costa Rican material, without discussing the characters of the genus. He effectively ignored Stål's *punctata*, noting only that it was too briefly described to provide a basis for comparison and in any case did not agree

with his *biolleyi*, and he did not examine the type specimen. Additionally, *Procolpia inclarata* (Walker) was treated by BRUNER (1907) in his text as *P. emarginata* (Serville) but figured as *Munatia inclarata*.

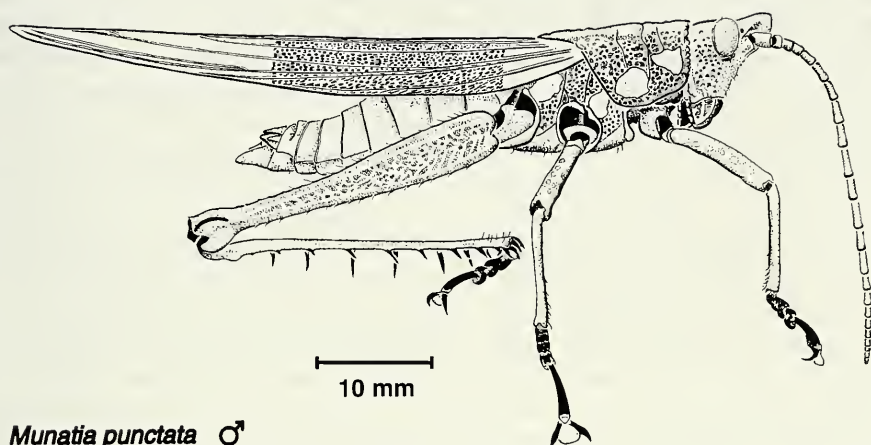
Specimens of *Munatia* from Costa Rica (Tucurrique, Turrialba, Juan Viñas and Carrillo) were referred, in part erroneously, to *punctata* Stål by REHN (1904) and BRUNER (1907), but since 1916 CARL's name *decorata* has mostly been used for Costa Rican material which does not agree with the description of *M. biolleyi*. REHN & GRANT (1959) examined and figured the male genitalia of *Munatia decorata* Carl but did not examine any other species of the genus.

Several orthopterists have indicated to me that they consider it likely that all three current species of *Munatia* represent the same taxon. With access to plentiful material and much field experience of the Costa Rican species I here show that *decorata* Carl is indeed a synonym of *punctata* Stål, but that *biolleyi* Carl is a valid species. In view of the inadequacy of previous descriptions, I also redescribe the genus and its two species and designate an allotype female of *M. punctata* Stål and lectotypes of both *M. decorata* Carl and *M. biolleyi* Carl.

Abbreviations of depositories: ANSP, Academy of Natural Sciences, Philadelphia, USA; INBio, Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica; MNHNP, Muséum National d'histoire naturelle, Paris, France; MHNG, Muséum d'histoire naturelle, Geneva, Switzerland; NRS, Naturhistoriska Riksmuseum, Stockholm, Sweden; RC, the author's collection; UCR, Museo de Entomología, Universidad de Costa Rica, San José, Costa Rica; UMMZ, University of Michigan Museum of Zoology, Ann Arbor, USA.

KEY TO GENERA OF PROCOLPINI:

- 1 Medial carina of pronotum absent, lateral carinae present and decorated with granular points. At least the more proximal spines of hind tibia conspicuously flattened and dorsoventrally produced at their base. Male with large pale spots on elytron. *Aeolacris* Scudder
- Medial carina of pronotum present, lateral carinae absent. 2
- 2 Medial carina straight or simply arcuate, not incised by sulci. Elytra narrow with no costal lobe. *Munatia* Stål
- Medial carina incised by sulci, costal lobe present 3
3. Medial carina not produced dorsally to form large teeth. Lateral lobe not bearing a conspicuous lateral tubercle or spine. *Procolpia* Stål
- Medial carina divided into teeth in prozona; lateral lobe bearing a lateral spine or tubercle. 4
4. Medial carina anterior to first sulcus without prominent raised tooth. Lateral margins of fastigium spined. *Prorhachis* Scudder
- Medial carina of pronotum with three large teeth in prozona, the first one anterior to the first sulcus. Lateral margins of fastigium simple. *Xomacris* Rehn



Munatia punctata ♂

FIG. 1

M. punctata. Male, lateral view. Intersegmental membranes at base of legs are shown in black for clarity, but are pale brown in life.

Munatia Stål, 1875

STÅL 1875: 28

Type species: *M. punctata* Stål, 1875.

REHN 1905: 404; BRUNER 1907: 223; KIRBY 1910: 366; REHN 1955b: 37-39; REHN & GRANT 1959: 239; UVAROV & DIRSH 1961: 158; AMÉDÉGNATO 1974: 198.

REDESCRIPTION OF GENUS

Displays the characters delimiting the tribe Procolpini as defined by REHN & GRANT (1959). The most obvious of these are generally elongate shape, ensiform antennae, well developed rostrum, fully developed wings and tympana, smoothly elongated male subgenital plate, and the inequality between the external and internal row of the hind tibial spines, the latter being notably long and curved. Additionally characterised and distinguished from the remaining genera of the tribe as follows (see also Key to Genera above):

Rostrum somewhat rounded in profile. Frontal ridge below medial ocellus absent (male) or obsolete (female) (vide *Procolpia* and *Xomacris*). Infra-ocular carinae weak or obsolete. Fastigium smooth-sided, without lateral processes (vide *Prorhachis*). Lateral carinae of pronotum absent (vide *Aeolacris*), medial carina well marked, in lateral view straight or forming a low curving crest, not incised by transverse sulci (vide *Procolpia*, *Prorhachis*, *Xomacris*), and not markedly higher in

prozona (vide *Xomacris* and *Prorhachis*) than elsewhere; anterior margin of pronotum only weakly notched medially. Elytra long and slender with narrow rounded tips (also true of some species of the other genera), and with no proximal lobe on the costal margin. Wing dominated by the anal region; radial and medial areas strongly reduced, especially in the male, in which the remigium forms only a narrow elongate strip at the leading edge, somewhat or markedly longer than the anal area. Alar stridulatory apparatus very reduced or absent, transverse veins of the first anal area obsolete or incomplete and usually without denticles. Fenestration of the 2nd alar area absent (vide *Aeolacris*). Terminal medial tooth of metathoracic knee small in the adult (vide most other members of the tribe). Marginal spines of hind tibiae always simple and of circular cross-section, never laterally flattened and dorsoventrally produced at base (vide *Aeolacris*); 8-10 external and 8-9 internal spines on hind tibia, the bottom 3 and the upper 1-2 internal spines short, the remainder long and curved towards the animal's midline. Abdominal segments with well-marked medial carina. Male furcula simple, weak. Male supra-anal plate triangular, rounded at tip, simple, with a proximal medial longitudinal furrow bordered by melanized edges. Male subgenital plate

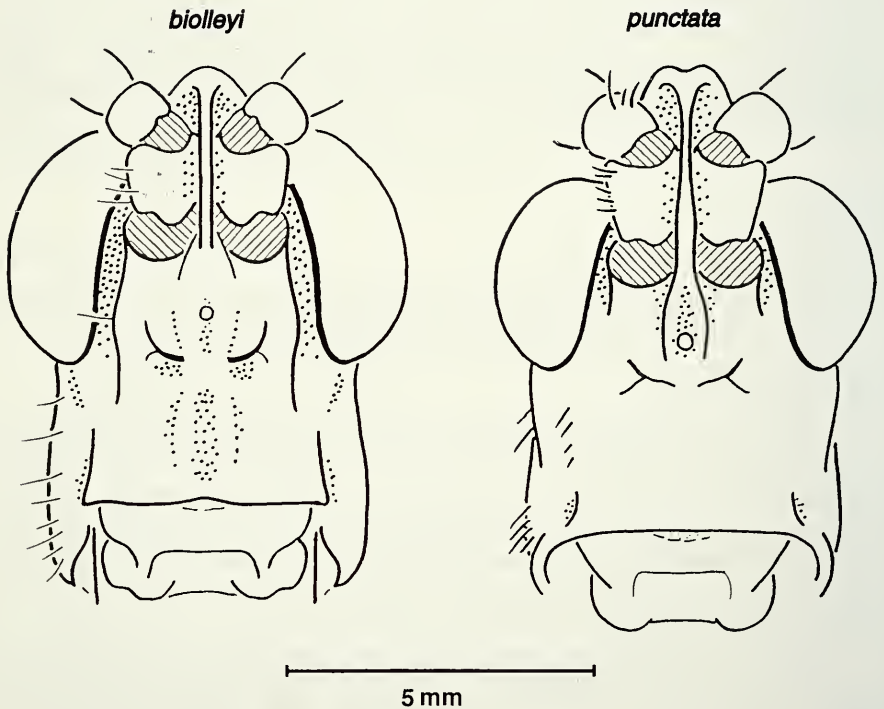


FIG. 2

Frontal view of head of males of *Munatia*. In *biolleyi* the eyes are more produced dorsoventrally and the facial ridges more pronounced than in *punctata*.

twice as long as supra-anal plate (vide *Procolpia*, *Prorhachis*, *Xomacris*). Aedeagal valves with a weak subapical, latero-posteriorly directed process, and with weak transverse ridges on dorso-lateral surfaces of their tips (very similar to that of *Xomacris* (AMÉDÉGNATO & POULAIN 1986: Fig. 90)). Epiphallus with large pointed lophi.

Distribution: Panama, Costa Rica, and Nicaragua.

KEY TO SPECIES OF *Munatia*:

1) *Males*.

Lateral lobe of pronotum brown, with 2 pairs of circular yellow or gold spots, not touching the ventral margin of lobe. Frons, genae, pronotum, thoracic pleura and outer face of hind femur devoid of black tubercles. All longitudinal veins of elytron unbranched, except for the radius (Fig. 5); elytron with green or yellow margins along proximal regions of both leading and trailing edges *punctata* Stål

Lateral lobe of pronotum not as above, yellow or green areas extend to ventral margin and are often fused. Frons, genae, pronotum, thoracic pleura and outer face of hind femur with numerous small black tubercles. Radius, media and cubitus veins of elytron branched (Fig. 5); elytron with green or yellow margin along proximal region of trailing edge only *biolleyi* Carl

2) *Females*.

Medial carina of pronotum low and straight, not at all arcuate (Fig 4A). Distal medial surface of subgenital plate smooth and convex (Fig. 8B). Black tubercles absent and venation of elytron unbranched, as in male. . *punctata* Stål

Medial carina of pronotum raised and clearly arcuate (Fig 4C). Distal medial surface of subgenital plate bearing two minutely toothed ridges, separated by a deep medial groove (Fig. 8D). Black tubercles present and longitudinal elytral veins branched, as in male. *biolleyi* Carl

1. *Munatia punctata* Stål, 1875

Munatia punctata Stål, 1875: 28. Holotype male, Chiriquí, Panama (Boucard), no date, Naturhistoriska Riksmuseum, Stockholm (examined).

PICET & SAUSSURE 1887: 340.; REHN 1905: 405 (misidentification of *M. biolleyi*, as shown by figure of wing outlines); BRUNER 1907: 223 (in part misidentification of *M. biolleyi*, specimens examined).

Allotype female. Female, here designated. Costa Rica, Centr. Am. (P. Biolley), ANS Philadelphia. No other data; bears additional labels "*Munatia punctata* Stål", "Hebard Collection", "*M. decorata* Carl", "*Munatia punctata* Stål 1875 det. C.H.F. Rowell, 96041".

Munatia decorata Carl, 1916: 506, Fig. 12. Lectotype male, here designated (selected and labelled "Holotype" by C.S. CARBONELL 1966), Costa Rica (Prov. Cartago), Carrillo, 600 m; (Prov. Alajuela) Sarapiquí, Carablanco, 600 m (P. Biolley); paralectotype male (labelled "paratype" by C.S. CARBONELL 1966), no data, but considered by Carl to come from the other of the two localities indicated by Biolley on the label on lectotype male; both Muséum d'histoire naturelle, Geneva (examined). **Syn. n.**

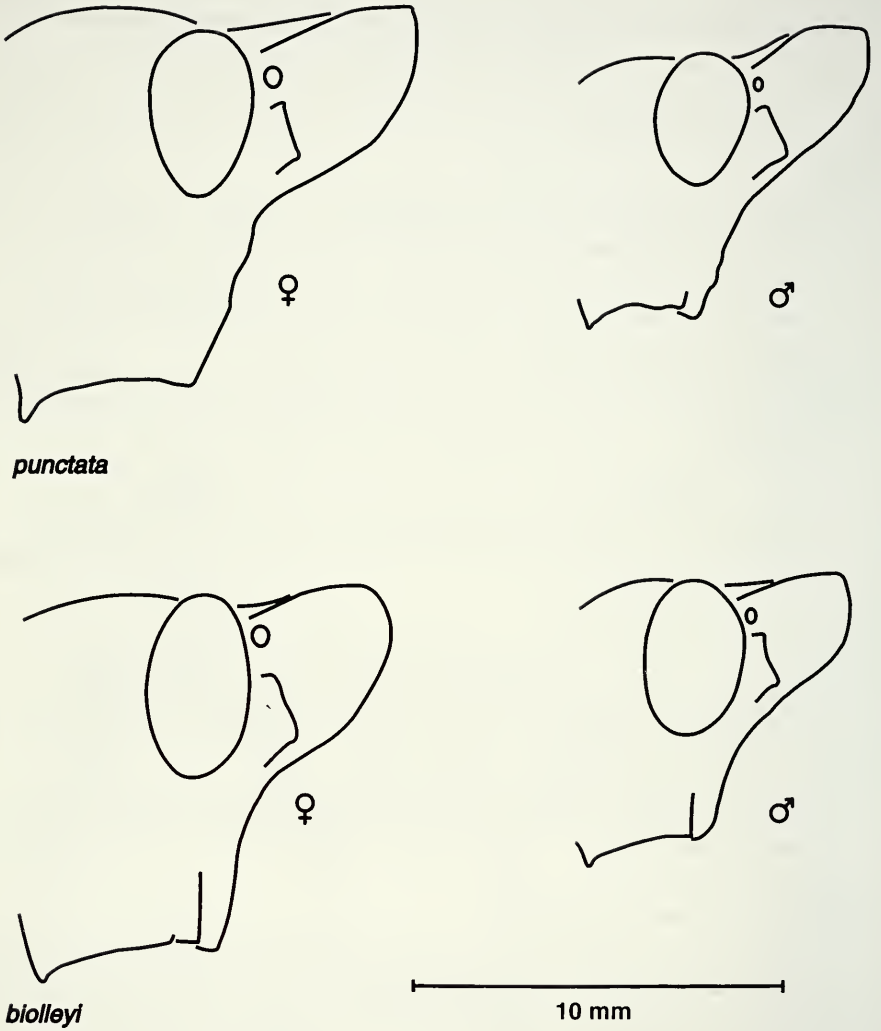


FIG. 3

Side view of head in *Munatia*. The rostrum is slightly longer and more pointed in *punctata*. In *biolleyi* there are also numerous small black tubercles on frons and genae (not shown).

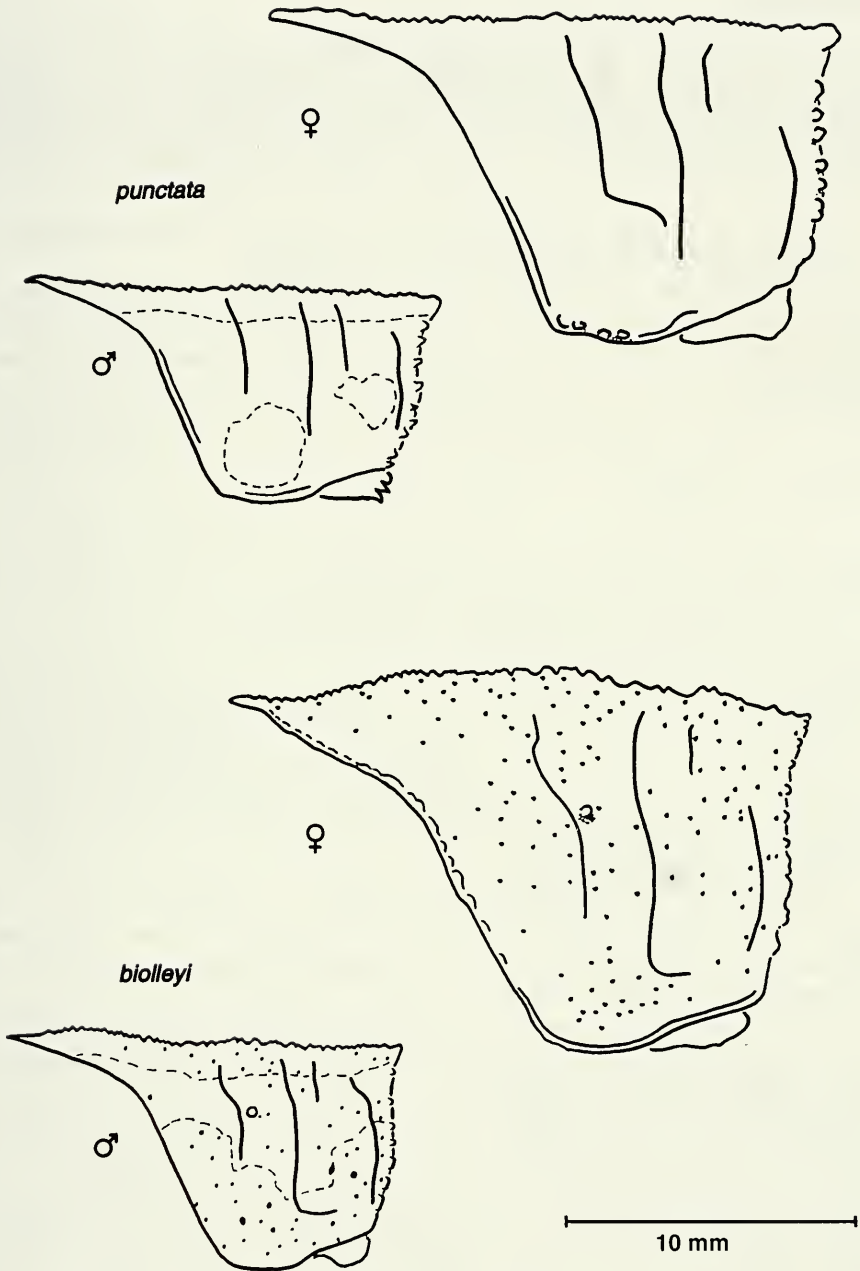


FIG. 4. Pronota of *Munatia*. In both sexes *biolleyi* is distinguished by having more numerous, smaller bosses along the anterior margin, the presence of a single raised pale tubercle laterally just anterior to the third sulcus (present but obscure in *punctata*), and numerous small black tubercles. Female *biolleyi* are additionally distinguished by the presence of a higher, arcuate crest, and males by a different distribution of pigment (dotted lines).

REDESCRIPTION

Stål's description of *punctata* is very brief and based on a poorly preserved specimen (see below), and is not illustrated. BRUNER (1907) did not figure the genus. Carl's description of *decorata* is largely limited to a comparison with *biolleyi*, and includes no figures apart from an outline of the wings. The female has not been described.

Male (Fig. 1). Large (40 mm < body size < 50 mm). Integument matte and finely pitted, especially on head and thorax.

Head. Fastigium triangular, rounded at tip, longer than vertex, forming a rostrum, dorsal surface convex. Frontal ridge (Fig. 2) very narrow dorsally, widening beneath antennal sockets, extending to the medial ocellus and there slightly grooved. Profile of frons (Fig. 3) concave, culminating in rostrum. Eyes globose, prominent, vertical dimension 1.3X horizontal dimension. Interocular space large, more than twice width of antennal scape. Antennae ensiform, longer than head and pronotum, 21 segments in flagellum.

Thorax. Median carina of pronotum (Fig. 4) well developed, straight, not incised by the three transverse sulci. Anterior margin of pronotum shortly produced in midline, with a small medial notch. Anterior edges of pronotal lobes with 8-10 pairs of smooth raised bosses, anterior edge of prothoracic episternum with 2-3 such bosses. Posterior margin of pronotum produced posteriorly to a triangular point, forming a 70° angle. Prosternal process long, slender, vertical, tapering, rounded at tip. Mesosternum narrower than metasternum; metasternal interspace wider than long (Fig. 6C).

Elytron (Fig. 5) long, narrow, with fine rounded tip, projecting well beyond hind knee. R1, CU1 and CU2 unbranched. Wing long and narrow with 8 anal veins; stridulatory area of wing (area anterior to 2A) with very reduced transverse veinlets, entirely without denticles, presumably non-functional.

Hind femora long, slender, exceeding length of abdomen, dorsal and ventral medial carinae slightly toothed, dorsal carina terminating in a minute apical spine; outer medial area of hind femur with reticulate pattern. Hind tibia with 8-10, usually 9, external spines and 9 internal spines.

Abdominal segments with well-marked medial carina, produced in 9th segment into a boss slightly overhanging supra-anal plate (Fig. 6A). Furcula present but weakly developed (Fig. 6A). Cerci (Figs. 6A, B) simple, short tapering, rounded at tips. Supra-anal plate (Fig. 6A) as in generic description. Subgenital plate elongate, subcylindrical, tapering, rounded at posterior tip, twice as long as supra-anal plate (Fig. 6A, B). Epiphallus (Fig. 7 A-C) bridge-shaped, with a medial dorsal protuberance; lophi large, vertical, with outwardly directed tips, ancorae small. Lateral epiphallic sclerites present. Cingulum (Fig. 7D-E) simple, saddle shaped, without anterior apodemes. Anterior apodemes of endophallus laterally flattened in form of two vertical concave plates, joined dorsally by a thin transparent chitinous plate (Fig. 7G, K). Aedeagal sclerites as in generic description.

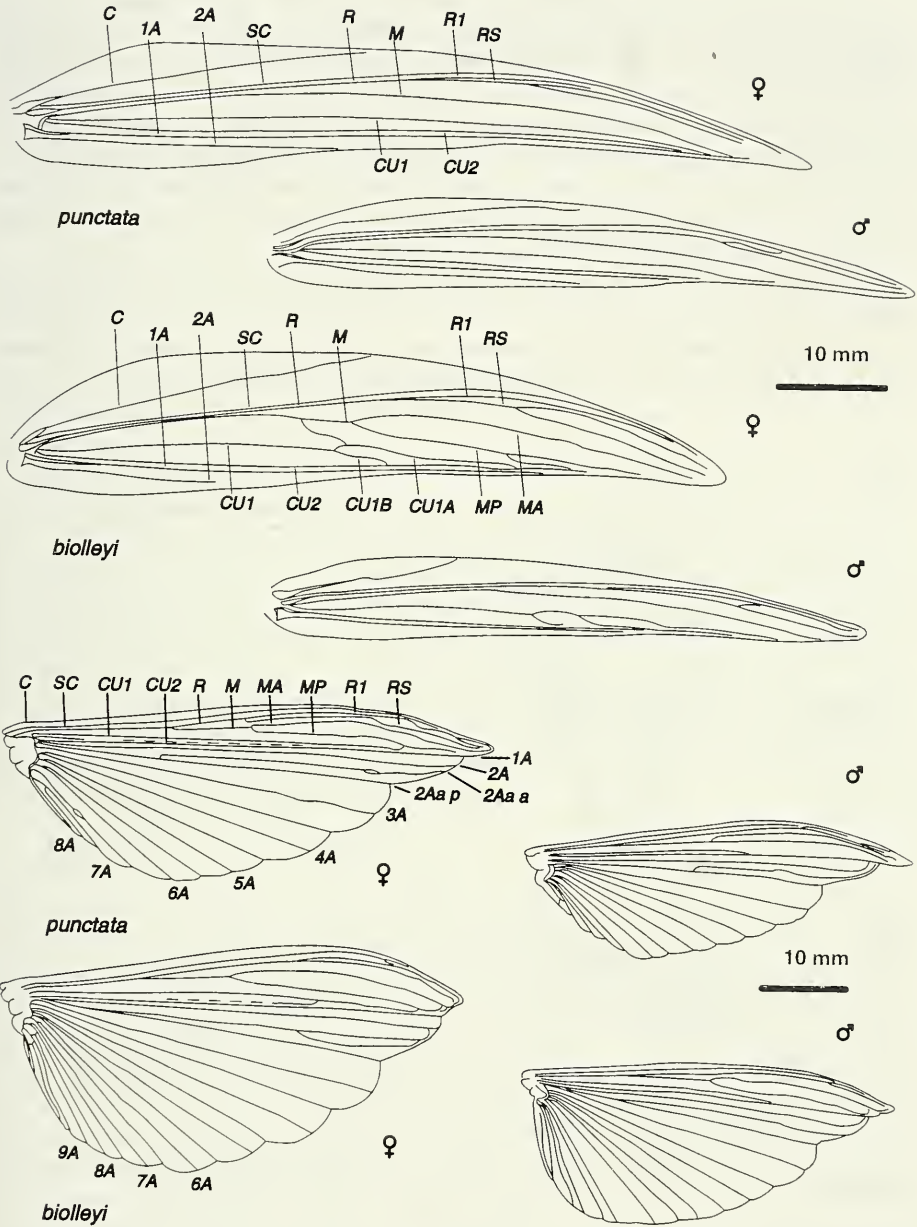


FIG. 5

A. Elytra and wings of female and male *M. punctata* and *M. biolleyi*. In *punctata* both the elytron and the wing are relatively narrower than in *biolleyi*, and this is associated with a reduction in the branching pattern of the longitudinal nerves of the elytron (especially in the male) and in the number of anal veins in the wing. Nomenclature of the venation and abbreviations after RAGGE (1955).

Coloration. Antennae blackish brown. Head green; eyes brown; postocular stripe brown, extending also anteriorly around and under rostrum to form a brown horizontal band at eye level. Clypeus, labrum and mandibles brown. Maxillary and labial palps green.

Pronotum brown, with a broad green medial stripe; two large yellow spots on pronotal lobe, one anterior and one posterior to the second transverse sulcus (Fig. 1, Fig. 3). Meso- and metathorax brown; meso- and metasterna each with a large yellow spot. Legs green, tibial spines tipped with black, ventral surfaces of tarsi black. Semilunar processes of hind knee dark brown.

Abdomen brown, often with a horizontal yellow stripe along the ventral half of the abdominal tergites.

Elytron brown, the marginal regions anterior to RS and posterior to 1A green. Wing pale yellow, with a broad smudged black border, widening anteriorly.

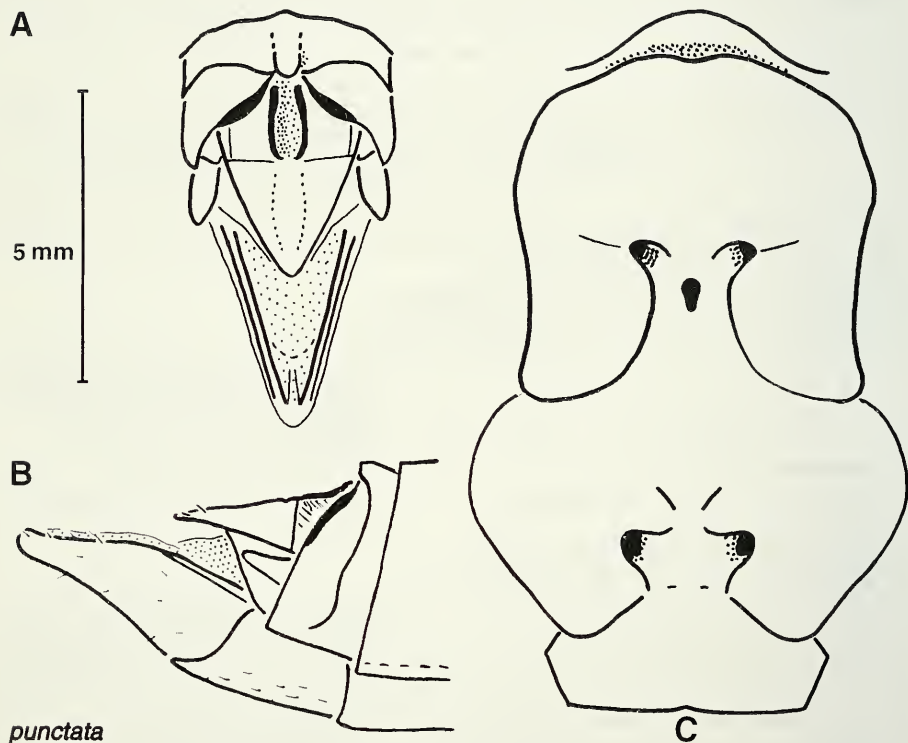


FIG. 6

M. punctata. A, B, extremity of male abdomen, A, dorsal view, B, lateral view. C. Male thoracic sternal plate.

Female. Gigantic (70 mm < body size < 80 mm). Pronotum as in Key to Species and Fig. 4, with low, straight, medial carina. Ovipositor valves (Fig 8B, C) robust, long, straight, in side view slightly hooked distally, outer margins melanized but without teeth. Subgenital plate (Fig 8A) smooth and convex in its distal medial part. Spermatheca not examined.

Coloration: all females seen to date have been plain green on head, thorax, wings and abdomen; no brown forms are known. Antennae, eyes, legs, hind knees, tarsal spines as in male.

Measurements: see Table 1. The values for Stål's Panamanian type (measured in this study) fall comfortably within the maximum and minimum values of modern Costa Rican specimens. The same is true of the values given by Carl for his *M. decorata*, given that his F = 17 mm is a misprint for 27 mm (specimen examined). Using the dimension P (length of the pronotum in the midline) as a reference point, females have relatively shorter hind femora and tarsi, a thinner antennal pedicel and slightly shorter elytra than the males.

Larvae (Fig 9A). Larvae are laterally compressed with a prominent pronotal crest and a well developed spine on the hind knee. With successive moults these two characters reduce to the adult condition. Young larvae are dark brown, marked with gold or orange on the antennae and as a conspicuous patch above the tympanum, and more variably behind the eye and on the hind femora. Females have lost all orange markings by the third instar and are thereafter uniformly brown (or occasionally green) until the final moult. Males retain the supratympanal orange spot until the end of the third instar; in the fourth instar they adopt the adult coloration with the four additional pairs of golden spots on the pronotum and thoracic episterna. In the fourth, fifth and adult instars the location of the supratympanal spot is covered by the wings or wing rudiments and the pigmentation is absent.

TAXONOMIC DISCUSSION

Stål's type, the only specimen to date from Panama, is indistinguishable from the Costa Rican material. It was clearly a newly moulted adult, dried slowly under damp tropical conditions - the author has collected similarly poorly preserved specimens which show exactly the same facies of shrunken and wrinkled abdomen and a colour reversal of the characteristic spots on the thorax, which are now artifactually darker, rather than lighter, than their surroundings. This reversal is the origin of Stål's description "lateribus thoracis maculis quattuor nigricantibus notatis", which in turn apparently convinced Carl that his material was different from that of Stål ("elle (*M. punctata*) semble différer considérablement de *M. biolleyi*, notamment par la présence de 4 taches noirâtres sur les côtés du thorax du mâle").

Stål had no female specimen, and there is no female specimen present in Carl's type series. For this reason an allotype female is designated. It is from the same collector and quite possibly the same locality as the lectotype of *M. decorata*.

MATERIAL EXAMINED. Type material of *punctata* Stål and *decorata* Carl as indicated above. Additionally:

TABLE 1. Dimensions of *M. punctata*

<i>Munatia punctata</i>	Mean	S.D.	Max	Min	N	Stål's type values	Carl's values
Males							
Dimensions in millimetres:							
Hind femur (F)	28.45	2.35	31.32	24.06	9	28.77	17
Rostrum-subgen. plate (L)	47.22	4.43	55.23	40.26	10	41.00	45
Pronotum (midline) (P)	13.07	1.02	14.00	11.32	10	11.85	13
Pronotum longest	13.16	1.02	14.08	11.34	10	11.93	
Interocular space (IO)	2.22	0.13	2.43	1.95	10	1.90	
Antennal pedicel (width)	1.26	0.08	1.42	1.12	10	1.20	
Antenna (A)	29.23	2.61	34.70	26.10	8		
Antenna -> 11th. segment	19.31	2.09	22.60	17.00	6	17.25	
Hind tarsus 1st + 2nd segments	3.62	0.48	4.14	2.60	8	3.89	
Hind tarsus 3rd segment	3.95	0.27	4.18	3.46	8	3.89	
*Elytron length (E)	47.21	2.76	50.99	43.87	10	44.50	50
Rostrum, tip to eye	3.64	0.23	3.95	3.15	10	3.57	
Ratios							
F/P	2.16	0.06	2.26	2.11	9	2.43	
L/P	3.61	0.19	3.94	3.24	10	3.46	
IO/P	0.17	0.01	0.19	0.16	10	0.16	
IO/pedicel	1.76	0.13	1.96	1.56	10	1.58	
Tarsus 3/ Tarsus 1+2	1.05	0.16	1.50	1.01	8	1.00	
Tarsus 1+2+3/F	0.28	0.03	0.29	0.21	8	0.27	
Tarsus 1+2+3/P	0.60	0.05	0.64	0.46	8	0.66	
A/P	2.22	0.16	2.48	1.97	8		
*E/P	3.60	0.28	3.93	3.18	10	3.73	
*E/L	1.01	0.08	1.11	0.81	10		
Females							
Dimensions in millimetres:							
Hind femur (F)	39.01	2.38	41.57	36.20	4		
Rostrum-subgen. plate (L)	73.57	7.85	83.05	64.14	4		
Pronotum (midline) (P)	19.19	0.85	20.00	18.40	4		
Pronotum longest	19.32	0.77	20.00	18.63	4		
Interocular space (IO)	3.51	0.25	3.86	3.33	4		
Antennal pedicel (width)	1.51	0.04	1.55	1.45	4		
Antenna (A)	21.16	1.28	22.06	20.25	2		
Antenna -> 11th. segment	32.73	0.95	33.40	32.05	2		
Hind tarsus 1st + 2nd segments	5.06	0.44	5.37	4.75	2		
Hind tarsus 3rd segment	5.07	0.56	5.46	4.67	2		
*Elytron length (E)	62.44	4.97	67.27	57.10	4		
Rostrum, tip to eye	4.93	0.09	5.02	4.80	4		
Ratios							
F/P	2.03	0.05	2.09	1.97	4		
L/P	3.85	0.56	4.49	3.21	4		
IO/P	0.18	0.01	0.19	0.17	4		
IO/pedicel	2.33	0.17	2.57	2.19	4		
Tarsus 3/ Tarsus 1+2	1.00	0.02	1.02	0.98	2		
Tarsus 1+2+3/F	0.27	0.02	0.28	0.26	2		
Tarsus 1+2+3/P	0.55	0.05	0.59	0.51	2		
A/P	1.71	0.04	1.73	1.68	2		
*E/P	3.25	0.13	3.39	3.08	4		
*E/L	0.86	0.15	1.03	0.69	4		

* In many specimens the elytron tip is broken. Only the maximal values are meaningful.

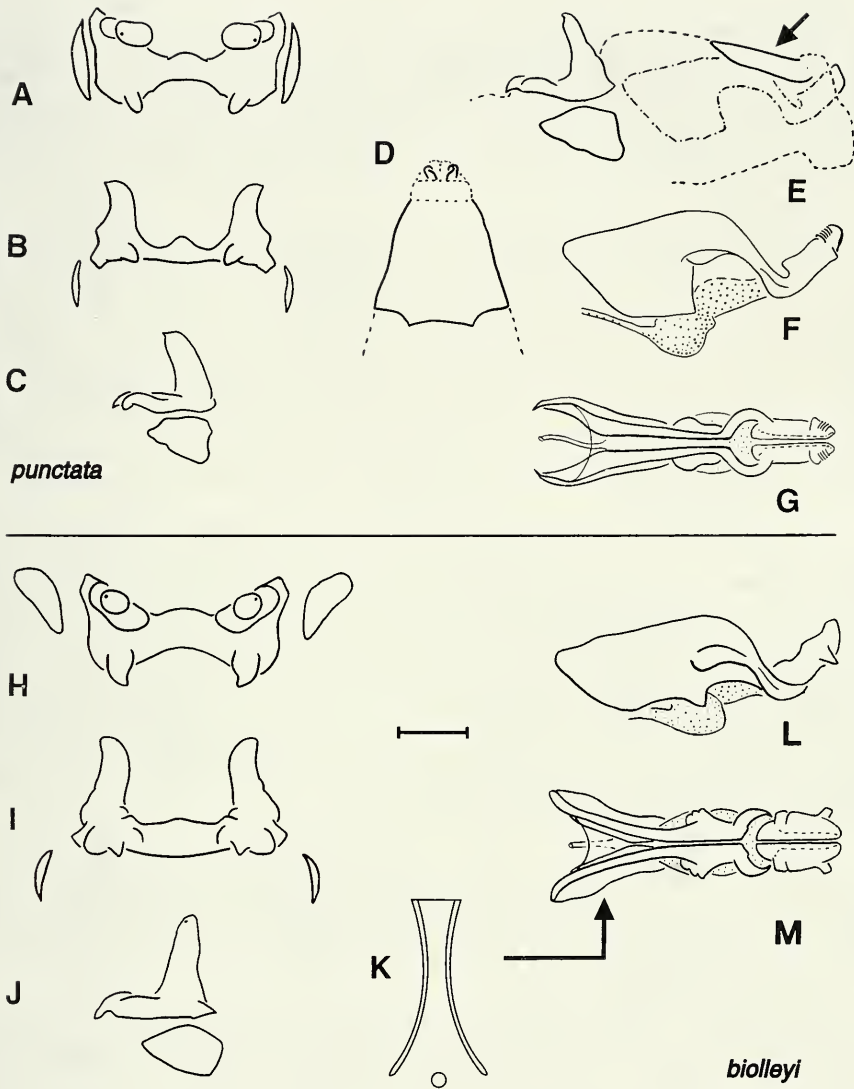


FIG. 7

Male genitalia. A-G, *M. punctata*; H-M, *M. biolleyi*. A-C, H-J, epiphallus, dorsal, axial and lateral views; D, dorsal view of posterior region of complete phallic complex (area indicated by arrow in E); E, Complete phallic complex, lateral view; F-G, L-M, endophallus, lateral and dorsal views; K, diagrammatic transverse section through M at the point indicated, to show relationships of anterior apodemes of endophallus, the dorsal plate joining them, and the ejaculatory duct. Scale bar 1 mm, except for D, E and K, not to scale.

COSTA RICA:

Prov. Alajuela:

Sarapiquí. Cariblanco, 700 m, April 20, 1977 (DeVriess P), INBio, no. CRI001 0130581, III instar female; August 28, 1981 (Simons Y), UCR, 1 male. Sarapiquí, Cinchona waterfall, 1470 m, August 24, 1983 (Rowell CHF), RC, no. 83407, 1 male. Sarapiquí, nr. Virgen del Socorro, 800-1000 m, June 21, 1980 (Rowell CHF, Rowell-Rahier M, Hyde C), RC, no. 80110, 1 male; June 22, 1980, no. 80132a, 1 male; 80132b & c, 2 larvae; nos. 80115a, 1 male, 80115b, 80115c, 2 larvae.

Prov. Cartago:

Orosí, September 9, 1982 (Marín F), UCR, 1 male. Orosí, Embalse El Llano, January 22, 1981 (Alvarado A), UCR, 1 male. Aquiares, nr. Turrialba, March 17, 1930 (Lankester CH), ANSP, 1 male. 13 km by rd. NW Turrialba (0.7 km NW Santa Cruz), site #131 (same locality as previous one), October 1, 1961 (Hubbell TH, Cantrall I, Cohn T), UMMZ, 1 female, 4 III instar larvae. Santa Cruz, crossing of R. Aquiares & rd., 0.7 km NW of church, 1475 m (same locality as previous one), July 6, 1980 (Rowell CHF, Rowell-Rahier M, Hyde C), RC, nos. 80192a, 80192b, 2 larvae; July 10, 1980 (Rowell CHF, Rowell-Rahier M, Hyde C) RC, no. 80213, 1 male. Tapantí, Ref. Nac. Fauna Silv., Quebrada Segunda, 1250 m, March 1992 (Mora G), INBio, no. CRI000 741239, 1 male; no. CRI001 964248, fragmentary larva I or II, female; July 20, 1985 (Solís A), INBio, nos. CRI001 013059, CRI001 013060, CRI001 013056, CRI001 013062, CRI001 013057, 5 larvae III female; no. CRI001 013408, 1 larva IV male.

Prov. Guanacaste:

Guanacaste (no other data), March 4, 1972 (Acevedo A), RC, no. 76001, 1 male. Sta. Cecilia, 9 km S, Est. Pitilla, 700 m, August 1988 (GNP Biodiversity Survey), INBio, no. CRI001 014106, 1 male. Tierras Morenas, Bajo Los Cartagos, R. San Lorenzo, 1050 m, April 1991 (Alvarado C), INBio, no. CRI000 463114, 1 male; April 1992 (Quesada F), INBio, no. CRI000 772687, 1 female. S.E. slope of Volcan Cacao, 1200 m, July 24, 1991 (Rowell CHF, Elsner N, Chavez C), RC, no. 91149, 1 larva. Volcan Cacao, Estac. Cacao, 1000-1400 m, SW side, April 1988 (Espinoza M), INBio, no. CRI000 036280, 1 larva III female; October 1989 (Blanco R, Chaves C), INBio, no. CRI000 097917, 1 male; December 1, 1989 (Blanco R, Chaves C), INBio, no. CRI000 204475, 1 male. Volcan Cacao, Estac. Mengo, 1100m, SW side February 1989 (GNP Biodiversity Survey), INBio, no. CRI001 014107, 1 male. Volcan Tenorio: nr. summit of rd. from Tierras Morenas to Bajo Los Cartagos, 1040 m, July 21, 1991 (Rowell CHF, Elsner N), RC, no. 91097, 1 larva II male.

Prov. Puntarenas:

Monteverde, Cerro Amigos, 1840 m, August 29, 1993 (Zumbado MA), INBio, no. CRI001 973681, 1 male. Monteverde, Est. La Casona, 1520 m, May 1991 (Obando N), INBio, no. CRI001 326073, 1 larva III; March 1992 (Flores K), INBio, no. CRI000 788757, 1 larva. April 1992 (Flores K), INBio, no. CRI000 990325, 1 larva II female. Monteverde, San Luís, 1040 m, January 1993 (Fuentes Z), INBio, no. CRI001 371007, 1 male.

Prov. S. José:

14 km N. of S. Isidro General on Pan-American Hwy. subtropical wet forest. July 19, 1961 (Futuyma D), UMMZ, 1 larva III male. La Hondura, 1300 m, May 18, 1929 (Valerio M), ANSP, 1 male. Bajo La Hondura. 900 m, May 1971 (Echeverría L), UCR, 1 male; August 9, 1978 (K. Paulsen), UCR, 1 male. Carrillo, June 1903, ANSP, 1 male, 4 male larvae, 1 female larva (Hebard Collection); August 1903, ANSP, 1 male; August-October 1903, ANSP, 1 male.

Parque Nacional Braulio-Carrillo, La Montura, 1100 m, April 26, 1980 (DeVriess P), RC, nos. 80282a, 80282b, 2 larvae. Pozo Azul de Pirrís. 325-550 ft (98-167 m) May-June 1903, ANSP, 1 larva.

Distribution. *M. punctata* is a characteristic and sometimes common species of lower montane rain forest in Costa Rica, replacing *M. biolleyi* as one ascends from the lowlands. Virtually all records come from between 600 and 1600 m altitude. The only certain record from a lower altitude is a single larva from Pozo Azul de Pirrís, 98-167 m, in 1903. The type of *punctata* from Chiriquí Province (Pacific slope, abutting the

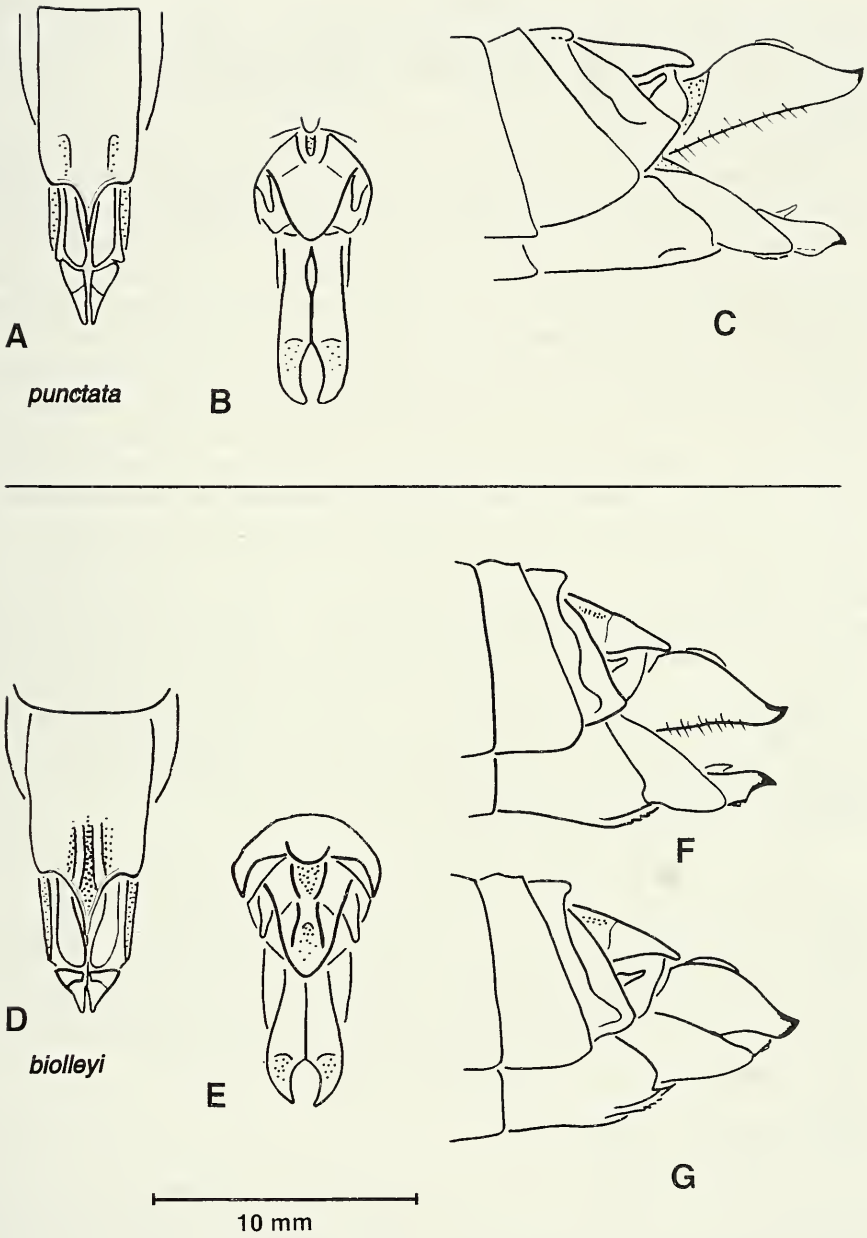


FIG. 8

Female genitalia. A-C, *M. punctata*; D-G, *M. biolleyi*. A, D, ventral view of subgenital plate and ventral ovipositor valves; B, E, dorsal view of supra-anal plate and dorsal ovipositor valves; C, F & G, lateral view.

Costa Rican border) is the only recorded example from Panama. It is not so far recorded north of Costa Rica, and is absent from Astacio-Cabrera's (1975) compilation of species from southern Nicaragua. Distribution map, Fig. 10.

NATURAL HISTORY

Males are active and conspicuous with their shining yellow spots, females sluggish, cryptically coloured and more rarely collected. Larvae are recorded from April to October: adults are first seen in July, are common from August to November, and occur as isolated individuals through January and March. These data are compatible with a one-year generation time, the eggs being laid in the (North Temperate Zone) Autumn and hatching with the onset of the Spring rains in March/April.

The larvae early aggregate into groups. These groups can contain more than 100 individuals of mixed ages, which suggests that the progeny of more than one egg pod may coalesce. They are visually attracted to each other, collecting by a proffered mirror, as in the related romaleine *Chromacris*, or the African pyrgomorphid genus *Phymateus* (ROWELL, unpublished data and 1967). The early larvae are reddish brown in colour and conspicuously marked with two bright yellow patches. They are strongly compressed laterally, hold the hind legs flexed high over their backs, knees together and feet off the substrate, and often lie on their sides - and so look at first sight like anything but grasshoppers. These groups of young larvae bear a striking superficial resemblance to those of a similarly coloured and equally gregarious reduviid bug which occurs in the same environment, and although no experimental data are available, it seems likely that there is a mimetic relationship between the two. Later instars too tend to stay in groups at first but occur as solitary individuals by the fifth instar - presumably (as in *Phymatens*) dispersal is caused by loss of visual contact due to the more cryptic coloration.

M. punctata is moderately polyphagous, eating the leaves of a variety of trees, shrubs and herbs, including *Hyptis* (Lamiaceae), *Lantana* (Verbenaceae), *Croton* and *Alchornia* (Euphorbiaceae) and *Clibadimm* and *Vernonia* (Asteraceae). Most larval groups have been found on *Lantana* or *Clibadimm*. All of these plants are strongly odorous or otherwise chemically defended. It has not been seen to feed on monocots, either in the wild or when offered them in captivity. It also refuses many dicotyledenous leaves, including those of species of *Solanum* (Solanaceae), *Hibiscus* (Malvaceae), *Phenax* (Urticaceae), *Conyza* and *Erechtites* (Asteraceae).

Munatia biolleyi Carl, 1916

Munatia biolleyi Carl, 1916: 504, lectotype male, here designated (selected and labelled "holotype" by C.S. Carbonell, 1966), no collection data; paralectotype male, Costa Rica (Prov. Cartago), Carrillo, herbes aux soleil (P. Biolley); paralectotype female (selected and labelled "allolectotype" by C.S. Carbonell, 1966), Costa Rica (label in Biolley's hand writing), no other collection data; all Muséum d'histoire naturelle, Geneva (examined). It is highly probable that all of Carl's type series were collected in Carrillo by Biolley.

REHN 1905: 405 (as *M. punctata*, but figured outline of wing indicates actually *biolleyi*); HEBARD 1924a: 100.

REDESCRIPTION

Male. Very similar to *M. punctata*, from which it differs a) as specified in the Key to Species above and b) as follows:

Frontal ridge (Fig. 2) shorter than in *punctata*, not reaching the medial ocellus. Preocular ridges present. frons in general with more sculpturing than in *punctata*. Eyes longer in vertical dimension (1.45 X the horizontal dimension). Rostrum (Fig. 3) more rounded in profile. Pronotum (Fig. 4) bears only 4-6 pairs of bosses on the anterior margins of the lateral lobes, and these are smaller than in *punctata*. The prothoracic episternum is rounded, with no decoration on anterior margin. A prominent white tubercle present anterior to the third transverse sulcus on the side of the pronotum (also present in *punctata*, but there much smaller and darker). Both elytron and wing (Fig. 5) broader than in *punctata*; CUI of the elytron is branched, and the wing has 10 anal veins. Stridulatory area of wing slightly better developed than in *punctata*, but probably still nonfunctional. Hind tibia with 8-9, usually 8, external and internal spines. There are no consistent differences in the internal or external genitalia of the two species (Figs. 6, 7).

Coloration. The dorsal medial stripe running along fastigium, vertex, and pronotum, and continued along the folded anal region of the elytron, can be pale brown, yellow, or green, and is narrower than in *punctata* - in the latter species it is apparently always green. The same difference in range of coloration applies to the legs. Pattern on pronotal lobes as in Key to Species. The leading edge of the elytron is invariably brown, lacking the anterior green stripe of *punctata*.

Female. Differs from female of *punctata* as described in Key to Species, namely in the clearly arcuate crest of the pronotum (Fig. 4) and the medially grooved extremity of the subgenital plate (Fig 8D). Ovipositor valves (Fig. 8E-G) shorter and in dorsal view more divergent than in *punctata*, otherwise similar in form. Spermatheca not examined.

Coloration. Unlike *punctata*, the females of *biolleyi* can be either brown or green in general coloration, usually the former. The trailing margin of the wing (i.e. the anal area) is usually yellow or a lighter brown, thus forming a dorsal pale strip when the wings are folded. The fastigium and vertex are also pale in brown forms, but there is no medial pale stripe on the pronotum as in the males.

Measurements: see Table 2. Carl's values fall within the range of measurements made in this study, allowing for the fact that his F = 29 mm (male) is an overestimate (specimen examined). The same sexual differences in relative proportions are seen as in *punctata*. Comparing the two species, using ratios relative to the dimension P as a reference point, *punctata* has relatively longer hind femora and elytra than *biolleyi*.

Larvae (Fig 9B.) The morphological changes occurring in the larvae are similar to those described for *punctata*. Only the first instar however has orange markings, all others are cryptically coloured.

MATERIAL EXAMINED. Type material of *biolleyi* Carl as indicated above. Additionally:

TABLE 2. Dimensions of *M. biolleyi*

<i>Munatia biolleyi</i>	Mean	S.D.	Max	Min	N	Carl's values
Males:						
Dimensions in millimetres:						
Hind femur (F)	25.12	1.15	27.71	24.01	10	29
Rostrum-subgen. plate (L)	44.70	1.31	46.74	43.41	10	45
Pronotum (midline) (P)	12.02	0.58	13.24	11.21	10	12.5
Pronotum longest	12.11	0.58	13.35	11.31	10	
Interocular space (IO)	1.77	0.09	1.97	1.66	10	
Antennal pedicel (width)	1.13	0.07	1.23	1.00	10	
Antenna (A)	27.07	2.30	30.50	24.66	5	
Hind tarsus 1st + 2nd segments	3.53	0.28	4.10	3.13	10	
Hind tarsus 3rd segment	3.42	0.20	3.81	3.21	10	
Elytron length (E)	41.92	1.54	43.81	39.45	10	46
Rostrum, tip to eye	3.19	0.23	3.47	2.79	10	
Ratios						
F/P	2.11	0.08	2.24	2.00	9	
L/P	3.75	0.16	4.01	3.52	9	
IO/P	0.15	0.01	0.16	0.13	9	
IO/pedicel	1.58	0.14	1.85	1.43	9	
Tarsus 3/ Tarsus 1+2	0.99	0.05	1.06	0.91	9	
Tarsus 1+2+3/F	0.27	0.01	0.30	0.26	9	
Tarsus 1+2+3/P	0.58	0.02	0.60	0.55	9	
A/P	2.25	0.13	2.38	2.04	5	
E/P	3.49	0.17	3.72	3.22	9	
E/L	0.94	0.05	1.01	0.86	9	
Females:						
Dimensions in millimetres:						
Hind femur (F)	35.29	1.81	38.25	31.95	10	35
Rostrum-subgen. plate (L)	71.92	4.83	79.32	66.29	9	75
Pronotum (midline) (P)	19.73	0.96	21.50	18.03	10	20
Pronotum longest	19.90	0.94	21.70	18.30	10	
Interocular space (IO)	2.98	0.15	3.23	2.79	10	
Antennal pedicel (width)	1.40	0.07	1.50	1.31	9	
Antenna (A)	28.29	2.39	30.95	26.30	3	
Hind tarsus 1st + 2nd segments	4.51	0.58	5.42	3.16	10	
Hind tarsus 3rd segment	4.51	0.27	5.15	4.23	9	
Elytron length (E)	56.24	2.66	60.94	52.49	10	60
Rostrum, tip to eye	4.51	0.49	5.38	3.90	10	
Ratios						
F/P	1.79	0.09	1.98	1.66	10	
L/P	3.67	0.22	4.07	3.45	9	
IO/P	0.15	0.01	0.16	0.14	10	
IO/pedicel	2.15	0.17	2.43	1.86	9	
Tarsus 3/ Tarsus 1+2	0.92	0.35	1.38	0.00	10	
Tarsus 1+2+3/F	0.24	0.05	0.28	0.13	10	
Tarsus 1+2+3/P	0.44	0.08	0.50	0.22	10	
A/P	1.43	0.01	1.44	1.43	2	
E/P	2.85	0.12	3.11	2.70	10	
E/L	0.79	0.01	0.80	0.78	5	

PANAMA

Prov. Bocas del Toro: Bocas del Toro, July 1-10, 1908 (Robinson W), ANSP, 1 male.

COSTA RICA

Prov. Cartago:

2 mi SE Turrialba (grounds of Inst. Interamer. de Sci. Agrícolas), site #129, September 30, 1961 (Hubbell T, Cantrall I, Cohn T), UMMZ, 2 larvae III, 1 male; October 3, 1961 (Hubbell T, Cantrall I, Cohn T), UMMZ, 2 females, 1 male. Juan Viñas, March (no year given) (Bruner L), ANSP, 1 female.

Prov. Guanacaste:

Cerro El Hacha, 300 m, 12 km SE La Cruz, May 1988 (Espinoza M), INBio, no. CRI000 094299, 1 female. Sta. Cecilia, 9 km S. Est. Pitilla, 700 m, May 1988 (GNP Biodiversity Survey), INBio, no. CRI000 121179, 1 larva V female; July 1988, no. CRI001 014100, 1 larva V male; no. CRI001 014089, 1 male; no. CRI000 129732, 1 male; no. CRI000 129731, 1 male; no. CRI000 129446, 1 male; no. CRI000 088000, 1 male; no. CRI000 129797, 1 female; no. CRI000 088007, 1 female; no. CRI001 014121, 1 larva; August 1988, no. CRI001 014105, 1 larva III f.; no. CRI001 014090, 1 male; no. CRI001 014117, 1 female; September 1988, no. CRI001 013295, 1 male; November 1988, no. CRI001 014113, 1 larva V female; no. CRI000 136257, 1 male; April 6, 1989, no. CRI000 091743, 1 female; June 1989, no. CRI000 011236, 1 male; September 1989, no. CRI000 035769, 1 male; September 1989 (Moraga C, Rios P), INBio, no. CRI000 046485, 1 male; May 1990 (II Curso Parataxon.), INBio, no. CRI001 147678, 1 larva IV male, no. CRI000 241688, 1 larva V male.; no. CRI000 293438, 1 female; August 16, 1991 (Moraga C), INBio, no. CRI000 409548, 1 female; July 21, 1993 (Rios P), INBio, no. CRI001 767206, 1 male; December 10, 1993 (Moraga C), INBio, no. CRI001 948084, 1 female.

Prov. Heredia:

Parque Nacional Braulio-Carrillo, Est. Magsasay, June 1990 (Alvarado C), INBio, no. CRI000 272954, 1 female; Puerto Viejo, Finca La Selva, 40 m, September 3, 1975 (Rowell CHF), RC, nos. 75005 & 75006, 1 male, 1 female, in cop.; August 13, 1976 (Walz S, Rowell CHF), RC, nos. 76003 & 76004, 1 male, 1 female, in cop.; September 12, 1979 (Rowell CHF, Rowell-Rahier M), RC, no. 79247, 1 male; July 10, 1980 (Braker HE), RC, no. 80018, 1 female; May 3, 1982 (Marquis B), ANSP, no. 82-106, 1 female; June 1982 (Braker HE), ANSP, no. 82-137, 82-138, 2 males; July 12, 1982 (Braker HE), ANSP, no. 82-140, 1 female; July 20, 1982 (Braker HE), ANSP, no. 82-143, 1 female; September 2, 1983 (Rowell CHF), RC, nos. 83447a & 83447b, 2 males; September 1, 1991 (Waltz S), RC, no. 75004, 1 male.

Prov. Limón:

5 km N. of Suretka, trail to Río Uatsí, 200-220 m, September 20, 1983 (Rowell CHF), RC, nos. 83060a & 83060b, 1 male, 1 female, in cop.; Amubri, 70 m, August 23, 1992 (Gallardo G), INBio, no. CRI000 734414, 1 male; no. CRI000 734404, 1 female; May 14, 1994 (Gallardo G), INBio, no. CRI001 871114, 1 male; no. CRI001 871113, 1 male; Barra del Colorado, R.N.F.S., Río Sardinas, 10 m, April 10, 1994 (Araya F), INBio, no. CRI001 848425, 1 larva; June 1994 (Araya F), INBio, no. CRI001 847939, 1 female; Parque Nacional Tortuguero, Est. Cuatro Esquinas, 0 m asl, June 1990 (Chavarria U), INBio, no. CRI000 272555, 1 female; June 1990 (Quesada E), INBio, no. CRI000 462818, 1 male; July 1990 (Chavarria U), INBio, no. CRI000 244702, 1 female; June 1990 (Chavarria U), INBio, no. CRI000 272558, 1 male. Río Segundo affl. Río Banano, 500 m, April 27, 1985 (Solís A), INBio, no. CRI001 013052 to 013055, 4 larvae. Río Toro Amarillo, 7 km. W. of Guápiles, late second growth tropical wet forest, August 21, 1964 (Hubbell SP), UMMZ, 1 male, 1 female; Río Toro Amarillo, 10 km N of Guápiles, S of Quebrada Grande on trail to S. Valentino, 650 m, September 10, 1993 (Rowell CHF), RC, no. 93207, 1 male, 1 female, in cop.; Valle de la Estrella, Res. Biol. Hitoy Cerere, Est. Miramar, 500 m, July 1993 (Carballo G), INBio, no. CRI001 955534, 1 male; Est. Hitoy Cerere, 100 m, July 1991 (Carballo G), INBio, no. CRI000 585772, 1 larva V female; November 16, 1991 (Carballo G), INBio, no. CRI000 524119, 1 female.

Distribution. *M. biolleyi* is apparently confined to lowland rainforest of the Caribbean slope of northern Panama, Costa Rica, and southern Nicaragua (Nicaragua:

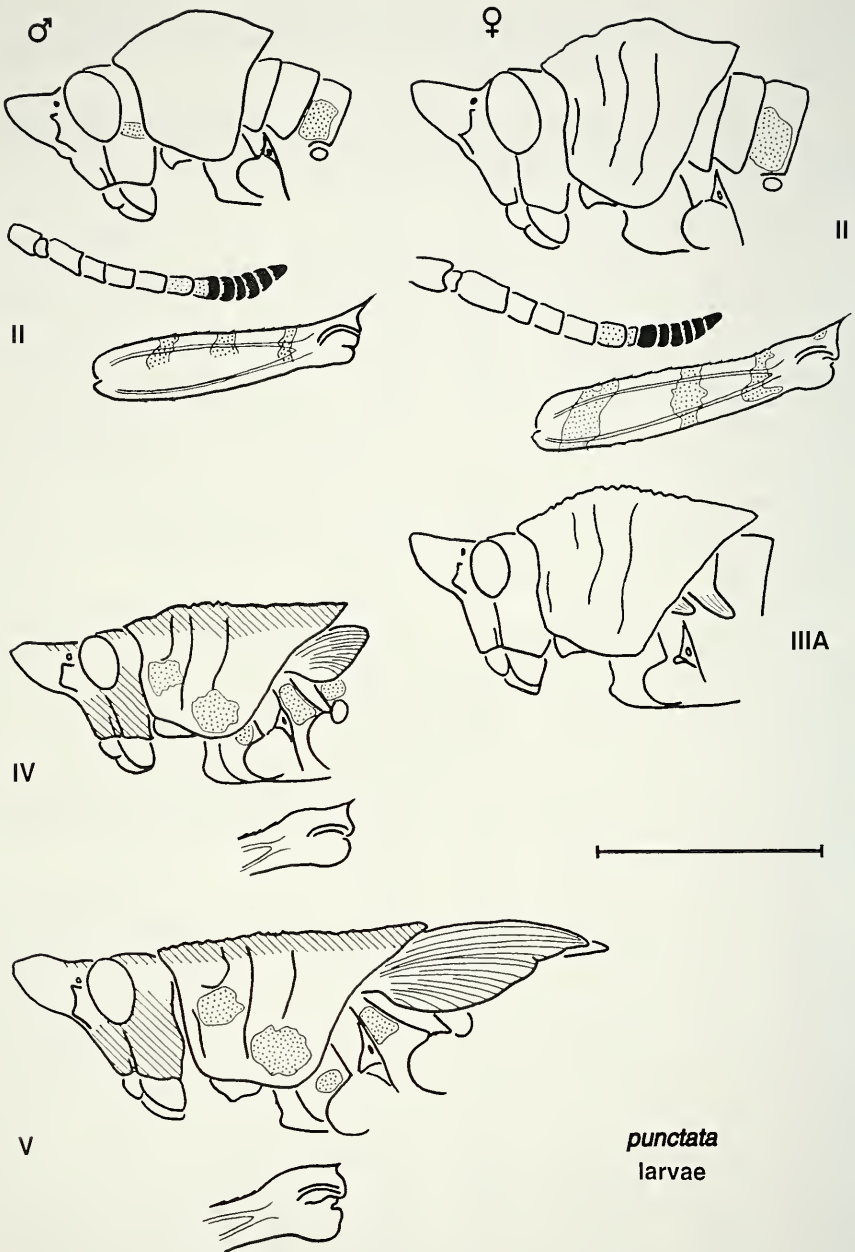
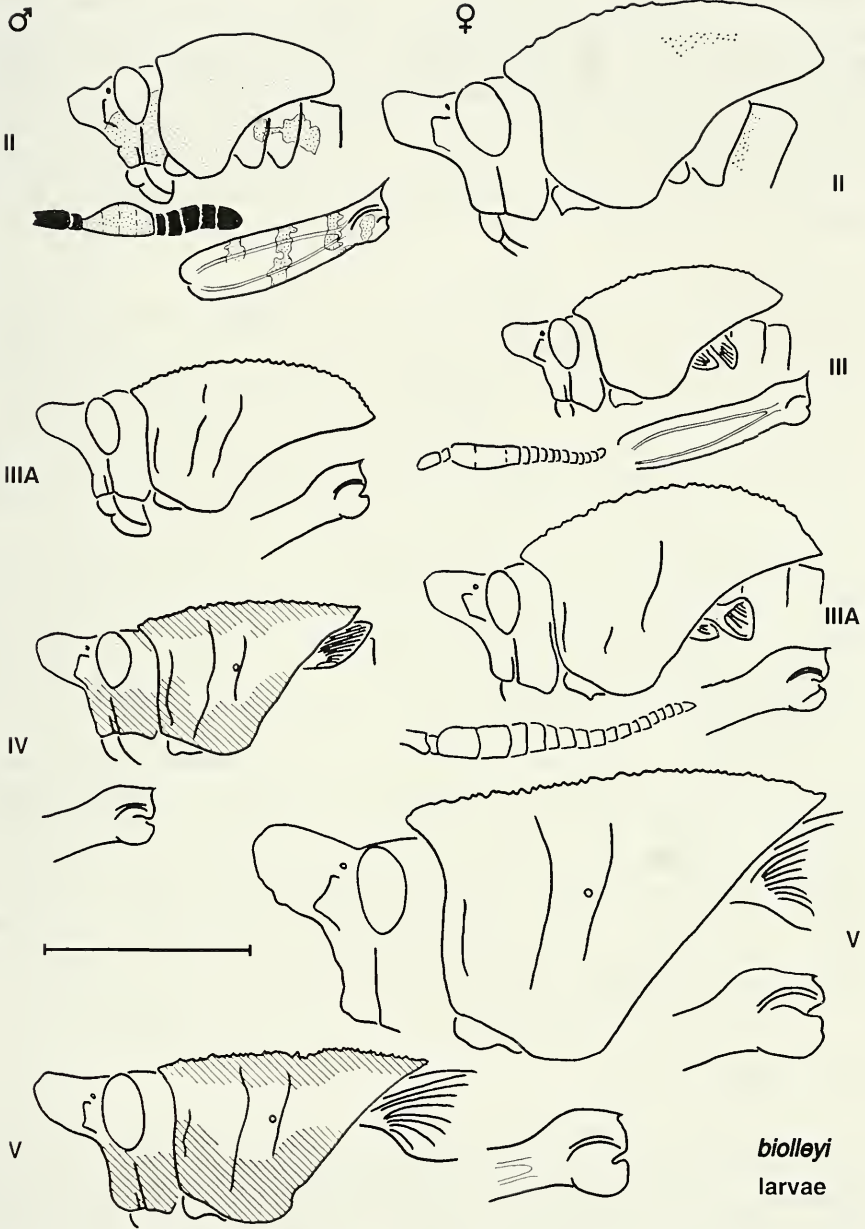


FIG. 9. Larvae of *Munatia*. A. *M. punctata*. B. *M. biolleyi*. Conventions applying to both diagrams: stippled areas, orange or gold; hatched areas, green or yellow, filled areas, black; open areas, dark brown. Scale 10 mm throughout, except for instar II larvae, where the scale is 5 mm. Both species show progressive reduction with age in the curvature of the pronotal crest and the



relative length of the spine on the hind knee, and similar changes in general coloration. They differ from each other throughout the larval instars in the more angular rostrum and pronotum of *punctata*, in the detail of colour patterning, especially on the antennae of young larvae and the pronota of older males, and in the presence in fourth and later instars of *biolleyi* of a conspicuous white tubercle in the centre of the pronotal lobe.

Zelaya, El Recreo (forêt), 30 m, October 1984 (Amedegnato C, Poulain S), MNHNP, specimen not examined). It occurs between sea level and about 700 m altitude. A specimen of Bruner's bears the locality label "Juan Viñas", which town lies at 1165 m. However, the surrounding countryside is precipitous, and even in Bruner's day suitable forest habitat was probably restricted by agriculture to the bottom of the valley of the Río Reventazón at less than 800 m. At least the modern records from "Turrialba" (nominally at 630 m) also certainly refer to the gorge of the Reventazón, here at about 500 m. Distribution map: see Fig. 10.

NATURAL HISTORY

The natural history of the adults of *M. biolleyi* is similar to that described for *M. punctata*. Males are active, females sluggish and cryptic. They are usually found in secondary vegetation in light-gaps caused by tree-falls or path construction. One female was captured on the pendant root of an Aroid epiphyte at 25 m up a large *Dipteryx* tree in closed forest (D. Perry, pers. comm., 1978 - specimen examined), so females too must either fly or at least climb up into trees. They are however certainly not typically arboricole, as is said for the related genus *Xomacris* (AMÉDÉGNATO & POULAIN 1986). Adults have been recorded from March to November, and copulations seen in August and September. Given the poor collecting intensity in December and January and the paucity of larval records, these data do not indicate whether the species breeds seasonally or all the through the year. The natural history of the larvae is not known. In particular it is not known whether they display the same visually based gregarious behaviour as larvae of *M. punctata*, but their more cryptic coloration makes this perhaps improbable.

M. biolleyi is polyphagous on dicotyledons, like *M. punctata*. In the wild it has been seen eating *Neurolaena* (Asteraceae) and *Alchornia* and *Plukenetia* (Euphorbiaceae). In captivity it has accepted species of Convolvulaceae, Amaranthaceae, Rubiaceae, and the (monocotyledenous) Marantaceae, but refused to eat other monocotyledons (various Araceae, Arecaceae, Bromeliaceae, Cyclanthaceae, Heliconiaceae, Poaceae), ferns, or the dicotyledons *Aspidospermum* (Apocyanaceae), *Anaxagoria* (Annonaceae), *Cecropia* (Moraceae), *Solanum* (Solanaceae), and various Melostomataceae (feeding trial records in part from H.E. Braker, pers. comm.).

It is occasionally parasitized internally by the larvae of Tachinid flies.

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FIG. 10

Distribution map of *Munatia*. The type locality of *M. punctata* in N. Panama is not known more precisely than the province (Chiriquí); the corresponding symbol (an open square) is here placed arbitrarily between Cerro Punto and Boquete. A further locality (not shown) for *M. biolleyi* is known in E. Nicaragua at 12°10' N, 84°19' W. The map includes sight records of the present author not listed in "Material examined". All localities for *biolleyi* are in the Caribbean lowlands or in the floor of river valleys draining into them. The localities for *punctata* are all in the highlands near the Pacific/Caribbean watershed, with one exception (Pozo Azul de Pirrís in the Pacific lowlands).

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Report on some pholcid spiders collected in Guatemala and Honduras (Araneae, Pholcidae)

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Report on some pholcid spiders collected in Guatemala and Honduras (Araneae, Pholcidae). - Descriptions and redescriptions of nine pholcid species from Guatemala and Honduras are given. The following species are new: *Modisimus pana* sp.n., *Mod. ixobel* sp.n., and *Metagonia asintal* sp.n. from Guatemala, *Modisimus lancetilla* sp.n. and '*Coryssocnemis*' *tigra* sp.n. from Honduras. For two species the males are newly described: *Metagonia blanda* Gertsch, 1973 and *Met. belize* Gertsch, 1986. Two species are redescribed: '*Coryssocnemis*' *furcula* Cambridge, 1902 and *Modisimus cornutus* Kraus, 1955.

Key-words: Pholcidae - neotropics - Guatemala - Honduras.

INTRODUCTION

Pholcids are apparently among the most common and diverse spider families in the neotropics (Huber 1997 b). About 350 species are presently known from the New World, but this is probably only a small fraction of the actual number.

The present paper reports on part of the pholcids collected by the author in Guatemala, Honduras and Nicaragua during a 4-week trip in September and October 1996. The fact that about 35 species were collected in this short time demonstrates the abundance of pholcids in these countries, for which only about 15 species were previously recorded. This paper presents a subjective selection of the most 'interesting' species. The criteria for "interesting" were quite arbitrary, such as extraordinary morphological character states (e.g. *Modisimus pana*: pedipalps; '*Coryssocnemis*' *tigra*: epigynum, male bulb; *Metagonia belize*, *Met. lancetilla*, and *Modisimus ixobel*: male chelicerae): unusual variation in genitalia ('*Coryssocnemis*' *furcula*: epigynum); the first case of stridulation in the genus *Metagonia* (*M. asintal*); the surprisingly wide distribution of a troglophile species (*Metagonia blanda*). *Modisimus cornutus* Kraus, which was previously only known from the island of Utila, is reported from the mainland. For two species (*Metagonia belize*, *Met. blanda*), the

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males are newly described. The first is new for Guatemala, the second is new for Honduras. The known range of '*Coryssocnemis furcula* (new for Honduras) is widely extended.

'*Coryssocnemis furcula* is redescribed under the original name although it is almost certainly not congeneric with the type species of the genus (*C. callaica* Simon, 1893 from Venezuela; see Huber in press b for discussion of the genus). This is also true for '*C. tigma* n.sp. which may or may not be congeneric with '*C. furcula*. Only future revisions and phylogenetic analyses may justify the creation of a new genus (or new genera) for these species.

MATERIAL AND METHODS

Previously described species were borrowed from the following institutions: American Museum of Natural History, New York (AMNH), Natural History Museum, London (BMNH), Senckenbergmuseum Frankfurt (SMF). Holotypes and paratypes of new species as well as vouchers are deposited in the AMNH. Further types and vouchers are deposited in the Muséum d'histoire naturelle, Genève (MHNG). The other material is provisionally deposited in the author's collection.

Descriptions follow the style currently used for pholcid spiders (for discussion of style see Huber in press a). Drawings were made with a compound microscope with camera lucida and later completed with a dissecting microscope. Measurements (all in mm) were taken with ocular micrometers in a compound or a dissecting microscope. Averages (arithmetic means) are given for $N \geq 5$. Prosoma length was defined as the distance between frontal face of eye region and posterior border of carapace medially, but it varies widely with the angle at which the prosoma is viewed. "Carapace" is referred to as the dorsal part of the prosoma. The most accurate indicators of size are probably prosoma width and tibia length. Total size is simply the sum of prosoma length and opisthosoma length, regardless of the petiolus, and is given as an approximate indication of overall size. The tibia index ("tibind") is the length of the tibia divided by its width at the middle, and is thus a measure of the 'slenderness' of the legs. In the diagnoses, species with an average total length of >3 mm are defined as "large", those smaller than 2.5 mm are "small".

Diagnoses of the genera are not given, since there are recent discussions of each of the treated genera (*Modisimus* Simon, 1893; Huber in press a; *Coryssocnemis* Simon, 1893; Huber in press b; *Metagonia* Simon, 1893; Huber 1997a).

DESCRIPTIONS AND REDESCRIPTIONS

Modisimus pana sp.n.

Figs 1-10

MATERIAL EXAMINED: Male holotype and one female paratype from creek near Panajachel, Dept. Sololá, Guatemala, elev. about 1700 m, 17 Sept. 1996 (B. A. Huber), in AMNH. 1 male and 1 female paratypes, same collection data, in MHNG. 2 males, 1 female, 1 juv., same collection data, in author's collection.

Etymology: 'Pana' is the vulgar name of Panajachel, the type locality.

Diagnosis: Small to medium sized *Modisimus* with high eye turret (Fig. 1), characterized by the male genitalia (bulbal apophyses: cymbium with bent procurus and additional dorsal apophysis - Figs 3-4, 7-8), the male chelicerae with their characteristically modified hairs (Figs 5-6), and the female epigynum and internal genitalia (Figs 9-10). The species is similar to *M. palenque* Gertsch, 1977 (I have seen the male holotype of this species), but easily distinguished by details in the characters mentioned.

Distribution: Known only from above material from type locality.

DESCRIPTION

Male: Prosoma dorsally pale ochre, with brown mark medially (Fig. 2) and brown clypeus, eye turret brown posteriorly, sternum medially pale ochre, laterally slightly darker. Opisthosoma dorsally grayish ochre with large black spots and few small white spots (Figs 1-2), ventrally lighter, with brownish genital plate and brown spot between genital plate and spinnerets. Legs yellow-brown, with dark rings on femora (distally) and tibiae (proximally and distally). Six eyes on high eye turret (the holotype and one other male completely lack the AMEs, but two males have minute AMEs, cf. Fig. 2). Chelicerae with high number of modified hairs anteriorly (Figs 5-6). Pedipalps distinctive, as shown in Figs 3-4.

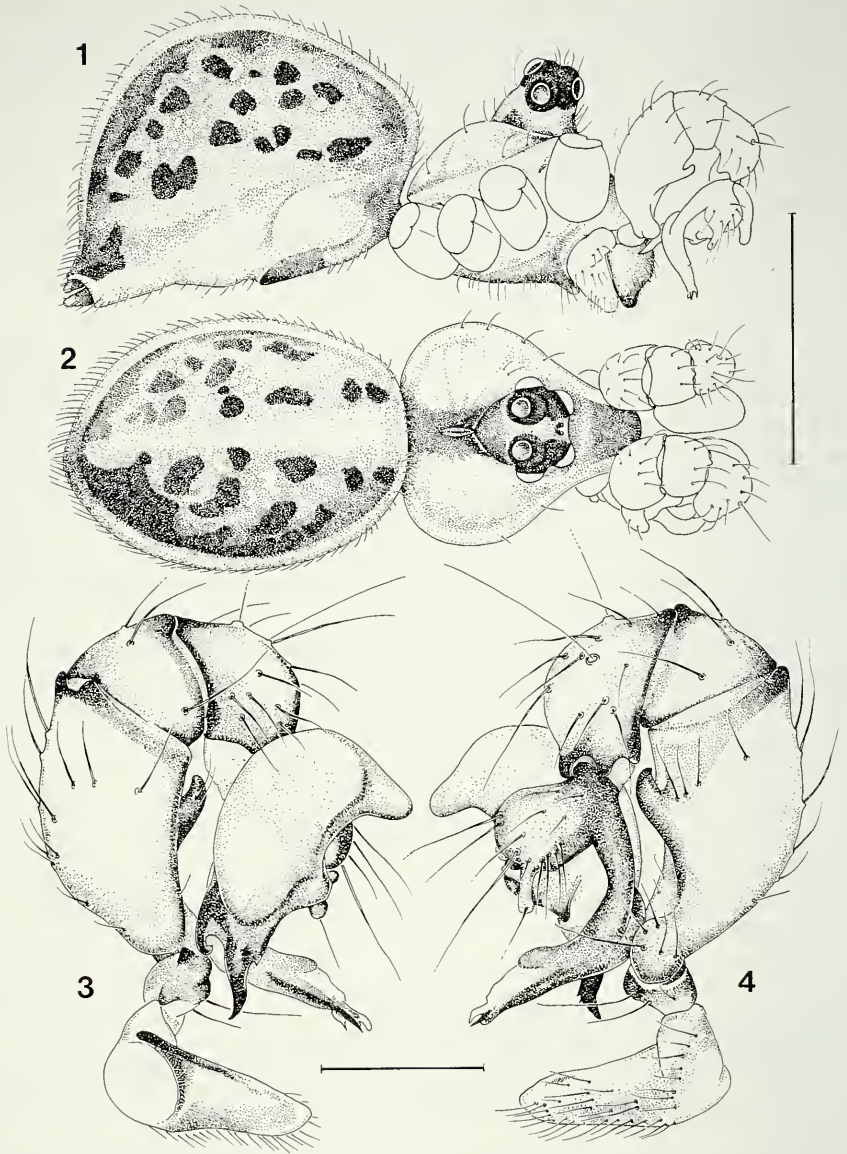
Measurements of male holotype: Total length: 2.4; prosoma width: 0.95; length: 0.8; opisthosoma length: 1.6; legs:

	1	2	3	4
fem	6.1	4.2	3.4	4.1
pat	0.4	0.4	0.4	0.4
tib	5.9	3.9	3.1	3.6
met	10.1	6.4	4.6	5.5
tar	1.4	1.0	0.8	0.9
total	23.9	15.9	12.3	14.5
tibind	69	42	36	42

Female: Colors as in male, minute AMEs present in two individuals, absent in the third. Epigynum simple brown plate (Fig. 9). Internal genitalia as in Fig. 10.

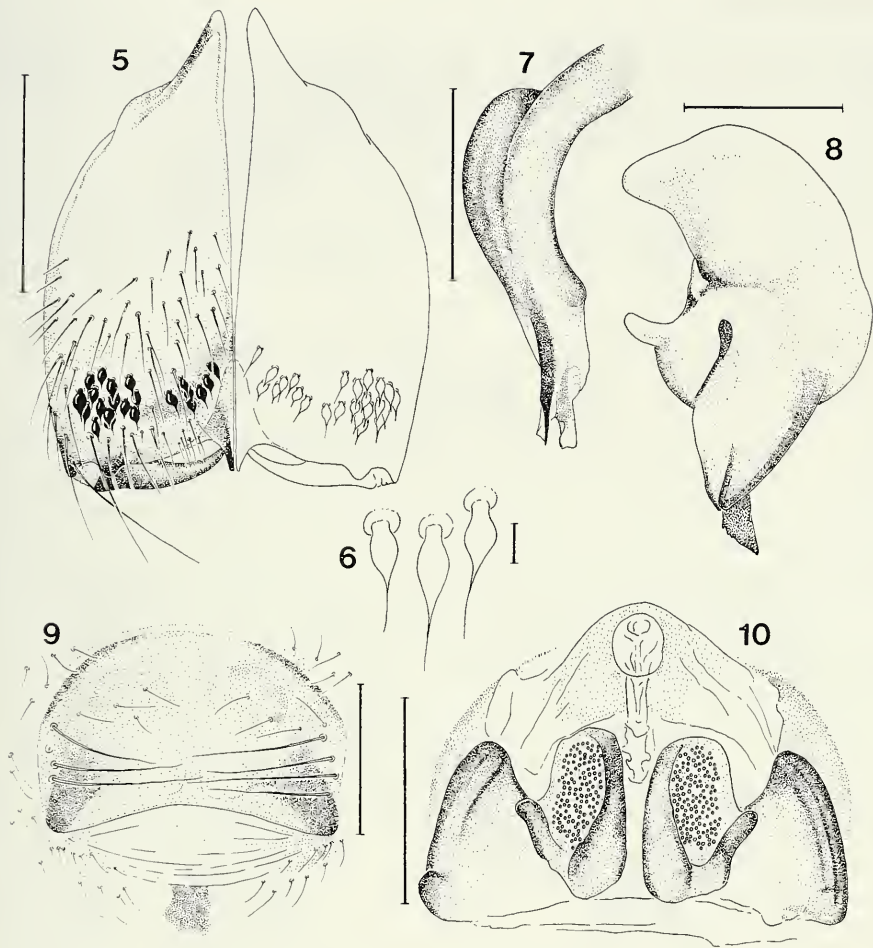
Measurements of a female paratype: Total length: 2.6; prosoma width: 0.79; length: 0.8; opisthosoma length: 1.6; legs:

	1	2	3	4
fem	3.8	2.7	2.2	2.7
pat	0.3	0.3	0.3	0.3
tib	3.8	2.4	1.9	2.2
met	6.0	3.6	2.8	3.3
tar	1.3	0.8	0.7	0.7
total	15.2	9.8	7.9	9.2
tibind	52	33	30	30



FIGS 1-4

Modisimus pana sp.n. 1, Male, lateral view. 2, Male, dorsal view. 3, Left pedipalp, prolateral view. 4, Left pedipalp, retrolateral view. Scales: (1,2) 1 mm, (3,4) 0.3 mm.



FIGS 5-10

Modisimus pana sp.n. 5. Male chelicerae, frontal view. 6. Modified hairs on male chelicerae. 7. Right procurus, retrolateral view. 8. Left bulb, retrolatero-ventral view. 9. Epigynum, ventral view. 10. Epigynum, dorsal view. Scales: (5,7-10) 0.2 mm, (6) 0.01 mm.

Variation: All males except the holotype are quite pale, which is usual for recently molted spiders. Tibia 1 length in other material: males: 5.7, 6.2, 6.4; females: 3.3, 3.5.

Habitat: The spiders were found in small webs with a domed sheet of silk, about 50 cm above the ground, between leaves in the low vegetation.

Modisimus ixobel sp.n.

Figs 11-20

MATERIAL EXAMINED: Male holotype and 2 female paratypes from forest near Finca Ixobel, near Poptun, Dept. Petén, Guatemala, 22 Sept. 1996 (B. A. Huber), in AMNH. 2 female paratypes, same collection data, in MHNG. 5 females, 3 juvs, same collection data, in author's collection.

Etymology: Named for Finca Ixobel, which is close to the type locality.

Diagnosis: Small *Modisimus* with high eye turret (Fig. 11), distinguished from other species of the genus by the male genitalia (bulb with dorsal apophyses; simple procurus; palpal femur with distal bulge - Figs 13-16), the male chelicerae with their characteristically modified hairs in an uncommon position (Figs 17-18), and the female epigynum and internal genitalia (Figs 19-20).

Distribution: Known only from above material from type locality.

DESCRIPTION

Male: Prosoma dorsally pale ochre yellow, with brown mark medially and on eye turret (Fig. 12), clypeus and sternum ochre yellow. Opisthosoma dorsally greenish gray with large black spots and few small white spots (Figs 11-12), ventrally lighter, with brownish genital plate and brown stripe between genital plate and spinnerets. Legs ochre yellow, without rings. Six eyes on high eye turret. Chelicerae with five strong modified hairs on outer distal margin (Figs 17-18). Pedipalps distinctive, as shown in Figs 13-14.

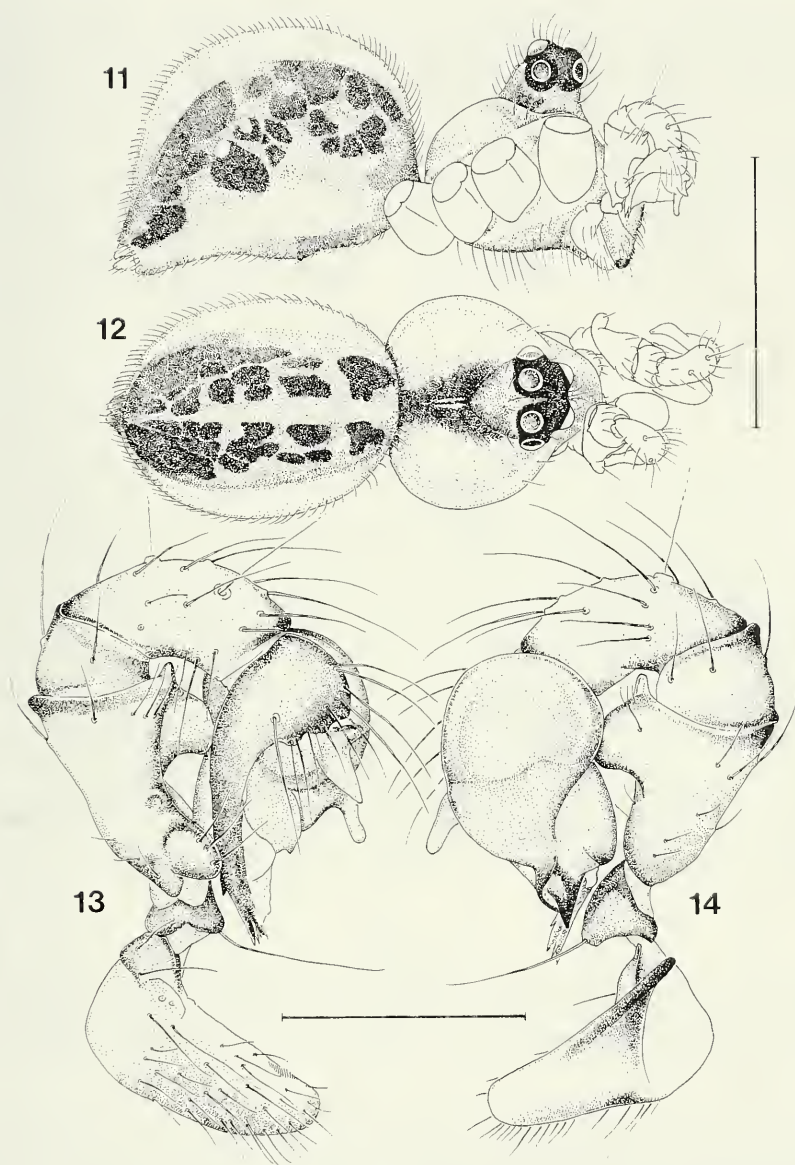
Measurements of male holotype: Total length: 1.9; prosoma width: 0.79; length: 0.7; opisthosoma length: 1.2; legs:

	1	2	3	4
fem	6.2	4.3	3.2	4.1
pat	0.4	0.4	0.3	0.4
tib	6.2	4.1	3.1	3.6
met	10.9	6.3	4.7	5.7
tar	1.4	1.0	0.8	0.9
total	25.1	16.1	12.1	14.7
tibind	82	56	44	49

Female: Colors as in male, but legs with dark rings on femora (distally) and tibiae (proximally and distally). Epigynum simple brown plate (Fig. 19). Internal genitalia as in Fig. 20.

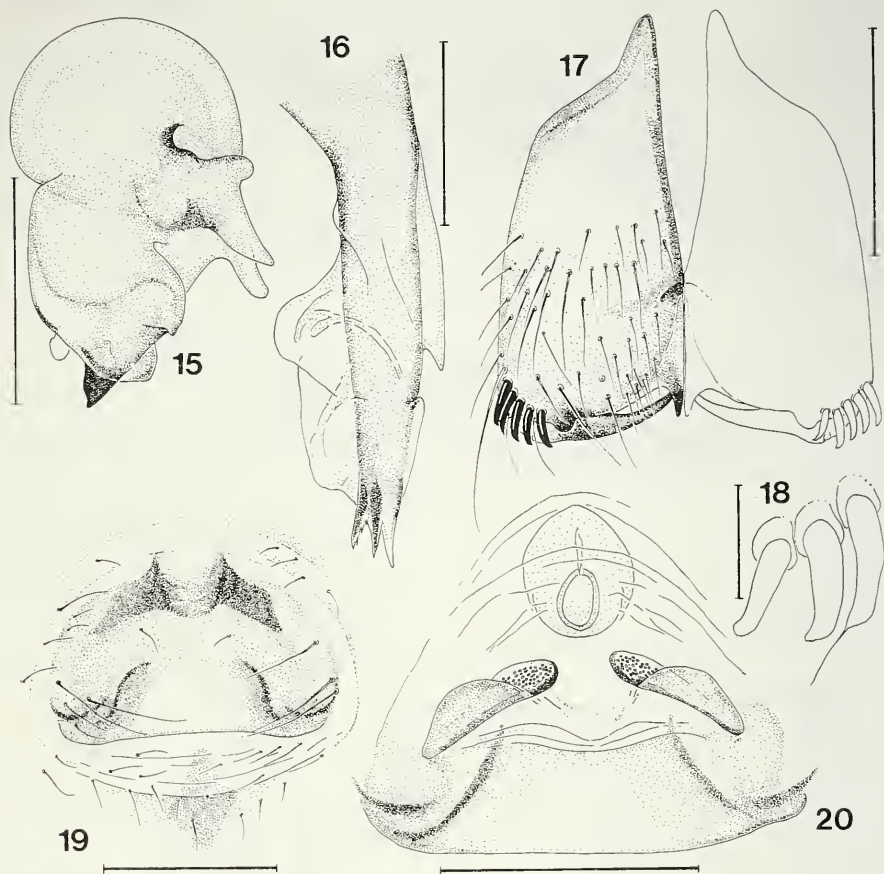
Measurements of a female paratype: total length: 2.5; prosoma width: 0.92; length: 0.8; opisthosoma length: 1.7; legs:

	1	2	3	4
fem	6.2	4.4	3.6	4.4
pat	0.4	0.4	0.4	0.4
tib	6.2	4.1	3.3	3.6
met	10.6	6.5	4.9	5.9
tar	1.7	1.2	0.9	0.9
total	25.1	16.6	13.1	15.2
tibind	70	46	38	40



FIGS 11-14

Modisimus ixobel sp.n. 11, Male, lateral view. 12, Male, dorsal view. 13, Right pedipalp, retro-lateral view. 14, Right pedipalp, pro-lateral view. Scales: (11,12) 1 mm, (13,14) 0.3 mm.



FIGS 15-20

Modisimus ixobel sp.n. 15, Right bulb, retrolateral view. 16, Right procurus, prolateral view. 17, Male chelicerae, frontal view. 18, Modified hairs on male chelicerae. 19, Epigynum, ventral view. 20, Epigynum, dorsal view. Scales: (15,17) 0.2 mm, (16) 0.1 mm, (18) 0.03 mm, (19-20) 0.3 mm.

Variation: Tibia 1 in 7 other females: 5.4-6.6; \bar{x} =6.0.

Habitat: The spiders were found in small webs with a domed sheet of silk, close to the ground, mostly in dark sheltered places.

Modisimus cornutus Kraus, 1955

Figs 21-31

Modisimus cornutus KRAUS 1955: 13-14; pl. 1, figs 19-21.

MATERIAL EXAMINED: Male holotype and 9 female paratypes from Isla Utila, Honduras, 26 Sept. 1951 (Peters), SMF 8685-8687 and 8710. 7 males, 5 females, 3 juvs from Jardin Botanico Lancetilla, near Tela, Dept. Atlantida, Honduras, elev. about 50 m, 28 Sept. 1996 (B. A. Huber), one pair in AMNH, one pair in MHNG, others in author's collection.

Diagnosis: Small *Modisimus* with high eye turret (Fig. 21), distinguished from other species of the genus by the male genitalia (bulb with a pair of dorsal processes: cymbium with dorsal apophysis and procursus with translucent dorsal spine - Figs 23-24, 26, 28), the male chelicerae with a patch of simple spines (Fig. 27), and the female epigynum and internal genitalia (Figs 29-31).

Note: The diagnosis of the original description refers to three cylindrical processes on the pedipalpal tarsus. However, two of these processes do not originate from the tarsus (cymbium) but from the bulb (Fig. 26).

Distribution: Known only from above material from two localities in northern Honduras.

REDESCRIPTION

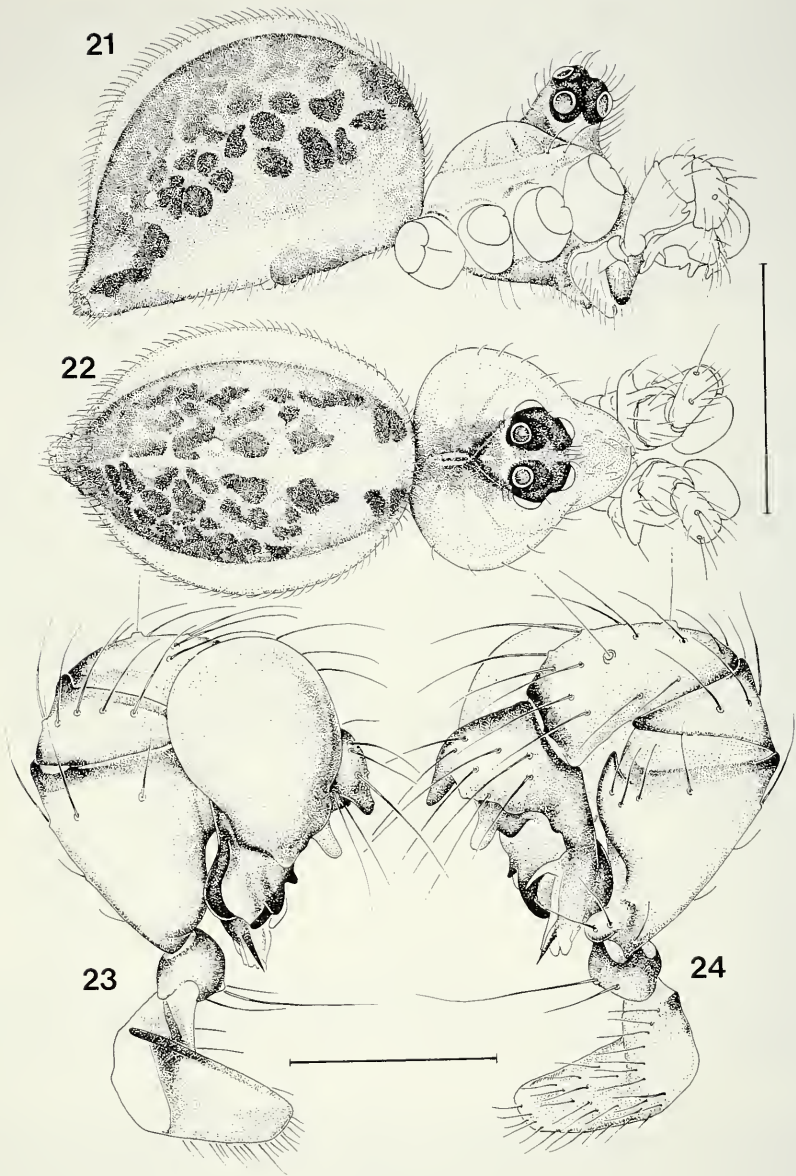
Male (Lancetilla): Prosoma ochre, only eye turret darker. Opisthosoma dorsally greenish gray with large black spots and few small white spots (Figs 21-22), ventrally lighter, with light brownish genital plate and short black stripe between genital plate and another brown spot near spinnerets. Legs ochre brown, without rings. Six eyes on high eye turret. Chelicerae with a patch of about 10 modified hairs on each side (Fig. 27). Pedipalps distinctive, as shown in Figs 23-24. The male holotype is much paler, and the patches of modified hairs on the chelicerae are located slightly more proximally.

Measurements of a male from Lancetilla: Total length: 2.3; prosoma width: 0.89; length: 0.8; opisthosoma length: 1.5; legs:

	1	2	3	4
fem	5.4	3.6	2.9	3.6
pat	0.4	0.4	0.4	0.4
tib	5.7	3.6	2.9	3.5
met	9.7	5.5	4.2	5.1
tar	1.4	0.9	0.8	0.8
total	22.6	14.0	11.2	13.4
tibind	75	49	41	46

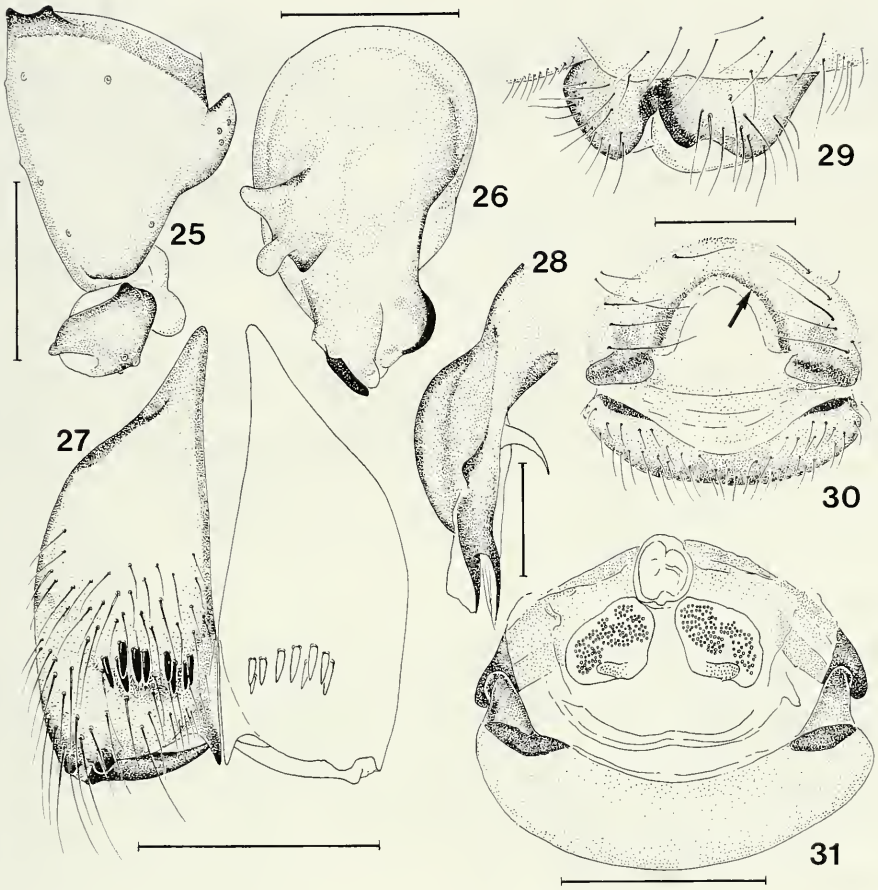
Female (Lancetilla): Colors as in male, but with broad dark median stripe dorsally on prosoma, legs also without rings. Epigynum brown, slightly protruding, with posterior sclerotized plate (Figs 29-30). Internal genitalia as in Fig. 31. Most paratypes are very pale, but in several the dark spots on the opisthosoma are still discernible. The epigynum looks identical in side view, but in ventral view the median arch on the frontal plate (arrow in Fig. 30) is not visible in some of the females.

Measurements of a female from Lancetilla: Total length: 2.0; prosoma width: 0.79; length: 0.7; opisthosoma length: 1.3; legs:



FIGS 21-24

Modisimus cornutus Kraus. 21, Male, lateral view. 22, Male, dorsal view. 23, Left pedipalp, prolateral view. 24, Left pedipalp, retrolateral view. Scales: (21,22) 1 mm, (23,24) 0.3 mm.



FIGS 25-31

Modisimus cornutus Kraus. 25, Left palpal trochanter and femur, prolateral view. 26, Left bulb, retrolateral view. 27, Male chelicerae, frontal view. 28, Left procurus, prolateral view. 29, Epigynum, lateral view, frontal side on the right. 30, Epigynum, ventral view; arrow points to arch that is not visible in some females. 31, Epigynum, dorsal view. Scales: (25-27, 29-31) 0.2 mm, (28) 0.1 mm.

	1	2	3	4
fem	3.6	2.4	1.9	2.5
pat	0.3	0.3	0.3	0.3
tib	3.6	2.2	1.8	2.2
met	5.7	3.3	2.6	3.2
tar	1.2	0.8	0.7	0.7
total	14.4	9.0	7.3	8.9
tibind	57	35	29	25

Variation: Tibia 1 in other material: Lancetilla: 6 males: 4.8-5.4; \bar{x} =5.2; 4 females: 3.3, 3.3, 3.3, 3.6. Isla Utila: 1 male: 7.0; 5 females: 4.3-4.9 (\bar{x} =4.7).

Habitat: In Lancetilla the spiders were found in small webs with a domed sheet of silk, close to the ground, mostly in dark sheltered places, along a dried brook-bed.

'Coryssocnemis' tigra sp.n.

Figs 32-40

MATERIAL EXAMINED: Male holotype and female paratype from Parque Nacional La Tigra, (about 10 km NE Tegucigalpa), Dept. Francisco Morazán, Honduras, elev. about 1800-1900 m, 2 Oct. 1996 (B. A. Huber), in AMNH. 1 female paratype, same collection data, in MHNG. 2 females and 4 juvs, same collection data, in author's collection.

Etymology: Named for type locality.

Diagnosis: Medium sized to large dark pholcid with eight eyes on slightly elevated ocular area. Male and female genitalia highly distinctive (bulb with a pair of large ventral processes; simple, slender procurus; epigynum with a pair of long posterior processes - Figs 39-40). Male chelicerae unmodified. Female with paired stridulatory apparatus between prosoma and opisthosoma.

Distribution: Known only from above material from type locality.

DESCRIPTION

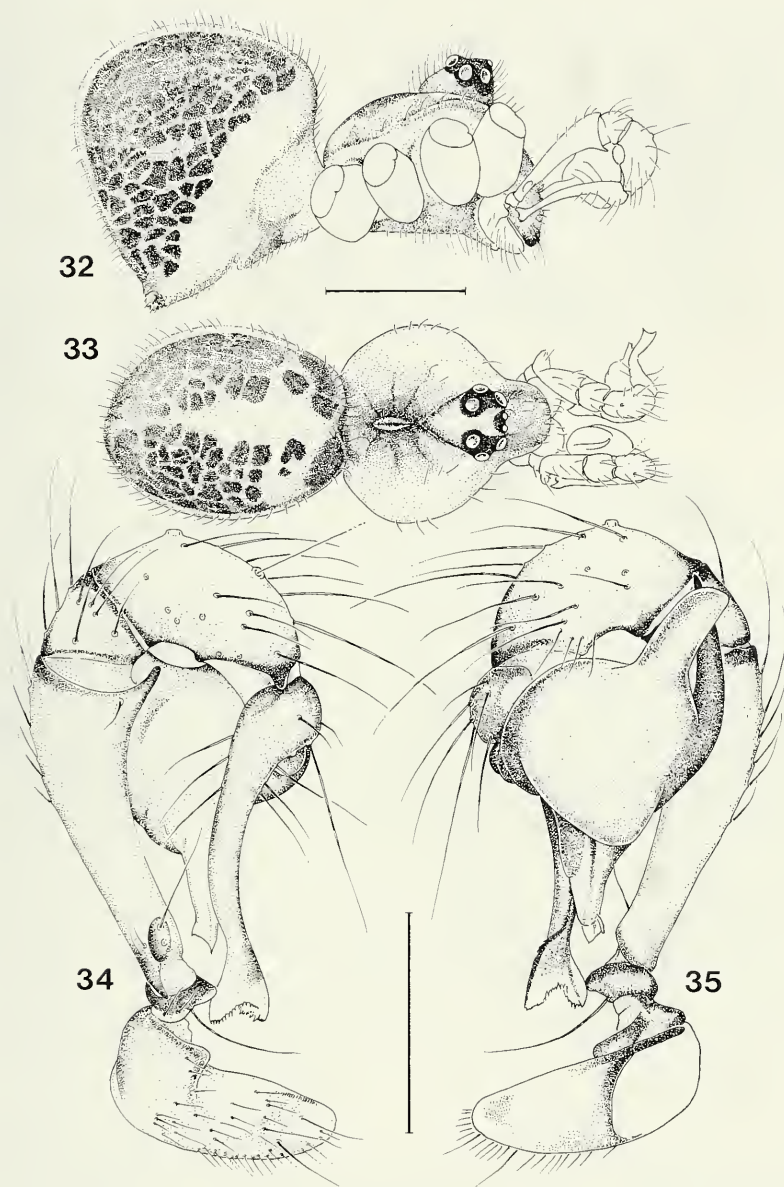
Male: Prosoma dorsally pale ochre with large dark brown area medially (Fig. 33). Ocular area and clypeus also brown. Opisthosoma dorsally greenish gray with large black spots and few small white spots (Figs 32-33), ventrally lighter, with brownish genital plate. Legs ochre brown, with dark rings on femora (distally) and tibiae (only proximally). Eight eyes on slightly elevated ocular area (Fig. 32). Chelicerae unmodified. Pedipalps distinctive, as shown in Figs 34-35.

Measurements of male holotype: Total length: 2.9; prosoma width: 1.43; length: 1.3; opisthosoma length: 1.6; legs:

	1	2	3	4
fem	6.2	5.2	4.4	5.2
pat	0.6	0.6	0.5	0.5
tib	6.5	4.9	4.1	4.9
met	8.4	6.2	5.3	6.2
tar	1.9	1.5	1.3	1.3
total	23.6	18.4	15.6	18.1
tibind	42	30	27	34

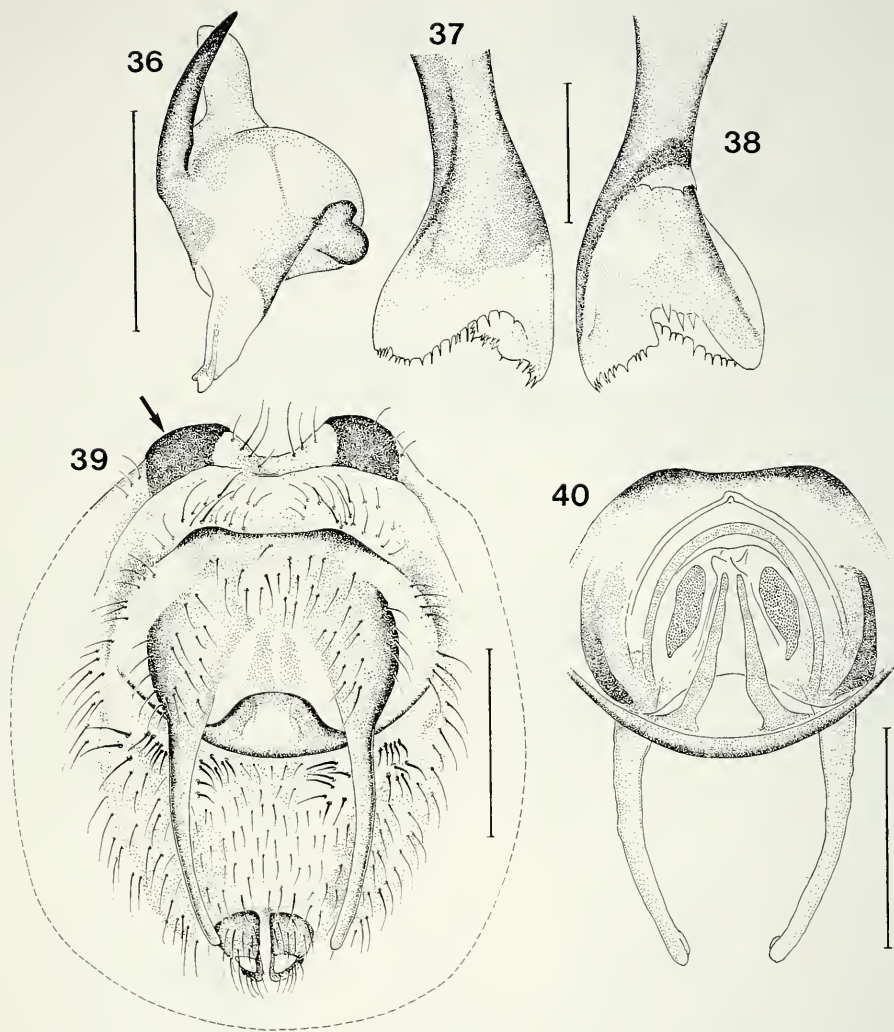
Female: Colors as in male. The structure of the external genitalia is unique among pholcids (Fig. 39). Internal genitalia as shown in Fig. 40. Stridulatory organ consisting of a pair of humps on the rear side of the prosoma dorsally, and a corresponding pair of sclerotized plates on the opisthosoma (arrow in Fig. 39).

Measurements of a female paratype: total length: 3.3; prosoma width: 1.24; length: 1.2; opisthosoma length: 2.1; legs:



FIGS 32-35

Coryssocnemis *tigra* sp.n. 32, Male, lateral view. 33, Male, dorsal view. 34, Right pedipalp, retrolateral view. 35, Right pedipalp, prolateral view. Scales: (32-33) 1 mm. (34-35) 0.5 mm.



FIGS 36-40

'*Coryssocnemis*' *tigma* sp.n. 36, Right bulb, retrolateral view. 37, Right procurus tip, retrolateral view. 38, Right procurus tip, prolateral view. 39, Female opisthosoma, ventral view; arrow points to one of the two sclerotized plates which are part of the 'stridulatory apparatus'. 40, Epigynum, dorsal view. Scales: (36, 39-40) 0.5 mm, (37-38) 0.1 mm.

	1	2	3	4
fem	4.8	3.8	3.0	3.9
pat	0.5	0.5	0.4	0.4
tib	4.9	3.4	2.7	3.5
met	6.2	4.4	3.6	4.6
tar	1.7	1.3	1.2	1.2
total	18.1	13.4	10.9	13.6
tibind	39	27	22	28

Variation: In one female the rings on the legs are very dark, and both are preceded and followed by light rings, giving the legs a very vivid pattern. Tibia 1 in 3 other females: 4.8, 5.1, 5.1.

Habitat: The spiders were found in essentially the same type of web and in the same habitat as '*C. furcula*' (see below).

'*Coryssocnemis*' *furcula* Cambridge, 1902

Figs 41-52

Coryssocnemis furcula CAMBRIDGE 1902: 371; pl. 35, figs 8, 8a-b. Kraus 1955: 14; pl. 2, figs 22-23.

TYPE MATERIAL: Female holotype from "Tecpam in the Los Altos region" (Tecpán Guatemala, Dept. Chimaltenango), Guatemala, elev. about 2300 m, no date (Stoll), in BMNH, examined.

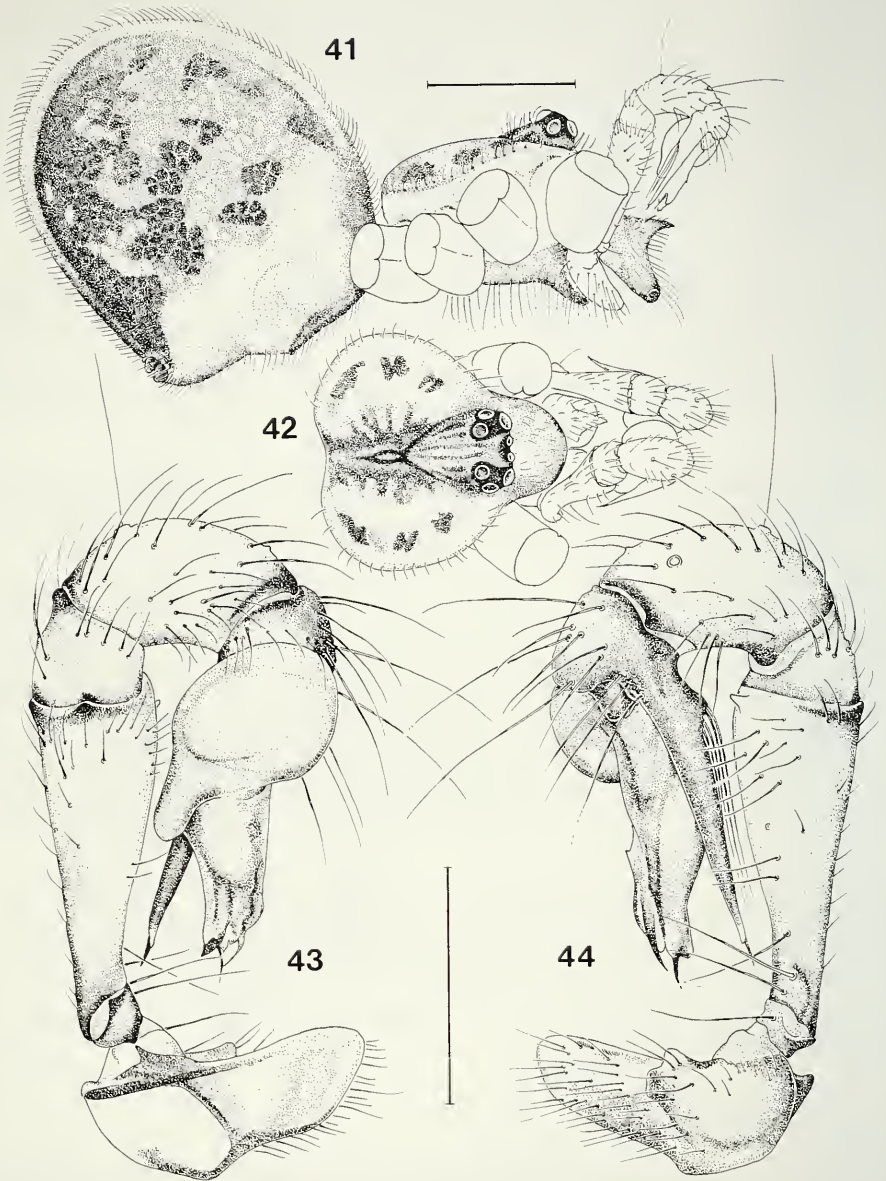
OTHER MATERIAL EXAMINED: HONDURAS: 4 males, 3 females, 5 juvs from Parque Nacional La Tigra, (about 10 km NE Tegucigalpa), Dept. Francisco Morazán, elev. about 1800-1900 m, 2 Oct. 1996 (B. A. Huber), one pair in AMNH, one pair in MHNG, others in author's collection. GUATEMALA: 2 males, 4 females from near Panajachel (this is only about 20 km from the type locality), Dept. Sololá, elev. about 1700 m, 17 Sept. 1996 (B. A. Huber), in author's collection. 3 females from near Zunil (about 7 km SE Quetzaltenango), Dept. Quetzaltenango, elev. about 2150 m, 18 Sept. 1996 (B. A. Huber), in author's collection. EL SALVADOR: 1 male, 4 females from Finca San Jorge near Santa Ana, Dept. Santa Ana, elev. about 1000 m, 25 April 1951 (O. Kraus), SMF 8545-8546.

Diagnosis: Very large dark pholcid with strong legs, characterized by the male genitalia (bulb with rounded prolateral process; procurus slender with distal spine - Figs 43-46), the male chelicerae with a pair of strong pointed apophyses (Fig. 47), and the female epigynum and internal genitalia (Figs 48-51).

Distribution: The species has been found in mountainous regions of Guatemala, El Salvador, and Honduras (Fig. 52).

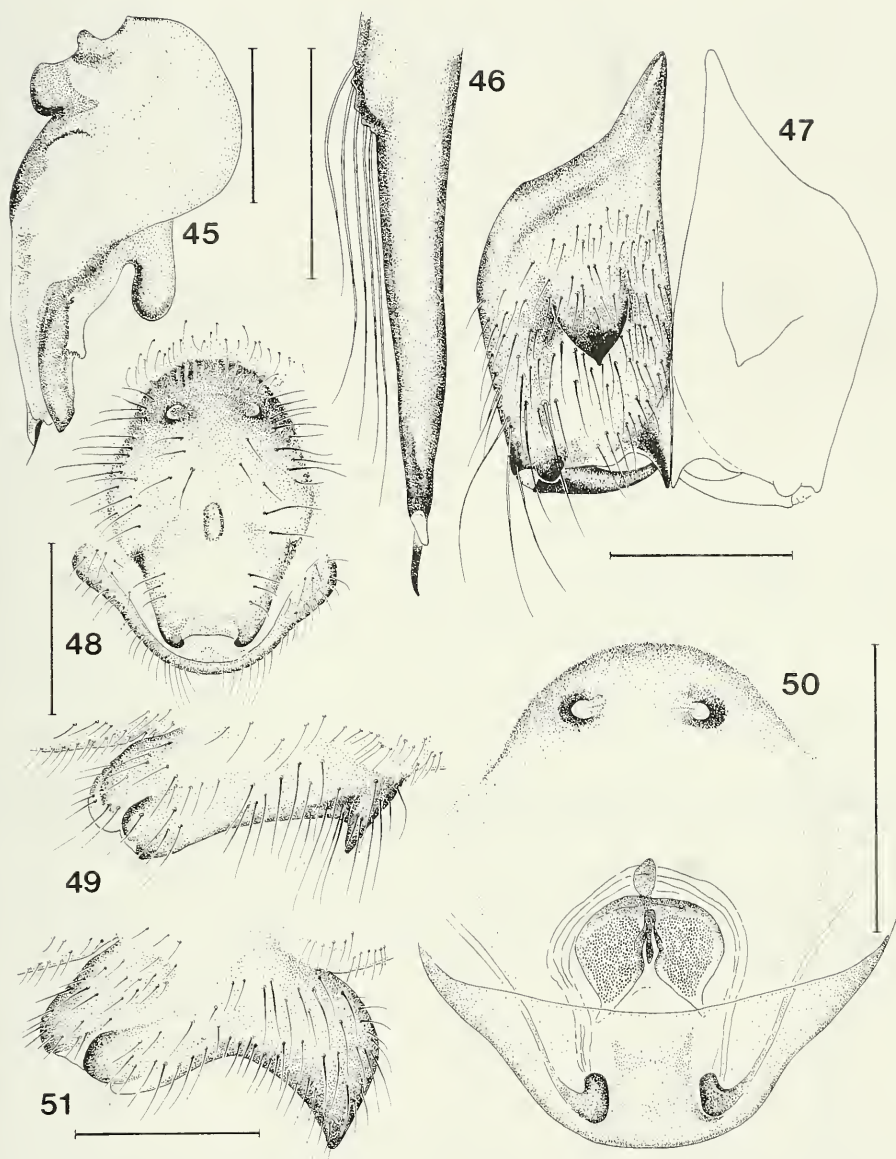
REDESCRIPTION

Male: Prosoma dorsally pale ochre gray with characteristic pattern of dark brown spots (Fig. 42). Clypeus and sternum light brown. Opisthosoma dorsally dark greenish gray with many black and (smaller) white spots (Fig. 41), ventrally lighter, with brown genital plate and black spinnerets. Legs brown, femora with two dark rings distally, patellae dark, tibiae with dark rings proximally and distally, distal ring followed by light ring. Eight eyes on slightly elevated ocular area (Fig. 41). Chelicerae with a pair of large anterior apophyses (Figs 41, 47). Pedipalps distinctive, as



FIGS 41-44

Coryssocnemis furcula Cambridge. 41, Male, lateral view. 42, Male prosoma, dorsal view. 43, Left pedipalp, prolateral view. 44, Left pedipalp, retrolateral view. Scales: (41-42) 2 mm, (43-44) 1 mm.



FIGS 45-51

Coryssoenemis furcula Cambridge. 45. Left genital bulb, ventral view. 46. Left procurus, prolateral view. 47. Male chelicerae, frontal view. 48. Epigynum, female from La Tigra, ventral view. 49. Epigynum, female from La Tigra, lateral view, frontal side on the right. 50. Epigynum, female from La Tigra, dorsal view. 51. Epigynum, female from Panajachel, lateral view. Scales: (45-47) 0.5 mm, (48-51) 1 mm.

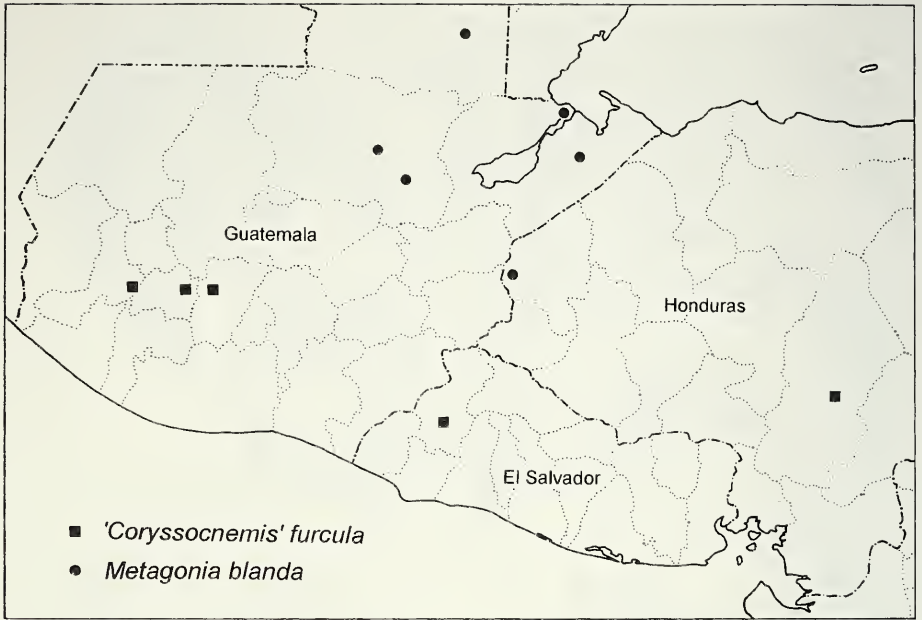


FIG. 52

Distribution of *'Coryssoenemis' furcula* Cambridge and *Metagonia blanda* Gertsch.

shown in Figs 43-44. The palpal femur bears distally, on the ventral side, a small apophysis. It is not clear whether this is a homologue of the 'pup-apophysis' that characterizes the *Modisimus*-group sensu Huber (in press b).

Measurements of a male from La Tigra: Total length: 7.7; prosoma width: 3.19; length: 2.8; opisthosoma length: 4.9; legs:

	1	2	3	4
fem	12.0	9.7	8.1	10.4
pat	1.4	1.4	1.3	1.2
tib	12.0	8.6	6.8	9.0
met	15.1	11.3	9.0	11.8
tar	5.2	3.2	2.4	2.6
total	45.7	34.2	27.6	35.0
tibind	28	23	18	24

Female (La Tigra). Colors as in male, but with large brown epigynum (Figs 48-49). Internal genitalia relatively small in relation to the large epigynum (Fig. 50).

Measurements of a female from La Tigra: Total length: 7.4; prosoma width: 2.61; length: 2.3; opisthosoma length: 5.1; legs:

	1	2	3	4
fem	8.8	7.1	5.9	8.0
pat	1.2	1.1	1.0	1.0
tib	9.3	6.5	4.9	6.8
met	10.9	8.0	6.4	8.6
tar	4.1	2.6	2.0	2.0
total	34.3	25.3	20.2	26.4
tibind	24	18	14	19

Variation: While the male genitalia are almost identical in all the studied specimens, there is substantial variation in the female epigynum. Females from Honduras (La Tigra) have relatively small frontal apophyses (Fig. 49), while those from Guatemala (Tecpán, Panajachel, Zunil), have much larger apophyses (Fig. 51; Cambridge 1902: figs 8, 8b). Females from El Salvador (Santa Ana) are intermediate, though closer to those from Guatemala. Tibia 1 in other material: La Tigra: 3 males: 10.0, 11.3, 12.6; 2 females: 7.0, 9.3. Panajachel: 2 males: 11.3, 12.0; 4 females: 9.9, 10.1, 10.1, 10.4; Zunil: 2 females: 7.4, 9.3. Santa Ana: 1 male: 12.8; 4 females: 10.6, 10.7, 11.2, 11.3.

Habitat: The spiders were found in sheet webs close to the ground, mostly in dark sheltered places, along creeks (Panajachel, Zunil) or footpaths (La Tigra). When disturbed the spiders fled into a funnel that led into the substrate, much like agelenids, but with the difference that the funnel was the continuation of the *underside* of the sheetweb.

Metagonia lancetilla sp.n.

Figs 53-62

MATERIAL EXAMINED: Male holotype and female paratype from Jardín Botánico Lancetilla, near Tela, Dept. Atlántida, Honduras, elev. about 50 m, 28 Sept. 1996 (B. A. Huber), in AMNH. 1 female paratype, same collection data, in MHNG.

Etymology: Named for type locality.

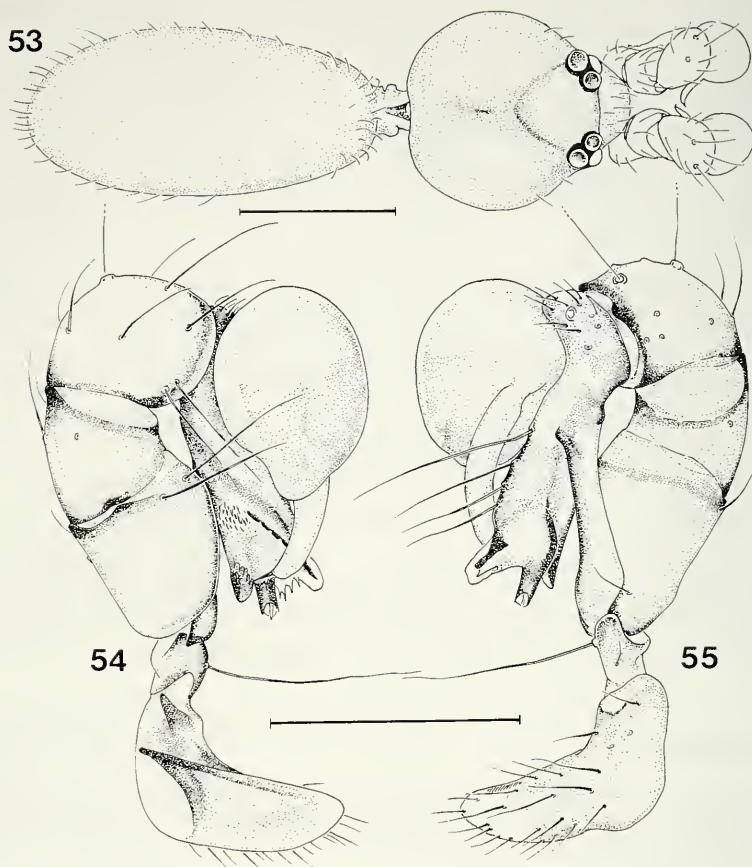
Diagnosis: Small epigean *Metagonia*, distinguished from other species of the genus by male and female genitalia (procursus with long ventral hinged process; epigynum with posterior process - Figs 54-55, 59-62), and male chelicerae with a pair of apophyses (Figs 56, 58).

Distribution: Known only from above material from type locality.

DESCRIPTION

Male: Entire body pale ochre yellow (Fig. 53), only tibia-metatarsus joints dark brown, patellae only slightly darkened. Pedipalps as shown in Figs 54-55, procursus with long hinged process (arrow in fig. 59). Palpal femur with ventral apophysis distally (Fig. 57). Chelicerae with a pair of large distinctive apophyses frontally (Figs 56, 58), which seem to carry about four deeply inserted modified hairs each. Clypeus unmodified.

Measurements of male holotype: Total length: 1.7; prosoma width: 0.67; length: 0.6; opisthosoma length: 1.1; legs:



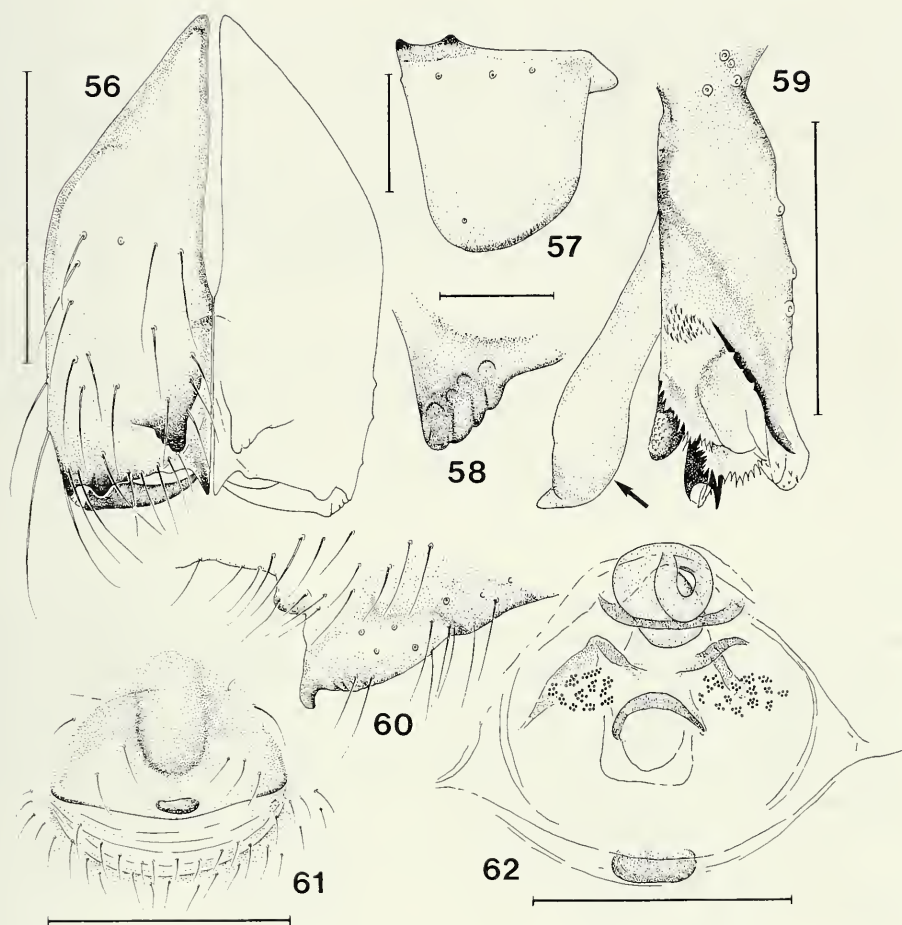
FIGS 53-55

Metagonia lancetilla sp.n. 53, Male, dorsal view. 54, Left pedipalp, prolateral view. 55, Left pedipalp, retrolateral view. Scales: (53) 0.5 mm, (54-55) 0.3 mm.

	1	2	3	4
fem	4.5	2.9	2.0	3.0
pat	0.3	0.3	0.3	0.3
tib	4.5	2.7	1.7	2.5
met	7.7	4.3	2.5	3.8
tar	1.3	0.9	0.6	0.6
total	18.3	11.1	7.1	10.2
tibind	71	43	30	40

Female: Colors as in male. Epigynum of same color, of distinctive shape (Figs 60-61). Internal genitalia as in Fig. 62.

Measurements of a female paratype: total length: 1.7; prosoma width: 0.57; length: 0.6; opisthosoma length: 1.1; legs:



FIGS 56-62

Metagonia lancetilla sp.n. 56, Male chelicerae, frontal view. 57, Male palpal femur, lateral view. 58, Apophysis on left male chelicera. 59, Left procurrus, prolateral view; arrow points to 'hinged process'. 60, Epigynum, lateral view, frontal side on the right 61, Epigynum, ventral view. 62, Epigynum, dorsal view. Scales: (56, 59, 62) 0.2 mm, (57) 0.1 mm, (58) 0.03 mm, (60-61) 0.3 mm.

	1	2	3	4
fem	3.6	2.5	1.7	2.8
pat	0.3	0.3	0.2	0.3
tib	3.3	2.1	1.4	2.2
met	5.8	3.3	2.0	3.3
tar	1.2	0.7	0.5	0.6
total	14.2	8.9	5.8	9.2
tibind	52	35	25	39

Tibia 1 in other female: 3.5.

Habitat: Underside of large leaves.

Metagonia asintal sp.n.

Figs 63-73

MATERIAL EXAMINED: Male holotype, 1 male and 2 female paratypes from near El Asintal (about 8 km NW Retalhuleu), Dept. Retalhuleu, Guatemala, elev. about 300 m, 19 Sept. 1996 (B. A. Huber), in AMNH. 2 male and 2 female paratypes, same collection data, in MHNG. 3 males, 4 females, 3 juvs, same collection data, in author's collection.

Etymology: Named for type locality.

Diagnosis: Small epigeal *Metagonia*, distinguished from other species of the genus by male and female genitalia (details of procurus; large flap directed anteriorly on epigynum - Figs 65-67, 70-73), and male chelicerae with only a pair of tiny modified hairs on each side (Figs 68-69).

Distribution: Known only from above material from type locality.

DESCRIPTION

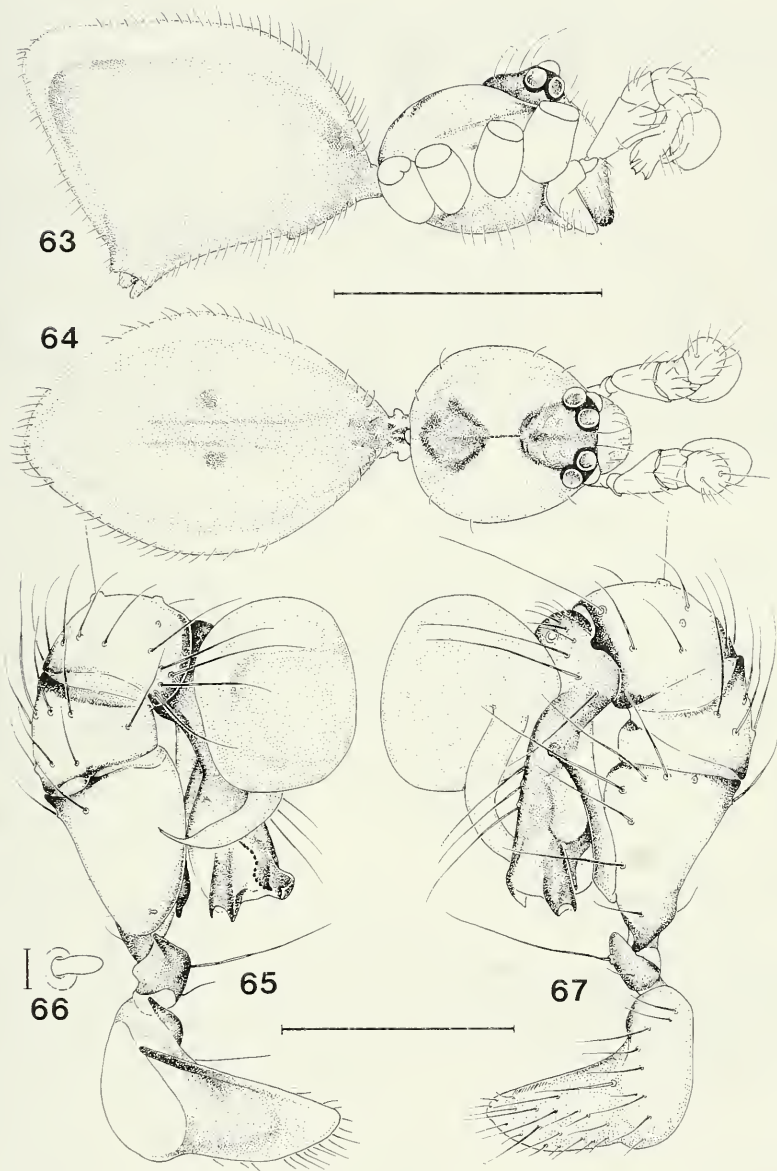
Male: Prosoma pale ochre yellow, with dark spots at ocular area and on rear side of prosoma dorsally (Figs 63-64). Sternum whitish. Legs also pale ochre yellow, with brown patellae and dark brown tibia-metatarsus joints. Opisthosoma grayish ochre, with or without spots dorsally. Pedipalps as shown in Figs 65-67. The chelicerae appear unmodified in the dissecting microscope, but they have two tiny club shaped hairs on each side, and stridulatory ridges laterally (Figs 68-69). The scrapers of the stridulatory organs are club shaped hairs on the proteral sides of the pedipalpal femora (Figs 65-66). Clypeus unmodified.

Measurements of male holotype: Total length: 2.5; prosoma width: 0.78; length: 0.8; opisthosoma length: 1.7; legs:

	1	2	3	4
fem	5.1	3.2	2.3	3.2
pat	0.3	0.3	0.3	0.3
tib	5.1	3.0	1.9	2.8
met	8.6	4.5	2.8	4.1
tar	1.4	0.9	0.7	0.7
total	20.5	11.9	8.0	11.1
tibind	65	43	30	40

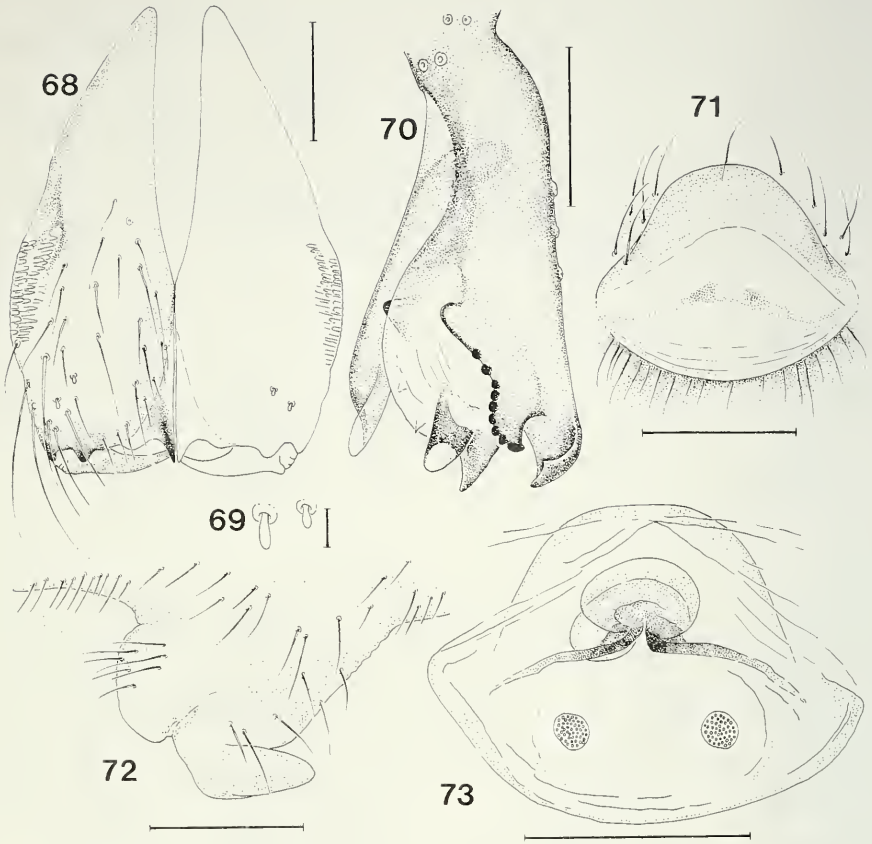
Female: Colors as in male, but spots on prosoma less dark. Epigynum pale, with distinctive lobe directed forwards (Figs 71-72). Internal genitalia as in Fig. 73.

Measurements of a female paratype: total length: 2.4; prosoma width: 0.70; length: 0.8; opisthosoma length: 1.6; legs:



FIGS 63-67

Metagonia asintal sp.n. 63, Male, lateral view. 64, Male, dorsal view. 65, Left pedipalp, prolatral view. 66, Modified hair (scraper) on palpal femur. 67, Left pedipalp, retrolateral view. Scales: (63-64) 1 mm, (65,67) 0.3 mm, (66) 0.01 mm.



FIGS 68-73

Metagonia asintal sp.n. 68. Male chelicerae, frontal view. 69. Modified hairs on male chelicerae. 70. Left procurus, prolateral view. 71. Epigynum, ventral view. 72. Epigynum, lateral view, frontal side on the right. 73. Epigynum, dorsal view. Scales: (68, 70) 0.1 mm, (69) 0.01 mm, (71-73) 0.2 mm.

	1	2	3	4
fem	4.1	2.8	1.7	2.9
pat	0.3	0.3	0.3	0.3
tib	3.9	2.3	1.4	2.3
met	6.0	3.6	2.2	3.4
tar	1.2	0.8	0.6	0.7
total	15.5	9.8	6.2	9.6
tibind	56	37	22	33

Variation: The pattern on the opisthosoma is highly variable: some specimens have no spots at all, others have only a pair of dark spots medially (as in Fig. 64), others have only many white spots. In some males the spots on the prosoma are less dark. Tibia 1 in other material: 5 males: 4.3-5.4, \bar{x} =4.7; 8 females: 3.4-3.9, \bar{x} =3.6.

Habitat: Underside of large leaves.

Metagonia blanda Gertsch, 1973

Figs 52, 74-82

Metagonia blanda GERTSCH 1973: 152; figs 20-22. GERTSCH 1986: 57.

MATERIAL EXAMINED: GUATEMALA: Female holotype from Gruta de Silvino, Dept. Izabal, 34 km SW Puerto Barrios, 20-22 August 1969 (S. & J. Peck), AMNH. 12 males, 9 females from cave near Finca Ixobel, near Poptun, Dept. Petén, 22 Sept. 1996 (B. A. Huber), 2 males, 2 females in AMNH, 2 males, 2 females in MHNG, others in author's collection. 1 female from Cueva Seamay, Finca Senahu, Senahu, Dept. Alta Verapaz, 24-26 Aug. 1969 (S. & J. Peck), AMNH. 3 females from Cueva de la Coche, 1.5 mi W Livingston, Dept. Izabal, 21 Aug. 1969 (S. & J. Peck), AMNH. 2 females, 3 juvs from Cueva Lanquin, Lanquin, Dept. Alta Verapaz, 28. Aug. 1969 (S. & J. Peck), AMNH. HONDURAS: 5 males, 4 females from cave at Quebrada Sesesmil, near Copán, Dept. Copán, elev. about 600 m, 26 Sept. 1996 (B. A. Huber & O. A. Cardona), in author's collection.

Diagnosis: Small troglophile *Metagonia*, distinguished from other species of the genus by male and female genitalia (procursus with long ventral hinged process; epigynum with paired posterior lobe - Figs 76-78, 81-82) and the male chelicerae with usually three modified hairs distally on each side (Figs 79-80).

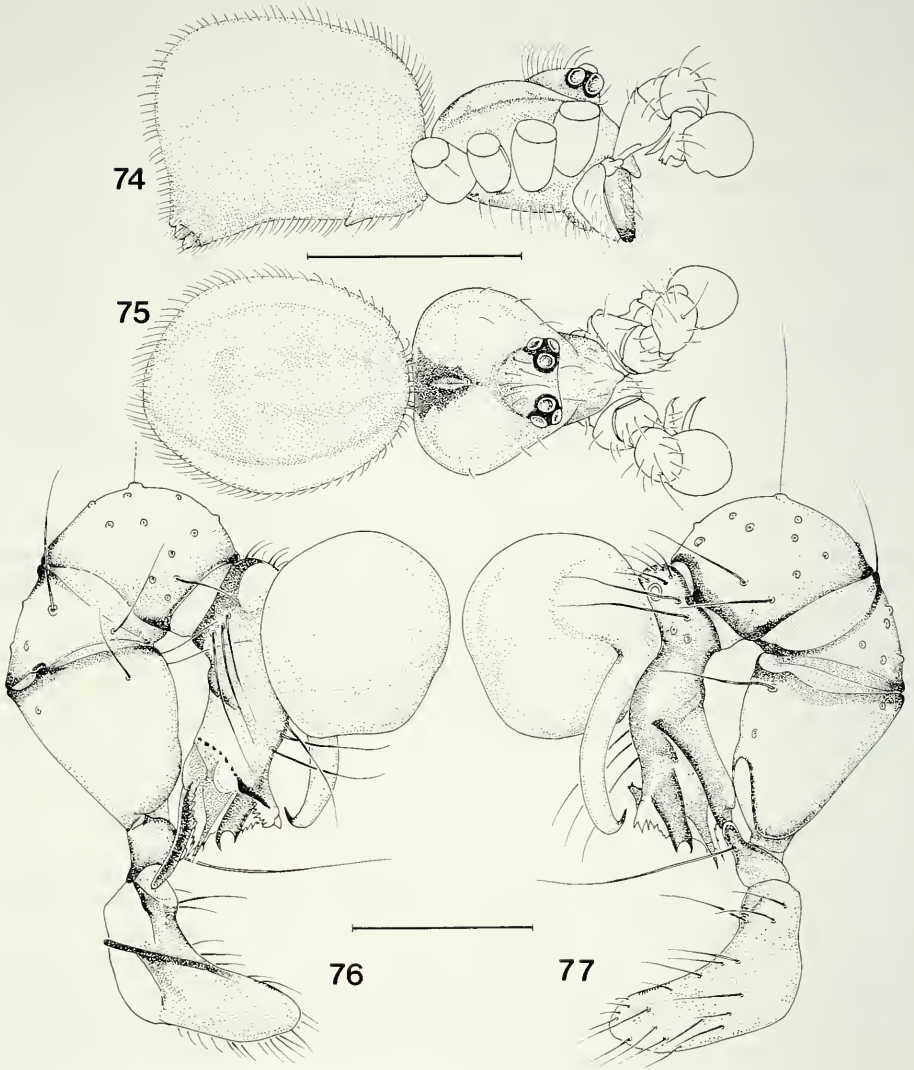
Distribution: This species is now known from six caves in Guatemala and Honduras. For being a troglophile pholcid, the range is surprisingly wide (Fig. 52; cf. troglophile species of the genus *Anopsicus* in Mexico which are usually confined to just one single cave - Gertsch 1982).

DESCRIPTION

Male: Prosoma pale ochre yellow, with darker spot on rear side of prosoma dorsally (Fig. 75). Sternum whitish. Legs also pale ochre yellow, with slightly darker patellae and tibia-metatarsus joints. Opisthosoma whitish, without spots (Figs 74-75). Pedipalps as shown in Figs 76-77. The chelicerae appear unmodified in the dissecting microscope, but they have a group of usually three modified hairs on each side near the bases of the fangs (Figs 79-80). Clypeus with small unpaired projection (Fig. 75).

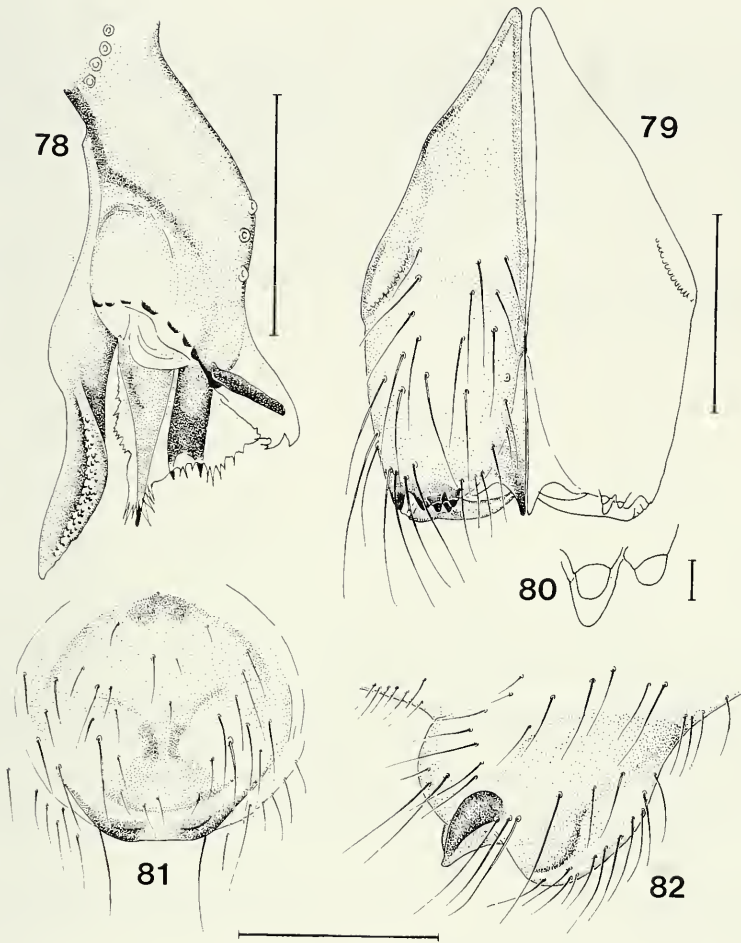
Measurements of a male from Poptun: Total length: 2.5; prosoma width: 0.92; length: 0.8; opisthosoma length: 1.7; legs:

	1	2	3	4
fem	5.4	3.6	2.6	3.7
pat	0.4	0.4	0.4	0.4
tib	5.7	3.6	2.3	3.3
met	9.1	5.5	3.5	4.9
tar	1.3	0.9	0.7	0.7
total	21.9	14.0	9.5	13.0
tibind	72	46	29	41



FIGS 74-77

Metagonia blanda Gertsch. 74, Male, lateral view. 75, Male, dorsal view. 76, Left pedipalp, prolateral view. 77, Left pedipalp, retrolateral view. Scales: (74-75) 1 mm, (76-77) 0.3 mm.



FIGS 78-82

Metagonia blanda Gertsch. 78, Left procurus, prolateral view. 79, Male chelicerae, frontal view. 80, Modified hairs on male chelicerae. 81, Epigynum, ventral view. 82, Epigynum, lateral view, frontal side on the right. Scales: (78-79) 0.2 mm, (80) 0.01 mm, (81-82) 0.3 mm.

REDESCRIPTION

Female: Colors as in male. Epigynum pale, of distinctive shape (Figs 81-82).

Measurements of female holotype: total length: 2.9; prosoma width: 1.05; length: 1.0; opisthosoma length: 1.9; legs:

	1	2	3	4
fem	5.7	4.1	3.0	4.5
pat	0.4	0.4	0.4	0.4
tib	5.9	3.8	2.6	3.9
met	9.7	5.9	3.8	5.4
tar	1.4	1.0	0.7	0.7
total	23.1	15.2	10.5	14.9
tibind	62	40	27	41

Measurements of a female from Poptun: total length: 2.4; prosoma width: 0.89; length: 0.8; opisthosoma length: 1.6; legs:

	1	2	3	4
fem	5.0	3.6	2.6	3.8
pat	0.4	0.4	0.4	0.4
tib	5.0	3.3	2.2	3.3
met	8.0	4.9	3.3	4.8
tar	1.4	0.9	0.7	0.7
total	19.8	13.1	9.2	13.0
tibind	53	35	23	35

Variation: Tibia 1 in other material: Poptun: 10 males: 5.3-5.9, \bar{x} =5.7; 8 females: 4.8-5.4, \bar{x} =5.0. Copán: 5 males: 5.0-5.6, \bar{x} =5.2; 4 females: 4.1, 4.4, 4.8, 4.8.

Habitat: Both in Poptun and in Copán, the spiders were only found within the caves, several meters beyond the entrance, although in Poptun the cave was surrounded by a dense humid forest. In the caves they lived in small crevices and shelters were they apparently built simple attached webs. When disturbed the spiders swiftly ran away over the rock surface.

Metagonia belize Gertsch, 1986

Figs 83-92

Metagonia belize GERTSCH 1986: 55: figs 38-39.

MATERIAL EXAMINED: BELIZE: Female holotype from unnamed fissure near Mountain Cow Cave, Cayo District, May 1977 (L. McNatt), in AMNH. GUATEMALA, Dept. Petén: 6 males, 6 females from forest near Finca Ixobel, near Poptun, 22 Sept. 1996 (B. A. Huber), 2 males, 2 females in AMNH, 2 males, 2 females in MHNG, others in author's collection. 5 males, 6 females from Parque Nacional Cerro Cahui, elev. about 150 m, 21 Sept. 1996 (B. A. Huber), in author's collection. 7 males, 2 females from Tikal, elev. about 150 m, 21 Sept. 1996 (B. A. Huber), in author's collection.

Diagnosis: Small epigeal *Metagonia*, distinguished from congeners by details of male and female genitalia (Figs 85-86, 89-92), and especially the male chelicerae with a unique row of modified hairs on each side (Figs 87-88).

Note: In the original description (Gertsch 1986) the species is characterized as troglophile. The new records show that it is a typical epigeal species instead (also the original record was not from within a cave!).

Distribution: Known from type locality and the three new localities above.

DESCRIPTION

Male: Prosoma and legs pale ochre yellow, without dark marks (Figs 83-84), patellae slightly darker, tibia-metatarsus joints dark. Opisthosoma without spots. Pedipalps as shown in Figs 85-86. Palpal femur with ventral hump (Figs 85-86). Chelicerae with highly distinctive row of modified hairs on each side and a blunt projection more proximally (Figs 87-88). Clypeus unmodified.

Measurements of a male from Poptun: Total length: 2.4; prosoma width: 0.73; length: 0.8; opisthosoma length: 1.6; legs:

	1	2	3	4
fem	5.2	3.6	2.4	3.6
pat	0.4	0.4	0.3	0.4
tib	5.4	3.5	2.0	3.2
met	9.0	5.3	3.0	4.6
tar	1.5	0.9	0.7	0.7
total	21.5	13.7	8.4	12.5
tibind	74	52	32	48

REDESCRIPTION

Female: Colors as in male. Epigynum pale, with distinctive black knob (Figs 90-91). Internal genitalia as in Fig. 92.

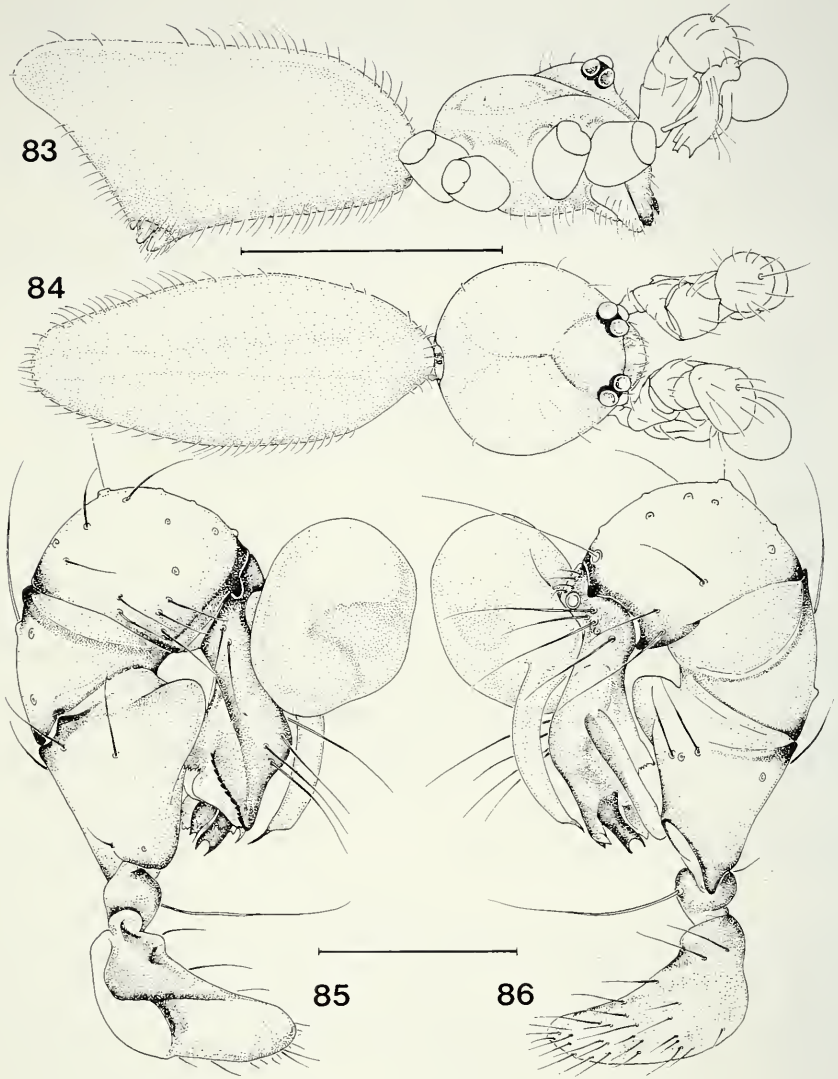
Measurements of female holotype: prosoma width: 0.75; length: 0.7; (opisthosoma damaged); leg 3: fem: 2.1, pat: 0.3, tib: 1.7, met: 2.5, tar: 0.6 (other legs missing).

Measurements of a female from Poptun: total length: 2.5; prosoma width: 0.73; length: 0.8; opisthosoma length: 1.7; legs:

	1	2	3	4
fem	4.3	3.1	2.2	3.2
pat	0.4	0.4	0.3	0.3
tib	4.3	2.8	1.8	2.8
met	7.0	4.3	2.6	4.1
tar	1.3	0.9	0.6	0.7
total	17.3	11.5	7.5	11.1
tibind	61	44	29	40

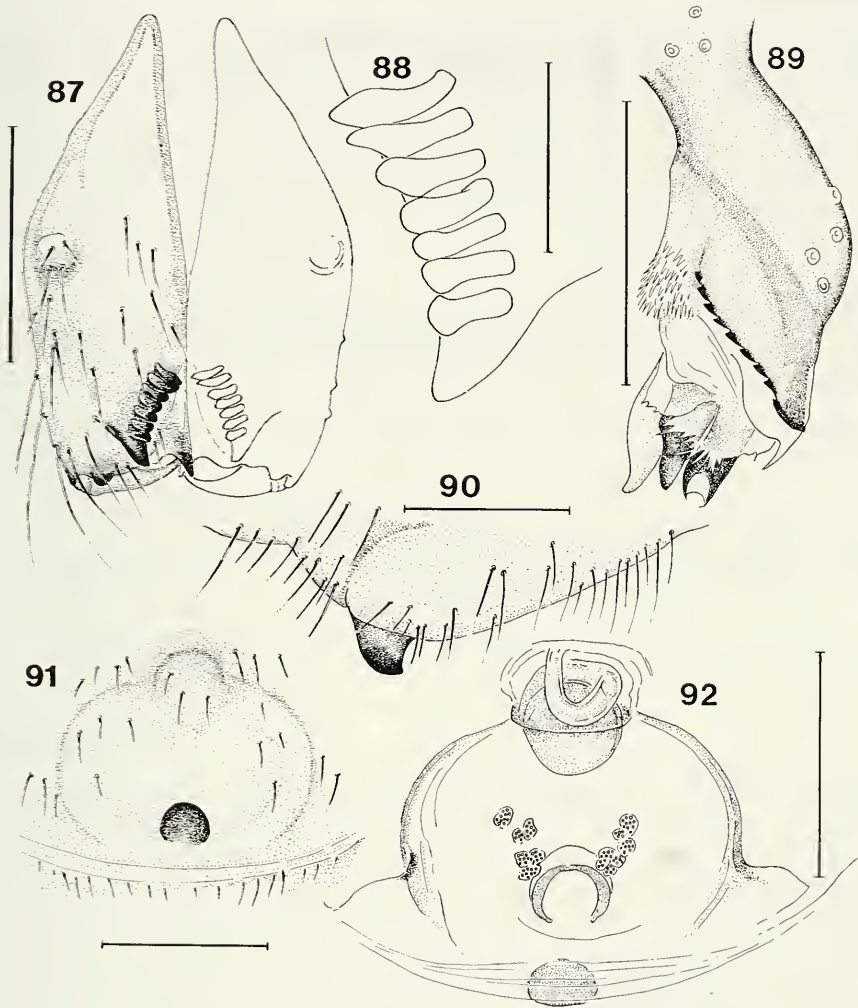
Variation: Tibia 1 in other material: Poptun: 5 males 4.9-5.4, \bar{x} =5.2; 5 females: 3.8-4.3, \bar{x} =4.1. Cerro Cahui: 5 males: 4.5-5.4, \bar{x} =4.9; 6 females: 3.6-4.0, \bar{x} =3.8. Tikal: 6 males: 4.4-5.5, \bar{x} =5.0; 2 females: 4.1, 4.2.

Habitat: Underside of large leaves.



FIGS 83-86

Metagonia belize Gertsch. 83, Male, lateral view. 84, Male, dorsal view. 85, Left pedipalp, prolateral view. 86, Left pedipalp, retrolateral view. Scales: (83-84) 1 mm. (85-86) 0.3 mm.



FIGS 87-92

Metagonia belize Gertsch. 87, Male chelicerae, frontal view. 88, Apophysis with modified hairs on left male chelicera. 89, Left procurus, prolateral view. 90, Epigynum, lateral view, frontal side on the right. 91, Epigynum, ventral view. 92, Epigynum, dorsal view. Scales: (87, 89-92) 0.2 mm, (88) 0.05 mm.

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Using a submarine to monitor the biological recovery of deep sediments in Lake Geneva (Switzerland)

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Using a submarine to monitor the biological recovery of deep sediments in Lake Geneva (Switzerland). - Since 1980, Lake Geneva has been recovering from eutrophication as indicated by the decrease of phosphorus concentrations. Oligochaete communities, sampled in 1996 from the submarine F.A.-Forel, were used to monitor the recovery of deep sediments (185 m - 300 m). Biomass of oligochaetes decreased with depth. Species indicative of oligotrophic conditions (mostly *Spirosperma velutinum* and *Stylodrilus heringianus*) were abundant between 185 m and 240 m, but scarce deeper. This indicates that the biological recovery of sediments proceeds smoothly shallower than 240 m, but is delayed by the persistence of low oxygen concentrations at greater depths.

Key-words: Biomonitoring - Eutrophication - Indicator species - Lake - Oligochaeta - Zoobenthos.

INTRODUCTION

In Lake Geneva (582 km², 89 km³), total phosphorus concentrations, averaged over the whole water column (0 - 309 m deep), increased from 12 mg m⁻³ in 1957 to a maximum of 89 mg in 1979, then they regularly decreased down to 41 mg in 1995 (BLANC et al. 1996). Accordingly, Lake Geneva which was oligotrophic before 1950, as were the other large lakes of Switzerland (FRICKER 1980), became meso-eutrophic around 1980, but reversed to a mesotrophic state after 1990. This improvement can be explained by the ban of phosphorus in detergents and its removal by sewage treatment plants (CONSEIL SCIENTIFIQUE 1996). In 1995 for instance, the sewage of about 1.3 million inhabitants was treated by 156 plants in the 7400 km² drainage basin of Lake Geneva (RAPIN 1996).

Phytoplankton did not respond clearly to the decrease of phosphorus: in some years the biomass decreased, in other years the primary production decreased (DRUART et al. 1996, PELLETIER 1996). A clear-cut downward trend was presumably obscured by inadequate sampling (BLANC et al. 1993) and also by complex interactions between climate, phytoplankton, zooplankton, and fish (CRETENAY et al. 1996).

In contrast, zoobenthos responded clearly to the decrease of phosphorus, to at least 40 m deep. Mean relative abundance of species indicative of oligotrophic

conditions increased in oligochaete communities from 17% in 1982 to 41% in 1991 (LANG & REYMOND 1992). According to these values, Lake Geneva was meso-eutrophic in 1982, but mesotrophic in 1991 (LANG 1990). Deeper (150 m), the trend towards recovery was less clear, at least in 1993 (LANG & REYMOND 1995).

In this study, the depth-related recovery of deep sediments (185 m - 300 m) was monitored in 1996, using the composition of oligochaete communities as an indicator (LANG & REYMOND 1996a). The deepest area of Lake Geneva was selected because it will be the last to recover (LANG 1991), i.e. to be recolonized by the oligotrophic worm species which prevailed before the onset of eutrophication (JUGET 1967). This recolonization can be delayed by the persistence of low oxygen concentrations. Indeed, oxygen decreased between 1985 and 1996 because its stock in the deep layers (200 m - 309 m) has never been replenished since the cold winter of 1985 (BLANC et al. 1996).

STATIONS AND METHODS

SAMPLING SITES

In 1996, a 1200 m long transect was selected on the northern shore of Lake Geneva, in front of the city of Lausanne. It extends north-south and its depth varies from 185 m to 300 m. Its extreme coordinates, based on the national map of Switzerland, are 537.250 / 149.100 and 537.250 / 148.000 respectively. Due to its location, (LANG 1991), this area is adequate to assess the biological recovery of sediment because it receives mainly organic sedimentation derived from phytoplankton (LANG & REYMOND 1996a).

In September (18, 19, 24), three dives were made on this transect with the manned submarine F.A.-Forel to collect 24 sediment cores (50 cm long, 26.4 cm² each). The relatively small sample size results from financial (no more than 3 dives) and technical constraints (no more than 8 cores collected per dive). Depth range was selected according to the oxygen concentrations which decreased in 1995 from 8 mg l⁻¹ at 150 m to less than 3 mg l⁻¹ at 300 m (BLANC et al. 1996). Within this gradient, 24 depths were sampled, every 5 m: the first at 185 m, the last at 300 m. One sediment core was taken at each depth.

In this study, cores were collected from a submarine, not by a corer sent blindly from the surface. The first method is more expensive to use than the second, but it is more precise. So it was always possible to sample the same sedimentary structures, i.e. the pillows (see below). One source of variability affecting the composition of oligochaete communities (LANG 1989) was removed, facilitating the comparison between depths. In addition, the quality of cores collected by a submarine was high because, as for SCUBA diving (LANG 1989), it was possible to control visually the sampling. As more information was extracted from less cores, the cost of doing a survey with a submarine was justified by the quality of results.

In the studied sites, as over large areas of Lake Geneva (VERNET 1966), the sediment consists of pillow-like structures (0.7 m wide) separated by trenches (0.2 m wide by 0.1 m deep). Their origin is unknown.

Composition of zoobenthic communities is not the same for both structures (LANG 1989) because sedimentation rates are higher on pillows than in trenches (LOIZEAU et al. 1988). In this study, pillows were sampled rather than trenches because recent sedimentation was less disrupted on the former than in the latter (STURM et al. 1984). And restoration of sediment is directly linked to the quality and quantity of recent sedimentation.

SAMPLE PROCESSING

Sediment was sieved (mesh size 0.2 mm) and the retained material preserved in 5% formalin. The collected macrofauna consisted mainly of tubificid and lumbriculid worms which were picked and counted under a low magnification (3x) binocular microscope against a white background. They were weighed after removing excess water with blotting paper. Worms with a diameter equal or greater than 0.3 mm were mounted (REYMOND 1994) and identified up to species. Juvenile worms (diameter less than 0.3 mm) were excluded to decrease the effect of seasonal variability on species abundance (LANG 1991). Species whose numerical dominance in tubificid and lumbriculid communities indicates, respectively, oligotrophic, mesotrophic or eutrophic conditions (LANG 1991) were designated oligotrophic, mesotrophic, and eutrophic species in Table 1.

Relative abundance of the oligotrophic species, calculated as a percentage of the total number of adult worms present in each core, is used to monitor the extent of recovery (LANG & REYMOND 1996a). Mean relative abundance of these species is

TABLE 1
Depth-related changes in oligochaete communities of Lake Geneva in 1996

Code	Species	Depth (m)		
		185 - 300 (n = 24) ^a	185 - 240 (n = 12)	245-300 (n = 12)
1	<i>Bythonomus lemni</i> Grube	2 ^b	2	0
2	<i>Spirosperma velutinum</i> (Grube)	8	7	1
3	<i>Stylodrilus heringianus</i> Claparède	12	10	2
4	<i>Spirosperma ferox</i> (Eisen)	1	1	0
5	<i>Potamothenrix vejnovskyi</i> (Hrabe)	1	1	0
6	<i>Potamothenrix moldaviensis</i> (Vejnovsky)	3	3	0
7	<i>Limnodrilus profundicola</i> (Verrill)	1	1	0
8	<i>Potamothenrix hammoniensis</i> (Michaelson)	24 ^c	12	12
9	<i>Potamothenrix heuschleri</i> (Bretscher)			
10	<i>Tubifex tubifex</i> (Müller)			
	Oligotrophic species 1 - 3	27.5 (31.9) ^d	47.5 (30.7)	7.6 (17.9) ^e
	Mesotrophic species 4 - 6	2.8 (6.7)	5.6 (8.8)	0
	Eutrophic species 7 - 10	69.7 (31.9)	46.9 (26.1)	92.4 (17.9)
	No. of identified oligochaetes	181	131	50

a) Number of 26.4 cm² cores.

b) Number of cores in which the species was present.

c) Species 8 - 10 pooled.

d) Mean (standard deviation) relative abundance (%) per core.

e) Difference between depths significant: Mann-Whitney test, P = 0.001

around 70% in oligotrophic lakes, 52% in oligo-mesotrophic lakes, 35% in mesotrophic lakes, 17% in meso-eutrophic lakes, and they are absent from the profundal of eutrophic lakes (LANG 1990).

The mean concentration of total phosphorus (TP) in the water column (0 - 100 m), computed for the five years preceding the sampling of worms (i.e. 1991 - 1995), was 33.2 mg m^{-3} (BLANC et al. 1996). This value was used to predict the mean relative abundance (%) of oligotrophic worm species (OS) and the mean biomass (g m^{-2}) of zoobenthos according to the following empirical relationships.

$$\text{Equation 1} \quad \text{OS} = 80.29 - 8.35 \text{ TP}^{0.5} \text{ (LANG 1990)}$$

$$\text{Equation 2} \quad \log_{10} \text{biomass} = 0.708 \log_{10} \text{TP} + 0.092 \text{ (HANSON \& PETERS 1984)}$$

The predicted abundance of OS (32.2%) and the predicted biomass of zoobenthos (14.7 g m^{-2}) were used as yardsticks to evaluate the progress of recovery. If predicted and observed values are close, it means that recovery proceeds at the same rate in the water and in the sediment (LANG & REYMOND 1996a). If the observed values are lower than the predicted ones, it means that the recovery of sediment is delayed by the persistence of anomalous conditions, probably low oxygen concentrations.

Oxygen concentrations were not measured on the bottom during the sampling of worms, but before and in the water column (185 m - 300 m), using an oxygen probe calibrated against Winkler titrations (Paul Blanc, pers. com., station d'hydrobiologie lacustre, INRA, Thonon, France). For each depth, a mean concentration was computed using the value of 4 surveys: 2 in August, 2 in September 1996.

All computations and graphics were made with the SPSS software for Windows (NORUSIS 1993). The sampling design used in this study (one core per depth) has been selected because it was well adapted for regression analysis. Raw data were used in figures 1 and 2 after several transformations (arc sinus, log, square-root, and rank) had been tried.

RESULTS

VISUAL OBSERVATION

In the studied transect, as over large areas of Lake Geneva (VERNET 1966), the sediment consists of pillow-like structures separated by trenches (see Stations and methods). In the trenches, the sediment was covered by a white layer of *Beggiatoa*, a sulfur bacteria, whose abundance increased with depth between 255 m and 300 m. In contrast, this white layer was not seen between 185 m and 250 m.

Mass development of *Beggiatoa* occurs at the surface of completely reduced sediments, where H_2S reaches the oxygen of the open water (JØRGENSEN 1977). Hence proliferation of this bacteria indicates the presence of anoxic sediments in which only tolerant zoobenthic species are able to survive (LANG & REYMOND 1996b). For instance, no molluscs were observed on the sediment below 260 m.

On the studied transect, the mean bottom slope was around 9.6% (extremes: 2 - 30%). This relative steepness is advantageous to the zoobenthos in two ways: (1) the recolonization of deep sediments, for instance by the cocoons of oligochaetes, is

facilitated; (2) organic matter flows deeper, therefore the zoobenthos is not affected by anomalous accumulations (LANG & REYMOND 1996a).

DEPTH-RELATED PATTERNS

Relative abundance of oligotrophic worm species (Fig. 1) and biomass of oligochaetes (Fig. 2) decreased significantly with depth. Sites were divided into two groups according to depth (Tab. 1): (1) 185 m - 240 m; (2) 245 m - 300 m. In group 1, the relative abundance of oligotrophic species and the biomass of oligochaetes were, in most cases, higher than 32%, and 14.7 g m⁻² respectively, the values predicted from total phosphorus concentrations in the water (see Stations and methods); the inverse was true for group 2.

In group 1, oxygen concentrations were, in most cases, higher than 4 mg l⁻¹; in group 2 they were lower than this value (Figs 1, 2). The presence of oligotrophic species was significantly associated with oxygen concentrations in excess of 4 mg l⁻¹ (test of Chi², P = 0.0004).

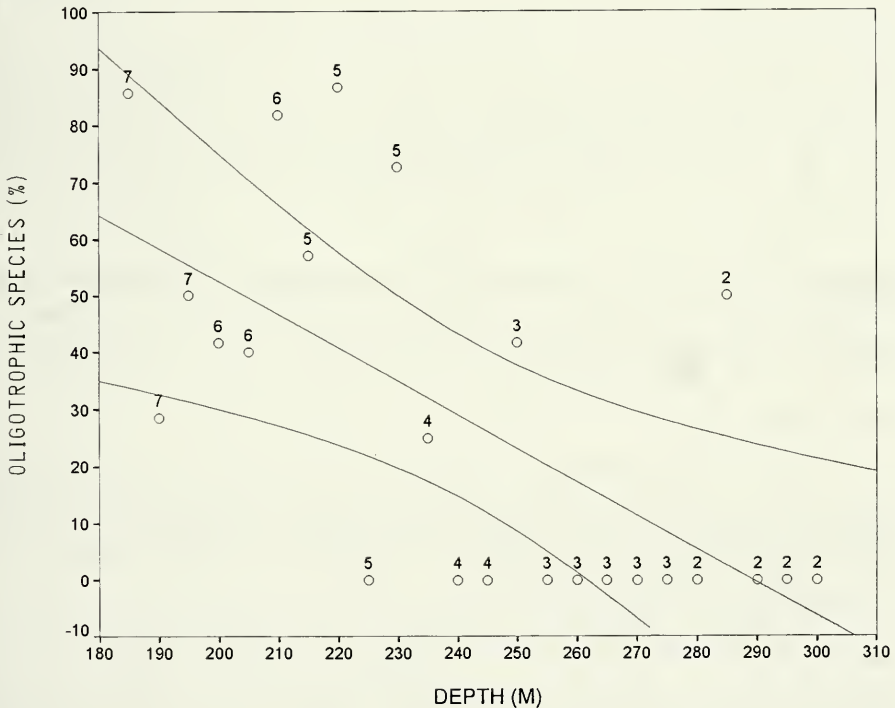


FIG. 1

Relative abundance (%) of oligotrophic worm species (Tab. 1) plotted against depth (m) of sampling sites. The linear regression line with the 99% confidence interval indicated on the figure. Oxygen concentrations (mg l⁻¹ rounded to the nearest integer) indicated above each point.

$$\text{Species (\%)} = -0.588 \text{ Depth} + 170.2$$

$$r^2 = 42.4\%$$

$$P = 0.001$$

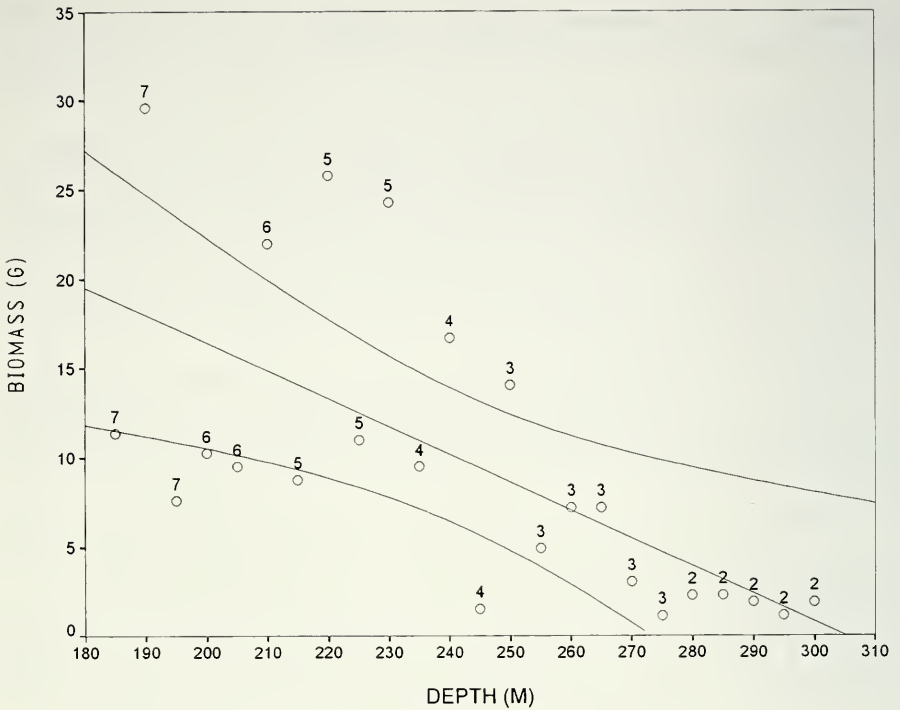


FIG. 2

Biomass (g m^{-2} wet weight) of oligochaetes plotted against depth (m) of sampling sites. Legend as in Fig. 1.

$$\text{Biomass (g)} = -0.156 \text{ Depth} + 47.55$$

$$r^2 = 43.1\%$$

$$P = 0.001$$

DISCUSSION

Mean relative abundance of oligotrophic species computed for the whole survey (Tab. 1, 185 m - 300 m) was close to 32%, the value predicted from total phosphorus concentrations (see Stations and methods). In contrast, the mean value computed for group 1 (185 m - 240 m) was higher than the predicted one; the inverse was true for group 2 (245 m - 300 m).

According to phosphorus concentrations in the water, Lake Geneva was mesotrophic in 1996. Mean relative abundance of oligotrophic species (Tab. 1) indicated that the lake was either mesotrophic (185 m - 300 m), oligo-mesotrophic (185 m - 240 m), or meso-eutrophic (245 m - 300 m). In the deepest area, the recovery was delayed by the persistence of low oxygen concentrations (Figs 1, 2).

In 1996, the oligotrophic worm species (Fig. 1) were not found deeper than 285 m (*Stylodrilus heringianus*) or deeper than 250 m (*Spirosperma velutinus*). In contrast, these species were present in the deepest area (300 m - 309 m) of Lake Geneva from 1958 to 1966 (JUGET 1967). Their mean relative abundance, computed

for 7 surveys, was around 27%; the maximum value (59%) being observed in 1963 after a cold winter.

Oligotrophic species were absent from the deepest area in 1976, 1978, and 1983 (LANG 1985). Their disappearance was attributed to the decrease of oxygen concentrations: from 1960 to 1967, minimal concentrations were always above 4 mg l⁻¹; from 1968 to 1983, they were below 3 mg l⁻¹ in 12 out of 16 years.

In 1996, mean relative abundance of oligotrophic species was relatively high between the depths of 185 m and 240 m (Tab. 1). However, *Stylo-drilus heringianus* was the most abundant oligotrophic species, *Spirosperma velutinus* was relatively scarce (7.9% of the individuals) and *Bythonomus lem-ani* was very scarce.

Around 1900 (PIGUET & BRETSCHER 1913), the inverse situation prevailed in the oligotrophic Lake Geneva: *Spirosperma velutinus* and *Bythonomus lem-ani* were more abundant than *Stylo-drilus heringianus*. Hence these species, which are less able to tolerate pollutants and low oxygen concentrations than *Stylo-drilus heringianus* (LANG & LANG-DOBLER 1979), are the most reliable indicators of truly oligotrophic conditions for Lake Geneva.

During the first stage of recovery, the more tolerant *Stylo-drilus heringianus* was clearly favored in the deep sediments (Tab. 1). Afterwards its gradual replacement by *Spirosperma velutinus* and *Bythonomus lem-ani* will indicate, more clearly than a mere increase of the abundance of oligotrophic species, the complete restoration of deep sediments. The beginning of such a change was already recorded in 1991, but at a depth of 40 m only (LANG & REYMOND 1992).

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A revision of some West Palaearctic species of *Scopaeus* Erichson (Coleoptera, Staphylinidae, Paederinae)

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A revision of some West Palaearctic species of *Scopaeus* Erichson (Coleoptera, Staphylinidae, Paederinae). - Four new species are described: *S. alaschiacus* and *S. flavofasciatus* from Cyprus, *S. palaestinus* from Israel and *S. hercegovinensis* from Bosnia-Herzegovina. Nine additional species are redefined, and four species names synonymised: *S. koestlinianus* Scheerpeltz = *S. gracilis* Sperk. *S. furcatus* Binaghi, *S. pamphylicus* Coiffait = *S. minimus* Erichson. *S. baudrimonti* Coiffait = *S. ryei* Wollaston. *Scopaeus gracilis siculus* Binaghi and *S. micropterus championi* Binaghi are raised to species rank. The species are defined by external morphological, genital and meristic characters, and illustrated. Lectotypes are designated for *S. apicalis* Mulsant & Rey, *S. erichsoni* Kolenati, *S. micropterus* Fauvel, *S. minimus* Erichson, *S. ryei* Wollaston, *S. siculus* Binaghi and *S. trossulus* Wollaston.

Key-words: Staphylinidae - Paederinae - *Scopaeus* - West Palaearctic Region - taxonomy.

INTRODUCTION

Scopaeus Erichson is a speciose group of the staphylinid subfamily Paederinae, comprising about 400 described species throughout the tropics, subtropics and temperate areas, of which 77 species are known from the West Palaearctic realm (FRISCH 1997b). The knowledge of numerous West Palaearctic species is poor, and a large number of distributional data is based on misidentifications, or is impossible to interpret because of confusion in the current taxonomic concept (e.g. BOHÁČ 1985; COIFFAIT 1984; LOHSE 1964). BINAGHI (1935) was the first to describe the aedeagi of most then known West Palaearctic *Scopaeus* species and he enabled the identification of many species, but failed to revise the relevant type material. COIFFAIT (1952, 1953, 1960, 1968, 1969, 1973, 1981) and SCHEERPELTZ (1970) produced a large number of ill-based names and made the identification of many species difficult. Some of these names have already been treated in FRISCH (1994, 1996, 1997a, b) and GUSAROV (1992, 1994, 1995).

An attempt is made to define females by the spermatheca and the female genital-sclerites (FRISCH 1996). However, it turned out that the shape of the spermatheca is rather variable within species, and the genital-sclerites are very similar in closely related species. These structures may define the species groups but often lack characters to diagnose the species. The present paper is a further contribution toward a revision of the West Palaearctic *Scopaeus*. It presents descriptions of 13 species, four of which are new, establishes four new synonymies, and gives ecological and distributional information. In addition, species groups are defined, and their distributional patterns are given.

MATERIAL AND METHODS

This revision is based on type material and on additional material from significant collections. The type material of *S. gracilis* is not available. Detail data are given only for the type specimens. Under synonymy, only primary references are given. The material examined is from the following collections.

- BKCB = C. Brandstetter & A. Kapp Private Collections, Bürs
 BMNH = The Natural History Museum, London
 CMCB = C. Morkel Private Collection, Butzbach
 CUCU = Charkow University Collection, Ukraine
 DEIC = Deutsches Entomologisches Institut, Eberswalde
 HNHM = Hungarian Natural History Museum, Budapest
 HTCO = H. Terlutter Private Collection, Osnabrück
 IHUG = Steiermärkisches Landesmuseum Joanneum, Graz
 ISNB = Institut Royal des Sciences Naturelles de Belgique, Brussels
 JFCG = J. Frisch Private Collection, Gießen
 MCSN = Museo Civico di Storia Naturale, "Giacomo Doria", Genova
 MHNG = Muséum d'histoire naturelle, Genève
 MHNL = Musée Guimet d'histoire naturelle, Lyon
 MKCH = M. Kahlen Private Collection, Hall in Tirol
 MLZT = Museo di Zoologia Sistemática della Università, Turin
 MNHN = Muséum National d'Histoire Naturelle, Paris
 MSCB = M. Schülke Private Collection, Berlin
 MZLU = Zoological Museum, Lund
 NHMB = Naturhistorisches Museum, Basel
 NHMW = Naturhistorisches Museum, Wien
 NMPC = Národní Muzeum, Prague
 SMTD = Staatliches Museum für Tierkunde, Dresden
 TLMF = Tiroler Landesmuseum Ferdinandeum, Innsbruck
 UZIU = Universitets Zoologiska Institut, Uppsala
 VACH = V. Assing Private Collection, Hannover
 VGCB = V. Gollkowsky Private Collection, Berlin
 ZMHB = Museum für Naturkunde, Berlin
 ZSMC = Zoologische Staatssammlung, München

The terminology of the aedeagus follows FRISCH (1994), the terminology of the spermatheca and the genital sclerites is used as in FRISCH (1996) and UHLIG (1989). The illustrations of male sternites 8 are without the fine primary setae. Abdominal sternites and tergites are counted from the first morphological segment.

Measurements and ratios are defined as follows: total length = interval from the apical margin of the mandibles to the end of the abdomen, pending on the state of the specimens; forebody length = interval from the apical margin of the mandibles to posterior margin of elytra at suture; length of head = interval from the apical margin of the clypeus to the posterior margin; HLW = head length : head width; PLW = pronotal length : pronotal width; HPW = width of head : pronotal width; HPL = length of head : pronotal length; PSL = pronotal length : elytral sutural length (excluding scutellum); PLL = pronotal length : elytral lateral length; ELW = elytral lateral length : elytral width; ET = eye length : temporal length (both measured laterally); MT = mesotibial length : mesotibial width; A = length (measured without the basal and distal tapering) : width of the antennal segments 1-11; T = length : width of the central area (between sclerite margins) of the tergite 10; V = length : width of the central area of the female valve. So far as available, ratios are based on ten specimens of both sexes at least, which are including maximum variation range in size and form.

TAXONOMY

Scopaeus gracilis (Sperk)

(Figs 1-3, 7-9, 15, 17, 19, 26-29)

Xantholinus gracilis Sperk, 1835: 152. South Russia, holotype missing.

Scopaeus (s. str.) *gracilis*; FAUVEL 1873a: 22; 1873b: 308.

Scopaeus (*Heteroscopaeus*) *gracilis*; COIFFAIT 1960: 259.

Scopaeus (*Anomoscopaeus*) *gracilis*; COIFFAIT 1968: 426.

Scopaeus apicalis Mulsant & Rey, 1854: 165; 1855: 53. Lectotype ♂, France, Rhône, Belleville-sur Saône (MHNL); here designated (examined); synonymised by KRAATZ 1857: 702.

Scopaeus erichsoni Kolenati, 1846: 23. Lectotype ♂, Azerbaijan, Gjandza (Elisabethopol), Kolenati (ZMHB); here designated (examined); synonymised by FAUVEL 1890: 39.

Scopaeus erichsoni; FAUVEL 1873a: 22; 1873b: 308.

Scopaeus erichsonii; MULSANT & REY 1877: 186.

Scopaeus koestlinianus Scheerpelz 1970: 76. Holotype ♂, Iran, Chalus, -20 m, 13.10.1967, Köstlin (NHMW); examined. **Syn. n.**

Scopaeus trossulus Wollaston, 1864: 585. Lectotype ♂, Canary Islands, Tenerife, Santa Cruz (BMNH); here designated (examined); synonymised by FAUVEL 1902: 85.

DESCRIPTION. Length 3.1-3.9 mm; forebody 1.5-2.2 mm. Specimens from Central Europe are usually larger than Mediterranean specimens. Colour variable. Central European specimens are dark brown with pronotum and elytra slightly lighter. Anterior half of pronotum and posterior margin and suture of elytra lighter yellowish-brown. Appendages light yellowish-brown, third segment of maxillary palpi and antennomeres 3-6 usually moderately darker. Mediterranean specimens are usually lighter and sometimes more contrasted, with pronotum and posterior margin of elytra yellowish-brown. Punctuation fine and dense, microsculpture indistinct. Surface

relatively mat, but pronotum shining with very fine and sparse puncturation. Head with parallel tempora, strongly round hind angles and straight posterior margin. Eyes length slightly exceeding half of temporal length. Elytra relatively long, lateral length usually exceeding pronotal length by a fifth, sutural length as pronotum or up to 0.1 times exceeding pronotal length. Metathoracic wings entire. Protarsomeres 1-4 in both sexes twice as wide as long. Mesotibia conspicuously slender, about seven times longer than wide. Antennae very slender with distal segments notably longer than wide, in Mediterranean specimens frequently shorter. Laterotergite 9 and tergite 10 as in *S. siculus* (figs 13, 23). Laterotergite 9 with obtuse dorsal dilatation and very slender distal tooth. Valve (fig. 19) very slender. Distal tenth of male sternite 8 (fig. 17) with broad, shallow emargination, straight in middle third. Aedeagus (figs 1-3, 7-9) with asymmetrical lobes. Apical lobes moderately sclerotized terminally, one apex obtusely round, second apex pointed. Dorsal lobe slender and curved at base in dorsal view, with dorsal margin more or less concave in lateral view. Apex of dorsal lobe hooked ventrally (figs 1-3), in specimens from South-West Europe and North Africa usually moderately sclerotized and less hook-shaped (figs 7-9). Ventral endophallic process with slender lateral spine at base, strongly curved toward apex of dorsal lobe. Phallobase with two ventral groups of long setae. Spermatheca (figs 27-29) variable in shape, with sclerotized ductus distinctly strong.

RATIOS. HLW 1.14-1.21; PLW 1.2-1.27; HPW 1.05-1.1; HPL 0.96-1.05; PSL 0.92-1.04; PLL 0.74-0.82; ELW 1.2-1.3; ET 0.63-0.68; MT 6.4-7.5; A (♂, South Tyrol) 2.9, 2.0, 2.1, 1.6, 1.5, 1.3, 1.3, 1.2, 1.2, 1.1, 2.1; A (♀, Tunisia) 2.7, 1.8, 1.9, 1.5, 1.4, 1.2, 1.1, 1.1, 1.1, 1.0, 1.8; T 2.1; V (♀) 6.4.

MATERIAL EXAMINED (565 specimens). Albania (NHMW). Algeria (NMPC). Austria: Burgenland (VACH); Carinthia (MHNG, NHMW); Lower Austria (NHMW); Tyrol (HTCO, JFCG, VACH, VGCB); Upper Austria (NHMW); Vienna (NHMW). Azerbaijan: lectotype ♂ and paralectotype ♀ of *S. erichsoni*, Gjandza (ZMBH). Bosnia-Herzegovina (HNHM, NHMW, SMTD). Bulgaria (ZMHB). Canary Islands: lectotype ♂ and paralectotypes 1♂, 1♀ of *S. trossulus*, Tenerife, Santa Cruz (BMNH); paralectotype ♂, Fuerteventura, La Antigua (BMNH); Gran Canaria (VACH); Tenerife (NHMW, UZIU). Croatia: Rijeka (NHMW). Cyprus (NHMW). Czech Republic: Jihomoravský Kraj (NHMW, SMTD); Praha (NHMW); Severomoravský Kraj (HNHM, NHMW, SMTD, ZMHB); Stredoceský Kraj (NHMW). France: lectotype ♂ and paralectotypes 1♂, 1♀ of *S. apicalis*, Rhône, Belleville-sur-Saône (MHNL); Alpes Maritimes (MHNG, NHMW); Ardèche (MHNG); Corse-du-Sud (MHNG); Gers (NHMW); Haute-Corse (DEIC, ISNB, MHNG); Hautes-Pyrénées (BMNH, MHNG, NHMW); Hérault (NHMW); Pyrénées Orientales (MHNG); Var (MHNG); Vaucluse (HNHM, ISNB). Georgia: Abchasia (MHNG); Tbilisi (ZMHB). Germany: Bavaria (MHNG, ZMHB); Hesse (JFCG); Rhineland-Palatinate (ZMHB). Gibraltar (BMNH). Greece: Attiki (NHMW, NMPC); Crete (JFCG); Giona Oros (JFCG); Karpathos (JFCG); Khalkidhiki (VACH); Lemnos (BMNH); Naxos (JFCG); Parnassos Oros (JFCG); Peloponnese (JFCG, NHMW, VACH); Thessalia (NHMW). Hungary: Győr-Moson-Sopron (NHMW); Somogy (HNHM). Iran: holotype ♂ of *S. koestlinianus*, Chalus (NHMW). Italy: Campania (NHMW); Emilia-Romagna (ZMHB); Liguria (BMNH, MCSN, MHNG, NHMW, NMPC, ZMHB); Lombardia (MHNG); Piedmont (DEIC, HNHM, ISNB, MCSN, MHNG, NHMW); Sardinia (DEIC, MHNG, NHMW, VACH); Tuscany (VACH, ZMHB); Trentino-Alto Adige (JFCG); Veneto (DEIC, ISNB, NHMW). Macedonia (NHMW, ZMHB). Malta (BMNH). Morocco: Anti Atlas (MHNG). Poland: Bielsko-Biala (MHNG, NHMW, ZMHB); Legnica (NHMW, ZMHB). Portugal: Faro (ISNB); Viana do Castelo (MHNG). Romania: Bihor (NHMW); Bukovina

(NHMW); Caras-Severin (NHMW, ZMHB); Pasul Turnu Rosu (NHMW). Scotland: Dumfries-Galloway (BMNH); Grampian (BMNH). Slovakia: Západoslovenský Kraj (ZMHB). Spain: Andalucía (BMNH, ISNB, MHNG, NHMW, ZMHB); Castilla Mancha (BMNH); Catalunya (ISNB, ZMHB), Valencia (MHNG). Switzerland: Genève (MHNG, NHMW); Schwyz (NHMB); Ticino (MHNG); Vaud (MHNG). Syria: Aleppo (JFCG). Tunisia: El Kef (JFCG); Kasserine (JFCG); Kairouan (NHMW). Turkey: Adana (JFCG, NHMW); Antalya (ISNB); Giresun (JFCG); Hatay (NHMW); Izmir (NHMW); Kastamonu (JFCG); Kayseri (JFCG); Sivas (JFCG); Trabzon (JFCG); Yozgat (JFCG). Ukraine: Crimea (NHMW).

DISTRIBUTION. *Scopaeus gracilis* is a West Palaearctic species. It is common in Western, Southern and Central Europe, the Canary Islands, North-West Africa and Middle East. The species is known from the large Mediterranean islands, except from Sicily (CICERONI *et al.* 1995). The easternmost records are from South-West Poland, the Carpathians, the Crimea, Azerbaijan and North Iran. *Scopaeus gracilis* occurs in Scotland but appears absent from the North German lowland plain (HORION 1965) and Fennoscandia (LINDROTH 1960; PALM 1963; SILFVERBERG 1992).

HABITAT. *Scopaeus gracilis* is a ripicol-hygrophilous inhabitant of gravelly or sandy, denuded margins of rivers, streams, lakes and even secondary stretches of water such as ponds in gravel pits or brickworks (BOHÁČ 1985; KOCH 1989), occurring below stones and in gravel especially in damp areas close to the water. According to KAHLEN (1995), *S. gracilis* was found in Tyrol on wide riverbanks with coarse gravel. It prefers submountainous and mountainous regions (HORION 1965), but is found from sea-level (Mediterranean region) up to high-altitude valleys. It avoids slow running rivers and streams of lowlands with muddy or marshy banks and rich vegetation.

COMMENTS. SPERK (1835) described *Xantholinus breviventer* and *Xantholinus gracilis* from South Russia. *Xantholinus gracilis* was transferred to *Scopaeus* by FAUVEL (1873a, b). The type material of this species is not traceable in the Sperk collection (CUCU) (Kirejtschuk, pers. comm.), but the description is not contradictory to Fauvel's interpretation. *Xantholinus breviventer* was transferred to *Scopaeus* by GEMMINGER & HAROLD (1868) and synonymised with *S. erichsoni* by MARSEUL (1883). FAUVEL (1890) synonymised the latter with *S. gracilis*. I have examined the single type specimen (CUCU) and found *Xantholinus breviventer* to be a senior synonym of *Gabrius pennatus* Sharp (Staphylinidae, Staphylininae). This synonymy was published in SCHILLHAMMER (1997).

According to FAUVEL (1902), records of *S. sericans* from the Canary Islands (GEMMINGER & HAROLD 1869; FAUVEL 1873a, b) and Nord Africa (FAUVEL 1878) refer to *S. gracilis*. In BERNHAUER & SCHUBERT (1910) and MARSEUL (1883) *S. laevigatus* Heer is referred to as synonym of *S. gracilis*, although Heer has not described a species he named *S. laevigatus*, but he gave a redescription of *S. laevigatus* Gyllenhal (HEER 1839).

Specimens from the Canary Islands, North-West Africa, South Spain and Sardinia differ in the shape of the aedeagus with the dorsal lobe more strongly bent ventrally and the apex of the dorsal lobe moderately sclerotized and less hook-shaped (figs 7-9). Transition forms are found in northern Spain, Sardinia and the South of France.

Scopaeus flavofasciatus sp. n.

(Figs 4-6, 14, 16, 20, 22, 24)

DESCRIPTION. Similar to *S. gracilis* from which it differs as follows: Length 3.4-3.9 mm; forebody 1.8-2.1 mm. Colour lighter. Head and abdomen brown, elytra brown to dark brown with posterior third contrasting light yellowish-brown. Pronotum orange to light reddish-brown, beyond middle hardly darker. Third segment of maxillary palpi and antennomeres 3-6 not blackish but light yellowish-brown. Antennomeres notably shorter than in Central European and most Mediterranean specimens of *S. gracilis*. Laterotergite 9 (fig. 14) with dorsal dilatation much more obtuse. Posterior emargination of male sternite 8 (fig. 16) somewhat deeper. Shape of aedeagus (figs 4-6) as in *S. gracilis*, distinguished by dorsal lobe stronger hook-shaped at apex, with dorsal margin notably convex (concave in *S. gracilis*). Spermatheca as in fig. 24.

RATIOS. HLW 1.13-1.18; PLW 1.22-1.29; HPW 1.03-1.4; HPL 0.97-1.01; PSL 0.77-0.99; PLL 0.63-0.82; ELW 1.21-1.28; ET 0.63-0.69; MT 6.6-7.8; A 2.7, 1.7, 1.6, 1.4, 1.3, 1.3, 1.2, 1.1, 1.1, 1.1, 1.9; T 1.9; V (♀) 7.3.

MATERIAL EXAMINED. Holotype ♂, Cyprus: Vyzakia, Elaia River, 250 m, 17.03.1996, collected on a bank, Frisch (MHNG). Paratypes. 23♂, 29♀, same data as holotype (JFCG, MHNG). 2♀, Cyprus: Troodos Mts., Kato Amiantos, 800 m, 09.03.1996, Frisch (JFCG). 2♀, Cyprus: Troodos Mts., Diarizos River, Kelefos Bridge, 400 m, 07.03.1996, Frisch (JFCG). 7♂, 14♀, Cyprus: Troodos Mts., Agios Mamas, 450 m, 18.03.1996, Frisch, Morkel (CMCB, JFCG). 3♂, 5♀, Cyprus: Sarama, 250 m, 15.03.1996, Frisch (JFCG). 1♂, Cyprus: Kidasi, Diarizos River, 250 m, 06.03.1996, Frisch (JFCG).

HABITAT. *Scopaeus flavofasciatus* obviously occupies the same ecological niche as *S. gracilis*. The species was collected close to the water on wet, gravelly or sandy banks of both rivers and small streams.

COMMENTS. *Scopaeus flavofasciatus* is known only from the Troodos Mountains in the west of Cyprus, where it appears to replace *S. gracilis*. According to material examined, *S. gracilis* occurs on Cyprus, too.

Scopaeus siculus Binaghi **stat. nov.**

(Figs 10-12, 13, 18, 21, 23, 25)

Scopaeus (s. str.) *gracilis siculus* Binaghi, 1935: 92. Lectotype ♂, Italy, Sicily, Palermo, 20.04.1906, Doderò (MCSN, Doderò collection); here designated (examined).

Scopaeus (*Heteroscopaeus*) *gracilis siculum*; COIFFAIT 1973: 271.

Scopaeus (*Anomoscopaeus*) *gracilis siculus*; COIFFAIT 1984: 206.

DESCRIPTION. Similar to *S. gracilis* from which it differs as follows: Length 2.9-3.4 mm; forebody 2.0 mm. Body light brown, pronotum moderately lighter yellowish-brown, head and base of elytra slightly darker. Appendages yellowish-brown, antennomeres 3-4 hardly darker. Laterotergite 9 (fig. 13) and tergite 10 (fig. 23) as in *S. gracilis*, valve (fig. 21) much more slender. Distal sixth of sternite 8 in male (fig. 18) with broad, shallow emargination, moderately convex in middle third. Shape of aedeagus (figs 10-12) similar to that in *S. gracilis*, but lobes distinctly longer. Dorsal lobe more slender in dorsal view, not hook-shaped but truncate at apex in lateral view. Ventral endophallic flagellum strongly lengthened dorsally. Spermatheca (fig. 24) with sclerotized ductus conspicuously strong.

RATIOS. HLW 1.14-1.15; PLW 1.23-1.24; HPW 1.03-1.05; HPL 0.96-0.98; PSL 1.0-1.04; PLL 0.63-0.82; ELW 1.23-1.25; ET 0.66-0.68; MT 6.0; A 2.9, 1.6, 1.7, 1.4, 1.4, 1.4, 1.3, 1.1, 1.1, 1.2, 2.1; T 2.1; V (♀) 8.8.

MATERIAL EXAMINED (3 specimens). Italy: lectotype ♂ and paralectotypes 1♂, 1♀, Sicily, Palermo (MCSN).

DISTRIBUTION. *Scopaeus siculus* appears to replace *S. gracilis* in Sicily. It is recorded from South Italy (Calabria) as well (CICERONI *et al.* 1995; POGGI 1971). Records from Marocco (COIFFAIT 1973) refer to *S. gracilis*.

COMMENTS. According to BINAGHI (1935), *S. siculus* differs from *S. gracilis* by its larger body size and longer and denser elytral pubescence. These characters are not reliable. *Scopaeus siculus*, *S. gracilis* and *S. flavofasciatus* form a species group in the West Palaearctic, here named *S. gracilis* group, which is defined by the aedeagus having long and moderately sclerotized, asymmetrical apical lobes, a slender dorsal lobe, which is curved at the base, and a long, dorsally bent endophallic flagellum with a short, lateral spine at the base. These species share very finely punctate surfaces, long antennae with elongated segments, broad, shallow distal emarginations in male sternite 8, toothless dorsal margins of laterotergite 9, and spermathecae having a remarkably sclerotized ductus.

Scopaeus micropterus Fauvel

(Figs 30-32, 47, 52, 57, 62, 67-69)

Scopaeus (Polyodontus) micropterus Fauvel, 1873a: 27; 1873b: 313. Lectotype ♂, Italy, Tuscany (MLZT); here designated (examined).

Scopaeus (Euscopaeus) micropterus; COIFFAIT 1960: 285.

Scopaeus (Alloscopaeus) micropterus; COIFFAIT 1984: 188.

DESCRIPTION. Length 2.9-3.1 mm; forebody 1.5-1.8 mm. Body unicolorously yellowish-brown, abdomen usually darker brown, appendages paler. Puncturation fine and dense, reticulation indistinct, pronotum somewhat shining with conspicuously fine and sparse puncturation. Head trapezoid, notably wider than pronotum, with tempora moderately enlarged, posterior margin slightly concave. Eyes very small, notably shorter than half length of tempora. Elytra short and slender, just as wide as head or frequently more slender. Lateral length as long as pronotum or slightly longer, along suture about 0.25 times shorter than pronotum. Metathoracic wings reduced, as long as elytra. Protarsomeres 1-4 in both sexes twice as wide as long. Mesotibia moderately thickened. Antennomeres 5-10 transverse. Laterotergite 9 (fig. 52) without dorsal dilatation, tergite 10 (fig. 57) with parallel margins. Sternite 8 in males (fig. 47) with equilateral-triangular emargination in distal fifth and with two shallow, elongated depressions, which are divided by a longitudinal elevation. Apical lobes of aedeagus (figs 30-32) with concave inner margins, regularly bent toward each other in dorsal view, and strongly narrowed toward apex in lateral view. Each in basal half with a ventral enlargement, which is strongly hooked toward phallobase in lateral view. Enlargements curved toward each other ventrally. Dorsal lobe deeply divided into two diverging processes, bearing ventral marginal denticles of unequal length. Endophallic flagellum projecting from phallobase and curved ventrally. Ventral

endophallic process subdiscoidal in lateral view. Lateral lobes prominent, each bearing an apical group of numerous, long setae. Spermatheca (figs 67-69) variable in shape, with process slender and chamber triangular.

RATIOS. HLW 1.03-1.11; PLW 1.17-1.25; HPW 1.05-1.15; HPL 0.93-1.03; PSL 1.13-1.27; PLL 0.91-1.0; ELW 1.08-1.22; ET 0.37-0.43; MT 5.0-6.1; A 2.1, 1.1, 1.1, 1.0, 0.9, 0.8, 0.8, 0.8, 0.9, 0.8, 1.5; T 1.9; V (♀) 6.8.

MATERIAL EXAMINED (40 specimens). Italy: Lectotype ♂, Tuscany (MLZT); Emilia-Romagna (NHMW, ZMHB); Lazio (DEIC); Liguria (ZMHB); Marche (SMTD, ZMHB); Tuscany (BMNH, MLZT, NMPC); Trentino-Alto Adige (TLMF, NHMW); Veneto (MHNG).

DISTRIBUTION. *Scopaeus micropterus* is distributed throughout North Italy, the Appennines (BINAGHI 1935; CICERONI *et al.* 1995; PORTA 1926) and in the Provence (Digne; COIFFAIT 1984). It is confirmed from South Tyrol (Bolzano; PEEZ & KAHLEN 1977) southwards to the Lazio region.

COMMENTS. According to FAUVEL (1873), the description of *Scopaeus micropterus* is based on a couple from the Baudi collection, but it remains doubtful, if Fauvel received the specimens or if he published a description given by Baudi. *Scopaeus micropterus* is absent from the Fauvel collection (ISNB), but in the Baudi collection (MLZT) are three males from the Tuscany (Daccordi, pers. comm.), which were examined, and of which one specimen is designated here as lectotype.

***Scopaeus championi* Binaghi stat. nov.**

(Figs 33-36, 48, 53, 58, 63, 72)

Scopaeus (*Polyodontus*) *micropterus championi* Binaghi, 1935: 103. Holotype ♂, Italy: Trentino-Alto Adige, Cortina d'Ampezzo, 1200 m, Champion (MCSN); examined.

Scopaeus (*Alloscopaeus*) *micropterus championi*; COIFFAIT 1984: 188.

Scopaeus spec. nov.; KAHLEN 1995: 23. SCHATZ 1996: 264.

DESCRIPTION. Length 2.8-3.1 mm; forebody 1.5-1.6 mm. Head brown, pronotum and elytra light brown to yellowish-brown, disc of elytra except humeral callus, posterior sixth and suture usually darker. Abdomen blackish, appendages light yellowish-brown. Puncturation and reticulation as in *S. micropterus*. Head with moderately widened tempora and almost straight posterior margin. Eyes half or almost half of temporal length. Elytra relatively short and slender, lateral length about 1.1 times as long as pronotum, sutural length up to 0.2 times shorter than pronotum. Elytra as wide as head width or slightly wider. Metathoracic wings entire. Protarsomeres 1-4 in both sexes twice as wide as long. Mesotibia notably widened. Antennomeres 6-10 notably transverse. Terminal sclerites (figs 53, 58, 63) as in *S. micropterus*. Sternite 8 in male (fig. 48) with triangular emargination in distal seventh, lacking longitudinal depressions and elevated midline. Shape of aedeagus (figs 33-36) similar to that in *S. micropterus*. Apical lobes with inner margins parallel in dorsal view and ventral margins less hook-shaped in lateral view. Dorsal lobe deeply divided into two diverging processes of half length of apical lobes. Processes widening and round toward apex, studded with minute denticules at apex. Endophallus with thin spine pointing ventrally. Lateral lobes prominent, each having a group of few, long setae. Process of spermatheca (fig. 72) very slender, chamber triangular.

RATIOS. HLW 1.07-1.11; PLW 1.15-1.24; HPW 1.08-1.14; HPL 0.95-1.05; PSL 1.0-1.22; PLL 0.82-0.94; ELW 1.16-1.24; ET 0.44-0.52; MT 4.6-5.3; A 2.5, 1.5, 1.3, 1.2, 1.1, 1.0, 0.9, 0.9, 0.8, 0.8, 1.8; T 1.6; V (♀) 6.7.

MATERIAL EXAMINED (59 specimens). Austria: Styria, Admont (NHMW); Tyrol, Lech Valley, Forchach (BKCB, HTCO, JFCG, MHNG, MSCB, VACH, VGCB); Tyrol, Karwendel Mts., Rißtal (MKCH). Bosnia-Herzegovina: Sarajevo (HNHM, NMPC, SMTD). Italy: holotype ♂, Trentino-Alto Adige, Cortina d'Ampezzo (MCSN). Romania: Transsylvanian Alps, Pasul Turnu Rosu (NHMW).

DISTRIBUTION. *Scopaeus championi* is distributed in mountain regions of eastern Central Europe and South-East Europe. Examined material is from the Eastern Alps, the Southern Carpathians and the mountains in Bosnia. The record from Bolzano (PEEZ & KAHLEN 1977) refers to *S. micropterus*.

HABITAT. *Scopaeus championi* is a mountainous, thermo-hygrophilous inhabitant of sandy to gravelly, damp riversides, which was found between 800-1200 m above sea-level. As KAHLEN (1995) and SCHATZ (1996), the author collected this species in May on the Tyrolean Lech river below stones on a large, damp bank with gravel and fine sand, associated with *S. ryei* Wollaston.

***Scopaeus alaschiacus* sp. n.**

(Figs 37-39, 49, 54, 59, 64, 70)

DESCRIPTION. Similar to *S. championi* from which it differs as follows: Length 3.0-3.2 mm; forebody 1.6 mm. Body unicolorously light yellowish-brown, appendages slightly paler. Tempora notably widened, head trapezoid, about 0.15 times wider than elytra. Posterior margin of head strongly concave with two distinct, medio-longitudinal ridges divided by a median groove. Eyes conspicuously small, slightly longer than a third of temporal length. Elytra very short and slender with humeral callus notably obtuse, lateral length about the same length as pronotum, sutural length about a quarter shorter than latter. Metathoracic wings reduced to elytral length. Protarsomeres 1-4 in both sexes twice as wide as long. Mesotibia slender. Terminal sclerites (figs 54, 59, 64) similar to those in *S. championi* and *S. micropterus*, sternit 8 of male (fig. 49) distinguished by deeper and more narrow triangular emargination in distal sixth. Aedeagus (figs 37-39) with ventral margins of apical lobes narrowed continuously toward apex, forming a right angle at base in lateral view. Dorsal lobe divided into two diverging, very slender processes of half length of apical lobes, which are curved ventrally and hook-shaped bent toward each other at apex. Ventral endophallic process triangular in lateral view. Spermatheca as in fig. 70.

RATIOS. HLW 1.06-1.12; PLW 1.16-1.23; HPW 1.11-1.19; HPL 1.02-1.1; PSL 1.18-1.28; PLL 0.93-1.0; ELW 1.1-1.17; ET 0.35-0.38; MT 5.4-6.4; A 2.4, 1.6, 1.4, 1.4, 1.1, 1.0, 0.9, 0.9, 0.9, 0.9, 1.6; T 1.8; V (♀) 5.3.

MATERIAL EXAMINED. Holotype ♂, Cyprus: Troodos Mts., Kannaviou, Ezousa River, 350 m. 10.03.1996, collected on a damp, gravelly bank beneath stones, Frisch (MHNG). Paratypes. 38♂, 47♀, same data as holotype, Frisch, Morkel (CMCB, JFCG, MHNG).

COMMENTS. *Scopaeus alaschiacus* shares the shape of the body with short and slender elytra, and the shape of the aedeagus with *S. micropterus* and *S. championi*. These

species are linked by the dorsal lobe of the aedeagus deeply divided into two strongly diverging processes, and appear closely related.

Scopaeus minutoides Coiffait

(Figs 43-46, 50, 56, 60, 66, 71)

Scopaeus (Alloscopaeus) minutoides Coiffait, 1969: 33. Holotype ♂, Turkey, Antalya, Alanya, Dim Irmak, 06.1968, Fagel (ISNB); examined.

DESCRIPTION. Length 2.8-3.2 mm; forebody 1.5-1.8 mm. Body unicolorously reddish-brown to dark brown, or pronotum slightly lighter. Abdomen blackish, appendages yellowish-brown. Puncturation clear, head and pronotum shining with indistinct reticulation. Distal half of pronotum with median groove. Head trapezoid, tempora notably enlarged with well marked hind angles, posterior margin of head straight or slightly concave. Eyes as long as half of tempora or slightly shorter. Elytra relatively short, lateral length slightly longer than pronotal length, sutural length up to 0.17 times shorter than latter. Metathoracic wings reduced, twice as long as elytra. Protarsomeres 1-4 in both sexes twice as wide as long. Mesotibia moderately thickened. Antennae relatively slender, distal segments transverse. Dorsal margin of laterotergite 9 (fig. 56) with very obtuse dilatation, apical denticle relatively short. Distal fifth of male sternite 8 (fig. 50) with a triangular emargination. Apical lobes of aedeagus (figs 43-46) long and slender, narrowed gradually toward apex, with obtuse proximal margins in lateral view. Apical lobes with lateral contours parallel, but shortly narrowed toward apex in dorsal view. Dorsal lobe very slender with distal half deeply separated into two parallel spines. Ventral endophallic process semicircular. Lateral lobes distinctly prominent, each with an apical group of long setae. Spermatheca as in fig. 71.

RATIOS. HLW 1.11-1.13; PLW 1.18-1.25; HPW 1.09-1.12; HPL 0.99-1.05; PSL 1.11-1.17; PLL 0.91-0.99; ELW 1.16-1.19; ET 0.43-0.5; MT 4.7-5.4; A 2.4, 1.3, 1.5, 1.1, 1.2, 1.1, 0.9, 0.9, 0.9, 0.9, 1.8; T 2.0; V (♀) 5.3.

MATERIAL EXAMINED (6 specimens). Turkey: holotype ♂, Antalya, Alanya, Dim Irmak (ISNB); Antalya (VACH); Burdur (MHNG); Istanbul (BMNH).

DISTRIBUTION. *Scopaeus minutoides* is known only from West and South-West Anatolia.

COMMENTS. The aedeagal features of *S. minutoides* indicate close relationship with *S. gladifer* Binaghi (figs 40-42, 51, 55, 61, 65, 73), which is distributed around the Black Sea (Bulgaria, Romania, Turkey: Sivas, Ukraine, Russia: Samara). *Scopaeus gladifer* differs mainly by its larger size and the aedeagus (figs 40-42) with the apical lobes larger and strongly hooked toward the phallobase in lateral view, with the dorsal lobe longer and more slender, and with shorter setae on the lateral lobes. The dorsal dilatation of the laterotergite 9 (fig. 55) is stronger than in *S. minutoides*. The spermatheca (fig. 73) is wider and more arcuate. *Scopaeus minutoides* and *S. gladifer* are also linked with *S. micropterus*, *S. championi* and *S. alaschiacus* in having the dorsal lobe of the aedeagus long and deeply divided into two slender processes. *Scopaeus micropterus*, *S. championi* and *S. alaschiacus* differ drastically in having those processes strongly diverging at base. These five species form the *S. micropterus* group, restricted to southern Central Europe, Italy, South-East Europe, Anatolia and Cyprus.

Scopaeus minimus (Erichson)

(Figs 74-76, 93, 94, 98, 101, 106)

Lathrobium minimum Erichson, 1839: 511. Lectotype ♂, Germany, Berlin, Erichson (ZMHB); here designated (examined).

Scopaeus minimus; ERICHSON 1840: 607.

Scopaeus (Polyodontus) minimus; FAUVEL 1873a: 26; 1873b: 312.

Scopaeus (Polyodontus) furcatus Binaghi, 1935: 102. Holotype ♂, Croatia, Rijeka, 30.03.1923, Schatzmayr (MCSN, Dodero collection); examined. **Syn. n.**

Scopaeus (Hyposcopaeus) furcatus; COIFFAIT 1960: 285.

Scopaeus (Hyposcopaeus) pamphylicus COIFFAIT, 1969: 36. Holotype ♂, Turkey, Antalya, 05.1968, Fagel (ISNB); examined. **Syn. n.**

DESCRIPTION. Length 2.3-2.6 mm; forebody 1.3-1.4 mm. Body uniformly brown to dark brown, abdomen blackish, pronotum sometimes slightly lighter. Hind margin of elytra and posterior half of suture usually lighter brown. Appendages brown with third segment of maxillary palpi distinctly darker. Specimens from Anatolia are lighter brown with appendages pale yellowish-brown and disc of elytra and abdomen blackish. Puncturation distinct, reticulation indistinct, forebody notably shining. Head relatively slender, almost 1.1 times as wide as pronotum, with slightly enlarged tempora and round hind angles, posterior margin straight or slightly convex. Eyes about half as long as tempora, in Anatolian specimens somewhat shorter. Length of elytra variable, depending on state of metathoracic wings, which are entire or reduced up to double of elytral length in European specimens, in Anatolian specimens only as long as elytra. Elytra laterally slightly exceeding pronotal length, or in specimens with entire metathoracic wings exceeding pronotal length by almost a quarter. Sutural length up to 0.14 times smaller or slightly exceeding pronotal length. Elytra of Anatolian specimens shorter, laterally as long as pronotum or slightly longer, at suture up to 0.3 times shorter than pronotum. Protarsomeres 1-4 in both sexes twice as wide as long. Mesotibia notably widened. Distal antennomeres transverse. Laterotergite 9 (fig. 94) with strong dorsal tooth. Tergite 10 (fig. 98) relatively slender. Male sternite 8 (fig. 93) with wide triangular emargination in distal fourth. Apical lobes of aedeagus (figs 74-76) strongly arcuate ventrally, with long, truncate apices, which are pointing longitudinally and curved toward each other in ventral view. Dorsal lobe almost right-angled bent ventrally and divided into two long spines, which are pointing proximally toward phallobase. Endophallic flagellum projecting over apical lobes. Ventral endophallic process semicircular in lateral view. Lateral lobes prominent, each bearing a group of long setae. Spermatheca (fig. 106) with distinctly elongated chamber, projecting over distal hook. Sclerotized ductus inserted distally.

RATIOS. HLW 1.12-1.2; PLW 1.15-1.22; HPW 1.04-1.11; HPL 1.02-1.07; PSL 0.93-1.14 (Anatolia: 1.17-1.31); PLL 0.77-0.93 (Anatolia: 0.95-1.0); ELW 1.1-1.25; ET 0.47-0.52 (Anatolia: 0.41-0.45); MT 4.6-5.7; A 2.0, 1.1, 1.2, 1.0, 1.0, 0.9, 0.9, 0.8, 0.8, 0.8, 1.9; T 2.1; V (♀) 6.2.

MATERIAL EXAMINED (430 specimens). Austria: Burgenland (JFCG, MHNG, MZLU, NHMW, NMPC, SMTD, VACH); Lower Austria (NHMW); Styria (IHUG). Bulgaria: Blagoevgrad (ZMHB); Varna (NMPC). Croatia: holotype ♂ of *S. furcatus*, Rijeka (MCSN). Czech Republic: Jihočeský Kraj (NMPC); Jihomoravský Kraj (HNHM, ZMHB); Středočeský Kraj (NHMW, NMPC). France: Alpes Maritimes (NMPC). Germany: lectotype ♂ and paralec-

totypes 2♂, 1♀, Berlin (ZMHB); Brandenburg (MSCB, ZMHB); Lower Saxony (VACH); Mecklenburg-West Pomerania (ZMHB); Rhineland-Palatinate (NHMW); Saxony (SMTD); Saxony-Anhalt (ZMHB); Schleswig-Holstein (MHNG); Thuringia (ZMHB). Greece: Thessaloniki (DEIC). Hungary: Csongrád (HNHM); Fejér (HNHM); Győr-Moson-Sopron (HNHM, MHNG, NHMW, SMTD, ZMHB); Nograd (HNHM); Pécs (HNHM, NHMW); Szabolcs-Szatmár-Bereg (HNHM). Italy: Emilia-Romagna (ZMHB); Piedmont (MLZT); Tuscany (SMTD); Trentino-Alto Adige (MHNG, NHMW, ZSMC); Veneto (MHNG, NHMW). Macedonia (NHMW). Poland: Wrocław (NHMW). Serbia (SMTD). Slovakia (MHNG). Turkey: holotype ♂ of *S. pamphylicus*, Antalya (ISNB); Adiyaman (MHNG); Antalya (MHNG); Hatay (MHNG); Isparta (MHNG); Istanbul (MHNG); Kayseri (MHNG); Samsun (MHNG). Ukraine: Crimea (NHMW).

DISTRIBUTION. *Scopaeus minimus* is widespread throughout Central Europe, South-East Europe and Anatolia. It is confirmed as far west as the North of Germany (Schleswig-Holstein), Rhineland-Palatinate (Rhine Valley), South Tyrol and South-East France (Alpes Maritimes). The record from the Netherlands (BRAKMAN 1966) is doubtful and refers probably to *S. ryei*. Southward, *S. minimus* reaches the Tuscany, North Greece and Southern Anatolia. The known distribution in Eastern Europe has many gaps between West Poland, Slovakia, Crimea and Anatolia (Samsun, Kayseri, Hatay). The record from the Caucasus (HOCHHUTH 1849) is doubtful, as no material has been examined from the Caucasian regions. *Scopaeus minimus* is absent from western Europe. Records from Corsica and Sardinia (HORION 1965; PORTA 1926; SAINTE-CLAIRE DEVILLE 1906) refer possibly to *S. brevicuspis*, and records from the Canary Islands (BERNHAEUER & SCHUBERT 1910; HERNANDEZ et al. 1994) to *S. nigellus*. Data from North Africa (FAUVEL 1878), the Balearic Islands and Portugal (HORION 1965) are based obviously on misidentifications.

HABITAT. According to BOHÁČ (1985), HORION (1965) and KOCH (1989), *S. minimus* is a very hygrophilous, paludicol-humicolous species and distinguished from most *Scopaeus* species in that it inhabits marshy grounds such as wet meadows, swamps, bogs and even woods, where it is found in wet moss and litter. *Scopaeus minimus* obviously avoids mountainous regions and occurs preferentially in plains and marshlands.

COMMENTS. BINAGHI (1935) misinterpreted *S. minimus* and used the name for *S. ryei* Wollaston. Subsequent authors (e.g. BOHÁČ 1985; COIFFAIT 1968, 1984; LOHSE 1964; LOHSE & LUCHT 1989) followed him. Prior to BINAGHI's publication (1935), the name *S. minimus* was used correctly by KRAATZ (1857) and REDTENBACHER (1849, 1874), while keys in REITTER (1909), GANGLBAUER (1895) and FAUVEL (1873a, b) obviously refer to *S. ryei*. Thus, older records are not reliable, even though records of *S. ryei* from North Germany and Poland certainly refer to *S. minimus*. Specimens from Anatolia differ by lighter colour and shorter elytra, but are conspecific by shape of aedeagus. *Scopaeus nigellus* Wollaston, 1864, based on a single female from Gomera, was examined by the author. It was certainly incorrectly synonymised with *S. minimus* by FAUVEL (1902), although its male characters are still unknown.

Scopaeus palaestinus sp. n.

(Figs 77-79, 92, 95, 99, 102, 107, 108)

DESCRIPTION. Similar to *S. minimus* from which it may be distinguished as follows: Length 2.6-3.0 mm; forebody 1.5 mm. Body somewhat larger. Forebody brown, disc

or only base of elytra darker, abdomen blackish. Appendages light brown. Eyes larger, as long as tempora or slightly longer. Elytra frequently somewhat longer, lateral length exceeding pronotal length by a fifth, sutural length as pronotal length. Metathoracic wings entire. Terminal sclerites (figs 95, 99, 102) and male sternite 8 (fig. 92) similar to those in *S. minimus*. Aedeagus (figs 77-79) more robust. Dorsal margins of apical lobes regularly arcuate, nearly semicircular, apices distinctly shorter than those in *S. minimus*, somewhat widened and less curved longitudinally. Spermatheca (figs 107, 108) as in *S. minimus*, with elongated chamber and sclerotized ductus inserted distally.

RATIOS. HLW 1.13-1.18; PLW 1.2-1.26; HPW 1.06-1.13; HPL 1.0-1.05; PSL 0.95-1.02; PLL 0.79-0.81; ELW 1.13-1.22; ET 0.5-0.55; MT 4.6-5.6; A 2.2, 1.3, 1.2, 1.2, 1.0, 0.9, 0.8, 0.8, 0.8, 0.8, 1.7; T 2.0; V (♀) 6.5.

MATERIAL EXAMINED. Holotype ♂, Israel: Galilee, Hula, 25.04.1982, Besuchet, Löbl (MHNG). Paratypes. 2♂, 4♀, same data as holotype (JFCG, MHNG).

COMMENTS. *Scopaeus minimus* and *S. palaestinus* may be distinguished from other species by the characteristic shape of the aedeagus, of which the dorsal lobe is right-angled bent ventrally in the basal portion and divided into two long spines, which are pointing proximally toward the phallobase, and by the spermatheca having a distinctly elongated chamber and a sclerotized ductus inserted distally. Both species are placed in the *S. minimus* group, which is distributed in Central Europe, South-East Europe, Anatolia and in Middle East.

Scopaeus ryei Wollaston

(Figs 80-82, 89, 97, 100, 103, 109)

Scopaeus ryei Wollaston, 1872: 34. Lectotype ♂, England, Devon, Slapton Ley, Wollaston (BMNH); here designated (examined).

Scopaeus (Hyposcopaeus) ryei; COIFFAIT 1968: 419.

Scopaeus (Stilpon) baudrimonti Coiffait, 1952: 6. Holotype ♀, France, Hautes-Pyrénées, Pragnères, 16.04.1945, Tempère (MNHN); examined. **Syn. n.**

Scopaeus (Polyodontus) jarrigei Coiffait, 1953: 267. Holotype ♂, France, Indre, Chateauroux, 1939, Coiffait (MNHN); examined; synonymised by COIFFAIT 1968: 419.

Scopaeus (Hyposcopaeus) jarrigei; COIFFAIT 1960: 285.

Scopaeus (Polyodontus) minimus forcipis Ochs, 1954: 65. Holotype ♂, France, Alpes Maritimes, Pré du Lac, 03.12.1947, Ochs (MHNG); examined; synonymised by COIFFAIT 1968: 419.

DESCRIPTION. Length 2.5-2.9 mm; forebody 1.3-1.5 mm. Body yellowish-brown to brown, disc of elytra sometimes slightly darker. Abdomen light brown to dark brown, appendages light yellowish-brown. Surface dull, head and pronotum with dense reticulation, puncturation very fine and dense, notably coarser on elytra. Tempora slightly enlarged, head with strongly rounded hind angles and straight posterior margin. Eyes very small, 0.40-0.47 of temporal length. Pronotum relatively slender, 0.23 up to 0.30 times longer than wide. Elytral lateral length up to 1.2 times as long as pronotal length, sutural length about a tenth shorter than latter. Metathoracic wings entire. Protarsomeres 1-4 conspicuously slender, in both sexes slightly wider than long. Mesotibia moderately enlarged, about 5-6 times as long as wide. Laterotergite 9

(fig. 97) with strong dorsal tooth. Tergite 10 (fig. 100) and valve (fig. 103) relatively slender. Posterior margin of male sternite 8 (fig. 89) with very shallow, arcuate emargination in distal 1/14 and smooth postero-median area surrounded by median pointing setae. Aedeagus (figs 80-82) large and robust with bloated phallobase. Apical lobes distinctly shortened and slender, less than half as long as dorsal lobe, and pointing ventrally. Dorsal lobe deeply divided into two processes with basal portions bent ventrally, and distal halves widened and pointing longitudinally. Lateral lobes prominent and also orientated ventrally, each with a group of numerous, long setae. Ventral endophallic process in distal half deeply divided into two spines, which are right-angled bent distally in lateral view. A long flagellar spine reaching apex of apical lobes. Spermatheca as in fig. 109.

RATIOS. HLW 1.13-1.2; PLW 1.23-1.3; HPW 1.09-1.2; HPL 1.02-1.09; PSL 0.95-1.14; PLL 0.79-0.93; ELW 1.13-1.24; ET 0.4-0.47; MT 5.0-6.1; A 2.2, 1.2, 1.3, 1.2, 1.1, 1.0, 0.8, 0.8, 0.9, 0.9, 1.6; T 2.0; V (♀) 6.2.

MATERIAL EXAMINED (380 specimens). Austria: Burgenland (MKCH, NHMW, SMTD); Carinthia (MHNG); Tyrol (BKCB, TLMF, JFCG, MKCH, MSCB, NHMW); Upper Austria (NHMW); Vienna (NHMW); Vorarlberg (NHMW). Bosnia-Herzegovina (NHMW, SMTD, VACH). Czech Republic: Jihomoravský Kraj (HNHM, NHMW, NMPC); Severomoravský Kraj (NHMW). England: lectotype ♂, Devon, Slapton Ley (BMNH). France: holotype ♂ of *S. jarrigei*, Indre, Chateauroux (MNHN); holotype ♂ of *S. minimus forcipis*, Alpes Maritimes, Pré du Lac (MHNG); holotype ♀ of *S. baudrimonti*, Hautes-Pyrénées, Pragnères (MNHN); Bouches-du-Rhône (MHNG); Gers (ISNB); Haute-Saône (MHNG); Rhône (NHMW); Var (DEIC, MHNG); Vaucluse (HNHM); Vienne (NHMW). Germany: Bavaria (ZMHB, ZSMC); Hesse (VACH). Hungary: Győr-Moson-Sopron (MHNG). Italy: Emilia Romagna (ZMHB); Friuli-Venezia Giulia (MKCH); Lombardia (NHMW); Piedmont (MCSN); Trentino-Alto Adige (TLMF, JFCG, MHNG, MKCH, MSCB, NHMW, SMTD). Poland: Bielsko-Biala (ZMHB). Romania: Caras-Severin (HNHM). Slovakia: Stredoslovenský Kraj (NHMW, SMTD). Spain: Aragon (NHMW). Switzerland: Bern (JFCG); Fribourg (MHNG); Genève (MHNG); Valais (TLMF).

DISTRIBUTION. *Scopaeus ryei* is an European species distributed from South England (Devon, type locality) throughout France, Switzerland, Central and South Germany and Austria southwards to North-East Spain (Aragon), the Abruzzese Mountains (BINAGHI 1935) and Bosnia-Herzegovina. Easternmost data are from South Poland, Slovakia and West Romania. The record from Denmark (JOHANSEN 1914), overtaken by PALM (1963) and SILFVERBERG (1992), is doubtful.

HABITAT. *Scopaeus ryei* is a thermo-hygrophilous inhabitant of damp, sandy margins of rivers, streams or lakes with gravel and poor vegetation (BOHÁČ 1985; SCHATZ 1996). It occurs also in secondary biotopes such as gravel pits (PEEZ & KAHLÉN 1977). British authors (EDMONDS 1931; HYMAN & PARSON 1994) recorded the species from coastal shingle.

COMMENTS. *Scopaeus ryei* was first mistaken for *S. minimus* by NEWBERRY (1914), followed by BINAGHI (1935), who described the aedeagus, and subsequent authors (e.g. BOHÁČ 1985; COIFFAIT 1968, 1984; LOHSE 1964; LOHSE & LUCHT 1989). Thus, the data in HORION (1965) on *S. minimus* refer rather to *S. ryei*. FOWLER (1888) hold *S. ryei* for *S. rubidus*, restricted to South-West Europe, and HEYDEN *et al.* (1906)

synonymised it with *S. minutus*. EDMONDS (1931) revalidated *S. ryei*. The confusion grew when OCHS (1954) described *S. minimus forcipis* based on a male of which the apical lobes of the aedeagus are bent out of shape and running longitudinally along the phallobase. COIFFAIT (1968) synonymised this name with *S. ryei*, but later (COIFFAIT 1984) distinguished falsely *S. ryei* with longer apical lobes, which in fact are bent out of shape, and *S. minimus* with undamaged aedeagus. Obviously, COIFFAIT (1984) illustrated the damaged aedeagus of *S. minimus forcipis*, which he falsely identified as that of *S. ryei*. BOHÁČ (1985) and LOHSE & LUCHT (1989) followed COIFFAIT (1984). See also comments under *S. minimus*.

***Scopaeus brevicuspis* Binaghi**

(Figs 83-85, 90, 104, 110)

Scopaeus (Polyodontus) brevicuspis Binaghi, 1935: 102. Holotype ♂, Italy, Sardinia, Cagliari, 03.06.1901, Doderò (MCSN); examined.

Scopaeus (Hyposcopaeus) brevicuspis; COIFFAIT 1960: 285.

DESCRIPTION. Length 2.5-2.9 mm; forebody 1.4-1.6 mm. Body brown, pronotum sometimes slightly lighter, elytra, except hind margin and posterior half of suture, darker, abdomen blackish. Appendages brown. Forebody notably shining, puncturation relatively fine and dense, reticulation indistinct. Head with slightly enlarged tempora, strongly rounded hind angles and straight posterior margin. Eyes about as long as tempora. Elytra relatively long, lateral length exceeding pronotal length by a tenth up to a quarter, sutural length slightly exceeding latter, or up to a tenth shorter. Metathoracic wings entire. Protarsomeres 1-4 in both sexes twice as wide as long. Mesotibia relatively slender. Antennomeres slender, not wider than long, except slightly transverse segment 10. Laterotergite 9 as in *S. littoralis* (fig. 96), with strong dorsal tooth. Valve (fig. 104) relatively slender. Sternite 8 in male (fig. 90) with triangular emargination in distal sixth with lateral margins moderately convex. Aedeagus (figs 83-85) with apical lobes broad and distinctly shortened, only a third as long as dorsal lobe, truncate in lateral view, each bearing a lateral group of long setae. Dorsal lobe deeply divided, almost right-angled bent ventrally, gradually widened toward apex and truncate apically, ventro-proximal angle bearing a short dent. Lateral lobes short, truncate, pointing ventrally, each with a group of long setae. Ventral endophallic process hook-shaped, but evenly arcuate longitudinally, slender and carved at apex in ventral view. Endophallic flagellum extended far over dorsal lobe. Process of spermatheca (fig. 110) slender and bent at apex, chamber triangular.

RATIOS. HLW 1.12-1.2; PLW 1.16-1.28; HPW 1.04-1.11; HPL 1.0-1.05; PSL 0.93-1.16; PLL 0.75-0.89; ELW 1.17-1.25; ET 0.48-0.57; MT 5.3-5.9; A 2.1, 1.4, 1.3, 1.3, 1.2, 1.2, 1.0, 1.0, 1.0, 0.9, 1.6; T 1.9; V (♀) 6.8.

MATERIAL EXAMINED (46 specimens). Algeria: Annaba (MHNG). France: Corse-du-Sud (DEIC, HNHM); Haute-Corse (DEIC, MHNG). Italy: holotype ♂, Sardinia, Cagliari (MCSN); paratypes 1 ♂, 1 ♀, Sicily, Pachino (MCSN); Sardinia (MHNG, NHMW, SMTD); Sicily (NHMW).

DISTRIBUTION. *Scopaeus brevicuspis* occurs in the West Mediterranean region. Examined material is from Corsica, Sardinia, Sicily and Algeria. According to BINAGHI (1935), it occurs also in Tunisia. The record of *S. minimus* from Corsica and Sardinia (PORTA 1926) refers obviously to *S. brevicuspis*.

Scopaeus littoralis Ochs

(Figs 86-88, 91, 96, 105, 111)

Scopaeus (Polyodontus) littoralis Ochs, 1958: 276. Holotype ♂, France, Var, St. Aygulf, 11.1957, Ochs (MHNG); examined.

Scopaeus (Hyposcopaeus) littoralis; COIFFAIT 1960: 285.

DESCRIPTION. Length 2.4-2.9 mm; forebody 1.3-1.4 mm. Body light brown to brown, abdomen and elytra, except humeral callus, hind margin and posterior half of suture, dark brown or blackish, appendages light brown. Forebody shining, lacking reticulation, puncturation clear. Head and pronotum relatively slender. Head with slightly enlarged tempora, strongly rounded hind angles and straight posterior margin. Eyes half as long as tempora or somewhat shorter. Elytral lateral length exceeding pronotal length by a fifth, sutural length as pronotal length or up to a tenth shorter. Mesothoracic wings entire. Protarsomeres 1-4 slender, in both sexes almost twice as wide as long. Mesotibia notably enlarged, about five times longer than wide. Dorsal margin of laterotergite 9 (fig. 96) with strong dorsal tooth, valve relatively slender (fig. 105). Sternite 8 in male (fig. 91) as in *S. brevicuspis* (fig. 90), but triangular emargination with proximal angle more obtuse. Aedeagus (figs 86-88) with short, slender apical lobes, which are pointing ventrally, truncate at apex and bent toward each other in ventral view. Dorsal lobe projecting far over apical lobes, deeply divided into two ventrally curved processes by a nearly semicircular incision. Processes each at apex enlarged into a right-angled distal projection and a long proximal hook. Endophallic flagellum extended far over dorsal lobe. Lateral lobes strongly reduced, each bearing a group of short setae, which is pointing ventrally. Phallobase with an additional, median group of few setae. Ventral endophallic process reduced to two short portions. Spermatheca (fig. 111) small, with strongly curved, slender portions.

RATIOS. HLW 1.14-1.22; PLW 1.24-1.29; HPW 1.07-1.18; HPL 1.0-1.12; PSL 1.0-1.11; PLL 0.79-0.86; ELW 1.15-1.23; ET 0.45-0.5; MT 4.5-5.4; A 2.3, 1.2, 1.4, 1.1, 1.0, 1.0, 0.9, 0.9, 0.9, 0.9, 1.7; T 1.9; V (♀) 6.8.

MATERIAL EXAMINED (16 specimens). France: holotype ♂ and paratypes 4♂, 8♀, Var, St. Aygulf (MHNG); Gard (MHNG); Var (JFCG, MHNG).

DISTRIBUTION. The distribution pattern of *Scopaeus littoralis* is unknown. The presumed West Mediterranean species is confirmed only from Var and Gard in South France.

COMMENTS. *Scopaeus ryei*, *S. brevicuspis* and *S. littoralis* share characteristic external and aedeagal features and are combined as *S. ryei* group, which occurs in Central Europe, Western Europe and in the western Mediterranean region. Members of the *S. ryei* group may be distinguished by the aedeagus having reduced, ventrally bent apical lobes and a remarkable dorsal lobe, which is deeply divided and of which processes are also pointing in ventral direction. The aedeagus is furthermore featured by ventrally orientated lateral lobes with long setae and by a long endophallic flagellum, which is projecting far over dorsal lobe. The species of the *S. ryei* group are also linked in having slender protarsomeres, which are less widened than in most *Scopaeus* species, and share a slender head with slightly widened tempora and strongly rounded posterior angles. Judging from external and aedeagal features, the West Mediterranean *S. portai* Luze, which was redescribed in FRISCH (1997b), is included as well. The species is distinguished by the lobes of the aedeagus, which are not bent ventrally.

***Scopaeus hercegovinensis* sp. n.**

(Figs 112-115)

DESCRIPTION. Length 3.2 mm; forebody 1.9 mm. Body brown, elytra in apical half gradually lighter, abdomen blackish, appendages light brown. Puncturation fine and distinct, reticulation indistinct. Head broad, almost as long as wide, with slightly enlarged tempora and straight posterior margin. Eyes relatively large, notably exceeding half length of tempora. Elytral lateral length exceeding pronotal length by almost a fifth, elytral suture as long as pronotum. Metathoracic wings entire. Protarsomeres 1-4 more than twice as wide as long. Mesotibia slender. Apical fourth of male sternite 8 (fig. 115) with triangular emargination. Aedeagus with characters as in *S. heinzi* subgroup (FRISCH 1994). Apical lobes gradually widening toward apex, with truncate apices and slightly concave ventral margins, bearing minute setae in proximal half. Apical lobes very slender with parallel outer margins and shortly arcuate apices in dorsal view, widening toward apex in ventral view. Dorsal lobe relatively broad and parallel, reaching apex of apical lobes and bearing a long spine bent ventrally in a right angle. Ventral endophallic flagellum longitudinal.

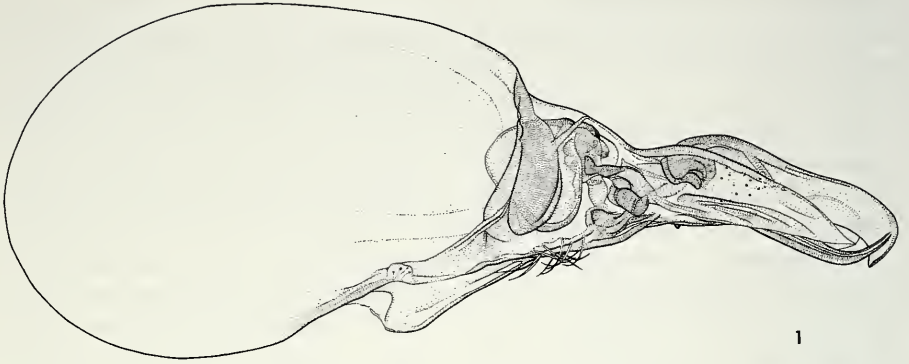
RATIOS. HLW 1.06; PLW 1.21; HPW 1.14; HPL 1.0; PSL 1.0; PLL 0.81; ELW 1.23; ET 0.56; A 2.0, 1.3, 1.5, 1.2, 0.1, 1.0, 0.9, 0.9, 0.8, 0.9, 1.7.

MATERIAL EXAMINED. Holotype ♂, Bosnia-Hercegovina: Jablanica (SMTD).

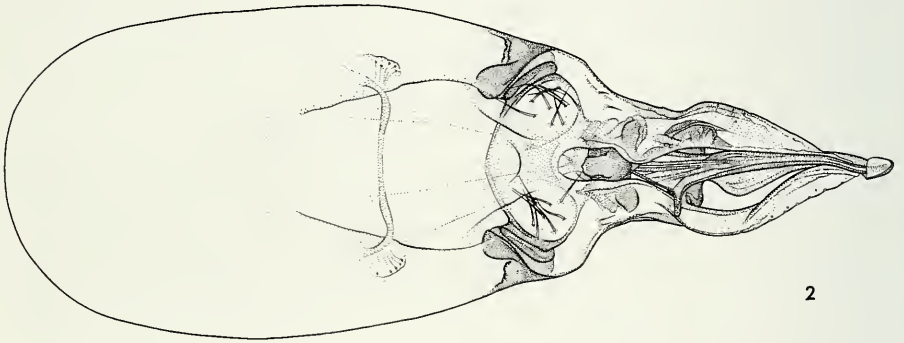
COMMENTS. The aedeagal features of *S. hercegovinensis* fit those of the *S. heinzi* subgroup as defined by FRISCH (1994). *Scopaeus hercegovinensis* is very close to *S. haemusensis* Frisch (figs 116, 117) from Bulgaria and *S. graecus* Frisch from Greece and Dalmatia (FRISCH 1994), but is unique in having a one-spined dorsal lobe. *Scopaeus graecus* may be easily distinguished by the three-spined dorsal lobe, and *S. haemusensis* may be distinguished in having a two-spined dorsal lobe and strongly convex ventral margins of the apical lobes.

ACKNOWLEDGEMENTS

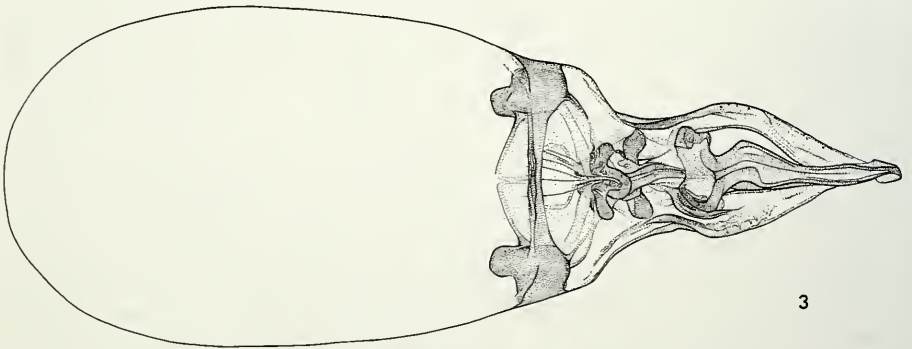
I thank the following colleagues who generously lend specimens from the respective institutes: K. Adlbauer, IHUG; M. Baehr, ZSMC; N. Berti, MNHN; M. Brancucci, NHMB; J.D. Brendell, BMNH; E. De Boise, BMNH; J. Clary, MHNL; M. Daccordi, MLZT; R. Danielsson, MZLU; D. Drugmand, D. Haghebaert, ISNB; O. Jäger, SMTD; J. Jelinek, NMPC; M. Kahlen, TLMF; I. Löbl, MHNG; R. Poggi, MCSN; H. Schillhammer, NHMW; G. Szél, HNHM; M. Uhlig, ZMHB and L. Zerche, DEIC. Specimens from private collections were provided by V. Assing, Hannover. C. Brandstetter, Bürs, V. Gollkovski, Berlin, A. Kapp, Bürs, C. Morkel, Butzbach, M. Schülke, Berlin and H. Terlutter, Osnabrück. A. G. Kirejtshuk, Zoological Museum of the Academy of Sciences, St. Petersburg, provided the type specimen of *Xantholinus breviventer* from the Charkow University collection, Ukraine. In particular I am indebted to L. Herman, New York, I. Löbl, Geneva, and V. Puthz, Schlitz, for reviewing earlier versions of the manuscript and many helpful comments. V. Wolters, University of Gießen, kindly provided microscopes and material for my work. The present paper is part of a project toward the degree of Ph. D. at the University of Gießen, funded by the Studienstiftung des Deutschen Volkes, Bonn-Bad Godesberg.



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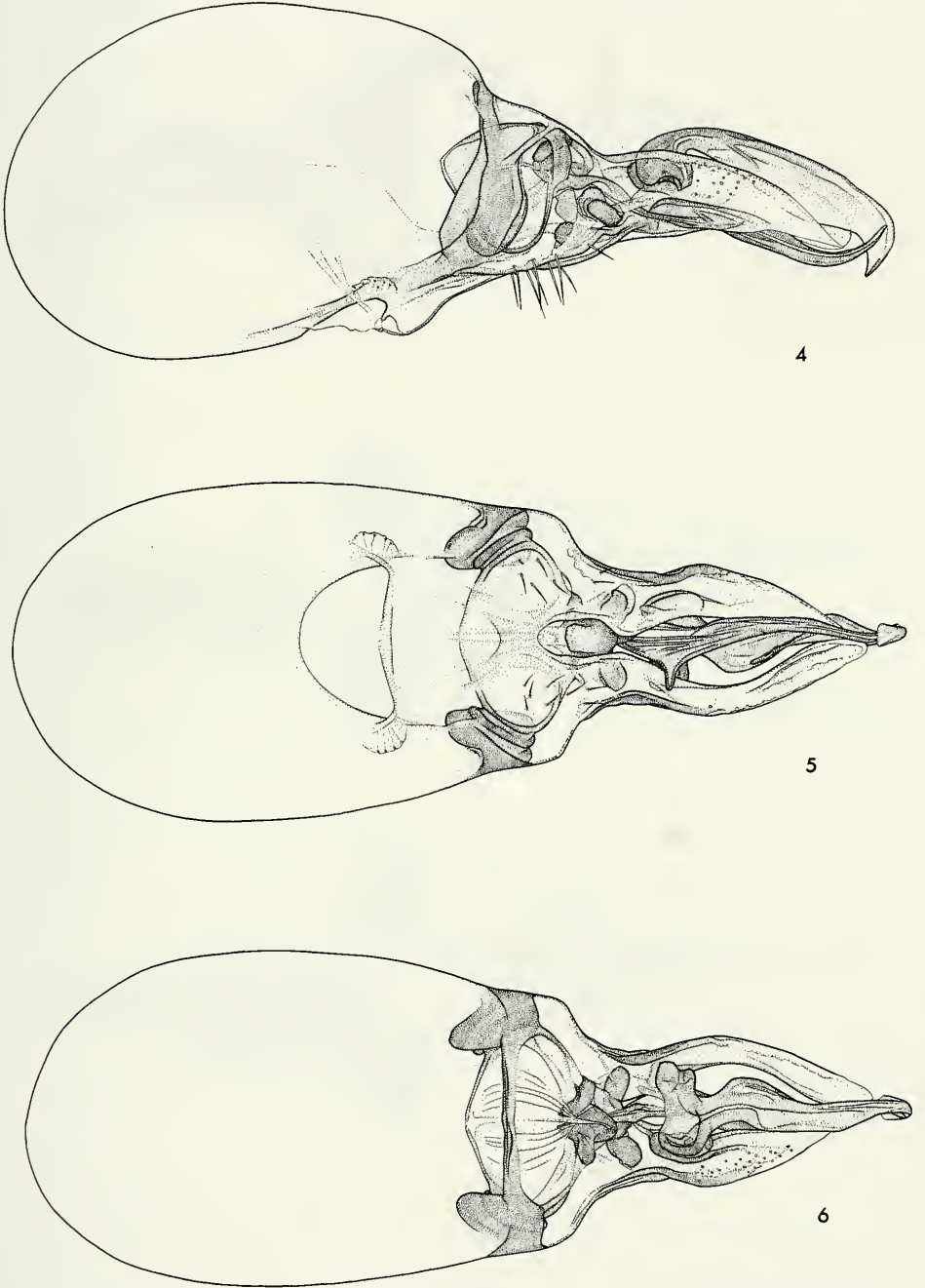
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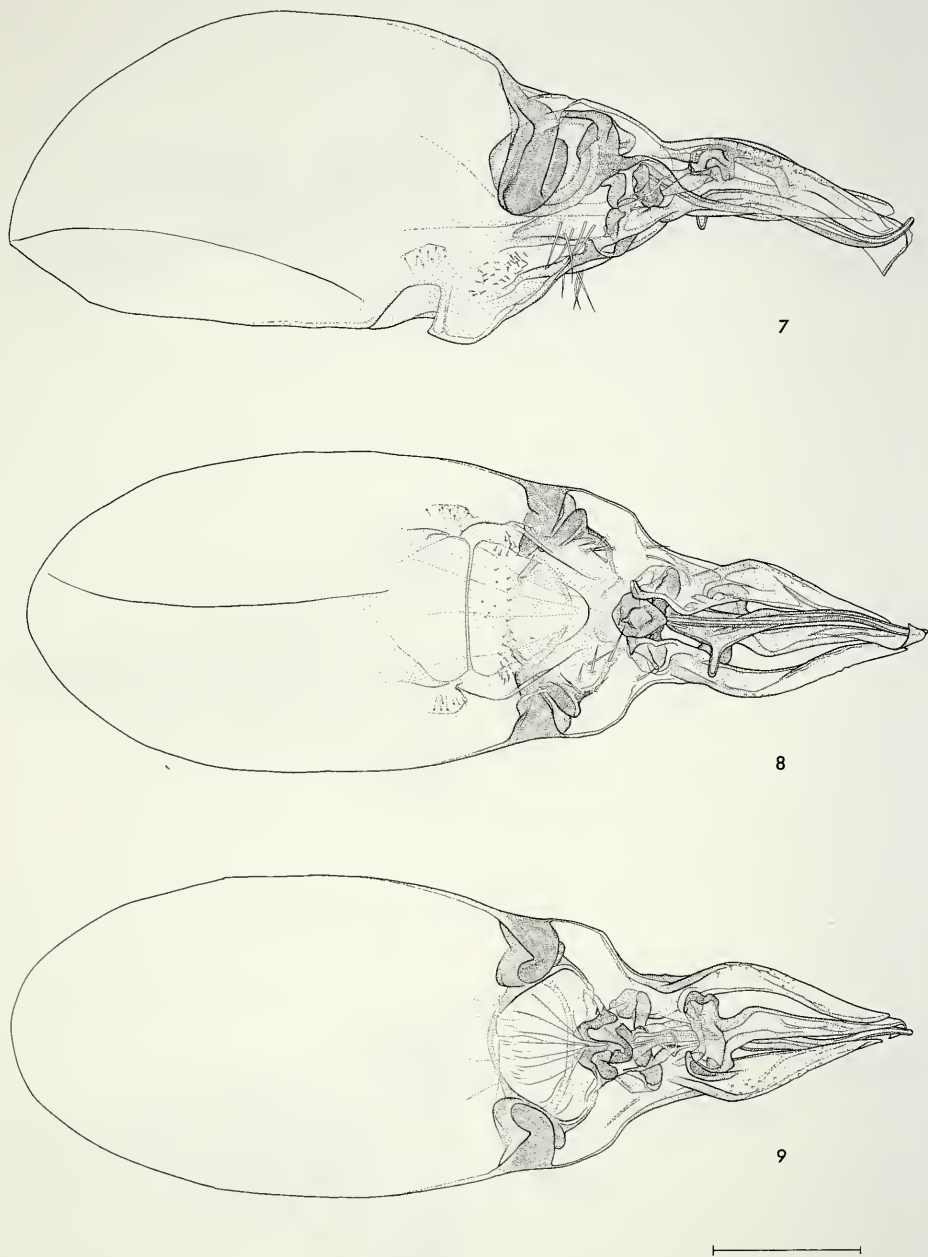
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FIGS 1-3. *Scopaeus gracilis*, ♂, Greece, Peloponnese: aedeagus in 1) lateral, 2) ventral, 3) dorsal view. Scale bar = 0.1 mm.



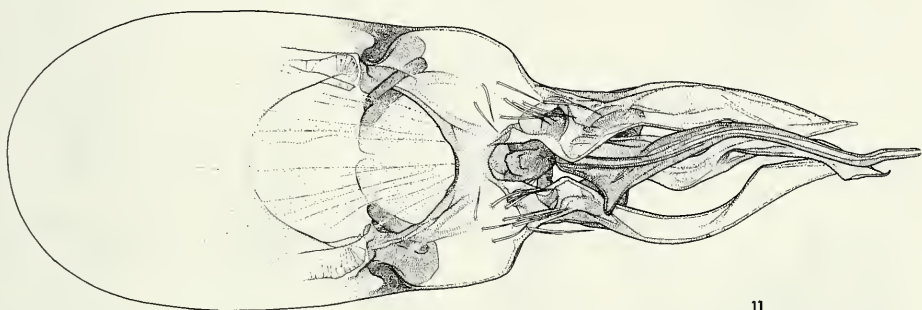
FIGS 4-6. *Scopaeus flavofasciatus*, ♂ holotype: aedeagus in 4) lateral, 5) ventral, 6) dorsal view. Scale bar = 0.1 mm.



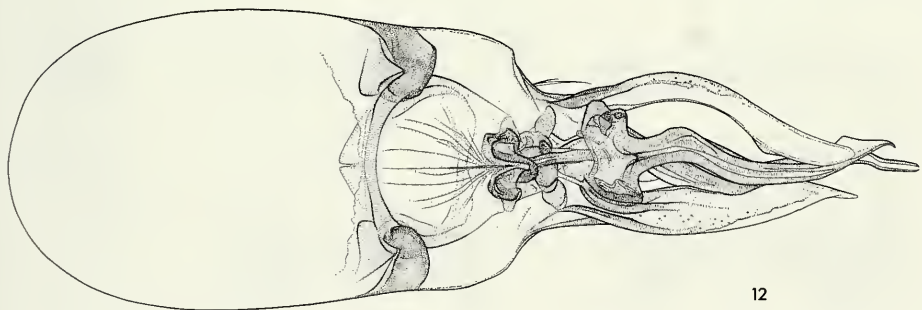
FIGS 7-9. *Scopaeus gracilis*, ♂ lectotype of *S. trossulus*: aedeagus in 7) lateral, 8) ventral, 9) dorsal view. Scale bar = 0.1 mm.



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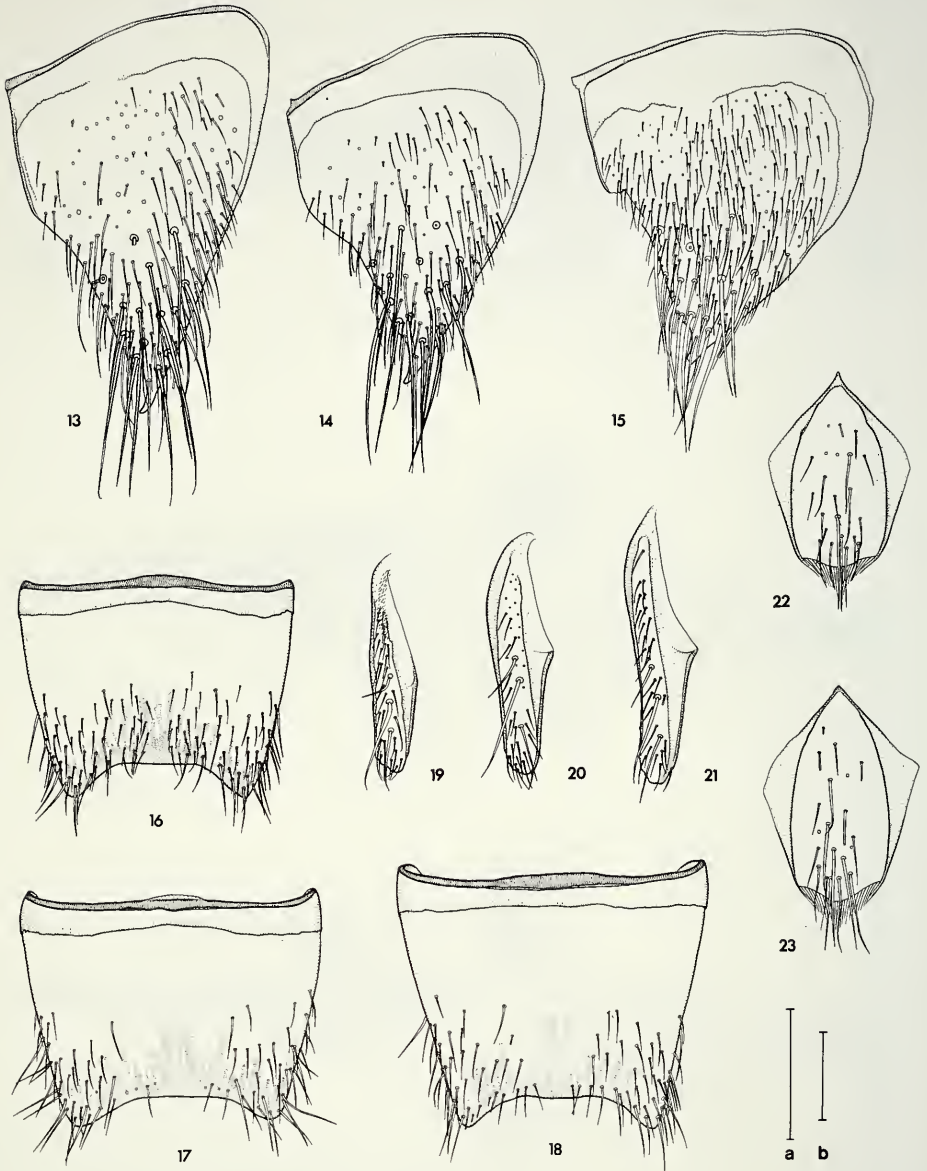
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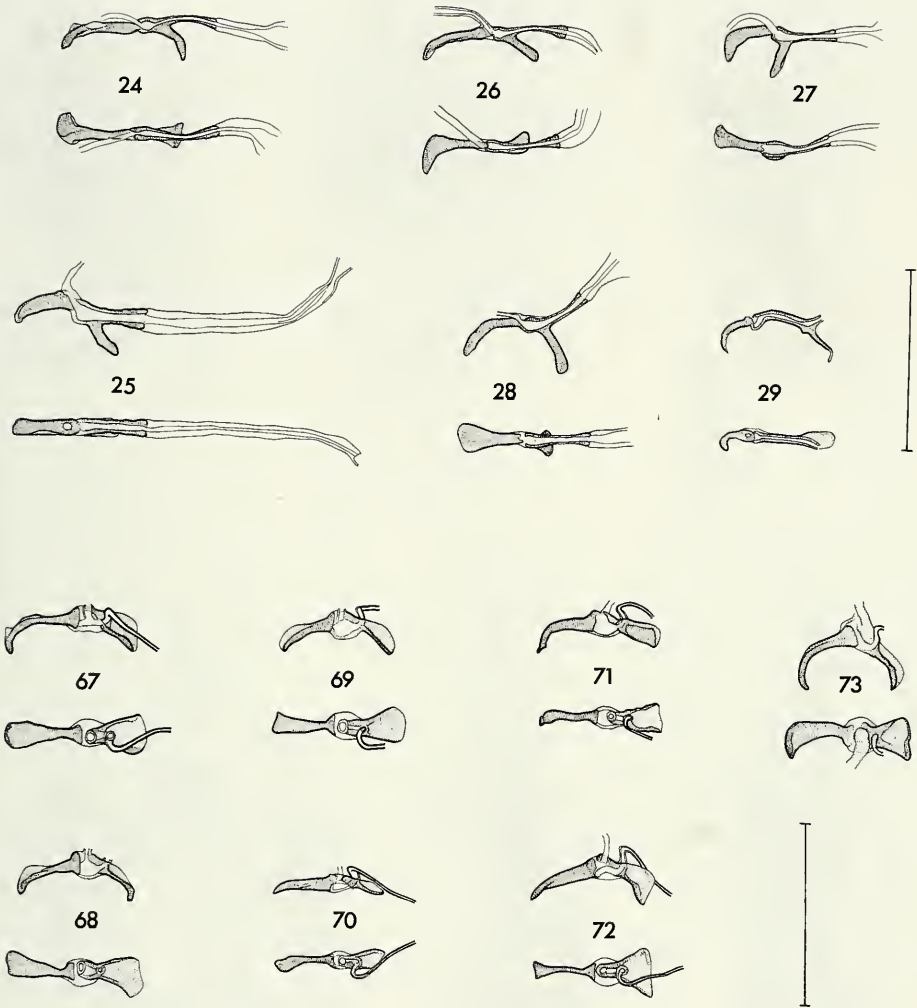
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FIGS 10-12. *Scopaeus siculus*, ♂ lectotype: aedeagus in 10) lateral, 11) ventral, 12) dorsal view. Scale bar = 0.1 mm.



FIGS 13-23. *Scopaeus siculus*, ♀ paralectotype: 13) laterotergite 9, 21) valve, 23) tergite 10. ♂ lectotype: 18) sternite 8. *Scopaeus flavofasciatus*, ♀ paratype: 14) laterotergite 9, 20) valve, 22) tergite 10. ♂ holotype: 16) sternite 8. *Scopaeus gracilis*, ♀ paralectotype of *S. trossulus*: 15) laterotergite 9, 19) valve. *Scopaeus gracilis*, Greece, Peloponnese: 17) ♂ sternite 8. Figs 13-15, 19-23: scale bar a), figs 16-18: scale bar b), scale bars = 0.1 mm.



FIGS 24-29. Spermatheca: 24) *Scopaeus flavofasciatus*, ♀ paratype. 25) *Scopaeus siculus*, ♀ paralectotype. 26) *Scopaeus gracilis*, ♀, Germany, Hesse. 27), 28) *Scopaeus gracilis*, ♀, Teneriffa. 29) *Scopaeus gracilis*, ♀ paralectotype of *S. trossulus*. Scale bar = 0.1 mm.

FIGS 67-73. Spermatheca: 67), 68), 69) *Scopaeus micropterus*, ♀, Italy, Emilia. 70) *Scopaeus alaschiacus*, ♀ paratype. 71) *Scopaeus minutoides*, ♀, Turkey, Antalya. 72) *Scopaeus championi*, ♀, Austria, Lech river. 73) *Scopaeus gladifer*, ♀ paratype. Scale bar = 0.1 mm.



FIGS 30-36. *Scopaeus micropterus*, ♂, Italy, Urbino: aedeagus in 30) lateral, 31) ventral, 32) dorsal view. *Scopaeus championi*, ♂, Austria, Lech river: aedeagus in 33) lateral view. ♂, Bosnia-Herzegovina, Sarajevo: aedeagus in 34) lateral, 35) ventral, 36) dorsal view. Scale bar = 0.1 mm.



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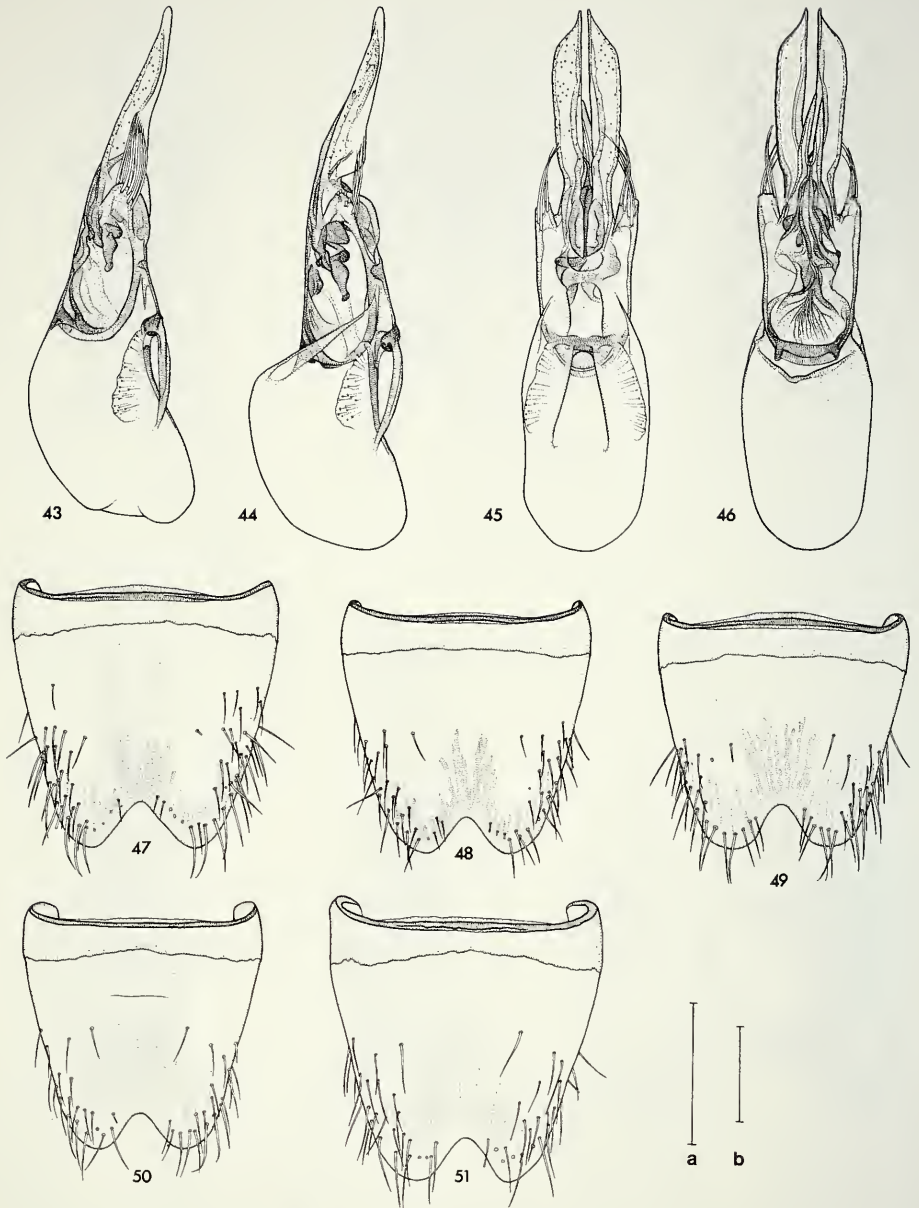


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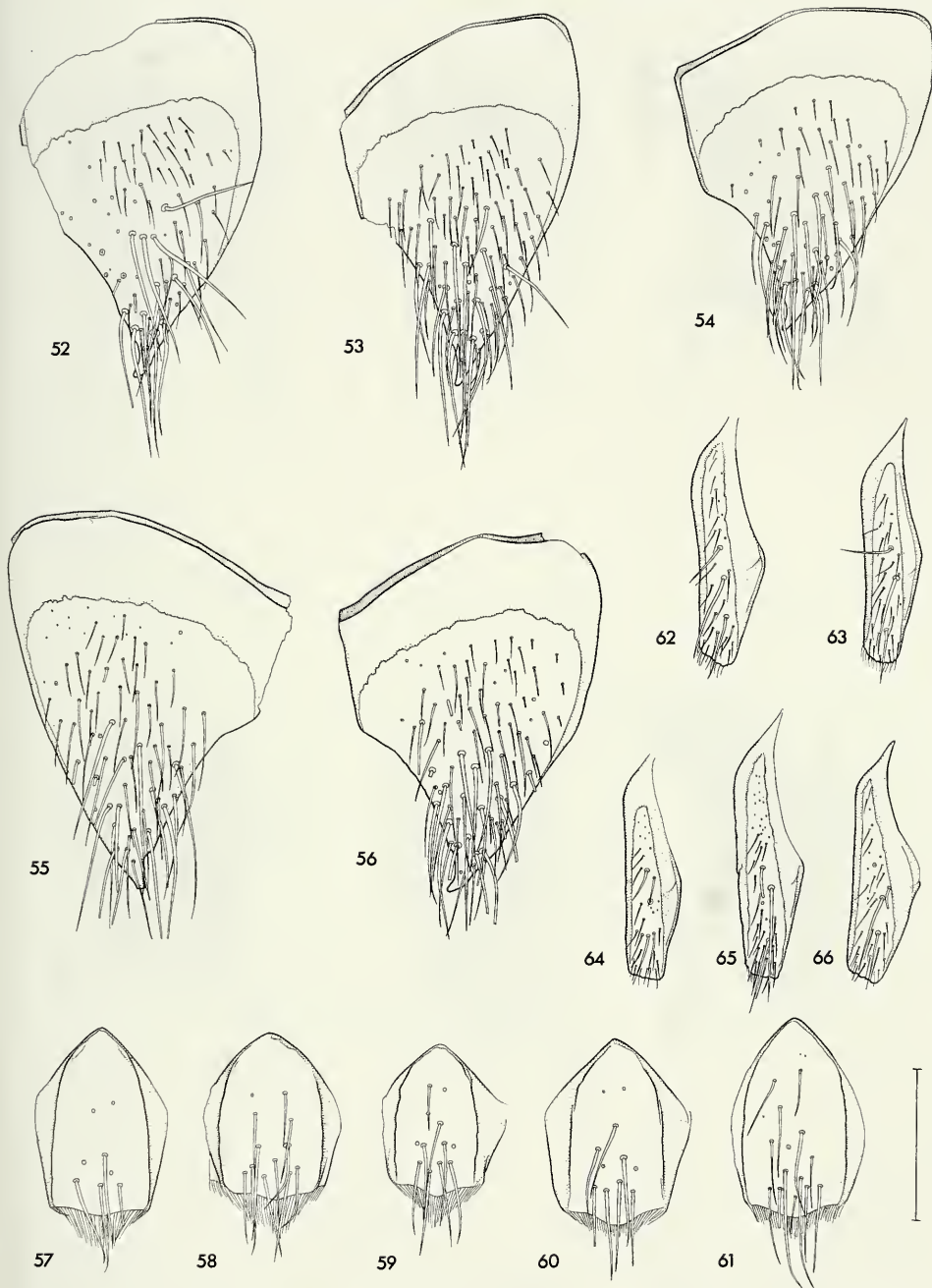


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FIGS 37-42. *Scopaeus alaschiacus*, ♂ holotype: aedeagus in 37) lateral, 38) ventral, 39) dorsal view. *Scopaeus gladifer*, ♂ holotype: aedeagus in 40) lateral, 41) ventral, 42) dorsal view. Scale bar = 0.1 mm.



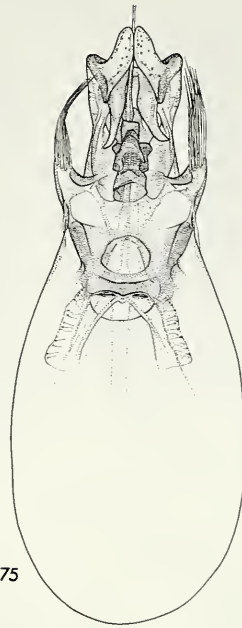
FIGS 43-51. *Scopaeus minutoides*, ♂ holotype: aedeagus in 43) lateral view. ♂, Turkey, Istanbul; aedeagus in 44) lateral, 45) ventral, 46) dorsal view. ♂ sternite 8: 47) *Scopaeus micropterus*, Italy, Urbino. 48) *Scopaeus championi*, Bosnia-Hercegovina, Sarajevo. 49) *Scopaeus alaschiacus*, holotype. 50) *Scopaeus minutoides*, holotype. 51) *Scopaeus gladifer*, holotype. Figs 43-46: scale bar a), figs 47-51: scale bar b), scale bars = 0.1 mm.



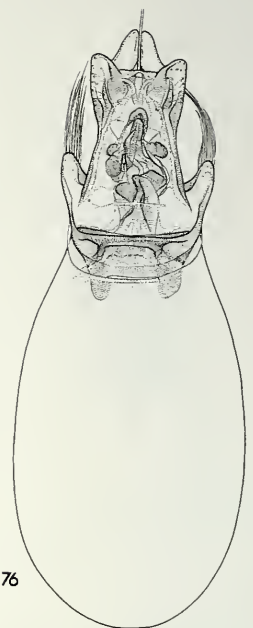
FIGS 52-66. *Scopaeus micropterus*, ♀, Italy, Emilia: 52) laterotergite 9, 57) tergite 10, 62) valve. *Scopaeus championi*, ♀, Austria, Lech river: 53) laterotergite 9, 58) tergite 10, 63) valve. *Scopaeus alaschiacus*, ♀ paratype: 54) laterotergite 9, 59) tergite 10, 64) valve. *Scopaeus gladifer*, ♀ paratype: 55) laterotergite 9, 61) tergite 10, 65) valve. *Scopaeus minutoides*, ♀, Turkey, Istanbul: 56) laterotergite 9, 60) tergite 10, 66) valve. Scale bar = 0.1 mm.



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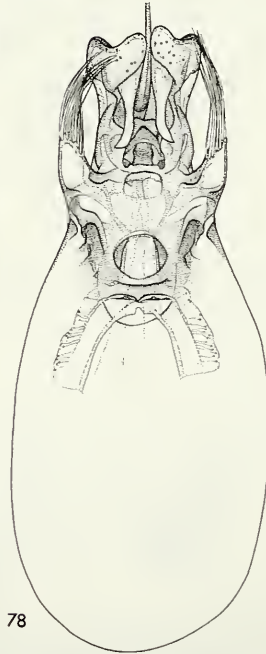
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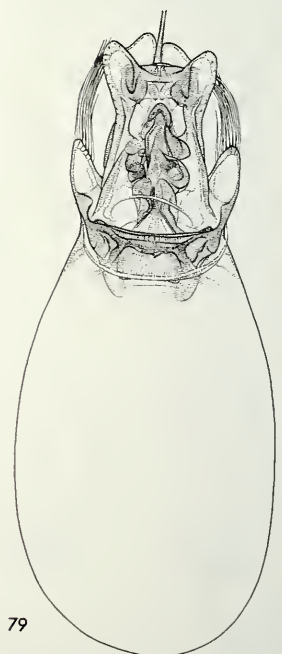
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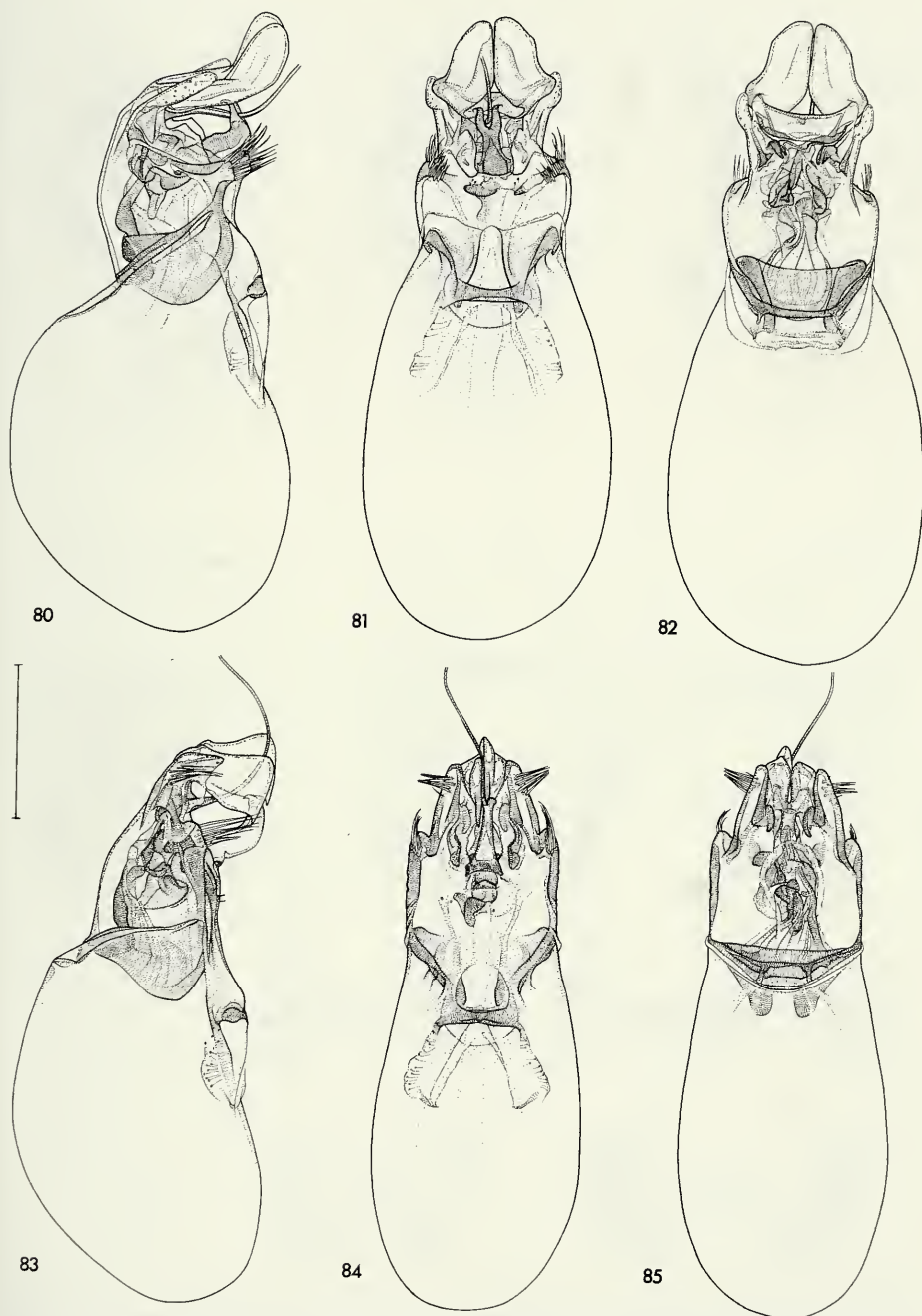


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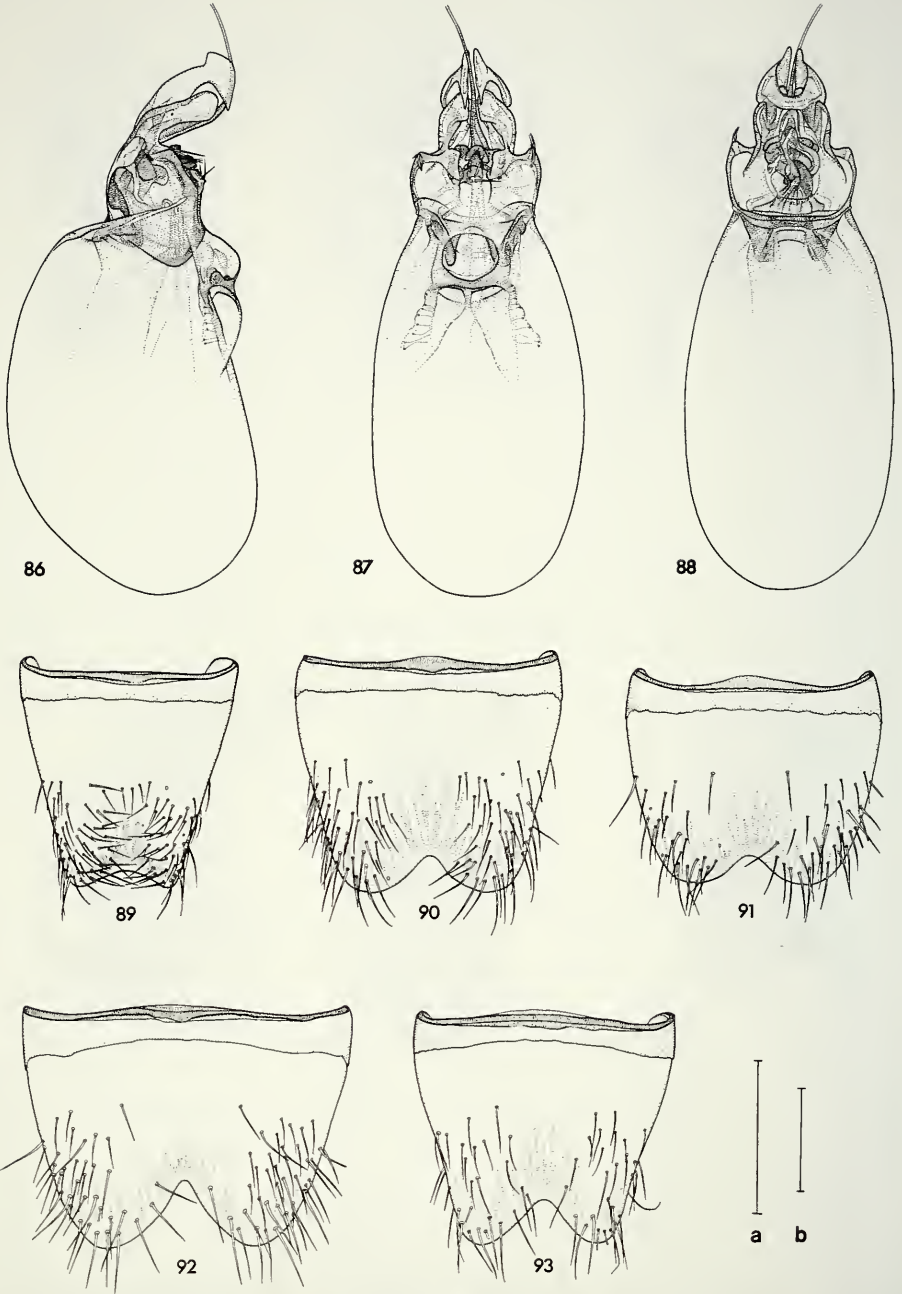


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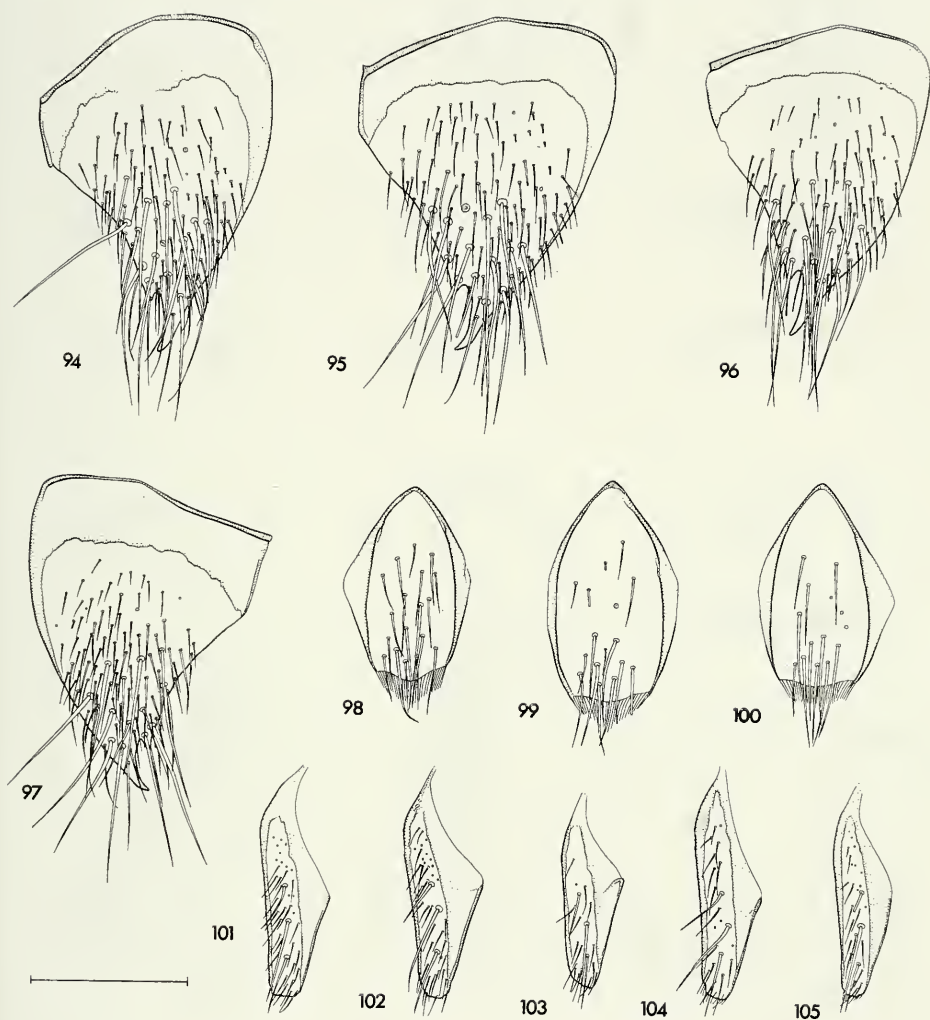
FIGS 74-79. *Scopaeus minimus*, ♂ Hungary, Neusiedler See: aedeagus in 74) lateral, 75) ventral, 76) dorsal view. *Scopaeus palaestinus*, ♂ holotype: aedeagus in 77) lateral, 78) ventral, 79) dorsal view. Scale bar = 0.1 mm.



FIGS 80-85. *Scopaes ryei*, ♂, Austria: aedeagus in 80) lateral, 81) ventral, 82) dorsal view. *Scopaes brevicuspis*, ♂ paratype: aedeagus in 83) lateral, 84) ventral, 85) dorsal view. Scale bar = 0.1 mm.



FIGS 86-93. *Scopaeus littoralis*, ♂ holotype: aedeagus in 86) lateral, 87) ventral, 88) dorsal view. ♂ sternite 8: 89) *Scopaeus ryei*, Austria. 90) *Scopaeus brevicuspis*, paratype. 91) *Scopaeus littoralis*, holotype. 92) *Scopaeus palaestinus*, holotype. 93) *Scopaeus minimus*, Hungary, Neusiedler See. Figs 86-88: scale bar a), figs 89-93: scale bar b), scale bars = 0.1 mm.



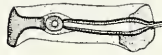
FIGS 94-105. *Scopaeus minimus*, ♀, Hungary, Neusiedler See: 94) laterotergite 9, 98) tergite 10, 101) valve. *Scopaeus palaestinus*, ♀, paratype: 95) laterotergite 9, 99) tergite 10, 102) valve. *Scopaeus littoralis*, ♀ paratype: 96) laterotergite 9, 105) valve. *Scopaeus brevicuspis*, ♀ paratype: 104) valve. *Scopaeus ryei*, ♀, Austria: 97) laterotergite 9, 100) tergite 10, 103) valve. Scale bar = 0.1 mm.



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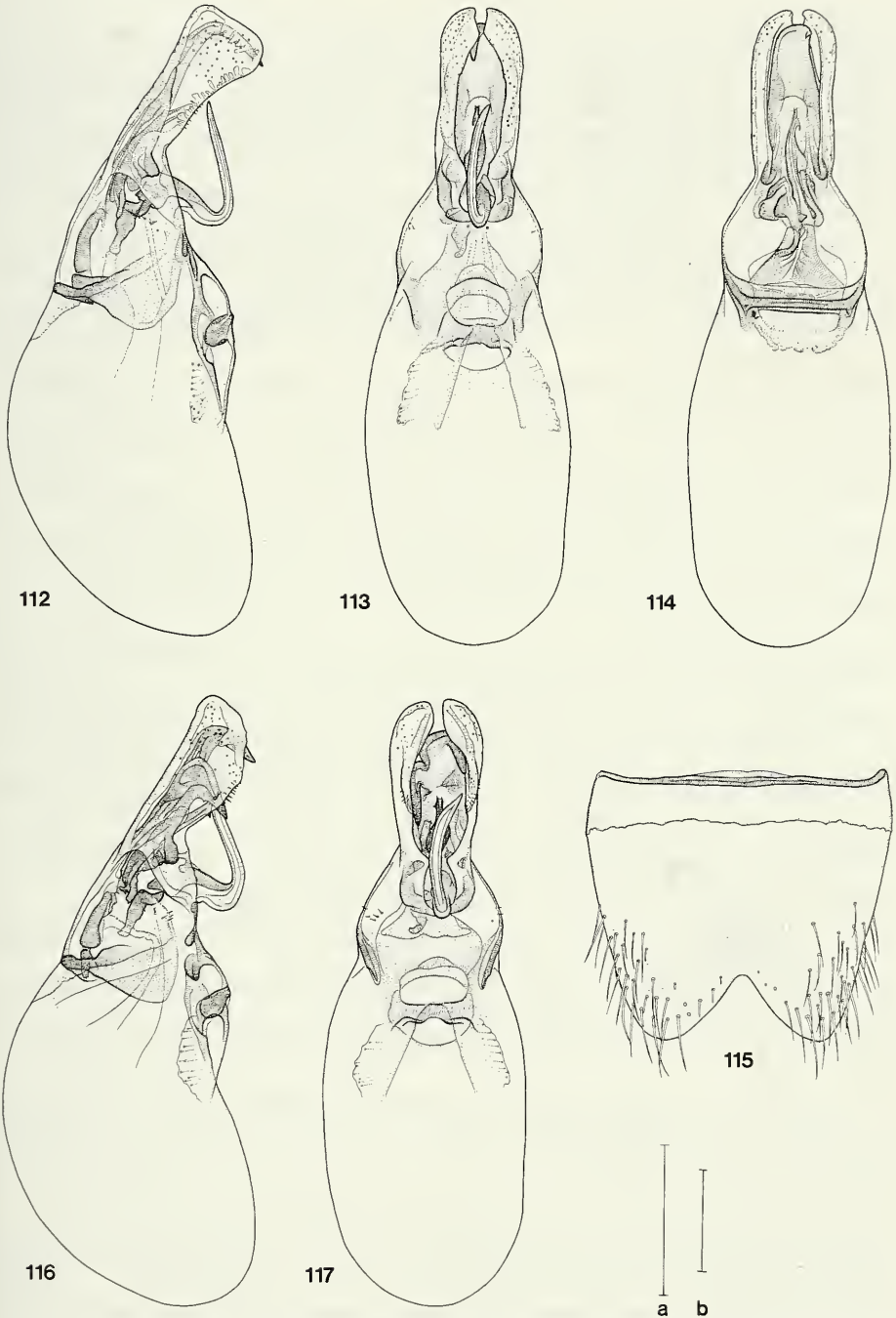
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FIGS 106-111. Spermatheca: 106) *Scopaeus minimus*, ♀, Hungary, Neusiedler See. 107), 108) *Scopaeus palaestinus*, ♀ paratype. 108) *Scopaeus ryei*, ♀, Austria. 110) *Scopaeus brevicuspis*, ♀ paratype. 111) *Scopaeus littoralis*, ♀ paratype. Scale bar = 0.1 mm.



FIGS 112-117. *Scopaeus hercegovinensis* sp. n., ♂ holotype: aedeagus in 112) lateral, 113) ventral, 114) dorsal view, 115) sternite 8. *Scopaeus haemusensis*, ♂ holotype: aedeagus in 116) lateral, 117) ventral view. Figs 112-114, 116-117: scale bar a), fig. 115: scale bar b), scale bars = 0.1 mm.

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Supplement to the knowledge of the Agathidiini of Taiwan (Coleoptera, Leiodidae)

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Supplement to the knowledge of the Agathidiini of Taiwan (Coleoptera, Leiodidae). - New records and/or descriptions are given for 32 species of Agathidiini from Taiwan, collected by Dr. Ales Smetana.

New species are: *Agathidium* (A.) *subnitidum* n.sp., *Agathidium* (A.) *delicatum* n.sp., *Agathidium* (A.) *alesi* n.sp., *Agathidium* (A.) *pictum* n.sp. New records for Taiwan are: *Cyrtoplastus seriepunctatus* (Bris.), *Agathidium* (*Neoceble*) *kyotoense* Ang. & Dmz, A. (*Neoceble*) *confusum* Bris., A. (A.) *mequignonii* Roubal.

Spermatheca is figured for the first time of: *Agathidium* (A.) *honestum* Ang. & Dmz., A. (A.) *meifengense* Ang. & Dmz., A. (A.) *egregium* Ang. & Dmz.

Key-words: Leiodidae - Agathidiini - Taiwan - new species - new records.

INTRODUCTION

This new contribution increases the number of the species of Agathidiini known from Taiwan to 60. It is based on the study of 32 species in 430 specimens of *Cyrtoplastus* and *Agathidium*, collected in 18 localities by Dr. Ales Smetana, and includes:

(a) the descriptions of 4 new species: *Agathidium* (A.) *subnitidum* n.sp., *Agathidium* (A.) *delicatum* n.sp., *Agathidium* (A.) *alesi* n.sp., *Agathidium* (A.) *pictum* n.sp.;

(b) 4 new records for Taiwan: *Cyrtoplastus seriepunctatus* (Bris.), *Agathidium* (*Neoceble*) *kyotoense* Ang. & Dmz, A. (*Neoceble*) *confusum* Bris., A. (A.) *mequignonii* Roubal;

(c) some female characters of 3 species known previously only from male specimens.

The specimens are deposited in Geneva Museum (MHNG), Taichung Museum (NMNT) and F. Angelini's private collection (AC).

We are indebted to Dr. Ales Smetana (Ottawa) for the opportunity of studying his very interesting material and to Dr. Ivan Löbl for comments on the manuscript of this paper.

Cyrtoplastus Reitter, 1884

Cyrtoplastus smetanai Ang. & Dmz.

Cyrtoplastus smetanai Angelini & De Marzo, 1995: 184.

MATERIAL: Taiwan, Taichung Hsien, Anmashan, 2230 m. 12.V.92, 1 ♂ and 3 ♀ (MHNG, NMNT, AC).

Discussion: These specimens agree in all characters with the types. Body length: 2.3-2.5 mm.

Distribution: Taiwan.

Cyrtoplastus seriepunctatus (Brisout)

Agathidium seriepunctatus Brisout in Grenier, 1867: 174.

Cyrtoplastus seriepunctatus, GANGLBAUER 1899: 239; ANGELINI & DE MARZO 1988: 65; HOSHINA 1996: 204.

MATERIAL: Taiwan, Kaohsiung Hsien, Peinantashan trail, 2500 m, 4.VII.93, 1 ex. (AC).

Discussion: This specimen differs from the European material in the shape of the aedeagal apex, in dorsal view.

Distribution: Europe. Siberia. Mongolia. Japan, Taiwan. New record for Taiwan.

Agathidium Panzer, 1797

Subg. **Cyphocele** Thomson, 1859

Agathidium (Cyphocele) yushanicum Ang. & Dmz.

Agathidium (Cyphocele) yushanicum Angelini & De Marzo, 1995: 186.

MATERIAL: Taiwan, Nantou Hsien, Nenkaoshan, 1.5 Km SW Tenchi Hut, 2830 m, 6.V.92, 2 exx. (MHNG, AC).

Distribution: Taiwan.

Agathidium (Cyphocele) geniculatum Ang. & Dmz.

Agathidium (Cyphocele) geniculatum Angelini & De Marzo, 1995: 191.

MATERIAL: Taiwan. Kaohsiung Hsien, Kuanshan, trail above Kaunshanchi Riv., 2550 m, 21.IV.92, 1 ♂ and 1 ♀ (AC); Taichung Hsien, Anmashan, 2225 m, 11.V.92, 1 ♀ (NMNT); Taichung Hsien, Anmashan, 2230 m, 12.V.92, 1 ♂ and 1 ♀ (MHNG); Kaohsiung Hsien, Kuanshan, trail at Kaunshanchi Riv., 2400 m, 20.VII.93, 1 ♂ (MHNG).

Distribution: Taiwan.

Subg. **Neoceble** Gozis, 1886

nigripenne group

Agathidium (Neoceble) kyotoense Ang. & Dmz.

Agathidium (Neoceble) kyotoense Angelini & De Marzo, 1988: 79; ANGELINI 1995: 136.

MATERIAL: Taiwan, Kaohsiung Hsien, Peinantashan trail, 2500 m, 4.VII.93, 1 ♂ (AC); Kaohsiung Hsien, Peinantashan trail, 2390-2490 m, 5.VII.93, 1 ♂ (MHNG); Nantou Hsien, Meifeng, 2130 m, 10.VII.93, 1 ♀ (NMNT).

Discussion: These specimens agree with the types from Japan in all characters, except one which has the dorsum black.

Distribution: Japan (Honshu), Taiwan. New record for Taiwan.

Agathidium (Neocele) nigrocastaneum Ang. & Dmz.

Agathidium (Neocele) nigrocastaneum Angelini & De Marzo, 1995: 192.

MATERIAL: Taiwan, Taichung Hsien, Anmashan, 2230 m, 12.V.92, 1 ♂ and 2 ♀ (MHNG); Taichung Hsien, Anmashan, 2120 m, 13.V.92, 1 ♂ and 1 ♀ (AC); Taichung Hsien, Anmashan, 2225 m, 14.V.92, 1 ex. (NMNT).

Discussion: These specimens agree fully with the types. Body length: 2.5-2.7 mm.

Distribution: Taiwan.

Agathidium (Neocele) confusum Brisout

Agathidium (Neocele) confusum Brisout in GRENIER 1863: 9; HLISNIKOVSKY 1964: 90; ANGELINI 1995: 179.

MATERIAL: Taiwan, Kaohsiung Hsien, Peinantashan trail, 2390-2490 m, 5.VII.93, 1 ♀ (MHNG); Kaohsiung Hsien, Peinantashan trail, 1950 m, 8.VII.93, 1 ♀ (AC).

Discussion: These specimens agree in all characters with European material.

Distribution: Europe, Caucasus, Siberia, Mongolia, Japan, Taiwan. New record for Taiwan.

canariense group

Agathidium (Neocele) rufomarginatum Ang. & Dmz.

Agathidium (Neocele) rufomarginatum Angelini & De Marzo, 1995: 197.

MATERIAL: Taiwan, Pingtung Hsien, Peitawhushan, trail at 1500 m, 1.V.92, 5 ♂ (MHNG, NMNT); Taichung Hsien, Anmashan, 2225 m, 11.V.92, 1 ♂ (MHNG); Taichung Hsien, Anmashan, creek, 2185 m, 12.V.92, 1 ♀ (MHNG); Taichung Hsien, Anmashan, 2120 m, 13.V.92, 1 ♂ (MHNG); Nantou Hsien, Meifeng, 2130 m, 10.VII.93, 2 ♂ and 2 ♀ (MHNG, AC).

Discussion: *Agathidium rufomarginatum* Ang. & Dmz. was described on the basis of 1 male and 1 female. The additional specimens agree with the types in all characters. Body length: 2.1-2.5 mm.

Distribution: Taiwan.

Subg. **Macrocele** Angelini, 1992

Agathidium (Macrocele) oblitum Ang. & Dmz.

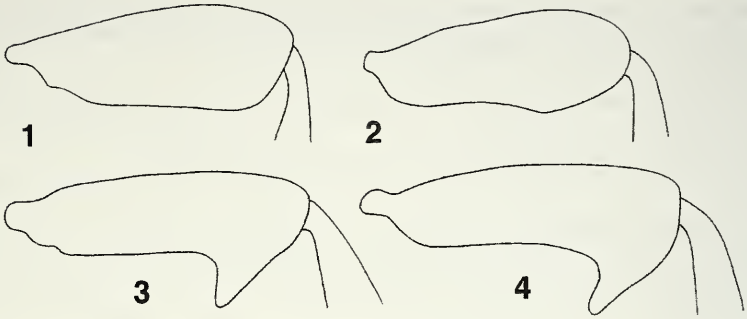
Agathidium (Macrocele) oblitum Angelini & De Marzo, 1995: 198.

MATERIAL: Taiwan, Taichung Hsien, Anmashan, 2225 m, 11.V.92, 2 ♀ (MHNG, AC).

Distribution: Taiwan.

Subg. **Agathidium** Panzer, 1797

madurensis group



Figs 1-4

Male metafemora of: 1, *Agathidium subnitidum* n.sp.; 2, *A. delicatulum* n.sp.; 3, *A. alesi* n.sp.; 4, *A. pictum* n.sp.

Agathidium (Agathidium) subnitidum n.sp.

Figs 1, 5-7, 17

Length 3.3-3.5 mm (holotype ♂: 3.4 mm). Dorsum either black or dark reddish-brown; venter reddish-brown; antennae uniformly testaceous; legs reddish-brown. Microreticulation almost absent: traceable on pronotum and elytra; puncturation fine and sparse on entire dorsum. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins distinctly raised; clypeus deeply emarginate; clypeal line absent; eyes flattened. Antennal segment 3 1.8 times as long as 2 and as long as 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Microreticulation absent; punctures very small, superficial, hardly distinct, separated from each other by 1-10 times their diameter.

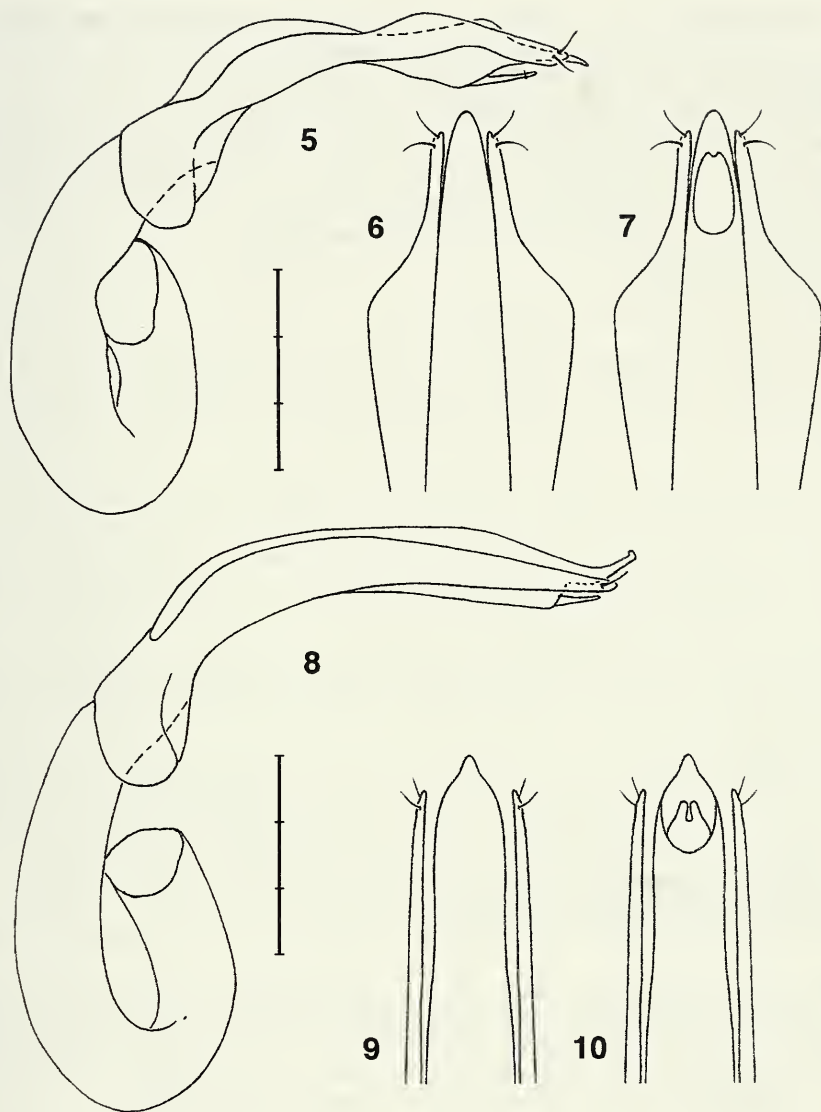
Pronotum: 1.3 times as broad as head, slightly broader than long ($W/L = 1.33$) and very convex ($W/H = 1.31$); anterior margin sharply curved; lateral outline broadly rounded. Microreticulation almost absent: only traceable; punctures as large as those on head but sparser, separated from each other by 2-15 times their diameter. Holotype: length 1.20 mm, width 1.60 mm, height 1.22 mm.

Elytra: Slightly narrower than pronotum, as broad as long and moderately convex ($W/H = 1.8$); lateral outline with very weak humeral angle. Microreticulation almost absent, only traceable; punctures as large as those on head, separated from each other by 5-15 times their diameter. Holotype: length 1.45 mm, width 1.50 mm, height 0.83 mm.

Metathoracic wings absent. Meso- and metasternum: median carina absent, lateral lines absent, femoral lines complete.

Legs: Male metafemora enlarged distally (fig. 1). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 5-7): Aedeagus stout, with ring-like proximal part, lateral margins gently convergent towards a rounded apex, ventral piece shallowly emarginate. Parameres sinuate, broadened apically.



FIGS 5-10

Male copulatory organ (lateral view, dorsal and ventral view of apex) of: 5-7, *Agathidium subnitidum* n.sp.; 8-10, *A. delicatulum* n.sp. Scale: 1 division = 0.1 mm.

Spermatheca (fig. 17): Basal and ventral parts slender, differing in length.

HOLOTYPE ♂: Taiwan, Pingtung Hsien, Peitawhushan, Kuai-Ku Hut, 2135 m, 30.IV.92 (MHNG).

PARATYPES: as holotype, 1 ♀ (MHNG), 1 ♂ (NMNT), 1 ♂ and 1 ♀ (AC).

Discussion: *Agathidium subuitidum* n.sp. is closely related to *Agathidium tardum* Ang. & Dmz.; it differs from the latter in the darker colour of the dorsum, the colour of the antenna, the ratio of the pronotum/head width, the absence of the metathoracic wings and the characters of the meso- and metasternum.

Distribution: Taiwan.

Agathidium (Agathidium) delicatulum n.sp.

Figs 2, 8-10, 18

Length 2.9-3.8 mm (holotype ♂: 3.1 mm). Dorsum either black or dark reddish-brown; venter dark reddish-brown, mesosternum testaceous; antennae uniformly testaceous; legs reddish-brown. Microreticulation absent from dorsum; puncturation fine and sparse on entire dorsum. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins distinctly raised; clypeus moderately emarginate; clypeal line absent; eyes flattened. Antennal segment 3 1.5 times as long as 2 and longer than 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Punctures very small, superficial, hardly distinct, separated from each other by 1-10 times their diameter.

Pronotum: 1.3 times as broad as head, slightly broader than long ($W/L = 1.31$) and very convex ($W/H = 1.45$); anterior margin sharply curved; lateral outline broadly rounded. Punctures as large as those on head. Holotype: length 1.10 mm, width 1.45 mm, height 1.00 mm.

Elytra: Moderately narrower than pronotum, as broad as long and moderately convex ($W/H = 1.8$); lateral outline with very weak humeral angle. Punctures as large as those on head. Holotype: length 1.40 mm, width 1.35 mm, height 0.75 mm.

Metathoracic wings absent. Meso- and metasternum: median carina sharp, lateral lines absent, femoral lines complete.

Legs: Male metafemora enlarged distally (fig. 2). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 8-10): Aedeagus slender, with ring-like proximal part, lateral margins sinuously convergent towards a subacute apex, ventral piece deeply emarginate. Parameres slender, gently narrowing towards apex.

Spermatheca (fig. 18): Basal part pear-shaped: apical part short.

HOLOTYPE ♂: Taiwan, Kaohsiung Hsien, Peinantashan trail, 2500 m, 4.VII.93 (MHNG).

PARATYPES: as holotype, 1 ♂ and 1 ♀ (MHNG), 1 ♂ and 1 ♀ (AC); same but 2390-2490 m, 5.VII.93, 1 ♂ and 3 ♀ (MHNG), 1 ♂ and 1 ♀ (NMNT), 1 ♂ and 1 ♀ (AC); Kaohsiung Hsien, Kuanshan, trail above Kaunshanchi Riv., 2550 m, 22.VII.93, 1 ♂ and 3 ♀ (MHNG).

Discussion: *Agathidium delicatulum* n.sp. is closely related to *Agathidium alesi* n.sp. and *A. distinguendum* Ang. & Dmz.; it differs from them in the shape of the male metafemora and ratio of the 3rd/2nd antennal segments. The three species can be distinguished by the male copulatory organ.

Distribution: Taiwan.

Agathidium (Agathidium) alesi n.sp.

Figs 3, 11-13, 19

Length 3.0-4.1 mm (holotype ♂: 4.1 mm). Dorsum black, mesosternum reddish-brown, metasternum darker; antennae uniformly testaceous; legs reddish-brown. Microreticulation absent from dorsum; punctures small and sparse on entire dorsum. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins distinctly raised; clypeus deeply emarginate; clypeal line absent; eyes flattened. Antennal segment 3 1.3 times as long as 2 and longer than segments 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Punctures very small and superficial, separated from each other by 2-10 times their diameter.

Pronotum: 1.4 times as broad as head, slightly broader than long ($W/L = 1.25$) and very convex ($W/H = 1.45$); anterior margin sharply curved; lateral outline broadly rounded. Punctures as large as those on head. Holotype: length 1.40 mm, width 1.75 mm, height 1.20 mm.

Elytra: Moderately narrower than pronotum, slightly longer than broad ($W/L = 0.8$) and moderately convex ($W/H = 1.68$); lateral outline with very weak humeral angle. Punctures very small, hardly distinct, separated from each other by 2-15 times their diameter. Holotype: length 2.00 mm, width 1.60 mm, height 0.95 mm.

Metathoracic wings absent. Meso- and metasternum: median carina sharp, lateral lines absent, femoral lines incomplete; a small tubercle between the metacoxae.

Legs: Male metafemora with a pronounced tooth at the posterior margin (fig. 3). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 11-13): Aedeagus very slender, with a hook-like proximal part, lateral margins sinuously converging to rounded apex, ventral piece shallowly emarginate. Parameres slender, abruptly reflexed near apex.

Spermatheca (fig. 19): Basal and ventral parts slender, differing in length.

HOLOTYPE ♂: Kaohsiung Hsien, Peinantashan trail, 2390-2490 m, 5.VII.93 (MHNG).

PARATYPES: as holotype, 5 ♀ (MHNG), 1 ♂ and 1 ♀ (NMNT), 3 ♂ and 2 ♀ (AC); same but 2500 m, 4.VII.93, 4 ♂ (MHNG); Nantou Hsien, Nenkaoshan Tenchi Hut, 2895 m, 7.V.92, 1 ♂ (MHNG).

Discussion: See under *A. delicatulum* n.sp. *Agathidium alesi* n.sp. is most closely related to *A. distinguendum* Ang. & Dmz.; it differs in the pronotal shape and the aedeagal apex.

Distribution: Taiwan.

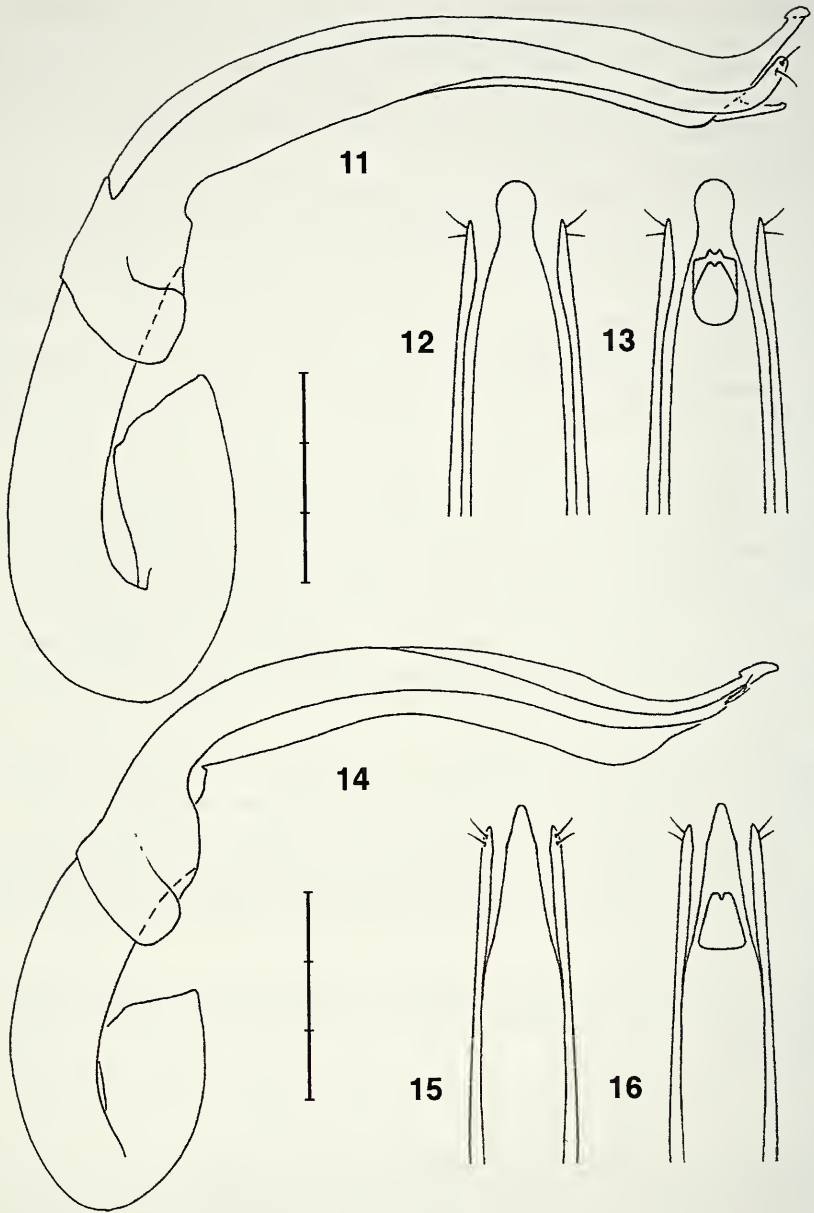
Agathidium (Agathidium) ? distinguendum Ang. & Dmz.

Agathidium (s.str.) *distinguendum* Angelini & De Marzo, 1995: 202.

MATERIAL: Taiwan, Pingtung Hsien, Peitawhushan, Kuai-Ku Hut, 2125 m, 27.IV.92, 1 ♀ (MHNG).

Discussion: Our identification of this female is reported as doubtful because of the difficulties in distinguishing the species of the madurensis group without examination of the male copulatory organ.

Distribution: Taiwan.



Figs 11-16

Male copulatory organ (lateral view, dorsal and ventral view of apex) of: 11-13, *Agathidium alesi* n.sp.; 14-16, *A. pictum* n.sp. Scale: 1 division = 0.1 mm.

Agathidium (Agathidium) familiare Ang. & Dmz.

Agathidium (s.str.) familiare Angelini & De Marzo, 1995: 203.

MATERIAL: Taiwan, Kaohsiung Hsien, Kuanshan, trail at Kaunshanchi Riv., 2650 m, 21.IV.92, 1 ♂ and 2 ♀ (MHNG); Taichung Hsien, Anmashan, 2225 m, 11.V.92, 1 ♂ (MHNG); Taichung Hsien, Anmashan, 2230 m, 12.V.92, 2 ♂ and 1 ♀ (MHNG, AC); Taichung Hsien, Anmashan, 2225 m, 14.V.92, 1 ♂ and 1 ♀ (MHNG); Kaohsiung Hsien, Peinantashan trail, 2500 m, 4.VII.93, 3 ♂ and 4 ♀ (MHNG, AC); Kaohsiung Hsien, Peinantashan trail, 2390-2490 m, 5.VII.93, 3 ♂ and 8 ♀ (MHNG, NMNT); Kaohsiung Hsien, Kuanshan, trail at Kaunshanchi Riv., 2400 m, 20.VII.93, 1 ♂ and 2 ♀ (MHNG, AC).

Distribution: Taiwan.

seminulum group**Agathidium (Agathidium) mequignoni** Roubal

Agathidium (s.str.) mequignoni Roubal, 1911: 49; HLISNIKOVSKY 1964: 221; ANGELIN 1995: 278.

MATERIAL: Taiwan, Taichung Hsien, Anmashan, 2150 m, 13.V.92, 1 ♂ (AC).

Discussion: This specimen agrees in all characters with the type material from Caucasus.

Distribution: Caucasus, Turkey, North Iran, Kirgizstan, Siberia, Korea, Taiwan. New record for Taiwan.

laevigatum group**Agathidium (Agathidium) honestum** Ang. & Dmz.

Fig. 20

Agathidium (s.str.) honestum Angelini & De Marzo, 1995: 208.

MATERIAL: Taiwan, Kaohsiung Hsien, Kuanshan, Kunanoshing Hut, 3020 m, 18.IV.92, 1 ♂ (MHNG); Pingtung Hsien, Peitawhushan, Kuai-Ku Hut, 2130 m, 27.IV.92, 2 ♂ and 2 ♀ (MHNG, NMNT); Pingtung Hsien, Peitawhushan, Kuai-Ku Hut, 2125 m, 27.IV.92, 3 ♂ and 4 ♀ (MHNG, NMNT, AC); Pingtung Hsien, Peitawhushan, Kuai-Ku Hut, 2135 m, 30.IV.92, 3 ♂ and 1 ♀ (MHNG, AC); Kaohsiung Hsien, Peinantashan trail, ridge at 2800 m, 3.VII.93, 1 ♂ (AC); Kaohsiung Hsien, Peinantashan trail, 2500 m, 4.VII.93, 1 ♂ (MHNG); Kaohsiung Hsien, Peinantashan trail, 2390-2490 m, 5.VII.93, 2 ♂ (AC).

Discussion: *Agathidium honestum* Ang. & Dmz. was described on the basis of 3 males. The additional specimens agree in all characters with the types. Female tarsal formula: 5-4-4. Spermatheca as in fig. 20. Body length: 2.6-2.9 mm.

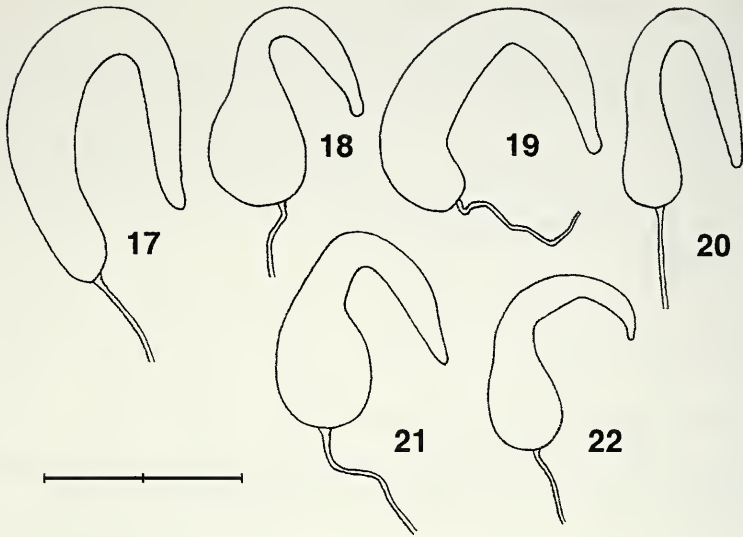
Distribution: Taiwan.

Agathidium (Agathidium) lucidum Ang. & Dmz.

Agathidium (s.str.) lucidum Angelini & De Marzo, 1995: 208.

MATERIAL: Taiwan, Nantou Hsien, Nenkaoshan trail, Yuenhal Hut, 2350 m, 4.V.92, 1 ♂ and 2 ♀ (MHNG); Nantou Hsien, Nenkaoshan Tenchi Hut, 2900 m, 5.V.92, 3 ♂ and 1 ♀ (MHNG); Nantou Hsien, Nenkaoshan, 2.5 Km SW Tenchi Hut, 2720 m, 6.V.92, 11 ♂ and 6 ♀ (MHNG, NMNT, AC); Ilan Hsien, Taipingshan, 1950 m, 13.VII.93, 1 ♂ (MHNG).

Distribution: Taiwan.



Figs 17-22

Spermatheca of: 17, *Agathidium subnitidum* n.sp.; 18, *A. delicatulum* n.sp.; 19, *A. alesi* n.sp.; 20, *A. honestum* Ang. & Dmz.; 21, *A. meifengense* Ang. & Dmz.; 22, *A. egregium* Ang. & Dmz. Scale: 1 division = 0.1 mm.

Agathidium (Agathidium) tenebroides Ang. & Dmz.

Agathidium (s.str.) tenebroides Angelini & De Marzo, 1995: 210.

MATERIAL: Taiwan, Kaohsiung Hsien, Kuanshan, Kuanoshing Hut, 3020 m, 18.IV.92, 1 ♂ (MHNG); Kaohsiung Hsien, Kuanshan, trail at Kaunshanchi Riv., 2400 m, 20.IV.92, 2 ♂ and 1 ♀ (MHNG); Kaohsiung Hsien, Kuanshan, trail at Kaunshanchi Riv., 2650 m, 21.IV.92, 4 ♂ and 10 ♀ (MHNG, NMNT, AC); Kaohsiung Hsien, Kuanshan, trail above Kaunshanchi Riv., 2550 m, 21.IV.92, 1 ♂ (MHNG); Kaohsiung Hsien, Peinantashan trail, 2400 m, 4.VII.93, 1 ♂ (AC); Kaohsiung Hsien, Peinantashan trail, 2500 m, 4.VII.93, 2 ♂ and 3 ♀ (MHNG); Kaohsiung Hsien, Peinantashan trail, 2390-2490 m, 5.VII.93, 9 ♂ and 6 ♀ (MHNG, NMNT, AC); Kaohsiung Hsien, Peinantashan trail, 2080 m, 6.VII.93, 1 ♂ and 1 ♀ (MHNG); Kaohsiung Hsien, Peinantashan trail, 2020 m, 7.VII.93, 2 ♂ (MHNG); Kaohsiung Hsien, Kuanshan, trail at Kaunshanchi Riv., 2400 m, 20.VII.93, 1 ♂ (MHNG); Kaohsiung Hsien, Kuanshan, trail above Kaunshanchi Riv., 2550 m, 22.VII.93, 3 ♂ (MHNG).

Distribution: Taiwan.

Agathidium (Agathidium) meifengense Ang. & Dmz.

Fig. 21

Agathidium (s.str.) meifengense Angelini & De Marzo, 1995: 213.

MATERIAL: Taiwan, Taichung Hsien, Anmashan, creek, 2185 m, 12.V.92, 1 ♂ and 2 ♀ (MHNG, NMNT); Taichung Hsien, Anmashan, 2230 m, 12.V.92, 3 ♂ and 4 ♀ (MHNG, AC); Taichung Hsien, Anmashan, 2120 m, 13.V.92, 1 ♂ (MHNG).

Discussion: *Agathidium meifeungense* Ang. & Dmz. was described on the basis of 4 males. Female tarsal formula: 5-4-4. Spermatheca as in fig. 21. These specimens agree in all characters with the types. Body length: 3.9-4.2 mm.

Distribution: Taiwan.

Agathidium (Agathidium) kaohsiungense Ang. & Dmz.

Agathidium (s.str.) kaohsiungense Angelini & De Marzo, 1995: 217.

MATERIAL: Taiwan, Kaohsiung Hsien, Peinantashan trail, 2080 m, 6.VII.93, 2 ♂ and 2 ♀ (MHNG, AC); Kaohsiung Hsien, Kuanshan, trail above Kaunshanchi Riv., 2550 m, 22.VII.93, 2 ♂ and 2 ♀ (MHNG, NMNT, AC).

Distribution: Taiwan.

Agathidium (Agathidium) fuliginosum Ang. & Dmz.

Agathidium (s.str.) fuliginosum Angelini & De Marzo, 1995: 221.

MATERIAL: Taiwan, Pingtung Hsien, Peitawhushan, ridge at 1288-2910 m, 28.IV.92, 4 ♂ (MHNG, NMNT, AC).

Discussion: *Agathidium fuliginosum* Ang. & Dmz. was described on the basis of 1 male. Female remains unknown. The additional specimens agree in all characters with the type. Body length: 3.4-3.7 mm.

Distribution: Taiwan.

Agathidium (Agathidium) alpestre Ang. & Dmz.

Agathidium (s.str.) alpestre Angelini & De Marzo, 1995: 223.

MATERIAL: Taiwan, Nantou Hsien, Nenkaoshan, 2.5 Km SW Tenchi Hut, 2720 m, 6.V.92, 2 ♂ and 1 ♀ (MHNG, NMNT); Nantou Hsien, Nenkaoshan Tenchi Hut, 2895 m, 7.V.92, 1 ♂ and 1 ♀ (MHNG); Nantou Hsien, Nenkaoshan trail, 2050-2150 m, 8.V.92, 3 ♂ and 2 ♀ (MHNG, AC).

Discussion: Apart from some specimens being lighter coloured, this new material agrees in all characters with the types. Body length: 3.0-3.3 mm.

Distribution: Taiwan.

Agathidium (Agathidium) comptum Ang. & Dmz.

Agathidium (s.str.) comptum Angelini & De Marzo, 1995: 227.

MATERIAL: Taiwan, Pingtung Hsien, Peitawhushan, trail at 1500 m, 1.V.92, 1 ♂ (MHNG). Further two specimens are doubtfully referred to the same species: Kaohsiung Hsien, Kuanshan, Kunanoshing Hut, 3020 m, 18.IV.92, 1 ♂ (AC); Kaohsiung Hsien, Kuanshan, trail above Kaunshanchi Riv., 2550 m, 21.IV.92, 1 ♂ (MHNG).

Discussion: The two doubtful specimens differ slightly from the types in the shape of the aedeagus.

Distribution: Taiwan.

Agathidium (Agathidium) egregium Ang. & Dmz.

Fig. 22

Agathidium (s.str.) egregium Angelini & De Marzo, 1995: 228.

MATERIAL: Taiwan, Taichung Hsien, Anmashan, 2225 m, 11.V.92, 1 ♂ (MHNG); Taichung Hsien, Anmashan, creek, 2185 m, 12.V.92, 2 ♂ and 2 ♀ (MHNG, NMNT, AC);

Taichung Hsien, Anmashan, 2230 m, 12.V.92, 1 ♂ and 1 ♀ (AC); Taichung Hsien, Anmashan, 2225 m, 14.V.92, 1 ♂ (MHNG); Ilan Hsien, Taipingshan, 1950 m, 13.VII.93, 2 ♂ (MHNG).

Discussion: *Agathidium egregium* Ang. & Dmz. was described on the basis of 1 male. The additional specimens agree in all characters with the types, except for the colour of some of them, which are either darker or lighter dorsally. Female tarsal formula: 5-4-4. Spermatheca as in fig. 22. Body length: 2.3-2.6 mm.

Distribution: Taiwan.

Agathidium (Agathidium) anmashanense Ang. & Dmz.

Agathidium (*s.str.*) *anmashanense* Angelini & De Marzo, 1995: 228.

MATERIAL: Taiwan, Nantou Hsien, Nienkaoshan trail, Yuenhal Hut, 2350 m, 4.V.92, 1 ♂ and 1 ♀ (MHNG); Nantou Hsien, Nienkaoshan Tenchi Hut, 2900 m, 5.V.92, 3 ♂ and 6 ♀ (MHNG, AC); Nantou Hsien, Nienkaoshan, 2.5 Km SW Tenchi Hut, 2720 m, 6.V.92, 8 ♂ and 5 ♀ (MHNG, AC); Nantou Hsien, Nienkaoshan, 1.5 Km SW Tenchi Hut, 2830 m, 6.V.92, 4 ♂ and 3 ♀ (MHNG, AC); Nantou Hsien, Nienkaoshan trail, 2050-2150 m, 8.V.92, 5 ♂ and 3 ♀ (MHNG, NMNT).

Distribution: Taiwan.

Agathidium (Agathidium) subalpinum Ang. & Dmz.

Agathidium (*s.str.*) *subalpinum* Angelini & De Marzo, 1995: 230.

MATERIAL: Taiwan, Pingtung Hsien, Peitawhushan, trail at 1500 m, 1.V.92, 6 ♀ (MHNG, NMNT, AC).

Distribution: Taiwan.

Agathidium (Agathidium) exoletum Ang. & Dmz.

Agathidium (*s.str.*) *exoletum* Angelini & De Marzo, 1995: 236.

MATERIAL: Taiwan, Pingtung Hsien, Peitawhushan, Kuai-Ku Hut, 2130 m, 27.IV.92, 2 ♂ (MHNG); Pingtung Hsien, Peitawhushan, Kuai-Ku Hut, 2125 m, 27.IV.92, 1 ♂ (MHNG); Pingtung Hsien, Peitawhushan, Kuai-Ku Hut, 2135 m, 30.IV.92, 1 ♂ and 1 ♀ (MHNG); Kaohsiung Hsien, Peinantashan trail, 2500 m, 4.VII.93, 4 ♂ and 6 ♀ (MHNG, NMNT, AC).

Discussion: The additional specimens agree in all characters with the types, except for the lighter colour of some of them. Body length: 3.2-3.5 mm.

Distribution: Taiwan.

dentatum group

Agathidium (Agathidium) pictum n.sp.

Figs 4, 14-16

Length 4.0 mm (holotype ♂ and paratype). Dorsum black, venter reddish-brown, meso- and metasternum lighter; antennae uniformly testaceous; legs reddish-brown. Microreticulation absent on entire dorsum; punctures very small on head and pronotum, absent from elytra. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins not raised; clypeus deeply emarginate; clypeal line absent; eyes flattened. Antennal segment 3 1.6 times as long as 2 and longer than 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th

and 10th antennal segments. Punctures very small and superficial, not very distinct, separated from each other by 4-6 times their diameter.

Pronotum: 1.3 times as broad as head, slightly broader than long ($W/L = 1.2$) and very convex ($W/H = 1.28$); anterior margin sharply curved; lateral outline broadly rounded. Punctures hardly distinct, separated from each other by 1-10 times their diameter. Holotype: length 1.50 mm, width 1.80 mm, height 1.40 mm.

Elytra: Moderately narrower than pronotum, as broad as long and moderately convex ($W/H = 1.7$); lateral outline with very weak humeral angle. Puncturation, except for few very small punctures, absent. Holotype: length 1.65 mm, width 1.70 mm, height 1.00 mm.

Metathoracic wings absent. Meso- and metasternum: median carina sharp, lateral lines absent, femoral lines incomplete; a small tubercle between metacoxae.

Legs: Male metafemora with a pronounced tooth at posterior margin (fig. 4). Tarsal formula: ♂ 5-5-4, ♀ not known.

Male copulatory organ (figs 14-16): Aedeagus very slender, with hook-like proximal part, lateral margins converging to small subacute tip, ventral piece shallowly emarginate. Parameres slender, bent up at apex.

HOLOTYPE ♂: Taiwan, Taichung Hsien, Anmashan, 2225 m, 11.V.92 (MHNG).

PARATYPE: as holotype, 1 ♂ (AC).

Discussion: *A. pictum* n.sp. is closely related to *A. umbratum* Ang. & Dmz. and *A. fenestratum* Ang. & Dmz.; it differs in the shape of the male hind femora and the ratio of the 3rd/2nd antennal segments. The aedeagus is very similar in these species but the shape of the male hind femora is characteristic.

Distribution: Taiwan.

Agathidium (Agathidium) splendidulum Ang. & Dmz.

Agathidium (s.str.) splendidulum Angelini & De Marzo, 1995: 245.

MATERIAL: Taiwan, Kaohsiung Hsien, Kuanshan, trail at Kaunshanchi Riv., 2650 m, 21.IV.92, 8 ♂ and 12 ♀ (MHNG, NMNT, AC); Pingtung Hsien, Peitawhushan, Kuai-Ku Hut, 2130 m, 27.IV.92, 1 ♂ (MHNG); Pingtung Hsien, Peitawhushan, ridge at 1288-2910 m, 28.IV.92, 3 ♂ and 1 ♀ (MHNG); Pingtung Hsien, Peitawhushan, above Kuai-Ku Hut, 2680 m, 29.IV.92, 4 ♂ and 3 ♀ (MHNG); Nantou Hsien, Nenkaoshan Tenchi Hut, 2900 m, 5.V.92, 1 ♂ and 1 ♀ (MHNG); Nantou Hsien, Nenkaoshan, 2.5 Km SW Tenchi Hut, 2720 m, 6.V.92, 2 ♂ (MHNG); Taichung Hsien, Anmashan, 2230 m, 12.V.92, 1 ♂ (MHNG); Taichung Hsien, Anmashan, 2225 m, 14.V.92, 1 ♂ (MHNG); Kaohsiung Hsien, Peinantashan trail, 2400 m, 4.VII.93, 3 ♂ and 2 ♀ (MHNG); Kaohsiung Hsien, Peinantashan trail, 2500 m, 4.VII.93, 7 ♂ and 10 ♀ (MHNG, AC); Kaohsiung Hsien, Peinantashan trail, 2390-2490 m, 5.VII.93, 13 ♂ and 14 ♀ (MHNG, NMNT, AC); Nantou Hsien, Meifeng, 2130 m, 10.VII.93, 1 ♂ (MHNG); Kaohsiung Hsien, Kuanshan, trail at Kaunshanchi Riv., 2400 m, 20.VII.93, 1 ♂ (MHNG); Kaohsiung Hsien, Kuanshan, trail above Kaunshanchi Riv., 2550 m, 22.VII.93, 8 ♂ and 2 ♀ (MHNG, NMNT, AC).

Discussion: *Agathidium splendidulum* Ang. & Dmz. was described on the basis of 4 males. The additional specimens are variable in puncturation and colour. Body length: 3.5-3.9 mm.

Distribution: Taiwan.

Agathidium (Agathidium) melanocephalum Ang. & Dmz.

Agathidium (s.str.) melanocephalum Angelini & De Marzo, 1995: 246.

MATERIAL: Taiwan, Nantou Hsien, Nenkaoshan trail, 2050-2150 m. 8.V.92, 7 ♂ and 12 ♀ (MHNG, NMNT, AC).

Distribution: Taiwan.

Subg. **Microceble** Ang. & Dmz., 1986

grouvellei group

Agathidium (Microceble) klapperichi Ang. & Dmz.

Agathidium (Microceble) klapperichi Angelini & De Marzo, 1984 (1985): 41 (s.str.); 1986: 454; 1995: 248.

MATERIAL: Taiwan, Taichung Hsien, Anmashan, 2230 m, 12.V.92, 1 ♂ (MHNG).

Distribution: Taiwan.

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Aleocharinae della Cina: Parte I (Coleoptera, Staphylinidae)

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Aleocharinae from China: Part I (Coleoptera, Staphylinidae). - In this paper, one hundred known species listed, 52 new species for China are recorded and 65 species are described as new for science. These new species, collected in very recent years by A. Smetana, G. de Rougemont and others, belong to the following tribes: Masuriini (1 species), Hypocyphitini (1), Myllaenini (7), Termitohospitini (1), Gyrophaenini (18), Homalotini (27), Bolitocharini (6), Sahlbergini (1) and Eusteniamorphini (3). Four genera are described as new, assigned to following tribes: Homalotini (*Taraktomora* n. gen., near *Silusa*), Bolitocharini (*Omologlusa* n. gen., *Neoleptusa*; *Methistemistiba* n. gen., near *Leptusa*) and Sahlbergini (*Derougemontius* n. gen., near *Loeblius*). Eight new combination and five new synonymies are proposed. The major diagnostic characters are illustrated. The species of Aleocharinae taken in China again reflect the mixture of Palaearctic and Oriental elements.

Key-words: Coleoptera - Staphylinidae - Aleocharinae - Taxonomy - China.

INTRODUZIONE

Il catalogo delle specie della sottofamiglia Aleocharinae della Cina finora comprendeva solamente 147 specie. Data la vastità e la varietà del territorio cinese, ciò non poteva che essere il segno tangibile che ricerche in questo campo sono ancora agli inizi.

Grazie a recentissime ricerche effettuate dal Dr. Ales Smetana del "Centre for Land and Biological Resources Research" di Ottawa, svolte su territori montuosi, mai prima entomologicamente esplorati e per merito del collega stafilinidologo Guillaume de Rougemont di Londra, che ha applicato tecniche di ricerca nuove, il catalogo delle specie di Aleocharinae della Cina si è ora arricchito ulteriormente di 56 specie nuove per la Cina e di 336 nuove per la scienza, con 14 nuovi generi. Con il presente lavoro e i successivi della serie, oggi il catalogo delle Aleocharinae della Cina comprende 552 specie, includendo anche le prime 7 nuove specie del genere *Leptusa* Kr. della Cina continentale, da me descritte in un lavoro precedente (PACE 1997), e le specie di Taiwan.

(139° Contributo alla conoscenza delle Aleocharinae)

Manoscritto accettato il 25.09.1997

Al materiale raccolto da A. Smetana e da G. de Rougemont, ho aggiunto per lo studio tassonomico quello raccolto da Jonathan Cooter, noto studioso di Lioididae di Hereford (Gran Bretagna), da Garry Ades, da Graham Reels, dal Dr. Jeng-Tze Yang della "National Chung Hsing University" di Taiwan e dal Prof. Shuqiang Li di Stuttgart (Germania).

Gli holotipi delle nuove specie sono conservati nel "Muséum d'Histoire naturelle" di Ginevra (MHNG).

ELENCO DELLE SPECIE (escluse le nuove)

PRONOMAEINI

Pronomaea thaxteri Bernhauer, 1915

Pronomaea thaxteri Bernhauer, 1915: 148; CAMERON 1939: 31; PACE 1986: 141.
3 es., China, Zhejiang, Tianmushan, 29.IV.1993, 2.IX.1994; 13 es., China, Yunnan, Xishuangbanna, Chayanhe, 24.I.1993, Jing Hong, II.1993, tutti de Rougemont leg.

Distribuita in India, Sumatra, Malaysia, Bali, Sabah, Filippine. Nuova per la Cina.

LEUCOCRASPEDINI

Leucocraspedum scorpio (Blackburn, 1895)

Barronica scorpio Blackburn, 1895: 203
Leucocraspedum scorpio; CAMERON 1939: 7

1 ♂, China, Yunnan, Xishuangbanna, Chayanhe, 24.I.1993, de Rougemont leg.

Specie distribuita in Sri Lanka, India, Giava, Singapore, Filippine e Australia. Nuova per la Cina.

MYLLAENINI

Myllaena lombokensis Pace, 1896

Myllaena lombokensis Pace, 1986: 166
8 es., China, Beijing, Yingtaogou, III.1994, 1 ♂, China, Zhejiang, Tianmushan, 29.IV.1993, tutti de Rougemont leg.

Specie nuova per la Cina.

Myllaena ledouxi Pace, 1988

Myllaena ledouxi Pace, 1988: 405
Myllaena xianbeorum Pace, 1993: 80, **syn. n.**

1 ♂ e 1 ♀. Hong Kong, XII.1995-1.1996, de Rougemont leg.

Specie diffusa in Nepal e Cina: Sichuan, Yunnan. Nuova per Hong Kong.

GYROPHAENINI

Gyrophaena (s. str.) **cicatricosa** Motschulsky, 1858

Gyrophaena cicatricosa Motschulsky, 1858: 231
Gyrophaena (s. str.) *cicatricosa*: CAMERON 1939: 89

1 ♂ e 1 ♀, Hong Kong, XII.1955-I.1996; 33 es., Hong Kong, Tai Po, III.1996, from fungi tutti de Rougemont leg.

Distribuita in Sri Lanka, India e Sumatra. Nuova per la Cina.

Gyrophæna (s. str.) thoracica Cameron, 1939

Gyrophæna (s. str.) thoracica Cameron, 1939: 112

5 es., China, Sichuan, Gongga Shan, above camp 2, 2800 m, 25.VIII.1994; 1 ♀, idem, above camp 3, 3050 m, 22.VII.1994, tutti Smetana leg.

Specie dell'India settentrionale, nuova per la Cina.

Gyrophæna (Acanthophaena) appendiculata Motschulsky, 1858

Gyrophæna appendiculata Motschulsky, 1858: 228

Gyrophæna (Acanthophaena) appendiculata: CAMERON 1939: 60

1 ♂, Hong Kong, Kadoorie Farm, VIII.1996, flight interception trap, de Rougemont leg.

Specie distribuita in India, Malaysia e Filippine. Nuova per la Cina.

HOMALOTINI

Silusa aliena Bernhauer, 1916

Silusa aliena Bernhauer, 1916: 33

7 es., China, Sichuan, Gongga Shan, above camp 2 and 3, 2800-3050 m, 22-26.VII.1994, Smetana leg.; 6 es., China, Dali, 9.II.1993, de Rougemont leg.

Specie diffusa solo in Cina.

Silusa bodemeyeri (Eppelsheim, 1883)

Leptusa bodemeyeri Eppelsheim, 1883: 252

Silusa bodemeyeri: Pace 1989: 24

9 es., Hong Kong, Tai Po, III-IV.1996, de Rougemont leg.

Specie distribuita in Romania. Nuova per la Cina. *Nota.* - Non esistono significative differenze nella forma dei pezzi copulatori del sacco interno dell'edeago del tipo di *bodemeyeri* da me esaminato a confronto di quelli dell'edeago degli esemplari di Hong Kong. Probabile diffusione attraverso il commercio di legname.

Coenonica javana Bernhauer, 1914

Coenonica javana Bernhauer, 1914: 104

Neosilusa hongkongensis Pace, 1993: 80, **syn. n.**

1 es., China, Yunnan, Xishuangbanna, Jing Hong, II.1993; 1 es., Hong Kong, XII.1995-I.1996, flight interception trap, tutti de Rougemont leg.

Specie diffusa a Giava e Hong Kong. Nuova per la Cina continentale.

Coenonica ming Pace, 1993

Coenonica ming Pace, 1993: 80

4 es., China, Yunnan, Kunming, 1.II.1993, de Rougemont leg.

Specie finora nota solo dello Yunnan.

Coenonica impressicollis (Motschulsky, 1858)

Phloeopora impressicollis Motschulsky, 1858: 257

Coenonica impressicollis; CAMERON 1939: 161

1 ♀, China, Yunnan, Ruili, 4.II.1993, de Rougemont leg.

Specie finora nota della sola India. Nuova per la Cina.

Stenomastax cribrum (Fauvel, 1878)

Thectura cribrum Fauvel, 1879: 297

Stenomastax cribrum; CAMERON 1939: 171

31 es., Hong Kong, XII.1995-I.1996-IV.1996, flight interception trap, de Rougemont leg.

Specie distribuita in India, Singapore, Filippine e Nuova Guinea. Nuova per la Cina.

Stenomastax tuberculicollis (Kraatz, 1859)

Homalota tuberculicollis Kraatz, 1859: 33

Stenomastax tuberculicollis; CAMERON 1939: 177

1 ♂, China, Zhejiang, Tianmushan, 29.IV.1993, de Rougemont leg.

Specie diffusa in Sri Lanka e a Singapore. Nuova per la Cina.

Stenomastax nigrescens (Fauvel, 1905)

Homalota nigrescens Fauvel, 1905: 147

Stenomastax nigrescens; CAMERON 1939: 170

6 es., China, Zhejiang, Tianmushan, 29.IV.1993: 23. es., China, Yunnan, Xishuangbanna, Jing Hong, II. 1993, 2 ♂♂ e 2 ♀♀ Hong Kong, Kadoorie Farm, 19-31.V.1996, IV.1996, VIII.1996, tutti de Rougemont leg.

Specie diffusa in India, a Sumatra, Singapore, Malaysia, Giava e Sabah. Nuova per la Cina.

Stenomastax nepalensis (Pace, 1982)

Neomalota nepalensis Pace, 1982: 89

Stenomastax nepalensis; Pace 1989a: 487

1 ♂, China, Yunnan, Ruili, 4.II.1993, de Rougemont leg.

Specie finora nota solo per il Nepal. Nuova per la Cina.

Neosilusa moultoni Cameron, 1920

Neosilusa moultoni Cameron, 1920: 233

Plagiusa moultoni; Bernhauer & Scheerpeltz 1926: 540

Neosilusa moultoni; Pace 1992: 235

1 ♂, China, Jiangsu, Nanjing, 17.VIII.1994, de Rougemont leg.

Specie nota di Singapore e della Thailandia. Nuova per la Cina.

Neosilusa ceylonica (Kraatz, 1857)

Stenus ceylonica Kraatz, 1857: 8

Plagiusa ceylonica; Camero, 1939: 167

Neosilusa ceylonica; Pace 1984: 15; Pace 1993: 71

1 ♀, China, Beijing, Panshan, 8.V.1993, 18 es., China, Zhejiang, Tianmushan, 2.IX.1994, 29.IV.1993, 2 ♂♂, China, Zhejiang, Hangzhou, 27.IV.1995; 1 es., China, Yunnan, Sanchahe: elephant reserve, 24.I.1993, de Rougemont leg.; 1 es., China, all Jiangsu Prov., Nanjing Zijinshan, 8.V.1996, J. Cooter leg.; 1 ♀, Hong Kong, Kadoorie Farm, flight interception trap, VII.1992, G. Ades leg.; 1 es., Hong Kong, XII.1995-I.1996; 17 es., Hong Kong, Tai Po, N. T.,

flight interception trap, III.1996, IV.1996, V-VI.1996, IX.1996; 1 es., Hong Kong, Kadoorie Farm, vegetable refuse, f. i. t., VI.1996, tutti de Rougemont leg.

Specie distribuita dalle Mascarene, all'India, Malesia, Cina e Giappone.

DIESTOTINI

Diestota testacea (Kraatz, 1859)

Bolitochara testacea Kraatz, 1859: 7

Diestota testacea; FAUVEL 1905: 86; CAMERON 1939: 164; PACE 1984: 15

9 es., China, Yunnan, Xishuangbanna, Jing Hang & Mengdien, I-II.1993; 4 es., China, Yunnan, Ruili & Sanchahe (elephant reserve), 24.I.1993, 4.II.1993; 1 ♂ e 1 ♀, Hong Kong, 25.VIII.1994, de Rougemont leg.; 25 es., Hong Kong, flight interception trap, XII.1995-I.1996; 23 es., Hong Kong, Tai Po, N.T., vegetable refuse, III-V.1996, IV-V.1996, IX.1996, all de Rougemont leg.

Specie distribuita dalle Mascarene alla Regione Orientale.

BOLITOCARINI

Pseudatheta franzi Pace, 1992

Pseudatheta franzi Pace, 1992: 240

10 es., Hong Kong, Tai Po, from fungi, III.1996; 1 ♂, Hong Kong, Tai Po, III.1996; 1 ♂, Hong Kong, N.T., IV.1996; 1 ♂, Hong Kong, Kadoorie Farm, flight interception trap, VI.1996, all de Rougemont leg.

Specie nota della Thailandia, nuova per la Cina.

Pseudatheta pulchra Pace, 1992

Pseudatheta pulchra Pace, 1992: 240

1 ♀, Hong Kong, Chinese University, *Auricularia* fungus, I.IX.1996, de Rougemont leg.

Specie nota della Thailandia, nuova per la Cina.

Pseudatheta meorum Pace, 1992

Pseudatheta meorum Pace, 1992: 240

3 es., China Yunnan, Xishuangbanna, Cheyanhe F.P., 24. I. 1993, de Rougemont leg.

Specie della Thailandia, nuova per la Cina.

AUTALIINI

Autalia rivularis (Gravenhorst, 1802)

Aleochara rivularis Gravenhorst, 1802: 73

Autalia rivularis; MANNERHEIM 1831: 501; BERNHAUER & SCHEERPELTZ 1926: 569

1 ♂, China, Gansu, Xinlong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, Smetana leg.

Specie diffusa in Europa settentrionale e centrale e Caucaso. Nuova per la Cina.

FALAGRIINI

Cordalia vestita (Boheman, 1858)

Falagria vestita Boheman, 1858: 25

Cordalia vestita; CAMERON 1939: 236; PACE 1993: 71

2 ♂♂ e 1 ♀, China, Jiangsu, Nanjing, 17.VII.1994; 10 es., China, Yunnan, Ruili, Dali; Kunming & Sanchahe (elephant reserve), 24.I.1993, 1-4-9.II.1993, all de Rougemont leg.; 1 es., Hong Kong, N.T., Shek Kong, V.1990, G. Reels leg.; 19 es., Hong Kong, N.T., vegetable refuse, flight interception trap. XII.1995-I.1996, IV-V-IX.1996, de Rougemont leg.

Specie diffusa in Cina, India e Indonesia.

Falagria (s. str.) caesa Erichson, 1839

Falagria caesa Erichson, 1839: 295

Staphylinus sulcatus Paykull, 1789: 32 (nec *Staphylinus sulcatus* O. F. Müller, 1776: 97)

Falagria sulcata (Paykull, 1789) auct.: PACE 1993: 71

58 es., China, Beijing, B.N.U. Campus from bird's nesting box, 7.VII.1993, at light, V-VI.1993, flight interception trap 10.VI-10-VII.1993; 14 es., China, Beijing, Yingtaogou, III.1994; 7 es., China, Xishan, IX.1992; 5 es., China, Shaanxi, Nanwutai & Xian, 16.X.1993, 17.IX.1995; 9 es., China, Xinjiang, Turfan & Baiyanggou, 2.X.1993, 10.X.1993; 14 es., China, Henan, Luoyang, 18.X.1993; 73 es., China, Hebei, Changde & Beidaihe, 29.V.1993, 3.X.1993, tutti de Rougemont leg.; 1 es., China, Gansu, Yonghai, ca. 20 Km SW Yuzhong, 2700-2800 m, 9.VIII.1994, Smetana leg.; 2 es., China, Gansu, 120 Km S Lanzhou Guanghe Xian Mai Jia, 2300 m, 8.VII.1994, Smetana leg.

Specie diffusa in tutta l'Europa, nel Nordafrica, in Cina e in Giappone.

Falagria (Myrmecocephalus) dimidiata Motschulsky, 1858

Falagria dimidiata Motschulsky, 1858: 260

Falagria (Stenagria) dimidiata; CAMERON 1939: 250

1 ♀, Hong Kong, vegetable refuse, V.1996, de Rougemont leg.

Specie diffusa nello Sri Lanka e in India. Nuova per la Cina.

Falagria (Myrmecocephalus) innocua Pace, 1984

Falagria (Stenagria) innocua Pace, 1984: 435

Falagria (Myrmecocephalus) innocua; PACE 1993: 72

2 es., China, Yunnan, Kunming, 1.II.1993; 2 es., China, Zhejiang, Tianmushan, 29.IV.1993; 1 ♀, China, Chengde, 3.X.1993, tutti de Rougemont leg.

Specie finora nota solo della Cina.

Falagria (Myrmecocephalus) semilucens Cameron, 1950

Falagria (Stenagria) semilucens Cameron, 1950: 106, nec *Falagria (Stenagria) semilucens* Coiffait, 1984: 154

Falagria (Myrmecocephalus) semilucens; PACE 1993: 72

9 es., China, Yunnan, Ruili & Xishuangbanna: Jing Hong, II.1993, 4.II.1993; 84 es., Hong Kong, Kadoorie Farm, Tai Po, flight interception traps, vegetable refuse, 25.VIII.1995, XII.1995-I.1996, V.1996, IX.1996, tutti de Rougemont leg.

Specie diffusa nella Penisola Malese e in Cina.

Falagria (Myrmecocephalus) coiffaiti **nom. n.** per *Falagria (Stenagria) semilucens* Coiffait, 1984: 154, nec *Falagria (Stenagria) semilucens* Cameron, 1950: 106.

Falagria (Myrmecocephalus) pallipennis Cameron, 1939

Falagria (Stenagria) pallipennis Cameron, 1939: 253

Falagria (Stenagria) innocua Pace, 1984: 435, **syn. n.**

Falagria (Stenagria) innocua pagana Pace, 1984: 435, **syn. n.**

3 es., China, Beijing, Panshan, 8.V.1993; 26 es., China, Yunnan, Ruili, Xishuangbanna: Mengdian, Jing Hong, 26.I.1993, 9.II.1993; 68 es., Hong Kong, Kadoorie Farm, flight interception trap, VIII.1992, V.1996, 19-31.V.1996, tutti de Rougemont leg.

Diffusione della specie: India, Thailandia e Cina.

Falagria (Myrmecocephalus) chang Pace, 1993

Falagria (Myrmecocephalus) chang Pace, 1993: 86

1 ♂, China, Yunnan, Ruili, 4.II.1993; 1 ♀, China, Shanxi: Cuihua Shan, 11.VII.1994, tutti de Rougemont leg.

Specie diffusa solo in Cina.

Falagria (Myrmecocephalus) tsin Pace, 1993

Falagria (Myrmecocephalus) tsin Pace, 1993: 84

1 ♀, China, Zhejiang, Tianmushan, 2.IX.1994, de Rougemont leg.

Specie diffusa solo in Cina.

Falagria (Myrmecocephalus) ficta Pace, 1992

Falagria (Myrmecocephalus) ficta Pace, 1992: 245

34 es., China, Yunnan, Xishuangbanna: Chayanhe F.P. 6 Mengdian, 24.I.1993, 26.I.1993, de Rougemont leg.

Specie diffusa in Thailandia. Nuova per la Cina.

Falagria (Leptagria) densipennis Cameron, 1939

Falagria (Anaulacaspis) densipennis Cameron, 1939: 256; Pace 1984a: 428

12 es., China, Yunnan, Ruili, Sanchahe (elephant reserve) & Xishuangbanna: Jing Hong, 24.I.1993, II.1993, de Rougemont leg.

Specie diffusa in India e in Birmania.

Falagria (Leptagria) assamensis Pace, 1985

Falagria (Anaulacaspis) assamensis Pace, 1985: 160

(nom. nov. per *F. latesulcata* Cameron, 1939 dell'Assam, nec *F. latesulcata* Cameron, 1939 di Giava)

7 es., China, Yunnan, Xishuangbanna: Mengdian, 26.I.1993, de Rougemont leg.

Specie nota dell'Assam, è nuova per la Cina.

Gnypeta (s. str.) modesta Bernhauer, 1915

Gnypeta (s. str. modesta) Bernhauer, 1915a: 239; PACE 1984a: 441

2 es. China, Zhejiang, Tianmushan, 29.IV.1993; 13 es., China, Yunnan, Xishuangbanna: Jing Hong, II.1993; 17 es., Hong Kong, vegetable refuse, flight interception trap, XII.1995-I.1996, V. 1996, IX.1996, tutti de Rougemont leg.

Specie diffusa a Sumatra, Birmania, Thailandia e Cina.

Gnypeta (s. str.) yaoana Pace, 1992

Gnypeta (s. str.) yaoana Pace, 1992: 247

1 ♀, China, Yunnan, Xishuangbanna: Mengdian, 26.I.1993, de Rougemont leg.

Specie della Thailandia, nuova per la Cina.

ATHETINI

Nehemitropia jiniana Pace, 1993:

Nehemitropia jiniana Pace, 1993: 90

1 ♂, China, Yunnan, Xishuangbanna: Mengdian, 26.I.1993, de Rougemont leg.

Specie finora nota solo della Cina.

Nehemitropia lividipennis (Mannerheim, 1831)

Oxypoda lividipennis Mannerheim, 1831: 484

Nehemitropia sordida (Marshall, 1802), auct.

9 es., China, Beijing, Xishan, B.N.U., V-VI.1993, 10.VI-10.VII.1993, IX.1993, flight interception trap; 1 ♂, Zhejiang: Tianmushang, 2.IX.1994; 2 es., China, Henan, Luoyang, 18.X.1993; 1 ♂, China, Hebei, Beidaihe, 29.V.1993; 13 es., China, Hebei, Changde, 3.X.1993; 1 ♀, China, Yunnan, Dali, 9.II.1993; 2 es., China, Xinjiang, Turfan, II-X.1993, tutti de Rougemont leg.; 4 es., China, Gansu, Yonghai, ca. 20 Km SW Yuzhong, 2700-2800 m, 9.VIII.1994, Smetana leg.

Specie subcosmopolita, assente nella regione intertropicale.

Atheta (Philhygra) ingenua Pace, 1993

Atheta (Notothecta) ingenua Pace, 1993: 108

14 es., China, Zhejiang, Tianmushan, 29.IV.1993, de Rougemont leg.

Specie nota solo della Cina.

Atheta (Philhygra) palustris (Kiesenwetter, 1844)

Homalota palustris Kiesenwetter, 1844: 318

Atheta (Philhygra) palustris; BERNHAUER & SCHEERPELTZ 1926: 629

10 es., China, Shanxi, Wutaishan, 4-5.VI.1993, de Rougemont leg.

Specie diffusa nella Regione Palearctica, nuova segnalazione per la Cina.

Atheta (Philhygra) pseudoelongatula Bernhauer, 1907

Atheta (Metaxya) pseudo-elongatula (sic!) Bernhauer, 1907: 411

Atheta (Philhygra) pseudoelongatula; SAWADA 1977: 182

1 ♂, China, Beijing, Xishan, IX.1993; 13 es., China, Beijing, B.N.U., 10.VI-10.VII.1993, flight interception trap; 2 es., China, Beijing, Yingtaogou, III.1994, tutti de Rougemont leg.

Specie diffusa in Giappone, nuova per la Cina.

Atheta (Sipalatheta) ciu Pace, 1993

Atheta (Sipalatheta) ciu Pace, 1993: 92

18 es. Hong Kong, Tai Po, N.T., XII.1995-I.1996, III-IV.1996, de Rougemont leg.

Specie nota solo della Cina.

Atheta (Coprothassa) coriaria (Kraatz, 1859)

Homalota coriaria Kraatz, 1859: 282

Atheta (s. str.) *coriaria*; CAMERON 1939: 344

Atheta (Xenota) coriaria; PACE 1984: 263; PACE 1990: 92

16 es., China, Beijing, Xishan & B.N.U., IX.1992, 10.VI-10.VII.1993, flight interception trap; 1 ♀, China, Yunnan, Dali, 9.II.1993; 1 ♀, China, Chengde, 3.X.1993; 2 ♀♀, Hong Kong, N.T., IV e IX. 1996, tutti de Rougemont leg.

Specie cosmopolita.

NOTA SINONIMICA. - In base alla forma della spermateca il sottogenere *Xenota* Mulsant & Rey, 1874 è **syn. n.** di *Coprothassa* Thomson, 1859.

Atheta (Coprothassa) dilutipennis Motschulsky, 1858

Homalota dilutipennis Motschulsky, 1858: 252

Atheta (s. str.) *dilutipennis*; CAMERON 1939: 351

11 es., Hong Kong, Tai Po & N.T., III-IV-IX.1996, de Rougemont leg.

Specie diffusa nella regione intertropicale orientale, con infiltrazioni nella zona temperata settentrionale. Nella regione intertropicale occidentale (Africa e Americhe) vive un'altra specie confusa finora con *dilutipennis* avendo il maschio la medesima caratteristica spina mediana posteriore al sesto urosterno libero.

Atheta (Coprothassa) melanaria (Mannerheim, 1831)

Homalota melanaria Mannerheim, 1831: 484

Atheta (Coprothassa) melanaria; BERNHAUER & SCHEERPELTZ 1926: 670

Atheta (Acrotona) melanaria; BRUNDIN 1952: 102

1 ♀, China, Gansu Mts., 25 Km E Xiahe, 2805-2925 m, 3.VIII.1994, Smetana leg.; 3 ♀♀, China, Yunnan, Xishuangbanna, Mengdian, 26.I.1993; 16 es., China, Shanxi, Wutaishan, 4-5.VI.1993, tutti de Rougemont leg.

Specie diffusa in Europa, in Transcaucasia e nell'Altai. Nuova per la Cina.

Atheta (Acrotona) annuliventris (Kraatz, 1859)

Homalota annuliventris Kraatz, 1859: 40

Atheta (Acrotona) annuliventris; CAMERON 1939: 408

4 es., China, Jiangsu Prov., Nanjing Zijinshan, 8.V.1996, J. Cooter leg.; 23 es., Hong Kong, Tai Po, Chinese University (in *Auricularia* fungus), N.T., Kadoorie Farm, VI.1991, IX-X.1991, V.1994, G. Ades leg., III-V-IX.1996, de Rougemont leg.

Specie diffusa in India, a Singapore e Taiwan. Nuova per la Cina continentale.

Atheta (Acrotona) birmana Pace, 1984

Atheta (Acrotona) birmana Pace, 1984: 445; PACE 1991: 116

53 es., China, Yunnan: Xishuangbanna, Mengdian, Ruiji, Sanchahe (elephant reserve), Chayanhe, Jing Hong, 26.I.1993, 24.I.1993, II.1993, 4.II.1993; 2 ♀♀, China, Zhejiang, Tianmushan, 29.IV.1993, tutti de Rougemont leg.; 2 ♀♀, China, Gansu, Xinlong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, Smetana leg.; 138 es., Hong Kong, Kadoorie Farm, Tai Po, flight interception trap, 19-31-V.1996, VII.1996, de Rougemont leg.

Specie diffusa in Nepal e in Thailandia. Nuova per la Cina.

Atheta (Acrotona) fungi (Gravenhorst, 1806)

Aleochara fungi Gravenhorst, 1806: 157

Atheta (Acrotona) fungi; CAMERON 1939: 402; PACE 1993: 73

16 es., China, Beijing, Dong Ling Shan, 1900 m, leaf litter Quercus-Alnus, 1.VII.1993, de Rougemont leg.; 6 es., China, Gansu, Dalijia Shan, 46 Km W Linxia, 2980 m, 10.VII.1994; 1 ♀, China, Gansu Mts., 25 Km E Xiahe, 2805-2975 m, 3.VIII.1994; 23 es., China, Gansu, Xinlong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, tutti Smetana leg.; 1 ♀, Hong Kong, Kadoorie Farm, 19-31-V.1996, de Rougemont leg.

Specie diffusa nella regione paleartica. Prima segnalazione per la Cina.

In base alla forma della spermateca il sottogenere *Mocyta* Muls & Rey, 1874 è **syn. n.** di *Acrotona* Thomson, 1859.

Atheta (Acrotona) vicaria (Kraatz, 1859)*Homalota vicaria* Kraatz, 1859: 38*Homalota inornata* Kraatz, 1859: 39*Atheta (Acrotona) vicaria*; CAMERON 1939: 396; PACE 1987: 434*Atheta (Acrotona) taedia* Cameron, 1933: 215; SAWADA 1977: 198*Atheta (Acrotona) pseudoparens* Cameron, 1933: 215; SAWADA 1977: 138*Atheta (Acrotona) vicaria immixta* Pace, 1985: 177; PACE 1991: 116, **syn. n.***Atheta (Acrotona) cariei* Pace, 1984: 263, **syn. n.**

1 ♂, China, Beijing, Xishan, IX.1992; 5 es., China, Yunnan, Ruili ca. 700 m, Xishuangbanna: Mengdian, 26.I.1993, 3.II.1993; 4 es., China, Zhejiang, Tianmushan, 2.IX.1994; 162 es., Hong Kong, Kadoorie Farm, N.T., flight interception trap, IV-V.1996, 19-31-V.1996, VI.1996, tutti de Rougemont leg.

Specie diffusa dalle Mascarene allo Sri Lanka, all'India, Nepal, e Giappone.

Atheta (Acrotona) neglecta Cameron, 1933*Atheta (Colpodota) neglecta* Cameron, 1933: 215; Sawada 1977: 194

2 ♀♀, China, Beijing, Songshan, 15.IV.1993; 1 ♀, China, Zhejiang, Tienmushan, 29.IV.1993; 1 ♀, China, Hebei, Chengde, 3.X.1993, tutti de Rougemont leg.

Specie diffusa in Giappone. Nuova per la Cina.

Atheta (Acrotona) paedida (Erichson, 1840)*Homalota paedida* Erichson, 1840: 917*Atheta (Acrotona) paedida*; PACE 1984: 265

1 ♀, Hong Kong, Tai Moshan, 600 m, cow dung; 1 ♂, Hong Kong, Tai Mo Shan, 800 m, forest floor litter, 20.VI.1996, tutti de Rougemont leg.

Specie diffusa nel Madagascar, nelle Mascarene, alle Andamane, in India, in Cina, in Malesia e nelle Filippine.

Atheta (Acrotona) probans Pace, 1984*Atheta (Acrotona) probans* Pace, 1984a: 445; PACE 1993: 74

4 es., China, Yunnan, Sanchahe (elephant reserve) 24.I.1993; 2 es., China, Yunnan, Xishuangbanna: Chayanhe F.P. & Jing Hong, 24.I.1993, II. 1993, tutti de Rougemont leg.

Specie diffusa in Thailandia e in Cina.

Atheta (Acrotona) siamensis Pace, 1984*Atheta (Acrotona) siamensis* Pace, 1984a: 443

11 es., China; Yunnan. Xishuangbanna: Mengdian, 26.I.1993; 8 es., China, Yunnan, Ruili, 4.II.1993, tutti de Rougemont leg.

Specie finora nota solo della Thailandia. Nuova per la Cina.

Atheta (Acrotona) subclientula Cameron, 1939*Atheta (Acrotona) subclientula* Cameron, 1939: 405

27 es., China, Beijing, Xiaolongmen, 1.VII.1993, de Rougemont leg.

Specie diffusa nell'India settentrionale. Nuova per la Cina.

Atheta (Acrotona) suspiciosa (Motschulsky, 1858)*Homalota suspiciosa* Motschulsky, 1858: 90*Atheta (Acrotona) suspiciosa*; CAMERON 1939: 397; PACE 1993: 73

26 es., China, Shaanxi, Nanwutai, 17.IX.1995, de Rougemont leg.

Specie diffusa nello Sri Lanka, in India e in Cina

Atheta (Bessobia) occulta (Erichson, 1839)*Homalota occulta* Erichson, 1839: 317*Atheta (Bessobia) occulta*; BERNHAUER & SCHEERPELTZ 1926: 626*Atheta (Bessobia) erichsoni* Bernhauer, 1907: 397; YOSH & SAWADA 1976: 80

1 ♂, China, Beijing, Panshan, 8.V.1993; 1 ♂ e 4 ♀, China, Beijing, Ying Taogou, III.1993, tutti de Rougemont leg.

Specie diffusa dall'Europa settentrionale e centrale alla Siberia e al Giappone.

Nuova per la Cina.

Atheta (Microdota) amicula (Stephens, 1832)*Aleochara amicula* Stephens, 1832: 132*Atheta (Microdota) amicula*; BERNHAUER & SCHEERPELTZ 1926: 631

1 ♀, China, Beijing, Songshan, 15.IV.1993, de Rougemont leg.

Specie a diffusione paleartica, ma con infiltrazioni nella regione tropicale.

L'*amicula* citata da CAMERON (1939: 326) è un insieme di cinque specie: *A. amiculoides* Cameron, *A. kathmanduensis* Pace, *A. gahanensis* Pace, *A. arniensis* Pace e *A. notatella* Pace.**Atheta (Microdota) denticauda** Bernhauer, 1907*Atheta (Metaxya) dentiventris* Bernhauer, 1907: 412*Atheta (Microdota) denticauda* Bernhauer, 1907: 401; SAWADA 1977: 173

2 es., China, Beijing, Yingtaogou, III.1993, de Rougemont leg.

Specie finora nota solo del Giappone. Nuova per la Cina.

Atheta (Microdota) mon Pace, 1992*Atheta (Microdota) mon* Pace, 1992: 251

16 es., Hong Kong, Kadoorie Farm, flight interception trap, XII.1995-I.1996, 19-31.V.1996, de Rougemont leg.

Specie diffusa in Thailandia, nuova per la Cina.

Atheta (Microdota) subcrenulata Bernhauer, 1907*Atheta (Microdota) subcrenulata* Bernhauer, 1907: 403*Atheta (Amidobia) subcrenulata*; SAWADA 1974: 166

1 ♂, China, Beijing, flight interception trap, 10.VI-10.VII.1993; 2 ♂♂, China, Zhejiang, Tianmushan, 29.IV.1993, tutti de Rougemont leg.

Specie diffusa in Thailandia, nuova per la Cina.

Atheta (Microdota) subcrenulata Bernhauer, 1907*Atheta (Microdota) subcrenulata* Bernhauer, 1907: 403*Atheta (Amidobia) subcrenulata*; SAWADA 1974: 166

1 ♂, China, Beijing, flight interception trap, 10.VI-10.VII. 1993; 2 ♂♂, China, Zhejiang, Tianmushan, 29.IV.1993, tutti de Rougemont leg.

Specie giapponese, ora nota anche della Cina.

Atheta (*Microdota*) *vagans* Bernhauer, 1907

Atheta (Microdota) vagans Bernhauer, 1907: 404

Atheta (Amidobia) vagans; SAWADA 1974: 152

107 es., Hong Kong, Kadoorie Farm, Tai Po, flight interception trap, XII.1995-I.1996: III-IV-V-VIII.1996, de Rougemont leg.

Specie diffusa nello Sri Lanka, a Taiwan e in Giappone. Nuova per la Cina.

Atheta (*Datomicra*) *lewisiana* Cameron, 1933

Atheta (Datomicra) lewisiana Cameron, 1933: 214

Atheta (Datostiba) lewisiana; SAWADA, 1976: 19

3 ♀♀, China Beijing, Xiaolongmen, B.N.U. & Songshan, at light, 15.IV.1993, V-VI.1993, 1.VII.1993; 8 es., China, Yunnan, Dali, 9.II.1993; 8 es., China, Zhejiang, Tianmushan & Hangzhou., 29.IV.1993, 27.IV.1995; 18 es., China, Shanxi, Wutaishan Shaanxi, Nanwutai, 4-5.VI.1993, 17.IX.1995; 1 ♀, China, Jiangsu, Nanjing, 17.VIII.1994; 2 ♀♀, Hong Kong, N.T., vegetable refuse, IV-V.1996, tutti de Rougemont leg.

Specie diffusa in Cina, Giappone e Giava.

Atheta (*Datomicra*) *poroshirica* Sawada, 1978

Atheta (Datostiba) poroshirica Sawada, 1978: 243

6 es., China, Beijing, Xiaolongmen, 1100-1500 m, 1.VIII.1993; 1 ♀, China, Shaanxi, Nanwutai, 17.IX.1995, tutti de Rougemont leg.

Specie diffusa in Giappone. Nuova per la Cina.

Atheta (*Datomicra*) *sordiduloides* Cameron, 1939

Atheta (Datomicra) sordiduloides Cameron, 1939: 386

1 ♂, China, Shaanxi, Nanwutai, 17.IX.1995, de Rougemont leg.; 1 ♂, China, Gansu, 120 Km S Lanzhou, Guanghe Xian Maijia, 2300 m, 8.VII.1994, Smetana leg.

Specie diffusa dal Kashmir all'India. Nuova per la Cina.

Atheta (*Datomicra*) *subsericans* Cameron, 1939

Atheta (s. str.) subsericans Cameron, 1939: 355

1 ♂, China, Sichuan, Gongga Shan, above camp 2, 2800 m, 26.VII.1994, Smetana leg.

Specie dell'India settentrionale. Nuova per la Cina.

Atheta (*Dimetrota*) *furtiva* Cameron, 1939

Atheta (Dimetrota) furtiva Cameron, 1939: 378

1 ♂, China, Yunnan, Ruili, ca. 700 m, 3.II.1993; 2 ♀♀, China, Yunnan, Dali, 9.II.1993, tutti de Rougemont leg.

Specie diffusa dall'India settentrionale alla Cina.

Atheta (*Dimetrota*) *guizhouensis* Pace, 1993

Atheta (Dimetrota) guizhouensis Pace, 1993: 100

1 es., China, Zhejiang, Tianmushan, 29.IV.1993; 30 es., China: Yunnan, Xishuangbanna:

Mengdian & Dali, 26.I.1993, 9.II.1993; 4 ♀♀, China, Shaanxi, Nanwutai & Cuihuashan, 11.VIII.1994, 17.IX.1995, tutti de Rougemont leg.

Specie nota solo in Cina.

Atheta (Dimetrota) cinnamoptera Thomson, 1856

Atheta cinnamoptera Thomson, 1856: 105

Atheta (Dimetrota) cinnamoptera; BERNHAUER & SCHEERPELTZ 1926: 662

53 es., China, Gansu, Xinlong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, Smetana leg.

Specie diffusa nell'Europa settentrionale e centrale. Nuova per la Cina.

Atheta (s. str.) atramentaria (Gyllenhal, 1810)

Aleochara atramentaria Gyllenhal, 1810: 408

Atheta atramentaria; THOMSON 1861: 92

Homalota transfuga Sharp, 1874: 13

Atheta (Athera) transfuga; YOSII & SAWADA 1976: 69

Atheta (Dimetrota) sublaevana Cameron, 1939: 379; PACE 1991: 122; PACE 1993: 75

Atheta (Dimetrota) atramentaria; PACE 1984: 447

Atheta (Notothecta) kunningensis Pace, 1993: 106, **syn. n.**

Atheta (s. str.) atramentaria; PACE 1991: 122

1 ♀, China, Beijing, Yingtaogou, 900 m, III.1993; 13 es., China, Yunnan, Ruili & Dali, 4.II.1993, 9.II.1993, tutti de Rougemont leg.

Specie subcosmopolita: regione paleartica e regione etiopica.

Atheta (s. str.) euryptera (Stephens, 1832)

Aleochara euryptera Stephens, 1832: 132

Atheta (s. str.) euryptera; BERNHAUER & SCHEERPELTZ 1926: 642

13 es., China, Zhejiang, Hangzhou, 27.IV.1995, de Rougemont leg.

Specie diffusa nella Regione Olartica. Prima segnalazione per la Cina.

Atheta (Notothecta) pseudocoriaria Cameron, 1939

Atheta (s. str.) pseudocoriaria Cameron, 1938: 345

Atheta (Xenota) pseudocoriaria; PACE 1986: 154

39 es., Hong Kong, Kadoorie Farm, Tai Po, N.T., malaise trap, vegetable refuse, V.1992, VI.1993 G. Ades leg., III-IV-V-VII.1996, de Rougemont leg.

Specie diffusa in India, Nepal e Giava. Nuova per la Cina.

Atheta (Notothecta) reitteriana Bernhauer, 1939

Atheta (Acrotona) reitteriana Bernhauer, 1939: 109

Atheta (Notothecta) reitteriana; YOSII & SAWADA 1976: 44; PACE 1993: 75

Atheta (s. str.) cameroni Pace, 1987: 403; Pace 1993: 75

5 es., China, Beijing, Xishan & Songsan, IX.1992, 15.IV.1993; 35 es. China, Yunnan, Dali, Ruili & Xishuangbanna: Mengdien, 26.I.1993, 4.II.1993, 9.II.1993; 4 es., China, Yunnan, Kunming, 1.II.1993; 9 es., China, Zhejiang, Tianmushan, 29.IV.1993; 8 es., China, Shaanxi, Nanwutai, 17.IX.1995; 16 es., Hong Kong, Tai Po & N.T., flight interception traps, XII.1995-1.1996, III-IV.1996, tutti de Rougemont leg.

Specie presente in Cina, Giappone, Taiwan, Nepal, India settentrionale e Birmania.

Geostiba (Indatheta) rougemonti Pace, 1993

Geostiba (Indatheta) rougemonti Pace, 1993: 90

9 es., China, Gansu, Xilong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, Smetana leg.; 1 ♂, China, Yunnan, Kunming, 1.II.1993; 1 ♀, China, Zhejiang, Tianmushan, 29.IV.1993; 1 ♀, China, Zhejiang, Lin'An County, 1000 m, W. Tianmu Shan N. R., 18.V.1996, tutti de Rougemont leg.

Specie endemica della Cina.

Pelioptera opaca Kraatz, 1857

Pelioptera opaca Kraatz, 1857; CAMERON 1939: 418

1 ♀, China, Beijing, Yingtaogou, III.1993; 3 es., China, Yunnan, Xishuangbanna, Jing Hong, II.1993; 1 ♂, Kadoorie Farm, flight interception trap, 19-31.V.1996, tutti de Rougemont leg.

Specie diffusa dallo Sri Lanka all'India e a Singapore. Nuova per la Cina.

Pelioptera testaceipennis (Motschulsky, 1858)

Homalota testaceipennis Motschulsky, 1858: 251

Homalota pelioptera Kraatz, 1859: 30; SAWADA 1980: 51

Atheta (Dimetrota) testaceipennis; CAMERON 1939: 377

Pelioptera pelioptera; CAMERON 1939: 414

Pelioptera testaceipennis; SAWADA 1980: 51; PACE 1984a: 428

1 ♀, China, Zhejiang, Tianmushan, 2.IX.1994; 91 es., Hong Kong, Kadoorie Farm, Tai Po, flight interception trap, XII.1995-I.1996, III-IV-V.1996, 19-31.V.1996, tutti de Rougemont leg.

Specie presente nello Sri Lanka, in Nepal, India, Birmania, Sabah e Giappone. Nuova per la Cina.

Pelioptera micans Kraatz, 1858

Pelioptera micans Kraatz, 1857: 56; CAMERON 1939: 415

1 ♂ e 1 ♀, Hong Kong, Kadoorie Farm, flight interception trap, XII.1995-I.1996, 19-31.V.1996, de Rougemont leg.

Specie presente in Sri Lanka, India e Singapore. Nuova per la Cina.

Gastropaga (Rougemontia) siamensis (Pace, 1984)

Rougemontia siamensis Pace, 1984: 450

Gastropaga (Rougemontia) siamensis; PACE 1993: 76

1 ♂, China, Beijing, Xishan, IX.1992, de Rougemont leg.

Specie presente in Thailandia e Cina.

THAMIARAEINI

Thamiaraea insigniventris Fauvel, 1878

Thamiaraea insigniventris Fauvel, 1878: 299

1 ♂, Hong Kong, N.T., IV.1996, de Rougemont leg.

Specie presente in Sri Lanka, Singapore, Sumatra, Celebes, Sabah, Nuova Guinea e Filippine.

Schistogenia crenicollis Kraatz, 1857

Schistogenia crenicollis Kraatz, 1857: 40; CAMERON 1939: 424; PACE 1993: 76

6 es., China, Zhejiang, Tianmushan, 2.IX.1994; 2 es., China, Yunnan, Xishuangbanna, Jing Hong, II.1993; 6 es., Hong Kong, N.T., IX.1996, tutti de Rougemont leg.

Specie diffusa in Sri Lanka, India, Malesia, Indonesia e Cina.

Mimacrotona orousseti Pace, 1990

Mimacrotona orousseti Pace, 1990a: 167

18 es., Hong Kong, Kadoorie Farm, Tai Po, N.T., VII-VIII-IX.1996, de Rougemont leg.

Specie del Nepal, nuova per la Cina.

MYRMEDONIINI

Amaurodera yaoana Pace, 1992

Amaurodera yaoana Pace, 1992: 257

6 es., China, Yunnan, Xishuangbanna, Chayanhe F.P., 24.I.1993, de Rougemont leg.

Specie della Thailandia, nuova per la Cina.

Zyras (s. str.) **songanus** Pace, 1993

Zyras (s. str.) *songanus* Pace, 1993: 114

1 ♂, China, Shanxi, Wutaishan, 4-5.VI.1993, de Rougemont leg.

Specie presente solo in Cina.

Lomechusa minor Reitter, 1887

Lomechusa minor Reitter, 1887: 210; SCHILOW 1981: 219

1 ♀, China, Gansu, Pass btw Hezuo & Amqog, 3300 m, 12.VII.1994, Smetana leg., 1 es., Xinjiang, Nanshan, ca. 40 Km S.W. Uromgi, VIII.1981, de Rougemont leg.

Specie diffusa solo in Cina (SCHILOW 1981).

OXYPODINI

Chilopora longitarsis (Erichson, 1839)

Calodera longitarsis Erichson, 1839: 698

Chilopora longitarsis; KRAATZ 1858: 147

1 ♀, China, Shanxi, Wutaishan, 4-5.VI.1993, de Rougemont leg.

Specie diffusa nella Regione Palearctica occidentale. Nuova per la Cina.

Phloeopora teres (Gravenhorst, 1802)

Aleochara teres Gravenhorst, 1802: 79

Phloeopora teres; BERNHAUER & SCHEERPELTZ 1926: 720

4 es., China, Hebei, Chengde, 3.X.1993, de Rougemont leg.

Specie palearctica occidentale, nuova per la Cina.

Amarochara (s. str.) **umbrosa** (Erichson, 1839)

Calodera umbrosa Erichson, 1839: 304

Amarochara umbrosa; THOMSON 1860: 300

1 ♂ e 2 ♀♀, China, Hebei Prov., Yongnian, 6.X.1995, Shuqiang Li leg.

Specie diffusa nella Regione Palearctica occidentale e nella Regione Neartica.
Nuova per la Cina.

Apimela lineola (Kraatz, 1859)*Oxygaster lineola* Kraatz, 1859: 27*Pseudomeotica lineola*; CAMERON 1939: 582; PACE 1986: 164; PACE 1992: 123.

46 es., Hong Kong, Kadoorie Farm, Tai Po, N.T., III-IV-V-VIII-IX.1996, de Rougemont leg.

Specie diffusa dallo Sri Lanka, all'India, Singapore e Bali.

Apimela consors Pace, 1992*Apimela consors* Pace, 1992a: 281

24 es., Hong Kong, Kadoorie Farm, Tai Po, 19-31.V.1996, de Rougemont leg.

Specie nota del Nepal, nuova per la Cina.

Ocalea himalayica Cameron, 1939*Ocalea himalayica* Cameron, 1939: 578

2 ♀♀, China, Zhejiang Prov., Anji County, ca. 500 m. Long Wang Shan N.R., 12.V.1996, J. Cooter leg.

Specie finora nota solo dell'India settentrionale. Nuova per la Cina.

Oxygaster (Podoxya) shuteae Pace, 1993*Oxygaster (Podoxya) shuteae* Pace, 1993a: 172

1 ♀, China, Yunnan, Xishuangbanna, Chayanche, F.P., 24.I.1993, de Rougemont leg.

Specie diffusa in India settentrionale, ora presente anche in Cina.

Oxygaster (Podoxya) subsericea Cameron, 1939*Oxygaster (Podoxya) subsericea* Cameron, 1939: 603

5 es., China, Yunnan, Ruili, ca. 700 m. 3.II.1993, de Rougemont leg.

Specie dell'India settentrionale, nuova per la Cina.

Oxygaster (Paroxygaster) morosa Cameron, 1939*Oxygaster (Paroxygaster) morosa* Cameron, 1939: 5971 ♂ e 2 ♀♀, China, Beijing, Dong Ling Shan, 1900 m, leaf litter *Quercus-Alnus*, 1.VII.1993, de Rougemont leg.

La specie era nota solo dell'India settentrionale per il solo holotypus. Nuova per la Cina.

Oxygaster (Sphenoma) connexa Cameron, 1939*Oxygaster (Sphenoma) connexa* Cameron, 1939: 615; PACE 1992: 268

1 ♀, China, Sichuan, Gongga Shan, above camp 2, 2750 m, 24.VII.1994, Smetana leg.; 1 ♀, China, Yunnan, Dali, 9.II.1993, de Rougemont leg.

Specie particolarmente diffusa in India settentrionale e in Nepal. Nuova per la Cina.

HOPLANDRIINI

Pseudoplandria besoni Cameron, 1939*Pseudoplandria besoni*, Cameron, 1939: 672

1 ♀, China, Yunnan, Ruili, 4.II.1993, de Rougemont leg.

Specie diffusa nell'India settentrionale, nuova per la Cina.

Pseudoplandria osellaiana Pace, 1984*Pseudoplandria osellaiana* Pace, 1984b: 488

2 ♀♀, China, Zhejiang, Lin'an County, W. Tianmu Shan N.R., 16-22.V.1996, J. Cooter Leg.; 5 es., Hong Kong, Kadoorie Farm, VIII.1996, de Rougemont leg.

Specie della Thailandia, nuova per la Cina.

Pseudoplandria bohaci Pace, 1992*Pseudoplandria bohaci* Pace, 1992b: 127

1 ♀, Hong Kong, IV.1996, de Rougemont leg.

Specie del Vietnam, nuova per la Cina.

ALEOCHARINI

Aleochara (Coprochara) bipustulata (Linnaeus, 1761)*Staphylinus bipustulatus* Linnaeus, 1761: 232*Aleochara (Coprochara) bipustulata*: CAMERON 1939: 650

1 ♂ e 1 ♀, China, Beijing, Panshan & Xiaolongmen, 8.V.1993, 1.VII.1993, de Rougemont leg.

Specie a diffusione olartica e sudafricana.

Aleochara (Calochara) formosanorum Pace, 1993*Aleochara (Calochara) formosanorum* Pace, 1993a: 178

1 ♂, Hong Kong, XII.1995-I.1996, flight interception trap, de Rougemont leg.

Specie diffusa a Taiwan, nuova per la Cina continentale.

Aleochara (Xenochara) puberula Klug, 1833*Aleochara puberula* Klug, 1833: 139*Aleochara (Xenochara) puberula*: KLIMASZEWSKI & JANSEN 1993: 72

1 ♀, China, Yunnan, Xishuangbanna, Mengdien, 26.I.1993; 9 es., Hong Kong, Tai Mo Shan, 600 m, 20.VI.1996, cow dung, tutti de Rougemont leg.

Specie cosmopolita infatti le sue larve sono predatrici di larve di *Musca domestica*, *Stomoxys calcitrans*, ecc.**Aleochara (s. str.) nigra** Kraatz, 1859*Aleochara nigra* Kraatz, 1859: 13*Aleochara (s. str.) nigra*: CAMERON 1939: 626

1 ♂, Hong Kong, VIII.1991, G. Ades leg.

Specie diffusa dallo Sri Lanka all'India, alla Birmania, alla Penisola Malese e a Sumatra. Nuova per la Cina.

DESCRIZIONI

MASURIINI

Masuria (Oncosomechusa) chinensis sp. n.

Figg. 1-4

TIPI. Holotypus ♂. China, Gansu, Xinlong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, A. Smetana leg. (MHNG).

Paratypi: 38 es., stessa provenienza.

DESCRIZIONE. Lunghezza 2,70 mm. Corpo lucido e bruno con elitre nero-brune e addome nero con estremità distale bruna; antenne brune con i tre antennomeri basali

rossicci; zampe rossicce. La punteggiatura del capo e del pronoto è composta di punti grandi e superficiali. Le elitre e l'addome sono coperti da tubercolotti svaniti. L'avancorpo è privo di microscultura reticolare, l'addome è coperto di distinta reticolazione. Edeago figg. 2-3, spermateca fig. 4.

COMPARAZIONI. Due sono le specie note del sottogenere *Oncosomechusa* Pace, 1982a: *besucheti* Pace, 1982a e *tashigaonensis* Pace, 1989b, entrambe del Nepal, note solo su esemplari femmine. La nuova specie è ben distinta da entrambe per avere il pronoto meno trasverso, elitre meno ridotte e bulbo prossimale della spermateca più sviluppato del distale e non molto meno sviluppato come nelle due specie del Nepal.

HYPOCYPHTINI

Cypha yunnanensis sp. n.

Figg. 5-7

TIP. Holotypus ♂, China, Yunnan, Ruili, ca. 700 m, de Rougemont leg. (MHNG).
Paratypi: 2 es., stessa provenienza.

DESCRIZIONE. Lunghezza 1,4 mm. Corpo lucidissimo, molto convesso e bruno scuro, con estremità addominale rossiccia; antenne e zampe giallo-rossicce. Su tutto il corpo non vi è traccia di reticolazione. La punteggiatura del capo è estremamente fine e rada; quella del pronoto e delle elitre è estremamente superficiale e molto fine. Sui tre uroterghi basali vi è una fila di punti un po' allungati. Edeago figg. 6-7.

COMPARAZIONI. In base alla forma dell'edeago, la nuova specie mostra affinità con *C. besuchetiella* (Pace, 1985a), **comb. n.** ("olim" *Hypocyphus besuchetiellus* Pace, 1985a: 81), dell'India. La nuova specie differisce da *besuchetiella* per avere gli occhi meno ridotti, l'addome più ristretto all'indietro e per l'edeago meno sviluppato, con un ciuffo di setole del sacco interno, assente in *besuchetiella*, qui sostituito da due lame.

NOTA. Il riconoscimento che il genere *Hypocyphus* Gyllenhal, 1827 è sinonimo del genere *Cypha* Leach, 1819, comporta la necessità di stabilire le seguenti nuove combinazioni:

Cypha helvetiorum (Pace, 1985a), **comb. n.**, "olim" *Hypocyphus helvetiorum* Pace, 1985a: 81.

Cypha loebliella (Pace, 1985a), **comb. n.**, "olim" *Hypocyphus loebliellus* Pace, 1985a: 81.

Cypha nepalensis (Pace, 1985a), **comb. n.**, "olim" *Hypocyphus nepalensis* Pace, 1985a: 81.

Cypha puer (Pace, 1985a), **comb. n.**, "olim" *Hypocyphus puer* Pace, 1985a: 84.

Cypha pusilla (Pace, 1984a), **comb. n.**, "olim" *Hypocyphus pusillus* Pace, 1985a: 84.

Cypha hystrix (Pace, 1985a), **comb. n.**, "olim" *Hypocyphus hystrix* Pace, 1985a: 84.

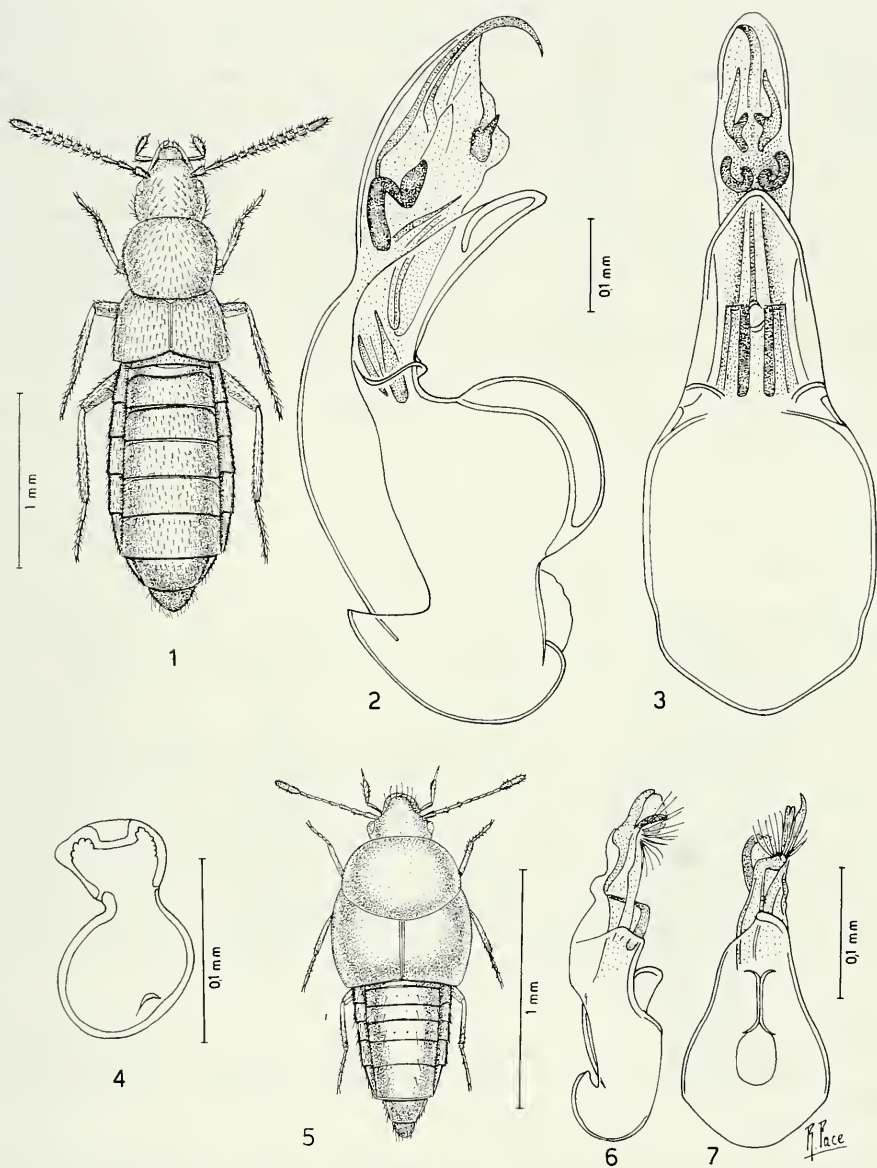
Cypha senilis (Pace, 1985a), **comb. n.**, "olim" *Hypocyphus senilis* Pace, 1985a: 84.

MYLLAENINI

Myllaena adesi sp. n.

Figg. 8-11

TIP. Holotypus ♀, Hong Kong, N.T., Kadoorie Agricultural Research Centre, malaise trap, V.1992, G. Ades leg. (MHNG).



FIGG. 1-7

Habitus, edeago in visione laterale e ventrale e spermatheca. 1-4: *Masuria (Oncosomechusa) chinensis* sp. n.; 5-7: *Cypha yunnanensis* sp. n.

Paratypi: 13 es., Hong Kong, N.T., IV.1996; 2 ♂♂, idem IX.1996; 20 es., Hong Kong, Tai Mo Shan, 600-800 m, forest floor litter, cow dung, 20.VI.1996, tutti de Rougemont leg.

DESCRIZIONE. Lunghezza 2,7 mm. Corpo lucido e bruno-rossiccio con elitre brune tranne la base e con addome rossiccio; antenne giallo-rossicce con gli antennomeri basali 2, 3 e 4 rossicci; zampe gialle. L'intero corpo è coperto di fitta pubescenza aderente d'aspetto sericeo. Edeago figg. 9-10, spermateca fig. 11.

COMPARAZIONI. In base alla forma dell'edeago e soprattutto della spermateca, la nuova specie si presenta affine a *M. himalayca* Cameron, 1939, dell'India settentrionale. Ne è nettamente differente perché l'apice dell'edeago di *himalayca* è acutissimo e non a punta ogivale come nella nuova specie e la spermateca ha bulbo distale molto più sviluppato e volto verso il lato destro, mentre in *himalayca* il bulbo distale è chiaramente poco sviluppato e non volto verso il lato destro.

ETIMOLOGIA. Specie dedicata al suo primo raccogliitore Garry Ades, zoologo collega di Guillaume de Rougemont.

***Myllaena kunmingensis* sp. n.**

Figg. 12-15

TIPI. Holotypus ♂, China, Yunnan, Kunming, 1.II.1993, de Rougemont leg. (MHNG).

Paratypi: 1 ♀ e 1 es. senza addome, stessa provenienza.

DESCRIZIONE. Lunghezza 2,7 mm. Corpo lucido e bruno con estremità addominale distale rossiccia; antenne brune con antennomero basale giallo sporco; zampe gialle. L'intero corpo è coperto di pubescenza sericea aderente. Edeago figg. 12-13, spermateca fig. 14.

COMPARAZIONI. Specie appartenente al gruppo di *M. lateritia* Kraatz, 1859, dello Sri Lanka, per la forma della spermateca, ma più affine a *M. lombokensis* Pace, 1986, di Lombok, per la presenza di appendici laterali dell'introflessione del bulbo distale della spermateca, appendici assenti ai lati dell'introflessione del bulbo distale della spermateca di *lateritia*. La parte prossimale della spermateca della nuova specie descrive due strette spire, mentre quella della spermateca di *lombokensis* descrive tre spire. Inoltre l'apice dell'edeago della nuova specie è uncinato, in visione laterale, mentre non lo è in *lombokensis*.

***Myllaena chinocolata* sp. n.**

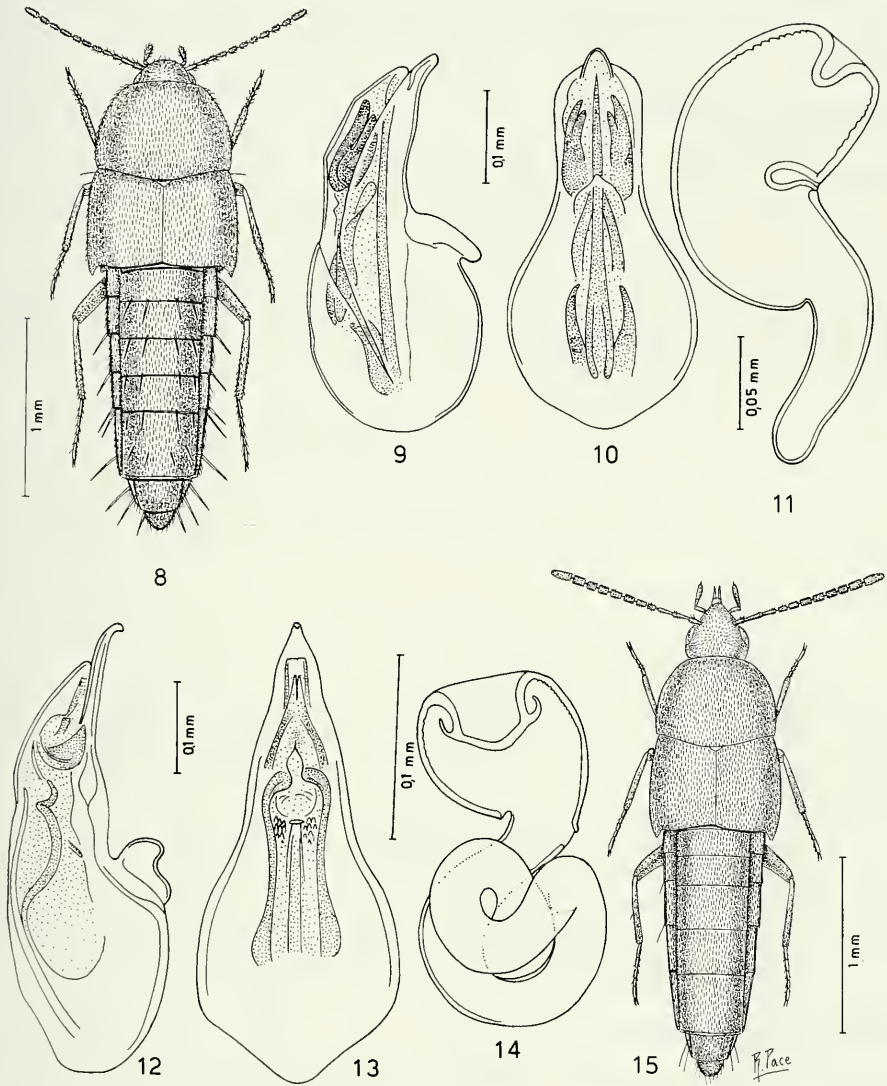
Figg. 16-19

TIPI. Holotypus ♂, China, Zhejiang, Tianmushan, 2.IX.1993, de Rougemont leg. (MHNG).

Paratypi: 2 ♀♀, stessa provenienza.

DESCRIZIONE. Lunghezza 1,9 mm. Corpo debolmente lucido e giallo-rossiccio con addome rossiccio con apice giallo-rossiccio; antenne e zampe gialle. Tutto il corpo è coperto di fitta pubescenza sericea aderente. Il quinto urotergo libero non presenta margine posteriore bianco. Edeago figg. 17-18, spermateca fig. 19.

COMPARAZIONI. La nuova specie, per la forma della spermateca, appartiene al gruppo di *M. lateritia* Kraatz, 1859, dello Sri Lanka, ma questa specie ha occhi molto più sviluppati, pronoto molto ampio ed elitre lunghe quanto il pronoto e non nettamente



FIGG. 8-15

Habitus, edeago in visione laterale e ventrale e spermateca. 8-11: *Myllaena adesi* sp. n.; 12-15: *Myllaena kunmingensis* sp. n.

più corte del pronoto, come nella nuova specie. Inoltre la spermateca della nuova specie ha bulbo distale più lungo che largo, mentre in *lateritia* detto bulbo è più largo che lungo.

***Myllaena tianmushanensis* sp. n.**

Figg. 20-23

TIPI. Holotypus ♂, China, Zhejiang, Tianmushan, 2.IX.1994, de Rougemont leg. (MHNG).

Paratypi: 16 es., stessa provenienza; 5 es., China, Zhejiang Prov., Lin'an County, 1000 m, W. Tianmu Shan N.R., 18.V.1996, J. Cooter leg.

DESCRIZIONE. Lunghezza 2,8 mm. Corpo debolmente lucido, con capo e addome bruni, pronoto ed elitre giallo-bruni e antenne bruno-rossicce con i due antennomeri basali e l'undicesimo gialli; zampe rossicce. L'intero corpo è coperto di pubescenza sericea. Edeago figg. 20-21, spermateca fig. 22.

COMPARAZIONI. Sia per la forma dell'edeago, che per quella della spermateca, la nuova specie mostra sicure affinità con *M. yunnanensis* Pace, 1993, pure della Cina. La nuova specie presenta una debole bozza ventrale dell'edeago, mentre in *yunnanensis* tale bozza è molto saliente; l'apice dell'edeago, in visione ventrale, nella nuova specie è arcuato, mentre in *yunnanensis* è a forma di corta punta di lancia.

***Myllaena speciosa* sp. n.**

Figg. 24-27

TIPI. Holotypus ♂, China, Yunnan, Dali, 9.II.1993, de Rougemont leg. (MHNG).

Paratypi: 36 es., stessa provenienza.

DESCRIZIONE. Lunghezza 2,4 mm. Corpo lucido, molto convesso e bruno, con estremità addominale rossiccia; antenne brune, con i tre antennomeri basali e l'undicesimo rossicci; zampe rossicce. L'intero corpo è coperto di pubescenza sericea. Edeago figg. 25-26, spermateca fig. 27.

COMPARAZIONI. Una specie che presenta come nella nuova specie la spermateca con un numero di spire superiore a dieci è *M. ming* Pace, 1993, pure della Cina. Tuttavia essa ha bulbo distale della stessa spermateca, all'apice, per nulla ristretto e volto al lato destro, come nella nuova specie, ma con bulbo distale subsferico. Inoltre l'undicesimo antennomero è bruno in *ming* e rossiccio nella nuova specie.

***Myllaena salamannai* sp. n.**

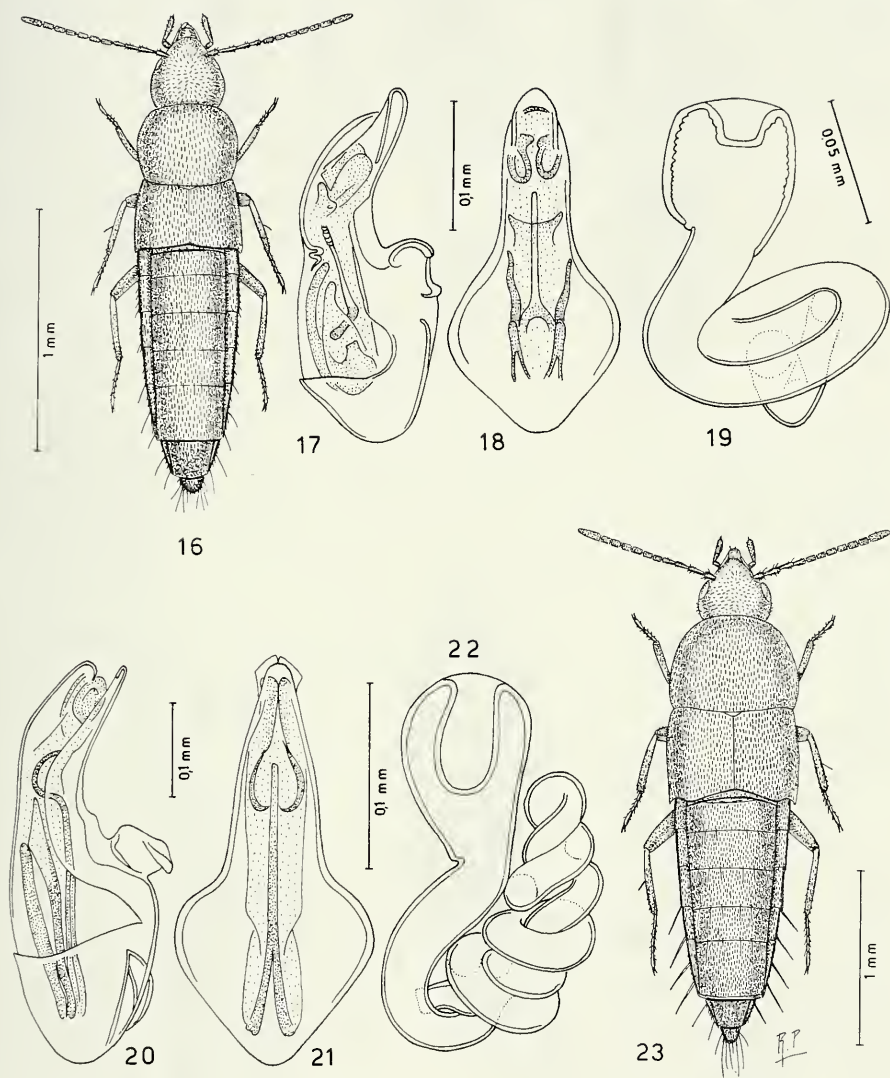
Figg. 28-29

TIPI. Holotypus ♀, China, Zhejiang, Tianmushan, 2.IX.1994, de Rougemont leg. (MHNG).

Paratypi: 3 ♀, stessa provenienza.

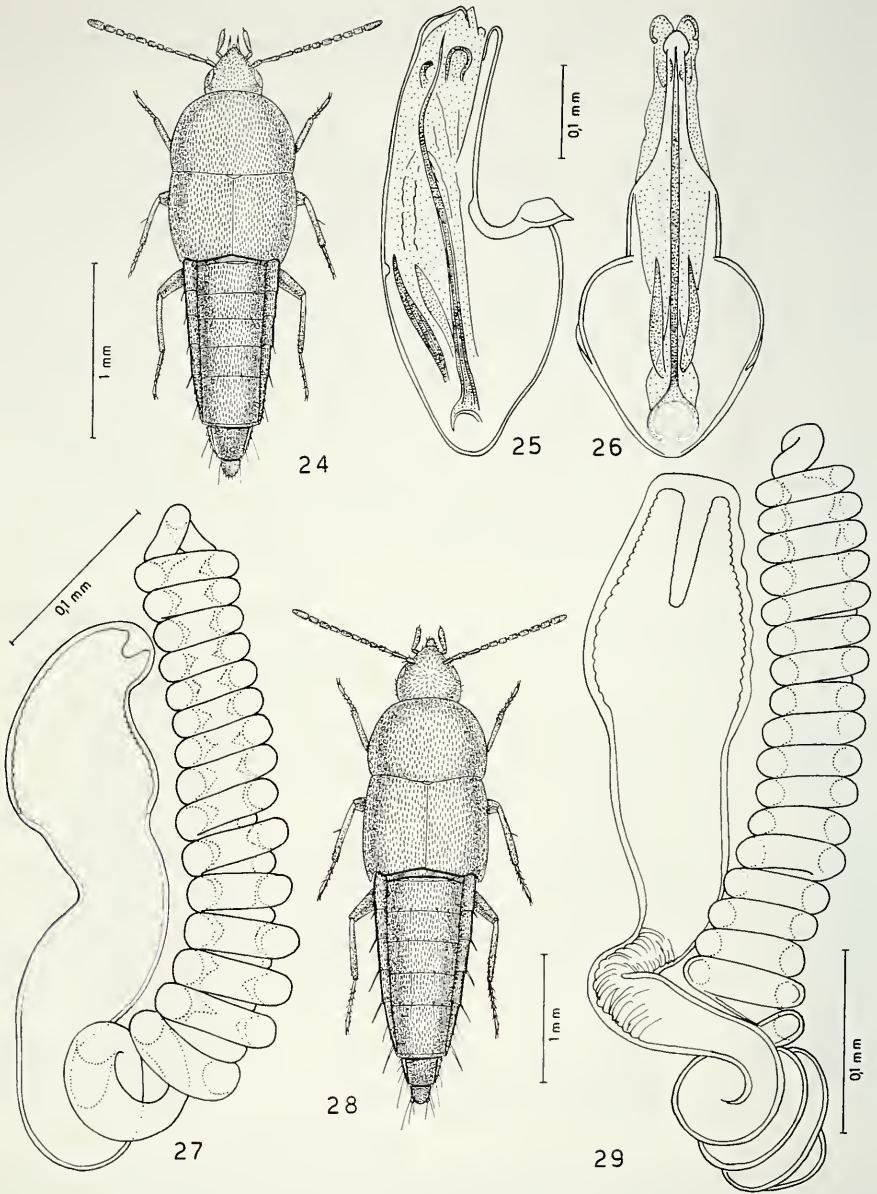
DESCRIZIONE. Lunghezza 3,5 mm. Corpo debolmente lucido e nero-bruno, con pronoto ed estremità addominale bruno-rossicci e con elitre bruno-rossicce scure; antenne brune con i due antennomeri basali rossicci e con apice dell'undicesimo di un giallo sporco; zampe giallo-rossicce. Tutto il corpo è coperto di pubescenza sericea. Spermateca fig. 29.

COMPARAZIONI. Per la taglia corporea e per la forma della spermateca, la nuova specie è affine a *M. ming* Pace, 1993, pure della Cina. Tuttavia il colore del pronoto è bruno-



FIGG. 16-23

Habitus, edeago in visione laterale e ventrale e spermateca. 16-19: *Myllaena chinoculata* sp. n.;
 20-23: *Myllaena tianmushanensis* sp. n.



FIGG. 24-29

Habitus, edeago in visione laterale e ventrale e spermatheca. 24-27: *Myllaena speciosa* sp. n.; 28-29: *Myllaena salamannai* sp. n.

rossiccio nella nuova specie e bruno pece in *ming*. Ma è soprattutto la forma del bulbo distale e dell'introflessione apicale di esso della spermateca che permette di distinguere nettamente le due specie; introflessione lunghissima nella nuova specie, corta in *ming*; bulbo distale tronco-conico nella nuova specie e oviforme in *ming*.

ETIMOLOGIA. Specie dedicata al Prof. Giovanni Salamanna dell'Università di Genova, come piccolo segno di riconoscenza per il prezioso lavoro per i soci, come direttore delle pubblicazioni della Società Entomologica Italiana.

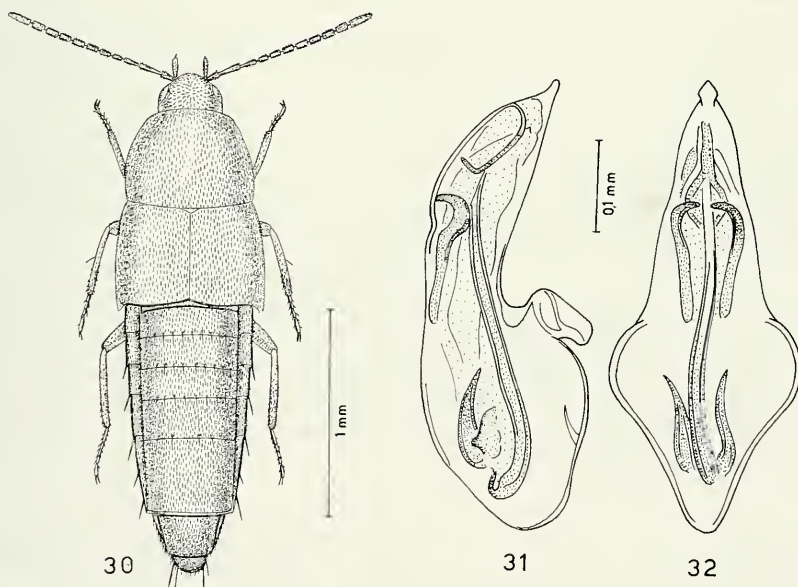
***Myllaena tianmumontis* sp. n.**

Figg. 30-32

TIPO. Holotypus ♂, China, Zhejiang Prov., Lin'an County, 1000 m, W. Tianmu Shan N.R., 18.V.1996, J. Cooter leg. (MHNG).

DESCRIZIONE. Lunghezza 2,4 mm. Corpo lucido e giallo-bruno, con estremità addominale giallo-rossiccia; antenne giallo-rossicce; zampe gialle. Una uniforme pubescenza sericea copre l'intera superficie del corpo. Edeago figg. 31-32.

COMPARAZIONI. In base alla forma dell'edeago, la nuova specie si presenta affine a *M. lateritia* Kraatz, 1859, dello Sri Lanka, ma la nuova specie, oltre ad avere tale organo strettamente incavato al lato ventrale (largamente incavato in *lateritia*), ha l'apice dell'edeago stesso, in visione ventrale, a punta di lancia (a punta smussata in *lateritia*).



FIGG. 30-32

Habitus ed edeago in visione laterale e ventrale. 30-32: *Myllaena tianmumontis* sp. n.

TERMITOHOSPITINI

Sinophilus rougemonti sp. n.

Figg. 33-36

TIPI. Holotypus ♀, Hong Kong, Kadoorie Agricultural Research Centre, flight interception trap, 19-31.V.1996, de Rougemont leg. (MHNG).

Paratypes: 4 es., Hong Kong, Tai Po, flight interception, V-VII-IX.1996, de Rougemont leg.

DESCRIZIONE. Lunghezza 2,6 mm. Corpo lucidissimo con capo bruno-rossiccio, pronoto bruno-rossiccio con margini giallo-rossicci, elitre brune con base rossiccia e addome giallo-rossiccio con margine posteriore degli uriti e quinto urite libero, bruni; antenne giallo-rossicce con antennumero basale giallo e i successivi 2°, 3° e 4° bruno-rossicci; zampe giallo-rossicce. L'avancorpo è privo di reticolazione; la reticolazione dell'addome è poco distinta. La punteggiatura del capo è estremamente svanita. Il pronoto presenta solo alcuni punti isolati. I tuberoletti che coprono le elitre e l'addome sono svaniti. Il sesto urotergo libero sia del maschio che della femmina è profondamente inciso al margine posteriore. Edeago figg. 34-35, spermateca fig. 35.

COMPARAZIONI. La nuova specie appartiene a un genere descritto di recente (KISTNER 1985) per una nuova specie della Cina: *S. xiai* Kistner, 1985, della provincia dello Zhejiang. La nuova specie se ne distingue perché ha il pronoto trasversalmente impresso, le elitre più sviluppate in lunghezza, l'introflessione apicale del bulbo distale della spermateca stessa, nettamente più profonda e la parte prossimale della spermateca descrive 4 sinuosità invece di due come in *xiai*.

ETIMOLOGIA. Specie dedicata al collega stafilinidologo Guillaume de Rougemont di Londra, che l'ha raccolta.

GYROPHAENINI

Brachida kadooriorum sp. n.

Figg. 37-38

TIPO. Holotypus ♀, Hong Kong, Kadoorie Agricultural Research Centre, flight interception trap, VIII.1996, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,0 mm. Corpo lucido, molto convesso e rossiccio con elitre oscurate di bruno alla parte posteriore; antenne rossicce con i tre antennumeri basali gialli; zampe gialle. La punteggiatura del capo è fine e svanita, quella del pronoto è così fine da essere quasi indistinta. I tuberoletti che coprono le elitre sono superficiali, quelli dell'addome sono allungati e distinti. Due fossette svanite stanno sul capo. Il pronoto non presenta punti grandi isolati. Non vi è presenza di reticolazione su tutto il corpo. Spermateca fig. 38.

COMPARAZIONI. Specie simile a *B. crassiuscula* (Kraatz, 1859), dello Sri Lanka, per il colore del corpo; ma gli occhi sono più sporgenti, il quartò antennumero è nettamente trasverso (Più lungo che largo in *crassiuscula*) e per la spermateca a pareti sottili (spesse in *crassiuscula*) con inflessione apicale del bulbo distale presente (assente in *crassiuscula*).

ETIMOLOGIA. Specie dedicata ai fratelli Kadoorie, grandi filantropi di Hong Kong che hanno fondato il "Kadoorie Agricultural Research Centre" dell'Università di Hong

Kong, luogo dove molte ricerche entomologiche sono state compiute da G. de Rougemont e dove è stata raccolta la nuova specie di *Brachida*.

***Brachida hongkongensis* sp. n.**

Figg. 39-40

TIPO. Holotypus ♀, Hong Kong, Kadoorie Agricultural Research Centre, flight interception trap, VIII.1996, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,1 mm. Corpo lucido, molto convesso e giallo-rossiccio con la metà posteriore delle elitre bruno-rossiccia; antenne rossicce con i tre antenomeri basali gialli; zampe giallo-rossicce. La punteggiatura del capo è finissima, quasi indistinta, quella del pronoto è assente. Tubercoli fini e superficiali coprono le elitre, quelli dell'addome sono allungati e netti. Non è presente reticolazione sul corpo. Due punti isolati stanno sul capo e sul pronoto. Spermateca fig. 39.

COMPARAZIONI. Specie distinta dalla precedente *B. kadooriorum* sp. n., per avere la pubescenza ai lati del corpo meno lunga, per la presenza di due punti isolati sul pronoto (assenti in *kadooriorum*) e soprattutto per la forma del bulbo distale della spermateca: ovale trasverso e senza introflessione apicale nella nuova specie, sferico e con introflessione apicale in *kadooriorum*. L'assenza di lunga appendice sulla spermateca distingue ulteriormente la nuova specie da *kadooriorum* e da *crassiuscula* (Kraatz, 1859), dello Sri Lanka.

***Brachida solifuga* sp. n.**

Fig. 41

TIPO. Holotypus ♀, Hong Kong, Kadoorie Agricultural Research Centre, flight interception trap, VIII.1996, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,4 mm. Corpo lucido, molto convesso e interamente giallo-rossiccio, comprese antenne e zampe. La punteggiatura del capo è indistinta. I tubercoli che coprono il pronoto sono assai svaniti, quelli delle elitre sono salienti. I tre uroterghi basali sono coperti di fitti tubercoli salienti, tranne che alla base e nel solco basale, dove sono assenti tubercoli e punteggiatura; i restanti uroterghi sono coperti di tubercoli svaniti. Purtroppo all'atto dell'esame microscopico, la spermateca non era presente nella cavità addominale.

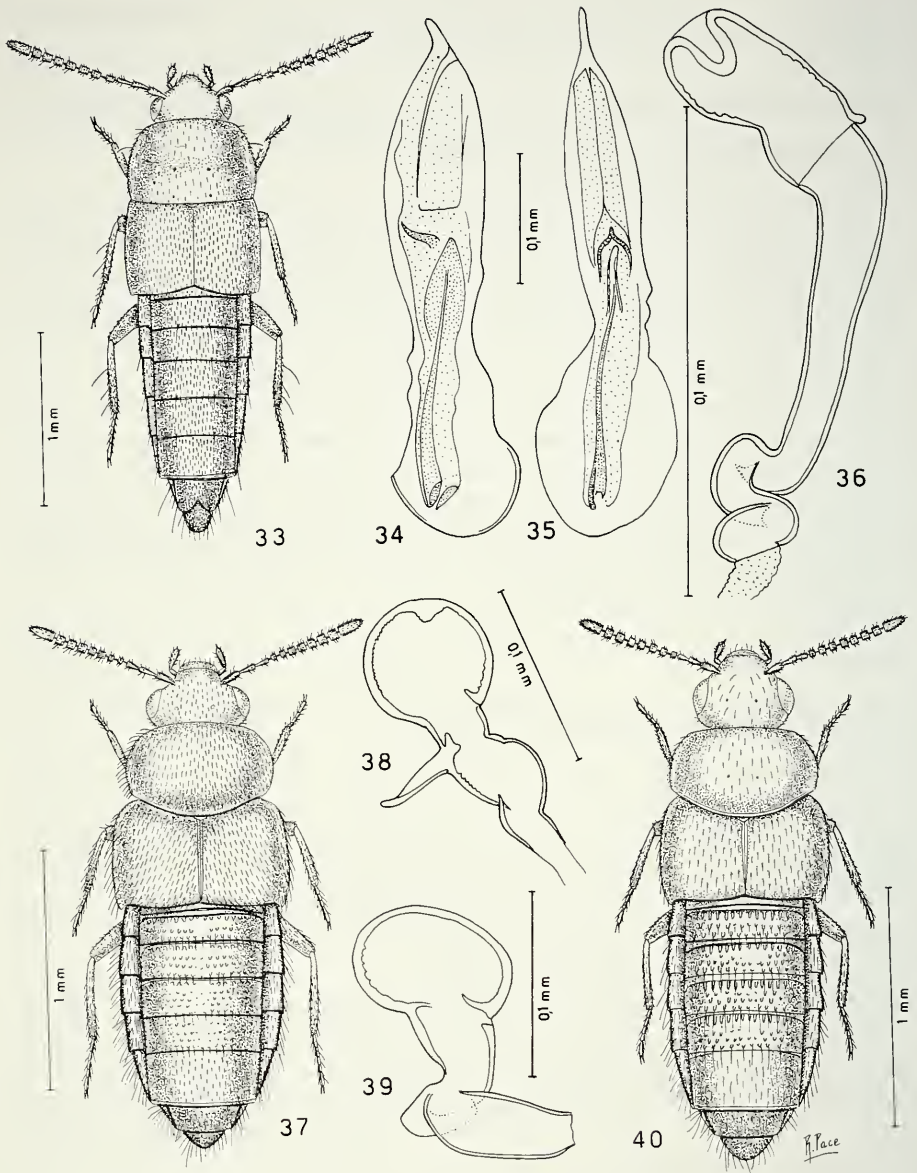
COMPARAZIONI. Per il colore del corpo interamente giallo-rossiccio, la nuova specie è da avvicinare tassonomicamente a *B. flava* Cameron, 1939, del Bengala. Tuttavia questa specie ha taglia inferiore (2,0 mm) e non possiede i caratteri unici osservabili nella nuova specie, quali due file di tre punti sulla fascia longitudinale mediana del pronoto e tubercoli salienti sui tre uroterghi basali, totalmente assenti sulla fascia basale di ciascun urotergo.

***Neobrachida jiangsuensis* sp. n.**

Figg. 42-45

TIPO. Holotypus ♂, China, Jiangsu Prov., Nanjing Zijinshan, 8.V.1996, J. Cooter leg. (MHNG).

DESCRIZIONE. Lunghezza 1,4 mm. Corpo lucido e bruno con elitre e addome bruno-rossicci; antenne rossicce con antenomeri basali 1°, 2° e 3° gialli e l'undicesimo



FIGG. 33-40

Habitus, aedeago in visione laterale e ventrale e spermatheca. 33-36: *Sinophilus rougenonti* sp. n.; 37-38: *Brachida kadooriorum* sp. n.; 39-40: *Brachida hongkongensis* sp. n.

bruno; zampe gialle. Il capo è privo di punteggiatura; il pronoto ha radi punti svaniti. Le elitre sono coperte di tubercoletti svaniti e di reticolazione trasversa distinta. L'addome, coperto di reticolazione molto superficiale, mostra tubercoletti allungati tra cui alcuni sono più salienti. Edeago figg. 43-44, sesto urotergo libero del maschio fig. 45.

COMPARAZIONI. Il genere *Neobrachida* Cameron, 1920a, comprende la sola specie *castanea* Cameron, 1920a, dello Sri Lanka. L'esame dell'holotypus mi ha permesso di osservare che esso è una femmina. La nuova specie differisce da *castanea* per il pronoto e le elitre molto sparsamente punteggiate, per il pronoto molto meno largo delle elitre (elitre appena più larghe del pronoto in *castanea*) e per l'assenza di scultura squamiforme sui tre uroterghi basali, come si osserva in *castanea*.

***Neobrachida punctum* sp. n.**

Figg. 46-48

TIPO. Holotypus ♀, China, Zhejiang Prov., Lin'an County, 350 m, W. Tianmu Shan N.R., 16-22.V.1996. J. Cooter leg. (MHNG).

DESCRIZIONE. Lunghezza 1,4 mm. Corpo lucido e bruno-rossiccio con capo e uriti liberi terzo e quarti bruni; antenne giallo-brune con i tre antennomeri basali gialli e l'undicesimo bruno; zampe gialle. La reticolazione della superficie del capo è molto superficiale, quella sul resto del corpo è svanita. La punteggiatura del capo è poco distinta. I tubercoletti del pronoto e delle elitre sono superficiali, quelli dell'addome sono distinti. Spermateca fig. 47.

COMPARAZIONI. La nuova specie per avere il pronoto e le elitre fittamente pubescenti, sembra più affine a *N. castanea* Cameron, 1920a, dello Sri Lanka, che a *N. jiangsuensis* sp. n. sopra descritta, che ha pubescenza del pronoto e delle elitre molto rada. La nuova specie ha taglia corporea molto minore di quella di *castanea*: 1,4 mm invece di 2,0 mm. La spermateca della nuova specie ha bulbo distale poco trasverso e senza introflessione apicale, mentre *castanea* ha il bulbo distale della spermateca ovale molto trasverso e con un'introflessione apicale larghissima e profonda fino quasi a raggiungere l'asse longitudinale del bulbo stesso.

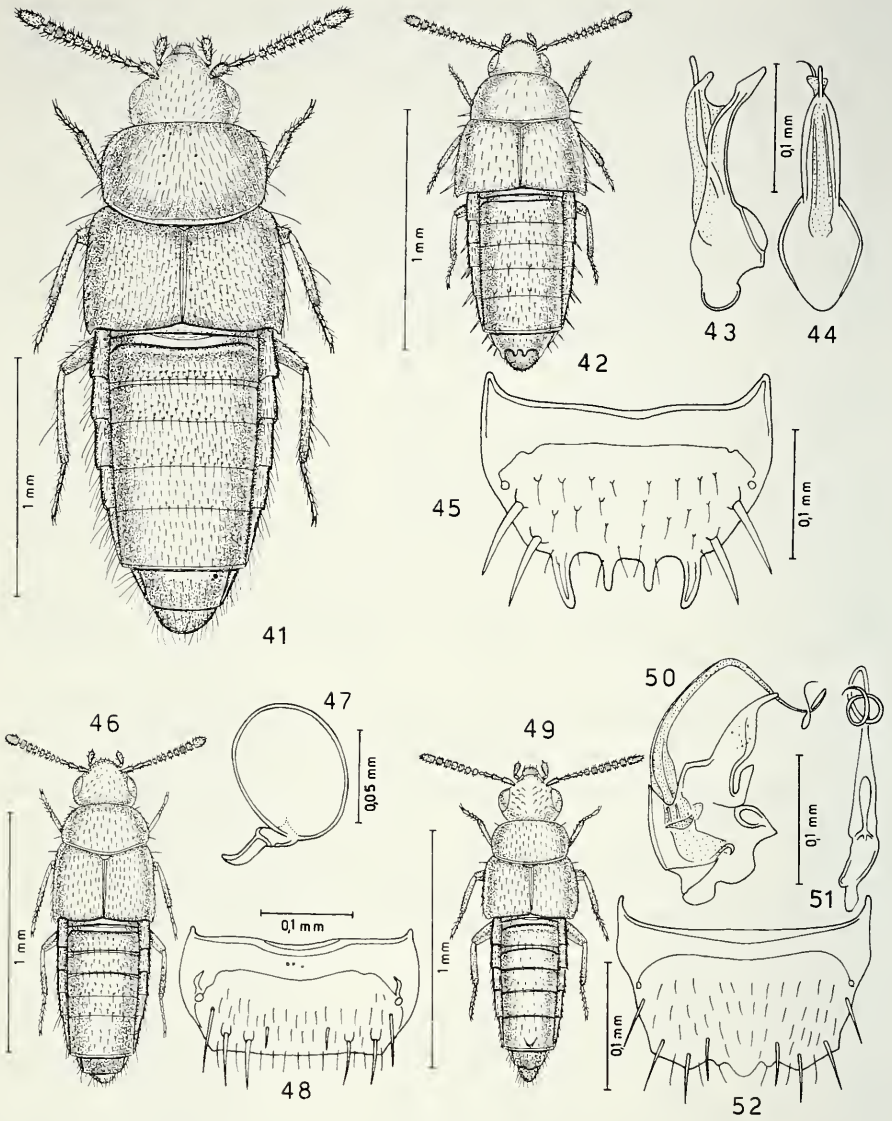
***Gyrophaena (Phaenogyra) lividoides* sp. n.**

Figg. 49-52

TIPI. Holotypus ♂, Hong Kong, Tai Po, VII.1996, de Rougemont leg. (MHNG).

Paratipi: 2 ♂♂, Kadoorie Agricultural Research Centre, VIII.1996; 3 es., Hong Kong, Chinese University, in *Auricularia* fungus, I.IX.1996; 1 ♂, Hong Kong, N.T., IX.1996, tutti de Rougemont leg.

DESCRIZIONE. Lunghezza 1,3 mm. Corpo lucido con capo e pronoto bruno-rossicci, elitre brune con base e lati esterni bruno-rossicci, addome giallo-bruno; antenne brune con i tre antennomeri basali gialli; zampe gialle. La punteggiatura del capo è distinta, quella del pronoto assai svanita e quella delle elitre superficiale. Il capo e il pronoto non presentano microscultura reticolare; le elitre mostrano una reticolazione svanita e l'addome una reticolazione a maglie poligonali irregolari distinte. Il quinto urotergo libero del maschio ha un tubercolo mediano triangolare piatto. Edeago figg. 50-51, sesto urotergo libero del maschio fig. 52.



FIGG. 41-52

Habitus, edeago in visione laterale e ventrale, sesto urotergo libero del maschio o della femmina e spermateca. 41: *Brachida solifuga* sp. n.; 42-45: *Neobrachida jiangsuensis* sp. n.; 46-48: *Neobrachida punctum* sp. n.; 49-52: *Gyrophaena (Phaenogyra) lividoides* sp. n.

COMPARAZIONI. La nuova specie ha caratteri dell'edeago e del sesto urotergo libero del maschio tali da permettere di avvicinarla tassonomicamente a *G. livida* Motschulsky, 1858, dello Sri Lanka. Infatti entrambe le specie hanno il pezzo copulatore dell'edeago lungamente sporgente dall'orifizio apicale e il sesto urotergo libero del maschio ha un lobo mediano in entrambe le specie. La differenze tuttavia sono numerose e alcune appariscenti. La nuova specie ha un'appendice ventrale dell'edeago presso la "crista apicalis", assente in *livida* e la porzione preapicale dell'apice dell'edeago, in visione laterale, è larga nella nuova specie e stretta in *livida*. Il lobo mediano del margine posteriore del sesto urotergo libero del maschio della nuova specie ha a ciascun lato una debole prominenza, mentre in *livida* a ciascun lato di detto lobo mediano vi è una lunga spina a base larga.

Gyrophaena (Phaenogyra) cooteri sp. n.

Figg. 53-57

TIPI. Holotypus ♂, China, Jiangsu Prov., Nanjing Zijinshan, 8.V.1996, J. Cooter leg. (MHNG).

Paratypi: 3 es., stessa provenienza.

DESCRIZIONE. Lunghezza 1,4 mm. Corpo lucido e bruno; antenne gialle con antennomeri 9 e 10 di un giallo sporco; zampe gialle. La reticolazione del capo, del pronoto e dell'addome è svanita, quella delle elitre è distinta. La punteggiatura del capo è poco distinta. I tubercoletti che coprono la superficie del pronoto sono molto superficiali, quelli delle elitre e dell'addome sono distinti. Edeago figg. 54-55, spermateca fig. 56, sesto urotergo libero del maschio fig. 57.

COMPARAZIONI. La nuova specie per la forma dell'edeago e del margine posteriore del sesto urotergo libero del maschio, mostra affinità tassonomiche con *G. obscurella* Cameron, 1939, dell'India settentrionale. Ma le differenze morfologiche tra le due specie sono molteplici. Le più vistose sono: la parte preapicale ventrale dell'edeago della nuova specie, in visione ventrale, è sensibilmente allargata, mentre è a lati rigorosamente paralleli tra loro in *obscurella*. Il margine posteriore del sesto urotergo libero del maschio della nuova specie mostra due corti dentini mediani inquadriati a ciascun lato da un largo lobo, mentre in *obscurella* i denti mediani sono piuttosto lunghi e a ciascun lato esiste una lunga spina a base stretta.

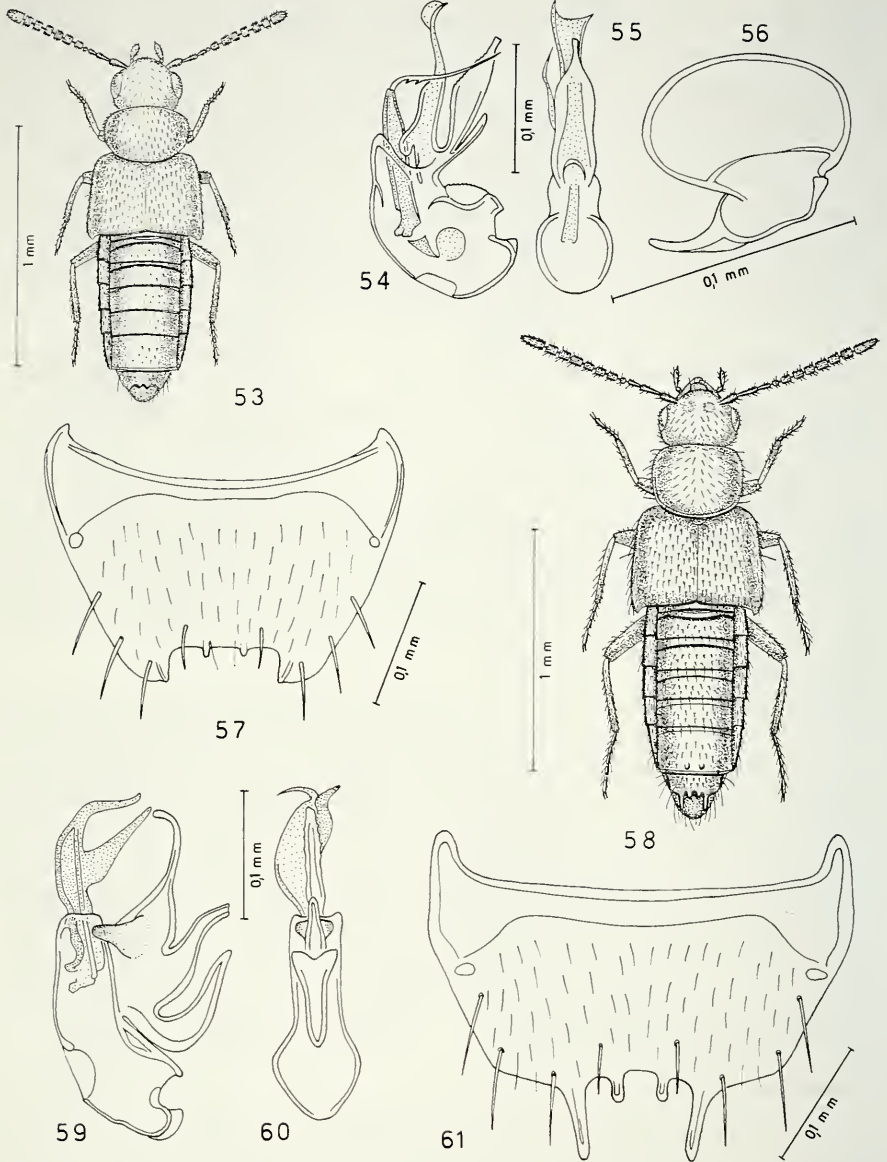
ETIMOLOGIA. Specie dedicata al suo raccoglitore Jonathan Cooter di Hereford (Gran Bretagna), noto studioso di Liodidae.

Gyrophaena (Phaenogyra) cristifera sp. n.

Figg. 58-61

TIPO. Holotypus ♂, China, Yunnan, Xishuangbanna, 20.I.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 1,8 mm. Corpo lucido e giallo-rossiccio con elitre e addome di un giallo sporco; antenne giallo-rossicce con i due antennomeri basali gialli; zampe gialle. La reticolazione del capo e delle elitre è distinta, quella del pronoto e dell'addome è assai svanita. La punteggiatura del capo è superficiale e assente sulla fascia longitudinale mediana: si notano due impressioni circolari sulla fronte. I tubercoletti che coprono la superficie del pronoto sono poco distinti: distinti sono al



FIGG. 53-61

Habitus, edeago in visione laterale e ventrale, spermateca e sesto urotergo libero del maschio.
 53:57: *Gyrophaena (Phaenogyra) cooteri* sp. n.: 58-61: *Gyrophaena (Phaenogyra) cristifera*
 sp. n.

contrario i tuberoletti della superficie delle elitre. Edeago figg. 59-60, sesto urotergo libero del maschio fig. 61.

COMPARAZIONI. La nuova specie ha il margine posteriore del sesto urotergo libero del maschio evidentemente di struttura simile a quello di *G. obscurella* Cameron, 1939, dell'India: due denti mediani sporgenti all'indietro, inquadriati da due lunghe spine laterali. La taglia corporea delle due specie però è molto differente: 1,1 in *obscurella* e 1,8 nella nuova specie. La struttura dell'edeago è ancor più differente nelle due specie: l'unica corta appendice ventrale dell'edeago di *obscurella*, nella nuova specie è sostituita da due lunghe appendici ricurve, che insieme all'apice dell'edeago simulano una cresta.

***Gyrophaena* (s. str.) *gonggana* sp. n.**

Figg. 62-64

TIPO. Holotypus ♂, China, Sichuan, Gongga Shan, above camp 3, 3050 m, 22.VII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 3,7 mm. Corpo lucido e rossiccio scuro, con lati del pronoto e addome, tranne il quarto urite libero che è bruno, rossicci; antenne giallo-brune con i tre antennomeri basali gialli; zampe giallo-rossicce. La punteggiatura del capo è composta di punti enormi e assenti sulla linea mediana; quella del pronoto è composta da punti medi e grandi e quella delle elitre è composta di punti irregolarmente distribuiti e distinti. Il capo e le elitre non presentano reticolazione, il pronoto e l'addome hanno reticolazione molto svanita. Il sesto urotergo libero del maschio mostra un tubercolo mediano posteriore compresso. Edeago figg. 63-64.

COMPARAZIONI. Dato che l'edeago è molto espanso lateralmente nella regione preapicale, la nuova specie mostra affinità tassonomiche sia con *G. multiplex* Pace, 1989a, che a *G. sitalaiana* Pace, 1989a, entrambe del Nepal. Ne è chiaramente distinta per la corta appendice apicale dell'edeago, assente in *multiplex* e lunghissima in *sitalaiana*, e per numerosi altri caratteri minori.

***Gyrophaena* (s. str.) *facilis* sp. n.**

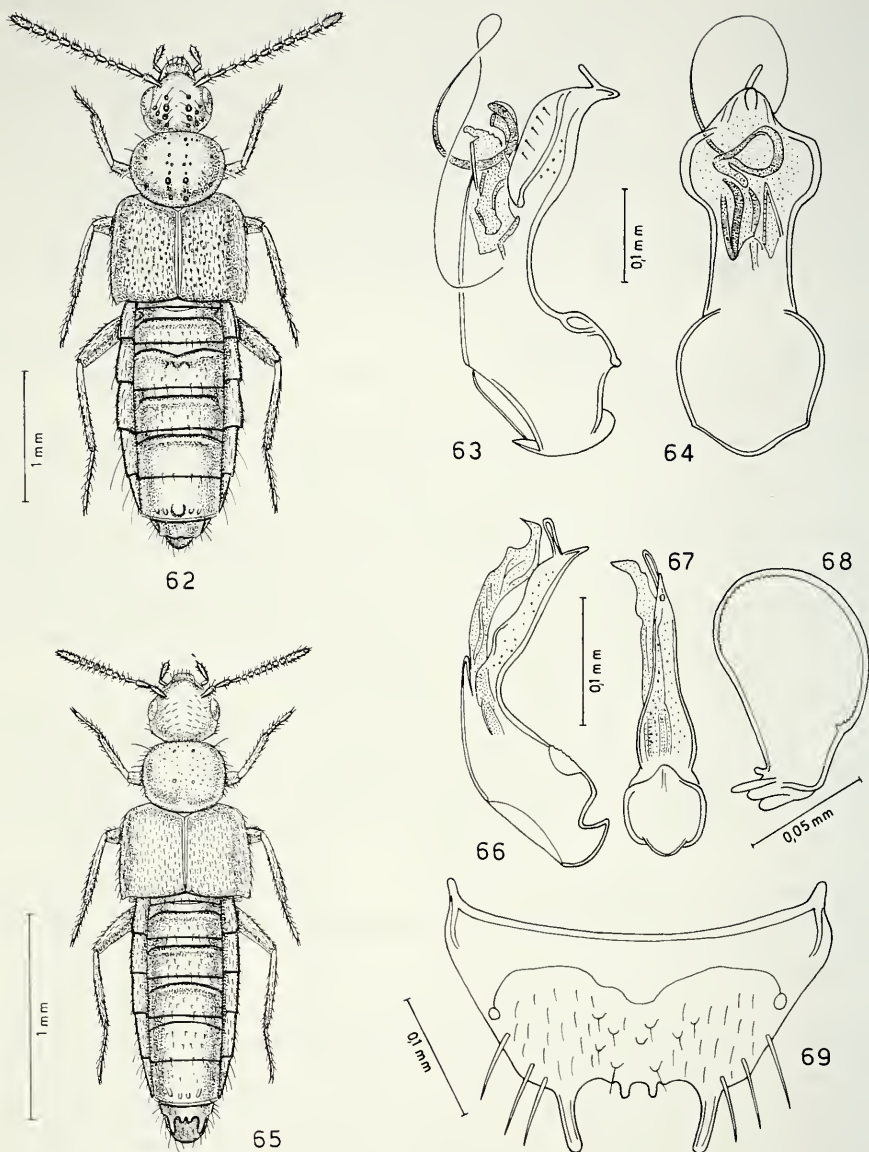
Figg. 65-69

TIPI. Holotypus ♂, China, Sichuan, Gongga Shan, above camp 3, 3050 m, 22.VII.1994, A. Smetana leg. (MHNG).

Paratypi: 4 es., stessa provenienza.

DESCRIZIONE. Lunghezza 2,2 mm. Corpo lucido e bruno con lati del pronoto gialli; antenne brune con i tre antennomeri basali di un giallo sporco; zampe gialle. La reticolazione del capo e delle elitre è svanita, quella dell'addome è netta e quella del pronoto assente. La punteggiatura del capo è svanita, quella del pronoto distinta, ma assente ai lati e quella delle elitre è poco distinta. Il quinto urotergo libero del maschio non mostra alcuna reticolazione. Edeago figg. 66-67, spermateca fig. 68, sesto urotergo libero del maschio fig. 69.

COMPARAZIONI. La nuova specie sicuramente è tassonomicamente molto vicina a *G. difficilis* Cameron, 1939, dell'India settentrionale. Se ne differenzia, tra l'altro, per il pronoto nettamente meno trasverso, per l'appendice preapicale dell'edeago, corta e robusta, e non lunghissima come in *difficilis*, e per la taglia corporea maggiore: 2.2 mm invece di 1,6 mm come in *difficilis*.



FIGG. 62-69

Habitus, edeago in visione laterale e ventrale, spermateca e sesto urotergo libero del maschio.
 62-64: *Gyrophaena* (s. str.) *gongana* sp. n.; 65-69: *Gyrophaena* (s. str.) *facilis* sp. n.

Gyrophæna (s. str.) **chinensis** sp. n.

Figg. 70-74

TIPI. Holotypus ♂, China, Gansu, Xinlong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, A. Smetana leg. (MHNG).
Paratypi: 7 es., stessa provenienza.

DESCRIZIONE. Lunghezza 2,6 mm. Corpo lucido e bruno (lievemente immaturo), con lati del pronoto, base ed estremità addominale bruno-rossicci; antenne rossicce con i tre antennomeri basali gialli; zampe gialle. L'avancorpo è privo di reticolazione, l'addome presenta una reticolazione svanita. La punteggiatura del capo e del pronoto è netta e profonda, quella delle elitre è distinta. Gli uroterghi basali presentano tuberoletti svaniti. Il quinto urotergo libero del maschio presenta un largo tubercolo mediano compresso. Edeago figg. 71-72, spermateca d fig. 73, sesto urotergo libero del maschio fig. 74.

COMPARAZIONI. La nuova specie mostra lontane affinità tassonomiche con *G. quadrifida* Cameron, 1939, del Kashmir e del Nepal, se si osserva la forma dell'edeago. Però l'appendice apicale dell'edeago è più larga e meno lunga nella nuova specie e i pezzi copulatori dell'edeago della nuova specie sono molto più lunghi. Inoltre il sesto urotergo libero del maschio della nuova specie ha i denti mediani molto corti e non lunghissimi come in *quadrifida*.

Gyrophæna (s. str.) **vidua** sp. n.

Figg. 75-76

TIPI. Holotypus ♀, China, Gansu, Xinlong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, A. Smetana leg. (MHNG).
Paratypi: 2 ♀♀, stessa provenienza.

DESCRIZIONE. Lunghezza 2,7 mm. Corpo lucido e bruno-rossiccio; antenne bruno-rossicce con i tre antennomeri basali e l'undicesimo gialli; zampe gialle. La reticolazione del capo è estremamente svanita, quella del pronoto è distinta, quella delle elitre è assente e quella dell'addome è netta. La punteggiatura del capo e del pronoto è profonda e quella delle elitre è irregolare e distinta. Spermateca fig. 75.

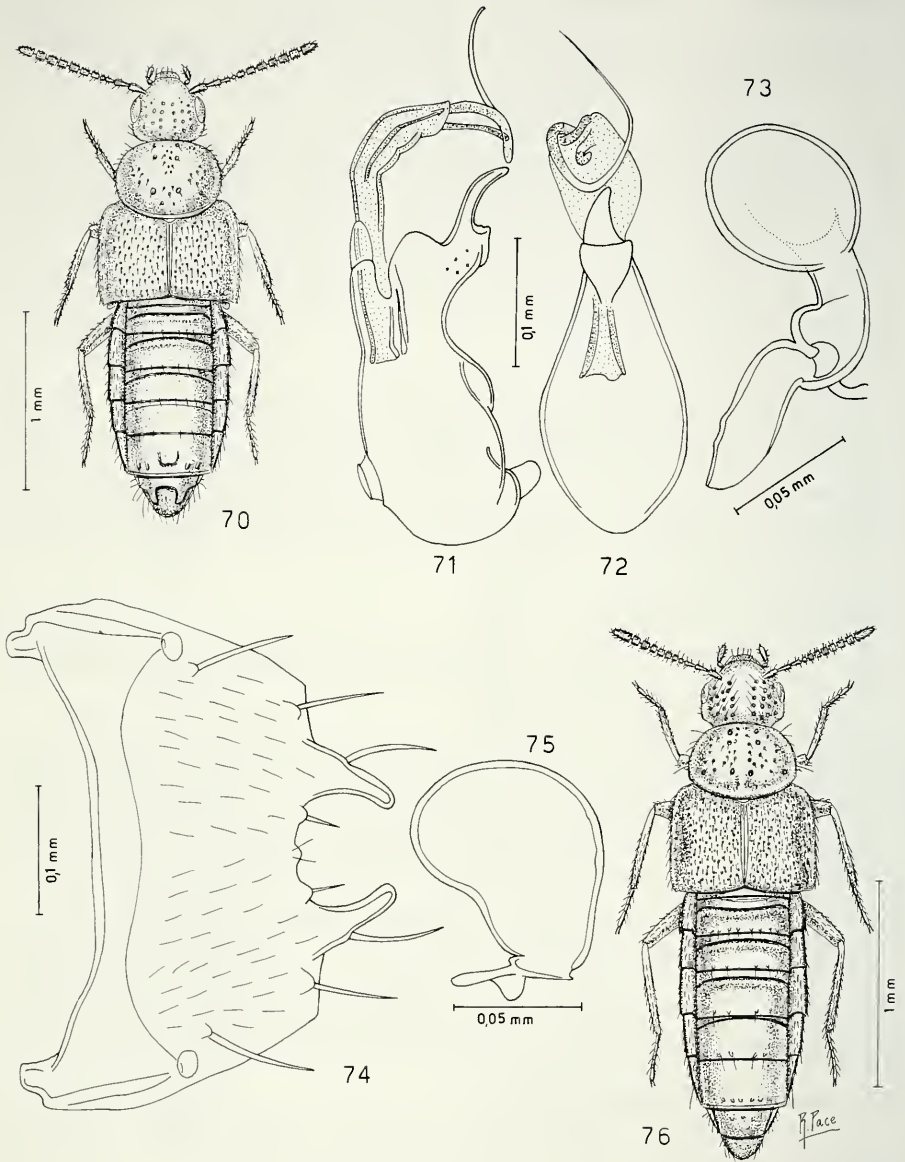
COMPARAZIONI. La spermateca della nuova specie ha forma molto simile a quella di *G. densicollis* Cameron, 1939, dell'India settentrionale e del Nepal. Tuttavia la spermateca della nuova specie è molto più sviluppata, con bulbo distale ovale più trasverso. Inoltre il pronoto della nuova specie presenta punteggiatura irregolarmente distribuita e profonda e non uniformemente distribuita come quella di *densicollis*.

Gyrophæna (s. str.) **beijingensis** sp. n.

Figg. 77-80

TIPO. Holotypus ♂, China, Beijing, Xiaolongmen, 1100-1500 m, 1.VII.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 1,8 mm. Corpo lucido e giallo-rossiccio sporco con capo bruno; antenne giallo-brune con i tre antennomeri basali gialli; zampe gialle. La reticolazione del capo è estremamente svanita, quella del pronoto è svanita, quella delle elitre è distinta e quella dell'addome è quasi netta. La punteggiatura del capo e del pronoto è profonda, quella delle elitre è meno netta di quella del pronoto, ben distinta. Edeago figg. 78-79, sesto urotergo libero del maschio fig. 80.



FIGG. 70-76

Habitus, edeago in visione laterale e ventrale, spermatozoo e sesto urotergo libero del maschio.
 70-74: *Gyrophaena* (s. str.) *chinensis* sp. n.; 75-76: *Gyrophaena* (s. str.) *vidua* sp. n.

COMPARAZIONI. La nuova specie, per la forma dell'edeago, è avvicicabile tassonomicamente sia a *G. thoracica* Cameron, 1939, dell'India settentrionale e del Nepal, che a *G. elegans* Pace, 1989, del Nepal. Tuttavia la nuova specie mostra l'edeago con struttura più simile a *elegans*. *G. beijingensis* sp. n. si distingue da *elegans* per l'incavatura ventrale dell'edeago molto stretta (ampia in *elegans*), per il pezzo copulatore del sacco interno terminante in un flagello lunghissimo (senza flagello in *elegans*), e per le due lunghe spine al margine posteriore del sesto urotergo libero del maschio (due lobi in *elegans*).

***Gyrophaena* (s. str.) *vexillifera* sp. n.**

Figg. 81-85

TIP. Holotypus ♂, Hong Kong, Tai Po, flight interception, V.1996, de Rougemont leg. (MHNG).

Paratypus: 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 1.7 mm. Corpo lucido e bruno con pronoto e base delle elitre giallo-bruni e con addome giallo-rossiccio con quarto urite rossiccio; antenne rossicce con i tre antenomeri basali gialli; zampe gialle. La reticolazione del capo è distinta sul disco e svanita ai lati, quella del pronoto è netta sulla fascia mediana e assente ai lati, sulle elitre è svanita e sull'addome è svanita sui due uroterghi basali: sui tre seguenti la reticolazione è distinta e netta alla base di ciascuno. La punteggiatura del capo è svanita. I tubercoletti che stanno sul pronoto sono molto salienti e quelli delle elitre sono distinti. Edeago figg. 82-83, sesto urotergo libero del maschio fig. 85.

COMPARAZIONI. Per l'habitus e per la forma dell'edeago, la nuova specie mostra alcune affinità tassonomiche con *G. densicollis* Cameron, 1939, dell'India settentrionale e del Nepal. Il pezzo copulatore molto sporgente dall'orifizio apicale dell'edeago di *densicollis*, non è così dilatato alla metà apicale quanto quello della nuova specie e la debole bozza preapicale ventrale dell'edeago della nuova specie, in *densicollis* è diventata una lunga appendice stretta. Il sesto urotergo libero del maschio di *densicollis* ha solo due dentini marginali mediani, mentre nella nuova specie i denti sono come da fig. 85.

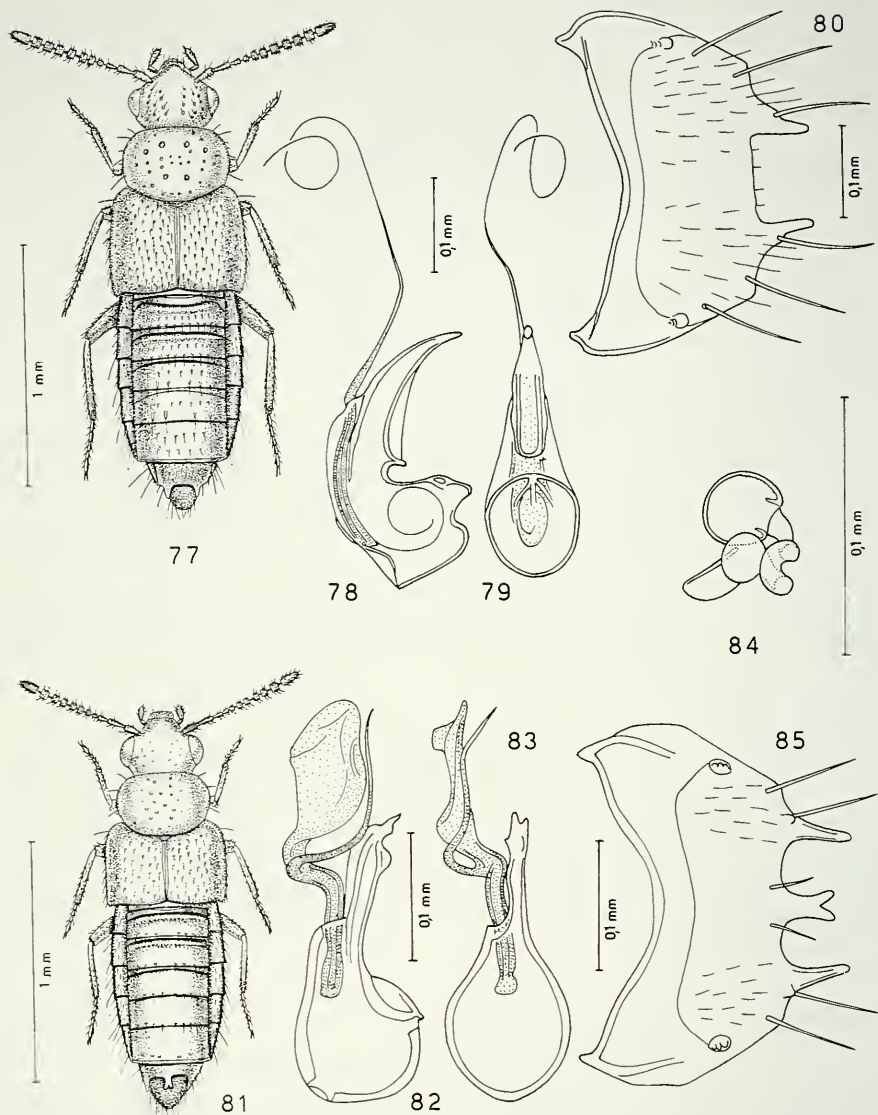
***Gyrophaena* (s. str.) *penetrans* sp. n.**

Figg. 86-88

TIP. Holotypus ♀, Hong Kong, de Rougemont leg. (MHNG).

DESCRIZIONE. Lungh. 1.8 mm. Corpo lucido e giallo (un po' immaturo), con capo ed elitre giallo-bruni; antenne brune con i tre antenomeri basali gialli e i seguenti fino all'ottavo rossicci; zampe gialle. La reticolazione del capo e del pronoto è molto svanita, quella delle elitre è distinta e quella dell'addome è superficiale. La punteggiatura del capo e del pronoto è netta e profonda, quella delle elitre è superficiale. Spermateca fig. 87, sesto urotergo libero della femmina fig. 88.

COMPARAZIONI. In base alla forma della spermateca, la nuova specie è probabilmente tassonomicamente vicina a *G. quadrifida* Cameron, 1939, del Kashmir e del Nepal. Se ne distingue per avere il bulbo distale della spermateca il doppio più sviluppato,



FIGG. 77-85

Habitus, edeago in visione laterale e ventrale, sesto urotergo libero del maschio e spermatteca.
 77-80: *Gyrophaena* (s. str.) *beijingensis* sp. n.; 81-85: *Gyrophaena* (s. str.) *vexillifera* sp. n.

nonostante la taglia corporea sia minore nella nuova specie (1,8 mm) e maggiore in *quadrifida* (2,2 mm). Inoltre il pronoto della nuova specie è più trasverso, le elitre meno larghe rispetto al pronoto e la reticolazione della superficie delle elitre della nuova specie è distinta, mentre quella delle elitre di *quadrifida* è estremamente svanita.

Gyrophaena (s. str.) **herebi** sp. n.

Figg. 89-91

TIPO. Holotypus ♀, Hong Kong, Tai Po, V.1996, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 1,5 mm. Corpo lucido e nero-bruno con addome rossiccio avente bruni i lati degli uriti liberi terzo, quarto e quinto; antenne di un giallo sporco con i tre antennomeri terminali bruni; zampe giallo-rossicce con tibiae medie e posteriori brune a metà. Spermateca fig. 90, sesto urotergo libero della femmina fig. 91.

COMPARAZIONI. Specie che per la taglia corporea ridotta e per il bulbo distale della spermateca, è probabilmente affine a *G. immatura* Kraatz, 1859, dello Sri Lanka. Tuttavia il bulbo distale della spermateca della nuova specie è il doppio più sviluppato rispetto quello di *immatura* e il colore del corpo è nero-bruno con addome rossiccio nella nuova specie e giallo rossiccio con elitre bruno-rossicce in *immatura*.

Gyrophaena (s. str.) **paula** sp. n.

Figg. 92-94

TIPI. Holotypus ♀, China, Yunnan, Xishuangbanna, Chayanhe F.S., 24.I.1993, de Rougemont leg. (MHNG).

Paratypus: 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 1,5 mm. Corpo lucido e nero-bruno con pronoto bruno e addome giallo sporco avente gli uriti liberi quarto e quinto giallo-bruni; antenne brune con i due antennomeri basali di un giallo sporco; zampe gialle. L'intero corpo non mostra alcuna reticolazione. La punteggiatura del capo è composta di punti grandi allineati sul disco e di punti medi sul resto della superficie. La punteggiatura del pronoto è sparsa e distinta e quella delle elitre è netta e meno sparsa di quella del pronoto. Spermateca fig. 93, sesto urotergo libero della femmina fig. 94.

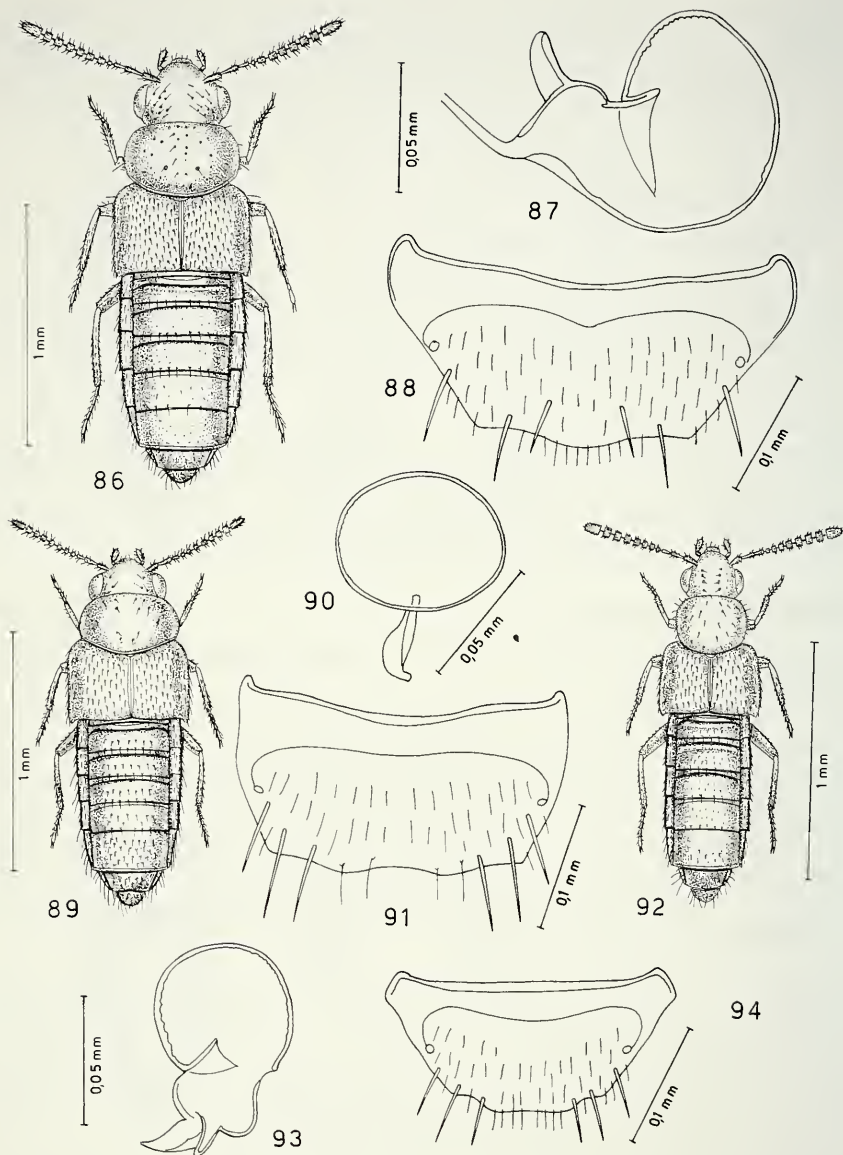
COMPARAZIONI. La nuova specie per la taglia corporea, per l'habitus e per la forma della spermateca, è simile a *G. livida* Motschulsky, 1858, dello Sri Lanka. Però è specie ben distinta per avere le elitre evidentemente più corte rispetto al pronoto, gli occhi più sporgenti, l'addome non reticolato (addome distintamente reticolato in *livida*) e per la spermateca con bulbo distale più sviluppato, con appendice inserita presso il bulbo prossimale, larga e corta (stretta e lunga in *livida*).

Encephalus chinensis sp. n.

Figg. 95-98

TIPO. Holotypus ♂, China, Gansu, Dalijia Shan, 46 Km W Linxia, 2980 m, 10.VII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 2,4 mm. Corpo lucido, molto convesso con addome scafoide e nero con margine posteriore degli uroterghi rossiccio; antenne brune; zampe rosse con femori bruni. La reticolazione del capo e del pronoto è assente; quella delle



FIGG. 86-94

Habitus, spermateca e sesto urotergo libero della femmina. 86-88: *Gyrophaena* (s. str.) *penetrans* sp. n.; 89-91: *Gyrophaena* (s. str.) *herebi* sp. n.; 92-94: *Gyrophaena* (s. str.) *paula* sp. n.

elitre è svanita e quella dell'addome è netta. La punteggiatura del capo e dell'addome è netta e profonda, quella delle elitre è distinta e irregolarmente distribuita, assente ai lati. Edeago figg. 96-97, sesto urotergo libero del maschio fig. 98.

COMPARAZIONI. Per la forma dell'edeago, la nuova specie si presenta simile a *E. himalayensis* Pace, 1987, del Nepal. *E. chinensis* sp. n. si distingue da questa specie per la punteggiatura del corpo più rada, per quella delle elitre per nulla grossolana come in *himalayensis*, per i due denti mediani al margine posteriore del sesto urotergo libero del maschio per nulla prolungati come in *himalayensis*, ma corti. L'edeago della nuova specie è meno ricurvo al lato ventrale e il pezzo copulatore del sacco interno dello stesso organo è robusto e sinuato all'apice nella nuova specie e sottile e retto all'apice in *himalayensis*.

HOMALOTINI

Silusa (s. str.) **chinensis** sp. n.

Figg. 99-102

TIPI. Holotypus ♂, China, Zhejiang, Tienmushan, 29.IV.1993, de Rougemont leg. (MHNG).

Paratypi: 4 es. stessa provenienza.

DESCRIZIONE. Lunghezza 3,2 mm. Corpo lucido; capo bruno, pronoto bruno-rossiccio, con margini laterali e posteriore rossicci, elitre di un giallo sporco con i lati esterni bruni, addome bruno con margine posteriore degli uroterghi e lati degli uroterghi liberi primo, secondo e terzo, rossicci; antenne bruno-rossicce; zampe gialle. La reticolazione del capo è assente, quella sul resto del corpo è estremamente svanita. La punteggiatura del capo e del pronoto è molto svanita, quella delle elitre è netta, ma assente lungo il margine posteriore dove si osservano tubercoletti salienti. Edeago figg. 100-101, spermateca fig. 102.

COMPARAZIONI. La nuova specie è distinta da *S. indica* Cameron, 1939, dell'India, per gli occhi ridotti, le tempie molto più lunghe e per le elitre più sviluppate. E' pure distinta da *S. aliena* Bernhauer, 1916, della Cina, per avere i pezzi copulatori del sacco interno dell'edeago lungamente sporgenti dall'orifizio apicale dell'edeago stesso (appena sporgenti in *aliena*).

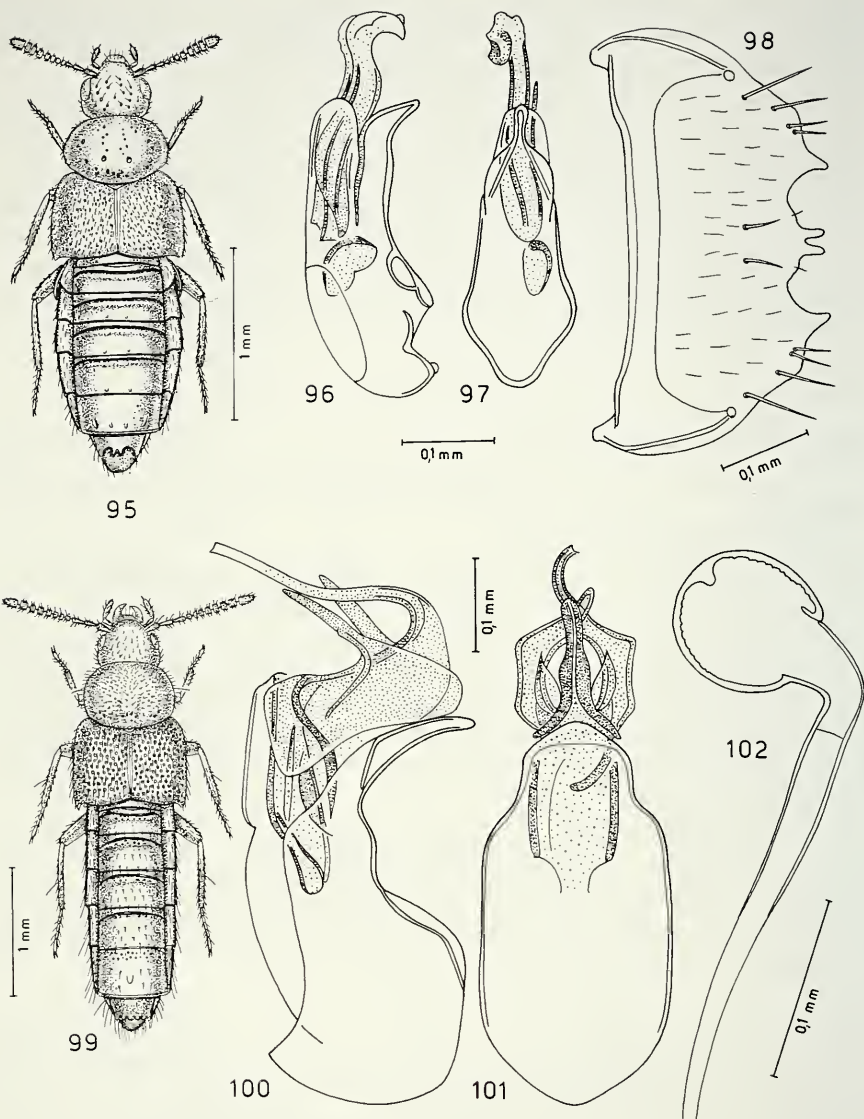
Silusa (s. str.) **smetanai** sp. n.

Figg. 103-104

TIPO. Holotypus ♀, China, Sichuan, Gongga Shan, above camp 3. 3050 m. 22.VII. 1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 3,7 mm. Corpo lucido e bruno con margine posteriore dei tre uroterghi basali rossiccio come l'estremità addominale; antenne bruno-rossicce con i due antenomeri basali rossicci; zampe rossicce. Su tutto il corpo non vi è presenza di reticolazione. La punteggiatura ombelicata del capo è netta e assente sul disco. Il pronoto e le elitre sono coperti da distinti e fini tubercoletti. Spermateca fig. 104.

COMPARAZIONI. La nuova specie è ben distinta dalla precedente *S. chinensis* sp. n., per l'assenza di impressione mediana basale del pronoto e per l'introflessione apicale del bulbo distale della spermateca, larghissimo e non strettissimo come in *chinensis*. La



FIGG. 95-102

Habitus, edeago in visione laterale e ventrale, sesto urotergo libero del maschio e spermateca.
 95-98: *Encephalus chinensis* sp. n.; 99-102: *Silusa* (s. str.) *chinensis* sp. n.

nuova specie è pure distinta da *S. indica* Cameron, 1939, dell'India, per avere tra l'altro, il quarto antennumero trasverso e non lievemente più lungo che largo, come si osserva in *indica*.

Silusa (s. str.) **cooteri** sp. n.

Figg. 105-108

TIPI. Holotypus ♂, China, Zhejiang Prov., Lin'an County, 1000 m, W. Tanmu Shan N.R., 18.V.1996, J. Cooter leg. (MHNG).

Paratypus: 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 2,6 mm. Corpo lucido e bruno; antenne e zampe bruno-rossicce. Su tutto il corpo non vi è traccia di reticolazione. La punteggiatura del capo è netta, quella delle elitre è distinta e a raspa. I tubercolotti che coprono la superficie del pronoto sono fini, quelli dell'addome sono distinti. Edeago figg. 106-107, spermateca fig. 108.

COMPARAZIONI. La nuova specie è distinta da *S. aliena* Bernhauer, 1916, della Cina, per avere taglia minore, edeago di un terzo minore e pezzi copulatori del sacco interno meno robusti, di cui uno profondamente incavato presso l'apice (non incavato in *aliena*).

ETIMOLOGIA. La nuova specie è dedicata al suo raccoglitore Jonathan Cooter di Hereford, noto studioso di Liodidae.

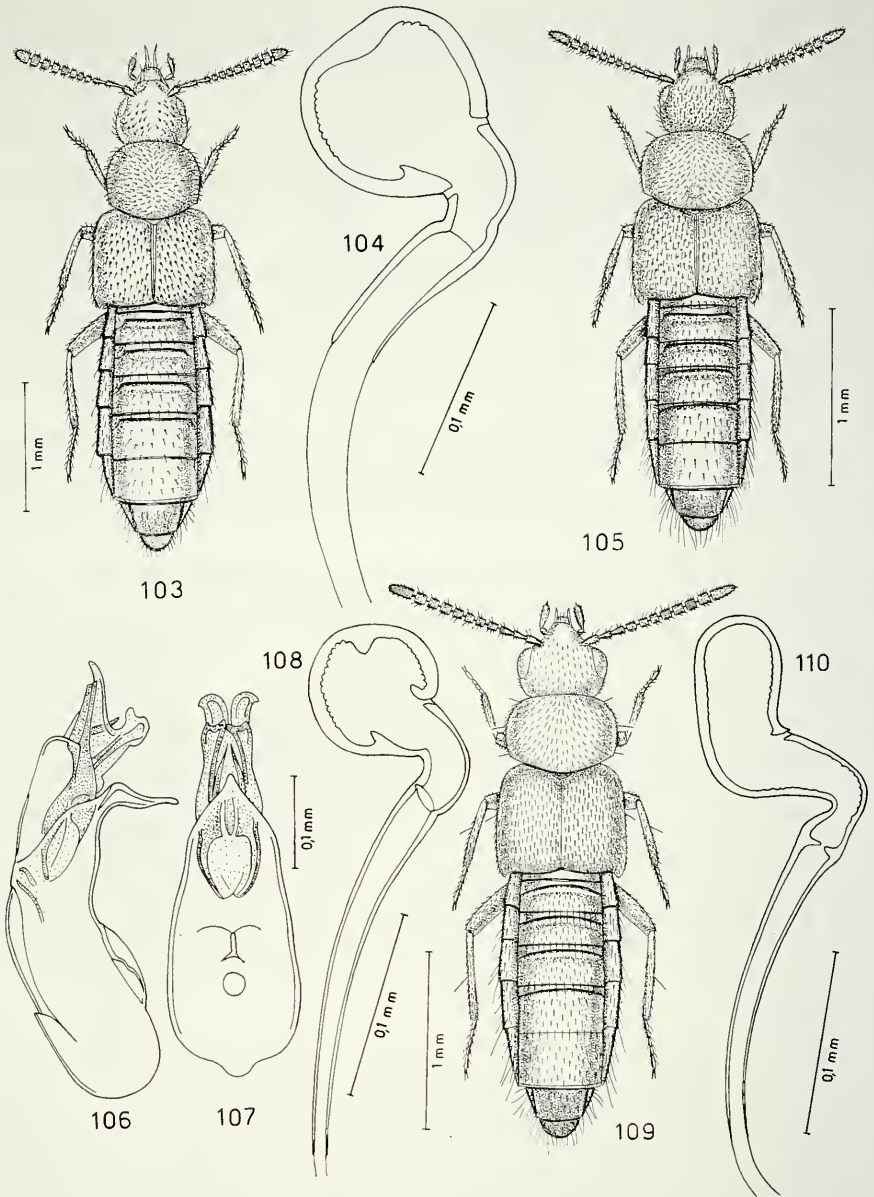
Taraktomora gen. n.

Figg. 109-111

DIAGNOSI. Genere assai affine al genere *Silusa* Erichson, 1837, per avere la ligula intera e palpi labiali allungati; distinta per la ligula nettamente più lunga del primo articolo dei palpi labiali e con un rigonfiamento basale su cui stanno quattro pori sensitivi e per la spermateca che presenta bulbo distale non sferico come si riscontra nelle varie specie note di *Silusa*. E' mia opinione che questo nuovo genere si colloca tassonomicamente in posizione intermedia tra il genere *Silusa* Er. e il genere *Leptusa* Kr. che pure presenta specie a ligula intera e molto lunga. Inoltre il tipo di spermateca del nuovo genere è associabile a quello di moltissime specie di *Leptusa*. Tuttavia i palpi labiali sono eccessivamente lunghi nel nuovo genere per attribuire la specie al genere *Leptusa*.

DESCRIZIONE. Corpo convesso; lobo interno ed esterno dei palpi mascellari come in *Silusa*; palpi labiali di 2 articoli, meno lunghi che in *Silusa*; ligula nettamente più lunga del primo articolo dei palpi labiali, con rigonfiamento basale su cui stanno quattro pori sensitivi; paraglosse nulle, mento come in *Silusa* (fig. 111); 11 antennumeri; occhi molto sviluppati; pronoto molto trasverso, in avanti più ristretto che all'indietro; elitre a lati paralleli; processo mesosternale ad angolo acuto, sicché le mesocoxe sono tra loro contigue, come in *Silusa* e *Leptusa*; formula tarsale 4-4-5; primo tarsomero posteriore appena più lungo del seguente; bulbo distale della spermateca subreniforme.

ETIMOLOGIA. Il nome del nuovo genere significa "Confinante e conturbante", ciò a significare che *Taraktomora* gen. n. si pone in posizione tassonomica tra *Silusa* e



FIGG. 103-110

Habitus, spermateca ed edeago in visione laterale e ventrale. 103-104: *Silusa* (s. str.) *smetanai* sp. n.; 105-108: *Silusa* (s. str.) *cooteri* sp. n.; 109-110: *Taraktomora orientis* gen. n., sp. n.

Leptusa e che per questo può sconvolgere l'ordine stabilito in tassonomia, dato che può essere considerato "l'anello di congiunzione" tra i generi *Silusa* e *Leptusa*.

GENERE GRAMMATICALE. *Taraktomora* gen. n. è di genere femminile.

TYPUS GENERIS. *Taraktomora orientis* sp. n.

***Taraktomora orientis* sp. n.**

Figg. 109-111

TIPO. Holotypus ♀, Hong Kong, Kadoorie Agricultural Research Centre, VIII.1996, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,9 mm. Corpo lucido; capo bruno-rossiccio, pronoto giallo-rossiccio, elitre brune con base e sutura giallo-brune, addome giallo-rossiccio con uriti liberi quarto e metà basale del quinto bruni; antenne bruno-rossicce con i tre antenomeri basali e l'undicesimo giallo-rossicci; zampe gialle. La reticolazione del capo è assente, quella sul resto del corpo è estremamente svanita. La punteggiatura ombelicata del capo è fitta e assai svanita, quella del pronoto è superficiale e quella delle elitre è distinta. Spermateca fig. 110, labio con palpo labiale fig. 111.

***Coenonica absurda* sp. n.**

Figg. 112-116

TIPI. Holotypus ♂, Hong Kong, Kadoorie Agricultural Research Centre, flight interception trap, VIII.1996, de Rougemont leg. (MHNG).

Paratypi: 1 ♂ e 1 ♀, Hong Kong, Chinese University, in *Auricularia* fungus, I.IX.1996; 1 ♂, Hong Kong, N.T., IX.1996; 1 ♀, Hong Kong, Tai Po, VII.1996, tutti de Rougemont leg.

DESCRIZIONE. Lunghezza 2,7 mm. Avancorpo debolmente lucido, addome lucido. Corpo bruno con addome bruno-rossiccio; antenne brune con i tre antenomeri basali e l'undicesimo bruno-rossicci; zampe gialle. La reticolazione del capo è vigorosa, quella del pronoto è svanita; assente è sul resto del corpo. La fronte è coperta da punteggiatura ombelicata distinta su un fondo a reticolazione svanita, sul resto della superficie del capo la punteggiatura è cancellata dalla vigorosa reticolazione. Il pronoto presenta ai lati una netta rugosità, sul resto della superficie sta una punteggiatura distinta; la fossetta posteriore è profonda. Le elitre sono coperte di tubercolotti molto salienti. Edeago figg. 112-113, spermateca fig. 114, sesto urotergo libero del maschio fig. 115.

COMPARAZIONI. La nuova specie mostra un carattere che si riscontra anche in *C. angusticollis* Cameron, 1920: un tubercolo mediano posteriore sul quinto urotergo libero del maschio. Nonostante la presenza di esso, per i caratteri dell'edeago e della spermateca, le differenze tra le due specie sono marcate. L'edeago della nuova specie ha forma unica nell'insieme delle specie note, così è per la spermateca.

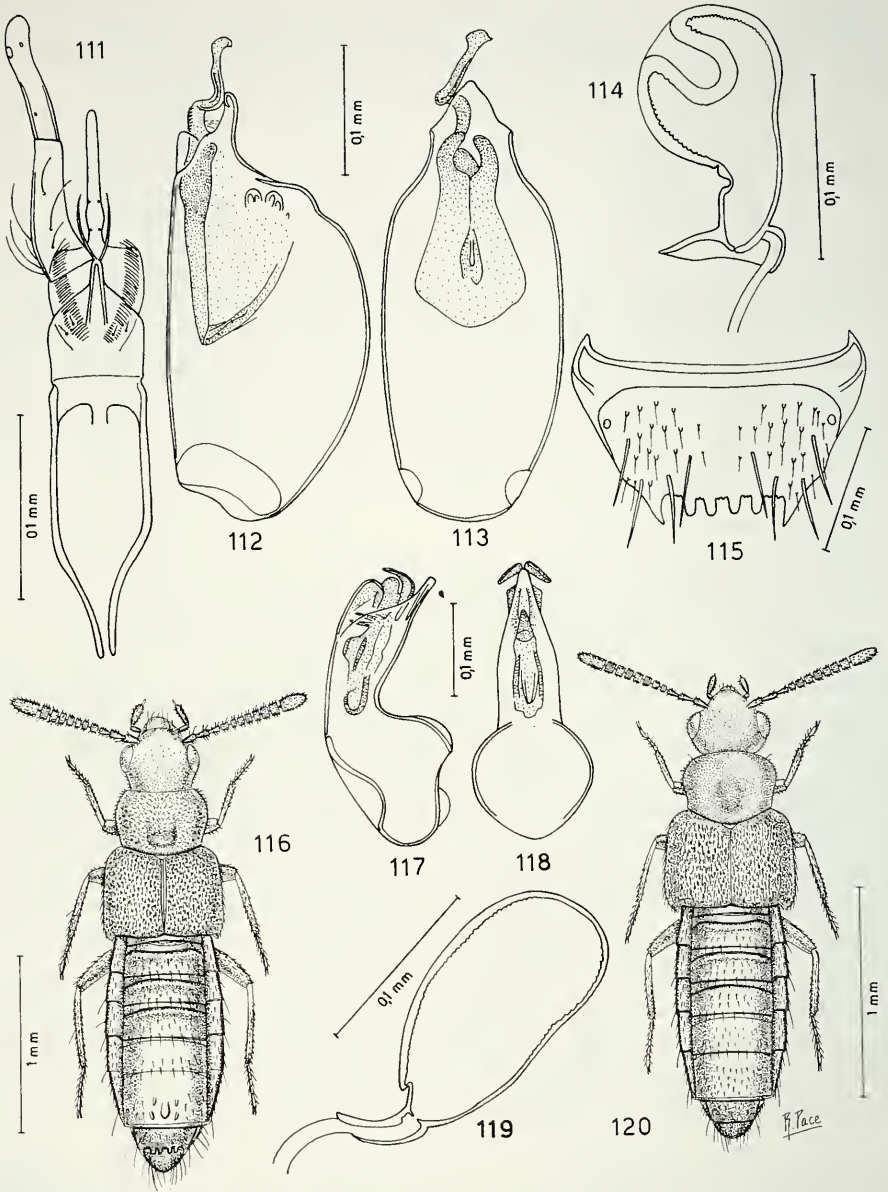
***Coenonica longwangensis* sp. n.**

Figg. 117-120

TIPI. Holotypus ♂, China, Zhejiang Prov., Anji County, ca. 400 m, Long Wang Shan N.R., 13-14.V.1996, J. Cooter leg. (MHNG).

Paratypus: 1 ♀, China, Zhejiang Prov., Lin'an County, 1000 m, W. Tianmu Shan N.R., 18.V.1996, J. Cooter leg.

DESCRIZIONE. Lunghezza 2,1 mm. capo e pronoto opachi, elitre debolmente lucide, addome lucido; corpo bruno con addome bruno-rossiccio; antenne brune con i due



FIGG. 111-120

Labio con palpo labiale, edeago in visione laterale e ventrale, spermateca, sesto urotergo libero del maschio e habitus. 111: *Tataktomora orientis* gen. n., sp. n.: 112-116: *Coenonica absurda* sp. n.; 117-120: *Coenonica longwangensis* sp. n.

antennomeri basali bruno-rossicci; zampe gialle. Il capo e il pronoto sono coperti da fittissima punteggiatura, tanto da dare un aspetto rugoso alla superficie, tranne tra le antenne dove non vi è punteggiatura e la superficie è lucida; il pronoto ha una debole depressione mediana posteriore; i tuberoletti che coprono le elitre sono fittissimi e confluenti tra loro, sì da formare linee longitudinali interrotte. Gli uroterghi presentano tuberoletti salienti e reticolazione molto svanita. Edeago figg. 117-118, spermateca fig. 119.

COMPARAZIONI. *C. longwangensis* sp. n. è più affine a *C. ming* Pace, 1993, della Cina, che a *C. javana* Bernhauer, 1914, di Giava, Hong Kong, Malesia e Filippine. Ciò in base alla forma dell'edeago e dell'habitus. *C. javana* ha pronoto poco trasverso ed edeago appiattito al lato ventrale, mentre la nuova specie e *C. ming* hanno pronoto nettamente trasverso. La nuova specie differisce da *ming* per avere gli occhi più sviluppati, sicché le tempie sono più corte, il pronoto sinuato davanti agli angoli posteriori, l'edeago meno sviluppato, con incavatura ventrale meno ampia e con "crista apicalis" appena distinta (ben distinta in *ming*) e differente forma dei pezzi copulatori del sacco interno dell'edeago stesso.

Coenonica angularis sp. n.

Figg. 121-122

TIPO. Holotypus ♀, China, Zhejiang Prov., Lin'an County, 350 m, W. Tianmu Shan N.R., 16-22.V.1996, J. Cooter leg. (MHNG).

Paratypus: 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 3,0 mm. Avancorpo debolmente lucido, addome lucido. Corpo rossiccio con capo e uriti liberi quarto e quinto bruni; antenne brune con i tre antennomeri basali e l'apice dell'undicesimo giallo-bruni; zampe giallo-rossicce. La reticolazione del capo è netta, quella del pronoto è molto svanita, quella delle elitre e dell'addome è assente: solo nel fondo dei solchi trasversi basali degli uroterghi la reticolazione è netta. La punteggiatura del capo è netta e fitta, assente in avanti, quella del pronoto è indistinta, tranne dei robusti punti basali. Le elitre mostrano una punteggiatura netta e profonda solo sui due terzi anteriori, sul terzo posteriore la punteggiatura è fine e svanita. Spermateca fig. 122.

COMPARAZIONI. Specie simile a *C. exuta* Pace, 1984, del Nepal, sia per l'habitus, che per la forma della spermateca. Entrambe sono avvicinabili tassonomicamente a *C. puncticollis* Kraatz, 1857, specie a larga distribuzione geografica. La nuova specie ha spermateca di dimensione troppo riddotta, rispetto quella di *puncticollis* e il sesto urotergo libero della femmina è privo di denti marginali, per essere considerata specie molto prossima. La nuova specie è invece molto più affine a *exuta*, da cui si distingue per la taglia corporea maggiore (3,0 mm invece di 2,4 mm), per il pronoto privo di punteggiatura (pronoto coperto di tuberoletti salienti in *exuta*), per le elitre più lunghe, rispetto al pronoto, per il fondo punteggiato dei solchi trasversi basali degli uroterghi (non punteggiato in *exuta*) e per il bulbo prossimale della spermateca nettamente conformato, anche se poco sviluppato (pressoché nullo in *exuta*).

Coenonica parens sp. n.

Figg. 123-125

TIPO. Holotypus ♂, China, Zhejiang, Tienmushan, 29.IV.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lungh. 2,1 mm. Capo e pronoto opachi resto del corpo lucido. Capo, pronoto ed elitre, tranne la loro sutura, nero-bruni, fascia suturale delle elitre bruno-rossiccia, addome bruno-rossiccio con gli uriti liberi quarto e quinto bruni; antenne nere con antennumero basale nero-bruno; zampe giallo-rossicce. Sul capo e sul pronoto i tubercoletti della superficie sono così contigui tra loro e così salienti, sì da dare un aspetto rugoso alla superficie. La punteggiatura delle elitre è distinta, posta su un fondo non reticolato come quello degli uroterghi. Edeago figg. 123-124.

COMPARAZIONI. Specie del gruppo di *C. ming* Pace, 1993, della Cina, più affine a questa specie che a *C. longwangensis* sp. n. sopra descritta, per avere gli occhi lunghi quanto le tempie (e non più lunghi come in *longwangensis*), per avere il pronoto non sinuato davanti agli angoli posteriori e per avere l'edeago ampiamente ricurvo al lato ventrale. La nuova specie differisce da *C. ming* per avere l'edeago ancor più ampiamente ricurvo al lato ventrale e il pezzo copulatore del sacco interno dell'edeago stesso, non dilatato e ricurvo all'apice.

Coenonica semimutata sp. n.

Figg. 126-129

TIPO. Holotypus ♂, China, Yunnan, Xishuangbanna, Sanchaha, elephant res., 24.I.1993, de Rougeмонт leg. (MHNG).

DESCRIZIONE. Lunghezza 2,3 mm. Avancorpo opaco, addome lucido. Corpo bruno-rossiccio con capo e lati esterni delle elitre bruni; addome giallo-rossiccio con gli uriti liberi quarto e quinto rossicci; antenne brune con i due antennumeri basali e l'apice dell'undicesimo rossicci; zampe giallo-rossicce. Il capo e il pronoto sono coperti di contigui e grossolani tubercoli che danno un aspetto rugoso alla superficie. La punteggiatura delle elitre è fittissima, a punti contigui fra loro e netti. Tubercoletti salienti stanno sulla superficie degli uroterghi, che non è reticolata. Edeago figg. 127-120, sesto urotergo libero del maschio fig. 129.

COMPARAZIONI. La nuova specie è sicuramente molto affine a *C. mutata* Pace, 1984, del Nepal, se si osserva l'habitus e la struttura generale dell'edeago. Se ne distingue per l'edeago più esile, con "crista apicalis" molto più lunga. Il profilo ventrale dell'edeago è bisinuato e dentellato nella nuova specie (arcuato e senza dentini in *mutata*), l'apice è meno acuto e i pezzi copulatori del sacco interno sono più distesi e meno robusti, con tubulo mediano distinto (assente in *mutata*). Inoltre il margine posteriore del sesto urotergo libero del maschio, presenta due dentini accostati fra loro e altri denti come da fig. 129, mentre *C. mutata* mostra 8 denti uguali regolarmente distanziati fra loro, inquadriati da due lunghe spine laterali a base stretta (spine corte e a base larga nella nuova specie).

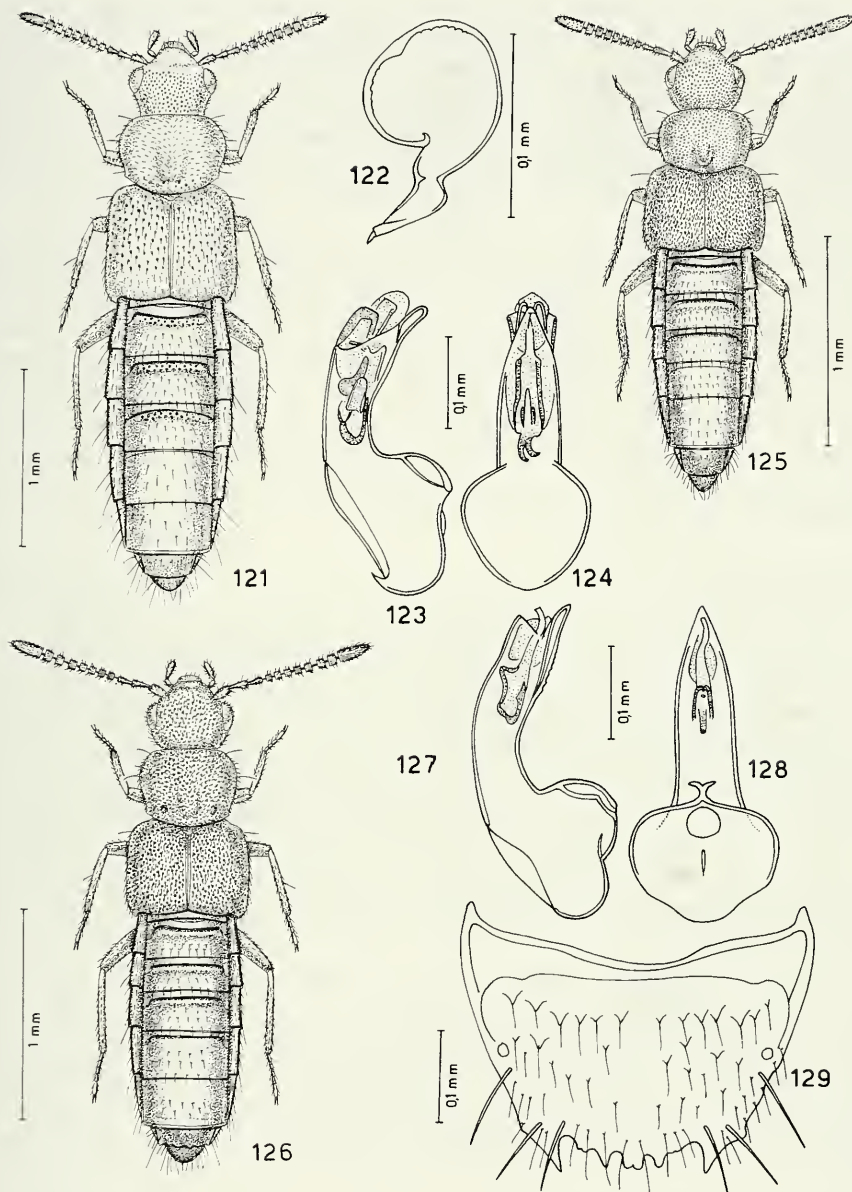
Coenonica truncata sp. n.

Figg. 130-134

TIPO. Holotypus ♂, China, Yunnan, Xishuangbanna, Mengdian, 26.I.1993, de Rougeмонт leg. (MHNG).

Paratypi: 20 es., stessa provenienza.

DESCRIZIONE. Lunghezza 3,7 mm. Capo opaco tranne il disco che è lucido, resto del corpo lucido. Capo nero, pronoto bruno, elitre di un giallo sporco, addome giallo-



FIGG. 121-129

Habitus, spermateca, edeago in visione laterale e ventrale e sesto urotergo libero del maschio.
 121-122: *Coenonica angularis* sp. n.; 123-125: *Coenonica parens* sp. n.; 126-129: *Coenonica semimutata* sp. n.

rossiccio con uriti liberi quarto e la metà basale del quinto rossicci; antenne brune con i due antennomeri basali e la base del terzo giallo-rossicci; zampe gialle. Solo sul disco del capo la punteggiatura è robusta e profonda: sul resto della superficie la punteggiatura è indistinta data la scabrosità della superficie stessa. La punteggiatura del pronoto è netta e più densa in avanti sulla linea mediana, posta su un fondo non reticolato. La punteggiatura delle elitre è svanita. Elitre e addome sono privi di reticolazione. Edeago figg. 131-132, spermateca fig. 133; sesto urotergo libero del maschio fig. 134.

COMPARAZIONI. La nuova specie, per l'habitus e per il reniforme bulbo distale della spermateca, è sicuramente affine a *C. pendleburyi* Cameron, 1936, della Penisola Malese. Se ne distingue per la taglia corporea maggiore (2,9 mm in *pendleburyi*), per gli occhi più sviluppati, per il quarto antennomero nettamente trasverso (lungo quanto largo in *pendleburyi*), per avere il pronoto nettamente punteggiato, con punti addensati in avanti a metà (pronoto coperto di tubercoli superficiali in *pendleburyi*) e per la spermateca meno sviluppata (nonostante la taglia corporea maggiore), con bulbo distale reniforme regolare (e non ristretto verso l'apice come in *pendleburyi*, il cui holotypus unico è una femmina).

Coenonica aliena sp. n.

Figg. 135-136

TIPO. Holotypus ♀, China, Yunnan, Dali, 9.II.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 3,3 mm. Capo e pronoto debolmente opachi, resto del corpo lucido. Capo nero-bruno, pronoto bruno con margini laterali e posteriore bruno-rossicci, elitre giallo-brune, compresa la sutura con terzo posteriore bruno, addome rossiccio con uriti liberi quarto e quinto bruni; antenne brune con antennomero basale rossiccio; zampe di un giallo sporco con tarsi e tibie anteriori e medie bruni. La reticolazione del capo è netta e fine, quella del pronoto e dell'addome è assente e quella delle elitre è svanita. La punteggiatura del capo è netta e profonda solo sul disco: sul resto della superficie è svanita. La punteggiatura del pronoto è netta e fitta e presenta alcuni punti grossolani alla base, quella delle elitre è irregolarmente distribuita e fitta. Spermateca fig. 136.

COMPARAZIONI. Per l'habitus, per il sistema di reticolazione del capo, per il pronoto molto trasverso e per la forma della spermateca, la nuova specie è probabilmente affine a *C. varicornis* (Kraatz, 1859), dello Sri Lanka. Se ne distingue per la taglia corporea maggiore (1,9 mm in *varicornis*), per le elitre coperte di punteggiatura irregolarmente distribuita, invece di tubercolotti fitti come in *varicornis* e per il bulbo distale della spermateca tre volte maggiore e di forma non sferica (a sfera in *varicornis*).

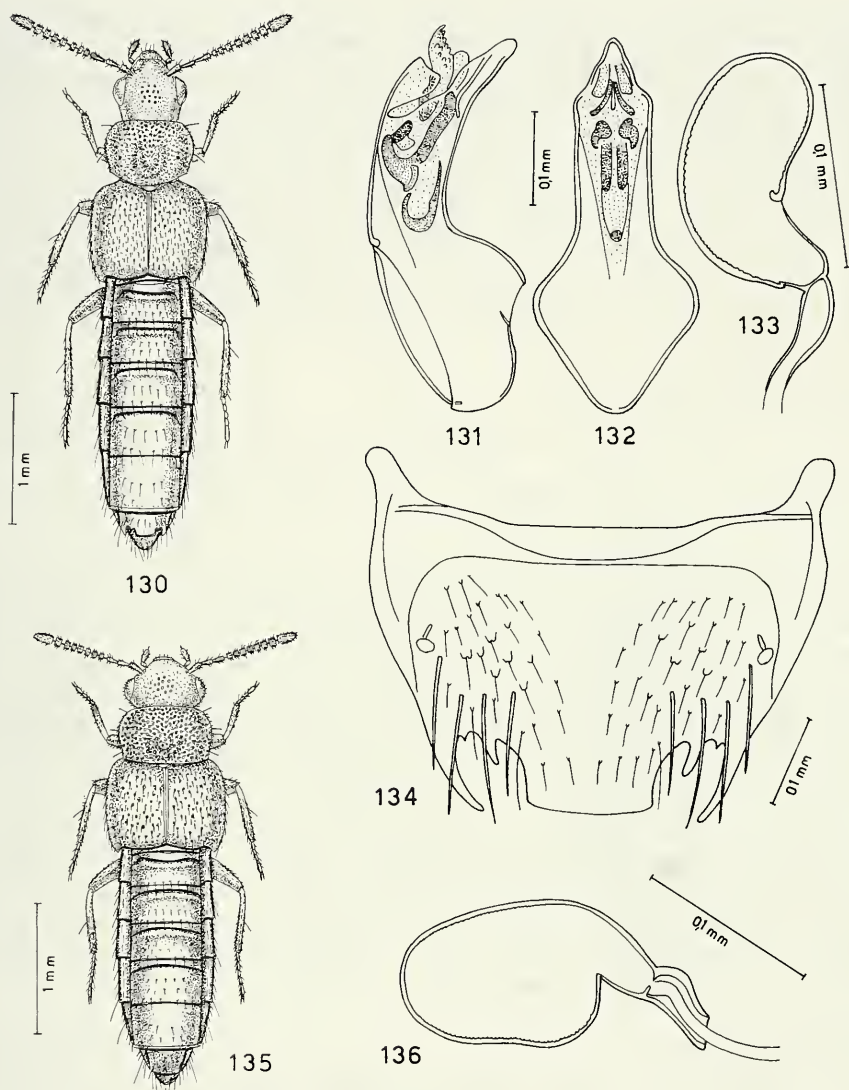
Coenonica zhejiangensis sp. n.

Figg. 137-140

TIPI. Holotypus ♂, China, Zhejiang, Tianmushan, 29.IV.1993, de Rougemont leg. (MHNG).

Paratypi: 5 es., stessa provenienza.

DESCRIZIONE. Lunghezza 2,9 mm. Corpo lucido e bruno con margine posteriore degli uroterghi basali e l'estremità distale dell'addome rossicci; antenne bruno-rossicce;



FIGG. 130-136

Habitus, edeago in visione laterale e ventrale, spermateca e sesto urotergo libero del maschio.
 130-134: *Coenonica truncata* sp. n.; 135-136: *Coenonica aliena* sp. n.

zampe rossicce. La reticolazione del capo è vigorosa, tranne che sul disco dove è distinta, quella sul resto del corpo è assente. La punteggiatura del capo è ombelicata e netta sul disco, svanita ai lati; quella delle elitre è distinta. Il pronoto presenta superficie coperta di tubercoletti salienti, molto salienti in avanti e ai lati dove sono anche più fitti. Edeago figg. 138-139, spermateca fig. 140.

COMPARAZIONI. Specie simile a *C. ming* Pace, 1993, della Cina. Ne è distinta per il pronoto e le elitre meno trasversi, per i punteggiati solchi trasversi basali degli uroterghi (senza punti in *ming*) e per l'edeago più ampiamente e meno profondamente ricurvo al lato ventrale, con apice, in visione ventrale, sinuato lateralmente (non sinuato in *ming*), con pezzo copulatore del sacco interno sottile (e non dilatato e ricurvo come in *ming*).

Coenonica tianmushanensis sp. n.

Figg. 141-144

TIPI. Holotypus ♀, China, Zhejiang, Tianmushan, 29.I.1993, de Rougemont leg. (MHNG).

Paratypi: 1 ♀, stessa provenienza; 1 ♂, China, Zhejiang, Lin'an County, 1000 m, W. Tianmu Shan N.R., 18.V.1996, J. Cooter leg.

DESCRIZIONE. Lunghezza 2,4 mm. Corpo lucido e giallo-rossiccio con capo nero-bruno; antenne brune con i tre antenomeri basali e l'undicesimo, tranne la sua base, rossicci; zampe giallo-rossicce. La punteggiatura del capo in avanti è fine, sul disco è netta e profonda, all'indietro e ai lati è svanita, confusa nella vigorosa reticolazione che sul disco è assai svanita. Tubercoletti molto salienti coprono la superficie del pronoto e delle elitre, su un fondo distintamente reticolato sul pronoto e a reticolazione svanita sulle elitre. Sull'addome non vi è reticolazione, tranne nel fondo dei solchi trasversi basali. Edeago figg. 141-142, spermateca fig. 143.

COMPARAZIONI. Specie affine a *C. varicornis* (Kraatz, 1959), dello Sri Lanka, per l'habitus simile, per la struttura dell'edeago e della spermateca. E' chiaramente distinta da essa, per la taglia corporea maggiore (1,9 mm in *varicornis*), per il bulbo basale dell'edeago poco sviluppato (molto sviluppato in *varicornis*), per la "crista apicalis" dell'edeago stesso saliente (stretta e corta in *varicornis*) e per il maggiore sviluppo del bulbo distale della spermateca.

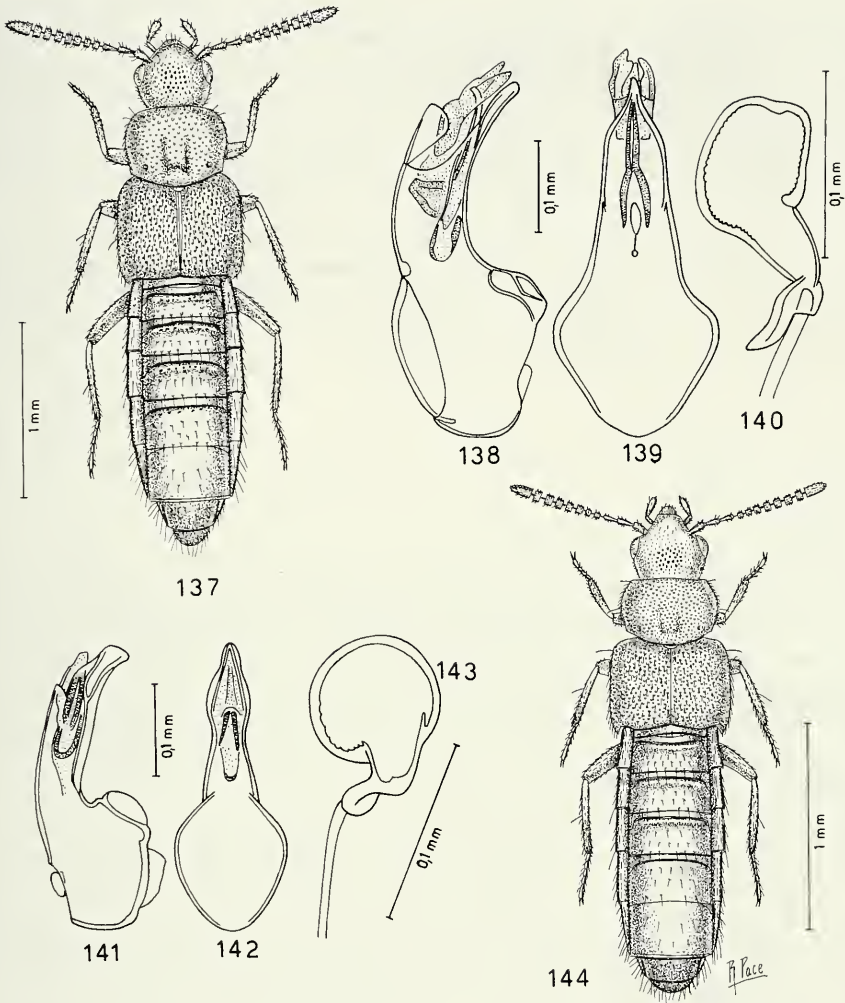
Coenonica arcusifera sp. n.

Figg. 145-148

TIPI. Holotypus ♂, China, Yunnan, Xishuangbanna, Mengdien, 26.I.1993, de Rougemont leg. (MHNG).

Paratypus: 1 ♂, China, Yunnan, Ruili, ca. 700 m, 3.II.1993, de Rougemont leg.

DESCRIZIONE. Lunghezza 3,7 mm. Corpo lucido e bruno con margini del pronoto ed elitre rossicci, addome bruno-rossiccio con margini posteriori degli uriti basali rossicci e uriti liberi quarto e quinto bruni; antenne brune con i tre antenomeri basali rossicci e con l'apice dell'undicesimo bruno-rossiccio; zampe rossicce. La punteggiatura del capo è composta di punti fitti tra loro contigui, più netti sul disco che sul resto della superficie cefalica dove gradualmente svaniscono fino a scomparire là dove la reticolazione è vigorosa, mentre sul disco la reticolazione è distinta. La



FIGG. 137-144

Habitus, eedeago in visione laterale e ventrale e spermateca. 137-140: *Coenonica zhejiangensis* sp. n.; 141-144: *Coenonica tianmushanensis* sp. n.

punteggiatura del pronoto è fitta, profonda e robusta, assente agli appuntiti angoli posteriori, posta su un fondo a reticolazione estremamente svanita. La punteggiatura delle elitre è netta, profonda, irregolarmente distribuita e assente presso gli angoli posteriori: è posta su un fondo distintamente reticolato. La stria suturale delle elitre si allontana dalla sutura nella metà posteriore. Gli uroterghi non presentano reticolazione e sono coperti di rada punteggiatura netta. Edeago figg. 146-147, sesto urotergo libero del maschio fig. 148.

COMPARAZIONI. L'habitus della nuova specie è simile a quello di *C. sharpi* (Fauvel, 1901), del Giappone: solo le impressioni del pronoto sono più brevi nella nuova specie e le elitre hanno punteggiatura meno fitta e sono più lunghe, rispetto al pronoto e più brevi in *sharpi*. Purtroppo la serie tipica di *sharpi* è costituita da sole femmine, per cui non sono possibili comparazioni dell'edeago.

Coenonica yunnanensis sp. n.

Figg. 149-150

TIPI. Holotypus ♀, China, Yunnan, Xishuangbanna, Chayanhe F.P., 24.I.1993, de Rougemont leg. (MHNG).

Paratypi: 3 ♀ ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 2,7 mm. Corpo lucido. Capo e pronoto neri, elitre nero-brune con base giallo-bruna, addome bruno con margine posteriore dei tre uriti basali rossiccio; antenne nero-brune con base ed estremità dei due antennomeri basali rosse; zampe brune con tarsi giallo-rossicci. Su tutto il corpo non vi è traccia di reticolazione. La punteggiatura del capo è ombelicata, profonda e robusta. Il pronoto è coperto di tubercoli allungati e salienti che sono assenti lungo il margine posteriore. Le elitre presentano tubercoli molto salienti, più fitti e grossolani alla base e ai lati. Spermateca fig. 149.

COMPARAZIONI. La nuova specie è affine a *C. drescheri* Cameron, 1939a, di Giava, sia per la robusta punteggiatura del capo e per la granulosità delle elitre, sia per la presenza di una sporgenza mediana all'orlo del solco basale degli uriti liberi terzo e quarto, sia per la forma globulare della spermateca. La nuova specie è però chiaramente distinta da *drescheri* perché ha il pronoto coperto di tubercoli allungati salienti, mentre in *drescheri* il pronoto è coperto di punteggiatura svanita. Inoltre la sporgenza mediana dell'orlo dei solchi basali degli uriti liberi terzo e quarto è molto lunga (breve in *drescheri*) e la spermateca è di un terzo più sviluppata di quella di *drescheri*, nonostante la taglia corporea sia uguale nelle due specie.

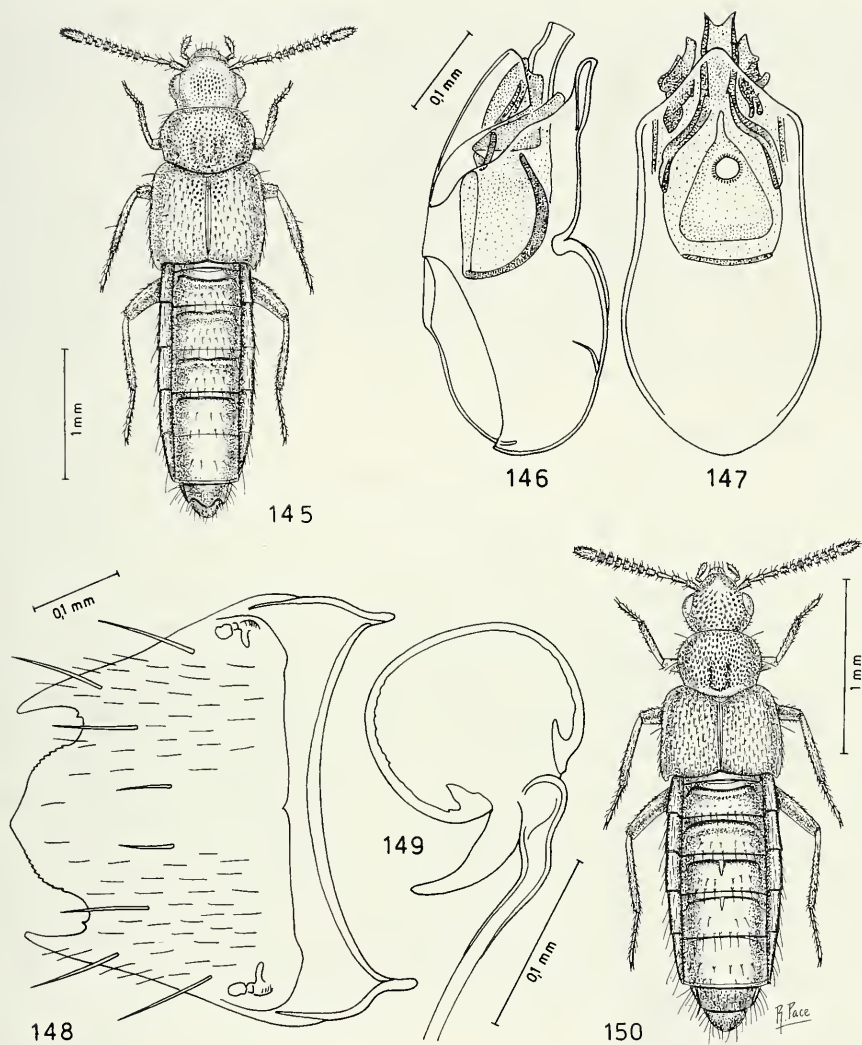
Stenomastax chinensis sp. n.

Figg. 151-154

TIPI. Holotypus ♂, China, Yunnan, Xishuangbanna, Chayanhe F.P., 24.I.1993, de Rougemont leg. (MHNG).

Paratypi: 8 es., stessa provenienza; 1 ♂, Yunnan, Mengdian, 26.I.1993; 1 ♂, China, Zhejiang, Tianmushan, 29.IV.1993; 2 ♂ ♂ e 2 ♀ ♀, China, Xishuangbanna, Jing Hong, II.1993, tutti de Rougemont leg.

DESCRIZIONE. Lunghezza 2,0 mm. Corpo debolmente lucido e bruno con elitre giallo-brune aventi base e lati esterni bruni e con i due uriti basali e il margine posteriore del



FIGG. 145-150

Habitus, edeago in visione laterale e ventrale, sesto urotergo libero del maschio e spermateca.
 145-148: *Coenonica arcusifera* sp. n.; 149-150: *Coenonica yunnanensis* sp. n.

terzo urite libero, rossicci; antenne brune con antennumero basale giallo-bruno; zampe gialle. Sull'avancorpo indistinta è la reticolazione che sull'addome è estremamente svanita. La punteggiatura del capo è fittissima e distinta. Il pronoto e le elitre sono coperti di tubercoletti fittissimi e distinti. Edeago figg. 152-153, spermateca fig. 154.

COMPARAZIONI. L'habitus della nuova specie è pressoché identico a quello di *S. variventris* (Kraatz, 1859), largamente diffuso dalle Mascarene alla Nuova Guinea. L'edeago e la spermateca sono simili. Le differenze sono le seguenti: l'apice dell'edeago della nuova specie è più sottile se visto al lato ventrale e i pezzi copulatori del sacco interno sono molto sporgenti dall'orifizio apicale dell'edeago e descrivono un'ampia spirale all'esterno. La parte prossimale della spermateca descrive una spirale nella nuova specie e molte spire in *variventris*.

Stenomastax raptoria sp. n.

Figg. 155-158

TIPI. Holotypus ♂, China, Zhejiang, Tianmushan, 29.IV.1993, de Rougemont leg. (MHNG).

Paratipi: 1 ♀, stessa provenienza; 8 es., China, Yunnan, Xishuangbanna, Jinghong, II.1993, de Rougemont leg.

DESCRIZIONE. Lunghezza 2,0 mm. Corpo debolmente lucido, compresso e bruno con i due uriti basali e l'apice addominale bruno-rossicci; antenne brune con i due antennumeri basali bruno-rossicci; zampe giallo-rossicce. La punteggiatura del capo è fittissima, composta di punti tra loro contigui e svaniti. La reticolazione del pronoto è netta, quella delle elitre e dell'addome è distinta. Il pronoto non presenta distinti tubercoletti o punteggiatura. I tubercoletti che coprono le elitre sono fini e distinti. I quattro uroterghi basali mostrano tubercoletti ben salienti, il quinto urotergo libero è coperto di tubercoletti svaniti. Edeago figg. 155-156, spermateca fig. 157.

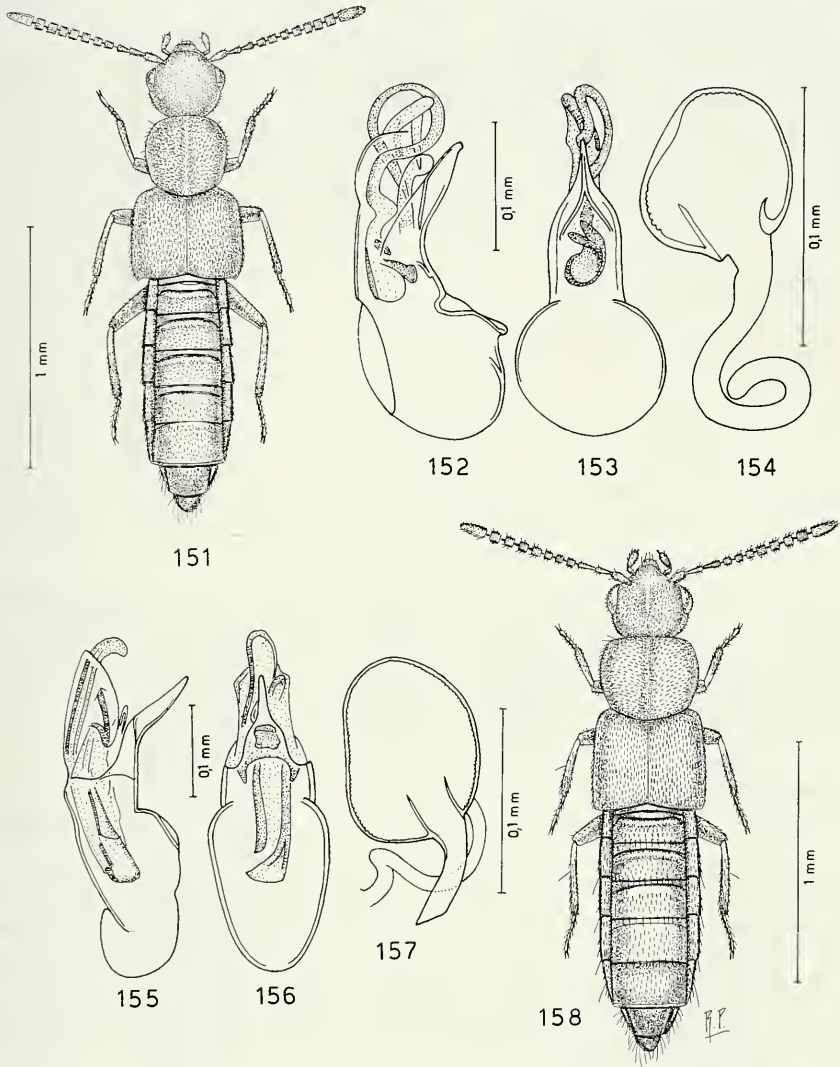
COMPARAZIONI. Per la forma dell'edeago, la nuova specie si mostra affine a *S. celebensis* Pace, 1986, di Celebes. Si distingue per avere l'apice dell'edeago molto più lungo e, se visto ventralmente, protratto a lati paralleli e non a lati convergenti, come in *celebensis*. Inoltre i pezzi copulatori del sacco interno sono nettamente più lunghi e con un gancio apicale, mentre in *celebensis* tale gancio è assente.

Stenomastax diogenes sp. n.

Figg. 159-162

TIPO. Holotypus ♂, China, Zhejiang, Tianmushan, 29.IV.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,0 mm. Capo e pronoto debolmente opachi, resto del corpo lucido. Capo e pronoto neri, elitre giallo-brune con lati esterni e base bruni, estremità addominale bruno-rossiccia; antenne nere con antennumero basale bruno; zampe rossicce. La reticolazione del capo e del pronoto è quasi vigorosa, quella delle elitre è svanita, quella dei tre uroterghi basali è estremamente svanita, quella del quarto urotergo libero è superficiale e quella del quinto è distinta. La punteggiatura del capo è ombelicata e distinta sul disco: sul resto della superficie è confusa nella reticolazione quasi vigorosa. Il pronoto non presenta distinta punteggiatura, nè tubercoletti. I



FIGG. 151-158

Habitus, edeago in visione laterale e ventrale e spermateca. 151-154: *Stenomastax chinensis* sp. n.; 155-158: *Stenomastax raptoria* sp. n.

tuberoletti che coprono le elitre sono superficiali. Edeato figg. 160-161, sesto urotergo libero dal maschio fig. 162.

COMPARAZIONI. Specie molto affine a *S. platygaster* (Kraatz, 1859), largamente distribuito nella Regione Orientale. E' distinta da esso per avere il pronoto più trasverso, il sesto urotergo libero del maschio assai poco incavato al margine posteriore (profondamente incavato in *platygaster*) e per l'apice dell'edeago poco protratto, senza debole gancio apicale e, in visione ventrale, con apice tronco (e non con apice con debole gancio apicale e con apice non tronco come in *platygaster*).

***Stenomastax yunnanensis* sp. n.**

Figg. 163-164

TIPI. Holotypus ♀, China, Yunnan, Ruili, ca. 700 m. de Rougemont leg. (MHNG).
Paratypus: 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 2,1 mm. Corpo debolmente lucido, un po' depresso e bruno con capo e uriti liberi terzo, quarto e base del quinto neri; antenne brune con antenonomero basale bruno-rossiccio; zampe gialle. La reticolazione del corpo è da poco distinta ad assente. La punteggiatura del capo è distinta e fittissima, quella del pronoto e delle elitre è assente per la presenza di una superficie d'aspetto reticolato. I tuberoletti degli uroterghi sono ben salienti. Spermateca fig. 163.

COMPARAZIONI. In base alla forma della spermateca, la nuova specie è affine a *S. variventris* (Kraatz, 1859) largamente diffuso dalle Mascarene alla Nuova Guinea. Ne è distinta per avere il bulbo distale della spermateca più sviluppato, con docce interne molto lunghe (corte in *variventris*) e per la parte prossimale della spermateca stessa descrivente due spire e non rettilinea, con stretta spira terminale come in *variventris*.

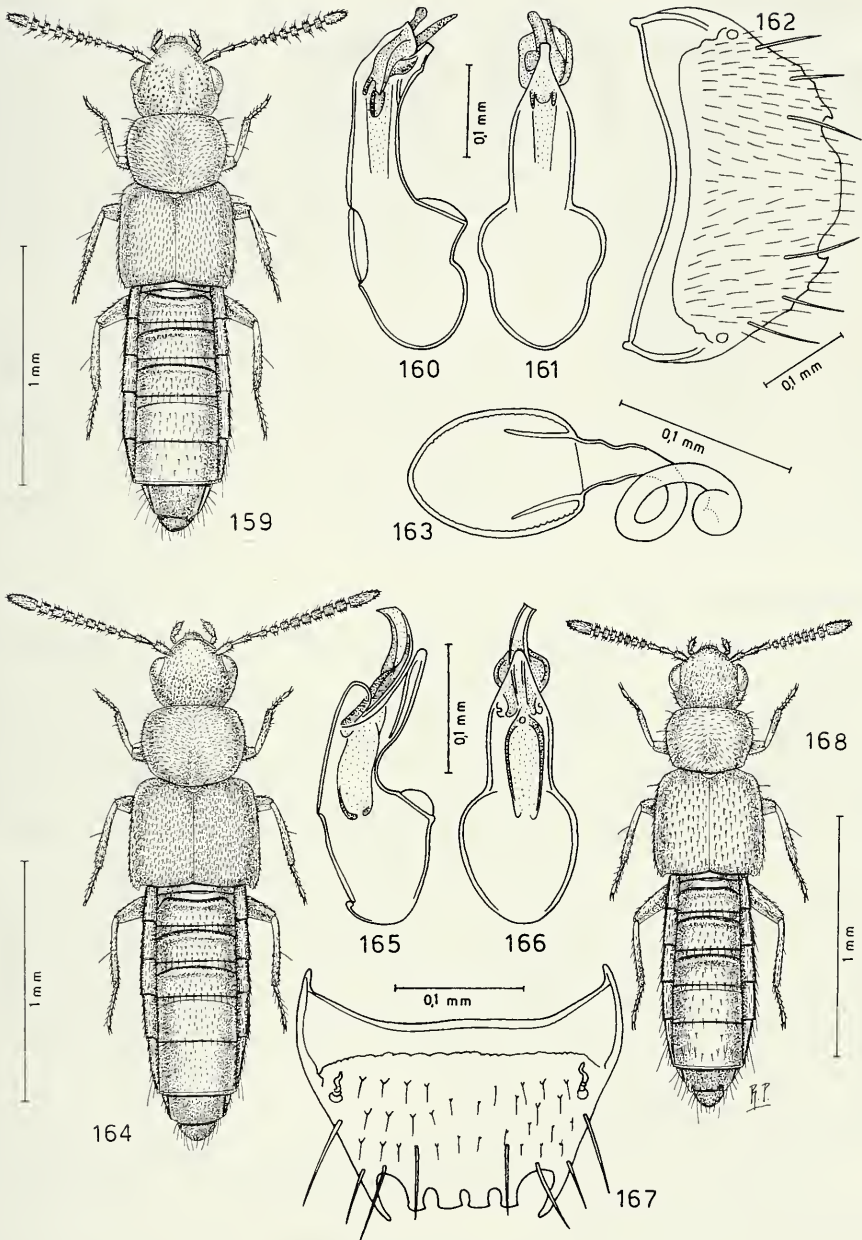
***Stenomastax pulcher* sp. n.**

Figg. 165-168

TIPO. Holotypus ♂, China, Yunnan, Xishuangbanna Mengdian, 26.I.1990, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 1,9 mm. Corpo lucido e rossiccio con capo e quarto urite libero bruni, elitre gialle con i tre quarti posteriori sfumati di bruno; antenne brune con i tre antenomeri basali giallo-rossicci; zampe gialle. La reticolazione del capo è netta, quella del pronoto è nettissima e quella delle elitre e del pronoto è svanita. La punteggiatura del capo è fitta e svanita, quella del pronoto è assente. Distinti tuberoletti coprono la superficie delle elitre e dell'addome. Edeago figg. 165-166, sesto urotergo libero del maschio fig. 167.

COMPARAZIONI. Specie molto affine a *S. distincta* (Pace, 1982), **comb. n.**, "olim" *Anomognathus distinctus* Pace, 1982: 89, del Nepal. *S. pulcher* sp. n. si distingue per avere l'edeago meno profondamente ricurvo al lato ventrale e il pezzo copulatore del sacco interno ricurvo e non rettilineo con un granulo preapicale dorsale come in *distincta*. I denti laterali del margine posteriore del sesto urotergo libero del maschio sono lunghi e stretti nella nuova specie, di conseguenza l'incavatura contigua è molto profonda, mentre in *distincta* i denti laterali del corrispondente urotergo, sono corti e a base assai larga, sicché l'incavatura contigua è poco profonda.



FIGG. 159-168

Habitus, edeago in visione laterale e ventrale, sesto urotergo libero del maschio e spermateca. 159-162: *Stenomastax diogenes* sp. n.; 163-164: *Stenomastax yunnanensis* sp. n.; 165-168: *Stenomastax pulcher* sp. n.

Stenomastax serrula sp. n.

Figg. 169-171

TIPO. Holotypus ♂, China, Yunnan, Xishuangbanna, 20.I.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lungh. 2,0 mm. Avancorpo debolmente lucido, addome lucido. Corpo nero con estremità addominale bruna; antenne nere con i tre antennomeri basali bruni; zampe di un giallo sporco con femori giallo-bruni. La reticolazione del capo è quasi vigorosa, quella del pronoto è vigorosa, quella delle elitre è svanita e quella dell'addome è distinta. La punteggiatura del capo è netta solo sulla metà basale. Il pronoto non mostra punteggiatura, nè tubercoletti. Le elitre sono coperte di tubercoletti distinti. Edeago figg. 170-171.

COMPARAZIONI. La nuova specie presenta l'apice dell'edeago seghettato al lato ventrale. Un simile carattere, ma molto obliterato, si riscontra anche in *S. platygaster* (Kraatz, 1859), dello Sri Lanka, pertanto l'affinità tra le due specie, anche per altri caratteri affini qui non elencati per ragione di brevità, è pressoché sicura. La sinuosità ventrale dell'edeago della nuova specie non si osserva nell'edeago di *platygaster* e il tubulo mediano interno dell'edeago è ricurvo e robusto nella nuova specie e rettilineo ed esile in *platygaster*.

Stenomastax contermina sp. n.

Figg. 172-173

TIPO. Holotypus ♀, China, Zhejiang, Tianmushan, 29.IV.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 1,9 mm. Avancorpo debolmente lucido, addome lucido. Capo bruno, pronoto bruno-rossiccio, elitre giallo-brune, addome giallo-rossiccio con gli uriti liberi terzo, quarto e base del quinto bruni; antenne brune con i tre antennomeri basali rossicci; zampe gialle. La reticolazione del capo e del pronoto è netta, quella delle elitre è distinta. La punteggiatura del capo è molto svanita e confusa. Il pronoto e le elitre mostrano tubercoletti poco distinti. Spermateca fig. 173.

COMPARAZIONI. Per la presenza di un largo solco mediano del pronoto e per la forma della spermateca, la nuova specie si pone tassonomicamente vicina a *S. tuberculicollis* (Kraatz, 1859), diffusa dallo Sri Lanka al Borneo e presente anche in Cina. Il bulbo distale della spermateca è subsferico nelle due specie, però nella nuova specie il bulbo prossimale dello stesso organo è nullo, mentre in *tuberculicollis* è ben conformato e terminante con una corta spira.

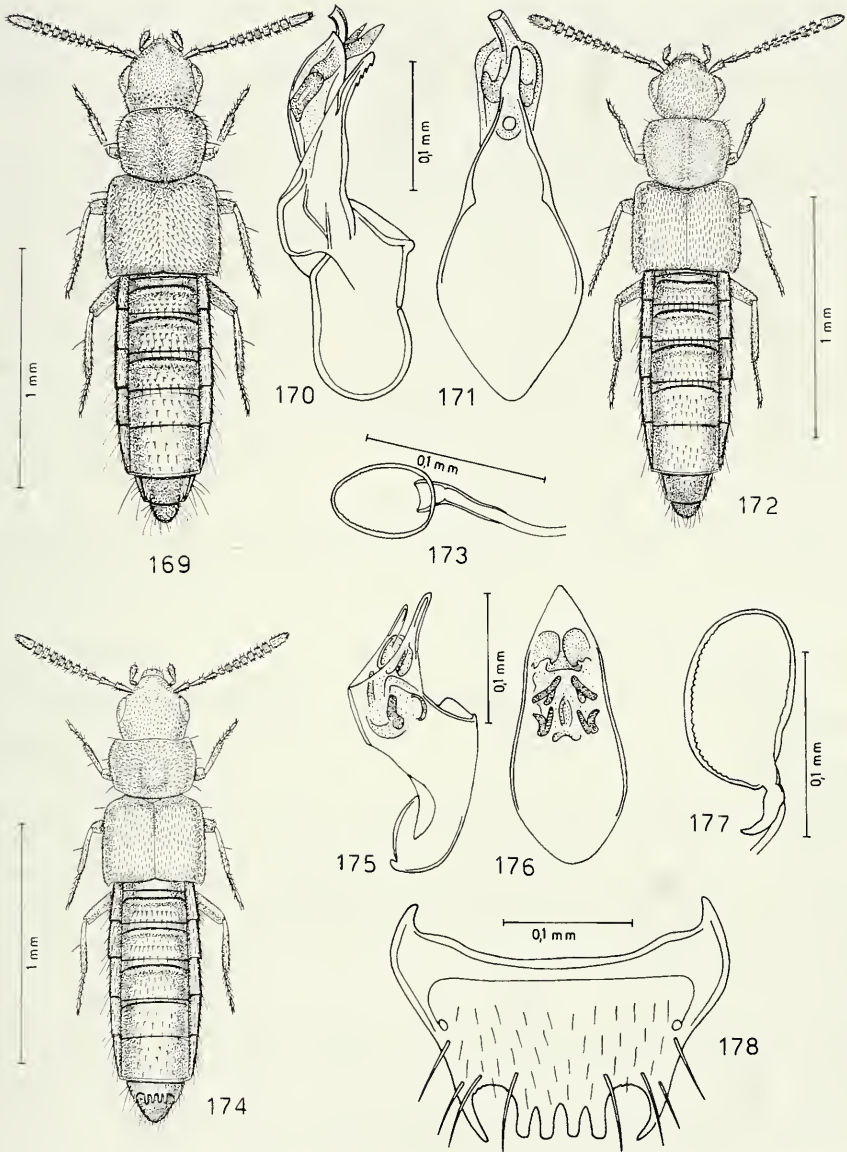
Stenomastax kadooriorum sp. n.

Figg. 174-178

TIPI. Holotypus ♂, Hong Kong, Kadoorie Farm, V.1996, de Rougemont leg. (MHNG).

Paratypi: 1 ♂, Hong Kong, XII.1995-I.1996, de Rougemont leg.; 1 ♀, Hong Kong, Tai Po, VII.1996, de Rougemont leg.

DESCRIZIONE. Lunghezza 1,8 mm. Avancorpo debolmente lucido, addome lucido. Corpo giallo-rossiccio con capo ed elitre, tranne la base, rossicci, quarto urite libero bruno; antenne brune con i tre antennomeri basali giallo-rossicci e metà apicale dell'undicesimo rossiccio; zampe gialle. La reticolazione del capo è svanita, visibile solo ai lati esterni, quella del pronoto è netta e quella delle elitre e dell'addome



FIGG. 169-178

Habitus, edeago in visione laterale e ventrale, spermateca e sesto urotergo libero del maschio.
 169-171: *Stenomastax serrula* sp. n.; 172-173: *Stenomastax contermina* sp. n.; 174-178: *Stenomastax kadoorium* sp. n.

assente. La punteggiatura del capo è distinta e fitta. Il pronoto presenta tuberoletti confusi nella reticolazione. I tuberoletti che coprono la superficie delle elitre sono svaniti. Edeago figg. 175-176, spermateca fig. 177, sesto urotergo libero del maschio fig. 178.

COMPARAZIONI. Per la forma dell'edeago molto simile e per la presenza di 4 denti e 2 spine al margine posteriore del sesto urotergo libero del maschio, la nuova specie si colloca tassonomicamente vicino a *S. densissima* Cameron, 1941, delle Filippine (di cui è noto solo l'holotypus maschio). Enormi differenze si notano nella forma e dimensione dei pezzi copulatori del sacco interno dell'edeago. *S. densissima* mostra un robustissimo pezzo copulatore semicircolare nel sacco interno dell'edeago, accompagnato da tre spine diafane, mentre la nuova specie mostra vari pezzi copulatori tra loro separati. I 4 denti al margine posteriore del sesto urotergo libero del maschio della nuova specie sono tra loro ugualmente distanziati, mentre in *densissima* sono raggruppati due a due e a metà del margine vi è un largo intervallo. Inoltre le spine laterali dello stesso urotergo non superano la lunghezza dei denti nella nuova specie, mentre in *densissima* li superano di molto.

ETIMOLOGIA. Specie dedicata ai fratelli Kadoorie, grandi filantropi di Hong Kong per aver fondato il "Kadoorie Agricultural Research Centre" dell'Università di Hong Kong.

Placusa (Calpusa) yunnanicola sp. n.

Figg. 179-183

TIPI. Holotypus ♂, China, Yunnan, Xishuangbanna Jinghong, II.1993, de Rougemont leg (MHNG).

Paratypi: 1 ♀, stessa provenienza; 1 ♂ e 2 ♀♀, Hong Kong, XII.1995-I.1996, de Rougemont leg.

DESCRIZIONE. Lunghezza 1,9 mm. Corpo lucido e bruno; antenne brune con i due antennomeri basali e la base del terzo gialli; zampe gialle. La reticolazione del capo e dell'addome è svanita, quella del pronoto è molto superficiale e quella delle elitre è distinta. La punteggiatura del capo è svanita. Il pronoto e le elitre sono coperti di tuberoletti distinti. Edeago figg. 180-181, spermateca fig. 182, sesto urotergo libero della femmina fig. 183.

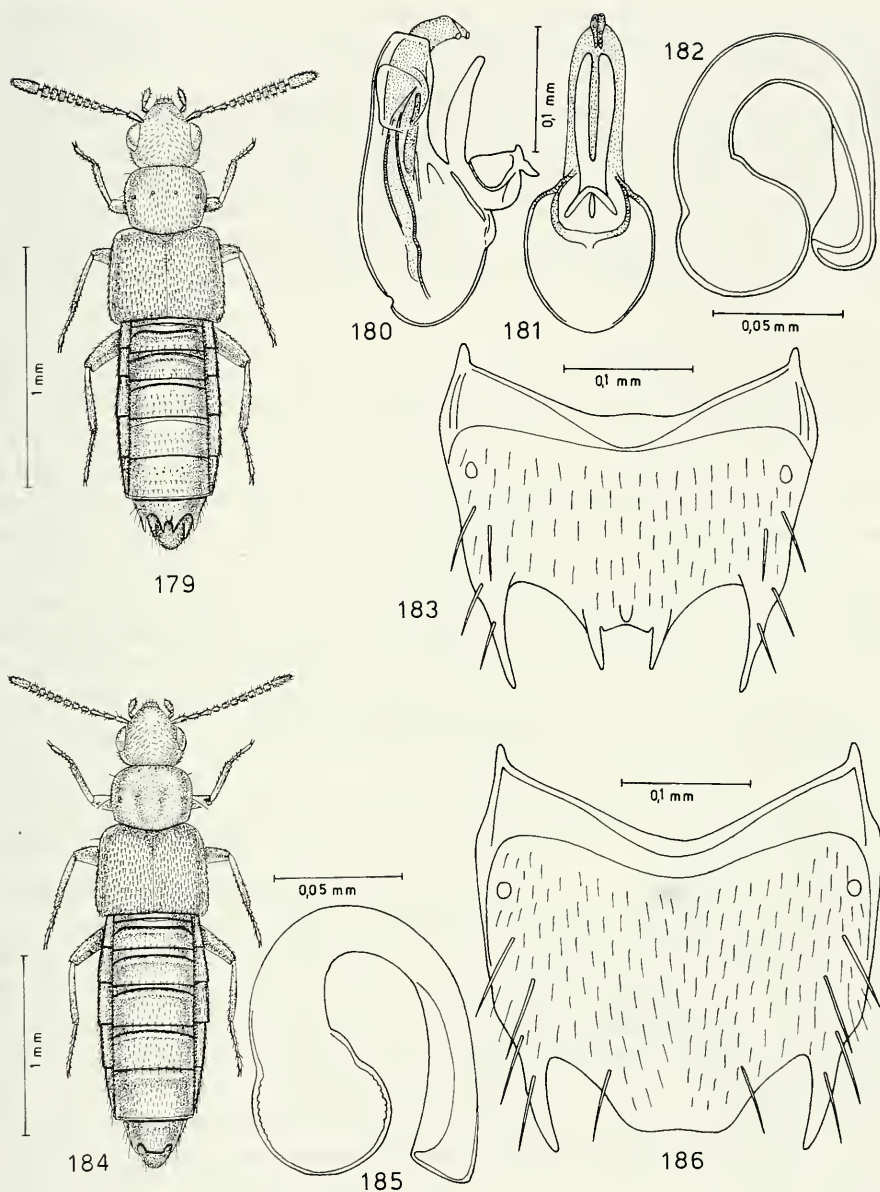
COMPARAZIONI. Specie, a una superficiale osservazione, apparentemente identica a *P. furcifera* Pace, 1986 di Bali. E' invece ben distinta per lo stretto apice delle due appendici ventrali dell'edeago, per la spermateca più robusta (con parte prossimale della spermateca nettamente sottile in *furcifera*) e per i sottili e lunghi denti del margine posteriore del sesto urotergo libero della femmina e del maschio.

Placusa (Calpusa) sculpticollis sp. n.

Figg. 184-186

Tipo. Holotypus ♀, China Yunnan, Xishuangbanna, Sanchahe, elephant res., 24.I.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,2 mm. Corpo lucido e bruno con margine posteriore degli uroterghi basali giallo-brunni; antenne brune con i due antennomeri basali e la base del terzo gialli; zampe giallo-brune con femori bruno-rossicci. La reticolazione del



FIGG. 179-186

Habitus, edeago in visione laterale e ventrale, spermateca e sesto urotergo libero della femmina.
 179-183: *Placusa (Calpusa) yunnanicola* sp. n.; 184-186: *Placusa (Calpusa) sculpticollis* sp. n.

capo, delle elitre e dell'addome è distinta, quella del pronoto è svanita. La punteggiatura del capo è svanita. Tuberoletti distinti stanno sul pronoto e sulle elitre. Spermateca fig. 185, sesto urotergo libero della femmina fig. 186.

COMPARAZIONI. La nuova specie si distingue da *P. yunnanicola* sp. n. sopra descritta perché ha pronoto con due deboli fossette longitudinali posteriori, invece di un debole solco mediano posteriore come in *yunnanicola*. La spermateca della nuova specie è dello stesso tipo di *yunnanicola*, ma la sua parte prossimale è distintamente più lunga e termina ad angolo, invece di essere arrotondata. Ma è la forma del margine posteriore del sesto urotergo libero della femmina della nuova specie che distingue nettamente i due taxa, figg. 183 e 186.

Placusa (s. str.) montium sp. n.

Figg. 187-188

TIPO. Holotypus ♀, China, Gansu Mts., 25 Km E Xiahe, 2805-2925 m, 3.VIII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 2,6 mm. Corpo debolmente lucido e nero pece; antenne brune con i due antennomeri basali bruno-rossicci; zampe bruno-rossicce con femori bruni. Avancorpo coperto di fitti tuberoletti molto salienti. L'addome mostra una fitta pubescenza d'aspetto sericeo. Spermateca fig. 188.

COMPARAZIONI. Specie affine a *P. acuminata* Kraatz, 1859, dello Sri Lanka, distinta per avere il quarto antennomero nettamente trasverso (e non lungo quanto largo come in *acuminata*), per gli occhi meno ridotti e soprattutto per avere la spermateca più sottile e più lunga, tanto che la sua parte prossimale descrive una spirale (spermateca a forma della lettera S rovesciata e robusta, senza spirale prossimale in *acuminata*).

Linoglossa (Axinocolya) chinensis sp. n.

Figg. 189-190

TIPO. Holotypus ♀, China, Sichuan, Gongga Shan, above capo 2, 2800 m, 25.VII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 4,7 mm. Corpo lucido e bruno scuro con addome bruno; antenne brune; zampe rossicce. Il capo presenta un profondo solco discale a superficie non reticolata, ai lati la reticolazione è vigorosa; tuberoletti svaniti coprono la superficie. Il pronoto è coperto di tubercoli robusti e salienti sulla fascia mediana e radi e fini ai lati; esiste una profonda fossetta posteriore. Le elitre sono coperte di tubercoli allungati molto salienti, soprattutto verso i lati esterni; la loro superficie è priva di reticolazione, come quella dell'addome. Spermateca fig. 190.

COMPARAZIONI. La nuova specie è affine a *L. smetanai* Pace, 1989, del Nepal, ciò in base all'habitus simile e per la struttura della spermateca. Le differenze più evidenti sono le seguenti: il pronoto della nuova specie non è marcatamente sinuato davanti agli angoli posteriori come in *smetanai*, inoltre tubercoli grossolani sono addensati sulla fascia longitudinale mediana del pronoto della nuova specie, mentre in *smetanai* i tubercoli sono uniformemente distribuiti sul pronoto. E' tuttavia la spermateca che presenta i caratteri differenziali più marcati: il bulbo distale della spermateca della nuova specie è molto più lungo e appena reniforme, mentre in *smetanai* è nettamente reniforme, con lato destro profondamente angolare verso l'interno.

BOLITOCARINI

Omologlusa gen. n.

Figg. 191-195

DIAGNOSI. Genere che mostra alcuni caratteri riscontrabili anche nel genere *Neoleptusa* Cameron, 1939, dell'India, Nepal e delle Filippine. E' chiaramente distinto per la ligula assai larga e appena incavata al margine anteriore, per il lobo esterno delle mascelle molto corto e, soprattutto, per il tipo di spermateca nuovo per i generi della tribù. La sua forma, se non si osservasse la formula tarsale 4-4-5, indurrebbe a porre senza difficoltà il nuovo genere nella tribù Athetini, in cui tale tipo di spermateca è frequente.

DESCRIZIONE. Capo e pronoto piuttosto stretti rispetto alle larghe elitre; collo largo; antenne corte; palpi mascellari di 4 articoli: il quarto è ipertrofico rispetto il secondo che è corto, fig. 195; lobo interno delle mascelle robusto, con una fila di 8 spine marginali interne assai lunghe; lobo esterno molto corto, sicché il ciuffo di setole apicali è molto sviluppato in lunghezza; palpi labiali di 3 articoli: i primi due sono corti e larghi, fig. 192; ligula larghissima e intera, con margine anteriore appena incavato; paraglosse nulle; margine anteriore del mento rettilineo, fig. 193; processo mesosternale a punta acuta, sicché le mesocoxe sono contigue tra loro; formula tarsale 4-4-5; pro-mesotibie con due lunghe setole esterne, metatibie lungamente ciliate esternamente; primo tarsomero posteriore corto; spermateca trisinuata: è presente l'introflessione apicale del bulbo distale, fig. 194.

TYPUS GENERIS: *Omologlusa rougemonti* sp. n.

ETIMOLOGIA. Il nome del nuovo genere significa "Colei che è ammessa concordemente".

GENERE GRAMMATICALE. Il nuovo genere è femminile.

Omologlusa rougemonti sp. n.

Figg. 191-195

TIPO. Holotypus ♀, China, Beijing, Xiaolongmen, 1100-1500 m, 1.VII.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,0 mm. Corpo lucido e rossiccio con addome bruno-rossiccio; antenne brune con i due antennomeri basali e l'apice dell'undicesimo bruno-rossicci; zampe gialle. La reticolazione del disco del capo è netta, quella dei lati e della parte posteriore è svanita, quella del pronoto e delle elitre è netta e quella dell'addome è distinta. La punteggiatura del capo è fine e distinta, come quella del pronoto. Tubercoli poco distinto stanno sulla superficie delle elitre. Spermateca fig. 194.

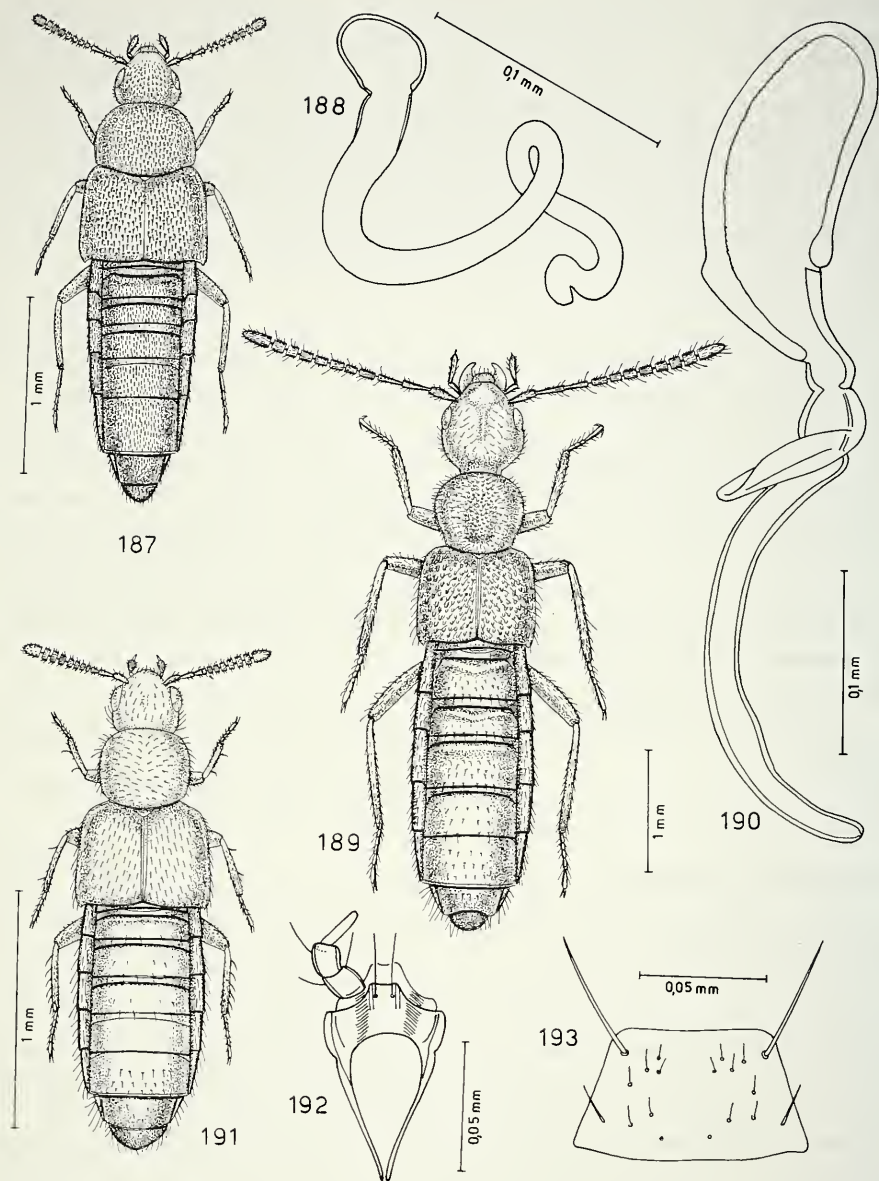
Phymatura chinensis sp. n.

Figg. 196-200

TIPI. Holotypus ♂, China, Sichuan, Gongga Shan, above camp 3, 3050 m, 22.VII.1994, A. Smetana leg. (MHNG).

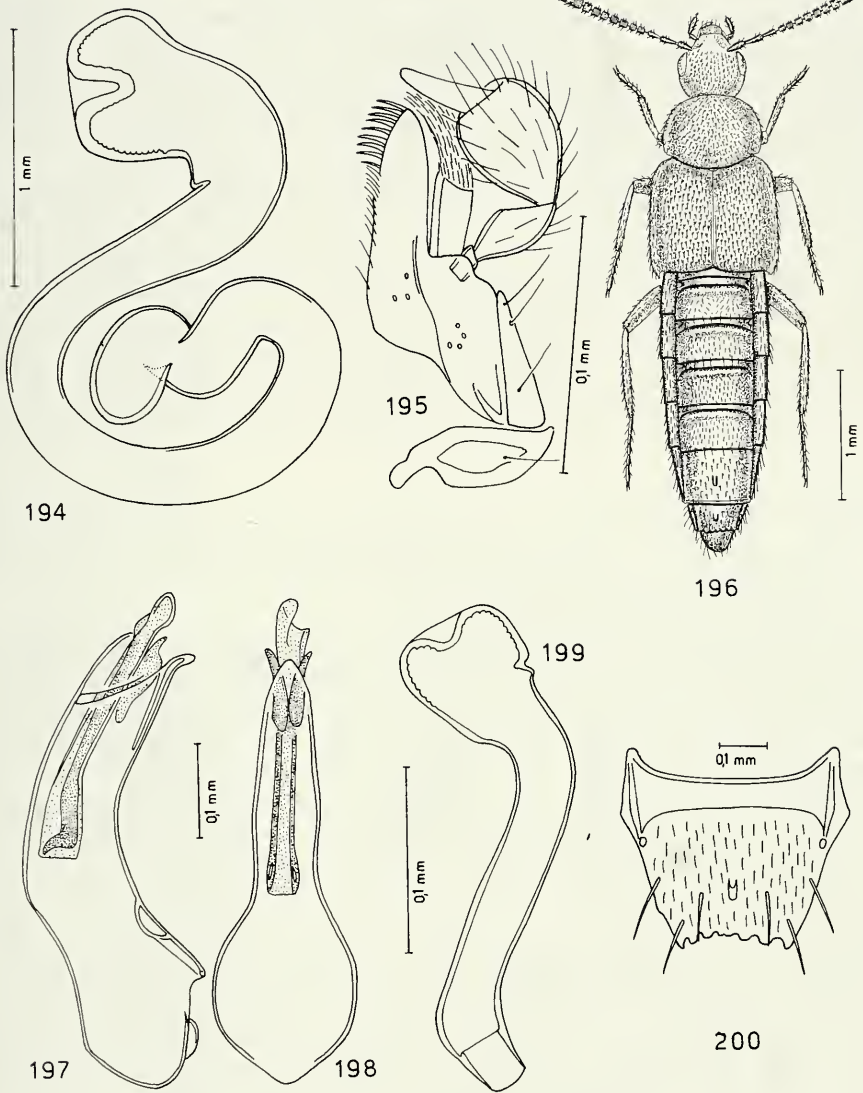
PARATYPI: 2 ♀ ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 4,0 mm. Corpo debolmente lucido. Capo nero-bruno, pronoto di un rossiccio sporco, elitre brune con omeri rossicci, addome di un rossiccio



FIGG. 187-193

Habitus, spermatheca, labio con palpo labiale e mento. 187-188: *Placusa* (s. str.) *montium* sp. n.; 189-190: *Linoglossa* (*Axinocolya*) *chinensis* sp. n.; 191-193: *Omologlusa rougemonti* gen. n., sp. n.



FIGG. 194-200

Spermateca, mascella con palpo mascellare, habitus, edeago in visione laterale e ventrale e sesto urotergo libero del maschio. 194-195: *Omologlusa rougemonti* gen. n., sp. n.; 196-200: *Phymatura chinensis* sp. n.

sporco con uriti liberi quarto e base del quinto bruni; antenne rossicce con i tre antenomeri basali giallo-rossicci; zampe rossicce. La reticolazione del capo è fine e svanita, quella del pronoto e delle elitre è distinta e quella dell'addome assente. I tuberoletti che coprono il capo sono salienti, quelli del pronoto e delle elitre sono più fitti di quelli del capo e superficiali. L'addome è coperto di fitta pubescenza. Edeago figg. 197-198, spermateca fig. 199, sesto urotergo libero del maschio fig. 200.

COMPARAZIONI. In base alla forma dell'edeago e della spermateca, la nuova specie è vicina tassonomicamente a *P. picta* Cameron, 1939, dell'India. Se ne distingue agevolmente perché ha taglia corporea maggiore (4,0 mm, invece di 2,7 mm, in base a mia misurazione di un esemplare maschio da me scelto come lectotypus. Cameron dà solo la misura di 3,5 mm). Inoltre l'edeago della nuova specie è poco arcuato al lato ventrale e ha un robusto pezzo copulatore (fortemente arcuato e con sottile pezzo copulatore in *picta*) e per la spermateca che nella nuova specie non ha bulbo distale così dilatato e con profonda e larga introflessione apicale, quanto quello della spermateca di *picta*.

Phymatura smetanai sp. n.

Figg. 201-205

TIPI. Holotypus ♂, China, Sichuan, Gongga Shan, above camp 3, 3050 m, 22.VII.1994, A. Smetana leg. (MHNG).

Paratypus: 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 3,8 mm. Corpo lucido. Capo nero-bruno, pronoto di un rossiccio sporco; elitre dello stesso colore, con il quarto posteriore bruno, addome rossiccio con una fascia mediana bruna sugli uroterghi basali e con gli uroterghi liberi quarto e base del quinto pure bruni; antenne rossicce con i tre antenomeri basali giallo-rossicci; zampe rossicce. La reticolazione del capo e del pronoto è distinta, quella delle elitre è svanita e quella dell'addome è molto superficiale. I tuberoletti che coprono il capo sono salienti, quelli del pronoto sono molto salienti e quelli dell'addome sono svaniti. La punteggiatura delle elitre è fitta e distinta. Edeago figg. 202-203, spermateca fig. 204.

COMPARAZIONI. Poiché il margine posteriore del sesto urotergo libero del maschio della nuova specie è privo di denti mediani, *P. smetanai* sp. n. potrebbe essere affine a *P. intermedia* Cameron, 1939, dell'India. Tuttavia la taglia corporea della nuova specie è maggiore (3,8 mm, invece di 2,7-3,1 mm), gli uriti liberi quinto e sesto sono privi di tubercolo mediano e i dentini del margine posteriore del quinto urotergo libero del maschio, sono meno lunghi e a ciascun lato di essi un dente è minuscolo e non supera in lunghezza i denti contigui (li supera di molto in *intermedia*).

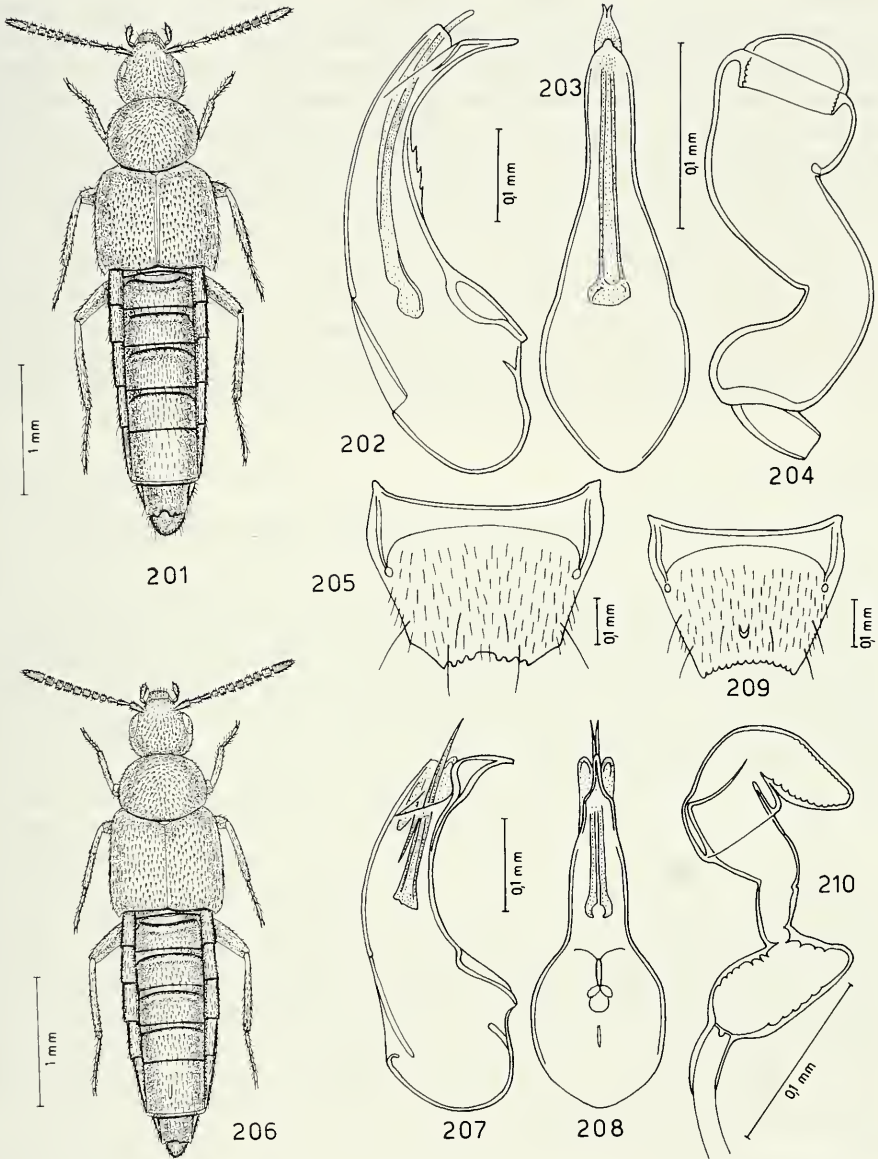
ETIMOLOGIA. Specie dedicata al suo raccoglitore, il Dr. Ales Smetana del "Centre for Land and Biological Resources Research" di Ottawa e insigne stafilinidologo.

Phymatura gonggaensis sp. n.

Figg. 206-210

TIPI. Holotypus ♂, China, Sichuan, Gongga Shan, above camp 3, 3050 m, 22.VII.1994, A. Smetana leg (MHNG).

Paratypi: 1 ♂ e 2 ♀♀, stessa provenienza.



FIGG. 201-210

Habitus, edeago in visione laterale e ventrale, spermateca e sesto urotergo libero del maschio.
 201-205: *Phymatura smetanai* sp. n.; 206-210: *Phymatura gonggaensis* sp. n.

DESCRIZIONE. Lunghezza 3,6 mm. Corpo debolmente lucido. Capo nero-bruno, resto del corpo bruno con margine posteriore del quinto urotergo libero e l'estremità addominale rossicci; antenne bruno-rossicce con i quattro antenomeri basali giallo-rossicci; zampe rossicce con femori bruni. La reticolazione del capo è molto svanita, quella del pronoto è superficiale e quella delle elitre è distinta. I tubercoli della superficie del capo e dell'addome sono distinti, quelli del pronoto sono molto salienti. La punteggiatura delle elitre è svanita. Edeago figg. 207-208, sesto urotergo libero del maschio fig. 209, spermateca fig. 210.

COMPARAZIONI. Una specie di *Phymatura* che presenta una quindicina di corti dentini al margine posteriore del sesto urotergo libero del maschio, non è stata finora ancora osservata. D'altronde anche la spermateca ha una conformazione tale che si discosta dal tipo di spermateca usuale in *Phymatura*: il bulbo distale assume forma di berretto frigio e il bulbo prossimale è chiaramente ben conformato (poco distinto in altre specie).

***Pseudatheta cooteri* sp. n.**

Figg. 211-212

TIPO. Holotypus ♀, China, Jiangsu Prov., Nanjing Zijinshan, 8.V.1996, J. Cooter leg. (MHNG).

DESCRIZIONE. Lunghezza 1,8 mm. Corpo lucido e giallo-bruno con pronoto bruno-rossiccio ed estremità addominale rossiccia; antenne nero-brune con i due antenomeri basali gialli; zampe giallo-rossicce. La reticolazione del capo è svanita, quella del pronoto e delle elitre è distinta e quella dell'addome è molto superficiale. La punteggiatura del capo è assai svanita. Il resto del corpo è coperto di tubercoli distintamente salienti. Spermateca fig. 212.

COMPARAZIONI. Per la forma simile della spermateca, la nuova specie è forse affine a *P. elegans* Cameron, 1920, di Singapore e dell'India. Se ne distingue per avere gli occhi più sviluppati, sicché le tempie sono molto più corte degli occhi (e non lunghe quanto gli occhi come in *elegans*); per il pronoto meno trasverso, con rapporto larghezza/lunghezza pari a 1,27 (1,35 in *elegans*) e soprattutto per la maggiore dimensione della spermateca, con bulbo distale lievemente conico (e non reniforme come in *elegans*), con microscultura reticolare sulla parete interna della parte mediana e del bulbo prossimale della spermateca (senza microscultura reticolare alla spermateca di *elegans*).

ETIMOLOGIA. Specie dedicata al suo raccogliatore Jonathan Cooter di Hereford (Gran Bretagna), noto studioso di Liodidae.

***Methistemistiba* gen. n.**

Figg. 213-216

DIAGNOSI. Corpo simile a *Placusa*; ma per i palpi labiali di tre articoli si colloca nella tribù Bolitocharini. Tra i generi della tribù Bolitocharini, solo il genere *Leptusa* Kr. presenta ligula intera, come quella del nuovo genere, tuttavia in *Leptusa* è molto stretta e molto lunga. Inoltre il tipo di spermateca del nuovo genere non si è mai osservato nel genere *Leptusa*, a cui perciò non appartiene.

DESCRIZIONE. Capo e pronoto appena più stretti delle elitre; addome a lati appena divergenti all'indietro; tempie marginate; palpi mascellari di 4 articoli: il secondo è poco più stretto del terzo; lobo esterno delle mascelle lungo, con corte setole apicali; lobo interno delle mascelle stretto, con 5 corte e robuste spine al margine interno; palpi labiali di 3 articoli: il secondo è molto lungo, fig. 215; ligula intera, appuntita e molto larga; paraglosse nulle; mento a margine anteriore pressoché retto, fig. 216; processo mesosternale appuntito; mesocoxe contigue tra loro; formula tarsale 4-4-5; primo tarsomero posteriore corto; tibie con due setole erette esterne; spermateca a forma della lettera Z, robusta e con enorme introflessione apicale del bulbo distale, fig. 214.

TYPUS GENERIS. *Methistemistiba zhejiangensis* sp. n.

ETIMOLOGIA. Il nome del nuovo genere significa "Orma che si colloca altrove".

GENERE GRAMMATICALE. *Methistemistiba* gen. n. è di genere femminile.

***Methistemistiba zhejiangensis* sp. n.**

Figg. 213-216

TIPO. Holotypus ♀, China, Zhejiang Prov., Lin'an County, 350 m, W. Tianmu Shan N.R., 16-22.V.1996. J. Cooter leg. (MHNG).

DESCRIZIONE. Lunghezza 2,0 mm. Corpo lucido e rossiccio con una bruna fascia che non tocca i margini basale e posteriore, sugli uriti liberi terzo, quarto e quinto; antenne e zampe giallo-rossicce. La reticolazione del capo è molto svanita, quella del pronoto e dell'addome è distinta e quella delle elitre è netta. Le maglie di reticolazione sui quattro uriti basali sono molto trasverse: il quinto urite ha tali maglie trasverse solo ai lati esterni. I tubercoletti della superficie del capo sono quasi indistinti, quelli del pronoto e delle elitre sono assai svaniti. Spermateca fig. 214.

SAHLBERGIINI

***Derougemontius* gen. n. (vedi Addenda)**

Figg. 217-224

DIAGNOSI. Per avere il collo stretto, le mandibole senza dente interno, antennumeri compatti e formula tarsale 4-5-5 il nuovo genere può essere incluso nella tribù Sahlbergiini Kistner, 1993, anche se la base dell'addome non è molto ristretta, né le zampe sono molto lunghe. Per questi due ultimi caratteri e per la particolare forma del capo, del pronoto e delle elitre sarebbe necessaria istituire una nuova tribù.

Il nuovo genere ha dei caratteri simili a quelli del genere *Loeblius* Pace, 1985b, come la forma delle antenne e la struttura della spermateca.

DESCRIZIONE. Capo con sporgenze acute laterali, fig. 218; collo stretto; antenne di 11 antennumeri, fig. 222; tempie non marginate; palpi mascellari di 4 articoli: il secondo e il terzo sono simili tra loro; lobo esterno delle mascelle più lungo dell'interno che mostra lunghe spine al margine interno; palpi labiali di 3 articoli: il primo è più lungo del secondo, fig. 220; ligula larghissima, divisa in due lembi larghi; paraglosse nulle; labbro superiore, fig. 221; prosterno crestato sulla linea mediana anteriore e lievemente su quella posteriore, fig. 223; pronoto semicircolare, con una larga impressione

mediana e una a ciascun lato; processo mesosternale molto prolungato fra le mesocoxe che sono fra loro lievemente separate; elitre con depressione laterale limitata da uno spigolo saliente; formula tarsale 4, 5, 5; primo tarsomero posteriore appena allungato, fig. 224; spermateca a struttura bisinuata, con distinta introflessione apicale del bulbo distale, fig. 219.

TYPUS GENERIS. *Derougemontius mirabilis* sp. n.

ETIMOLOGIA. Genere dedicato al suo raccogliitore Guillaume de Rougemont di Londra, noto studioso di Staphylinidae.

GENERE GRAMMATICALE. *Derougemontius* gen. n. è di genere maschile.

***Derougemontius mirabilis* sp. n.** (vedi Addenda)

Figg. 217-224

TIPI. Holotypus ♀, Hong Kong, Tai Po, flight interception trap, V.1996, de Rougemont leg. (MHNG).

Paratypus: 1 ♀, Hong Kong, Kadoorie, Agricultural Research Centre, flight interception trap, VI.1996, de Rougemont leg.

DESCRIZIONE. Lunghezza 2,0 mm. Avancorpo debolmente opaco, addome debolmente lucido. Corpo bruno con pronoto avente le parti concave laterali rossicce, con elitre giallo-brune e con addome giallo-rossiccio; antenne brune con i due antennomeri basali giallo-rossicci e i successivi antennomeri fino al sesto rossicci; zampe giallo-rossicce. Il capo è coperto di tuberoletti tra loro contigui che danno un aspetto cesellato alla superficie e presenta una profonda impressione a V sulla fronte. Il pronoto è coperto di tuberoletti tra loro contigui che danno un aspetto rugoso alla superficie e mostra un largo e profondo solco mediano, limitato a ciascun lato da una profonda concavità. Le elitre hanno superficie d'aspetto crivellato dato che la punteggiatura è composta di punti tra loro contigui; lateralmente esse mostrano una profonda depressione limitata all'esterno da una saliente carena. Il fondo del solco trasverso basale del primo urotergo libero mostra una fila di setole. Tutto l'addome è coperto di corte e aderenti setoline. Spermateca fig. 219.

EUSTENIAMORPHINI

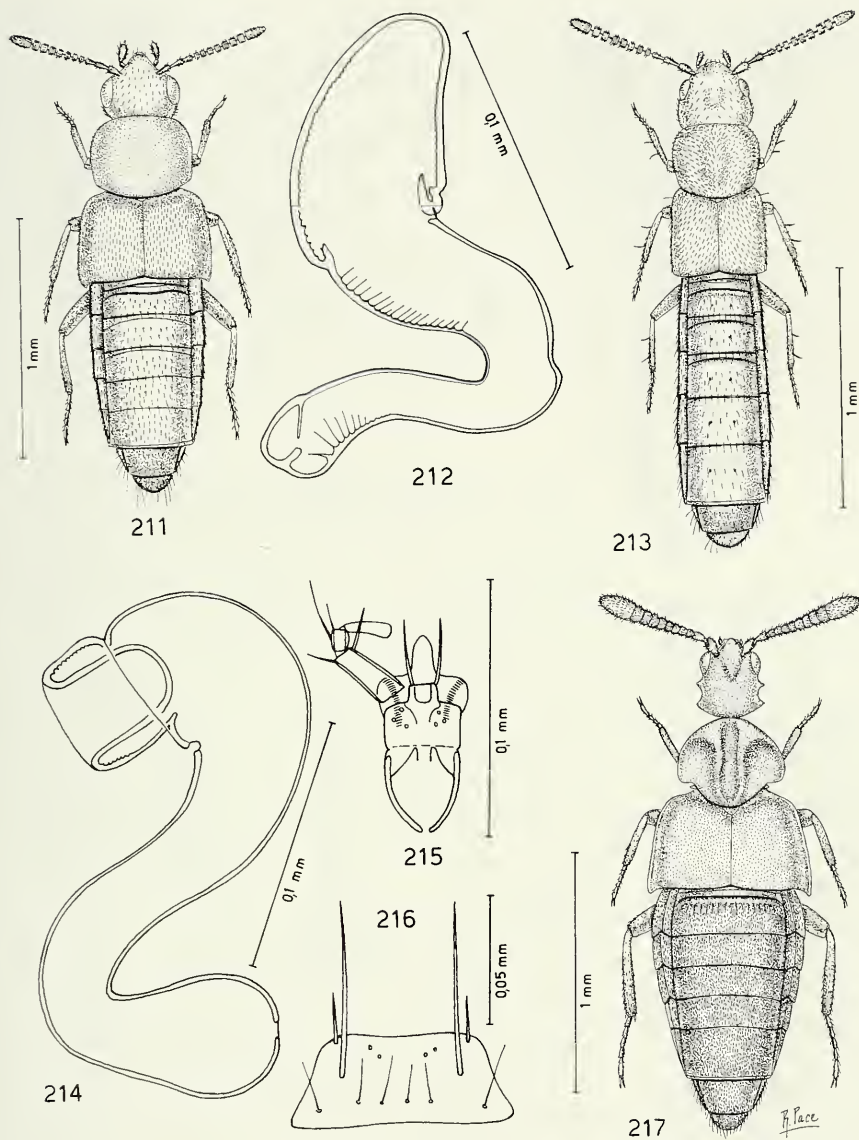
***Eusteniamorpha zhejiangensis* sp. n.**

Figg. 225-226

TIPI. Holotypus ♀, China, Zhejiang, Tianmushan, 2.IX.1994, de Rougemont leg. (MHNG).

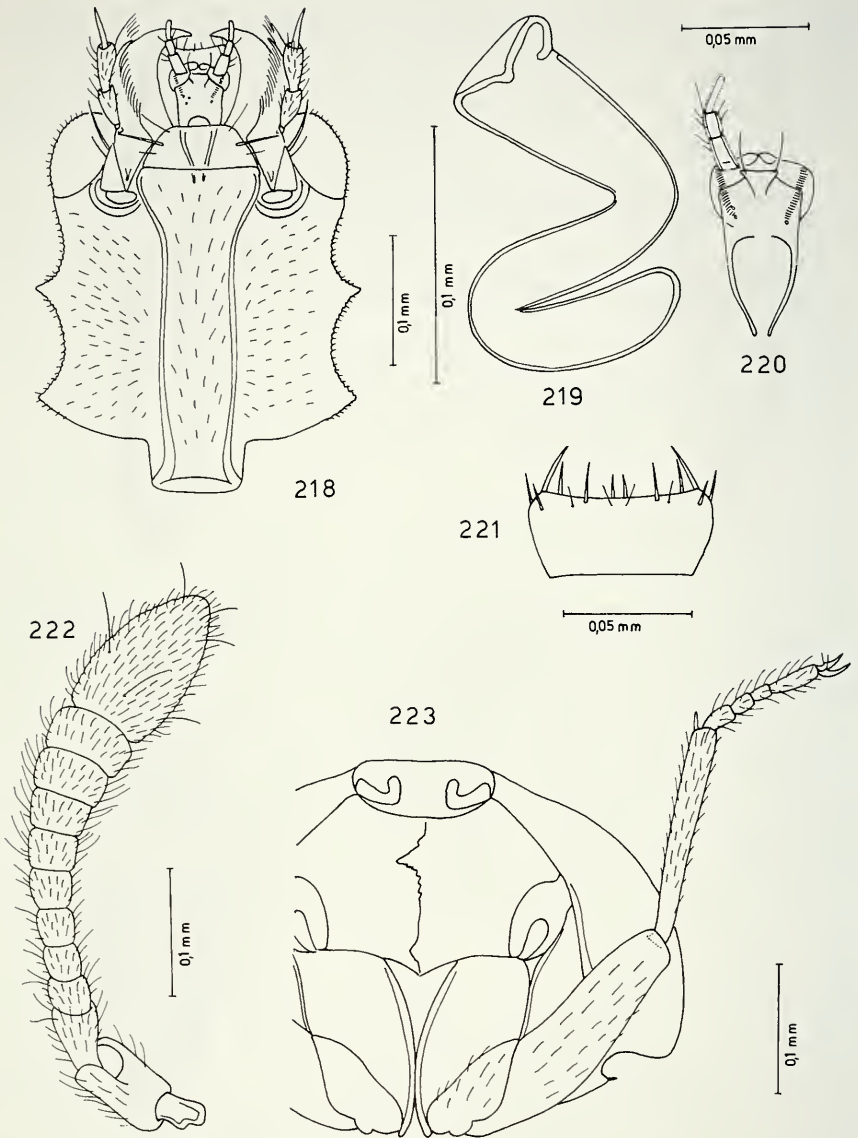
Paratypus: 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 1,9 mm. Avancorpo debolmente lucido, addome lucido. Corpo rossiccio con capo ed elitre bruno-rossicci; antenne rossicce; zampe giallo-rossicce. Il capo e il pronoto sono coperti di tuberoletti molto salienti che danno l'aspetto di una superficie di raspa. Il solco mediano del pronoto è distinto: a ciascun lato di esso verso la base del pronoto una fossetta è profonda. La punteggiatura delle elitre è irregolarmente distribuita ed è composta di punti grandi e di punti fini poco visibili per il fondo nettamente reticolato a maglie ampie. I tuberoletti che coprono gli uriti sono superficiali. Spermateca fig. 226.



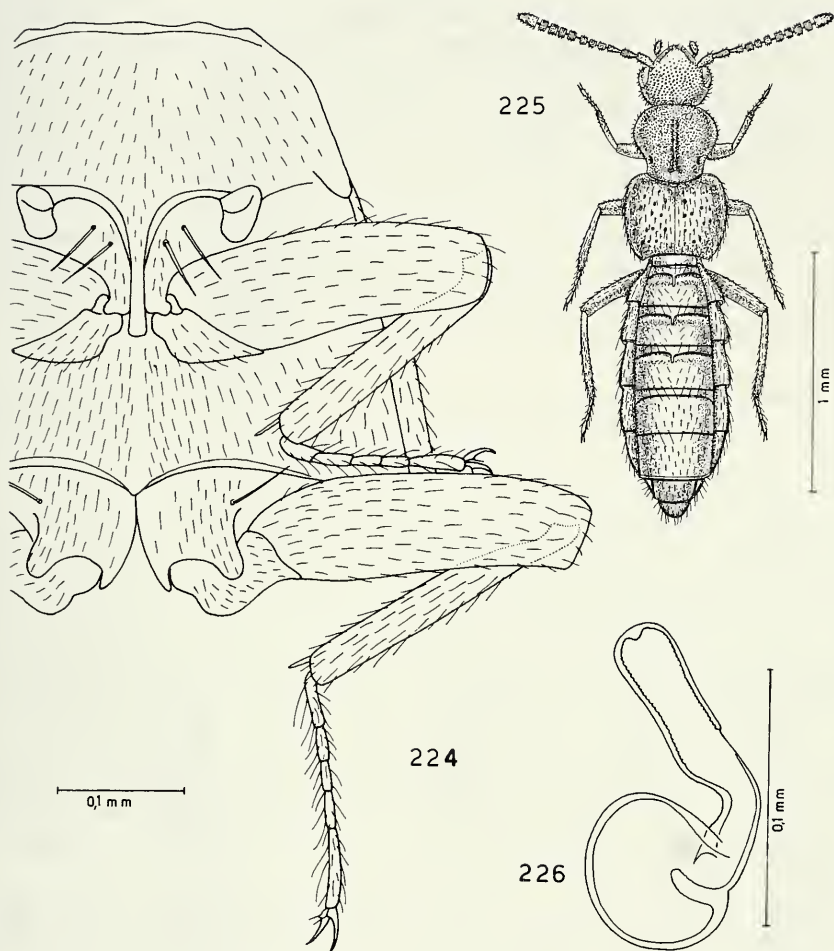
FIGG. 211-217

Habitus, spermateca, labio con palpo labiale e mento. 211-212: *Psendatheta cooteri* sp. n.; 213-216: *Methistemistiba zhejiangensis* gen. n., sp. n.; 217: *Derougemontinus mirabilis* gen. n. sp. n. (vedi Addenda).



FIGG. 218-223

Capo in visione ventrale, spermateca, labio con palpo labiale, antenna e prosterno con protibia. 218-223: *Derougemontius mirabilis* gen. n. sp. n., (vedi Addenda).



FIGG. 224-226

Meso-metasterno con meso-metatibia, habitus e spermateca. 224: *Derougemontius mirabilis* gen. n., sp. n.; 225-226: *Eusteniamorpha zhejiangensis* sp. n.

COMPARAZIONI. La nuova specie è tassonomicamente affine a *E. livida* Bernhauer, 1928, delle Filippine, ciò in base alla forma simile della spermateca. Ma la nuova specie ha il bulbo distale della spermateca molto lungo, con microscultura interna evidente e introflessione apicale poco sviluppata, mentre *livida* ha bulbo distale corto, con poco distinta microscultura interna e con introflessione apicale molto profonda. Inoltre il bulbo prossimale della spermateca è più sviluppato in *livida*, che nella nuova specie. Anche esternamente si notano differenze: gli occhi della nuova specie sono molto più sviluppati, mentre in *livida* sono ridotti, sicché le tempie sono molto più lunghe degli occhi. Il pronoto della nuova specie è lievemente trasverso, mentre in *livida* è lievemente più lungo che largo. Le elitre della nuova specie mostrano punteggiatura composta di punti grandi e irregolarmente distribuiti, mentre in *livida* la superficie delle elitre è coperta da distinti tubercoli.

***Eusteniamorpha ruiliensis* sp. n.**

Figg. 227-230

TIPI. Holotypus ♂, China, Yunnan, Ruili, ca. 700 m, 3.II.1993, de Rougemont leg. (MHNG).

Paratypi: 5 ♀♀, stessa provenienza.

DESCRIZIONE. Lunghezza 2.1 mm. Capo e pronoto molto opachi, resto del corpo lucido. Capo bruno, pronoto bruno-rossiccio con larga fascia rossiccia al margine posteriore, elitre brune con base bruno-rossiccia, addome rossiccio con uriti liberi quarto e quinto bruni; antenne bruno-rossicce con i due antennomeri basali rossicci; zampe rossicce. Il capo è coperto da tubercoli tra loro contigui che conferiscono alla superficie un aspetto aspro. La medesima superficie sta sul pronoto, ma è estesa solo fino all'altezza della profonda fossetta mediana posteriore: qui la superficie è liscia e lucida, con una fila di punti a ciascun lato. Debole è il solco mediano del pronoto. La punteggiatura delle elitre è profonda e irregolarmente distribuita, su un fondo non reticolato. L'urotergo basale presenta una fossetta mediana basale attraversata da una carena. Tutti gli uroterghi sono coperti di punteggiatura fine su un fondo non reticolato. Edeago figg. 228-229, spermateca fig. 230.

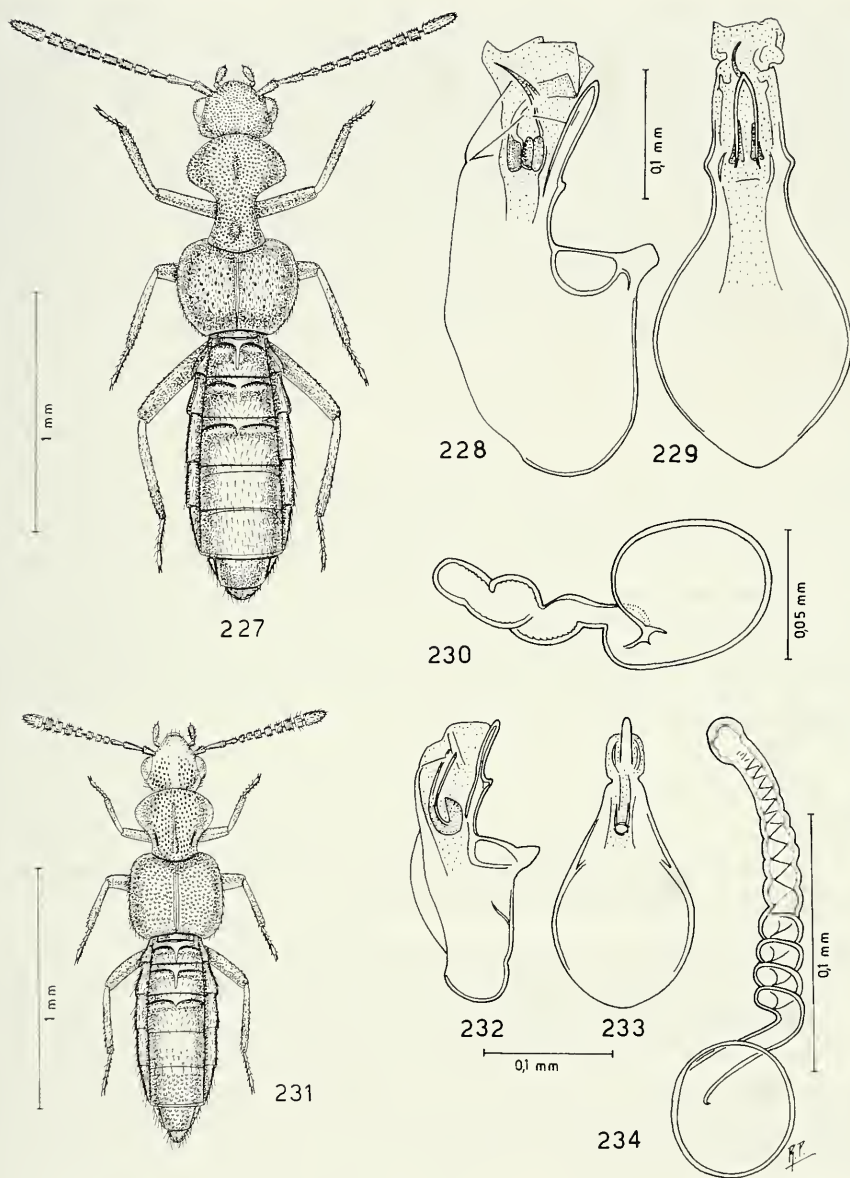
COMPARAZIONI. La nuova specie presenta grande taglia corporea e pronoto fortemente ristretto all'indietro, pertanto mostra affinità con *E. moustrosicollis* Bernhauer, 1928, delle Filippine, specie nota per il solo holotypus femmina. *E. ruiliensis* sp. n. si distingue da essa perché non ha un solco mediano e due fossette basali del pronoto come in *moustrosicollis*, ma un corto e superficiale solco mediano e una fossetta mediana posteriore. La carena mediana del primo urotergo libero della nuova specie, non raggiunge il margine posteriore dell'urotergo stesso, mentre in *moustrosicollis* lo raggiunge. E' tuttavia la forma delle spermateca che permette una netta distinzione delle due specie. La nuova specie ha bulbo distale della spermateca molto lungo, mentre in *moustrosicollis* è cortissimo.

***Eusteniamorpha chinensis* sp. n.**

Figg. 231-234

TIPI. Holotypus ♂, China, Yunnan, Ruili, ca. 700 m, 3.II.1993, de Rougemont leg. (MHNG).

Paratypi: 2 ♀♀, stessa provenienza, ma anche in data 4.II.1993.



FIGG. 227-234

Habitus, edeago in visione laterale e ventrale e spermateca. 227-230: *Eusteniamorpha ruiiensis* sp. n.; 231-234: *Eusteniamorpha chinensis* sp. n.

DESCRIZIONE. Lunghezza 1,7 mm. Corpo lucido. Capo bruno, pronoto bruno-rossiccio, elitre brune con base bruno-rossiccia, addome rossiccio con uriti liberi terzo, quarto e quinto bruni; antenne rossicce; zampe giallo-rossicce. La punteggiatura del capo è fitta e profonda, assente su una fascia longitudinale mediana. La punteggiatura del pronoto è pure profonda e fitta, ma assente lungo i lati esterni dove la superficie appare lucidissima. Il solco mediano del pronoto posteriormente si divide in due rami lievemente scostati tra loro. A ciascun lato di detto solco sta una profonda fossetta basale. Le elitre sono coperte di robusti tubercoli molto salienti che scompaiono lungo una fascia del margine posteriore. I tubercoli dell'addome sono svaniti, tranne che sulla metà posteriore del quarto urite libero dove i tubercoli sono salienti e sul quinto dove sono molto salienti, come sul sesto. Edeago figg. 232-233, spermateca fig. 234.

COMPARAZIONI. La spermateca della nuova specie ha parte distale che descrive numerose spire che si fondono tra loro distalmente. Un tale tipo di spermateca hanno due specie: *E. aspera* (Fauvel, 1905), di Giava (nota sul solo holotypus femmina) ed *E. philippina* Bernhauer, 1928, delle Filippine. Tuttavia, mentre la parte distale della spermateca di *aspera* descrive soltanto 7 spire, di cui le ultime 3 sono tra loro fuse, e la parte prossimale della spermateca di *philippina* descrive 4 spire libere e un numero imprecisabile di spire fuse tra loro, tanto da formare una parte del bulbo semplicemente stretto e lungo, la nuova specie ha la parte distale della spermateca che descrive 4 spire libere e circa 10 spire fuse tra loro. Per questi caratteri e per la cortissima appendice ventrale dell'edeago (molto lunga invece in *philippina*), la nuova specie si distingue nettamente dalle due citate specie e da altre che hanno caratteri differenziali in numero maggiore.

ADDENDA

Il presente lavoro era già stato consegnato per la pubblicazione, quando verso la fine del 1997 è stato pubblicato il seguente lavoro:

KISTNER, D.H., WEISSFLOG, A., ROSCISZEWSKI & MASCHWITZ, U. 1997.

New Species, New Genera and New Records of Myrmecophyls Associated with Arma Ants (*Aenictus* sp.) with the Description of a New Subtribe of Staphylinidae (Coleoptera; Formicidae: Aenictinae). *Sociobiology* 29: 123-221.

In questo lavoro è descritto il nuovo genere *Dentaphila* Kistner. Esso è lo stesso genere da me descritto nel presente lavoro con il nome di *Derongemontins*. Pertanto va stabilita la seguente sinonimia:

Dentaphila Kistner, 1997: 182

Derongemontins Pace, 1998, *hoc opus*, **syn. n.**

La nuova specie descritta nel presente lavoro resta invece valida per l'assenza di spine alla base del collo, per il capo meno lungo, per l'assenza di due fossette anteriori del pronoto e per altri caratteri. Essa pertanto va chiamata *Dentaphila mirabilis* (Pace, *hoc opus*).

RINGRAZIAMENTI

Rivolgo i miei più sentiti ringraziamenti a quanti mi hanno generosamente affidato in studio le Aleocharinae della Cina oggetto del presente lavoro e frutto di recenti raccolte: il Dr. Ales Smetana di Ottawa, i colleghi Guillaume de Rougemont di Londra, Jonathan Cooter di Hereford (Gran Bretagna), Garry Ades, Graham Reels, il Dr. Jeng-Tze Yang del "National Chung Hsing University" di Taiwan e il Dr. Shuqiang Li di Stuttgart (Germania). Per il prestito di tipi e di materiale di confronto, ringrazio molto il Dr. A. F. Newton del "Field Museum of Natural History" di Chicago, il Dr. P. M. Hammond del "Natural History Museum" di Londra, il Dr. L. Baert dell'"Institut Royal des Sciences Naturelles" di Bruxelles, il Dr. H. Schönmann del "Naturhistorisches Museum" di Vienna e il Dr. L. Zerche del D.E.I. di Eberswalde.

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et la Société suisse de Zoologie

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Comité de lecture

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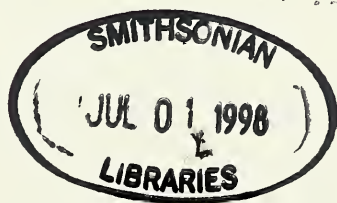
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A review of Aleocharine Rove Beetles from the Galápagos Islands, Ecuador (Coleoptera: Staphylinidae, Aleocharinae)

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A review of Aleocharine Rove Beetles from the Galápagos Islands, Ecuador (Coleoptera: Staphylinidae, Aleocharinae). - The Galápagos aleocharine rove beetles are reviewed. Fifteen species (3 new), in 9 genera and 7 tribes are recognised in our collections: Athetini: *Atheta (Acrotona) pseudoclaudiensis* sp. n. (endemic), *A. (Atheta) coriaria* (Kraatz) (introduced, new record), *A. lurida* (Erichson) (native), *A. dichroa* (Gravenhorst) (native), *A. galapagoensis* Pace (endemic); Myllaenini: *Myllaena leleupi* Pace (endemic); *Rothium littoralis* sp. n. (probably endemic); Hypocyphitini (=Oligotini): *Oligota (Holobus) chrysopyga* Kraatz (introduced, new record); Homalotini (=Bolitocharini): *Diesota (Apheloglossa) franzi* (Pace) (status uncertain, possibly endemic), *D. (Apheloglossa) leleupi* Pace (probably endemic), *Phanerota tridentata* sp. n. (probably introduced), *Thecturota franzi* Pace (probably endemic); Falagriini: *Myrmecocephalus concinnus* (Erichson) (introduced, new record); Placusini: *Euvira scalesia* sp. n. (endemic, new record) and Oxypodini: *Feluva franzi* Pace (probably endemic). The tribes Falagriini, Hypocyphitini and Placusini are reported from the islands for the first time. *Diesota galapagosensis* Pace (1985a), and *Rothium ashlocki* Ahn & Ashe (1996), previously reported from Galápagos, are not confirmed in our material. All but the unconfirmed species are described/redescribed and their diagnostic features illustrated. Data on bionomics and species affiliations are briefly discussed. Keys for identification are provided. Most naturally occurring species occur in the arid vegetation zone. The 17 known species seem to represent at least 17 separate colonization events.

Key-words: Coleoptera - Staphylinidae - Aleocharinae - Galápagos Islands - native species - endemic species - island insects.

INTRODUCTION

The Galápagos Islands of Ecuador (Map. 1) lie 800-1000 km west of the coast of Ecuador, and span 304 km east to west and 341 km northwest to southeast. There are 45 named islands, islets, or rocks. The total land area is approximately 7856 km². The largest island is Isabela (4670 km²), and the second largest island is Santa Cruz (904 km²). The next five islands in order of size are Ferdinandina (635 km²), Santiago (572 km²), San Cristóbal (552 km²), Floreana (171 km²), and Marchena (130 km²). The islands are oceanic and volcanic in origin. They lie at the edge of the Central Pacific dry zone with two seasons: rainy and warm from about January to May, and dry and cool from about May to December (PECK & KUKALOVÁ-PECK 1990).

Scientific interest in the fauna and flora of the Galápagos Archipelago was first generated after Charles Darwin and H.M.S. Beagle visited the islands in 1835. The islands are now considered as a model system for estimating the dynamics of biotic dispersal to, evolutionary differentiation in, and ecological structuring of oceanic islands (PECK & KUKALOVÁ-PECK 1990). Darwin collected a total of 29 beetle species, which were described in 1845 by Waterhouse (VAN DYKE, 1953). The general beetle fauna was reviewed by PECK & KUKALOVÁ-PECK (1990), and the entire insect fauna was summarized by PECK (1996). There are now 418 known beetle species in 238 genera belonging to 59 families of Coleoptera (PECK 1996).

The vegetation and moisture conditions in the islands change seasonally and from sea level to the top of the volcanic mountains, two of which reach an elevation of about 1700 m. The following seven biotic zones are reported for the large main islands (PECK & KUKALOVÁ-PECK 1990, PECK 1991, 1996): littoral zone, arid zone, transition zone, humid forest zone, evergreen shrub zone, fern-sedge or "pampa" zone, and an agricultural zone. The littoral zone: a narrow belt of salt tolerant vegetation (mangroves, succulents) extending from the beach line to some 10 m or more inland. The arid zone: the largest zone of microphyllous and xerophytic vegetation (*Jasminocereus* and *Optuntia* cacti, seasonally deciduous trees of *Acacia*, *Bursera*, and *Prosopis*) extending up to 80-120 m altitude on the southerly face of the islands and up to 200-300 m on the leeward side of the larger islands. The transition zone: a relatively more moist zone consisting of some evergreen plants and numerous tree species, including the genera *Pisonia*, *Pisidium* and *Piscidia*. The humid forest (or *Scalesia*) zone: a mesophyllous, mainly evergreen forest often with a rich undergrowth, extending from 180 to 550 m with average rainfall 1040 mm. The forest often contains endemic trees of *Scalesia pedunculata*, other *Scalesia* species and *Zanthoxylum*. The evergreen shrub (or *Miconia*) zone: a zone above the humid forest, especially on Santa Cruz, Santiago, and San Cristóbal, extending from about 450 to 625 m (average rainfall 1694 mm), and often dominated by the endemic *Miconia robinsoniana* a mesophyllous evergreen shrub often forming a low closed canopy with a dense growth of epiphytic mosses and liverworts. A fern-sedge (or pampa) zone: a zone extending from 550 to 650 m to 1000 m or more on the mountains on higher islands, lacking native woody vegetation, sometimes with abundant *Pteridium* bracken fern. The agricultural zone: a human-influenced zone dominated by intro-

duced plants in the altered vegetation of former transition, humid forest and evergreen shrub zones.

In 1981 COIFFAIT reviewed the rove beetles from the Galápagos, with new collections from N. & L. Leleup. The latest review of the Galápagos aleocharine rove beetles was that of PACE (1985a), based on material collected by Prof. H. Franz in 1975. He recorded 9 aleocharine species, of which 6 were described as new to science, all belonging to four tribes: Bolitocharini (*sensu* Pace), Callicerini (=Athetini), Myllaenini, and Oxypodini. His studies were a well illustrated contribution but were unfortunately based on a small sample size and very restricted collecting area and time period.

The results reported here are based on very large sample sizes and extensive collecting over 5 expeditions, temporally extending from early January to July, totalling 15 months of field work. We here present new records for 15 species of aleocharines in 9 genera (*Atheta*, *Diesota*, *Euvira*, *Feluva*, *Myllaena*, *Oligota*, *Phanerota*, *Rothium*, *Thecturota*) in 7 tribes (Athetini, Falagriini, Homalotini, Hypocyphtini, Myllaenini, Oxypodini, Placusini). Six species in four genera, *Atheta*, *Euvira*, *Oligota*, *Phanerota*, and three tribes, Falagriini, Hypocyphtini, Placusini, are recorded from Galápagos for the first time (see Table 1). Knowledge of the South American aleocharines, including Colombia, Ecuador, Peru and the West Indies, despite several recent publications (AHN & ASHE 1996, PACE 1982, 1983a, b, c, 1984, 1985a, b, 1986, 1987a, b, c, 1988, 1990a, b) is still fragmentary. This is the major predicament in assessing the origin and phylogenetic affiliations of Galápagos aleocharine beetles, and Galápagos insects in general. However, our preliminary assessment indicates 11 species to be potentially endemic, 2 to be native (to South America), and 4 probably represent very recent accidental introductions by humans (*Atheta coriaria*, *Myrmeccephalus cingulatus*, *Oligota chrysopyga*, *Phanerota tridentata*) (see Table 1 for details). The species of the genera *Diesota*, *Euvira*, *Feluva*, *Myllaena*, *Phanerota*, *Rothium* and *Thecturota*, are ultimately of South American origin, while *Oligota* is cosmopolitan and the *Atheta* are either endemic (*A. galapagoensis*, *A. pseudo-claudiensis*), or cosmopolitan (*A. coriaria*), or of South American origin (*A. dichroa*, *A. lurida*). The genus *Diesota* is particularly species rich on the South American mainland where it has undergone a massive radiation (PACE 1985a, 1986). No endemism at the generic level in Aleocharinae was found, which indicates fairly recent colonizations. As indicated by KUSCHEL (1963) the arthropod fauna of the archipelago is young, but he placed its origin as far back as the Eocene or part of the Oligocene. Present geological understanding places the origin of the present islands to be about 3.5 million years at most (PECK 1996).

The Galápagos Islands are famous for Darwin's Finches, a classic group showing within-archipelagic species formation and adaptive radiation. One might expect other groups of Galápagos organisms to provide similar examples. Do we see this in the aleocharine staphylinids?

Of the 10 genera present, only three have more than one endemic species: *Rothium* (2 species), *Diesota* (3 species) and *Atheta* (2 species). In no case is it clear

that these represent sister species decendant from a single common ancestor and originating from within the Archipelago (only *D. galapagoensis* has not been seen by us, but the other two *Diesota* are more closely comparable to different continental species). Thus, the pattern seems to be that each of the 17 known species originated from at least 17 separate colonization events (in the distant past (Pleistocene) for the endemic species, in Holocene times or more recently for the native species, and in Historical times for the introduced species. This lack of within-archipelago species multiplication is similar to the pattern found by BORKENT (1991), in which the 11 known species of Galápagos ceratopogonid flies represent 10 or 11 separate colonization events, and is the norm in Galápagos insects (PECK 1996).

Table 2 shows the distribution of our samples of aleocharine species in the different vegetation zones. The highest species diversity is equivalent in the arid, transition and humid forest zones with 10 species each, and 9 species in the evergreen shrub zone. Thus, the species diversity is relatively uniform through these 4 vegetation zones. Excluding introduced species yields a diversity which decreases with increased elevation: arid (9), transition (8), humid forest (7), littoral and evergreen shrub (6), and pampa (4). Six of nine non-introduced species occurring in transition to evergreen shrub zones are able to persist after these are converted to agriculture.

MATERIAL AND METHODS

Approximately 7321 specimens, collected by S. B. Peck and associates during 5 expeditions to the Galápagos (1985-1996) were examined in this study. The majority of specimens were collected in Flight Interception Traps (FIT), Malaise traps, carrion baited pitfall traps, by sifting litter, and by general collecting. Many specimens were dissected to confirm an identity based on genitalic structures. Genitalia and terminalia were dehydrated in absolute ethanol, washed in xylene, and embedded in Canada balsam on small microslides attached to the pins with the specimens. The habitus illustrations were made using a drawing tube attached to a WILD M3Z stereomicroscope. Genital structures were studied using an image processing system consisting of a compound microscope (JENAMED 2), digital camera (JAVELIN) and an IBM computer with an image processing programe (COMPUTER EYES/1024, Digital Vision). The images were printed in Microsoft Word and used for tracing. All drawings were inked on V-C® tracing film.

The terminology used in this paper follows that of ASHE (1984), HOEBEKE (1985), KLIMASZEWSKI (1982a, b), and SEEVERS (1978). The following main taxonomic sources were consulted in the course of this study: AHN & ASHE 1996, ASHE (1984), BERNHAUER (1907, 1908, 1941), BERNHAUER & SCHEERPELTZ (1926), COIFFAIT (1981), ERICHSON (1840), FAIRMAIRE & GERMAIN (1861), FAUVEL (1865), HOEBEKE (1985), KLIMASZEWSKI (1982a, b), KUSCHEL (1963), LOHSE *et al.* (1990), PACE (1982, 1983a, b, c, 1984, 1985a, b, 1986, 1987a, b, c, 1988, 1990a, b), SCHUBERT (1849), SOLIER (1849), and VAN DYKE (1953).

CONVENTIONS

1. Localities and specimen data:

Localities are grouped under individual island names, which form the Galápagos Archipelago (see Map 1). We use the conventional Ecuadorian (not English) names for the indicated islands.

2. Specimen Repository abbreviations:

- DEI Deutsches Entomologisches Institut, Ebersvalde, Germany; (L. Zerche)
HFC H. Franz collection, Modling, Austria
HUB Museum für Naturkunde, Humboldt Universität, Berlin, Germany; (M. Uhlig)
IRSNB Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium; D. Drugmand
JKC J. Klimaszewski collection, BC Research Inc., Vancouver, Canada
RPC R. Pace collection, Verona, Italy
SBPC S. B. Peck collection, Carleton University, Ottawa, Canada
SEM Snow Entomological Museum, University of Kansas, Lawrence, U.S.A.

Surplus specimens from SBPC will be deposited first in the collections of the Muséum d'Histoire Naturelle, Geneva, Switzerland; and then in Canadian National Collection, Agriculture Canada, Ottawa; Charles Darwin Research Station, Santa Cruz, Galápagos; and the Catholic University, Quito, Ecuador.

3. Citation of information on primary type labels:

Text of each label is enclosed within double quotes (“”), a forward slash (/) with a space on each side separates each line, and information enclosed by brackets ([]) provides further details about the specimen associated with the label.

4. Terms:

Frank & McCoy (1990) proposed definitions and a classification of commonly used terms such as “introduced” and “endemic” as applied to species occurring in an area under discussion. They recommend the use of “precinctive” rather than “endemic” when referring to species confined to an area, because of prior and continuing use of “endemic” in a somewhat different sense in epidemiology. However, we prefer to continue to use “endemic” in its traditional biogeographic sense. It is a well understood zoological term, is commonly used in entomological literature, and is unlikely to be confused with its use in epidemiology. We also use the term “native” for those species which have probably arrived through natural dispersal (from Mexico or Central and South America) and “introduced” for those accidentally brought in by human activity. We know of no intentional introductions of insects into the Galápagos Islands, for bio-control or other purposes. While our use of terms may not satisfy everybody, it is consistent with the established literature on Galápagos organisms and ideas of their origins and distribution.

RESULTS

SYSTEMATICS

Order Coleoptera

Family Staphylinidae

Subfamily Aleocharinae

KEY TO TRIBES OF ALEOCHARINAE RECORDED FROM GALÁPAGOS

1. Antenna 10-segmented with distinct 4-segmented club (Fig. 3), tarsal formula 4-4-4 Hypocyptini (=Oligotini) (*Oligota* p. 229)
- Antenna 11-segmented without distinct club, tarsal formula not as above . . . 2
- 2(1). Tarsal formula 4-5-5 3
- Tarsal formula 4-4-5 or 5-5-5 5
- 3(2). Antennal segments 8-11 bead-shaped, pronotum trapezoidal, widest at apex and narrowest at base (Fig. 2), wings absent, labial palpi extremely elongate (Fig. 18) Myllaenini (*Rothium* p. 227)
- Antennal segments 8-11 never bead-shaped, pronotum differently shaped, widest at base or at middle, wings present, labial palpi moderately elongate 4
- 4(3). Head with clearly visible slender neck, pronotum with median sulcus, body ant-like (Fig. 14), legs extremely elongate Falagriini (*Myrmecocephalus* p. 243)
- Head without clearly visible slender neck, pronotum without median sulcus, body not ant-like (Figs 9-13), legs moderately elongate Athetini (*Atheta* p. 236)
- 5(2). Tarsal formula 5-5-5 Oxypodini (*Feluva* p. 244)
- Tarsal formula 4-4-5 6
- 6(5). Body elongate, fusiform (Fig. 1), with evenly dense, short and adhering pubescence directed posteriorly, abdomen with lateral bristles, labial palpi extremely elongate Myllaenini (*Myllaena* p. 227)
- Body narrowly elongate but not fusiform, pubescence not as above, abdomen without or with less pronounced lateral setae, labial palpi short (exception: *Diesota*) 7
- 7(6). Head approximately quadrate, genae angular posteriorly, neck distinct and narrow, one half as wide as head (Fig. 8) Placusini (*Euvira* p. 235)
- Head not as above, neck not visible from above (Figs 4-7)
- Homalotini (=Bolitocharini) (*Diesota*, *Phanerota*, *Thecturota* p. 230, 231, 232)

I. TRIBE Myllaenini Ganglbauer, 1895

(for details on characteristics and phylogenies see AHN & ASHE 1996, KLIMASZEWSKI 1982a, 1992)

D i a g n o s i s . Tarsal formula 4-4-5 or 4-5-5; body fusiform (*Myllaena*, Fig. 1) or subparallel (*Rothium*, Fig. 2); abdomen with protruding prominent setae; labial palpi exceptionally elongate (3-segmented in *Rothium*, Fig. 18); maxillary palps 4-segmented, last segment minute; tergite 10 deeply bifid (*Myllaena*) or entire (*Rothium*). Hydrophilous species with *Rothium* confined to the seashores of the Pacific coast of Mexico, Ecuador, Peru, and the Galápagos (Ahn & Ashe 1996). Inclusion of *Rothium* in Myllaenini (Ahn & Ashe 1996) requires redefinition of the tribe.

1. *Myllaena leleupi* Pace, 1985a

(Figs 1, 16)

PACE 1985a: 450 (habitus and spermatheca illustrations).

H o l o t y p e (♀): "I. Isabela Sud., a 4 km de la côte, tamisage. XI-1964, N. Leleup leg." (IRSNB).

D i a g n o s i s . Body length 1.8 mm; fusiform (Fig. 1), narrow; uniformly dark brown; slightly glossy; punctation minute and dense; pubescence greyish, very short, dense, and adhering to body; antennal segments 6-10 slightly elongate; head wide at base and produced anteriorly, temples shorter than diameter of eye; pronotum transverse, straight basally and apically, arcuate at sides; elytra transverse; abdomen elongate, gradually tapering posteriorly with some protruding setae (Fig. 1); legs slim.

♂ Unknown. ♀ Spermatheca with spherical capsule and short, sinuate duct which is coiled posteriorly (Fig. 16). Tergite and sternite 8 elongate and truncate apically.

Bionomics. Our single new female was collected from Buttonwood mangrove (*Conocarpus*) litter soil washing in the littoral zone. Collecting period: May and November (Pace 1985a).

D i s t r i b u t i o n . Pace (1985a) recorded this species for the first time from Isabela. We confirm his record. Endemic.

M a t e r i a l e x a m i n e d (new). One female: Isabela, 2 km W Villamil (SBPC).

Remarks. Body form similar to *A. cuneata* Notman (SE USA), but spermatheca distinct. For details on *M. cuneata* and other Nearctic species see Klimaszewski (1982a).

Rothium Moore & Legner 1977

(Fig. 2)

Type species: *Rothium sonorensis* Moore & Legner

We here provide characteristics for this genus because of its unsettled taxonomic position. For discussion see AHN & ASHE (1996).

D i a g n o s i s . Tarsal formula 4-4-5, or 4-5-5. Body linear, superficially *Leptusa*-like (Fig. 2), finely pubescent with macrosetae on pronotum, elytra and abdomen; punctation fine and dense; head with frontal suture; antenna with 3 basal segments strongly elongate, first longest, second and third slightly shorter than first and of equal length, 4-8 elongate and progressively shortening apically, 9-11 bead-shaped; maxillary palpus 4-segmented, basal and apical segments minute, second and third elongate; lacinia elongate, narrow, with teeth in apical fourth; galea narrower than

lacinia, and with surface smooth; labial palpi longer than mentum, with a few microsetae; mentum trapezoidal with anterior angles produced anteriorly; labrum transverse, narrow; mesocoxae widely separated, mesocoxal process wide, rounded apically and nearly reaching mesocoxal base; tarsal claws large, sickle-shaped; female tergite and sternite 8 elongate, truncate apically. Members of *Rothium* are known from the seashores of Mexico (Acapulco, Guerrero, Sonora, Sinaloa), Peru (Paita), and Ecuador (Galápagos Islands; continental: Punta Galera, Salinas) (AHN & ASHE 1996).

2. *Rothium ashlocki* Ahn & Ashe, 1996

Ahn & Ashe, 1996:247 (illustrations of habitus, mouthparts, genitalia).

H o l o t y p e : Galápagos, Santa Cruz Is., Academy Bay, 15.02.1964, on rocks low tide level, P.D. Ashlock (SEM).

D i a g n o s i s (based on original description). Body length 2.4 mm. Linear in shape, antennae, elytra and legs light brown, and head, pronotum and abdomen dark reddish-brown; head almost as long as wide; pronotum about 0.58 times as long as wide; elytral length to pronotum length ratio 1.17. For details and illustrations of genitalia see Ahn & Ashe (1996). See also further under Remarks of *R. littoralis*.

3. *Rothium littoralis* sp. n. (Figs 2, 17, 18)

D i a g n o s i s . Body length 4.5 mm. Linear in shape (Fig. 2), uniformly reddish-brown, appendages slightly lighter; pubescence short and dense; punctuation dense, large and slightly coarse on abdomen; head triangular, temples rounded posteriorly, as long as diameter of eye, pubescence directed anteriorly and obliquely anterolaterally; pronotum overlapping elytra at base, trapezoidal in form, narrowest at base (Fig. 2), pubescence radiating from middle line anteriorly, laterally and posteriorly; elytra short, pubescence directed straight posteriorly; abdomen subparallel, tergites 1-5 with shallow basal impressions; legs moderately elongate with strong claws. ♂ Unknown. ♀ Spermatheca with capsule small, approximately hemispherical, and slightly broader than diameter of duct, duct sinuate and coiled posteriorly (Fig. 17). Tergite and sternite 8 elongate, truncate apically, densely pubescent, pubescence long, protruding setae in 4 rows.

B i o n o m i c s . The unique female was collected in March from a pitfall trap baited with sea lion dung in the littoral zone.

D i s t r i b u t i o n . *Rothium littoralis* is known only from Floreana Island, Galápagos. Endemic.

M a t e r i a l e x a m i n e d . Holotype (♀): "ECU.[ador], Galápagos / Floreana, Black Beach [from loberia (Sea lion colony) about 2 km S of Black Beach] / 23-27.III.89, littoral / sea lion dung tp. [=trap] / B.J. Sinclair, 89-159" (SBPC).

Remarks. The genus *Rothium* was originally described by MOORE & LEGNER (1977) based on the new species *R. sonorensis* from Sonora, Mexico. They placed this species in the tribe Bolitocharini (=Homalotini). AHN & ASHE (1996) revised this genus, recognizing 5 species, 3 of which were newly described, and transferred it to

the tribe Myllaenini. They believe that *Rothium* is closely related to members of the tribes Myllaenini and Pronomaenini because they have a similar gland opening on tergite 7, antero-lateral angles of mentum produced apically, similarly formed lacinia and galea, ligula short and entire, and elongate labial palpi (for details see AHN & ASHE 1996).

Rothium is superficially similar to *Polypea* Fauvel (Diglottini), known only from Aru Islands, New Guinea (KLIMASZEWSKI 1982b). Both genera share the following characteristics: similar body form, similarly shaped maxillae with 4-segmented maxillary palpus, narrow lacinia and galea, elongate glossae with few microsetae, mentum with two latero-apical projections, and mesocoxae widely separated. *Rothium* is distinct, however, by having 4-5-5-segmented tarsi, labial palpi longer than mentum, mental apical margin between lateral projections straight, lacinia with apical teeth of a different shape (triangular), galea narrower and glabrous, and female tergite 8 not dentate apically.

Rothium littoralis is closely related to *R. ashlocki* described from Santa Cruz, Galápagos by AHN & ASHE (1996). It is readily distinguishable from *R. ashlocki* by its twice larger body size, uniform color, more slender lacinia and galea, and the spermatheca with contracted coils of posterior duct (Fig. 17). We think these differences are too great for them to be descended from a common ancestor in the Galápagos. They then represent separate colonizations from the continent.

E t y m o l o g y. The specific name is derived from the adjective littoral, in allusion to the habitat where this species was found and to which it may be restricted.

II. TRIBE Hypocyphtini Laporte, 1835 (=Oligotini)

LAPORTE 1835:135; NEWTON & THAYER 1992 (nomenclature).

D i a g n o s i s . Tarsi 4-4-4-segmented; antenna 10-segmented with distinct club (Fig. 3); hind coxae with lamella over base of femur; body minute. Species of *Oligota* feed on mites.

4. *Oligota* (*Holobus*) *chrysopyga* Kraatz, 1859 (Figs 3, 19-21)

KRAATZ 1859: 25; PACE 1984: 9; FRANK (1972) (illustrations of habitus and median lobe of aedeagus in last two references)

D i a g n o s i s . Body length 0.8-1.0 mm; subovate (Fig. 3), widest at elytra; robust; rust-brown or dark brown with light brown / reddish tip of abdomen, legs and base of antennae; moderately glossy; punctuation fine; pubescence short and dense on fore-body; scale-like microsculpture present on abdomen (Fig. 3); antenna with two basal segments enlarged, segments 3-6 slightly elongate, 7-10 transverse and forming club; head partially or completely concealed by pronotum, eyes large, pubescence directed anteriorly and obliquely antero-laterad; pronotum strongly transverse and strongly convex, hypomera not visible in lateral view, pubescence directed straight and obliquely posteriorly; elytra transverse, pubescence directed straight posteriorly; abdomen subparallel basally and tapering apically. ♂ Median lobe of aedeagus with small

round bulbous (Figs 20, 21) and extremely elongate tubus which is produced ventrally at apex (Fig. 20). Tergite and sternite 8 transverse and truncate apically. ♀ Spermatheca with spherical capsule and narrow, short and approximately L-shaped duct (Fig. 19). Tergite 8 strongly transverse, truncate apically, slightly pointed medially; sternite 8 transverse, and moderately strong pointed apically.

B i o n o m i c s . Adults have been collected widely from arid zone, thornscrub, transition forest, agricultural zone, guava thicket, *Scalesia* forest, *Miconia* forest etc. Some specimens were found in frass under bark, and on *Fomes* fungi. Collecting methods: Malaise traps, Flight interception Traps, general collecting.

Altitudes: 20-570 m above sea level. Collecting period: February to July. Species of this genus are known to feed on mites (Seevers 1978).

D i s t r i b u t i o n . A cosmopolitan species recorded from Africa, Madagascar, Canary Is., Mascarene Is., India, Jamaica, New Caledonia, Sechelles, and Sri Lanka (FRANK 1972, PACE 1984). We report this species for the first time from Galápagos: Isabela, San Cristóbal, St. Cruz. Probably a recent accidental introduction by humans.

M a t e r i a l e x a m i n e d . (56 specimens, 4 ♂, 7 ♀, 45 sex undetermined) (SBPC, JKC): Isabela: Tagus Cove (SBPC); 23 km NW Villamil, Jabonocillo forest (SBPC). San Cristóbal: 1 km E Progreso (SBPC). St. Cruz: Academy Bay (SBPC); Charles Darwin Research Station (SBPC); Los Gemelos (SBPC, JKC); 2, 4, 21 km N Bellavista (SBPC, JKC); 1 km N Puntudo (SBPC); 7.2 km N St. Rosa (SBPC); Tortoise Reserve (SBPC).

III. TRIBE Homalotini Heer, 1839 (=Bolitocharini, Gyrophaenini)

HEER 1839: 305; ASHE 1984a, 1991, 1992 (phylogenetic relationships); NEWTON & THAYER 1992 (nomenclature).

D i a g n o s i s . Tarsal formula 4-4-5; body elongate, subparallel, or short and compact (morphologically diversified, Figs 4-7); ligula elongate, entire, bifid apically or divided. ASHE (1992) defined this tribe by the following features: presence of more or less developed denticles in the molar region of the ventral (condylar) side of the mandible; narrowing of the distance between the medial setae of the prementum so that the setal insertions are close or contiguous; and narrowing of the medial pseudopores. For details and subtribal classification of Homalotini see ASHE (1992).

KEY TO GALÁPAGOS SPECIES

1. Body minute, length 1.0-1.3 mm 2
- Body moderately large, length 1.8-2.5 mm 3
- 2(1). Body short and wide, oval in outline, strongly glossy (Fig. 4)
 *Phanerota tridentata* sp. n.
- Body linear, narrow, moderately glossy (Fig. 5) *Thecturota franzi* Pace
- 3(1). Antennal segments 5-10 at most twice as wide as long; pubescence short; body length 1.8-2.0 mm (Fig. 6) *Diesota franziana* (Pace)
- Antennal segments 5-10 approximately three times as wide as long; pubescence long; body length 2.1-2.5 mm (Fig. 7) *Diesota leleupi* (Pace)

Subtribe Gyrophaenina

5. *Phanerota tridentata* sp. n.

(Fig. 4, 22)

D i a g n o s i s . Body length 1.3 mm; shortly-oval, compact and strongly glossy; forebody uniformly dark-brown with abdomen slightly lighter, legs yellowish, antenna brownish apically and yellowish basally; antenna with basal 3 segments elongate, 4th as wide as long, 5-10 transverse, nearly twice as wide as long; punctuation and setation throughout body very sparse; head with large eyes, some 12 moderately large and scattered setigerous punctures in each half, frons flattened; pronotum narrowly oval, strongly transverse, setigerous punctures large and scattered, distributed in 4 rows and on disc margin; elytra transverse, with scattered setigerous pores, pores slightly elevated; abdomen sparsely pubescent, basal 3 terga impressed at base, integument with transversely meshed microsculpture. ♂ Median lobe of aedeagus with tubus strongly produced ventrally (Fig. 22). Tergite 8 conically produced medially and with two narrow lateral projections. Sternite 8 slightly transverse and rounded apically. ♀ Unknown.

B i o n o m i c s . Collected in May from guava thicket in agricultural zone using Flight Interception Trap. Altitude: 360 m above sea level. For life history and habits of some species see ASHE (1981, 1982).

D i s t r i b u t i o n . Known only from St. Cruz. Probably introduced, because it is known only from the disturbed agricultural area.

M a t e r i a l e x a m i n e d . Holotype (♂): "ECU.[ador], St. Cruz / 2 km N Bellavista / 14, V.85, 85- / 159, 360 m" "S. & J. Peck, guava /thicket, FIT, Agric. / area" (SBPC).

Remarks. For details on the genus see ASHE (1984b, 1986). *Ph. tridentata* may be readily separated by the distinctive shape of male tergite 8 with three apical projections. No close relative was established. *Ph. brunnessa* Ashe from Florida also bears three (but smaller) projections on male tergite 8 (see ASHE 1986). PACE (1987a, b, 1990a) reviewed and illustrated some Latin American Gyrophaenina. We think the species belongs to *Phanerata*, and not *Gyrophaena*, because the latter does not have a strongly bent median lobe of the aedeagus in such a manner, and male sternite 8 has 3 strong projections, which are not typical in *Gyrophaena* (see ASHE 1986).

E t y m o l o g y . The specific name *tridentata*, having three teeth, relates to the three dentate (toothed) apex of male tergite 8 of this species.

Subtribe Homalotina

6. *Tecturota franzi* Pace, 1985a

(Figs 5, 23-25)

PACE 1985a: 450 (habitus, spermatheca and median lobe of aedeagus illustrations). Holotype (♂): "Santiago Gebirge [mountains], V-VI. 1975, H. Franz leg." (HFC).

D i a g n o s i s . Body length 1.0-1.3 mm; narrowly subparallel (Fig. 5); uniformly rust-brown, dark-brown or nearly black, occasionally with paler legs and basal antennal segments; moderately glossy; punctuation fine, slightly asperate particularly on pronotum, dense on forebody and sparse on abdomen; antennal segments 4-10

strongly transverse, up to 3 times as wide as long (Fig. 5); head slightly wider than pronotum, with gena long (longer than diameter of eye), subparallel and rounded posteriorly, dorsum flattened, pubescence directed laterad from midline of disc (Fig. 5); pronotum narrowly trapezoidal dorsally, pubescence directed horizontally laterad from median line (Fig. 5); elytra elongate with pubescence directed obliquely latero-posteriad (Fig. 5); abdomen widening apically at 5/6 of its length and narrowed at apex, 4 basal tergites impressed basally (Fig. 5); legs short. ♂ Median lobe of aedeagus with moderately large ovoid bulbous and narrowly elongate tubus which has sinuate venter in lateral view (Figs 23, 24). Tergite 8 transverse, truncate apically; sternite 8 transverse, rounded apically and slightly pointing. ♀ Spermatheca with capsule narrowly spherical, duct short and curved posteriorly (Fig. 25). Tergite 8 transverse, truncate apically; sternite 8 transverse, broadly rounded apically.

B i o n o m i c s . Adults have been collected from: arid zone, *Bursera* forest, transition zone forest (of *Bursera*, *Trema*, *Zanthoxylon*), agriculture zone, rose-apple thicket, in forest litter (*Tournefortia* litter), guave/fern litter, litter in grietas (lava cracks), epiphyte and rotten wood litter, frass under bark, cow, horse and tortoise dung, *Scalesia* and *Miconia* forest, and pampas. Altitudes: 10-700 m. Collecting methods: sifting litter and dung, carrion traps, Flight Interception Traps, and UV light traps.

D i s t r i b u t i o n . PACE (1985a) recorded this species from Santiago, and St. Cruz. Both records are confirmed here. New island records: Fernandina, Floreana, Isabela, Marchena, Pinta, Pinzón, and San Cristóbal.

M a t e r i a l e x a m i n e d . (282 specimens, ♂, ♀, sex undetermined) (SBPC, JKC): Fernandina: 5, 10 km NE Cabo Hammond (SBPC, JKC). Floreana: 6 km E Black Beach (SBPC); Cerro Pajas (SBPC). Isabela: Alcedo (east crater) (SBPC); Cerro Azul (SBPC, JKC); Sierra Negra (SBPC, JKC); 2 km NE Tagus Cove (SBPC, JKC); 13 km NW Villamil, Jabonicillo forest (SBPC). Marchena: Pta. Espejo (SBPC); SW Playa (SBPC). Pinta: trans. zone forest (SBPC, JKC). Pinzón: SE slope (SBPC). San Cristóbal: El Junco (base & rim) (SBPC); 1 km E Progreso (SBPC, JKC); 3-5 km E Wreck Bay (SBPC). Santiago: Aguacate Camp and vicinity (SBPC, JKC); Santiago Camp (SBPC); 8 km SE Playa Espumilla (SBPC). St. Cruz: 2 km N Bellavista (SBPC); El Granillo (SBPC); 1 km NE Media Luna (SBPC, JKC); Puntudo (SBPC, JKC); 7 km N Puerto Ayora (SBPC, JKC); 7, 7.2, 13 km N St. Rosa (SBPC, JKC); Tortoise Reserve (SBPC).

Subtribe Silusina

7. *Diesota* (*Apheloglossa*) *franziana* (Pace, 1985a) (Figs 6, 27-30)

Parasilusa franzi PACE 1985a: 451 (illustrations of habitus and median lobe of aedeagus).

Diesota (*Apheloglossa*) *franziana* (PACE 1986: 422). Holotype (♂): "S. ta [=Sta.] Cruz, Wald uber [forest above] S. ta [=Sta.] Rosa, V-VI.1975, H. Franz "(HFC).

D i a g n o s i s . Body length 1.8-2.0 mm; narrowly subparallel; flattened (Fig. 6); color variable, either approximately uniformly dark brown to black, sometimes with reddish-brown legs and abdomen, or reddish brown with dark brown head, or reddish-brown with dark brown head, pronotum, elytra, and posterior abdomen; antenna uniformly rust-brown, black, or rust-brown basally and black apically; moderately

glossy, less so on forebody; punctation fine, dense and asperate on forebody; microsculpture present; pubescence short; antennal segments 5-10 transverse, at most about twice as wide as long (Fig. 6); head as wide as long, approximately subequal in width to pronotum, abruptly produced in front of eyes, rounded posteriorly, temples shorter than diameter of eye, pubescence directed anteriorly medially and laterad on either side from midline (Fig. 6); pronotum transverse, rectangular in shape, and with small mediobasal impression, pubescence directed laterad and obliquely laterolaterad (Fig. 6); elytra as long as wide or slightly transverse, insignificantly wider than pronotum and abdomen, pubescence directed approximately straight posteriorly (Fig. 6); abdomen subparallel, 4 basal tergites shallowly impressed basally, pubescence directed straight posteriorly (Fig. 6). ♂ Median lobe of aedeagus with ovoid bulbous and moderately narrow, tapering apically tubus (Fig. 30), venter of tubus approximately straight laterally (Fig. 29), internal sac with inconspicuous structures. Tergite 8 transverse with 6 apical teeth, 2 lateral ones being longer (Fig. 28). Sternite 8 transverse and truncate apically with numerous apical bristles. ♀ (new record). Spermatheca with long (variable in length) frequently and regularly coiled duct and narrow, elongate capsule (Fig. 27). Tergite and sternite 8 transverse, and truncate apically.

B i o n o m i c s . Adults have been collected from: arid zone, thornscrub, *Opuntia* forest, transition zone, agricultural zone, avocado grove, pastures, *Bursera*, *Scalesia*, *Miconia* forest, in leaf litter, fruit litter, soil and rotten cactus, and in carrion. Collecting methods: sifting, Malaise traps, Flight Interception Traps (FIT), carrion and banana baited traps. Altitudes: 10-620 m above sea level. Collecting period: February to August.

D i s t r i b u t i o n . PACE (1985a) recorded this species from St. Cruz (Sta Rosa), and we confirm his record here. New island records: Floreana, Isabela, Marchena, Pinzón, Santiago, San Cristóbal. Status uncertain (possibly endemic).

M a t e r i a l e x a m i n e d . (153 specimens, 18 ♂, 18 ♀, 117 sex undetermined) (SBPC, JKC): Floreana: 6 km E Black Beach (SBPC). Isabela: Sto. Tomas; 1/2 and 3 km W Sto. Tomas; Corazon Verde; 13 km NW Villamil (SBPC, JKC). Marchena: SW Playa (SBPC). Pinzón: SE slope (SBPC). Santiago: Aguacate Camp (SBPC, JKC). San Cristóbal: 5 km E Wreck Bay (SBPC). St. Cruz: Academy Bay (SBPC); Bellavista and vicinity (SBPC, JKC); Charles Darwin Research Station (SBPC); Horneman Farm (SBPC, JKC); Los Gemelos; 7.2, 15 and 31 km N Sta Rosa (SBPC); Media Luna (SBPC); Puerto Ayora and vicinity (SBPC).

Remarks. PACE (1985a) affiliated *D. franziانا* with three Latin American species described by ERICHSON (1840): *D. laesicollis* (Er.), from Brazil; *D. flavipennis* (Er.), from the Antilles; and *D. melanura* (Er.), from Puerto Rico. We have examined the original type material of the latter three species and found consistent differences in body size, color, proportion of pronotum and genitalia between *D. franziانا* and *D. flavipennis* and *D. melanura*. However, we were not able to find important differences in external morphology, color and the shape of spermathecae between *D. franziانا* (reddish-brown form) and *D. laesicollis*. Should further studies including comparison of males of the two species (*D. laesicollis* male unknown) prove that there are no substantial differences, the status of *D. franziانا* should be reconsidered. Dark brown

or black specimens in our material with slightly narrower pronota than those of the reddish-brown form are considered to be color variations of *D. franziana* because they retain the same genitalic structures. However, they may represent sibling species which can not be discriminated using morphological methods.

8. *Diesota* (*Apheloglossa*) *leleupi* (Pace) (Figs 7, 31-34)

Parasilusa leleupi PACE 1985a, PACE 1986 (as *Diesota* subg. *Apheloglossa*).

Holotype (♀): I. Isabela Sud, à 4 km de la côte, tamisage, XI-1964, récolté en forêt humide, N. Leleup leg. (IRSNB).

D i a g n o s i s . Readily distinguishable from *D. franziana* and the mainland *Diesota* species by the extremely transverse antennal segments 7-10 (approximately 3 times as wide as long, Fig. 7). Body length 2.1-2.5 mm; narrowly oval, abdomen subparallel (Fig. 7); uniformly reddish-brown (all but one) or dark brown (one specimen), with darker, brown to greybrown, apical portions of antennae (segments 5-11); strongly glossy; punctuation fine and sparse on forebody and large and coarse on abdomen, especially in tergal impressions; pubescence moderately long to long on abdomen; microsculpture not apparent; head nearly as wide as pronotum, abruptly produced in front of eyes, widely rounded behind, temples shorter than diameter of eye, pubescence directed inward medially and lateroanteriorly elsewhere (Fig. 7); pronotum strongly transverse, slightly narrower than elytra, approximately rectangular in shape, with U-shaped basal impression, pubescence directed anteriorly on middle line of disc and laterally on sides (Fig. 7); elytra slightly transverse, pubescence directed straight- and slightly obliquely posteriorly (Fig. 7); abdomen with 4 basal tergites impressed basally, impressions with large and coarse punctures, punctures outside impressions asperate (Fig. 7). ♂ (new record). Median lobe of aedeagus with bulbous oval in outline and tubus wide at base and gradually narrowed apically (Fig. 33), laterally tubus slightly sinuate subapically and produced ventrally (Fig. 32). Tergite 8 transverse, with 6 apical narrowly elongate teeth of approximately equal length. Sternite 8 transverse, and widely rounded apically. ♀ Spermatheca with extremely long regularly and irregularly twisted duct, capsule narrow and elongate (Fig. 31). Tergite 8 strongly transverse, truncate apically. Sternite 8 slightly transverse, widely rounded apically with slightly emarginate apex.

B i o n o m i c s . Adults have been collected from: littoral zone, under *Sesuvium* and *Heliotropium* debris on upper beach, cormorant nest debris, and from moist litter in rock crevices. Altitudes: 1-2 m above sea level. Collecting methods: sifting debris, yellow pan trap, Flight Interception Trap (FIT). Apparently mostly a littoral zone species. Although the Leleup holotype record is reported to be from "humid forest", the actual locality is in the arid zone in a low spot where groundwater, under tidal influence, presents a local zone of moisture.

D i s t r i b u t i o n . Recorded by PACE (1985a) from Isabela I. New island record: St. Cruz. Endemic.

M a t e r i a l e x a m i n e d . (23 specimens, 5 ♂, 5 ♀, 13 sex undetermined) (SBPC, JKC). St. Cruz: Charles Darwin Research Station, 29.I.89, 89-3, S. Peck (SBPC, JKC); Charles

Darwin Research Station, littoral zone, 19.I-9.II.89, yellow pan trap; B. J. Sinclair (SBPC); Tortuga Bay, 18.V.85, 85-167, S. & J. Peck (SBPC), labelled as previous one except: 23.V.85, back beach *Heliotropium curassavicum* lit. [terj]" (SBPC). Isabela: Bahía Urvína, 23.V.92, S. Peck 92-200 (SBPC. JKC); Villamil 1 km W, 2-15.III.89, 89-88, Peck & Sinclair (SBPC).

Remarks. This species resembles *D. patagonica* (Scheerpeltz) but has more strongly transverse antennal segments 7-10, and has a differently shaped spermatheca. It is readily distinguishable from all South American species known to us by having antennal segments 7-10 extremely transverse, approximately three times wider than long. For illustrations of some South American *Diesota* see PACE (1985b, 1986, 1987a, b, 1990a).

9. *Diesota galapagosensis* (Pace), 1985a

Parasilusa galapagosensis PACE 1985a: 452; PACE 1986: 422 (as *Diesota*).

Holotype (♂): Isla Marchena, S. Seite, 5/6. 1975. H. Franz leg. (HFC).

D i a g n o s i s (based on the original description). Body length 2 mm, narrowly oval, abdomen subparallel; head brown, pronotum and abdomen reddish except for brown abdominal segments 4 and 5, antennae with two basal segments reddish and remainder brown. Habitus and male genitalia illustrated by PACE (1985a).

Remarks. Unfortunately we were not able to borrow the holotype specimen for study.

IV. TRIBE Placusini Mulsant & Rey, 1871

MULSANT & REY 1871: 102; ASHE 1989, 1991, 1992 (definition, phylogenetic relationships); NEWTON & THEAEYER 1992 (nomenclature)

D i a g n o s i s. Tarsal formula 4-4-5; head with strongly angular posterior genae and with distinct narrow neck (*Euvira* only, Fig. 8); labium rounded medially with small a-sensillum, epipharynx with longitudinal medial field of small pores flanked on either side with row of large scales, mandibles with dorsal 'velvety patch' modified to transverse rows of large teeth, labium with short and widely rounded ligula (ASHE 1991). For larval characteristics see ASHE (1991).

10. *Euvira scalesiai* sp. n. (Figs 8, 26)

D i a g n o s i s. Body length 1.7-1.9 mm; uniformly dark-brown with reddish-brown antennae (except apex), maxillary palpi and legs; glossy; punctation sparse and coarse; integument with reticulate microsculpture present; pubescence sparse, moderately long; antennal segments 5-10 strongly transverse, at least twice as wide as long (Fig. 8); head with long subparallel temples, angular posteriorly, with distinct neck approximately half as wide as base of head, pubescence directed medially (Fig. 8); pronotum transverse, about 1.4 times as wide as long, sides widely rounded, base sinuate laterally, posterior angles distinct and slightly pointed posteriad, pubescence directed approximately straight posteriorly (Fig. 8); elytra elongate, pubescence directed straight posteriorly (Fig. 8); abdomen subparallel, widely rounded apically, 4 basal tergites deeply impressed basally (Fig. 8). ♂ Unknown. ♀ Spermatheca with

capsule elongate and globular, as in Fig. 26. Tergite 8 strongly transverse, truncate apically; sternite 8 approximately as wide as long, apical margin arcuate.

B i o n o m i c s . Adults (all females) have been collected only from forests of *Scalesia pedunculata*. Collecting methods: vegetation sweeping and Malaise traps. Altitudes: 550-620 m above sea level. Collecting period: April, May. Most specimens were taken by sweeping low grass-herbaceous vegetation in the humid forest highland zone. Ashe & Kistner (1989), recorded larvae and adults of *Euvira diazbatresae* Ashe from the nests of communal pierid butterfly *Eucheria socialis* in Mexico. It remains to be seen if other species of the genus exhibit similar behaviour.

D i s t r i b u t i o n . Known only from St. Cruz Island, Galápagos. Endemic.

M a t e r i a l e x a m i n e d . (12 ♀) (SBPC, JKC): Holotype (♀): "Galap.[agos], Santa Cruz / Los Gemelos, 620 m / 17.V.91, J. Heraty / Scalesia zone H91/38" (SBPC); Paratypes (9 ♀): 3 labelled as holotype (SBPC); "Galap. [agos], Santa Cruz / 3 km N Santa Rosa, 600 m / Scalesia H91/011" (SBPC) 1; "Galap., Santa Cruz, Los Gemelos, 620 m / 1.V.91, J. Heraty / Scalesia H91/012" (SBPC, JKC) 4; "Galap. St. Cruz / 1.7 km N Sta. Rosa, 1-30.VI.91, 550 m / Scalesia forest malaise / S. Peck, 91-233" (SBPC) 2; St. Cruz, 7.2 km N Sta. Rosa (SBPC) 1.

E t y m o l o g y . Name of this species derived from the generic name *Scalesia pedunculata*, a tree common to the humid forest zone of some islands of the Galápagos.

R e m a r k s . We were able to examine the type series (7 specimens, HUB) of *Euvira fervidula* Erichson from Columbia. The specimens are generally similar to our specimens of *E. scalesia* in body form and size but have the forebody orange instead of uniformly brown and have a slightly differently shaped spermatheca.

V. TRIBE Athetini Casey, 1910 (=Callicerini)

D i a g n o s i s . Tarsi 4-5-5-segmented, mesocoxae usually narrowly separated, intercoxal process highly variable, male tergite eight usually modified and bearing teeth (Figs 51, 53, 54), median lobe of aedeagus with an oval compressor plate and in front with a transverse sclerotised strip called the 'athetine bridge' (SEEVERS 1978). Maxillary palpi 4-segmented, labial palpi usually 3-segmented.

KEY TO SPECIES

1. Body fusiform (Figs 9, 12), length 1.0-3.0 mm (average 2.0 mm); pronotum slightly transverse, approximately trapezoidal in outline with lateral margins strongly converging apically; convex; pubescence directed straight or antero-laterad, laterad or obliquely posteriad, forming straight lines radiating from midline of disc (Figs 9, 12) 2
- Body linear (Figs 10, 11, 13), length 2.1-3.1 mm (average 2.6 mm); pronotum strongly transverse, approximately rectangular in outline with lateral margins slightly converging apically; flattened; pubescence directed anteriad, laterad or lateroposteriad, forming arched lines from midline of disc (Figs 10, 11, 13) 3

- 2(1). Body length 1.3-2.0 mm; moderately glossy; pronotal punctation asperate; pronotal pubescence directed anterolaterad, laterad and posteriorad from midline of disc (Fig. 12); antennal segments 8-10 approximately twice as wide as long (Fig. 12); median lobe of aedeagus and spermatheca as in Figs 41, 42, 44. . *Atheta (Acrotona) pseudoclaudensis* sp. n.
- Body length 1.8-3.0 mm; strongly glossy; pronotal punctation not asperate; pronotal pubescence directed straight and obliquely posteriorad (Fig. 9); antennal segments 8-10 at most 1.5 times as wide as long (Fig. 9); median lobe of aedeagus and spermatheca as in Figs 35, 36, 43
 *Atheta galapagoensis* Pace
- 3(1). Antennal segments 7-10 strongly transverse, about twice as wide as long (Fig. 11); body strongly glossy; pronotum strongly transverse, nearly twice as wide as long (Fig. 11); median lobe of aedeagus and spermatheca as in Figs 47-49 *Atheta (s. str.) coriaria* (Kraatz)
- Antennal segments 7-10 moderately transverse (Figs 10, 13), about 1.5 times as wide as long; body moderately glossy; pronotum moderately transverse, at most 1.4 as wide as long; genitalia different 4
- 4(3). Eyes large, diameter much longer than temples (Fig. 13); temples short and abruptly converging posteriorly (Fig. 13); median lobe of aedeagus and spermatheca distinct (Figs 39, 40, 45) *Atheta dichroa* (Gravenhorst)
- Eyes moderate in size, diameter shorter or at most as long as temples (Fig. 10); temples long, subparallel anteriorly (near eyes), and gradually converging posteriorly (Fig. 10); median lobe of aedeagus and spermatheca as in Figs 37, 38, 46 *Atheta lurida* (Erichson)

11. *Atheta galapagoensis* Pace, 1985a

(Figs 9, 35, 36, 43, 52)

PACE 1985a: 452 (habitus, aedeagus and spermatheca illustrations).

Holotype (♂): "Isabela I., Cerro Azul 5/6-1975, H. Franz leg." (HFC).

D i a g n o s i s . Body length 1.8-3.0 mm; narrowly oval (Fig. 9), from uniformly dark brown or nearly black to light brown with paler pronotum, elytra, abdominal apex and appendages; strongly glossy; punctation moderately dense on pronotum and elytra and sparser elsewhere; pubescence short, moderately dense on forebody, and sparse on abdomen; meshed microsculpture present on forebody; antennal segments 5-10 slightly transverse, each segment at most 1.5 wider than long (Fig. 9); head approximately quadrate, temples widely round, eyes large, longer than temples (Fig. 9); pronotum much wider than head, transverse, strongly convex, pubescence straight and directed slightly obliquely posteriorad (Fig. 9); elytra transverse with pubescence directed posteriorad (Fig. 9); abdomen widely arcuate laterally and gradually narrowing apically, four basal tergites with deep basal impressions (Fig. 9). ♂ Median lobe of aedeagus with moderately large, ovoid bulbous and narrowly elongate tubus (Figs 35, 36), internal sac with two subapical structures (Fig. 36). Tergite 8 truncate apically with arcuate apex, apical margin entire (Fig. 52), sternite 8 truncate and slightly

pointed apically. ♀ Spermatheca with enlarged, elongate capsule, and sinuate posterior duct (Fig. 43). Tergite 8 truncate apically, sternite 8 strongly pointed medially.

B i o n o m i c s . Adults have been collected from littoral zone, arid zone, transition zone and pampa zone, leaf litter, deep soil litter, soil washing under *Croton* and *Sesuvium* (littoral zone), shrub litter, lava flow edge. *Cryptocarpus* and *Manchineel* litter, cow and horse dung, sea lion dung, epiphytes, dead wood (e.g., rotted avocado), frass under bark, under bark of dead *Manchineel*, rotted logs, guava/mosse litter, lake edge litter, mangrove litter, *Trema/Zanthoxylum* litter, *Zanthoxylum*/lichen litter, moss forest litter, fern/moss and fern/sedge litter, treefern litter, rotting *Opuntia* trunks, cave litter, in moss forest, *Miconia* and *Scalesia* forests, grass and *Bursera* forest, *Pisonia* forest, *Zanthoxylum/Pisonia* forest, coffee plantation. Collecting methods: Malaise traps, Flight Interception Traps (FIT), general sweeping, sifting leaf litter, dung baited traps, deep soil traps, soil washing, and UV traps. Altitudes: from 1 m to 1700 m above sea level. Collecting period: January to July.

D i s t r i b u t i o n . Originally recorded by Pace (1985) from Isabela, Pinta, Pinzón, Santiago, San Cristóbal, and St. Cruz Islands. Our data confirm all of Pace's records. New island records: Bartolomé, Española, Fernandina, Floreana, Marchena, Plaza Sur, Rábida, and St. Fé.

M a t e r i a l e x a m i n e d . (3523 specimens: 14 ♂, 3 ♀, 3506 sex undetermined) (SBPC, JKC). Bartolomé: (SBPC). Española: Bahía Manzanillo (SBPC). Gardner at Española: arid zone (SBPC). Fernandina: Crater Rim (SBPC); 8, 10, 11 km NE Cabo Hammond (SBPC, JKC). Floreana: 3, 5, 6, 8 km E Black Beach (SBPC); Pta. Cormorant (SBPC); Cerro Pajas (SBPC); Finca Cruz (SBPC). Isabela: 7-10 km NE P. Bravo (SBPC); Cerro Azul and vicinity, 7 km NE caleta Iguana (SBPC); 11 km SW Playa (SBPC); Sierra Negra (SBPC, JKC); 4, 8 km NW Sto. Tomas (SBPC, JKC); Tagus Cove and vicinity (SBPC, JKC); 4,12 and 2 km NW Villamil (SBPC); Volcan Alcedo and vicinity (SBPC, JKC). Marchena: Pta. Espejo (SBPC); SW Playa (SBPC); Pinta: Playa Ibbetson (SBPC, JKC); transition zone forest (SBPC); *Zanthoxylum*-lichen forest (SPPC). Pinzón: SE slope (SBPC). Plaza Sur: S Plazas (SBPC). Rábida: Red Beach (SBPC). Santiago: Central Camp (SBPC); Aguacate Camp and vicinity (SBPC); 9 km SE Playa Espumilla (SBPC); Playa Espumilla (SBPC); 1 km E Progreso (SBPC). San Cristóbal: Baquerizo and vicinity (SBPC); El Junco and vicinity (SBPC); Poza Colorada (SBPC); 2-12 km SE Wreck Bay (SBPC). St. Fé: littoral zone (SBPC, JKC). St. Cruz: 2, 3 km W Bellavista (SBPC); Cerro Crocker and vicinity (SBPC); 2 km E Charles Darwin Research Station (SBPC, JKC); Cueva Tres Entradas (SBPC); Los Gemelos and vicinity (SBPC, JKC); Media Luna and vicinity (SBPC); Pta. Roca fuerte (SBPC); Pto. Ayora and vicinity, Tortuga Bay (SBPC); Puntudo (SBPC, JKC); 1.7, 3, 7.2, 10, 13, 15 km N Sta. Rosa (SBPC, JKC).

Remarks. According to PACE (1985a) *A. galapagoensis* belongs to the species group of *A. propinqua* (Erichson, 1840) which is a distinct species and should not be considered as a synonym of *A. dichroa* (Gravenhorst, 1802). *A. propinqua* is known from the Antilles (BERNHAEUER & SCHEERPELTZ, 1926).

12. *Atheta lurida* Erichson

(Figs 10, 37, 38, 46, 53)

Atheta lurida Erichson, 1840. PACE 1985a. Type: see "material examined".

D i a g n o s i s . Body length 2.2-2.8 mm: narrowly subparallel (Fig. 10), dark brown to black with rust-brown elytra, apex of abdomen, legs and 2-3 basal antennal

segments, antennal segments 4-11 mat black; moderately glossy; punctuation fine and moderately dense, slightly asperate on forebody; meshed microsculpture clearly visible on forebody; pubescence moderately dense on pronotum and abdomen and sparse elsewhere; body sides with strong bristles; antennal segments 5-10 slightly transverse, at most 1.5 times wider than long (Fig. 10); head slightly elongate with pubescence directed medially and anteriorly, temples as long as eye diameter, arcuate and narrowed posteriorly (Fig. 10); pronotum transverse, subequal in width to elytra, pubescence at midline of disc directed anteriorly and laterally on the sides (Fig. 10); elytra transverse with pubescence directed straight posteriorly or obliquely posterolaterally (Fig. 10); abdomen sparsely pubescent with 3 basal terga bearing basal impressions (Fig. 10). ♂ Median lobe of aedeagus with moderately large bulbous, tubus wide basally and tapering apically, internal sac with two subapical and median structures (Figs 37, 38); tergite 8 bearing two wide median and two narrow lateral teeth apically (Fig. 53); sternite 8 widely arcuate apically. ♀ Spermatheca with elongate capsule and slightly posteriorly arched duct (Fig. 46); tergite 8 slightly emarginate apically; sternite 8 rounded posteriorly.

B i o n o m i c s . Adults were collected from carrion in a shady ravine. Collecting methods: carrion baited traps. Altitudes: 400 m above sea level. Collecting period: May.

D i s t r i b u t i o n . *Atheta lurida* was originally described from Brazil (ERICHSON 1840). PACE (1985a) recorded this species from Galápagos: Santiago Gebirge, St. Cruz. We record it here for the first time from Fernandina. Because of its remote collecting site on pristine Fernandina Island, we interpret this as a natural dispersal, and the species to be native. It is interesting that we had no other collections of this species.

M a t e r i a l e x a m i n e d . (4 specimens, 2 ♂, 3 ♀) (SBPC, HUB, JKC). Type: "lurida Er.[ichson] / Brasil Reich", "6994", "Type", "Zool. Mus. Berlin" (HUB) 1 ♀, studied. Non type material: Fernandina: 10 km NE, Cabo Hammond, 400 m, 6-10.V.91, S. & J. Peck (SBPC, JKC).

13. *Atheta (Atheta) coriaria* (Kraatz, 1856) (Figs 11, 47-49, 51)

Homalota coriaria KRAATZ 1856, FRANK 1980, MUONA 1984. Aedeagus and spermatheca illustrated by HANSEN (1954), and LOHSE (1974). Syntypes: "Germany: Berlin (DEI) 6, sex undetermined, Leipzig "(DEI) 1 sex undetermined (Geadike 1981).

D i a g n o s i s . Body length 2.1-2.8 mm; narrowly subparallel (Fig. 11), dark brown to rust brown, usually with lighter pronotum, elytra, base and apex of abdomen, legs and base of antenna (segments 1-4); strongly glossy; punctuation fine, slightly asperate, and dense on forebody; fine, meshed microsculpture clearly visible on head and pronotum; pubescence short and moderately dense except on abdomen; body sides with some bristles; antennal segments 5-10 transverse, at most almost twice as wide as long (Fig. 11); head approximately as long as wide, with temples arcuate and narrowing posteriorly, shorter than diameter of eye, pubescence directed anteriorly (Fig. 11); pronotum transverse, pubescence directed anteriorly along midline, and

lateroposteriad on sides of disc (Fig. 11); elytra slightly transverse, pubescence directed straight posteriad (Fig. 11); abdomen sparsely pubescent, strongly glossy and with 3 basal tergites strongly impressed basally (Fig. 11). ♂ Median lobe of aedeagus with large bulbous, and narrow and short triangularly dorsally shaped tubus (Fig. 48), internal sac with complex and strongly sclerotised structures (Figs 47, 48); tergite 8 slightly emarginate apically with two large lateral teeth and several medial teeth (Fig. 51); sternite 8 rounded apically. ♀ Spermatheca with horizontally subdivided capsule, and narrow and short posterior duct (Fig. 49); tergite 8 broadly arcuate apically; sternite 8 truncate apically.

B i o n o m i c s . Adults have been collected from transition forest, *Scalesia* forest, in *Miconia* forest, pampa zone, agricultural zone, litter under coffee, forest litter, rotting oranges, cow dung, tortoise dung and guava thicket. Collecting methods: sifting organic litter, Flight Interception Traps (FIT). Altitudes: 200 to 1000 m above sea level. Collecting period: February to May. In Europe *A. coriaria* is often found on mushrooms (Polyporaceae), and in compost (HANSEN 1954, LOHSE 1974). Larva described by Ashe (1984).

D i s t r i b u t i o n . Europe, North America (California, Florida) (Frank 1980, Lohse 1974, Muona 1984). New island records: Floreana, Isabela, San Cristóbal, and St. Cruz.

M a t e r i a l e x a m i n e d . (82 specimens, 10 ♂, 3 ♀, 69 sex undetermined) (SBPC, JKC). Floreana: 5, 6 km E Blackbeach (SBPC, JKC). Isabela: Sierra Negra (SBPC; JKC). San Cristóbal: 1 km W Progreso (SBPC, JKC). St. Cruz: Bellavista (SBPC); Cueva Tres Entradas (SBPC); Los Gemelos (SBPC); Sta. Rosa (SBPC).

Remarks. An introduced European species recorded for the first time from the Galápagos Islands. Well established. Superficially similar to smaller *A. clientula* Erichson from South America but has differently formed genitalia.

14. *Atheta (Acrotona) pseudoclaudiensis* sp. n. (Figs 12, 41, 42, 44, 50)

D i a g n o s i s . Body length 1.3-2.0 mm; fusiform (Fig. 12), uniformly dark brown to black, often with legs slightly paler; moderately glossy; punctation dense and asperate on forebody and sparse on abdomen; microsculpture scarcely visible; pubescence short and dense except for abdomen; sides, especially on abdomen, with bristles; antennal segments 4-10 transverse and 7-10 approximately twice as wide as long (Fig. 12); head with temples about as long as diameter of eye, arcuate and gradually narrowing posteriorly, pubescence directed anteriad and anterolaterad (Fig. 12); pronotum transverse, pubescence directed laterad and posterolaterad from midline of disc (Fig. 12); abdomen strongly narrowing apically and pointed (Fig. 12), three basal tergites with basal impressions. Meso- and metatibia with strong bristle in basal half. ♂ Median lobe of aedeagus with narrowly elongate bulbous and narrow subparallel apically truncate tubus (Fig. 42); internal sac with fine structures (Figs 41, 42). Tergite 8 truncate apically and with slightly emarginate base (Fig. 50). Sternite 8 widely arcuate apically and with straight base. ♀ Spermatheca with small spherical

capsule and sinuate coiled posteriorly duct (Fig. 44). tergite and sternite 8 similar to those of male.

B i o n o m i c s . Adults have been collected predominantly from tortoise dung, some from horse and cow dung, carrion, cormorant nest debris, in arid zone shrub and succulent litter, lagoon edge, tidal meadow, arid zone beach forest, *Bursera* forest, and *Pisonia* forest, transition forest, shrub forest, guava thicket, pampas. Collecting methods: shifting litter and dung, in dung and beer baited pitfall traps, Flight Interception Traps (FIT). Altitudes: 2 m to 1100 m above sea level. Collecting period: February to July.

D i s t r i b u t i o n . New island records: Fernandina, Floreana, Isabela, Marchena, Pinta, San Cristóbal, and St. Cruz. It is probably an endemic species.

M a t e r i a l e x a m i n e d . 1234 specimens, 5 ♂, 11 ♀ (SBPC, JKC).

Holotype (♀): "Ecu.[ador], Galap.[agos], St. Cruz/Sta. Rosa 180 m/7.02.89, 89-34", "S. Peck, Tortoise/Res.[erve], trans.[ition] for.[est]/tortoise dung" (SBPC). All remaining specimens listed below are considered paratypes. Fernandina: 5-10 km NE Cabo Hammond (JKC, SBPC). Floreana: 3-8 km E Black Beach, Cerro Pajas, Finca Cruz (SBPC). Isabela: Alcedo (Volcan), E crater, NE slope, 14 km NE Playa (JKC, SBPC); Bahía Urvina (SBPC); Bellavista, 21 km N (SBPC); Cerro Azul and vicinity (SBPC); Los Gemelos, 31 km N Sta. Rosa (JKC, SBPC); Sierra Negra (SBPC); St. Rosa, 15 km N (JKC, SBPC); Tagus Cove, 2-10 km NE (JKC, SbPC); 13 km NW Villamil, Jabonocillo forest (SBPC). Marchena: Pta. Espejo (SBPC); SW Playa (SBPC). Pinta: Playa Ibbetson (SBPC). Plaza Sur: (SbPC). San Cristóbal: El Junco (SBPC). St. Cruz: Bella Vista (SBPC); Charles Darwin Research Station (SBPC); Puntudo (SBPC); Sta. Rosa, 3 km N St. Cruz (SBPC); Tortoise Reserve (SBPC).

Remarks. This species is externally similar to *A. (A.) neolutea* Pace from Brazil (PACE 1990a), *A. (A.) praemeditata* Pace from Argentina, *A. (A.) hoyoana* Scheerpeltz from Argentina and Chile (SCHEERPELTZ 1972, PACE 1987a, b), and *A. (A.) magellanica* Pace from Chile (PACE 1987b). It is distinct, however, in the shape of the spermatheca which bears a small spherical capsule with a characteristic invagination (Fig. 44), and two posterior coils and the shape and structures of the median lobe of the edeagus. This species has a strong affiliation with the mainland South American fauna of the genus. For illustrations of genitalia of the mainland species see PACE (1987a, b, 1990a). The genitalia of *A. pseudoclaudiensis* superficially resemble those of the European *A. alterrima* (Grav.), and *A. pusilla* Brundin, however *A. alterrima* is on average twice larger and *A. pusilla* has differently shaped antennae (segments elongate) and median lobe of the aedeagus. For illustrations and description of European species see BRUNDIN (1952). *Atheta pseudoclaudiensis* has a spermatheca very similar to that of *A. claudiensis* Pace (1990a) described from a unique female specimen collected in Brazil (Espírito Santo, Laranja de Terra, HUB). *A. claudiensis* however is smaller and lighter in color and the male of the species remains unknown.

15. *Atheta dichroa* (Gravenhorst)

(Figs 13, 39, 40, 45, 54)

Aleochara dichroa Gravenhorst, 1802; BLACKWELDER 1943; MOORE & LEGNER 1975 (as *Brundinia*), PACE 1985a (as *Atheta*). Type material listed under 'material examined'.

D i a g n o s i s . This species has two distinct color forms; dark and light, with the light being predominant. Specimens of the two forms are sympatric in distribution.

Dark form: uniformly brownish-black to blackish, or with elytra, tip of abdomen and 3 basal antennal segments, and tarsi or entire legs, usually paler and brownish; moderately glossy. Light form: dark-brown with light-brown elytra, tip of abdomen, legs and 2-3 basal antennal segments, head usually the darkest; moderately to strongly glossy. Body length 2.1-3.1 mm; subparallel (Fig. 13), punctation fine and moderately dense on forebody, slightly asperate especially on elytra; pubescence moderately dense on forebody and sparse on abdomen; body sides with bristles; meshed microsculpture clearly visible on forebody; antenna with segments 2-3 glossy and 4-11 mat, segments 6-10 slightly transverse, less than 1.5 as wide as long (Fig. 13); head approximately round dorsally, flattened medially, with temples shorter than diameter of eye, and strongly narrowing posteriorly, pubescence directed medially and anteriorly (Fig. 13); pronotum nearly as wide as elytra at base, pubescence directed anteriorly on midline of disc and lateroposteriad laterally (Fig. 13); elytra transverse, pubescence directed posteriad (Fig. 13); abdomen subparallel and pointed apically (Fig. 13). ♂ Aedeagus with moderately large, approximately oval bulbous (Fig. 40); tubus elongate, subparallel medially, and sharply pointed apically (Figs 39, 40); in lateral view venter of tubus straight, narrow apically and pointed ventrally (Fig. 39); internal sac with two well defined dark structures in bulbous and two pairs of inconspicuous structures in tubus (Fig. 40); tergite 8 with apical margin bearing two lateral sharp and two median rounded teeth (Fig. 54); sternite 8 rounded apically. ♀ Spermatheca with arched capsule bearing small conical projection posteriorly, and spherical ending of duct (Fig. 45); tergite 8 truncate apically; sternite 8 arcuate apically.

B i o n o m i c s . Adults have been collected predominantly from carrion (e.g., dead tortoise), tortoise-, horse-, and cow dung, rotting *Opuntia*, forest litter, roseapple litter, cormorant nest debris, in littoral zone (e.g., lagoon edge), arid zone, agricultural zone, *Bursera* forest, *Scalesia* forest, *Zouthoxylon*-lichen humid forest, *Miconia* forest, mixed forest, shrub forest, open forest, guava thicket, *Inga* pods, pampas etc. Collecting methods: carrion traps, dung traps, light traps, Flight Interception Traps (FIT), Malaise traps, bottle traps, and general collecting techniques. Altitudes: 2 m to 1100 m above sea level. Collecting period: February to July. This is the most common aleocharine species on the Galápagos Islands.

D i s t r i b u t i o n . The original series of this species consists of 6 specimens from South America and West Indies, St. Thomas (HUB), and subsequent records are from Grenada, St. John, St. Thomas, St. Vincent, Tortola; Bolivia and Galápagos (St. Cruz) (BLACKWELDER 1943, PACE 1985a). We judge it to be native. *Atheta dichroa* is also known to occur in North America (BLACKWELDER 1943, MOORE & LEGNER 1975). New island records: Baltra, Fernandina, Floreana, Isabela, Marchena, Pinta, Santiago, San Cristóbal.

M a t e r i a l e x a m i n e d . (1906 specimens, 41 ♂, 18 ♀, 1847 sex undetermined) (SBPC, JKC). Syntypes: "dichroa / Gr.[avenhorst] / Am.[erica] spt [=septemprionalis], Zimm.[ermann]". "5423", "Typus" (HUB) 1 ♂; "Americ.[a] sept.[emprionalis] / Zimmermann / Nr. 5423", "Typus" (HUB) 2 ♂, 1 ♀; "6994", "Type" (HUB) 1 ♀; "St. Thomas / Moritz / 5424" (HUB) 1 ♀. Non type material: Baltra: Arid zone (SBPC). Fernandina: 5-10 km NE Cabo

Hammond (SBPC); near summit (SBPC). Floreana: 3-8 km E Black Beach (SBPC); Cerro Pajas (SBPC). Isabela: Alcedo (E crater rim, NE slope) (SBPC); Bahia Urvina (JKC, SBPC); Cerro Azul, 2-9 km NE (SBPC); Finca Cruz (SBPC); Sierra Negra (JKC, SBPC); Sto. Thomas and vicinity (SBPC); Tagus Cove, 2-9 km NE (JKC, SBPC); Villamil and 12 km NW Villamil (SBPC). Marchena: Pta. Espejo (SBPC); SW Playa (SBPC). Pinta: littoral zone, Playa Ibbetson (SBPC), Zanthoxylon-lichen forest (SBPC). Santiago: Aguacate Camp (SBPC); Central Camp (SBPC). San Cristóbal: 2 km NE and 3 km E Baquerizo; 5 km E Wreck Bay (SBPC); Casetta (SBPC); El Junco and vicinity (JKC, SBPC); Progreso, 1-5 km E (SBPC). St. Cruz: Academy Bay (SBPC); Bellavista (SBPC); 3 km W, 2-4 km N Bellavista (JKC, SBPC); Devine Farm (SBPC); Charles Darwin Research Station; Pto. Ayora (SBPC); Horneman Farm (SBPC); Media Luna and vicinity (SBPC); Los Gemelos; 31 km N Sta. Rosa (JKC, SBPC); 7.2-10 km N Sta. Rosa: Tortoise Reserve (JKC, SBPC).

Remarks. We consider the two color forms as belonging to the same species because they occur sympatrically, do not differ in external morphology, and have a similar shape of the median lobe of aedeagus and spermatheca. *Atheta dichroa* is externally very similar to *A. propinqua* (Er.) which is known from Brazil, but has a differently shaped spermatheca and should be considered as a different species. The female type of the latter species was examined and is deposited in HUM.

VI. TRIBE Falagriini Mulsant & Rey, 1873

(First record of this tribe from Galápagos)

D i a g n o s i s . Tarsi 4-5-5-segmented, body ant-like (Fig. 14); head with distinctly constricted neck which is no more than one-third as wide as head (Fig. 14); pronotum narrow at base, no more than three-fourths maximum width, usually with median sulcus (Fig. 14); mesothoracic peritremes enlarged and sclerotised and almost always present behind procoxae; mesocoxal cavities moderately separated; maxillary palpus 4-segmented, labial palpus 3-segmented; legs long and slender.

16. *Myrmecocephalus concinnus* (Erichson)

(Figs 14, 55-57)

ERICHSON (1840) (*Falagria*). HOEBEKE 1985 (illustrations); PACE (1990a).

Lectotype: "Brasil, Germ.[any], Hist. Coll. Nr. 5288 / Typus, Zool. Mus. Berlin" (HUB).

D i a g n o s i s . Body length 2.2-2.6 mm; ant-like (Fig. 14), with long and slender legs; brown to rust-brown, with rufous basal and apical portions of antennae, tibiae, tarsi, base and tip of abdomen and elytra, sometimes elytra appears rufous, mottled with dark brown; glossy; punctation fine and moderately dense on forebody; pubescence short, except slightly longer on abdomen; antennal segments 1-7 elongate and 8-10 as wide as long or slightly transverse (Fig. 14); head arcuately truncate at base, slightly wider than thorax (Fig. 14); pronotum elongate, convex, strongly converging at base, hind margin reflexed, deeply sulcate along median line (Fig. 14); scutellum partially carinate at base; elytra much wider than prothorax, with pronounced shoulders; abdomen narrowed at base and apex, 3 basal terga deeply impressed basally, first impression with some punctures. ♂ Median lobe of aedeagus with large, widely oval bulbous, and short and apically truncate tubus (Figs 56, 57; internal sac with two sclerites in bulbous (Fig. 57). Tergite 8 truncate and without

comb of denticles on apical margin; sternite 8 rounded apically. ♀ Spermatheca S-shaped (Fig. 55). Tergite and sternite 8 truncate apically.

B i o n o m i c s . Adults have been collected from *Miconia* and *Scalesia* forest, and a guava filled ravine. Collecting methods: Flight Interception Traps (FIT). Altitudes: 370-550 m above sea level. Collecting period: February and March.

D i s t r i b u t i o n . A cosmopolitan species originally described from Brazil (ERICHSON 1840), and recorded from Bolivia (PACE 1990b), and across the United States (HOEBEKE 1985). We report this species for the first time from Galápagos: San Cristóbal, St. Cruz. We judge it to be introduced.

M a t e r i a l e x a m i n e d . (19 specimens, 4 ♂, 2 ♀, 13 unsexed (SBPC, JKC): San Cristóbal: 1 km E Progreso (SBPC) 1 sex undetermined. St. Cruz: Media Luna (SBPC, JKC); Los Gemelos (SBPC); Puntudo (SBPC).

VII. TRIBE Oxypodini Thomson, 1859

D i a g n o s i s . Tarsi 5-5-5-segmented, mesocoxae narrowly to moderately widely separated and set in margined acetabula, intercoxal process slender, median lobe of aedeagus with elongate compressor plate and without a transverse strip called the 'athetine bridge'. Maxillary palpi 3 or 4-segmented, labial palpi 3-segmented.

Genus *Feluva* Blackwelder, 1952

Type species: *Feluva varicolor* (Fauvel) (*Brachyglossa*)

17. *Feluva franzi* Pace, 1985a

(Figs 15, 58-60)

PACE 1985a: 454. Habitus and spermatheca illustrated by PACE (1985a). Holotype (♀): Isabela I., Cerro Azul, 5/5-1975, H. Franz leg. (RPC)

D i a g n o s i s . Body length 1.9-2.1 mm; narrowly subparallel (Fig. 15), dark brown or nearly black to pale brown with rust tinge, usually with darker antennal segments 5-11, head, pronotum and abdomen except for the apex; moderately glossy; punctation dense especially on head and pronotum; forebody with granulate surface; antennal segments 5-10 strongly transverse, each at least twice wider than long (Fig. 15); head with long (approximately as long as diameter of eye) subparallel temples, abruptly constricted posteriorly into narrow neck (Fig. 15); pronotum equal in width to head, slightly narrowed posteriorly, with pubescence directed horizontally from the median line of disc (Fig. 15); abdomen slightly widening posteriorly, three basal tergites with deep basal impressions (Fig. 15). ♂ Median lobe of aedeagus with enlarged oval bulbous, and short triangular tubus in dorsal view, internal sac structures inconspicuous (Figs 58, 59). Tergite 8 transverse, truncate apically, with several protruding setae, sternite 8 transverse, broadly rounded apically with several protruding setae. ♀ Spermatheca with slightly elongate spherical capsule and approximately two posterior coils (Fig. 60), tergite and sternite 8 elongate, truncate posteriorly, with protruding long setae.

B i o n o m i c s . Adults have been collected from beach zone forests, arid zone, agriculture zone, transition zone, and *Scalesia* and *Miconia* forests. Collecting methods: Malaise traps, Flight Interception Traps (FIT), carrion trap, and beating forest branches. Altitudes: 10 to 650 m above sea level. Collecting period: January to May.

D i s t r i b u t i o n . First recorded from Galápagos (Isabela, Marchena) by Pace (1985). Isabela and Marchena records are here confirmed. New island records: Floreana, Pinta, Rábida, St. Cruz. An endemic species.

M a t e r i a l e x a m i n e d . (26 specimens: ♂, ♀, sex undetermined) (SBPC, JKC): Floreana: 3 and 8 km E Black Beach (SBPC). Isabela: 4 km NW Villamil (SBPC); Cerro Azul, 2 km E Caleta Iguana (SBPC); Marchena: Pta. Espejo (SBPC); SW Playa (SBPC). Pinta: Playa Ibbetson (SBPC). Rábida: NE Coast, Palo Santo forest (SBPC). St. Cruz: Bellavista (SBPC, JKC); Charles Darwin Research Station, arid zone (SBPC); Los Gemelos (SBPC, JKC); Puntudo (SBPC, JKC); agricultural zone (SBPC); 1-7.2 km N. St. Rosa (SBPC).

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TABLE I
Checklist of species

Taxon	Original	Distribution	Status
	Description	(New Galápagos records with asterisk)	
Myllaenini	Ganglbauer, 1885		confirmed
1. <i>Myllaena leleupi</i>	Pace, 1985	Isabela	confirmed probably endemic
2. <i>Rothium ashlocki</i>	Ahn & Ashe, 1996	Sta. Cruz	unconfirmed probably endemic
3. <i>Rothium littoralis</i>	sp. n.	Floreana	probably endemic
Hypocyphtini	Laporte, 1835		new record
4. <i>Oligota (Holobus) chrysopyga</i>	Kraatz, 1859	Africa, Madagascar, Mascarene Is., India, New Caledonia, Sechelles, Sri Lanka; Isabela*, San Cristóbal*, Sta. Cruz*	cosmopolitan, introduced
Homalotini	Heer, 1839		confirmed
5. <i>Phanerota tridentata</i>	sp. n.	Sta. Cruz*	probably introduced
6. <i>Thecturota franzi</i>	Pace, 1985a	Fernandina*, Floreana*, Isabela*, Marchena*, Pinta*, Pinzón*, San Cristóbal*, Santiago, Sta. Cruz	well established, probably endemic
7. <i>Diesota (Apheloglossa) franziana</i>	Pace, 1985a	Floreana*, Isabela*, Marchena*, Pinzón*, Santiago*, San Cristóbal*, Sta. Cruz	well established, status uncertain, possibly endemic
8. <i>Diesota (Apheloglossa) leleupi</i>	Pace, 1985a	Isabela, Sta. Cruz*	well established, probably endemic
9. <i>Diesota (Apheloglossa) galapagosensis</i>	Pace, 1985a	Marchena	unconfirmed, possibly endemic
Placusini	Mulsant & Rey, 1871		new record

10. <i>Euvira scalesia</i>	sp. n.	Sta. Cruz*	probably endemic
Athetini	Casey, 1910		confirmed and new records
11. <i>Atheta galapagoensis</i>	Pace, 1985a	Bartolomé*, Española*, Fernandina*, Floreana*, Isabela, Marchena*, Pinta, Pinzón, Plaza Sur*, Rábida*, Santiago, San Cristóbal, Sta. Cruz, St. Fé*	well established, probably endemic
12. <i>Atheta lurida</i>	Erichson, 1840	Brazil; Santiago, Fernandina*	established, native
13. <i>Atheta (s. str.) coriaria</i>	Kraatz, 1856	Europe, North America; Floreana*, Isabela*, San Cristóbal, Sta. Cruz*	cosmopolitan, established, introduced
14. <i>Atheta (Acrotona) pseudoclaudiensis</i>	sp. n.	Fernandina*, Floreana*, Isabela*, Marchena*, Pinta*, Plaza Sur*, San Cristóbal*, Sta. Cruz*	well established, endemic
15. <i>Atheta dichroa</i>	Gravenhorst, 1802	North America, South America (Bolivia), West Indies (St. Thomas); Baltra*?, Fernandina*, Floreana*, Isabela*, Marchena*, Pinta*, Santiago*, San Cristóbal*, Sta. Cruz	established, native
Falagriini	Mulsant & Rey, 1873		new record
16. <i>Myrmecocephalus concinnus</i>	Erichson, 1840	North America, Bolivia, Brasil; San Cristóbal, Sta. Cruz*	established, introduced
Oxydini	Thomson, 1859		confirmed
17. <i>Feluva franzi</i>	Pace, 1985a	Floreana*, Isabela, Marchena, Pinta*, Rábida*, Sta. Cruz*	well established, probably endemic

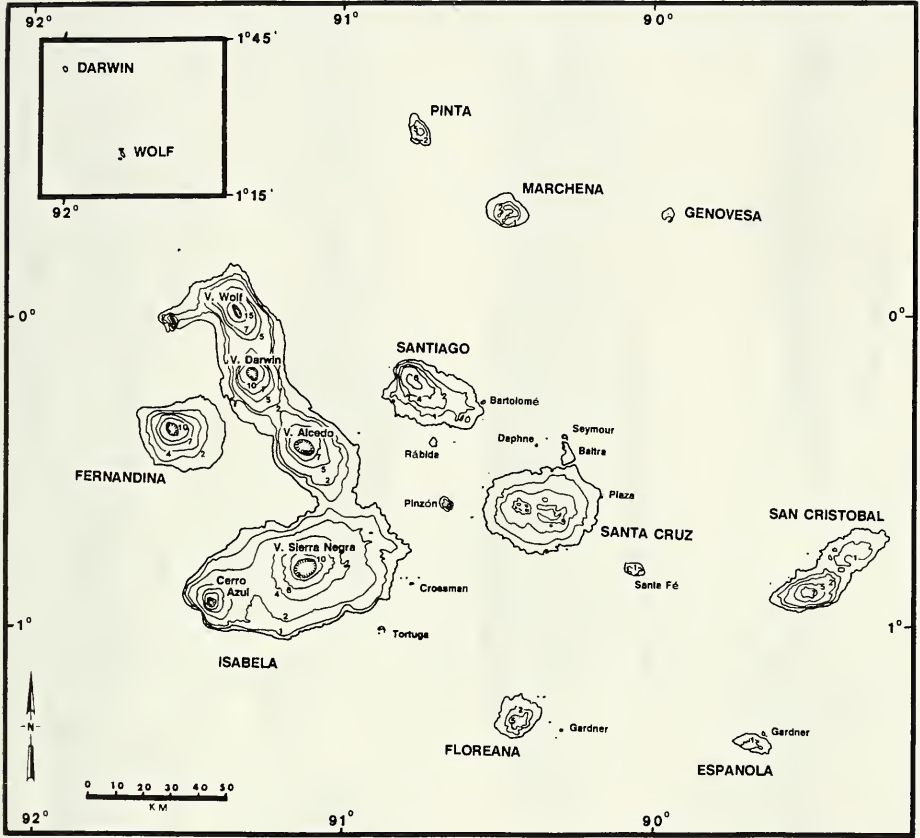
TABLE 2

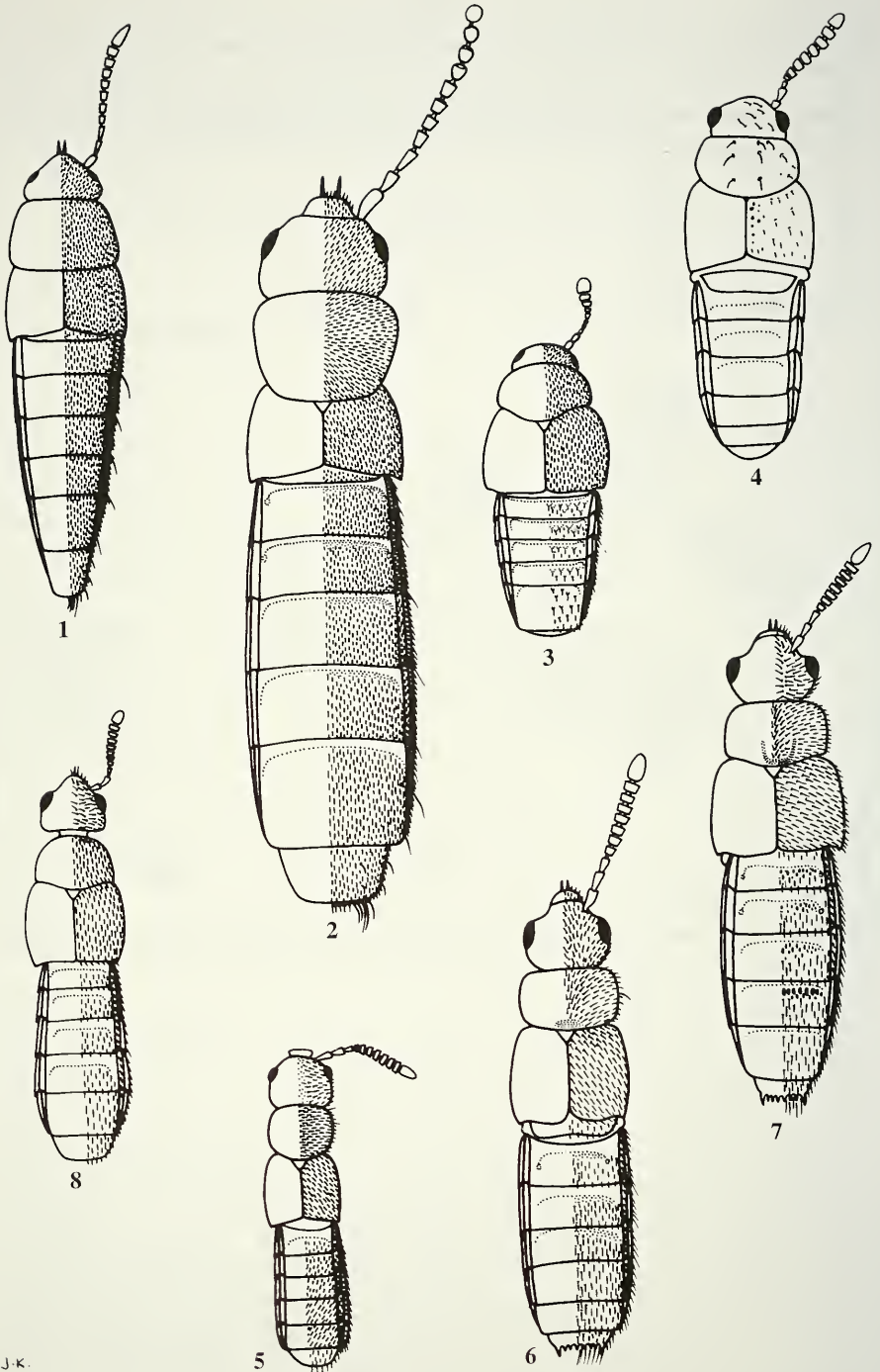
Aleocharine species distribution (including earlier literature records) in biotic zones on the Galápagos Islands and a total species diversity per zone as depicted in Table 1. (X) indicates presence; column one indicates species name, and its probable status. Columns 2-8 biotic zones. Last row contains information on species diversity per biotic zone (Litt.=littoral zone; Ar.=arid zone; Tr.=transition zone; HF.=humid forest; Es.=evergreen shrub; Pa.=pampa zone; Agr.=agricultural zone).

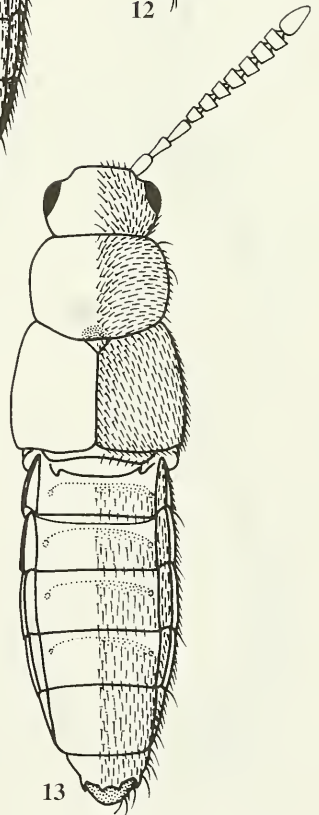
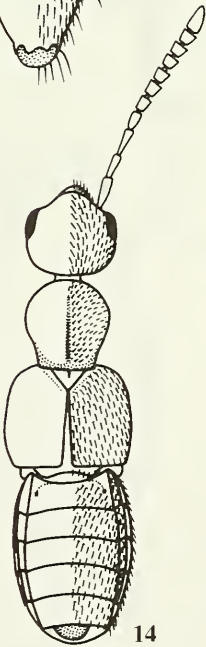
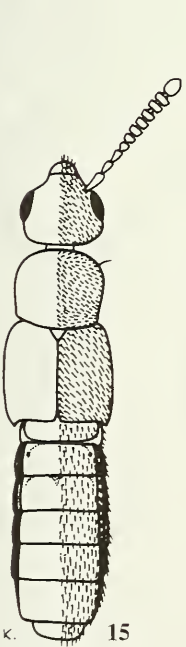
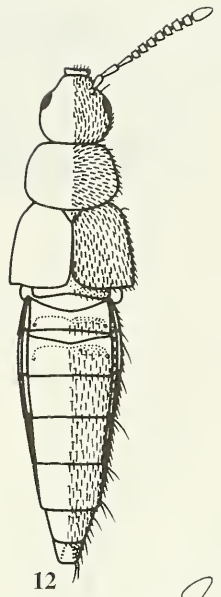
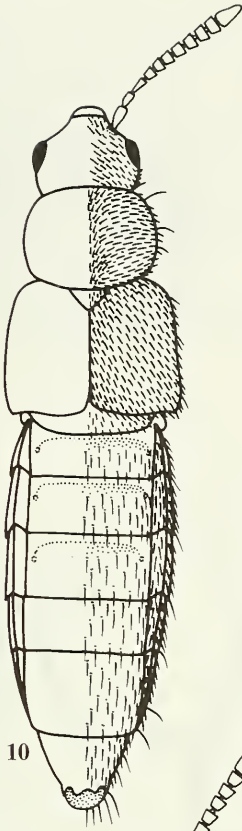
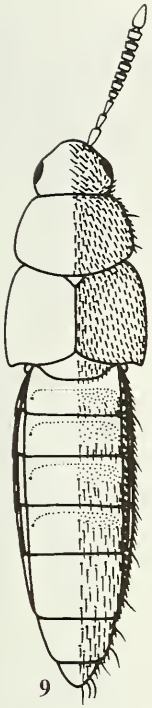
Species and its probable status	Litt.	Ar.	Tr.	HF.	ES.	Pa.	Agr.
<i>Myllaena leleupi</i> (endemic)	X						
<i>Rothium ashlocki</i> (endemic)	X						
<i>Rothium littoralis</i> (endemic)	X						
<i>Oligota chrysopyga</i> (introduced)		X	X	X	X		X
<i>Phanerota tridentata</i> (introduced)							X
<i>Thecturota franzi</i> (endemic)		X	X	X	X	X	X
<i>Diesota franziana</i> (probably endemic)		X	X	X	X		X
<i>Diesota leleupi</i> (endemic)	X	X					
<i>Diesota galapagosensis</i> (endemic)		X					
<i>Euvira scalesia</i> (endemic)			X	X			
<i>Atheta galapagoensis</i> (endemic)	X	X	X	X	X	X	X
<i>Atheta lurida</i> (native)		X	X				
<i>Atheta coriaria</i> (introduced)			X	X	X	X	X
<i>Atheta pseudoclaudensis</i> (endemic)	X	X	X	X	X	X	X
<i>Atheta dichroa</i> (native)	X	X	X	X	X	X	X
<i>Myrmecocephalus concinnus</i> (introduced)				X	X		
<i>Fehuva franzi</i> (endemic)		X	X	X	X		X
Total Species diversity in different zones	6	10	10	10	9	5	9
Endemic and native species diversity in different zones	6	9	8	7	6	4	6

MAP 1

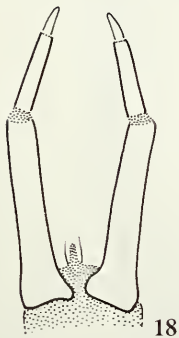
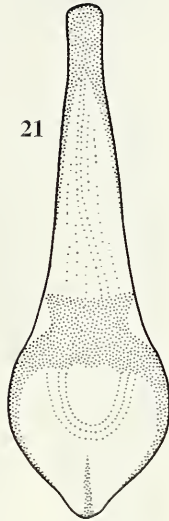
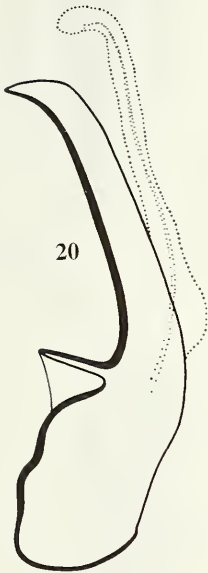
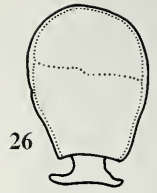
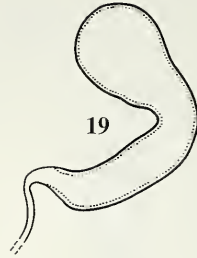
Map of the Galápagos Archipelago (numbers on contour lines indicate elevation in hundreds of meters).

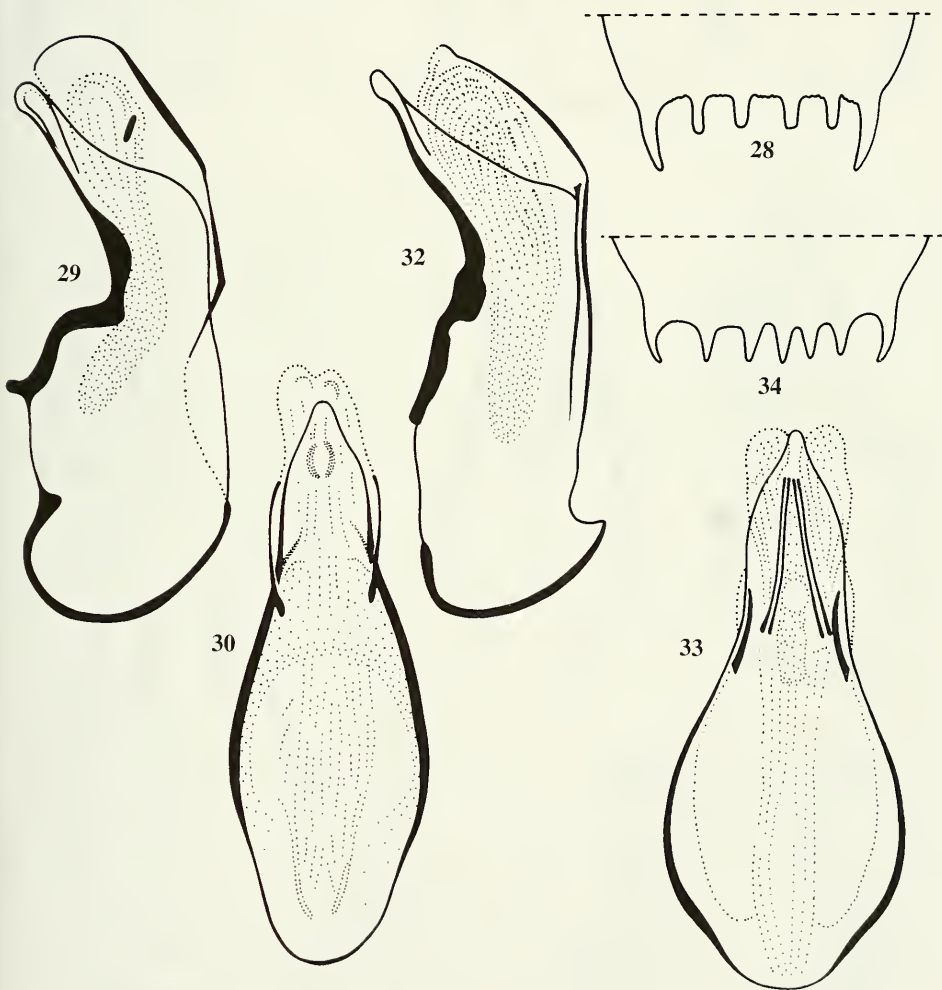
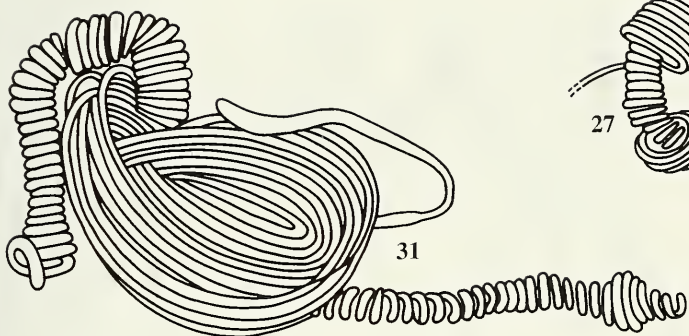




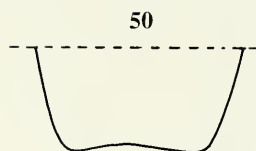
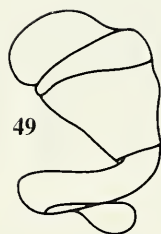
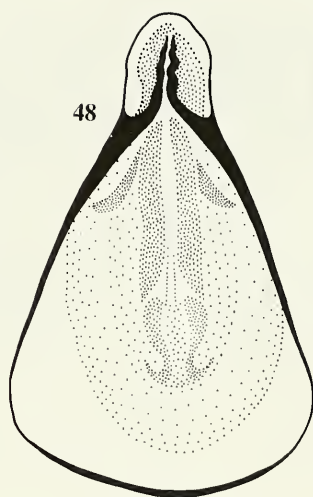
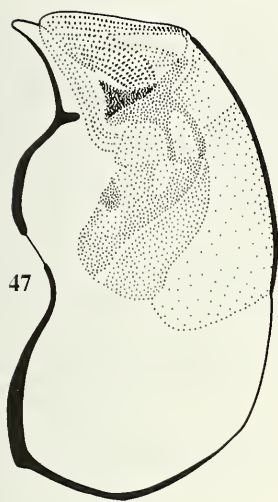


J.K.

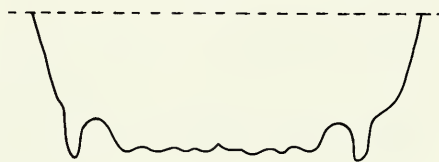








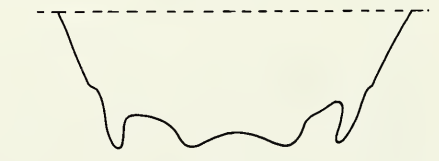
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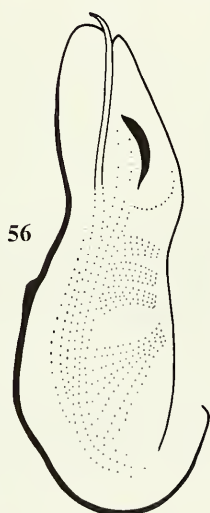
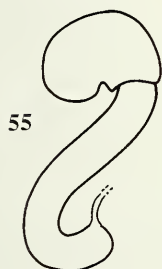
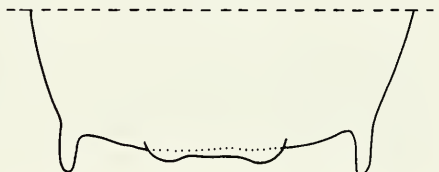
52

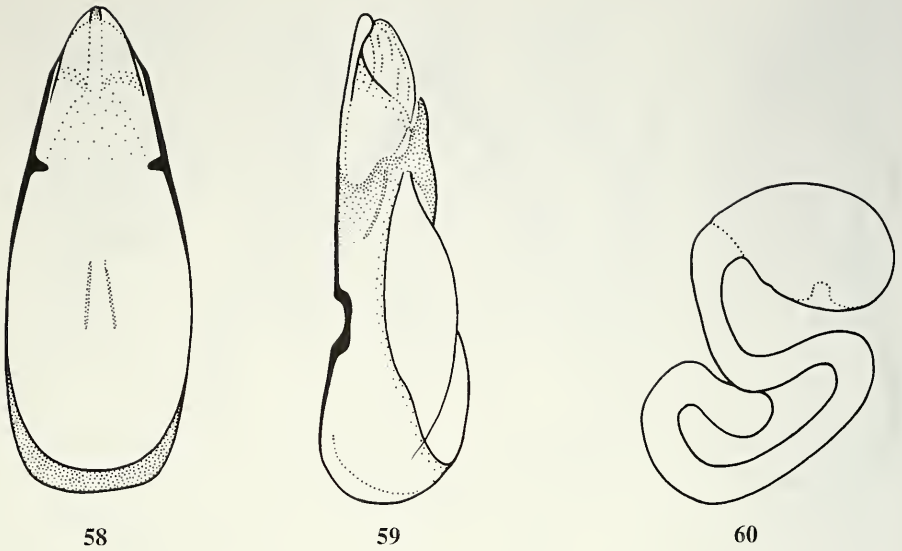


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FIGS 1-8

Schematic habitus illustrations (pubescence shown only on right side of head, pronotum and abdomen; legs not shown). 1. *Myllaena leleupi* (length 1.8 mm); 2. *Rothium littoralis* (length 4.5 mm); 3. *Oligota chrysopyga* (length 0.9 mm); 4. *Phanerota tridentata* (length 1.3 mm); 5. *Thecturota franzi* (length 1.1 mm); 6. *Diesota franziana* (length 1.9 mm); 7. *Diesota leleupi* (length 2.2 mm); 8. *Euvira scalesia* (Length 1.8 mm).

FIGS 9-15

Schematic habitus illustrations (pubescence shown only on right side of head, pronotum and abdomen; legs not shown). 9. *Atheta galapagoensis* (length 2.2 mm); 10. *Atheta lurida* (length 2.8 mm); 11. *Atheta coriaria* (length 2.7 mm); 12. *Atheta claudiensis* (length 1.9 mm); 13. *Atheta dichroa* (length 2.8 mm); 14. *Myrmecocephalus concinnus* (Erichson) (length 2.4 mm); 15. *Feluva franzi* (length 2.0 mm).

FIGS 16-26

Genital structures and labial palpi of selected species. 16. Spermatheca of *Myllaena leleupi*; 17. spermatheca of *Rothium littoralis*; 18. labial palpi or glossae of *R. littoralis*; 19-21. *Oligota chrysopyga*: 19. spermatheca; 20. median lobe of aedeagus in lateral view; 21. median lobe of aedeagus in dorsal view; 22. *Phanerota tridentata*, median lobe of aedeagus in lateral view; 23-25. *Thecturota franzi*: 23. median lobe of aedeagus in dorsal view; 24. median lobe of aedeagus in lateral view; 25. spermatheca; 26. spermatheca of *Euvira scalesia*.

FIGS 27-34

Genital structures and tergites of selected species. 27-30. *Diesota franziana*: 27. spermatheca; 28. apical portion of male tergite 8; 29. median lobe of aedeagus in lateral view; 30. median lobe of aedeagus in dorsal view; 31-34. *Diesota leleupi*: 31. spermatheca; 32. median lobe of aedeagus in lateral view; 33. median lobe of aedeagus in dorsal view; 34. apical portion of male tergite 8.

FIGS 35-46

Genital structures of selected species. 35, 36, 43, *Atheta galapagoensis*: 35. median lobe of aedeagus in lateral view; 36. median lobe of aedeagus in dorsal view; 43. spermatheca; 37, 38, 46. *Atheta lurida*: 37. median lobe of aedeagus in lateral view; 38. median lobe of aedeagus in dorsal view; 46. spermatheca. 39, 40, 45. *Atheta dichroa*: 39. median lobe of aedeagus in lateral view; 40. median lobe of aedeagus in dorsal view; 45. spermatheca; 41, 42, 44. *Atheta pseudoclaudiensis*: 41. median lobe of aedeagus in lateral view; 42. median lobe of aedeagus in dorsal view; 44. spermatheca.

FIGS 47-57

Genital structures and tergites of selected species. 47-49, 51. *Atheta coriaria*: 47. median lobe of aedeagus in lateral view; 48. median lobe of aedeagus in dorsal view; 49. spermatheca. 51-54. apical portion of male tergite 8: 50. *Atheta pseudoclaudiensis*; 51. *Atheta coriaria*; 52. *Atheta galapagoensis*; 53. *Atheta lurida*; 54. *Atheta dichroa*. 55-57. *Myrmecocephalus cingulatus*: 55. spermatheca; 56. median lobe of aedeagus in lateral view; 57. median lobe of aedeagus in dorsal view.

FIGS 58-60

Feluya franzi: 58. median lobe of aedeagus in dorsal view; 59. median lobe of aedeagus in lateral view; 60. spermatheca.

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**Leleupidiini from the Oriental Region.
2. The genus *Gunvorita* Landin
(Insecta, Coleoptera, Carabidae, Zuphiinae)**

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Leleupidiini from the Oriental Region. 2. The genus *Gunvorita* Landin (Insecta, Coleoptera, Carabidae, Zuphiinae). - The genus *Gunvorita* Landin is revised and the following 13 new species from Nepal and northeastern India are described and illustrated: *Gunvorita angusticeps*, *G. besucheti*, *G. depressipennis*, *G. hamifera*, *G. inermis*, *G. laeviceps*, *G. minor*, *G. nepalensis*, *G. ovaliceps*, *G. punctipennis*, *G. schawalleri*, *G. smetanai*, and *G. uncinata*. The male genitalia of *G. indica* Darlington are described and figured. A key to all 16 known species is provided.

Scenario's of the possible evolution and biogeographic history of the Oriental-Australian Leleupidiini are presented, even though the phylogenetic relations of and within the three genera occurring in the Oriental region are not yet settled. Striking gaps in distribution of Leleupidiini in the Oriental region and some phylogenetic evidence indicate at least two, or even more probably, three independent colonization events of Leleupidiini in southern Asia: namely the genus *Paraleleupidia* to southern India, the ancestral stock of *Colasidia* to Malaysia, and the ancestral stock of *Gunvorita* to the pre-Himalayan area of Nepal to northeastern India. But another scenario is also conceivable with colonization of the ancestral stock of *Colasidia* and *Gunvorita* to Malaysia and with later spreading of *Colasidia* to the southeast and *Gunvorita* to the northwest.

The immigration is believed to have occurred by drifting on the Indian plate (*Paraleleupidia*) and on terranes of the so-called "Sundaland" (*Colasidia* and *Gunvorita*). Consequently, the Oriental-Australian Leleupidiini are derived from ancestors that were formerly distributed in the part of Gondwanaland situated east to Africa. Therefore, Leleupidiini most probably are of pre-Cretaceous age, and they are a further example of rather recent immigration of an old Gondwanan element into the Australian region from the north.

Key-words: Coleoptera - Carabidae - Zuphiinae - Leleupidiini - *Gunvorita* - Taxonomy - Oriental Region - Biogeography.

INTRODUCTION

As a second part of a general review of the Oriental Leleupidiini the genus *Gunvorita* is treated. Specimens of this genus, like Oriental Leleupidiini in general, until now were very rare in collections, though became increasingly numerous in the last few years, which is certainly due to more intense collecting and to specialized sampling methods. However, Leleupidiini are yet unrecorded from large parts of the Oriental region. Apparently, they either concentrate in few regions, or have been only sampled in these areas, because other regions have not been adequately worked until now.

The history of the discovery of the Oriental Leleupidiini was briefly recorded in the first part of this review (BAEHR 1997b). Including the species of the genus *Colasidia* described in that paper and the new species of *Gunvorita* described in the present paper 49 species of Leleupidiini are now known from the Oriental and Australian Regions.

Most Oriental-Australian species have been included in the genus *Colasidia* Basilewsky, but except for three species from South India that were arranged within the genus *Paraleleupidia* Basilewsky, subgenus *Megaleleupidia* Mateu, so far only three species were described as belonging to the genus *Gunvorita* Landin. Although the present classification of Oriental Leleupidiini is not really satisfactory, I think this generic concept should be maintained for the present. Hence those species are included in the genus *Gunvorita* that have a markedly elongate head with generally small eyes, a rather elongate, highly convex prothorax with inconspicuous lateral margins, possess rather distinct circular impressions medially of the eyes, though lack - at least on head and prothorax - the rather coarse puncturation present in the genus *Colasidia*.

The crotchet on the lower surface of the apex of the aedeagus is highly characteristic in many species of *Gunvorita*, though a group of species lacks this character without showing striking differences in any characters of the external morphology. Therefore, characteristics of the aedeagus at present are not as useful for characterization of the genus *Gunvorita* as one might believe.

There is some reason to believe that male genitalic characters generally can be used for better recognition of the genera, but at present male genitalia were known of little more than half of the species of *Colasidia*, and of no species at all of the genus *Paraleleupidia*. Moreover, the known aedeagi of *Colasidia* are very diverse and thus far do not give a clear picture. Hence, for the present, in *Colasidia* as well, male genitalia have been only used for distinction of species.

By courtesy of Dr I. Löbl (Muséum d'histoire naturelle, Genève - MHNG) I received samples of the genus *Gunvorita* (and other Leleupidiini - see BAEHR 1997b) for identification that had been collected during the last 25 years by staff of the museum in different countries of southern Asia. When the present paper was almost ready for being printed, I received a further sample of specimens of the genus *Gunvorita* by courtesy of Dr W. Schawaller (Staatliches Museum für Naturkunde - SMNS) that were collected by Prof. J. Martens during his frequent expeditions to

Nepal, but also partly in the course of J. Martens' joint trips together with W. Schawaller. I decided to include this sample in the paper because it contains altogether 7 *Gunvorita* species of which 5 are new again. Hence, this paper covers 13 new species, and the three species known hitherto are reviewed briefly and in parts redescribed.

Altogether, 76 specimens of *Gunvorita* were examined for this paper.

MEASUREMENTS

Measurements have been made under a stereo microscope using an ocular micrometer. Length has been measured from tip of labrum to apex of elytra, therefore, measurements may slightly differ from those of other authors. Length of head is measured from anterior border of clypeus to anterior border of "neck". The ratio length of orbit/length of eye is likewise measured to anterior border of "neck".

CHARACTERS

Best characters for differentiation of the species of the genus *Gunvorita* are in the structure of the male aedeagus that is available in all species of this genus. Fairly useful characters are also provided by shape of head, pronotum, and elytra (expressed in a number of measurements and ratios), size of eyes and of appendages of head, degree and shape of puncturation of upper surface, and pilosity. In other respects the species are rather similar.

DEPOSITION OF TYPES

The holotypes of the new species are deposited at the Muséum d'histoire naturelle, Genève (MHNG) and at Staatliches Museum für Naturkunde, Stuttgart (SMNH), some paratypes are deposited in the working collection of the author (CBM) at the Zoologische Staatssammlung, München. The types of the three yet described species are in Naturhistoriska Riksmuseet, Stockholm (NHRS), The Natural History Museum, London (BMNH), and Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt/M. (SMF).

Genus *Gunvorita* Landin

Gunvorita Landin, 1955: 467, fig. 90; DARLINGTON 1968: 208, fig. 1; MATEU 1981: 721, figs 4, 7; PERRAULT 1982: 76; CASALE 1985: 41, figs 1, 2; BAEHR 1988: 115; BAEHR 1990: 16; BAEHR 1991: 194.

Type species: *Gunvorita elegans* Landin, 1955

In this genus species with the following characteristics are combined: head always posteriorly somewhat widened, shape of head either pentagonal or more or less triangular; eyes small; clypeal suture with a pair of deep grooves; frons with a pair of circular or horseshoe-shaped grooves; pronotum narrow and dorsally convex, with inconspicuous lateral margin; elytra depressed, posteriorly conspicuously widened.

markedly triangular; puncturation on head and pronotum fine, on elytra fine to moderately coarse; pilosity elongate, hirsute, rather dense: male aedeagus almost always rather elongate, internal sac usually with two large sclerotized areas furnished with very elongate sclerotized teeth; female stylocere 2 always elongate, little curved, with elongate, acute apex, two elongate ventral ensiform setae, one elongate dorsal ensiform seta, a well developed nematiform seta, and stylocere 2 with 1-2 well visible nematiform seta(e) at median rim.

It is yet unsettled, whether the combination of these character states is sufficient to distinguish *Gunvorita* from Oriental *Colasidia* or even from African *Lelepidia*. In certain of these character states species of *Gunvorita* resemble (supposedly) primitive species of *Colasidia* from Malaysia (see Baehr 1997 b).

Although the species are rather similar in external morphology, the aedeagi, in particular their apices, are highly characteristic in all species. Hence examination of male genitalia is indispensable, but species distinction by use of male genitalia is reasonably easy.

KEY TO THE SPECIES OF THE GENUS *Gunvorita* LANDIN

Because some of the published figures of the yet described species are of great value for identification, though are not included in the present paper, in the key the numbers of the respective figures have been added under the following chiffrs: **L55**: Landin 1955; **D68**: Darlington 1968; **M81**: Mateu 1981; **C85**: Casale 1985. It should be mentioned, however, that the figure of the aedeagus ascribed to *G. indica* Darlington by Mateu (1981, fig. 8) actually does not show the aedeagus of this species.

Identification of females may be difficult, unless they are associated with males. Although many species are very similar in certain external characters, I give an additional key using only external characters and ratios that may be useful for identification of females. Nevertheless, whenever females can be associated with males ♂ genitalia should be examined.

- 1. ♂♂ 2
- ♀♀ 18
- 2. Apex of aedeagus with crotchet at lower side, doubtful species under both couplets (**M81** fig. 7; **C85** fig. 2; figs 1-9) 3
- Apex of aedeagus without crotchet at lower side (figs 10-14) 13
- 3. Head posteriorly markedly widened, rather triangular (**L55** fig. 90; **M81** fig. 4; **C85** fig. 1; figs 37-40) **and** smaller species, length <4.5 mm **and** apical third of aedeagus distinctly bent up (**M81** fig. 7; **C85** fig. 2; figs 1, 2) 4
- Head posteriorly widely rounded off (Figs 41-47); usually larger species, length mostly >4.5 mm; apical third of aedeagus not distinctly bent up (Figs 3-9); if in doubt of the latter, species > 5 mm long 7

4. Eyes smaller in comparison to orbits (**C85** fig. 1; fig. 38); aedeagus with remarkably slender apical part, apex semicircular, with minute denticle on lower side (**C85** fig. 2). Eastern Nepal *martensi* Casale
- Eyes larger in comparison to orbits (**L55** fig. 90; figs 37, 39, 40); aedeagus with less slender apical part, apex not semicircular, with distinct crotchet (**M81** fig. 7; figs 1, 2) 5
5. Head markedly widened posteriorly, strongly triangular (Fig. 40); lower surface of aedeagus with characteristic edge in middle, internal sac with short sclerotized area (Fig. 2). Northeastern India *inermis* sp. n.
- Head less widened posteriorly, less triangular (**M81** fig. 4; figs 37, 39); lower surface of aedeagus without edge in middle, internal sac with elongate sclerotized area (**M81** fig. 7; fig. 1) 6
6. Aedeagus elongate, apex more delicate, apical third suddenly turned upwards, upper margin of apex not markedly upturned (Fig. 1); puncturation of head very fine and sparse. Northeastern India *laeviceps* sp. n.
- Aedeagus shorter, apex shorter, stouter, less distinctly turned upwards, upper margin of apex distinctly upturned (**M81** fig. 7); puncturation of head coarser and denser. Eastern Nepal, Sikkim, northeastern India *elegans* Landin
7. Crotchet situated immediately at apex of aedeagus (figs 3-7); eyes slightly smaller, orbit >3.5 x as long as eye (Figs 41-45) 8
- Crotchet considerably removed from apex of aedeagus (Figs 8, 9); eyes slightly larger, orbit <3.5 x as long as eye (Figs 46, 47) 12
8. Aedeagus markedly short and stout, with very elongate crotchet (Fig. 7); size small, length <4.3 mm; for further discrimination of ♀♀ from ♀♀ of *hamifera* sp. n.: eyes smaller, orbit >3.75 x as long as eye (Fig. 45) **and** elytra slightly narrower, ratio l/w <1.96 (Fig. 29). Eastern Nepal *schawalleri* sp. n.
- Aedeagus longer and narrower, with shorter crotchet (Figs 3-6); size larger, usually >4.5 mm, except for small specimens of *hamifera* sp. n.; for further discrimination of ♀♀ of *hamifera* sp. n. from ♀♀ of *schawalleri* sp. n.: length >4.3 mm and eyes larger, orbit <3.75 x as long as eye (fig. 44) **and** elytra slightly wider, ratio l/w >1.96 (Fig. 28) 9
9. Head elongate, posteriorly markedly oval-shaped, ratio l/w >1.6 (Figs 41, 42); apex of aedeagus somewhat upturned (Figs 3, 4). Northeastern India . . . 10
- Head shorter, posteriorly shortly rounded, ratio l/w <1.6 (Figs 43, 44); apex of aedeagus barely upturned (Figs 5, 6). Nepal 11
10. Larger species, length 5.65 mm; head longer and narrower, ratio l/w 1.78 (Fig. 41); prothorax wider, ratio l/w 1.23 (Fig. 57); aedeagus longer and more delicate (Fig. 3) *indica* Darlington
- Smaller species, length 5.05 mm; head shorter and wider, ratio l/w 1.61 (Fig. 42); prothorax narrower, ratio l/w 1.31 (Fig. 58); aedeagus shorter and stouter (Fig. 4) *ovaliceps* sp. n.

11. Head longer and narrower with smaller eyes, ratio l/w of head 1.51-1.60 (Fig. 43); elytra shorter, ratio l/w 1.38-1.44, wider in relation to prothorax (Fig. 27); aedeagus with shorter crotchet and with one elongate, coiled, denticulate sclerite (Fig. 5). Central Nepal *nepalensis* sp. n.
- Head shorter and wider with larger eyes, ratio l/w of head 1.42-1.47 (Fig. 44); elytra longer, ratio l/w 1.53-1.55, narrower in relation to prothorax (Fig. 28); aedeagus with longer crotchet and with two narrow, denticulate sclerites (Fig. 6). Eastern Nepal. *hamifera* sp. n.
12. Larger species, length c. 5 mm; prothorax longer and narrower, ratio l/w 1.21-1.27 (Fig. 62); elytra longer, ratio l/w 1.55-1.60, >2.05 x as wide as prothorax (Fig. 30); apex of aedeagus remarkably curved up, upturned apex and crotchet form a very oblique line (Fig. 8). Central Nepal *smetanai* sp. n.
- Smaller species, length <4.7 mm; prothorax shorter and wider, ratio l/w 1.16-1.19 (Fig. 63); elytra shorter, ratio l/w 1.51-1.52, <1.90 x as wide as prothorax (Fig. 31); apex of aedeagus barely curved up, upturned apex and crotchet form a distinct angle (Fig. 9). Eastern Nepal *uncinata* sp. n.
13. Aedeagus with remarkably slender apical part, apex semicircular, with minute denticle on lower side (C85 fig. 2). Eastern Nepal *martensi* Casale
- Aedeagus without any denticle on lower side of apex, apical part not remarkably slender (Figs 10-14) 14
14. Apex of aedeagus distinctly curved down, wide or slightly club-shaped as seen from below; genital ring rather wide (Figs 13, 14) 15
- Apex of aedeagus straight or faintly curved up, narrow and acute as seen from below; genital ring narrow and rather triangular (Figs 10-12) 16
15. Head shorter and wider, posteriorly shortly rounded, eyes rather large, orbit <2.7 x as long as eye (Fig. 35); aedeagus shorter and stouter, apex slightly club-shaped as seen from below (Fig. 13). Northeast India *depressipennis* sp. n.
- Head longer and narrower, posteriorly markedly ovalish, eyes small, orbit c. 3.75 x as long as eye (Fig. 36); aedeagus longer and narrower, apex wide as seen from below (Fig. 14). Nepal *angusticeps* sp. n.
16. Large species, length >4.8 mm; head posteriorly markedly ovalish (Fig. 48); lower surface of aedeagus gently bisinuate and denticulate sclerite in internal sac elongate (Fig. 10). Northeastern India, Darjeeling area *besucheti* sp. n.
- Smaller species, length <4.0 mm; head posteriorly shortly rounded (Fig. 49) or markedly triangular (Fig. 50); lower surface of aedeagus either almost straight (Fig. 11) or denticulate sclerite in internal sac short (Fig. 12). Northeastern India, Khasi Hills, or Eastern Nepal 17
17. Head posteriorly shortly rounded (Fig. 49); prothorax longer and narrower, ratio l/w 1.38 (Fig. 65); lower surface of aedeagus straight (Fig. 11). Northeastern India, Khasi Hills *minor* sp. n.

- Head posteriorly triangular (Fig. 50); prothorax shorter and wider, ratio l/w 1.23 (Fig. 66); lower surface of aedeagus bisinuate (Fig. 12). Eastern Nepal *punctipennis* sp. n.
- 18. Posterior part of head elongate, markedly oval-shaped, head rather pentagonal, comparatively narrow and elongate, ratio l/w >1.58 (Figs 41, 42, 48, 52); always rather large species, length >4.7 mm 19
- Posterior part of head either shortly rounded (Figs 43-47, 49, 51) or distinctly triangular (**L55** fig. 90; **M81** fig. 4; **C85** fig. 1; figs 37-40, 50), head not pentagonal, usually shorter and wider, ratio l/w <1.60, commonly far less; mostly smaller species, length rarely up to 5.0 mm 22
- 19. Very large species, length 5.65 mm; prothorax comparatively short and wide, ratio l/w 1.23 (Fig. 57), ratio width pronotum/head 1.25. Northeast India *indica* Darlington
- Smaller species, length <5.3 mm; prothorax longer and narrower, ratio l/w >1.27 (Figs 58, 64, 68), ratio width pronotum/head <1.18 (Figs 26, 32, 36) 20
- 20. Eyes comparatively large, orbit <3.25 x as long as eye (Fig. 48). Northeastern India *besucheti* sp. n.
- Eyes smaller, orbit >3.75 x as long as eye (Figs 42, 52) 21
- 21. Head longer and narrower, ratio l/w 1.77 (Fig. 52); pronotum longer and narrower, ratio l/w 1.38, with comparatively wide base, <2 x as wide as elytra (Figs 36, 68). Nepal *angusticeps* sp. n.
- Head shorter and wider, ratio l/w 1.61 (Fig. 42); pronotum shorter and wider, ratio l/w 1.31, with comparatively narrower base, >2 x as wide as elytra (Figs 26, 58). Northeastern India *ovaliceps* sp. n.
- 22. Posterior part of head considerably widened, head markedly triangular (**L55** figs. 90; **M81** fig. 4; **C85** fig. 1; figs 37-40, 50); small species, length always <4.5 mm 23
- Posterior part of head less widened, more or less rounded off, head not markedly triangular (Figs 43-47, 49, 51); commonly larger species 27
- 23. Head rather elongate, ratio l/w 1.53; eyes comparatively small, orbit >3.5 x as long as eye (**C85** fig. 1; fig. 38). East Nepal *martensi* Casale
- Head shorter, ratio l/w <1.47; eyes slightly larger, orbit <3.2 x as long as eye (**L55** fig. 90; **M81** fig. 4; figs 37, 39, 40, 50) 24
- 24. Eyes comparatively large, orbit slightly >2.5 x as long as eye (Fig. 50); whole surface, in particular elytra very coarsely punctate (Fig. 34). East Nepal *punctipennis* sp. n.
- Eyes smaller, orbit >3 x as long as eye (**L55** fig. 90; **M81** fig. 4; figs 37, 39, 40); surface less coarsely punctate (Figs 21, 23, 24) 25
- 25. Head longer and narrower, ratio l/w >1.42 (Figs 39, 40); prothorax longer and narrower, ratio l/w >1.23 (Figs 55, 56); generally smaller species, length <4.25 mm 26

- Head shorter and wider, ratio l/w <1.36 (Fig. 37); prothorax shorter and wider, ratio l/w >1.17 (Fig. 53); generally larger species, length >4.25 mm. Eastern Nepal, Sikkim, northeastern India *elegans* Landin
- 26 Slightly larger species, length >4 mm; leyttra slightly shorter, ratio l/w <1.51 (Fig. 23); puncturation on head very sparse and fine (Fig. 39). Northeastern India *laeviceps* sp. n.
- Slightly smaller species, length <3.9 mm; elytra slightly longer, ratio l/w >1.52 (Fig. 24); puncturation on head denser and coarser (Fig. 40). Northeastern India *inermis* sp. n.
- 27. Eyes larger, orbit <2.75 x as long as eye (Figs 49, 51). Northeastern India . . . 28
- Eyes smaller, orbit >3.33 x as long as eye (Figs 43-47). Nepal 29
- 28 Larger species, length >4.5 mm; pronotum slightly shorter and wider, ratio l/w <1.32 (Fig. 67); elytra markedly depressed, apical margin distinctly oblique and redressed towards suture (Fig. 35). . *depressipennis* sp. n.
- Smaller species, length 4 mm; pronotum slightly longer and narrower, ratio l/w 1.38 (Fig. 65); elytra less depressed, apical margin transverse, not redressed towards suture (Fig. 33) *minor* sp. n.
- 29. Head posteriorly with rather elongate curvature, fairly oval-shaped (Fig. 43); elytra shorter, ratio l/w <1.44, perceptibly >2 x as wide as prothorax (Fig. 27). Central Nepal *nepalensis* sp. n.
- Head posteriorly with rather short curvature, less oval-shaped (Figs 44-47); elytra longer, ratio l/w >1.49, barely >2 x as wide as prothorax or narrower (Figs 28-31) 30
- 30. Larger species, length >4.95 mm; head longer and narrower, posteriorly less widened, ratio l/w >1.55 (Fig. 46); elytra slightly longer and narrower, ratio l/w >1.55 (Fig. 30). Central Nepal *smetanai* sp. n.
- Smaller species, length <4.7 mm; head shorter and wider, posteriorly more widened, ratio l/w <1.53 (Figs 44, 45, 47); elytra slightly shorter and wider, ratio l/w <1.55 (Figs 28, 29, 31). Eastern Nepal 31
- 31. Generally smaller species, length <4.3 mm; eyes generally smaller, orbit >3.75 x as long as eye (Fig. 45) *schawalleri* sp. n.
- Generally larger species, length >4.3 mm; eyes generally larger, orbit <3.75 x as long as eye (Figs 44, 47) 32
- 32. Head slightly shorter, posteriorly more widened, ratio l/w <1.47; eyes slightly smaller, orbit >3.5 x as long as eye (Fig. 44); prothorax slightly longer and narrower, ratio l/w >1.20 (Fig. 60); elytra slightly longer, ratio l/w >1.53, c. 2 x as wide as prothorax (Fig. 28) *hamifera* sp. n.
- Head slightly longer, posteriorly less widened, ratio l/w >1.50; eyes slightly larger, orbit <3.5 x as long as eye (Fig. 47); prothorax slightly shorter and wider, ratio l/w <1.19 (Fig. 63); elytra slightly shorter, ratio l/w <1.52, perceptibly <2 x as wide as prothorax (Fig. 31) *uncinata* sp. n.

***Gunvorita elegans* Landin, 1955**

Figs 21, 37, 53

Landin, 1955: 467, fig. 90; DARLINGTON 1968: 210; MATEU 1981, 721, fig. 7; CASALE 1985, 41.

Note: The male genitalia of this species were figured by MATEU (1981) who examined the holotype. Therefore, there is no need to redescribe the male genitalia of this species. For the benefit of the user, however, measurements and ratios of some specimens alluded to this species by examination of the male genitalia are added.

SUPPLEMENTARY DESCRIPTION:

M e a s u r e m e n t s : Length: 4.25-4.45 mm; width: 1.5-1.55 mm. Ratios. Length/width of head: 1.35-1.36; length orbit/eye: 2.97-3.02; length/width of pronotum: 1.16-1.17; width widest part/base of pronotum: 1.76; width pronotum/head: 1.10-1.11; length/width of elytra: 1.46-1.48; width elytra/pronotum: 1.91.

The aedeagi of both specimens mentioned below exactly match the figure of the holotype given by Mateu (1981, fig. 7).

This species is now known from eastern Nepal, Sikkim, and northeastern India.

N e w r e c o r d s : 1 ♂, Nepal Expeditionen Jochen Martens, 255 Ilam Distr., zw. Mai Pokhari, Mai Majuwa und Gitang Khola 2100-1800 m Kulturland 26 Aug 83 Martens & Daams leg. (SMNS); 1 ♂, Nepal Expeditionen Jochen Martens, 254a Ilam Distr. Mai Pokhari 2150-2250 m 23-25 Aug 1983 Berlese Martens & Daams leg (CBM).

***Gunvorita martensi* Casale, 1985**

Figs 22, 38, 54

Casale, 1985: 42.

T y p e m a t e r i a l : Holotype: 185, Nepal. Ilam Dist. zwischen Mai Pokhari und Ilam, 1330 m, quelliger Hang, Kulturland, Martens & Ausobsky 1 Apr. 80/ Holotypus ♂ *Gunvorita martensi* n. sp. 1984 A. Casale Det. (SMF).

Note. The measurements in Casale's original description (CASALE 1985) do not agree with measurements made taken from the holotype which is actually considerably smaller than noted by Casale. Apart from that discrepancy, the description is detailed and reliable, and the male aedeagus is correctly figured. Therefore, the male genitalia are not redescribed.

D i a g n o s i s : Rather small species with elongate, distinctly triangular head, distinguished by odd shaped aedeagus with two characteristic edges on lower surface, elongate, rather straight though upturned apical part and a hemispherical apex that bears a tiny hook at the lower surface.

SUPPLEMENTARY DESCRIPTION:

M e a s u r e m e n t s : Length: 4.2 mm; width: 1.4 mm. Ratios. Length/width of head: 1.53; length orbit/eye: 3.67; length/width of pronotum: 1.29; width widest part/base of pronotum: 1.74; width pronotum/head: 1.09; length/width of elytra: 1.51; width elytra/pronotum: 2.05.

This species is thus far known from the type locality in eastern Nepal only.

***Gunvorita laeviceps* sp. n.**

Figs 1, 15, 23, 39, 55

Type material: Holotype: ♂ India W. Bengal, Darjeeling distr. Sevoke 200 m. 7.X.78. Besuchet Löbl (MHNG). (MHNG).

Paratypes: 1 ♀, same data (MHNG); 2 ♀♀, India W. Bengal, Darjeeling distr. Kalimpong-Algarah 1400 m, 8.X.78 Besuchet Löbl (CBM, MHNG); 1 ♀, India W. Bengal, Darjeeling distr. Singla 300 m, 17.X.78 Besuchet Löbl (MHNG).

Diagnosis: Rather small species with posteriorly markedly triangular head, further distinguished by shape of aedeagus with rather elongate, markedly upturned apical part and a very small crotchet situated shortly in front of apex.

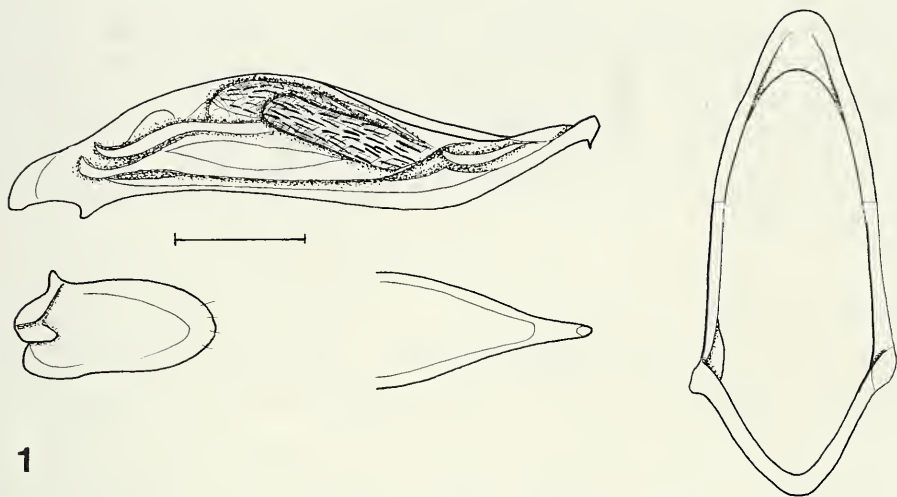
DESCRIPTION:

Measurements: Length: 4.0-4.25 mm; width: 1.4-1.45 mm. Ratios. Length/width of head: 1.42-1.45; length orbit/eye: 2.98-3.20; length/width of pronotum: 1.23-1.27; width widest part/base of pronotum: 1.70-1.81; width pronotum/head: 1.10-1.15; length/width of elytra: 1.50-1.51; width elytra/pronotum: 2.05-2.08.

Colour: Piceous, labrum, palpi, legs, and antennae yellowish.

Head: Comparatively short, posteriorly considerably widened, markedly triangular, widest near base, orbit posteriorly shortly rounded off. Upper surface gently convex. Eyes small, depressed, length c. 1/3 of orbit length to beginning of curvature. Clypeus anteriorly slightly convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, between eyes with a shallow, circular, slightly oblique groove on either side. Labrum anteriorly barely excised, 6-setose, inner 4 setae shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus rather short, apex obliquely cut. Terminal segment of labial palpus very large but comparatively short. Antenna moderately elongate, slightly surpassing middle of pronotum. Median antennomeres slightly longer than wide, 3rd antennomere <2/3 as long as 1st, <1.5 x as long as 2nd antennomere. Surface glossy, with traces of microreticulation only on clypeus. Puncturation sparse, very fine and superficial, distance between punctures about 4-5 x as wide as diameter of punctures. Pilosity sparse, elongate, hirsute, erect, inclined anteriorly. Both supraorbital setae elongate, though not much longer than pilosity, posterior supraorbital seta situated far behind eye at base of head.

Pronotum: Moderately elongate, rather cordiform, considerably longer than wide, distinctly wider than head, widest in anterior third. Upper surface markedly convex. Lateral margin convex in anterior two thirds, sinuate in front of posterior angles. Apex fairly wide, slightly excised, anterior angles obtuse, slightly projecting. Base narrow, laterally oblique but not excised, basal angles slightly projecting, obtuse. Lateral margin rather inconspicuous, without distinct border line, marginal channel absent. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated at anterior third of pronotum, posterior seta shorter, situated right on basal angle. Surface without microreticulation, glossy, with moderately sparse, coarse puncturation. Distance between punctures c. as wide as



1

FIG. 1

Gunvorita laeviceps sp. n. ♂ genitalia: Aedeagus (left side), shape of apex (from below), left paramere, genital ring. Scale: 0.25 mm.

diameter of punctures. Pilosity moderately sparse, elongate, hirsute, irregularly inclined, though rather erect.

Elytra: Fairly elongate, triangular, laterally slightly curved, widest in posterior third, upper surface moderately convex, at base distinctly raised. Shoulders narrow, oblique, not projecting. Apex wide, faintly sinuate, slightly oblique, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation rather sparse, coarse, rather irregular, in apical and lateral parts punctures slightly finer. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores very difficult to detect when setae broken, apparently consisting of 8 basal, 3 postmedian, 6 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, glossy. Pilosity rather sparse, rather elongate, hirsute, irregular, inclined posteriorly, fairly depressed.

Male genitalia: Genital ring narrow, elongate, ovalish-triangular, with moderate apical plate, almost symmetric. Aedeagus elongate, with elongate, suddenly upturned apical third that bears a very small crotchet shortly in front of apex. Apex very narrow seen from below. Lower surface almost straight in basal two thirds, then suddenly curved, then again straight. Internal sac in middle with large, coiled, markedly dentate sclerite, and with another dentate sclerite on top. For parameres see fig. 1, left paramere rather elongate, at apex evenly rounded. Right paramere unknown.

Female genitalia: Stylomere 2 narrow and elongate with acute apex, with 2 elongate ventral ensiform setae the lower one being much shorter, one elongate

dorsal ensiform seta, and a nematiform seta situated in a large groove in middle between base and apex. Apex of stylomere 1 medially with 1 nematiform seta.

Variation: The specimen from Singla somewhat varies in having a shorter and wider prothorax and in coarser puncturation on head.

Etymology: The name refers to the smooth surface of the head.

Distribution: Northeastern India, Darjeeling region.

Collecting circumstances: Collected by sieving of leaf litter at low to median altitudes.

***Gunvorita inermis* sp. n.**

Figs 2, 16, 24, 40, 56

Type material: Holotype: ♂, India W. Bengal, Darjeeling distr. Mahanadi 1200 m, 6.X.78 Besuchet-Löbl (MHNG).

Paratypes: 11 ♂♂, 7 ♀♀, same data (CBM; MHNG); 1 ♂, 2 ♀♀, same locality, 19.X.78 (MHNG, ZSM).

Diagnosis: Small species with posteriorly markedly triangular head, further distinguished by shape of aedeagus with a characteristic edge in middle of lower surface, moderately elongate, slightly upturned apical part and a rather small crotchet situated shortly at the very apex.

DESCRIPTION:

Measurements: Length: 3.6-3.9 mm; width: 1.2-1.3 mm. Ratios. Length/width of head: 1.44-1.47; length orbit/eye: 3.05-3.20; length/(width of pronotum): 1.24-1.28; width widest part/base of pronotum: 1.71-1.76; width pronotum/head: 1.05-1.11; length/width of elytra: 1.52-1.56; width elytra/pronotum: 1.93-2.02.

Colour: More or less dark piceous, suture of elytra narrowly reddish. Labrum, palpi, legs, and antennae yellowish.

Head: Comparatively short, posteriorly considerably widened, triangular, widest near base, orbit posteriorly shortly rounded off. Upper surface gently convex. Eyes small, laterally slightly produced, length slightly $< 1/3$ of orbit length to beginning of curvature. Clypeus anteriorly slightly convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, between eyes with a shallow, ovalish to even rather horseshoe-shaped, slightly oblique groove on either side. Labrum anteriorly barely excised, 6-setose, inner 4 setae shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus rather short, apex obliquely cut. Terminal segment of labial palpus very large, comparatively elongate. Antenna moderately elongate, slightly surpassing middle of pronotum. Median antennomeres slightly longer than wide, 3rd antennomere distinctly $< 2/3$ as long as 1st, c 1.3 x as long as 2nd antennomere. Surface glossy, with traces of microreticulation only on clypeus. Puncturation sparse, fine and superficial, distance between punctures about 3-4 x as wide as diameter of punctures. Pilosity sparse, elongate, hirsute, erect, inclined anteriorly. Both

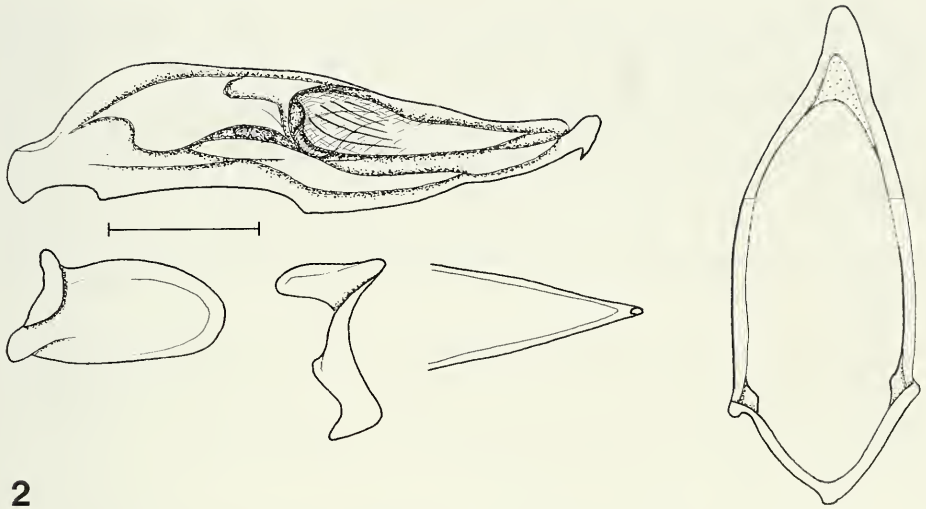


FIG. 2

Gunvorita inermis sp. n. ♂ genitalia: Aedeagus (left side), shape of apex (from below), left and right parameres, genital ring. Scale: 0.25 mm.

supraorbital setae elongate, though not much longer than pilosity, posterior supraorbital seta situated far behind eye at base of head.

Pronotum: Moderately elongate, rather cordiform, considerably longer than wide, distinctly wider than head, widest in anterior third. Upper surface markedly convex. Lateral margin convex in anterior half, then almost straight, sinuate just in front of posterior angles. Apex fairly wide, slightly excised, anterior angles obtuse, slightly projecting. Base narrow, laterally oblique but not excised, basal angles slightly projecting, obtuse. Lateral margin rather inconspicuous, without distinct border line, marginal channel absent. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated at anterior third of pronotum, posterior seta slightly shorter, situated right on basal angle. Surface without microreticulation, glossy, with fairly dense, coarse puncturation. Distance between punctures slightly less wide than diameter of punctures. Pilosity moderately sparse, elongate, hirsute, irregularly inclined, though rather erect.

Elytra: Fairly elongate, triangular, laterally slightly curved, widest in posterior third, upper surface moderately convex, at base slightly raised, odd intervals, especially the 5th, slightly raised in basal half. Shoulders moderately narrow, oblique, not projecting. Apex wide, absolutely straight, transverse, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation rather sparse, coarse, rather irregular, in apical and lateral parts punctures slightly finer. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores very

difficult to detect when setae broken, apparently consisting of 8 basal, 3 postmedian, 6 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, glossy. Pilosity rather sparse, rather elongate, hirsute, irregular, inclined posteriorly, fairly depressed.

Male genitalia: Genital ring narrow, elongate, ovalish-triangular, with narrow, elongate apical plate, slightly asymmetric. Aedeagus fairly elongate, with moderately elongate, gently upturned apical part that bears a small crotchet at the very apex. Apex narrow and acute seen from below. Lower surface with a characteristic edge about in middle, then gently bisinuate-oblique. Internal sac in middle with large though rather short, coiled, dentate sclerite. For parameres see fig. 2, both parameres rather elongate.

Female genitalia: Stylomere 2 narrow and elongate with acute apex, with 2 elongate ventral ensiform setae the lower one being much shorter, one elongate dorsal ensiform seta, and a nematiform seta situated in a large groove in apical two fifth. Apex of stylomere 1 medially apparently with 1 nematiform seta.

Variation: Little variation noted.

Etymology: The name refers to the small apical hook at the aedeagus.

Distribution: Northeastern India, Darjeeling region. Known only from type locality.

Collecting circumstances: Collected by sieving of leaf litter at median altitude.

***Gunvorita indica* Darlington, 1968**

Figs 3, 25, 41, 57

Darlington, 1968: 208, fig. 1; MATEU 1981: 722, figs 5, 8 (erroneously!); CASALE 1985: 42.

Type material: Holotype: ♂, Holotype/ India: Darjeeling, Ghoom, 26.V.1931, Dr M. Cameron. B.M.1931-452./ Gen. et sp. nov. Place provisionally after *Agastus*/ Holotype *Gunvorita indica* Darl. (BMNH).

Note: The figure given by MATEU (1981, fig. 8) of the very strange male genitalia ascribed to *G. indica* was taken from a specimen from Nepal that was not available for reexamination. Unfortunately, Mateu failed to examine and compare this specimen (and additional specimens) with the holotype. It is not easily understood how Mateu came to a reliable identification using the raw sketch of the habitus of *G. indica* and the fairly poor description given by DARLINGTON (1968, fig. 1). Examination of the holotype of *G. indica* revealed a completely different aedeagus bearing a crotchet right at the apex. Hence, the specimen sketched by Mateu must represent another, yet undescribed species.

Diagnosis: Very large species with elongate, posteriorly rounded, not triangular though characteristically oblique head, further distinguished by elongate aedeagus with elongate, rather straight apical part and a small crotchet situated immediately at apex.

SUPPLEMENTARY DESCRIPTION:

Measurements: Length: 5.65 mm; width: 1.8 mm. Ratios. Length/width of head: 1.78; length orbit/eye: 3.93; length/width of pronotum: 1.23; width widest

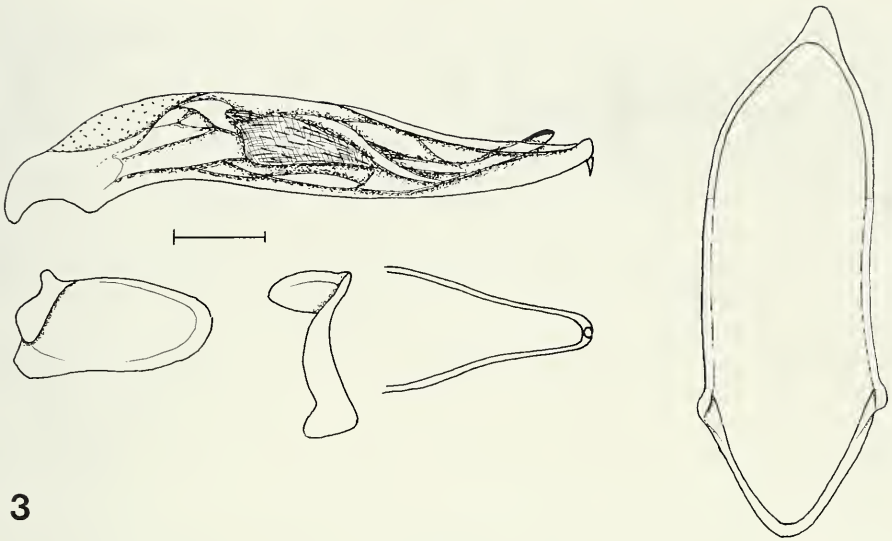


FIG. 3

Gunvorita indica Darlington. ♂ genitalia. For legend see fig. 2.

part/base of pronotum: 1.78; width pronotum/head: 1.25; length/width of elytra: 1.54; width elytra/pronotum: 2.02.

Male genitalia: Genital ring narrow and elongate, almost parallel, with deep apex, rather symmetric. Aedeagus elongate, with elongate, almost straight, barely upturned apical part that bears a small crotchet at the very tip. Apex moderately wide seen from below. Lower surface gently convex. Internal sac in middle with large, coiled, dentate sclerite. For parameres see fig. 3, left paramere rather elongate, right paramere short.

This species is thus far known only from the type locality in northeastern India.

***Gunvorita ovaliceps* sp. n.**

Figs 4, 26, 42, 58

Type material: Holotype: ♂, India W. Bengal, Darjeeling dist. 13 km N. Ghoom 1500 m. 15.X.78, Besuchet Löbl (MHNG).

Diagnosis: Large species with rounded, posteriorly markedly pentagonal head, further distinguished by shape of aedeagus with moderately elongate, fairly upturned apical part and a small crotchet situated at the very apex.

DESCRIPTION:

Measurements: Length: 5.05 mm; width: 1.6 mm. Ratios. Length/width of head: 1.60; length orbit/eye: 3.87; length/width of pronotum: 1.31; width widest part/base of pronotum: 1.75; width pronotum/head: 1.14; length/width of elytra: 1.59; width elytra/pronotum: 1.94.



4

FIG. 4

Gunvorita ovaliceps sp. n. ♂ genitalia. For legend see fig. 2.

C o l o u r : Piceous, elytra slightly lighter than fore body, suture narrowly reddish. Labrum, palpi, legs, and antennae yellowish.

H e a d : Elongate, oval-shaped, posteriorly markedly widened, rather distinctly pentagonal, widest in posterior third, orbit posteriorly rather oblique, rounded off. Upper surface gently convex. Eyes very small, laterally slightly produced, length about 1/4 of orbit length to beginning of curvature. Clypeus anteriorly slightly convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, between eyes with a rather deep, circular, slightly oblique groove on either side that posteriorly in middle combine to a more shallow triangular groove. Labrum anteriorly barely excised, 6-setose, inner 4 setae slightly shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus rather elongate, apex obliquely cut. Terminal segment of labial palpus large and very elongate. Antenna comparatively elongate, slightly surpassing middle of pronotum. Median antennomeres slightly longer than wide, 3rd antennomere $< 2/3$ as long as 1st, c. 1.5 x as long as 2nd antennomere. Surface glossy, with traces of microreticulation only on clypeus. Punctuation very sparse especially on frons and vertex, very fine and superficial, distance between punctures about 4-5 x as wide as diameter of punctures. Pilosity sparse, elongate, hirsute, erect, inclined anteriorly. Both supraorbital setae broken, posterior supraorbital seta situated far behind eye at beginning of basal curvature.

P r o n o t u m : Rather elongate, fairly cordiform, considerably longer than wide, distinctly wider than head, widest in anterior third. Upper surface markedly

convex. Lateral margin convex in anterior two thirds, sinuate in front of posterior angles. Apex fairly wide, slightly excised, anterior angles obtuse, slightly projecting. Base narrow, laterally oblique but not excised, basal angles slightly projecting, obtuse. Lateral margin rather inconspicuous, without distinct border line, marginal channel absent. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated at anterior third of pronotum, posterior setae shorter, situated right on basal angles. Surface without microreticulation, glossy, with moderately sparse, rather coarse puncturation. Distance between punctures c. as wide as diameter of punctures, only near median line punctures somewhat finer and sparser. Pilosity moderately sparse, elongate, hirsute, irregularly inclined, though rather erect.

Elytra: Rather elongate, triangular, laterally slightly curved, widest in posterior third, upper surface depressed, odd intervals in anterior half slightly raised. Shoulders narrow, oblique, not projecting. Apex wide, faintly concave, slightly oblique, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation rather sparse, coarse, rather irregular, in apical and lateral parts punctures finer and somewhat rasp-like. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores very difficult to detect when setae broken, apparently consisting of 8 basal, 3 postmedian, 6 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, rather glossy. Pilosity rather sparse, fairly elongate, hirsute, irregular, inclined posteriorly, fairly depressed.

Male genitalia: Genital ring rather narrow, ovalish-triangular, without distinct apical plate, slightly asymmetric. Aedeagus rather short, with short, distinctly upturned apical part that bears a fairly small crotchet at the very apex. Apex narrow as seen from below. Lower surface almost straight. Internal sac in middle with large, very elongate, coiled, markedly dentate sclerite. For parameres see fig. 4, left paramere triangular and rather elongate.

Female genitalia: Unknown.

Variation: Unknown.

Etymology: The name refers to the markedly ovalish shape of head.

Distribution: Northeastern India, Darjeeling region. Known only from type locality.

Collecting circumstances: Collected by sieving of leaf litter at median altitude.

***Gunvorita nepalensis* sp. n.**

Figs 5, 17, 27, 43, 59

Type material: Holotype: ♂, Nepal (Pr. Bagmati) Phulchauki nr. Kathmandu, 2300 m, 10.V.81, I. Löbl, 66 (MHNG).

Paratypes: 10 ♂♂, 3 ♀♀, same data (CBM, MHNG); 2 ♂♂, Nepal 424 Lalitpur Distr. Phulchoki Mt. 1800-2000 m 25.IV.1995 Martens & Schawaller (SMNS).

Diagnosis: Large species with rounded, not triangular head, distinguished by shape of aedeagus with elongate, rather straight apical part and a small crotchet situated immediately at apex.

DESCRIPTION:

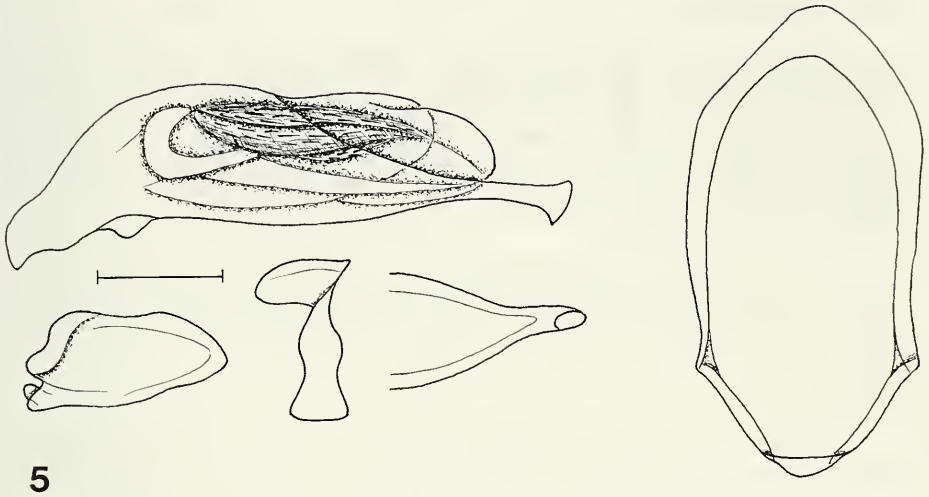
M e a s u r e m e n t s : Length: 4.55-5.0 mm; width: 1.65-1.8 mm. Ratios. Length/width of head: 1.51-1.61; length orbit/eye: 3.73-3.95; length/width of pronotum: 1.20-1.26; width widest part/base of pronotum: 1.70-1.74; width pronotum/head: 1.14-1.21; length/width of elytra: 1.38-1.44; width elytra/pronotum: 2.03-2.14.

C o l o u r : More or less dark piceous, suture of elytra narrowly reddish. Labrum, palpi, legs, and antennae light reddish.

H e a d : Elongate, oval-shaped, posteriorly widened, though not triangular, widest in posterior third, orbit posteriorly widely rounded off, rather oblique. Upper surface gently convex. Eyes small, depressed, length slightly $>1/4$ of orbit length to beginning of curvature. Clypeus anteriorly slightly convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, between eyes with a circular, slightly oblique groove on either side. Labrum anteriorly barely excised, 6-setose, inner 4 setae slightly shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus rather short, apex obliquely cut. Terminal segment of labial palpus very large but comparatively short. Antenna comparatively elongate, surpassing middle of pronotum. Median antennomeres slightly longer than wide, 3rd antennomere $<2/3$ as long as 1st, c. 1.5 x as long as 2nd antennomere. Surface glossy, with traces of microreticulation only on clypeus. Puncturation sparse, very fine and superficial, distance between punctures about 4-5 x as wide as diameter of punctures. Pilosity sparse, elongate, hirsute, rather erect, inclined anteriorly. Both supraorbital setae elongate, though not much longer than pilosity, posterior supraorbital seta situated far behind eye at beginning of basal curvature.

P r o n o t u m : Rather elongate, fairly cordiform, considerably longer than wide, distinctly wider than head, widest in anterior third. Upper surface markedly convex. Lateral margin strongly convex in anterior two thirds, sinuate in front of posterior angles. Apex fairly wide, slightly excised, anterior angles obtuse, slightly projecting. Base narrow, laterally oblique but not excised, posterior angles slightly projecting, obtuse. Lateral margin inconspicuous, without distinct border line, marginal channel absent. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated at anterior third of pronotum, posterior seta shorter, situated right on basal angle. Surface without microreticulation, glossy, with sparse, very fine puncturation. Distance between punctures c. 4-5 x as wide as diameter of punctures. Pilosity sparse, elongate, hirsute, irregularly inclined, though rather erect.

E l y t r a : Rather elongate, triangular, laterally slightly curved, widest in posterior third, upper surface depressed, odd intervals in anterior half slightly raised. Shoulders narrow, oblique, not projecting. Apex wide, almost straight, transverse, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation fairly dense, rather coarse, rather irregular, in apical and lateral parts punctures somewhat rasp-like. Fixed setae in third interval hardly recognizable within the coarse punc-



5

FIG. 5

Gunvorita nepalensis sp. n. ♂ genitalia. For legend see fig. 2.

turation. Series of marginal pores very difficult to detect when setae broken, apparently consisting of 8 basal, 3 postmedian, 6 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, rather glossy. Pilosity dense, rather elongate, hirsute, irregular, inclined posteriorly, fairly depressed.

Male genitalia: Genital ring wide, ovalish, widened to apex, rather symmetric. Aedeagus fairly elongate, with elongate, almost straight, barely upturned apical part that bears a small crotchet at the very tip. Apex narrow seen from below. Lower surface gently bisinuate. Internal sac in middle with large, coiled, strongly dentate sclerite. For parameres see fig. 5, left paramere rather elongate.

Female genitalia: Styломere 2 narrow and elongate with acute apex, with 2 elongate ventral ensiform setae, one elongate dorsal ensiform seta, and a nematiform seta situated in a large groove in middle between base and apex. Apex of styломere 1 medially with 2-3 nematiform setae.

Variation: Little variation noted apart from minor differences in relative shape of head, pronotum, and elytra.

Etymology: The name refers to the range of this species.

Distribution: Central Nepal. Known only from a small area around type locality.

Collecting circumstances: Collected by sieving ground litter at median to fairly high altitudes.

***Gunvoria hamifera* sp. n.**

Figs 6, 18, 28, 44, 60

Type material: Holotype: ♂, Nepal Expeditionen Jochen Martens, 412 Sankhua Sabha Distr., Arun Valley betw. Mure and Murure, mixed broad-leaved forest, 2050-2150 m, 9-17 June 88 Martens & Schawaller leg. (SMNS).

Paratypes: 2 ♂♂, 1 ♀, same data (CBM, SMNS); 1 ♀, Nepal Expeditionen Jochen Martens, 414 Sankhua Sabha Distr., Arun Valley, Chichila, 1900-2000 m, Quercus forest, bushes near village, 10-20 June 88 Martens & Schawaller leg. (SMNS); 1 ♀, Nepal Expeditionen Jochen Martens, 297 Terhathum Distr., Tinjura Dara, 2450-2850 m, artenreicher Laubmischwald, 17 Sep 83 (Martens & Daams l. (SMNS).

Diagnosis: Medium sized species with rounded, not triangular head and small eyes, further distinguished by rather elongate aedeagus with elongate, rather straight apical part and a large crotchet situated immediately at apex.

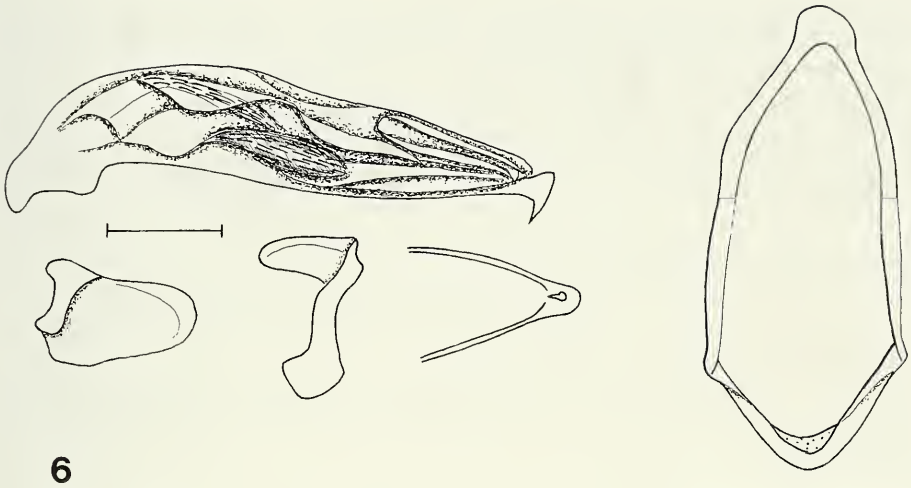
DESCRIPTION:

Measurements: Length: 4.3-4.65 mm; width: 1.45-1.55 mm. Ratios. Length/width of head: 1.42-1.47; length orbit/eye: 3.55-3.78; length/width of pronotum: 1.20-1.27; width widest part/base of pronotum: 1.69-1.77; lwidth pronotum/head: 1.05-1.12; length/width of elytra: 1.53-1.55; width elytra/pronotum: 1.95-2.02.

Colour: More or less dark piceous, suture of elytra narrowly reddish. Labrum, palpi, legs, and antennae light reddish.

Head: Elongate, oval-shaped, posteriorly widened, though not triangular, widest in posterior third, orbit posteriorly widely rounded off, fairly oblique. Upper surface gently convex. Eyes small, depressed, laterally little protruded, length slightly >1/4 of orbit length to beginning of curvature. Clypeus anteriorly slightly convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, in middle with a large, shallow, about v-shaped groove the acute part of which is directed posteriad. Labrum anteriorly barely excised, 6-setose, inner 4 setae slightly shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus rather short, apex obliquely cut. Terminal segment of labial palpus very large, comparatively elongate. Antenna comparatively elongate, almost attaining base of pronotum. Median antennomeres slightly longer than wide, 3rd antennomere barely longer than 2/3 as long as 1st, c. 1.5 x as long as 2nd antennomere. Surface glossy, with traces of microreticulation only on clypeus. Puncturation sparse, very fine and superficial, distance between punctures about 5 x as wide as diameter of punctures. Pilosity sparse, elongate, hirsute, rather erect, inclined anteriorly. Both supraorbital setae elongate, perceptibly longer than pilosity, posterior supraorbital seta situated far behind eye at beginning of basal curvature.

Pronotum: Rather elongate, fairly cordiform, considerably longer than wide, distinctly wider than head, widest in anterior third. Upper surface markedly convex. Lateral margin strongly convex in anterior two thirds, sinuate in front of posterior angles. Apex fairly wide, rather excised, anterior angles obtuse, slightly pro-



6

FIG. 6

Gunvorita hamifera sp. n. ♂ genitalia. For legend see fig. 2.

jecting. Base narrow, laterally oblique but not excised, posterior angles slightly projecting, obtuse. Lateral margin distinct though without distinct border line, marginal channel absent. Median line fine, barely impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated at anterior third of pronotum, posterior seta shorter, situated right on basal angle. Surface without microreticulation, glossy, with fairly sparse and fine puncturation. Distance between punctures c. 2-3 x as wide as diameter of punctures. Pilosity moderately sparse, elongate, hirsute, irregularly inclined, though rather erect.

Elytra: Rather elongate, triangular, laterally slightly curved, widest in posterior third, upper surface depressed, in most specimens odd intervals in anterior half slightly raised. Shoulders narrow, oblique, not projecting. Apex wide, almost straight, transverse, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation fairly dense, moderately coarse, rather irregular, in apical and lateral parts punctures somewhat rasp-like. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores very difficult to detect when setae broken, apparently consisting of 8 basal, 3 postmedian, 6 apical pores, and 1 pore at apex of 3rd stria. Setae when present very elongate. Surface without microreticulation, glossy. Pilosity dense, rather elongate, hirsute, irregular, inclined posteriorly, fairly depressed.

Male genitalia: Genital ring moderately wide, ovalish, narrowed to apex, fairly symmetric. Aedeagus fairly elongate, with elongate, almost straight, barely upturned apical part that bears a large, very acute crotchet at the very tip. Apex moderately wide seen from below. Lower surface gently convex. Internal sac in middle

with two large, somewhat coiled, strongly dentate sclerites, one situated at left side near bottom, the other running from top of right side anteriorly to bottom. For parameres see fig. 6, right paramere rather elongate.

Female genitalia: Stylomere 2 narrow and elongate with acute apex, with 2 elongate ventral ensiform setae, one elongate dorsal ensiform seta, and a nematiform seta situated in a large groove in middle between base and apex. Apex of stylomere 1 medially with 1-2 nematiform setae.

Variation: Little variation noted apart from minor differences in relative shape of head, pronotum, and elytra.

Etymology: The name refers to the hamiform apex of the aedeagus.

Distribution: Eastern Nepal, known from a restricted area around type locality. Central Nepal.

Collecting circumstances: Collected by sieving ground litter in mixed broad-leaved forest, *Quercus* forest, and rich, mixed broad-leaved forest at rather high altitudes.

***Gunvorita schawalleri* sp. n.**

Figs 7, 29, 45, 61

Type material: Holotype: ♂, Nepal Expeditionen Jochen Martens, 412 Sankhua Sabha Distr., Arun Valley betw. Mure and Murure, mixed broad-leaved forest, 2050-2150 m, 9-17 June 88, J. Martens & W. Schawaller leg. (SMNS).

Paratypes: 6 ♂♂, same data (CBM, SMNS); 1 ♂, Nepal Expeditionen Jochen Martens, 414 Sankhua Sabha Distr., Arun Valley, Chichila, 1900-2000 m, *Quercus* forest, bushes near village, 10-20 June 88, J. Martens & W. Schawaller leg. (SMNS).

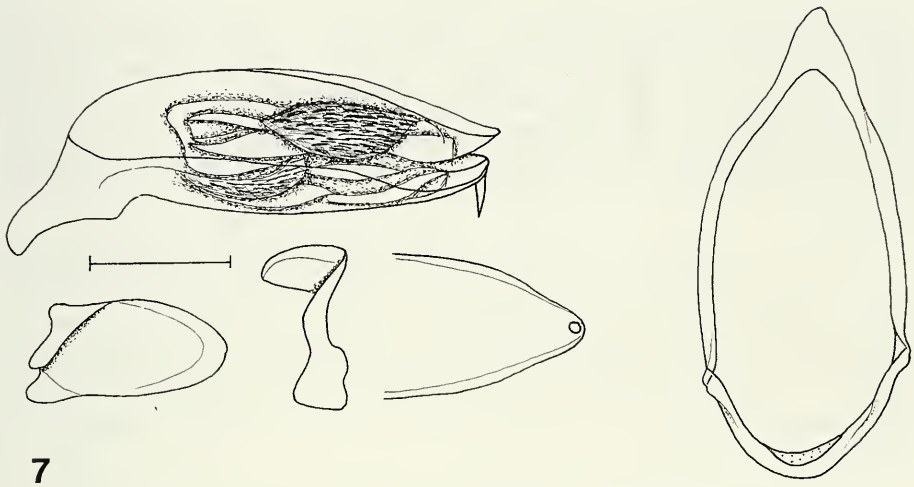
Diagnosis: Rather small species with rounded, not triangular head and small eyes, easily distinguished by the very short and compact aedeagus bearing a large crotchet immediately at apex.

DESCRIPTION:

Measurements: Length: 4.1-4.3 mm; width: 1.4-1.45 mm. Ratios. Length/width of head: 1.45-1.49; length orbit/eye: 3.77-3.85; length/width of pronotum: 1.18-1.22; width widest part/base of pronotum: 1.75-1.76; width pronotum/head: 1.05-1.11; length/width of elytra: 1.49-1.55; width elytra/pronotum: 1.90-1.96.

Colour: More or less dark piceous, suture of elytra narrowly reddish. Labrum, palpi, legs, and antennae reddish.

Head: Elongate, oval-shaped, posteriorly widened, though not triangular, widest in posterior third, orbit posteriorly widely rounded off, rather oblique. Upper surface gently convex. Eyes small, depressed, laterally little protruded, length slightly >1/4 of orbit length to beginning of curvature. Clypeus anteriorly slightly convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, between eyes with a circular, slightly oblique groove on either side. Labrum anteriorly barely excised, 6-setose, inner 4 setae slightly shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular



7

Fig. 7

Gunvorita schawalleri sp. n. ♂ genitalia. For legend see fig. 2.

tooth. Labium anteriorly concave. Maxillary palpus rather short, apex obliquely cut. Terminal segment of labial palpus very large but comparatively short. Antenna rather short, attaining middle of pronotum. Median antennomeres as long as wide, 3rd antennomere $< 2/3$ as long as 1st, < 1.5 x as long as 2nd antennomere. Surface glossy, with traces of microreticulation only on clypeus. Puncturation sparse, very fine and superficial, distance between punctures about 4-5 x as wide as diameter of punctures. Pilosity sparse, elongate, hirsute, rather erect, inclined anteriorly. Both supraorbital setae elongate, perceptibly longer than pilosity, posterior supraorbital seta situated far behind eye at beginning of basal curvature.

Pronotum: Moderately elongate, fairly cordiform, considerably longer than wide, distinctly wider than head, widest in anterior third. Upper surface markedly convex. Lateral margin strongly convex in anterior two thirds, slightly sinuate in front of posterior angles. Apex fairly wide, slightly excised, anterior angles obtuse, slightly projecting. Base narrow, laterally oblique but not excised, posterior angles slightly projecting, obtuse. Lateral margin without distinct border line, marginal channel absent. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated at anterior third of pronotum, posterior seta slightly shorter, situated right on basal angle. Surface without microreticulation, glossy, with rather sparse and fine puncturation. Distance between punctures c. 3 x as wide as diameter of punctures. Pilosity rather sparse, elongate, hirsute, irregularly inclined, though rather erect.

Elytra: Moderately elongate, triangular, laterally slightly curved, widest in posterior third, upper surface depressed, odd intervals in anterior half faintly raised. Shoulders comparatively wide, oblique, not projecting. Apex wide, almost straight,

transverse, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation fairly dense, rather coarse, rather irregular, in apical and lateral parts punctures somewhat rasp-like. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores very difficult to detect when setae broken, apparently consisting of 8 basal, 3 postmedian, 6 apical pores, and 1 pore at apex of 3rd stria. Setae when present very elongate. Surface without microreticulation, glossy. Pilosity fairly dense, elongate, hirsute, irregular, inclined posteriorly, fairly depressed.

Male genitalia: Genital ring wide, ovalish, strongly narrowed to apex, rather symmetric. Aedeagus markedly short and compact, with short and wide, almost straight, slightly upturned apical part that bears a very large, acute crotchet at the very tip. Apex very wide seen from below. Lower surface gently convex. Internal sac in middle with two large, coiled, strongly dentate sclerites, one situated on left side near the top, the other near bottom on the right side. For parameres see fig. 7, left paramere rather elongate, right short.

Female genitalia: Unknown.

Variation: Little variation noted apart from minor differences in relative shape of head, pronotum, and elytra.

Etymology: The name is a patronym in honour of W. Schawaller.

Distribution: Eastern Nepal, known from a small area around type locality.

Collecting circumstances: Collected by sieving ground litter in mixed broad-leaved forest and *Quercus* forest at fairly high altitudes.

***Gunvorita smetanai* sp. n.**

Figs 8, 30, 46, 62

Type material: Holotype: ♂, Nepal (Pr. Bagmati) Pokhare NE Barahbise 2800 m, 2.V.81, I. Löbl & A. Smetana (MHNG).

Paratype: 1 ♂, same data (CBM).

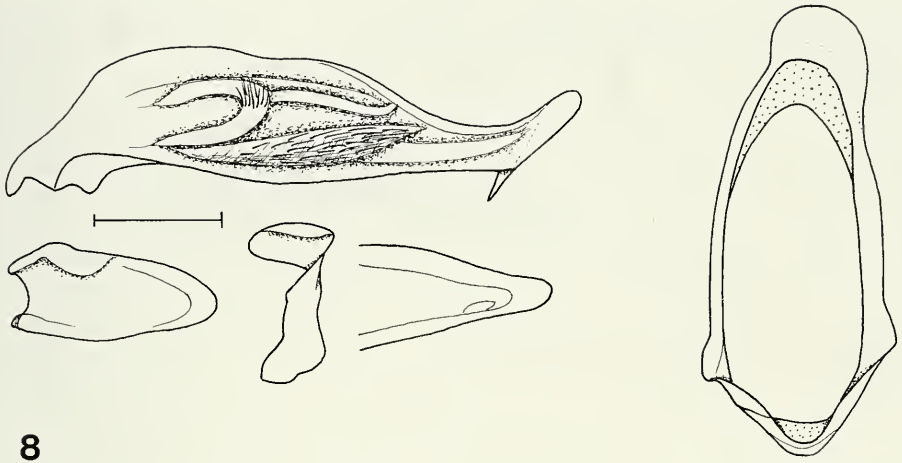
Diagnosis: Large species with rounded, not triangular head, distinguished by shape of aedeagus with moderately elongate, markedly upturned apical part and a large crotchet situated far from apex.

DESCRIPTION:

Measurements: Length: 4.95-5.0 mm; width: 1.65 mm. Ratios. Length/width of head: 1.55-1.59; length orbit/eye: 3.55-3.57; length/width of pronotum: 1.21-1.27; width widest part/base of pronotum: 1.66-1.68; width pronotum/head: 1.15-1.18; length/width of elytra: 1.55-1.60; width elytra/pronotum: 2.05-2.06.

Colour: More or less dark piceous, suture of elytra narrowly reddish. Labrum, palpi, legs, and antennae yellowish.

Head: Elongate, oval-shaped, posteriorly widened, though not triangular, widest in posterior third, orbit posteriorly widely rounded off. Upper surface gently convex. Eyes small, depressed, length considerably $>1/4$ of orbit length to beginning of curvature. Clypeus anteriorly slightly convex, surface in middle convex, uneven, lateral



8

Fig. 8

Gunvorita smetanai sp. n. ♂ genitalia. For legend see fig. 2.

angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, between eyes with a shallow, circular, slightly oblique groove on either side. Labrum anteriorly barely excised, 6-setose, inner 4 setae slightly shorter. lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus rather short, apex obliquely cut. Terminal segment of labial palpus very large but comparatively short. Antenna comparatively elongate, reaching middle of pronotum. Median antennomeres slightly longer than wide, 3rd antennomere $< 2/3$ as long as 1st, c. 1.5 x as long as 2nd antennomere. Surface glossy, with traces of micro-reticulation only on clypeus. Puncturation sparse, very fine and superficial, distance between punctures about 4-5 x as wide as diameter of punctures. Pilosity sparse, elongate, hirsute, erect, inclined anteriorly. Both supraorbital setae elongate, though not much longer than pilosity, posterior supraorbital seta situated far behind eye at beginning of basal curvature.

P r o n o t u m : Rather elongate, fairly cordiform, considerably longer than wide, distinctly wider than head, widest in anterior third. Upper surface markedly convex. Lateral margin convex in anterior two thirds, sinuate in front of posterior angles. Apex fairly wide, slightly excised, anterior angles obtuse, slightly projecting. Base narrow, laterally oblique but not excised, basal angles slightly projecting, obtuse. Lateral margin rather inconspicuous, without distinct border line, marginal channel absent. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated at anterior third of pronotum, posterior seta shorter, situated

right on basal angle. Surface without microreticulation, glossy, with moderately sparse, fine puncturation. Distance between punctures c. 3-4 x as wide as diameter of punctures. Pilosity moderately sparse, elongate, hirsute, irregularly inclined, though rather erect.

Elytra: Rather elongate, triangular, laterally slightly curved, widest in posterior third, upper surface depressed, odd intervals in anterior half slightly raised. Shoulders narrow, oblique, not projecting. Apex wide, almost straight, slightly oblique, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation fairly dense, rather coarse, rather irregular, in apical and lateral parts punctures finer and somewhat rasp-like. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores very difficult to detect when setae broken, apparently consisting of 8 basal, 3 postmedian, 6 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, rather glossy. Pilosity dense, rather elongate, hirsute, irregular, inclined posteriorly, fairly depressed.

Male genitalia: Genital ring narrow, ovalish, with large apical plate, slightly asymmetric. Aedeagus rather short and stout, with stout, moderately elongate, markedly upturned apical part that bears a large crotchet far behind apex. Apex moderately wide seen from below. Lower surface gently convex. Internal sac in middle with large, coiled, strongly dentate sclerite. For parameres see fig. 8, left paramere rather elongate.

Female genitalia: Unknown.

Variation: Due to small number of available specimens, little variation noted.

Etymology: The name is a patronym of Dr A. Smetana, collector of this species.

Distribution: Central Nepal. Known only from type locality.

Collecting circumstances: Collected by sieving of leaf litter at rather high altitudes.

***Gunvorita uncinata* sp. n.**

Figs 9, 31, 47, 63

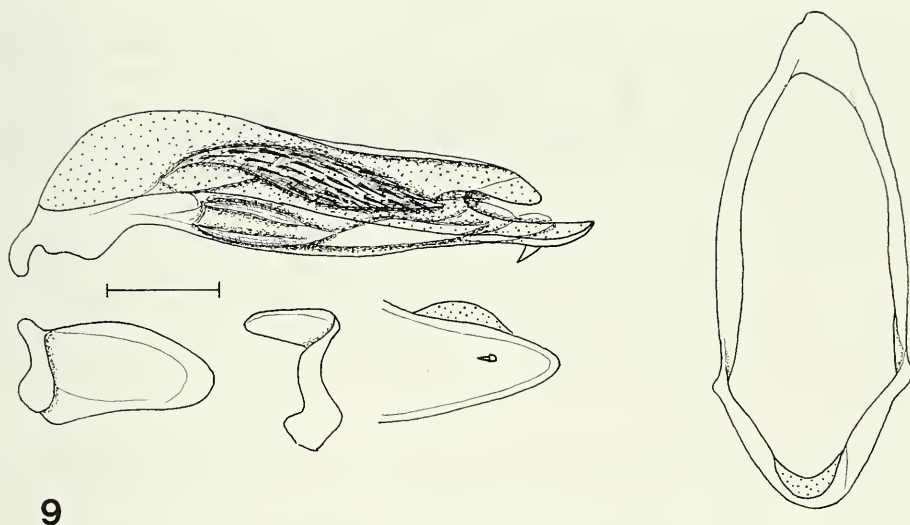
Type material: Holotype: ♂, Nepal Expeditionen Jochen Martens, 352 Taplejung Distr. above Yamputhin, left bank of Kabeli Khola, bushes, open forest. 1800-2000 m, 27-29 Apr 1988, J. Martens & W. Schawaller leg. (SMNS).

Paratype: 1 ♂, Nepal Expeditionen Jochen Martens, 351 Taplejung Distr., Yamputhin, cultural land, open forest. 1650-1800 m, 26 Apr.-1 May 1988, J. Martens & W. Schawaller leg. (CBM).

Diagnosis: Medium sized to fairly large species with rounded, not triangular head and rather small eyes, distinguished by the rather elongate aedeagus with elongate, somewhat spoon-shaped apical part that bears a small crotchet far removed from apex.

DESCRIPTION:

Measurements: Length: 4.5-4.7 mm; width: 1.55-1.6 mm. Ratios. Length/width of head: 1.50-1.53 length orbit/eye: 3.38-3.43; length/width of pronotum:



9

FIG. 9

Gunvorita uncinata sp. n. ♂ genitalia. For legend see fig. 2.

1.16-1.19; width widest part/base of pronotum: 1.68-1.73; width pronotum/head: 1.16-1.18; length/width of elytra: 1.51-1.52; width elytra/pronotum: 1.82-1.88.

C o l o u r : Rather dark piceous, suture of elytra narrowly reddish. Labrum, palpi, legs, and antennae light reddish.

H e a d : Elongate, oval-shaped, posteriorly widened, though not triangular, widest in posterior third, orbit posteriorly widely rounded off. Upper surface gently convex. Eyes rather small, slightly convex, somewhat protruded laterally, length slightly $< 1/3$ of orbit length to beginning of curvature. Clypeus anteriorly slightly convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, between eyes with a deep, circular, slightly oblique groove on either side. Labrum anteriorly barely excised, 6-setose, inner 4 setae slightly shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus rather short, apex obliquely cut. Terminal segment of labial palpus very large but comparatively elongate. Antenna comparatively short, barely surpassing middle of pronotum. Median antennomeres c. as long as wide, 3rd antennomere $< 2/3$ as long as 1st, c. 1.5 x as long as 2nd antennomere. Surface glossy, with traces of microreticulation only on clypeus. Punctuation sparse, very fine and superficial, distance between punctures about 4 x as wide as diameter of punctures. Pilosity sparse, elongate, hirsute, rather erect, inclined anteriorly. Both supraorbital setae elongate, perceptibly longer than pilosity, posterior supraorbital seta situated far behind eye at beginning of basal curvature.

Pronotum: Comparatively short, rather cordiform, perceptibly longer than wide, distinctly wider than head, widest in anterior third. Upper surface markedly convex. Lateral margin strongly convex in anterior two thirds, sinuate in front of posterior angles. Apex wide, considerably excised, anterior angles obtuse, slightly projecting. Base rather narrow, laterally oblique but not excised, posterior angles barely projecting, obtuse, prebasal part of lateral margin almost parallel. Lateral margin rather inconspicuous, without distinct border line, marginal channel absent. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated at anterior third of pronotum, posterior seta slightly shorter, situated right on basal angle. Surface without microreticulation, glossy, with moderately dense, fairly coarse puncturation. Distance between punctures c. 1-2 x as wide as diameter of punctures. Pilosity moderately dense, elongate, hirsute, irregularly inclined, though rather erect.

Elytra: Moderately elongate, triangular, laterally slightly curved, widest in posterior third, upper surface depressed, odd intervals in anterior half slightly raised. Shoulders fairly narrow, oblique, not projecting. Apex wide, almost straight, transverse, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation fairly dense, coarse, rather irregular, in apical and lateral parts punctures somewhat rasp-like. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores very difficult to detect when setae broken, apparently consisting of 8 basal, 3 postmedian, 6 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, glossy. Pilosity dense, rather elongate, hirsute, irregular, inclined posteriorly, fairly depressed.

Male genitalia: Genital ring moderately wide, rather parallel, narrowed to apex, rather symmetric, basal part elongate. Aedeagus fairly elongate, with elongate, almost straight, barely upturned apical part that bears a medium-sized crotchet far removed from the tip. Apex rather wide though tapering seen from below. Lower surface gently bisinuate. Internal sac in middle with elongate, coiled, strongly dentate sclerite. For parameres see fig. 9, both parameres rather elongate.

Female genitalia: Unknown.

Variation: Little variation noted apart from minor differences in relative shape of head, pronotum, and elytra.

Etymology: The name refers to the uncinat apex of the aedeagus.

Distribution: Eastern Nepal, known from a small area around type locality.

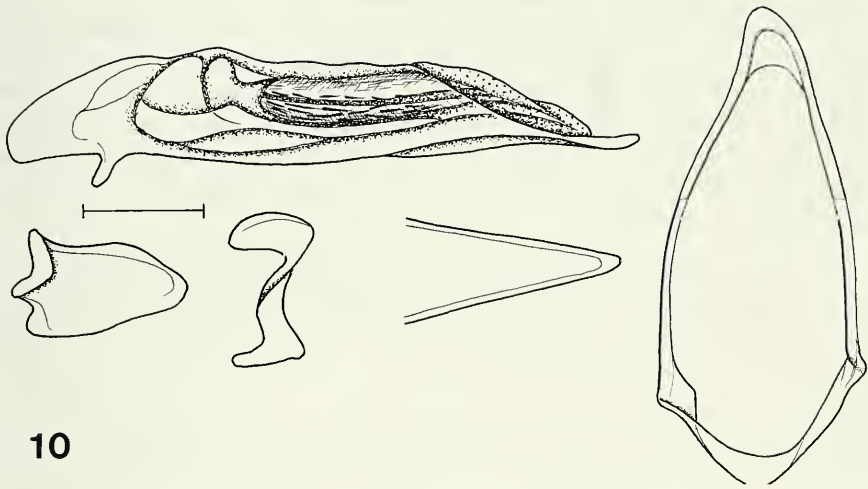
Collecting circumstances: Collected by sieving ground litter in bushes and open forest, partly on cultivated land, at median to fairly high altitudes.

***Gunvorita besucheti* sp. n.**

Figs 10, 19, 32, 48, 64

Type material: Holotype: ♂, India W. Bengal, Darjeeling dist. Algarah 1800 m. 8.X.78, C. Besuchet & I. Löbl (MHNG).

Paratypes: 2 ♀♀, same data (CBM, MHNG); 1 ♂, India W. Bengal, Darjeeling dist. Algarah-Labha 1900 m. 11.X.78, C. Besuchet & I. Löbl (MHNG).



10

Fig. 10

Gunvorita besucheti sp. n. ♂ genitalia. For legend see fig. 2.

Diagnosis: Large species with posteriorly rather pentagonal head, further distinguished by shape of the very elongate aedeagus with slightly upturned apical part and without a crotchet.

DESCRIPTION:

Measurements: Length: 4.8-5.3 mm; width: 1.55-1.65 mm. Ratios. Length/width of head: 1.58-1.70; length orbit/eye: 3.11-3.25; length/width of pronotum: 1.27-1.35; width widest part/base of pronotum: 1.63-1.70; width pronotum/head: 1.11-1.18; length/width of elytra: 1.53-1.60; width elytra/pronotum: 2.02-2.10.

Colour: Dark piceous to almost blackish, suture of elytra narrowly reddish. Labrum, palpi, legs, and antennae yellowish, basal antennomere and femora reddish.

Head: Elongate, oval-shaped, posteriorly markedly widened, rather distinctly pentagonal, widest in posterior third, orbit posteriorly rather oblique, rounded off. Upper surface gently convex. Eyes small, laterally slightly produced, length slightly $< 1/3$ of orbit length to beginning of curvature. Clypeus anteriorly slightly convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, between eyes with a rather shallow, circular to somewhat triangular, slightly oblique groove on either side. Labrum anteriorly barely excised, 6-setose, inner 4 setae slightly shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus remarkably stout, widened to apex, apex very obliquely cut. Terminal segment of labial palpus large and very elongate. Antenna comparatively elongate, slightly surpassing

middle of pronotum. Median antennomeres slightly longer than wide, 3rd antennomere barely more than half as long as 1st, barely longer than 2nd antennomere. Surface glossy, with traces of microreticulation only on clypeus. Puncturation very sparse especially on frons and vertex, very fine and superficial, distance between punctures about 4-5 x as wide as diameter of punctures, middle of frons and vertex almost impunctate. Pilosity sparse, elongate, hirsute, erect, inclined anteriorly. Both supra-orbital setae very elongate, posterior supraorbital seta situated far behind eye at beginning of basal curvature.

P r o n o t u m : Rather elongate, fairly cordiform, considerably longer than wide, distinctly wider than head, widest in anterior third. Upper surface markedly convex. Lateral margin convex in anterior two thirds, sinuate in front of posterior angles. Apex fairly wide, rather deeply excised, anterior angles obtuse, markedly projecting. Base narrow, laterally oblique but not excised, basal angles slightly projecting, obtuse, Lateral margin rather inconspicuous, without distinct border line, marginal channel absent. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated at anterior third of pronotum, posterior seta slightly shorter, situated right on basal angle. Surface without microreticulation, glossy, with moderately sparse, rather coarse puncturation. Distance between punctures c. as wide as diameter of punctures, only near median line punctures somewhat finer and sparser. Pilosity moderately sparse, elongate, hirsute, irregularly inclined, though rather erect.

E l y t r a : Rather elongate, barely triangular, laterally weakly curved, widest in posterior third, upper surface depressed, odd intervals in middle slightly raised. Shoulders wide, oblique, not projecting. Apex wide, straight, slightly oblique, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation sparse, remarkably irregular, in basal half coarse, becoming very fine and sparse behind middle. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores very difficult to detect when setae broken, apparently consisting of 8 basal, 2 postmedian, 4-5 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, glossy. Pilosity rather sparse, elongate, hirsute, irregular, inclined posteriorly, though rather erect.

M a l e g e n i t a l i a : Genital ring rather narrow, elongate, ovalish-triangular, with small, asymmetrically curved apical plate. Aedeagus very elongate, with small, gently upturned apex that lacks a crotchet. Apex narrow and acute seen from below. Lower surface gently bisinuate. Internal sac in middle with large, elongate, coiled, dentate sclerite. For parameres see fig. 10, both parameres rather short.

F e m a l e g e n i t a l i a : Stylomere 2 narrow and elongate with narrow, acute apex, with 2 elongate ventral ensiform setae the lower one being much shorter, one elongate dorsal ensiform seta, and a nematiform seta situated in a large groove in middle between base and apex. Apex of stylomere 1 medially with 1 nematiform seta.

V a r i a t i o n . Some variation noted in relative width of head, prothorax, and elytra, and in distinctness of puncturation of surface of head.

E t y m o l o g y : The name is a patronym of Dr C. Besuchet, collector of this species.

Distribution: Northeastern India, Darjeeling region. Known only from the Algarah area.

Collecting circumstances: Collected by sieving of leaf litter at median altitude.

***Gunvorita minor* sp. n.**

Figs 11, 33, 49, 65

Type material: Holotype: ♂, India Meghalaya, Khasi Hills 27.X.78 Mawsynram-Balal 1000 m, C. Besuchet & I. Löbl, 33B (MHNG).

Diagnosis: Rather small species with posteriorly widened though neither pentagonal nor triangular head, further distinguished by shape of the elongate, at lower surface almost straight aedeagus with faintly upturned apex that lacks a crotchet.

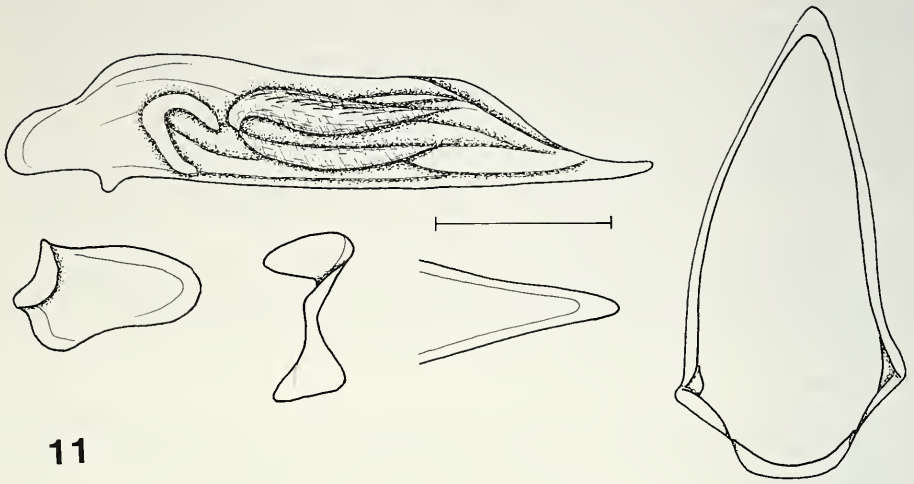
DESCRIPTION:

Measurements: Length: 4.0 mm; width: 1.32 mm. Ratios. Length/width of head: 1.49; length orbit/eye: 2.63; length/width of pronotum: 1.38; width widest part/base of pronotum: 1.63; width pronotum/head: 1.06; length/width of elytra: 1.56; width elytra/pronotum: 1.97.

Colour: Piceous, head slightly darker than rest of surface. Labrum, palpi, legs, and antennae yellowish.

Head: Rather elongate, oval-shaped, posteriorly slightly widened, though neither triangular nor pentagonal, widest in posterior third, orbit posteriorly widely rounded off. Upper surface gently convex. Eyes comparatively large, though rather depressed, length slightly $<2/5$ of orbit length to beginning of curvature. Clypeus anteriorly rather convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, between eyes with a rather shallow, rather irregular, slightly oblique groove on either side. Labrum anteriorly barely excised, 6-setose, inner 4 setae slightly shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus stout, apex obliquely cut. Terminal segment of labial palpus large and rather elongate. Antenna comparatively short, barely surpassing middle of pronotum. Median antennomeres c. as long as wide, 3rd antennomere slightly $<2/3$ as long as 1st, slightly >1.33 x as long as 2nd antennomere. Surface glossy, with traces of microreticulation only on clypeus. Puncturation very sparse especially on frons and vertex, moderately fine, distance between punctures c. 4-5 x as wide as diameter of punctures, laterally puncturation denser, distance slightly less. Pilosity sparse, elongate, hirsute, erect, inclined anteriorly. Both supraorbital setae very elongate, posterior supraorbital seta situated far behind eye behind beginning of basal curvature.

Pronotum: Fairly elongate, gently cordiform, considerably longer than wide, barely wider than head, widest in anterior third. Upper surface convex. Lateral margin convex in anterior two thirds, sinuate in front of posterior angles. Apex fairly wide, gently excised, anterior angles obtuse, slightly projecting. Base narrow, laterally



11

FIG. 11

Gunvorita minor sp. n. ♂ genitalia. For legend see fig. 2.

oblique but not excised, basal angles slightly projecting, obtuse. Lateral margin rather inconspicuous, slightly raised, marginal channel narrow, almost absent. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated slightly behind anterior third of pronotum, both posterior setae broken, situated right on basal angles. Surface without microreticulation, glossy, with rather sparse, coarse puncturation. Distance between punctures slightly smaller than diameter of punctures. Pilosity rather sparse, moderately elongate, hirsute, irregularly inclined.

Elytra: Rather elongate, narrowly triangular, laterally weakly curved, widest in posterior third, upper surface fairly depressed. Shoulders rather wide, oblique, not projecting. Apex wide, straight, transverse, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation rather sparse, coarse, becoming finer and sparser towards apex. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores very difficult to detect when setae broken, apparently consisting of 8 basal, 2 postmedian, 5-6 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, glossy. Pilosity rather sparse, moderately elongate, hirsute, irregular, inclined posteriorly, rather depressed.

Male genitalia: Genital ring elongate, moderately wide, rather triangular, without distinct apical plate, gently asymmetric. Aedeagus elongate, with narrow, rather elongate, very faintly upturned apex that lacks a crotchet. Apex narrow and acute seen from below. Lower surface almost straight. Internal sac in middle with large, elongate, coiled, dentate sclerite. For parameres see fig. 11, both parameres rather short.

Female genitalia: Unknown.

Variation: Unknown.

Etymology: The name refers to the lesser size in comparison with the foregoing species from the same area.

Distribution: Northeastern India, Khasi Hills. Known only from type locality.

Collecting circumstances: Collected by sieving of leaf litter at median altitude.

***Gunvorita punctipennis* sp. n.**

Figs 12, 34, 50, 66

Type material: Holotype: ♂, Nepal Expeditionen Jochen Martens, 308 Ilam Distr., Sanishare 5 km N. feet of Siwalik Mts, 270-300 m, mixed *Shorea* forest, 3.-5. April 1988, J. Martens & W. Schawaller leg. (SMNS).

Diagnosis: Small species with rather triangular head, distinguished by elongate aedeagus with elongate, rather straight apical part without a crotchet, gently bisinuate lower surface, and slightly upturned apex.

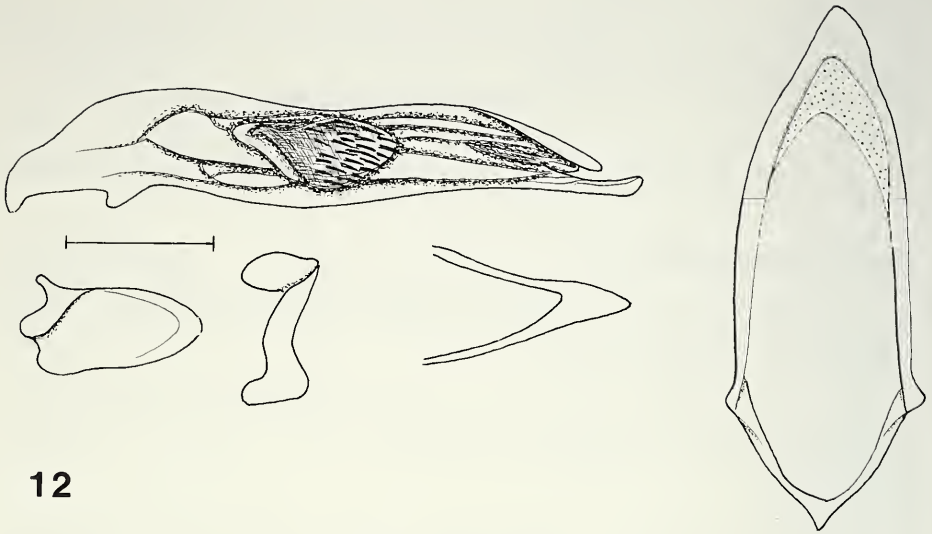
DESCRIPTION:

Measurements: Length: 3.8 mm; width: 1.3 mm. Ratios. Length/width of head: 1.46; length orbit/eye: 2.64; length/width of pronotum: 1.23; width widest part/base of pronotum: 1.73; width pronotum/head: 1.13; length/width of elytra: 1.54; width elytra/pronotum: 1.94.

Colour: Rather dark piceous, pronotum and elytral faintly lighter, suture of elytra narrowly reddish. Labrum, palpi, legs, and antennae yellowish.

Head: Comparatively short, posteriorly widened, perceptibly triangular, widest in posterior quarter, orbit posteriorly very shortly and widely rounded off, rather straight. Upper surface gently convex. Eyes rather small, slightly convex, laterally slightly protruded, length slightly $<2/5$ of orbit length to beginning of curvature. Clypeus anteriorly slightly convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, between eyes with a circular, slightly oblique groove on either side. Labrum anteriorly barely excised, 6-setose, inner 4 setae slightly shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus rather short, apex obliquely cut. Terminal segment of labial palpus very large, fairly elongate. Antenna comparatively short, attaining middle of pronotum. Median antennomeres as long as wide, 3rd antennomere $<2/3$ as long as 1st, <1.5 x as long as 2nd antennomere. Surface glossy, with traces of microreticulation only on clypeus. Puncturation sparse, very fine and superficial, distance between punctures about 4-5 x as wide as diameter of punctures. Pilosity sparse, elongate, hirsute, rather erect, inclined anteriorly. Both supraorbital setae very elongate, much longer than pilosity, posterior supraorbital seta situated very far behind eye at beginning of basal curvature.

Pronotum: Moderately elongate, cordiform, considerably longer than wide, distinctly wider than head, widest in anterior third. Upper surface markedly convex.



12

Fig. 12

Gunvorita punctipennis sp. n. ♂ genitalia. For legend see fig. 2.

Lateral margin strongly convex in anterior two thirds, sinuate in front of posterior angles. Apex fairly wide, distinctly excised, anterior angles obtuse, slightly projecting. Base narrow, laterally oblique but not excised, posterior angles slightly projecting, obtuse. Lateral margin rather inconspicuous, without distinct border line, marginal channel absent. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta situated at anterior third of pronotum, both setae broken, posterior seta rather short, situated right on basal angle. Surface without microreticulation, glossy, with moderately sparse, coarse, even somewhat vermiculose puncturation. Distance between punctures c. 1-2 x as wide as diameter of punctures. Pilosity rather sparse, elongate, hirsute, irregularly inclined, though rather erect.

Elytra: Rather elongate, triangular, laterally slightly curved, widest in posterior third, upper surface depressed, all intervals in anterior half rather distinctly raised. Shoulders comparatively wide, oblique, not projecting. Apex wide, almost straight, transverse, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation fairly sparse, though very coarse, rather irregular, in apical and lateral parts punctures somewhat rasp-like. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores very difficult to detect when setae broken, apparently consisting of 8 basal, 3 postmedian, 6 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, glossy. Pilosity moderately dense, rather elongate, hirsute, irregular, inclined posteriorly, fairly depressed.

Male genitalia: Genital ring narrow, elongate, fairly ovalish, narrowed to apex, rather symmetric, with elongate and apically acute basal part. Aedeagus elongate, with elongate, almost straight, faintly upturned apical part, without a crotchet at apex. Apex narrow and acute seen from below. Lower surface gently bisinuate. Internal sac in middle with large, though short, coiled, strongly dentate sclerite. For parameres see fig. 12, left paramere rather elongate, right paramere short.

Female genitalia: Unknown.

Variation: Unknown.

Etymology: The name refers to the markedly punctate elytra of this species.

Distribution: Eastern Nepal. Known only from type locality.

Collecting circumstances: Collected by sieving ground litter in *Shorea* forest of low altitude.

***Gunvorita depressipennis* sp. n.**

Figs 13, 20, 25, 51, 67

Type material: Holotype: ♂, India Meghalaya Khasi Hills Nongpoh 700 m. 5.XI.78 C. Besuchet & I. Löbl (MHNG).

Paratypes: 2 ♀♀, same data (CBM, MHNG).

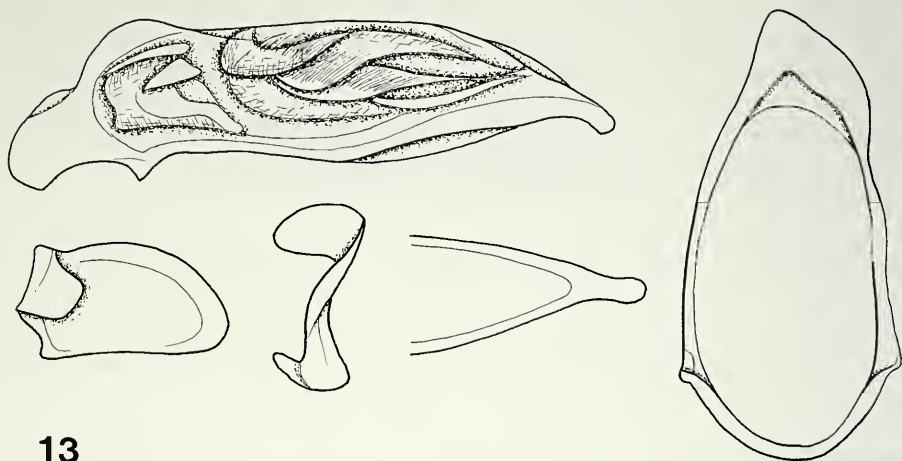
Diagnosis: Medium-sized species with posteriorly widened though neither pentagonal nor triangular head, further distinguished by shape of the fairly short, at lower surface markedly bisinuate aedeagus with distinctly downcurved apex that lacks a crotchet.

DESCRIPTION:

Measurements: Length: 4.5-4.6 mm; width: 1.45-1.55 mm. Ratios. Length/width of head: 1.49-1.54; length orbit/eye: 2.47-2.70; length/width of pronotum: 1.26-1.32; width widest part/base of pronotum: 1.56-1.60; width pronotum/head: 1.08-1.14; length/width of elytra: 1.49-1.56; width elytra/pronotum: 1.94-2.0.

Colour: Piceous, labrum, palpi, legs, and antennae yellowish.

Head: Elongate, oval-shaped, posteriorly slightly widened, though neither triangular nor pentagonal, widest in posterior third, orbit posteriorly widely rounded off. Upper surface gently convex. Eyes comparatively large, though rather depressed, length slightly $< 2/5$ of orbit length to beginning of curvature. Clypeus anteriorly rather convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side two hairs. Clypeal suture postero-laterally with a large, deep groove each side. Frons convex, between eyes with a rather shallow, rather irregular, slightly oblique groove on either side. Labrum anteriorly barely excised, 6-setose, inner 4 setae slightly shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus fairly stout, apex obliquely cut. Terminal segment of labial palpus large and rather elongate. Antenna comparatively elongate, slightly surpassing middle of pronotum. Median antennomeres slightly longer than wide, 3rd antennomere c. $2/3$ as long as 1st, slightly < 1.5 x as long as 2nd antennomere. Surface glossy, with traces of micro-



13

Fig. 13

Gunvorita depressipennis sp. n. ♂ genitalia. For legend see fig. 2.

reticulation only on clypeus. Puncturation very sparse especially on frons and vertex, moderately fine, distance between punctures c. 4 x as wide as diameter of punctures, laterally distance slightly less. Pilosity sparse, elongate, hirsute, erect, inclined anteriorly. Both supraorbital setae very elongate, posterior supraorbital seta situated far behind eye behind beginning of basal curvature.

Pronotum: Rather elongate, narrow, gently cordiform, considerably longer than wide, slightly wider than head, widest in anterior third. Upper surface moderately convex, basally highly convex. Lateral margin convex in anterior two thirds, sinuate in front of posterior angles. Apex fairly wide, rather deeply, v-shaped excised, anterior angles obtuse, markedly projecting. Base narrow, laterally oblique but not excised, basal angles slightly projecting, obtuse. Lateral margin rather conspicuous, slightly upturned, marginal channel narrow though marked. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated at anterior third of pronotum, posterior seta slightly shorter, situated right on basal angle. Surface without microreticulation, glossy, with rather sparse, coarse puncturation. Distance between punctures considerably smaller than diameter of punctures. Pilosity rather sparse, moderately elongate, hirsute, irregularly inclined.

Elytra: Elongate, narrowly triangular, laterally weakly curved, widest in posterior fifth or quarter, upper surface markedly depressed. Shoulders wide, oblique, faintly projecting. Apex wide, straight, markedly oblique, distinctly redressed to suture. Striae irregularly marked by rows of punctures, puncturation sparse, in apical third irregular, very coarse, becoming finer and sparser behind middle. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores

very difficult to detect when setae broken, apparently consisting of 8 basal, 2 post-medial, 4 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, glossy. Pilosity rather sparse, moderately elongate, hirsute, irregular, inclined posteriorly, rather depressed.

Male genitalia: Genital ring moderately wide and elongate, ovalish, with large apical plate, gently asymmetric. Aedeagus rather short, with small, distinctly downcurved apex that lacks a crotchet. Apex rather narrow, slightly club-shaped seen from below. Lower surface markedly bisinuate. Internal sac in middle with large, elongate, coiled, dentate sclerite, in basal part with another, complexly folded, non-dentate sclerite. For parameres see fig. 13, both parameres rather short.

Female genitalia: Stylomere 2 narrow and elongate with acute apex, with 2 elongate ventral ensiform setae the lower one being much shorter, one elongate dorsal ensiform seta, and a nematiform seta situated in a large groove in apical two fifth. Apex of stylomere 1 medially apparently with 1 nematiform seta.

Variation: Little variation noted.

Etymology: The name refers to the depressed surface of elytra.

Distribution: Northeastern India, Khasi Hills. Known only from type locality.

Collecting circumstances: Collected by sieving of leaf litter at rather low altitude.

***Gunvorita angusticeps* sp. n.**

Figs 14, 36, 52, 68

Type material: Holotype: ♂, Nepal 426 Kaski Dist. above Pothana 2000 m, 27.-29.IV.1995, Martens & Schawaller (SMNS).

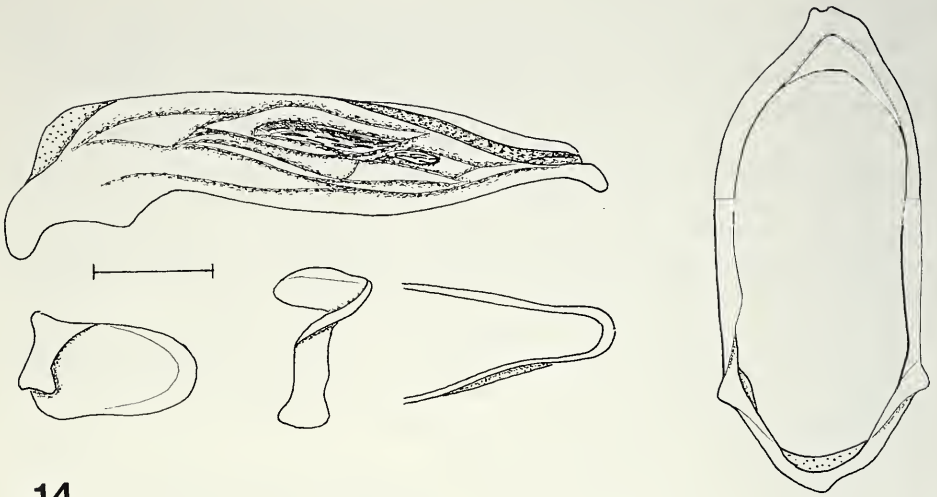
Diagnosis: Medium sized species with characteristic elongate, oval-shaped, not triangular head, further distinguished by very sparse pilosity on head and pronotum and by aedeagus with elongate, rather straight, apically wide apical part that does not bear a crotchet but is distinctly curved down.

DESCRIPTION:

Measurements: Length: 4.7 mm; width: 1.5 mm. Ratios. Length/width of head: 1.77; length orbit/eye: 3.78; length/width of pronotum: 1.38; width widest part/base of pronotum: 1.58; width pronotum/head: 1.09; length/width of elytra: 1.56; width elytra/pronotum: 2.10.

Colour: Rather dark piceous, suture of elytra narrowly reddish. Labrum, palpi, legs, and antennae light reddish.

Head: Very elongate, characteristically oval-shaped, posteriorly widened, widest in front of posterior third, orbit posteriorly very widely rounded off, very elongately oblique, by no means triangular. Upper surface gently convex. Eyes small, depressed, length slightly $>1/4$ of orbit length to beginning of curvature. Clypeus posteriorly markedly convex, surface in middle convex, uneven, lateral angles (above base of antenna) distinctly projecting. Clypeal seta far removed from apex, at apex on either side apparently a single hair. Clypeal suture postero-laterally with a deep groove



14

Fig. 14

Gunvorita angusticeps sp. n. ♂ genitalia. For legend see fig. 2.

each side. Frons convex, between eyes with a circular, slightly oblique groove on either side. Labrum anteriorly slightly excised, 6-setose, inner 4 setae slightly shorter, lateral margin rather sparsely pilose. Mandibles short, at apex sharply incurved. Mentum with short and wide, triangular tooth. Labium anteriorly concave. Maxillary palpus rather short, apex obliquely cut. Terminal segment of labial palpus very large but comparatively short. Antenna comparatively short, barely attaining middle of pronotum. Median antennomeres as long as wide, 3rd antennomere $<2/3$ as long as 1st, <1.5 x as long as 2nd antennomere. Surface glossy, with traces of microreticulation only on clypeus. Puncturation extremely sparse and fine, superficial, distance between punctures about 6-8 x as wide as diameter of punctures. Pilosity very sparse, very elongate, hirsute, rather erect, inclined anteriorly. Both supraorbital setae elongate, though not much longer than pilosity, posterior supraorbital seta situated far behind eye at beginning of basal curvature, though due to elongate basal part of head far more anteriorly than in other species.

Pronotum: Elongate, narrow, less cordiform than in other species, considerably longer than wide, distinctly wider than head, widest in anterior third. Upper surface markedly convex. Lateral margin convex in anterior two thirds, sinuate in front of posterior angles. Apex fairly wide, slightly excised, anterior angles obtuse, slightly projecting. Base comparatively wide, laterally oblique but not excised, posterior angles slightly projecting, obtuse. Lateral margin rather inconspicuous, without distinct border line, marginal channel absent. Median line fine, not impressed. Prebasal grooves almost absent. Anterior marginal seta elongate, situated at anterior third of pronotum, posterior seta shorter, situated right on basal angle. Surface without

microreticulation, glossy, with very sparse and fine puncturation. Distance between punctures c. 5-6 x as wide as diameter of punctures. Pilosity very sparse, elongate, hirsute, irregularly inclined, though rather erect.

Elytra: Rather elongate, triangular, laterally slightly curved, widest in posterior third, upper surface depressed, intervals barely raised. Shoulders comparatively wide, oblique, not projecting. Apex wide, almost straight, transverse, not redressed to suture. Striae irregularly marked by rows of punctures, puncturation rather sparse, coarse, rather irregular, in apical and lateral parts punctures somewhat rasp-like. Fixed setae in third interval hardly recognizable within the coarse puncturation. Series of marginal pores very difficult to detect when setae broken, apparently consisting of 8 basal, 3 postmedian, 6 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, rather glossy. Pilosity fairly sparse, elongate, hirsute, irregular, inclined posteriorly, fairly depressed.

Male genitalia: Genital ring wide, ovalish, slightly widened to apex, fairly symmetric. Aedeagus fairly elongate, with elongate, almost straight apical part that is distinctly downcurved though lacks an apical crotchet. Apex wide seen from below. Lower surface bisinuate. Internal sac in middle with elongate, coiled, strongly dentate sclerite. For parameres see fig. 14, left paramere fairly large and short, right paramere rather elongate.

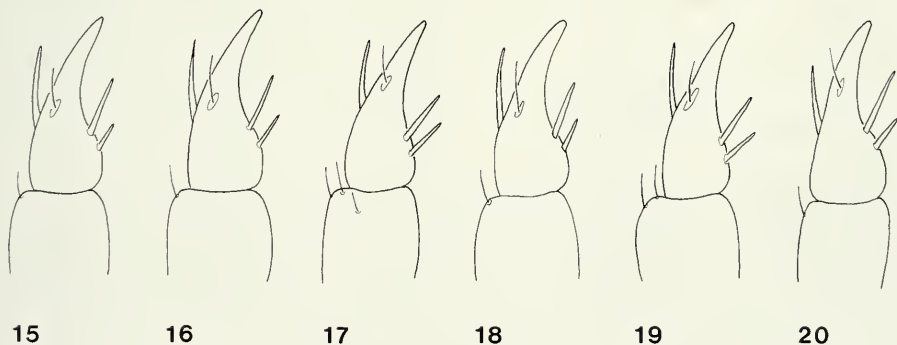
Female genitalia: Unknown.

Variation: Unknown.

Etymology: The name refers to the conspicuously narrow head of this species.

Distribution: Eastern Nepal. Known only from type locality.

Collecting circumstances: Collected by sieving ground litter in fairly high altitude.



FIGS 15-20

♀ stylomere 2 and base of stylomere 1. 15. *Gunvorita laeviceps* sp. n.; 16. *G. inermis* sp. n. 17. *G. nepalensis* sp. n.; 18. *G. hamifera* sp. n.; 19. *G. besucheti* sp. n.; 20. *G. depressipennis* sp. n.

APPENDIX

Because measurements and ratios are rather useful in species differentiation, the used ratios for all *Gunvorita* species are compiled in the following table.

TAB. 1

Measurements and ratios of the species of the genus *Gunvorita*. **L**. Length (in mm). **l/w h**. Length/width of head. **l o/e**. Length of orbit/eye. **l/w pr**. Length/width of pronotum. **w d/b**. Width widest diameter/base of pronotum. **w pr/h**. Width of pronotum/head. **l/w el**. Length/width of elytra. **w el/pr**. Width of elytra/pronotum. **HT**. Holotype.

Species	L	l/w h	l o/e	l/w pr
<i>G. angusticeps</i>	4.7	1.77	3.78	1.38
<i>G. besucheti</i>	4.8-5.3	1.58-1.70	3.11-3.25	1.27-1.35
<i>G. depressipennis</i>	4.5-4.6	1.49-1.54	2.47-2.70	1.26-1.32
<i>G. elegans</i>	4.25-4.45	1.35-1.36	2.97-3.02	1.16-1.17
<i>G. hamifera</i>	4.3-4.65	1.42-1.47	3.55-3.78	1.20-1.27
<i>G. indica</i> HT	5.65	1.78	3.93	1.23
<i>G. inermis</i>	3.6-3.9	1.44-1.47	3.05-3.20	1.24-1.28
<i>G. laeviceps</i>	4.0-4.25	1.42-1.45	2.98-3.20	1.23-1.27
<i>G. martensi</i> HT	4.2	1.53	3.67	1.29
<i>G. minor</i>	4.0	1.49	2.63	1.38
<i>G. nepalensis</i>	4.55-5.0	1.51-1.60	3.73-3.95	1.20-1.26
<i>G. ovaliceps</i>	5.05	1.61	3.87	1.31
<i>G. punctipennis</i>	3.8	1.46	2.64	1.23
<i>G. schawalleri</i>	4.1-4.3	1.45-1.49	3.77-3.85	1.18-1.22
<i>G. smetanai</i>	4.95-5.0	1.55-1.59	3.55-3.57	1.21-1.27
<i>G. uncinata</i>	4.5-4.7	1.50-1.53	3.38-3.43	1.16-1.19

	w d/b	w pr/h	l/w el	w el/pr
<i>G. angusticeps</i>	1.58	1.09	1.56	2.10
<i>G. besucheti</i>	1.63-1.70	1.11-1.18	1.53-1.60	2.02-2.10
<i>G. depressipennis</i>	1.56-1.60	1.08-1.14	1.49-1.56	1.94-2.00
<i>G. elegans</i>	1.76	1.10-1.11	1.46-1.48	1.91
<i>G. hamifera</i>	1.69-1.77	1.05-1.12	1.53-1.55	1.95-2.02
<i>G. indica</i> HT	1.78	1.25	1.54	2.02
<i>G. inermis</i>	1.71-1.76	1.05-1.11	1.52-1.56	1.93-2.02
<i>G. laeviceps</i>	1.70-1.81	1.10-1.15	1.50-1.51	2.05-2.08
<i>G. martensi</i> HT	1.74	1.09	1.51	2.05
<i>G. minor</i>	1.63	1.06	1.56	1.97
<i>G. nepalensis</i>	1.70-1.74	1.14-1.21	1.38-1.44	2.03-2.14
<i>G. ovaliceps</i>	1.75	1.14	1.59	1.94
<i>G. punctipennis</i>	1.73	1.13	1.54	1.94
<i>G. schawalleri</i>	1.75-1.76	1.05-1.11	1.49-1.55	1.90-1.96
<i>G. smetanai</i>	1.66-1.68	1.15-1.18	1.55-1.60	2.05-2.06
<i>G. uncinata</i>	1.68-1.73	1.16-1.18	1.51-1.52	1.82-1.88

BIOGEOGRAPHIC REMARKS

Even when the actual distribution of the Oriental-Australian Leleupidiini is by no means adequately recorded, certain striking distribution patterns can be recognized: The genus *Gunvorita* is apparently confined to the pre-Himalayan areas of Nepal,

Sikkim, and adjacent northern India; the genus *Paraleleupidia*, subgenus *Megaleleupidia* is indigenous to a rather restricted montane area in South India; and the genus *Colasidia* is distributed from Malaysia through Sumatra and northern Borneo to Papua New Guinea and northeastern Australia (Fig. 69, tab. 2). But this extensive range of the Oriental Leleupidiini is by no means continuous, though bears large and striking gaps, from where until now no records are available: Ceylon (Sri Lanka), central India, Burma, Thailand, Indochina, southern China, Java, the Indonesian part of Borneo, the Philippines, the Moluccas including Celebes (Sulawesi), and Western New Guinea (Irian Jaya). In some areas (e. g. southern Borneo, Java, western New Guinea) Leleupidiini do presumably occur and I think they will be detected when these areas are more appropriately sampled. In other countries, however, such as main parts of Burma, Thailand, Indochina, southern China, perhaps also the Philippines, Leleupidiini perhaps do not occur. The reason for this prediction is the supposed biogeographical history of the subfamily in the Oriental region.

TAB. 2

Current distribution of the Oriental-Australian Leleupidiini.

Country	Number of species		
	<i>Gunvorita</i>	<i>Colasidia</i>	<i>Paraleleupidia</i>
Nepal	10		
Sikkim	1		
Northeast India	8		
South India			3
Malaysia		8	
Sumatra		6	
Sarawak (northern Borneo)		7	
Sabah (northern Borneo)		5	
Borneo altogether (only northern part)		12	
Papua New Guinea		3	
Australia (northern Queensland)		1	
Total number of species	16	30	3

Leleupidiini occur outside of the Oriental-Australian regions only in central and eastern Africa (where they have been discovered and where they are still most numerous) and they are thus an Old World Tropical faunal element. At the first glance Leleupidiini could be supposed to belong to the so-called Old Gondwanan faunal element which was always adapted to subtropical to tropical conditions. Remnants of this element are still present in subtropical and tropical parts of South America, Africa, and Australia. But this faunal element is usually well represented in large parts of Australia, whereas Leleupidiini in Australia have a very restricted range in the northeast and presumably immigrated rather recently from the north, probably via New Guinea. Where, therefore, the Oriental-Australian Leleupidiini came from?

Apparently, the species of *Paraleleupidia* of southern India are more closely related to their African counterparts of the same genus, than to either the Asiatic *Gunvorita* or *Colasidia*. This may be evidence of their independent biogeographical history and of their different place of origin. The different biogeographical history, on the other hand, may explain the apparent gaps in the present distribution of *Leleupidiini* in the Oriental region.

For explanation of these questions a short summary of the present ideas about the geological history of the southern continents is required that refers mainly to RIDD (1968), MCKENNA (1973), SHIELDS (1979, 1983), POWELL *et al.* (1981), OWEN (1983), KEAST (1983), AUDLEY-CHARLES (1987), TRUSWELL *et al.* (1987), SCOTESE *et al.* (1988), VEEVERS *et al.* (1991), BURRETT *et al.* (1991), DALY *et al.* 1991, CRANSTON & NAUMAN (1991), and DE BOER (1995).

According to present knowledge the first breakup of the southern landmass (Gondwanaland) in a western and eastern part began in late Jurassic (c. 155 mio b.p.), when a deep sea trench formed between present South America + Africa in the west and present Antarctica + India + Australia in the east. This seaway which became later the Indian Ocean spread southwards and subsequently India began its northwards movement. At the same time separation of South America and Africa began from the north through development of a narrow seaway, the later South Atlantic, and subsequently Africa drifted likewise northwards under a certain amount of rotation. Also separation of Australia had commenced in the late Jurassic by the development of a deep seaway in a west to east direction between Antarctica and the western part of Australia. Complete segregation of Australia from Antarctica, however, occurred in early Tertiary, when the seaway between the Indian and Pacific Oceans was completed. Since its separation from Antarctica, Australia drifted steadily northwards, until it came in contact with the south Asiatic insular belt in mid Miocene (c. 15 mio b.p.).

There is some reason to believe that southern Asia (excluding India) is not a compact block but is composed from rather small components of different origin and geological history, because certain parts (terranes) of Gondwanaland that formerly had been located east of Africa drifted likewise northwards and eventually came in contact with the northern continent Laurasia or with those parts of it that now build central Asia. Especially the terranes of the so called "Sundaland" (present Malaysia, southern Thailand and Burma, and the Greater Sunda Islands, most probably even northeastern India and Nepal) were originally situated between later Africa and Australia and drifted away from Gondwanaland during late Jurassic or early Cretaceous. Unfortunately (see below) it is still unsettled, whether these terranes always formed a more or less continuous landmass, whether they were always separated and arrived at different times and in different places at the Laurasian continent. It is further unknown, to which extent they were submerged during their drifting history.

Certainly the mentioned terranes arrived at their present position prior to the time when Australia came in contact with southern Asia – this is likewise demonstrated by geological and biogeographical evidence. However, during late Tertiary as well as during most of Pleistocene Sundaland was more or less isolated from the mainland of Asia and this is true even for those components of Sundaland that are now part of the

Asian mainland, e.g. Malaysia, southwestern Thailand, and perhaps even northeastern India, Sikkim, and Nepal.

On the basis of the sketched geological and geographical evidence and of the present distribution scheme, the following scenario of the biogeographical history of the Oriental-Australian Leleupidiini is suggested: The Oriental Leleupidiini are not monophyletic, because at least the species of *Paraleleupidia* are more closely related to African Leleupidiini than to the remaining Oriental genera, and they arrived at their present position in the Oriental region by independent drift on the Indian plate. This would also explain the apparent distributional gap of Leleupidiini in central India.

The genus *Colasidia* apparently developed in that part of Gondwanaland that was originally located east of Africa, and later the original stock of *Colasidia* drifted on terranes of the later Sundaland to the north, to meet southern Asia where it subsequently diversified.

Unfortunately the phylogenetic relations of and within the genus *Colasidia* are still uncertain due to limited material and too little knowledge of the male genitalia, and to the lack of a general generic revision of the Leleupidiini as a whole (see BAEHR 1997b). However, in the following I dare a very preliminary attempt to fix the supposed plesiomorphic state for some external characters. Although this does not implicitly mean that apomorphic states could not have evolved convergently, there is some reason to believe that they are synapomorphic states so that the more derived species would build up a monophyletic group. I regard the following character states as plesiomorphic (mainly by outgroup comparison with other leleupidiine genera):

- large size
- rather elongate body shape
- triangular shape of elytra
- depressed dorsal surface
- fine and dense puncturation of surface
- dense and diffuse puncturation of elytra
- dense, hirsute pilosity
- large eyes
- rounded or ovalish head the posterior part of which is not strikingly widened
- elongate antenna
- simple male aedeagus without striking features at apex and within internal sac.

If these character polarizations are correct, then the most primitive members of the genus *Colasidia* have been thus far observed on the Malayan Peninsula (in particular *C. oviceps*, *C. depressa*, *C. rougemonti*, *C. lagadiga*, *C. malayica*, *C. triangularis*, and *C. attenuata* in about that sequence), but not elsewhere. Nevertheless, even on the Malayan Peninsula some rather advanced species exist. All species hitherto recorded from Borneo, New Guinea, and Australia, and most species from Sumatra, on the other hand, are in most respects apomorphic and perhaps form a monophyletic unit, and a single species from northernmost Sumatra only (*C. denticollis*) seems less advanced and occupies a somewhat intermediate position.

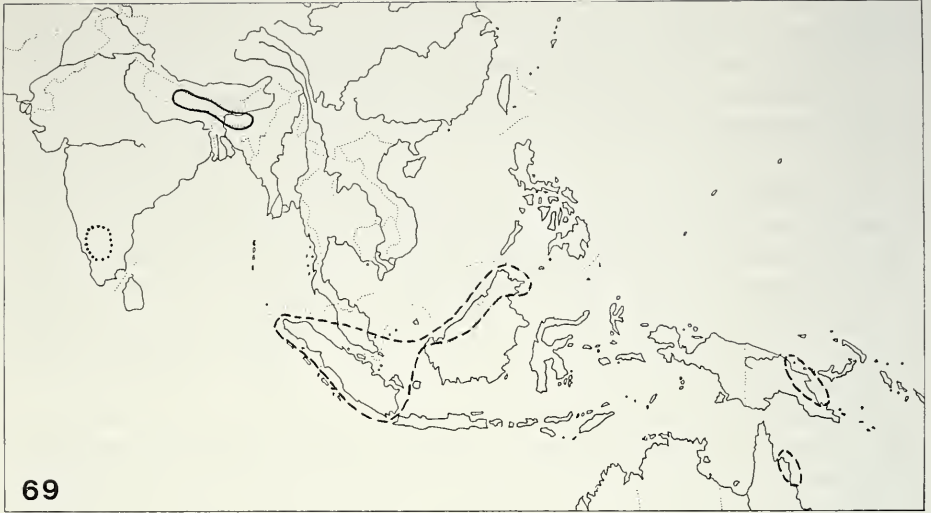


FIG. 69

Current distribution of the Oriental Leleupidiini. Genus *Colasidia*: - - - - - ; genus *Gunvorita*: ——— ; genus *Paraleleupidia*: ······.

Even if the opinion expressed by MORVAN (1994) that “there is no reason to divide the genus *Leleupidia*” – which means that *Colasidia* (and perhaps also *Gunvorita*) should be simply included in *Leleupidia* – should prove right for the presumably primitive stock of *Colasidia*, probably this does not apply to the group of advanced species mentioned above. Perhaps, this species-group could be simply separated from *Colasidia* to accommodate the mentioned relationships. However, this should be left to a future revisor who must have a reasonable knowledge of the African and Oriental Leleupidiini.

Contrary to the genus *Colasidia*, the genus *Gunvorita* forms a rather homogeneous unit, likewise regarding external morphological characters as characters of the ♂ and ♀ genitalia. That is the reason why phylogenetic relations within the genus are not easily settled. Even when a character evolution comparable to that in *Colasidia* is postulated, the distribution of character states throughout the species is confusing.

To give an example: assumed that absence of the crotchet at the apex of the aedeagus, posteriorly rounded or ovalish head, and large eyes are plesiomorphic character states, these cannot be reasonably correlated, because of the five known species that lack the crotchet *angusticeps* has very small eyes, and *punctipennis* has a markedly triangular head. Hence, we must assume convergent origin in many of the characters mentioned, though without having any opportunity to decide between synapomorphy of characters or convergent origin.

This heterobathmic character distribution is evident also in several other character states. Hence, it is likewise impossible to correlate the phylogenetic relations of the species with their distribution pattern. Actually, although some apparently very

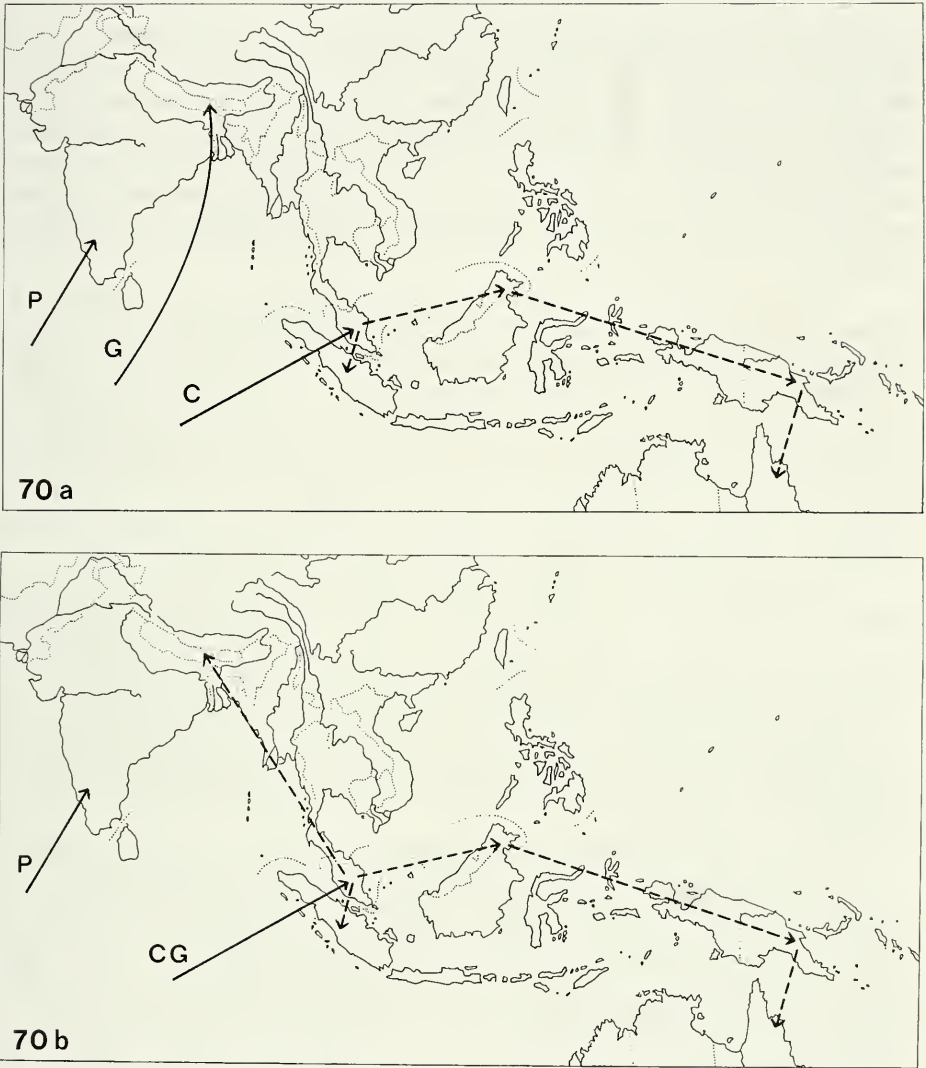


FIG 70. Supposed migration routes of the Oriental Leleupidiini. Different scenarios of the biogeographic history of genus *Gunvorita* are described in figs 70 a and b (see text). Immigration routes into the Oriental region: ———> ; migration routes within the Oriental and Australian regions: - - - -> . Abbreviations: **C**: *Colasidia*; **G**: *Gunvorita*; **CG**: common ancestral stock of *Colasidia* + *Gunvorita*; **P**: *Paralelepidia*.

closely related species possess adjacent or even overlapping ranges, other – likewise related – species may have quite different distributions. As a consequence, at present it is impossible to fix the most primitive species of *Gunvorita* and nothing can be said about evolution and historical biogeography within the genus.

HENNIG (1966) expressed and BRUNDIN (1966) firstly adopted the opinion that plesiomorphy of a taxon and place or origin are commonly correlated, and that the most apomorphic taxa are therefore usually found at the margins of the range of the supra-specific taxon, no difference whether speciation is believed to have been caused only by vicariance or also by some migration. If this opinion is true (and likely it is true at least for flightless, endogenous insects of low vagility as *Leleupidiini* are), then the genus *Colasidia* should have evolved on the northern part of the drifting Sundaland that firstly came into contact with the Asian mainland and which today forms the Malayan Peninsula.

Although this area reached the mainland first, members of the genus *Colasidia* apparently did not cross the western and northern boundaries of the former Sundaland, even though these northernmost parts were later firmly attached to the Asian mainland. Or, at least, if some did so, there are no remnants left in these areas, presumably caused by extinction. However, stocks of *Colasidia* did extend over the whole area of Sundaland (whether it was a continuous landmass or an insular belt), they diversified on Sumatra and Borneo, crossed the eastern boundaries of Sundaland and the Wallace line into the Australian region (and plate), and colonized New Guinea and northeastern Australia, where some taxonomic radiation occurred BAEHR 1987, 1991, DARLINGTON 1971).

Certainly, species of *Colasidia* and *Leleupidiini* in general ought to be very poor dispersers, because they are flightless – perhaps already since a long time – and because they live semi-endogenous. Then, why they were able to disperse so widely to the south and southeast in the course of which dispersal they certainly did some island hopping and crossed rather important waterbodies, but apparently were not able to cross the borders of the former Sundaland to the north and west to colonize the whole of tropical South Asia? Or, if they did so, why they were extinct in the northern part of its areal, but not in the southern part?

Unfortunately the phylogenetic relations of *Colasidia* and *Gunvorita* are still unsettled, although there is some reason to believe that *Gunvorita* in certain respects of external and genitalic morphology is more advanced than the apparently most primitive members of *Colasidia*, though less advanced than the highly evolved stock of *Colasidia* that ranges mainly over Sumatra, Borneo, and the Papuan-Australian region. With respect to the unsettled phylogenetic relations, therefore, two biogeographic scenarios are conceivable:

- either *Gunvorita* evolved independently from *Colasidia*, perhaps from a common ancestor, which implies that *Colasidia* is a monophyletic unit;
- or *Gunvorita* is more closely related to certain of the more advanced members of *Colasidia*, and then *Colasidia* would be paraphyletic.

In the first scenario *Gunvorita* and *Colasidia* could have reached their present ranges by independent drift on different terranes of the drifting Sundaland that attached separately and at different times to mainland Asia. If that would prove true, then colonization of the Oriental region by *Leleupidiini* occurred threefold and presumably also at three different times (Fig. 70a). This scenario would also explain the apparent gap between the present ranges of *Colasidia* and *Gunvorita* in Burma and western Thailand.

In the second scenario the common ancestor of *Colasidia* and *Gunvorita* arrived on the northernmost part of drifting Sundaland (present Malayan Peninsula) at its present position. After the fusion of this part with the Asian mainland some evolution took place and the ancestral stock of *Gunvorita* reached its present northern range by range spreading through Burma, but further evolution of *Gunvorita* likewise occurred in its present pre-Himalayan range (Fig. 70b). In this scenario, however, the apparent distribution gap between both genera can be only explained by extinction of the required intermediate Burmese populations – all under the proviso that the apparent distribution gap of Leleupidiini in Burma really exists and is not caused by unsatisfactory exploration.

Unfortunately, a final decision is not yet possible in view of the present insufficient knowledge of geological history, phylogenetic relations, and chorology of the species. In both scenario's, however, New Guinea and Australia would have been colonized rather recently from the north, which implicates for Australia that old Gondwanan faunal elements in the Australian Region may have been indigenous for long periods (as most of those elements have been), but also may be very recent immigrants from the north.

In any case, Leleupidiini must be a very old group that evolved before the final breakup of the Gondwanan continent – at least before the final separation of Africa, India, and the terranes of "Sundaland". As a consequence, the origin of Leleupidiini should be pre-Cretaceous.

This general scenario proposed for Leleupidiini finds some support by a rather similar scenario of the biogeographical history in the genus *Cryptocephalomorpha* of the carabid subfamily Pseudomorphae (BAEHR 1997). In this genus, the apparently most primitive species occurs in the northern part of South Africa (Natal), more advanced species live in Malaysia, southern Thailand, Sumatra and Java, and the most advanced species groups occur either on Borneo and the Philippines, either in New Guinea, New Britain, and northernmost Australia, respectively. Apparently this genus likewise originated in Africa, the original stocks of the Asian species presumably arrived drifting on terranes of "Sundaland", rather little evolved species persist in the area of former "Sundaland", and the most advanced species transgressed the boundaries of this area and colonized the Australian region (and plate), where today the most highly evolved species live. Similarly to the genus *Colasidia*, *Cryptocephalomorpha* did not spread much to the north and east on the Asian mainland, but on the mainland is restricted to the southern parts of Malaysia and Thailand. Therefore, in *Cryptocephalomorpha* presumably the same – still unknown – mechanisms prevented further spreading on the mainland as they did in *Colasidia*.

As a conclusion, the biogeographical pattern of drifting on terranes from the African component of Gondwanaland to mainland Asia, subsequent range spreading and evolution in the South Asian insular belt, and later colonization of the Australian region may prove to have been a regular and even fairly common event during the colonization of the Asian-Australian regions.



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FIGS 21-24

Entire view. 21. *Gmivorita elegans* Landin; 22. *G. martensi* Casale; 23. *G. laeviceps* sp. n.; 24. *G. inermis* sp. n. Lengths: 4.45 mm; 4.2 mm; 4.0 mm; 3.6 mm.



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FIGS 25-28

Entire view. 25. *Gunvorita indica* Darlington; 26. *G. ovaliceps* sp. n.; 27. *G. nepalensis* sp. n.; 28. *G. hamifera* sp. n. Lengths: 5.65 mm; 5.05 mm; 4.75 mm; 4.35 mm.



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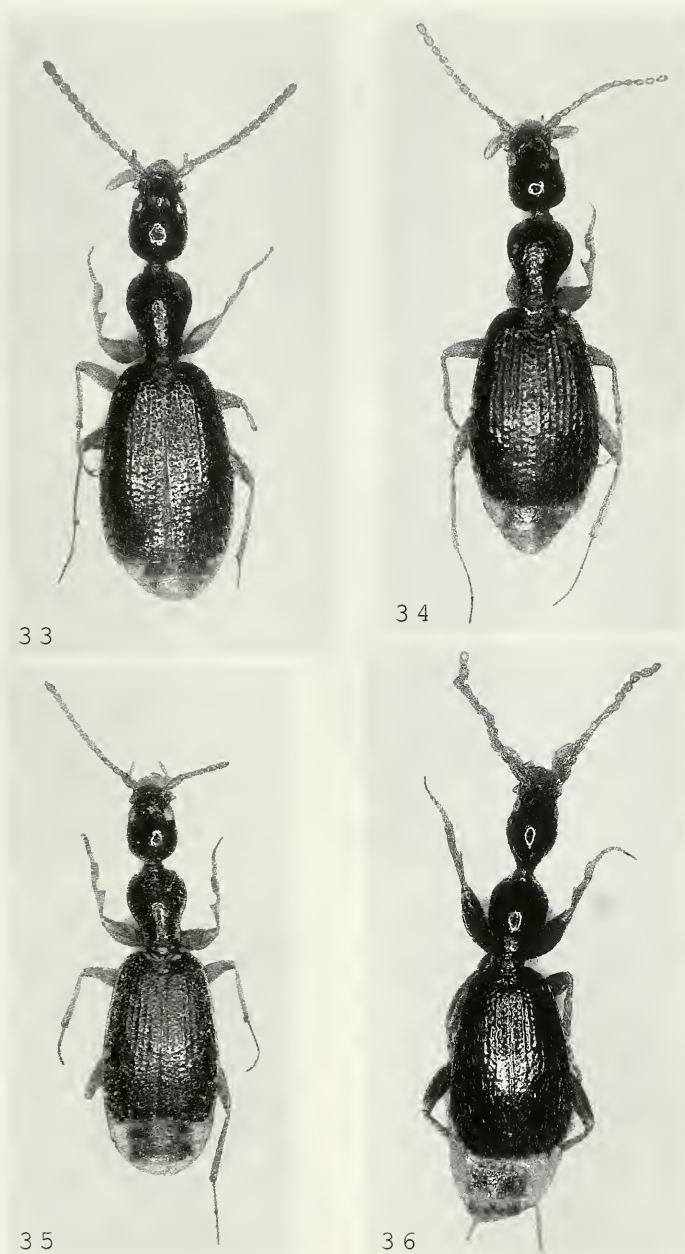
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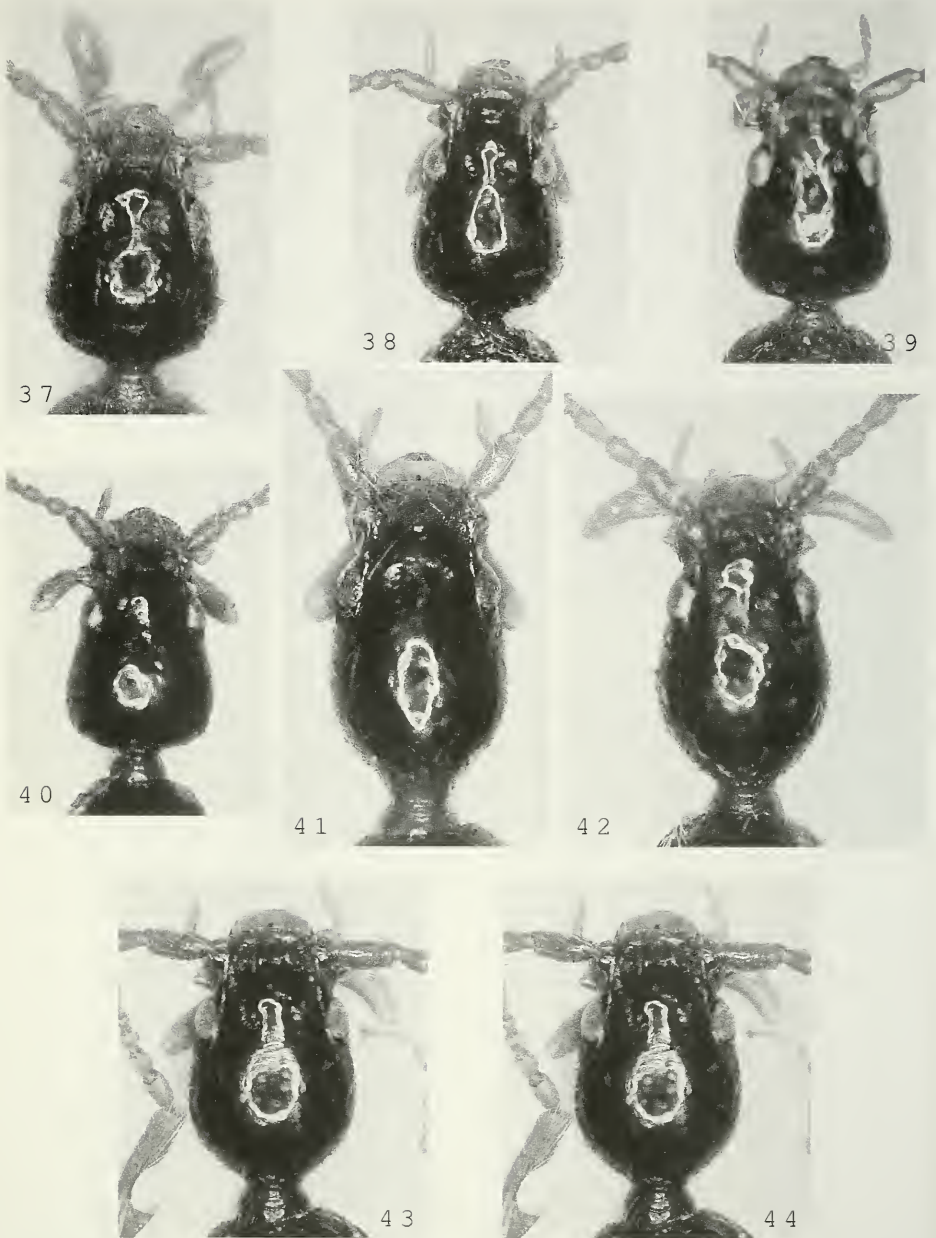
FIGS 29-32

Entire view. 29. *Gunvorita schawalleri* sp. n.; 30. *G. smetanai* sp. n.; 31. *G. uncinata* sp. n.; 32. *G. besucheti* sp. n. Lengths: 4.15 mm; 4.95 mm; 4.5 mm; 4.8 mm.



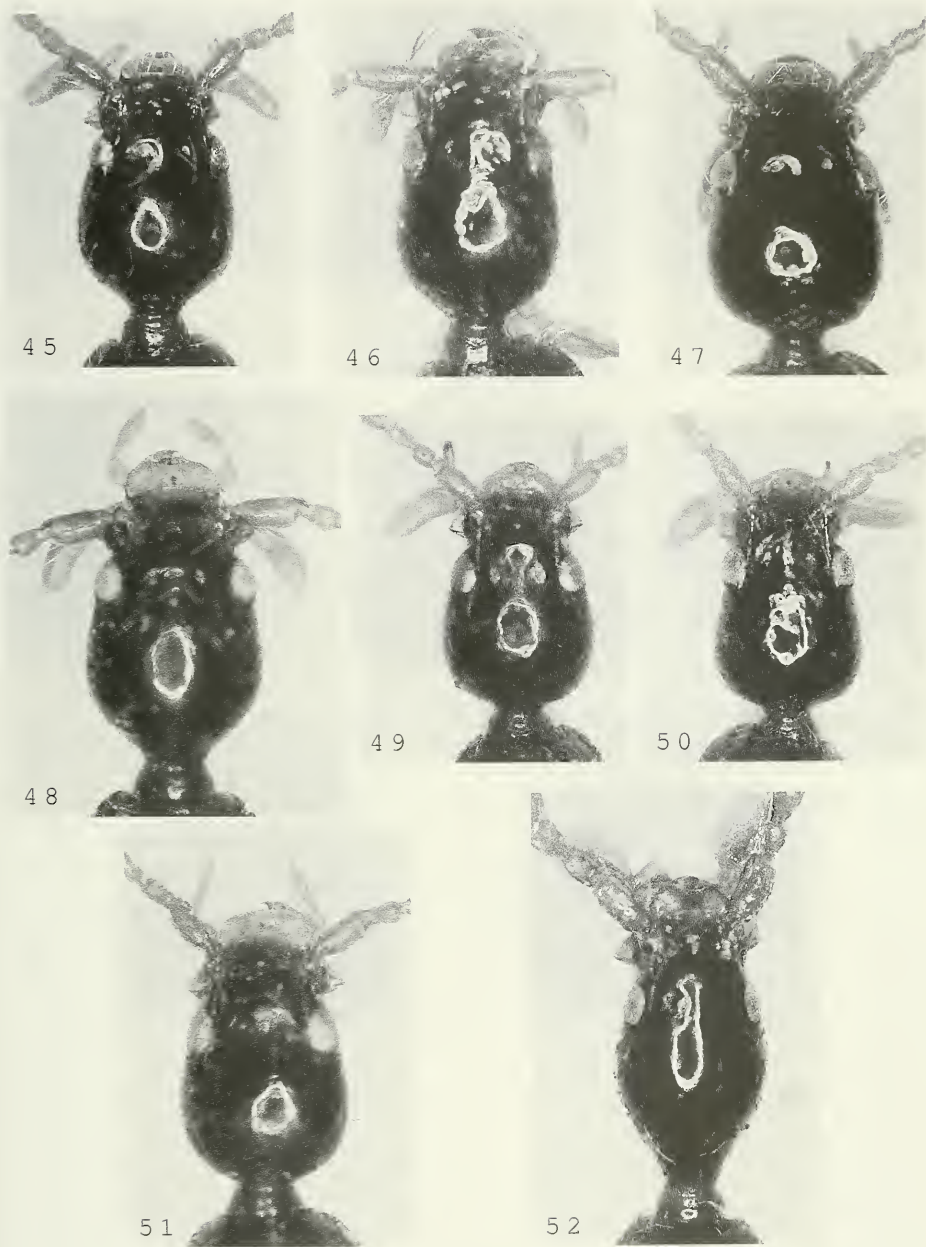
FIGS 33-36

Entire view. 33. *Gunvorita minor* sp. n.; 34. *G. punctipennis* sp. n.; 35. *G. depressipennis* sp. n.; 36. *G. angusticeps* sp. n. Lengths: 4.0 mm; 3.8 mm; 4.5 mm; 4.7 mm.



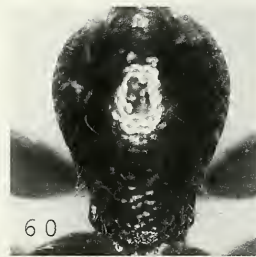
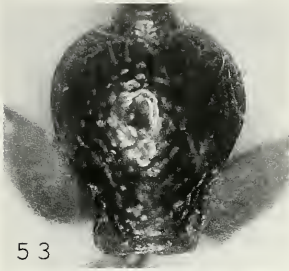
FIGS 37-44

Head. 37. *Gunvorita elegans* Landin; 38. *G. martensi* Casale; 39. *G. laeviceps* sp. n.;
G. inermis sp. n.; 41. *G. indica* Darlington; 42. *G. ovaliceps* sp. n.; 43. *G. nepalensis* sp. n.;
 44. *G. hamifera* sp. n. All figures to scale.



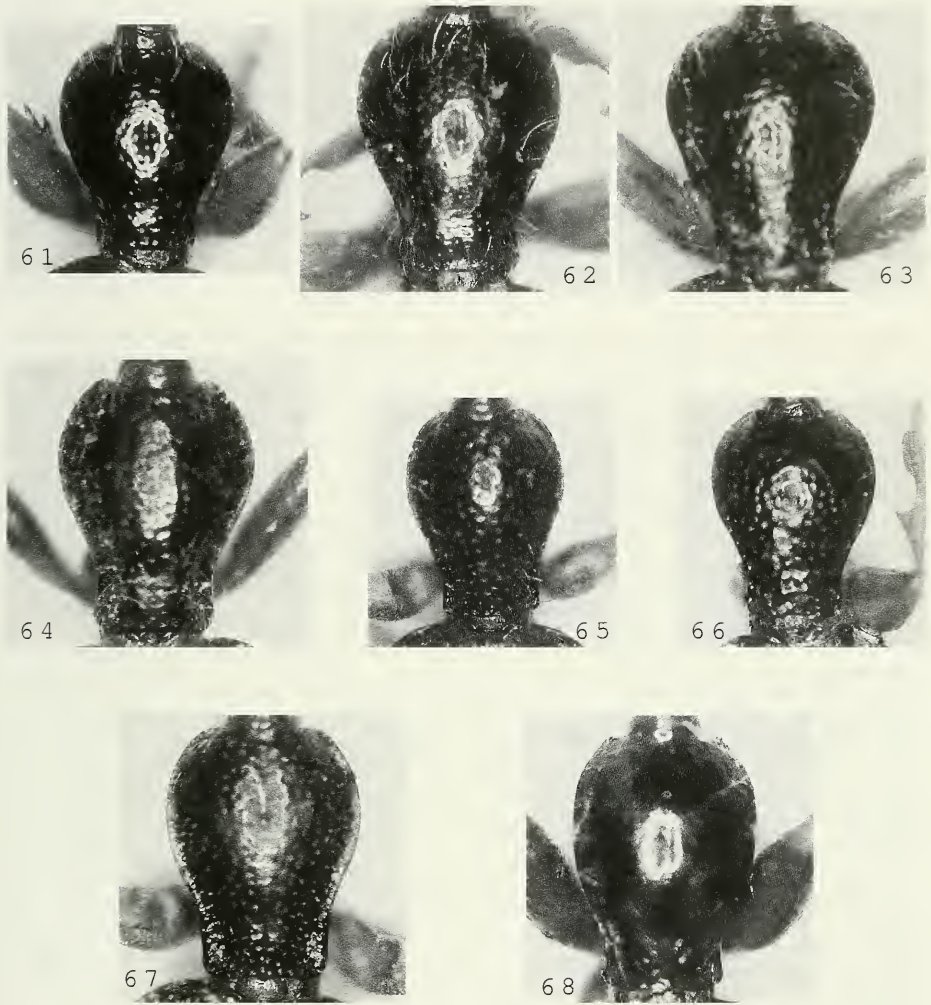
FIGS 45-52

Head. 45. *Gunvorita schawalleri* sp. n.; 46. *G. smetanai* sp. n.; 47. *G. uncinata* sp. n.; 48. *G. besucheti* sp. n.; 49. *G. minor* sp. n.; 50. *G. punctipennis* sp. n.; 51. *G. depressipennis* sp. n.; 52. *G. angusticeps* sp. n. All figures to scale.



FIGS 53-60

Prothorax. 53. *Gunvorita elegans* Landin; 54. *G. martensi* Casale; 55. *G. laeviceps* sp. n.; 56. *G. inermis* sp. n.; 57. *G. indica* Darlington; 58. *G. ovaliceps* sp. n.; 59. *G. nepalensis* sp. n.; 60. *G. hamifera* sp. n. All figures to scale.



FIGS 61-68

Prothorax. 61. *Gunvorita schawalleri* sp. n.; 62. *G. smetanai* sp. n.; 63. *G. uncinata* sp. n.; 64. *G. besucheti* sp. n.; 65. *G. minor* sp. n.; 66. *G. punctipennis* sp. n.; 67. *G. depressipennis* sp. n.; 68. *G. angusticeps* sp. n. All figures to scale.

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ALPHABETIC CHECKLIST OF THE LELEUPIDIINI FROM THE ORIENTAL AND AUSTRALIAN REGIONS

<i>Colasidia angusticollis</i> Baehr, 1988	Sarawak (Borneo)
<i>Colasidia atra</i> Baehr, 1997	Sarawak (Borneo)
<i>Colasidia attenuata</i> Baehr, 1997	Malaysia
<i>Colasidia borneensis</i> Baehr, 1997	Sabah (Borneo)
<i>Colasidia brevicornis</i> Baehr, 1988	Sarawak (Borneo)
<i>Colasidia burckhardti</i> Baehr, 1997	Sabah (Borneo)
<i>Colasidia convexior</i> Baehr, 1993	Sumatra
<i>Colasidia denticollis</i> Baehr, 1997	Sumatra
<i>Colasidia depressa</i> Berhr, 1997	Malaysia
<i>Colasidia gerardi</i> Perrault, 1982	Sabah (Borneo)
<i>Colasidia globiceps</i> Baehr, 1991	Sumatra
<i>Colasidia helvetorum</i> Baehr, 1997	Sumatra
<i>Colasidia kokodae</i> Baehr, 1991	Papua New Guinea
<i>Colasidia lagadiga</i> (Morvan, 1994)	Malaysia
<i>Colasidia laticeps</i> Baehr, 1997	Sabah (Borneo)
<i>Colasidia loebli</i> Baehr, 1997	Malaysia
<i>Colasidia lustrans</i> Baehr, 1991	Sumatra
<i>Colasidia macrops</i> Baehr, 1990	Sarawak (Borneo)
<i>Colasidia madang</i> Darlington, 1971	Papua New Guinea
<i>Colasidia malayica</i> Basilewsky, 1954	Malaysia
<i>Colasidia mateui</i> Baehr, 1997	Sabah (Borneo)
<i>Coladisia monteithi</i> Baehr, 1987	Queensland (Australia)
<i>Colasidia oviceps</i> Baehr, 1997	Malaysia
<i>Colasidia papua</i> Darlington, 1971	Papua New Guinea
<i>Colasidia pumila</i> Baehr, 1990	Sarawak (Borneo)
<i>Colasidia riedeli</i> Baehr 1990	Sarawak (Borneo)
<i>Colasidia rougemonti</i> (Morvan, 1994)	Malaysia
<i>Colasidia similis</i> Baehr 1997	Sumatra
<i>Colasidia taylora</i> Baehr 1988	Sarawak (Borneo)
<i>Coladisia triangularis</i> Baehr, 1997	Malaysia
<i>Gunvorita angusticeps</i> sp. n.	East Nepal
<i>Gunvorita besucheti</i> sp. n.	Northeast India
<i>Gunvorita depressipennis</i> sp. n.	Northeast India
<i>Gunvorita elegans</i> Landin, 1955	East Nepal, Sikkim, Northeast India
<i>Gunvorita hamifera</i> sp. n.	East Nepal
<i>Gunvorita indica</i> Darlington, 1971	Northeast India
<i>Gunvorita inermis</i> sp. n.	Northeast India
<i>Gunvorita laeviceps</i> sp. n.	Northeast India
<i>Gunvorita martensi</i> Casale, 1985	East Nepal
<i>Gunvorita minor</i> sp. n.	Northeast India

<i>Gunvorita nepalensis</i> sp. n.	Central Nepal
<i>Gunvorita ovaliceps</i> sp. n.	Northeast India
<i>Gunvorita puuctipeuis</i> sp. n.	East Nepal
<i>Gunvorita schawalleri</i> sp. n.	East Nepal
<i>Gunvorita smetanai</i> sp. n.	Central Nepal
<i>Gunvorita unciuata</i> sp. n.	East Nepal
<i>Paraleleupidia besucheti</i> Mateu, 1981	South India
<i>Paraleleupidia linearis</i> Baehr, 1990	South India
<i>Paraleleupidia loebli</i> Mateu, 1981	South India

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**Redescription of *Hymenolepis hoploporus* Dollfus, 1951,
with the erection of the new genus *Dollfusilepis*
(Cestoda, Hymenolepididae)**

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Redescription of *Hymenolepis hoploporus* Dollfus, 1951, with the erection of the new genus *Dollfusilepis* (Cestoda, Hymenolepididae). - The monotypic genus *Dollfusilepis* is erected for *Hymenolepis hoploporus* Dollfus, 1951, until now known only from *Podiceps cristatus* (Aves, Podicipedidae) in Morocco. *D. hoploporus* comb. n. is recorded from the same host species in Bulgaria and Switzerland (new geographical records). The cestodes identified by JOYEUX & BAER (1950) as *Hymenolepis capillaris* are recognized as *D. hoploporus*. The species is redescribed based on specimens from Bulgaria, Switzerland and syntypes from Morocco. Among the genera of the family Hymenolepididae, the new genus *Dollfusilepis* is unique by the peculiar structure of the genital apparatus presented by a protrusible poral part of the cirrus-sac armed with a crown of refractive, baton-like spines.

Key-words: *Dollfusilepis* gen. n. - *Dollfusilepis hoploporus* comb. n. - Hymenolepididae - Cestoda - *Podiceps cristatus* - Bulgaria - Switzerland - Morocco.

INTRODUCTION

Hymenolepis hoploporus Dollfus, 1951 was described from the intestine of *Podiceps cristatus* (L.) in Morocco. Up to now, there were no other records of this species. Recently, it was found in three specimens of *P. cristatus* during faunistic studies on cestodes from grebes from the Bulgarian coast of the Black Sea. The material consisted only of strobilar fragments and, therefore, for the purposes of more reliable identification, they were compared with types from the collection of the Muséum National d'Histoire Naturelle, Paris.

On the other hand, in the course of taxonomic revision of hymenolepidid cestodes from Palaearctic grebes, we reexamined specimens of JOYEUX & BAER (1950) from the collection of the Muséum d'histoire naturelle in Geneva. The cestodes identified as *Hymenolepis capillaris* (Rudolphi, 1810) were found to closely resemble *H. hoploporus*.

The aim of the present paper is to redescribe *Hymenolepis hoploporus* on the basis of specimens from Bulgaria, Morocco and Switzerland and to clarify its generic allocation. On this basis, *Dollfusilepis* gen. n. is proposed for it.

MATERIALS AND METHODS

Specimens of *Dollfusilepis hoploporus* were collected from the small intestine of three birds of *Podiceps cristatus*. The grebes were captured at the village of Krapec, on northern part of the Bulgarian Black Sea coast.

Cestodes were isolated from intestines alive, relaxed in tap water, fixed in 10% formalin solution and preserved in 70% ethanol. Specimens were stained in iron acetocarmine, dehydrated in alcoholic series, cleared in eugenol and mounted in Canada balsam. The material examined from Bulgaria consists of about 30 fragments of strobila in different stages of development, stained and mounted in Canada balsam (total 10 slides); scoleces were not found. Voucher specimens (2 slides) are deposited in the Muséum d'histoire naturelle, Geneva, Nos 23,629 INVE and 23,630 INVE.

Comparative material: the following syntypes and voucher specimens were studied:

- from the collection R.-Ph. Dollfus, Muséum National d'Histoire Naturelle, Paris, syntypes, from intestine of *Podiceps cristatus*, 16 October 1926, Rabat Sale, Morocco (2 slides, whole mounts): 1 slide containing stained fragments of strobila; 1 slide containing a scolex.
- from the collection of the Muséum d'histoire naturelle, Geneva, Nos 089/035-037, specimens identified as *Hymenolepis capillaris* (Rudolphi, 1810) and mentioned by JOYEUX & BAER (1950), from intestine of *Podiceps cristatus*, Neuchâtel (3 slides, whole mounts): 1 slide containing a stained single specimen and several additional fragments of strobila; 1 slide containing stained strobilar fragments; 1 slide containing scolex.

The measurements of the cirrus-sac, the external seminal vesicle and the seminal receptacle were taken from mature proglottides.

The metrical and meristic data are given as the range, the mean in parentheses and the number of measurements or counts taken (n). The measurements are given in micrometers unless otherwise stated.

DESCRIPTIONS

Dollfusilepis gen. n.

Strobila protandrous, slender. Scolex round. Rostellar apparatus musculo-glandular. Rostellum armed with single crown of ten hooks. Each rostellar hook consisting of aploparaksoïd refractive particle and epiphyseal thickening of handle. Suckers round, unarmed. Proglottides craspedote, wider than long. Inner longitudinal muscle bundles numerous. Genital pores unilateral. Genital ducts dorsal to osmoregulatory canals. Testes three, arranged in triangle, usually one of them parally to female primordia. External seminal vesicle oval or elliptical. Internal seminal vesicle large, elliptical. Cirrus-sac elongate, reaching mid-line of proglottis, often extending

to antiporal osmoregulatory canals. Poral end of cirrus-sac protrusible, provided with basal crown of baton-like refractive spines. Cirrus narrow, unarmed. Accessory sac and stylet lacking. Female glands disposed antiporally. Ovary with three compact lobes. Vitellarium oval, compact. Seminal receptacle voluminous, elliptical. Vagina with funnel-shaped, thick-walled, muscular copulatory part, surrounded with cellular sleeve and thin, tubular conductive part. Uterus sac-like, situated anteriorly and dorsally to female glands.

Specific parasites of *Podiceps cristatus* (Podicipedidae). Palearctic.

Type-species: *Hymenolepis hoploporus* Dollfus, 1951.

Dollfusilepis hoploporus (Dollfus, 1951) comb. n.

(Figs 1-16)

Hymenolepis (*Weinlandia*) *hoploporus* DOLLFUS, 1951

Dubininolespis hoploporus (Dollfus, 1951) YAMAGUTI 1959

Variolespis hoploporus (Dollfus, 1951) SCHMIDT 1986

Hymenolepis capillaris (Rudolphi, 1810), JOYEUX & BAER (1950).

DESCRIPTION OF SPECIMENS FROM BULGARIA (Figs 1-6: for some measurements see Table I): Strobila slender, band-like, with maximum width at post-mature proglottides. Proglottides (Figs 1-3) craspedote, always wider than long. Inner longitudinal muscle bundles more than 40. Genital pores unilateral, situated at about middle of lateral proglottis margin. Genital atrium (Figs 4-5) deep, funnel-shaped, thick-walled; divides into two separate canals: male and female. Atrium surrounded with intensely stained cells; when the cirrus is evaginated, atrium forming short genital papilla. Ventral and dorsal osmoregulatory canals without transverse anastomoses. Diameter of ventral osmoregulatory canals 18-36 (26, n=10), diameter of dorsal osmoregulatory canals 3-5 (5, n=10). Genital ducts dorsal to osmoregulatory canals.

Strobila protandrous. Testes (Fig. 1) three, compact, oval, situated in triangle, one poral, two antiporal to vitellarium. External seminal vesicle elliptical or oval, situated dorsally to female glands, near to antiporal osmoregulatory canals. Cirrus-sac (Figs 1-2) thin-walled, highly elongate, crossing mid-line of proglottis and often extending to antiporal osmoregulatory canals. Intensely stained cells surrounding ductus ejaculatorius. Internal seminal vesicle very long, fills up almost 2/3 of cirrus-sac. Poral end of cirrus-sac (Figs 4-6) protrusible, cylindrical when everted, forming wide ductus when withdrawn; provided with basal crown of baton-like refractive spines; number of spines 30-35 (34, n=7), their length 6-7 (7, n=5). Evaginated cirrus (Fig. 6) thin, almost cylindrical, unarmed.

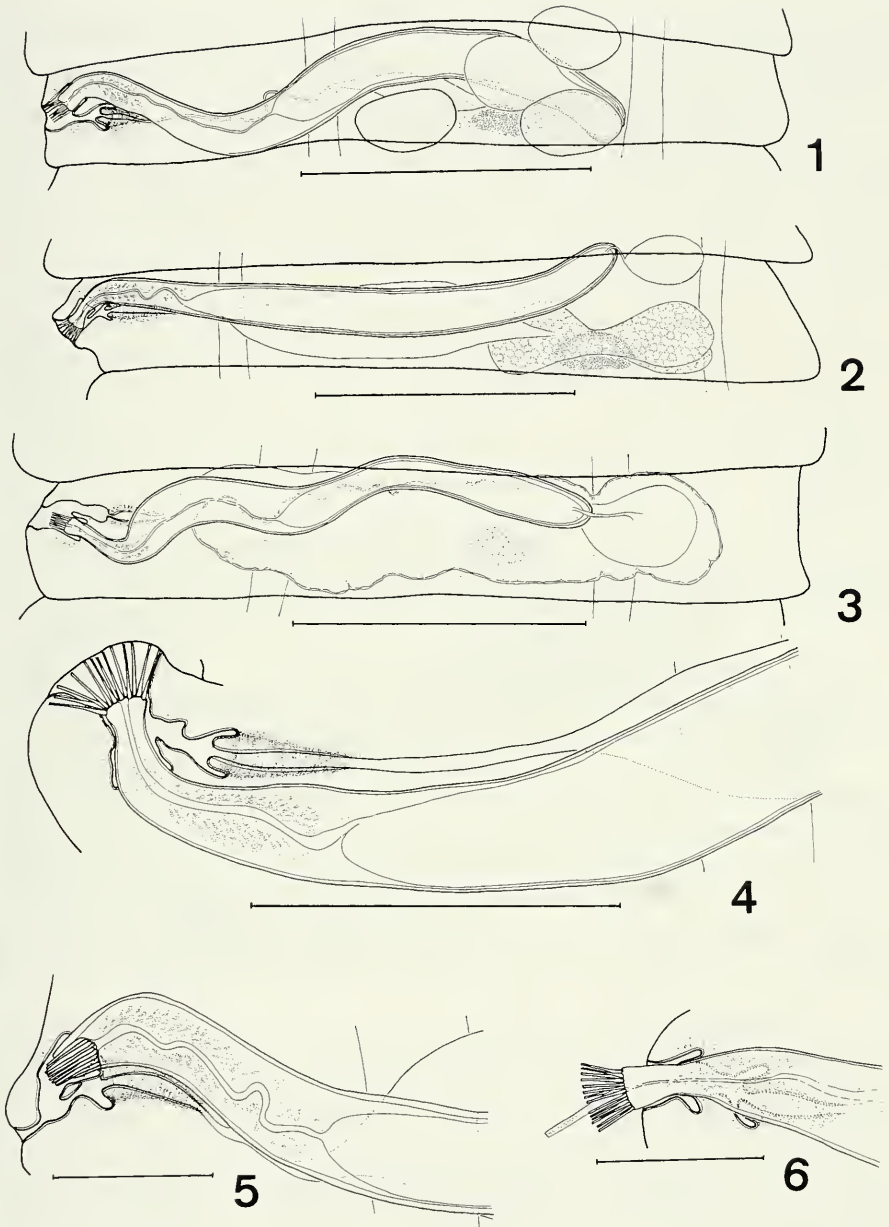
Female genital organs (Fig. 2) disposed antiporally. Ovary consisting of three compact lobes. Vitellarium compact, elliptical or oval, situated postero-ventrally to ovary. Seminal receptacle (Fig. 2) voluminous, transversely elongate, situated ventrally to cirrus-sac and dorsally to ovary. Vagina (Figs 4-5) opens on protrusible base of female atrial canal, often forming tiny papilla; vaginal orifice thick-walled, infundibular, with diameter 8-10 (8, n=10). Position of female atrial canal and vaginal orifice

TABLE I
 Metrical and meristic data for *Dollfusilepis hoploporus* (Dollfus) comb. n.

Locality Source	Bulgaria Present study			Morocco Dollfus (1951)	Morocco Present study			Neuchâtel Present study		
	Range	Mean	n	Range	Range	Mean	n	Range	Mean	n
Strobila:										
length (mm)	—	—	—	70	40	—	1	26.0	—	1
width (mm)	—	—	—	1	0.6	—	1	0.3	—	1
Scolex:										
length	—	—	—	—	—	—	—	188	—	1
width	—	—	—	155	170	—	1	142	—	1
Suckers: diameter										
	—	—	—	—	—	—	—	44-52	49	4
Rostellum:										
length	—	—	—	—	—	—	—	62	—	1
width	—	—	—	—	—	—	—	39	—	1
Rostellar sheath:										
length	—	—	—	—	—	—	—	104	—	1
width	—	—	—	—	—	—	—	64	—	1
Rostellar hooks:										
total length	—	—	—	20-21	20-21	20	4	20-21	21	4
length of blade	—	—	—	—	10-11	11	4	10-11	10	3
Testes: diameter										
	26-34	30	30	25-30	31-36	33	10	31-39	37	20
Cirrus-sac:										
length	180-232	203	20	170	160-186	173	10	216-238	229	20
width	13-23	20	20	20	18-23	22	10	23-31	27	20
Ext. seminal vesicle:										
length	31-64	41	20	—	41-67	57	10	62-129	85	15
width	21-39	26	20	—	31-46	36	10	44-59	53	15
Vitellarium:										
length	36-41	38	15	—	57-77	66	10	41-46	45	10
width	18-23	20	15	—	41-46	43	10	28-34	31	10
Seminal receptacle:										
length	90-121	106	15	—	90	—	1	129-162	147	10
width	31-41	35	15	—	34	—	1	39-52	43	10

to male pore not constant, usually posterior, often anterior or lateral. Copulatory part of vagina fusiform, thick-walled, muscular, 18-23 (20, n=10) long, surrounded by cellular sleeve. Conductive part tubular, slender, straight or slightly convoluted.

Developing uterus (Fig. 3) sac-like, transversely elongate, situated dorsally to female glands and osmoregulatory canals; passing beyond osmoregulatory canals. Proglottides with fully-developed uterus and ripe eggs not available.



FIGS 1-6

Dollfusilepis hoploporus (Dollfus, 1951) gen. n., comb. n., specimens from Bulgaria: 1-2, mature proglottides; 3, proglottis with developing uterus; 4-5, terminal genital ducts; 6, evaginated cirrus. Scale-bars: 1-3 = 100 μ m; 4 = 50 μ m; 5-6 = 25 μ m.

OBSERVATIONS ON SYNTYPES (Figs 7-11; for some measurements see Table I): Most of the current observations are in agreement with the original description (DOLLFUS 1951) and, therefore, an entire redescription of the syntypes will not be given. The few details presented below extend or correct the original data.

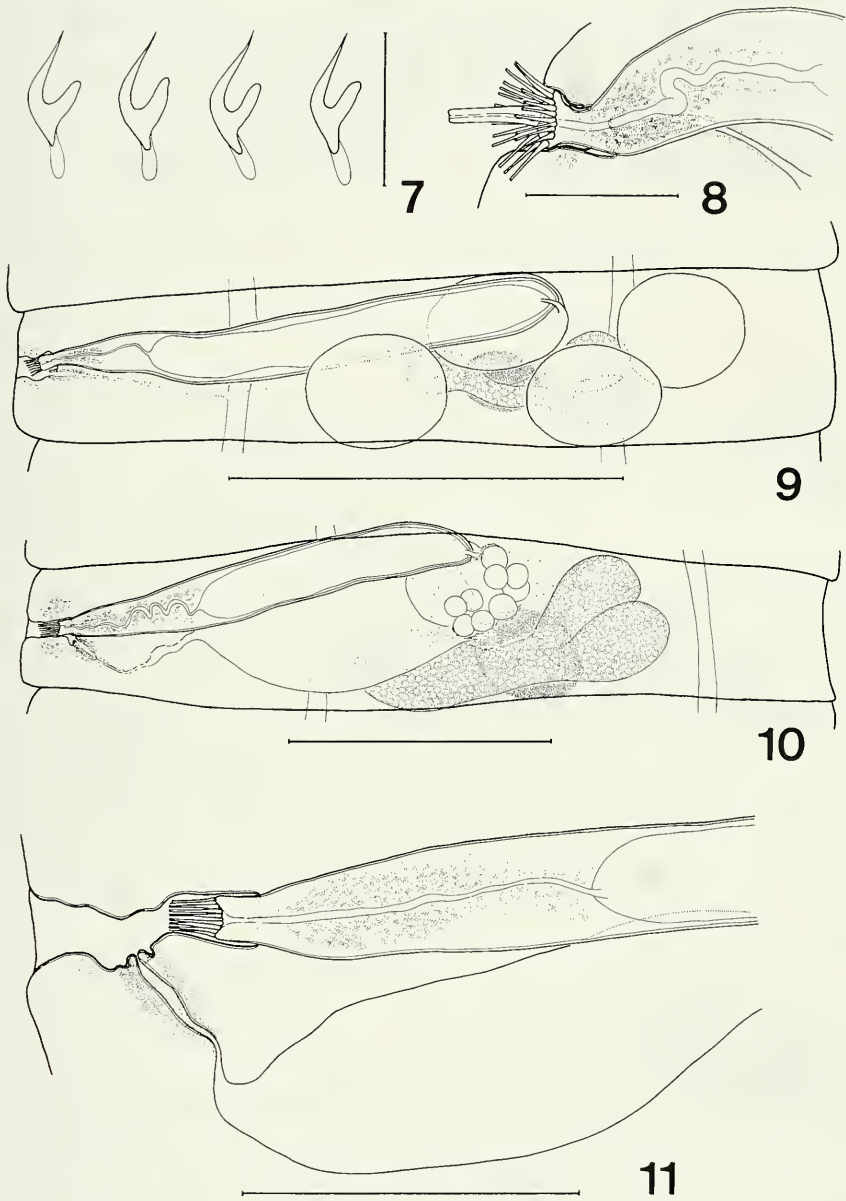
The position of the scolex in the slide does not permit us to characterize the structure of the suckers, the rostellum and the rostellar sheath. Rostellar hooks in number 10, with aploparaksoid refractive particle (Fig. 7) with length 16 (n=4); epiphyseal thickening of handle present; distance between handle-tip (of whole hook) and guard-tip 14 (n=4); distance between blade-tip and guard-tip 6-7 (7, n=4). Strobila fragmented. Testes (Fig. 9) arranged in triangle. External seminal vesicle oval. Cirrus-sac (Figs 9-10) crossing mid-line of proglottis; ductus ejaculatorius (Fig. 8) surrounded by intensely stained cells. Crown of baton-like, refractive spines on poral protrusible part of cirrus-sac (Fig. 8). Internal seminal vesicle very large, occupying almost 2/3 of cirrus-sac. Evaginated cirrus (Fig. 8) thin, almost cylindrical, unarmed. Ovary (Fig. 10) disposed antiporally, consisting of three compact lobes. Vitellarium well-visible, oval or elliptical, compact, postovarian. Seminal receptacle very large, situated postero-ventrally to cirrus-sac, dorsally to ovary. Young uterus (Fig. 10) sac-like, with poorly visible walls, situated anteriorly and dorsally to ovary. Developing uterus transversely elongate, crossing osmoregulatory canals dorsally. Proglottides with fully developed uterus and eggs not available.

OBSERVATION ON SPECIMENS FROM SWITZERLAND (Figs 12-16; for some measurements see Table I): Few details, mainly referring to the morphology of the scolex (lacking in the Bulgarian material and in poor condition in the syntypes), are presented below.

Scolex (Fig. 12) round, with maximum width at level of suckers. Suckers round, unarmed. Rostellum ovoid, with well-developed musculature; intensely stained cells situated in it. Rostellar sheath with weakly-developed musculature of walls, usually passing beyond posterior margin of suckers. Intensely stained cells present in rostellar sheath. Rostellar hooks (Fig. 13) with epiphyseal thickenings of handle; length of aploparaksoid refractive part 16-17 (n=2); distance between handle-tip (of whole hook) and guard-tip 14 (n=2); distance between blade-tip and guard-tip 8 (n=2).

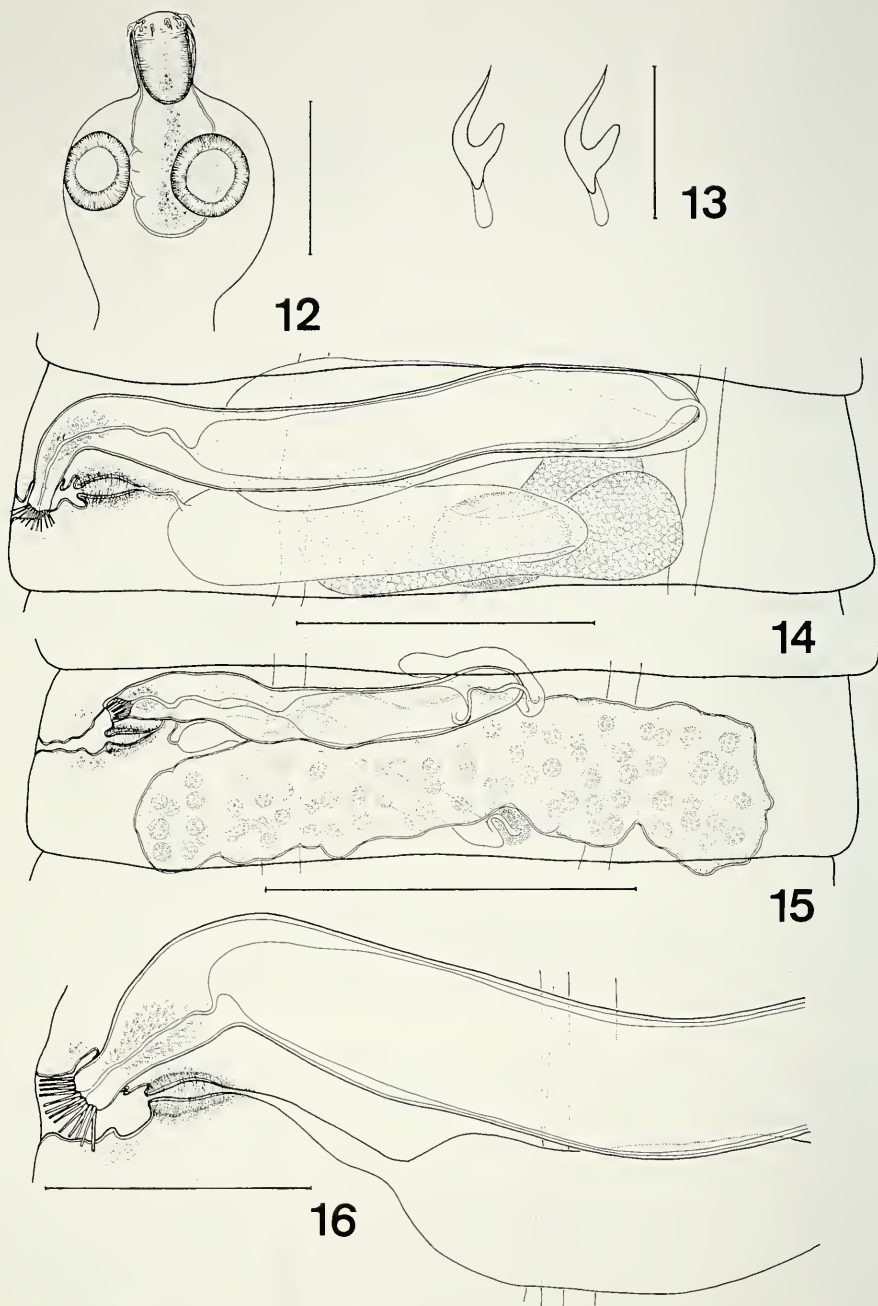
Diameter of ventral osmoregulatory canals 8-18 (12, n=10), diameter of dorsal osmoregulatory canals 3-8 (5, n=10). Genital atrium (Fig. 16) deep, antiporally divided into two separate canals. Cirrus-sac (Figs 14-15) thin-walled, highly elongate, crossing mid-line of proglottis and often extending to antiporal osmoregulatory canals. Poral part of cirrus-sac (Fig. 16) protrusible, armed with crown of baton-like spines. Cirrus thin, unarmed. Female genital glands disposed antiporally. Copulatory part of vagina (Fig. 16) with strong circular musculature. Proglottides with fully-developed uterus and ripe eggs not available.

COMMENTS: Initially, these cestodes were recorded from *Podiceps cristatus* from the Lake of Neuchâtel and identified as *Hymenolepis capillaris* (Rudolphi, 1810) by JOYEUX & BAER (1950). Their conclusion was based mainly on the morphology of the



FIGS 7-11

Dollfusilepis hoploporus (Dollfus, 1951) gen. n., comb. n., syntype specimens: 7, rostellar hooks; 8, evaginated cirrus; 9, young mature proglottis; 10, mature proglottis with early stage of uterine development; 11, terminal genital ducts. Scale-bars: 7-8 = 20 μ m; 9 = 150 μ m; 10 = 100 μ m; 11 = 50 μ m.



FIGS 12-16

Dollfusilepis hoploporus (Dollfus, 1951) gen. n., comb. n., specimens from Switzerland: 12, scolex; 13, rostellar hooks; 14, mature proglottis; 15, proglottis with developing uterus; 16, terminal genital ducts. Scale-bars: 12, 14 = 100 μ m; 13 = 20 μ m; 15 = 150 μ m; 16 = 50 μ m.

rostellar hooks as described and figured by KRABBE (1869) (Pl. VII, Fig. 179). JOYEUX & BAER (1950) presented brief data about the morphology of the proglottides but did not describe the structure of the copulatory apparatus. By courtesy of Dr B. Neuhaus, we had the opportunity to reexamine the type-material of *H. capillaris* from the collection of the Naturkunde Museum, Berlin; its redescription, together with redescriptions of other species of the genus *Confluaria* Ablasov, will be subject of another publication (Vasileva, in preparation). In spite of the similar shape of the rostellar hooks, the morphology of the genital system of *C. capillaris* is very different from that of the cestodes from the Lake of Neuchâtel. As seen from the above description, this material should be referred to *D. hoploporus*.

DISCUSSION

The comparison of the present results about the morphology of *Hymenolepis hoploporus* with the hymenolepidid genera as characterized by CZAPLINSKI & VAUCHER (1994) reveals that this species is unique in the peculiar morphology of its male copulatory apparatus, which possesses a protrusible poral part of the cirrus-sac armed with a crown of baton-like spines.

The morphology of *H. hoploporus* fits to a group of avian hymenolepidid genera characterized by three testes, a rostellum armed with a single crown of 10 hooks and lacking an accessory sac and a cirrus-stylet. According to CZAPLINSKI (in CZAPLINSKI & VAUCHER 1994), this group includes *Nadejdolepis* Spasskii & Spasskaya, 1954, *Microsomacanthus* Lopez-Neyra, 1942, *Matiarensis* Dixit & Capoor, 1986, *Parafimbriaria* Voge & Read, 1954, *Confluaria* Ablasov in Spasskaya, 1966 and *Wardium* Mayhew, 1925.

Hymenolepis hoploporus cannot be included in any of these genera. Its rostellar hooks are with an aploparaksoid refractive particle and possess well differentiated epiphyseal thickening of the handle whilst the species of the genera *Nadejdolepis* and *Microsomacanthus* have nitidoid and diorchoid hooks, respectively. The species belonging to *Wardium* also have 10 aploparaksoid hooks but without epiphyseal thickenings (CZAPLINSKI, in CZAPLINSKI & VAUCHER 1994). The genus *Matiarensis* is characterized by the presence of 4 accessory apical suckers. The species of *Parafimbriaria* lack external segmentation of the strobila.

The species of *Confluaria*, especially *C. capillaris*, most closely resemble *H. hoploporus*. They are also parasites of grebes and also have ten aploparaksoid hooks with epiphyseal thickenings, a tri-lobed ovary and a sac-like uterus. However, they are characterized by a long, cylindrical or claviform cirrus, armed usually with different types of spines: sparse, rose-thorn shaped spines at distal part of cirrus and dense, minute, needle-shaped spines at its basal part. *H. hoploporus* has a different structure of the copulatory apparatus. The genital atrium of the species of *Confluaria* is simple, whilst in *H. hoploporus* it is thick-walled and antiporally divided into two separate canals, male and female. The cirrus-sac of *Confluaria* spp. rarely crosses the mid-line of the proglottis, whilst that of *H. hoploporus* is very long, often extending to the antiporal osmoregulatory canals. These morphological peculiarities, in addition to

the armed protrusible poral part of the cirrus-sac, are not observed in species of *Confluaria*. Furthermore, *H. hoploporus* possesses numerous inner longitudinal muscle bundles; in contrast, *Confluaria* spp. are characterized with only 8 bundles (CZAPLINSKI, in CZAPLINSKI & VAUCHER 1994).

In addition, the genera *Microsomacanthus* and *Wardium* as defined by CZAPLINSKI (in CZAPLINSKI & VAUCHER 1994) seem to be heterogeneous groups. Therefore, the new genus has also to be distinguished from some of the genera believed to be their synonyms, especially those parasitizing aquatic birds and possessing, to some extent, similar morphological characters. The genus *Anserilepis* Spasskii & Tolkacheva, 1965 (type-species *Hymenolepis barrowensis* Schiller, 1952 from Anseriformes in Alaska and Siberia), as characterized by SPASSKII & TOLKACHEVA (1965), has 10 diorchoid hooks, female gonads situated antiporally to testes, and a cirrus armed with spines of three different shapes. *Dubinolepis* Spasskii & Spasskaya, 1954 (type-species *Hymenolepis fuhrmanni* Skrjabin and Matevosyan, 1942 from Gaviiformes and Podicipediformes in North America) is characterized by 8 inner longitudinal muscle bundles, a highly elongate rostellum, a deep rostellar pouch and rostellar hooks without epiphyseal thickenings (SPASSKAYA 1966). The species of *Echinatrium* Spasskii & Yurpalova, 1965 (type-species *E. skriabini* Spasskii & Yurpalova, 1965 from Anseriformes in Chukotka) possess 8 inner longitudinal muscle bundles and very deep genital atria (occupying almost one-fifth of the proglottis width) with spinose bases (SPASSKAYA 1966; TOLKACHEVA 1971). The genus *Laricanthus* Spasskii, 1963 (type-species *L. lateralis* (Mayhew, 1925) from Laridae) is characterized by 10 diorchoid rostellar hooks, a fan-shaped, multilobate ovary, a pyriform thick-walled cirrus-sac and highly muscular vagina (SPASSKAYA 1966). *Oshmarinolepis* Spasskii & Spasskaya, 1954 (type-species *O. microcephala* (Rudolphi, 1919) from Ardeidae) has testes situated in both median and lateral fields of the proglottis, 8 inner longitudinal muscle bundles and a strong, spherical genital atrium which may form a prominent genital papilla (SPASSKAYA 1966). *Chelacanthus* Yamaguti, 1959 (type-species *C. parviceps* (von Linstow, 1872) from birds of the tribe Mergini, Anatidae) possesses an armed vagina and a rosette-shaped ovary (YAMAGUTI 1959). *Decacanthus* Yamaguti, 1959 (type-species *D. arcticus* (Schiller, 1955) from Anseriformes in Alaska) has a rather short cirrus-sac which does not reach the median line of the proglottis, an ovary with "numerous digitiform lobules" and a vagina forming a characteristic loop (YAMAGUTI 1959). *Lobatolepis* Yamaguti, 1959 (type-species *L. lobulata* (Mayhew, 1925) from Podicipedidae in North America) has a rostellum provided with knob-like enlargement with 8-11 deep marginal lobes, each lobe bearing a rose-thorn rostellar hook, a rather short cirrus-sac and a transversely elongate ovary (YAMAGUTI 1959). None of the characters mentioned occurs in *H. hoploporus* and it cannot be placed, therefore, in any of the above discussed genera.

CZAPLINSKI (1967) redescribed *Wardoides nyrocae* (Yamaguti, 1935) from *Cygnus olor* (Gmelin) in Poland. This species is characterized by a thin cirrus with an unarmed base. According to CZAPLINSKI (1967), "the bottom of the genital atrium is armed with very small hair-like hooks; when the genital atrium is protruded... has the

shape of a surrounded hat..." (see Fig. 3 of CZAPLINSKI 1967). This structure of the genital atrium, mentioned also by YAMAGUTI (1935) in the original description of this species, is similar to the male copulatory apparatus of *H. hoploporus*. However, the armed, protrusible "hat-like" papilla of *W. nyrocae* is formed by the bottom of the genital atrium; in contrast, in *H. hoploporus* the poral part of the cirrus-sac is armed and forms a similar protrusible papilla. In the original description of *H. hoploporus*, DOLLFUS (1951) also regarded baton-like spines as an armament of the genital atrium.

On the basis of the above comparisons, the new monotypic genus *Dollfusilepis* is proposed for *H. hoploporus*.

Up to now, *D. hoploporus* has been recorded only from *P. cristatus* in three regions of the Palaearctic. Therefore, it can be supposed to be a specific parasite of this grebe species.

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A new Cyprinodont species with a uniquely-colored female, *Aphyosemion hera* n. sp. (Cyprinodontiformes, Pisces), from northwestern Gabon

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A new Cyprinodont species with a uniquely-colored female, *Aphyosemion hera* n. sp. (Cyprinodontiformes, Pisces), from northwestern Gabon.- A new species of *Aphyosemion* is described from a single locality about 45 km northeast from Lambaréné, within the primary forest of northwestern Gabon. Together with some distinctive characters (the opposite insertion of dorsal fin to anal fin, a non mood-dependant broad dark longitudinal band), present in both sexes, the new species exhibits, in the female, a bright apple yellow to gold yellow coloration on belly and strong red pigments on sides and fins. On the contrary, females of the genus, encompassing over 120 species, are usually drab light brown with few markings. The systematic position is discussed: it is rather obscure since it does not fall into one of the eleven subgenera, as presently diagnosed.

Key-words: Pisces - Cyprinodont - *Aphyosemion* - new species - N.-W. Gabon.

INTRODUCTION

The prospection of the species of the West African genus *Aphyosemion* can be today regarded as satisfactory, numerous expeditions, mainly by enthusiastic aquarists, having been organised throughout its range since the late sixties. For example, in Gabon, a small equatorial country of 268 000 square kilometers, more than 210 localities for *Aphyosemion* have been registered (HUBER 1996). The main obstacle, then, to discover a new species is the inaccessibility of large regions, like the northern Du-Chaillu mountains in central Gabon. Another factor is obviously hazard and this is what happens in the present case: the concerned area has been prospected several times, including by Radda and ourselves in 1976 and only *A. gabunense* Radda, 1975 was collected.

The new species has been discovered by two Swiss experienced killi-hobbyists (i.e. aquarists specialized in oviparous Cyprinodonts), Mr Hermann Romer and

Mr René Krumenacker in July 1996: the fish were rare in their biotope. Further, because of the raised interest, it has been recollected at the same place by two Americans, Mr Peter Tirbak and Mr Vladimir Derugin and one German, Mr Andreas Kliesch, also keen aquarists, in February 1997, even in smaller numbers (only 3 fishes about 15 mm long: Kliesch, comm. pers.). However, the fish were not found despite strong efforts by a third expedition in August 1997 at the same location and in the surroundings.

DESCRIPTION OF *Aphyosemion hera* n. sp.

(male, fig. 1 and female, fig. 2: not preserved topotypes).

M a t e r i a l : Holotype: MHNG 2590.64, a male of 31.4 mm S.L. and 37.5 mm T.L., R. Krumenacker and H. Romer, coll. July 27, 1996.

Paratypes: MHNG 2590.65, a female of 29.2 mm S.L. and 35.4 mm T.L.; MNHN 1997-184, 2 males, MNHN 1997-185, 4 females, USNM 347463, 3 specimens and BMNH 1998.1.21: 1-2-3, 3 specimens, all collected with the holotype; all maintained a few months in aquarium, except the USNM and the BMNH material which is from the F1 aquarium generation.

TYPE LOCALITY: Gabon, 45 km northeast of Lambaréné (starting point: the bridge over the Ogooué river in the city) on the road to Bifoun, near Benguié, lower Ogooué basin. Geographical coordinates in degrees and hundredths: 0.47S, 10.32E. At this point, the Ogooué river flows less than 10 km away to the east; the Mbiné river, one of its tributary is about the same distance away to the west.

DIAGNOSIS: *Aphyosemion hera* is a medium-sized species with a strong sexual dimorphism and dichromatism: the female is not subdued, as usual in the genus, but well specifically colored. The new species is besides diagnosed by the opposite insertion of the vertical fins ($D/A = +0.4$, average), by the asymmetrical pattern of the vertical and caudal fins in male, by the rare, in non annual species, trilobate caudal shape in male and by the deep anal fin in female; in addition, the longitudinal dark mid-band of the young male and the female at all stages is permanent and does not depend on mood, like the one seen in some other species, especially those of the subgenus *Kathetys* Huber, 1977.

Methods of measurements and counting have been detailed in HUBER (1992). Morphomeristic data of the first quoted eight types, the holotype first in bold (after confirmation by radiophotographs): sex= male, female, male, male, female, female, female, female.

D= 11, 11, 12, 11, 11, 11, 12, 11 (mean: 11.25; S.D.: 0.43). A= 12, 12, 12, 12, 12, 12, 11 (mean: 11.88; S.D.: 0.33). $D/A = +1, +2, +1, 0, -1, +1, +1, 0$ (mean: +0.62; S.D.: 0.86). LL= 28+2; 28+4; 29+2; 27+4; 28+3; 28+4; 28+3; 29+3 (mean: 28.12+3.12; S.D.: 0.6). Predorsal scales= 14, 15, 13, 13, 14, 13, 14, 14 (mean: 13.75; S.D.: 0.7). Transversal scales (TRAV.)= 9, 9, 10, 10, 10, 9, 10, 9 (mean: 9.6; S.D.: 0.5). Circumpeduncular scales (CIR)= 15, 14, 16, 16, 17, 16, 17, 16 (mean: 15.9; S.D.: 0.9). S.L. (in mm)= 31.4; 29.2; 36.7; 28.0; 25.4; 23.8; 22.4; 20.4. T.L. (in % of S.L.)= 119, 121, 125, 129, 118, 121, 120, 125 (mean: 122.3; S.D.: 3.5). P.D. (predorsal length)= 62; 64, 60, 61, 63, 65, 64, 69 (mean: 63.7; S.D.: 2.8). P.A.

(preanal length)= 64, 61, 59, 61, 61, 63, 62, 66 (mean: 62.2; S.D.: 2.0). P.V. (preventral length)= 50, 49, 50, 53, 52, 52, 52, 53 (mean: 51.3; S.D.: 1.3). Height at Anal level= 22, 19, 21, 21, 19, 21, 19, 22 (mean: 20.4; S.D.: 1.2). Height at peduncle level= 13, 13, 15, 14, 13, 14, 13, 13 (mean: 13.4; S.D.: 0.6). Head length= 27, 28, 25, 27, 27, 26, 28, 29 (mean: 27.2; S.D.: 1.2). Interorbital= 16, 17, 17, 14, 15, 15, 14, 15 (mean: 15.4; S.D.: 1.0). Eye diameter= 9, 9, 8, 9, 7, 8, 8, 9 (mean: 8.4; S.D.: 0.7). Snout= 7, 6, 6, 8, 6, 6, 6, 7 (mean: 6.4; S.D.: 0.6).

The caudal fin of the dominant male is strongly trilobate, with short streamers on upper and lower tips; the dorsal and, less so, the anal fins bear short streamers; the female is having an unusual deep anal fin and a somewhat pointed dorsal.

The D/A deviation has been checked on the radiophotographies of 6 additional specimens with the following results: +1, -1, -1, +1, 0, +1; for the total 14 specimens, the mean value is +0.43 and the standard deviation, 0.80.

Vertebrae (abdominal+caudal), on 8 specimens= 13+15, 12+15, 11+15, 12+15, 11+15, 12+15, 12+15, 12+16 (mean: 27.0; S.D.: 0.71).

The hypural plate is fully divided in the middle, an unusual situation.

The frontal scalation is of the G-type, but less regular than usual, one female being F-type. The frontal neuromast pattern is open, like in all *Aphyosemion* from Gabon: the channels are unusually wide, not protected by fleshy lobes. A few ctenoid scales are available on the old male sides.

Colour in life: male, little pigmented on a blue green metallic background; the "shield" pattern (red lines, longitudinal below lip, oblique on operculum) is not conspicuous: only a few red blotches on the upper part of sides and near the basis of the dorsal, ventral and anal fins can be noticed; the middle of the dorsal, pectoral and caudal fins are flamed with red along rays; in addition, two submarginal red bands, the lower being wider, occur on the caudal but not on the dorsal fin; light blue margins are seen on dorsal, pectoral, and caudal fins, but not on ventral and anal fins, which are yellow-green overall, except their basis. Female, strongly pigmented with red spots over upper sides and with red flames on all fins; the dorsal fin and the upper part of the caudal fin is black margined, like the lower lip and the area below the eye; besides, a broad conspicuous dark band is present (also in the juvenile male) from behind the eye (in prolongement of the lower lip black line) until the tail; below this band, the entire belly is colored with a contrasting apple to gold yellow, like all paired and unpaired fins.

Colour in alcohol: male, with around 20 light big spots on upper sides over a dark brown background; the lower mid-sides are less dark; head, dark with two darker lines on lower lip and somewhat below the first one; dark shield, well marked; dark rays on vertical fins, except a light broad margin at lower caudal and a light edge at its upper part; the dorsal fin bears a streamer and reaches, like anal, the caudal peduncle level. Female, with a broad dark longitudinal band from snout until the caudal peduncle where it ends larger by a blotch; a second dark thinner line, parallel to the lower lip, goes beyond the rear part of eye, underlying it; above the broad band, the region of upper sides is mottled with grey markings, while below it, it is unmarked

and yellow; all fins, except pectorals, irregularly and discontinuously flamed with black, especially on mid-caudal following the band; in both sexes, a dark thin line on back from the A-scale to the dorsal fin insertion.

Ecological data (Romer, pers. comm., June 14, 1997): the biotope is similar to that of other *Aphyosemion* species: a shady primary forest creek ("marigot"); the water was, in summer 1996 i.e. during the long dry season, very shallow, 1-2 m wide and 20 cm deep, with lots of dead leaves; the water was clear, of low conductivity, slightly acid, very similar to rain water as usual for *Aphyosemion* (a single measurement: conductivity= 20 μ S; pH= 6); at 2 p.m., the water temperature was 21°C. A dozen of specimens only could be caught, whereas the other sympatric species, *A. gabunense* was much more abundant. In the same locality, TIRBAK *et al.* (1997) were also able to collect two other Cyprinodonts: *Epiplatys sexfasciatus* Gill, 1862 and *E. singa* (Boulenger, 1899), the typical fauna of the area between Bifoun and Lambaréné.

Aquarium experience (Romer, pers. comm.): a typical non annual species which prefers dark parts of the tank, furnished with lots of plants; fairly easy to breed, despite unbalanced sex-ratios (first generation in favor of males; second in favor of females); the pair spawns on perlon mops with the standard Z-type position of *Aphyosemion*; no aggressivity displayed; incubation time: 20 days at room temperature; first food: *Artemia nauplii*; growth: relatively slow. Sexual differentiation may appear at 5 months and first breeding at 7. Grell (pers. comm.) reports that the sexual maturity is reached at 7 months and the adult size, at 12 months.

Derivatio nominis: hera (the Greek Goddess), an invariable noun in apposition, the name refers to the beauty of the female, probably the most beautiful in *Aphyosemion*, if not in Cyprinodonts, but this is subjective.

DISCUSSION

The main morphomeristic characters and the colour pattern of the new species places it undoubtedly within the genus *Aphyosemion* among the tropical West African Cyprinodonts: average dorsal and anal fin basis ($D < 16$; $A < 16$), dorsal and anal insertion, not too far from each other ($D/A < +8$), lyre-shaped caudal fin, red pigments on sides and fins, and notably on head (the "shield"), no dark vertical bars; its low meristics ($D = 11.3$, $A = 11.9$, $D/A = +0.4$, on average) can only relate it to two taxa (HUBER 1996: average data): the subgenus *Chromaphyosemion* Radda, 1971 ($D = 11.8$; $A = 13.6$; $D/A = 2.4$) and the related genus *Diapteron* Huber and Seegers, 1977 ($D = 10.7$; $A = 11.3$; $D/A = -2.3$). However the new species is distinguished from the *Chromaphyosemion* components by the absence of the two longitudinal mood-dependant dark bands on sides of both sexes, by the shape of the vertical fins (pointed without long filaments, not trapezoid), by the shape of the caudal fin (without long filaments). It is distinguished from the *Diapteron* components by the shape of the vertical fins (pointed, not rounded), by the larger size (1 cm larger) and by the completely different colour pattern of male (standard red pigments on blue background, versus the reverse).

No other *Aphyosemion* species combines a low anal fin count and superimposed vertical fins.

The colour pattern of the adult male of *A. hera*, so important in *Aphyosemion* speciation (the female chooses the conspecific male among sympatric species!) and systematics, reminds that of the *A. gabunense* superspecies from the same region. This superspecies encompasses three isomorphic allopatric valid species, separated by their colour patterns and by their karyotypes: *A. gabunense* (a blue symmetrical phase), *A. marginatum* Radda & Huber, 1977 (a yellow symmetrical phase), *A. boehmi* Radda & Huber, 1977 (a yellow phase, with an asymmetrical pattern in the caudal fin). All show, unlike *A. hera*, strong and regular series of spots on male sides and inner fins, plus a broad symmetrical red margin on dorsal and anal fins; dominant males exhibit long filaments on caudal fin upper and lower streamers; females are grey brown, without any conspicuous dark band (RADDA 1975).

The colour pattern of the adult male of *A. hera* and its body and fin shapes remind also another species with two subspecies (probably valid species): *A. pascheni pascheni* (Ahl, 1928) and *A. p. festivum* Amiet, 1987 from the Kribi area in south-western Cameroun, i.e. over 350 km from our locality, with no other population in-between. The *festivum* male pattern agrees especially with that of *hera*: red flamed colour pattern of the inner caudal fin, distinctive patterns at dorsal and anal fins (a rare feature in *Aphyosemion*); however, like the nominal subspecies, the male is heavily pigmented with red longitudinal lines and bears a red submargin at anal; and the female is gray brown with few red and yellow markings and without the characteristic longitudinal dark band.

Indeed, the five just quoted taxa share with *A. hera* paucity in biotope and very isolated location: all are known only from their type localities and eventually one or two more places (HUBER 1981; AMIET 1987); on the other hand, karyotype studies (SCHEEL 1990) suggest that *pascheni* is related to the *calliurum* superspecies (with *australe* and *ahli*), whereas *gabunense* and its allied are related to the *striatum* superspecies: these two superspecies are similar in fin shape, but not in body depth; they share a large part of their distribution (in Equatorial Guinea, Gabon, Congo), although the former is more restricted to near the coast; and they are reported sympatrically in a number of localities (in that case, it appears that the former chooses more open parts of the biotope).

Finally, the position of *A. hera* remains unclear with our present morphological and field knowledge: no direct relationship can seemingly be derived from isomorphic features and the new species appears to be a distinctive morphospecies, a rare case in the genus; an attractive relationship exists with *A. pascheni*, but the position of the dorsal fin is very different, more advanced and there are several reported cases of colour convergence in *Aphyosemion* between two species belonging to two different phylogenies; at last, a putative relationship with the sympatric *gabunense* cannot be rejected, although related species are extremely rarely found in the same biotope in *Aphyosemion* and in Cyprinodonts in general.



FIGS 1-2

1: male topotype *Aphyosemion hera* in aquarium. 2: female topotype *Aphyosemion hera* in aquarium. Photos Wolfgang Grell.



FIG. 3

The biotope of *A. hera*, *A. gabunense*, *E. sexfasciatus*, *E. singa*, a shady creek crossing the road. Photo René Krumenacker.

CONCLUSION

Low meristics and superimposed vertical fins, a colorful female, the presence of a black longitudinal band in the juvenile male and in the female, characterize *Aphyosemion hera* which lies apart in the phylogeny of its large genus: is it a primitive species linked with the species occurring in the same region?

Is it a relict species, like *pascheni*, of a formerly well distributed group which suffered considerable extinction? Is it an offshoot of a species living in the nearby yet unknown northern Du Chaillu mountains?

It is expected that the DNA techniques will bring clues: no doubt that they will help to sort out the puzzle of speciation that is seen in the genus, especially in primary forest equatorial hilly regions, such as that of *A. hera*!

It is hoped too that the nice beauties of this species and notably of the female will be appealing to killi-hobbyists for new collections, so that new places are discovered and this so different species better known.

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Endémisme pyrénéen: sur une nouvelle espèce épigée du genre *Oritoniscus*: *O. rousseti* n. sp. (Crustacea, Isopoda, Oniscidea)

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Pyrenean endemism: *O. rousseti* a new epigeal species (Crustacea, Isopoda, Oniscidea). - The new species here described has a very restricted distribution and is closely related to the species *O. baroussensis* and *O. aurensis* which have been recently described.

Key-words: Isopoda - Oniscidea - *Oritoniscus* - Morphology - Endemism.

INTRODUCTION

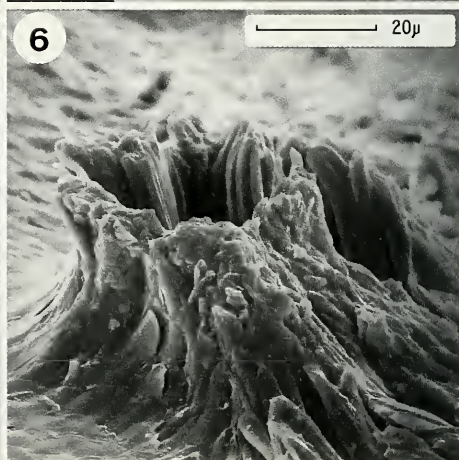
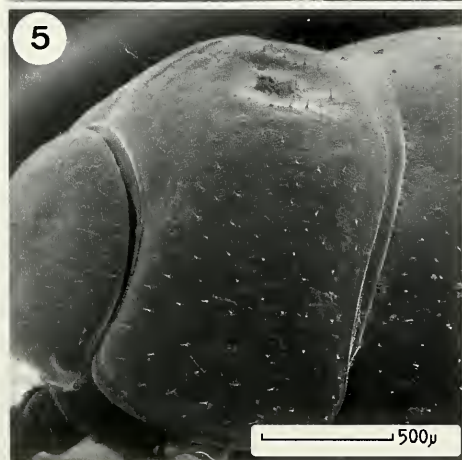
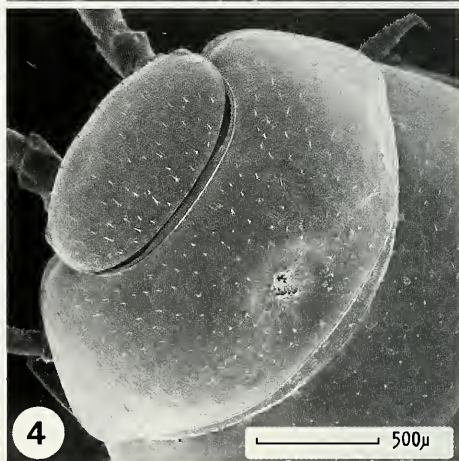
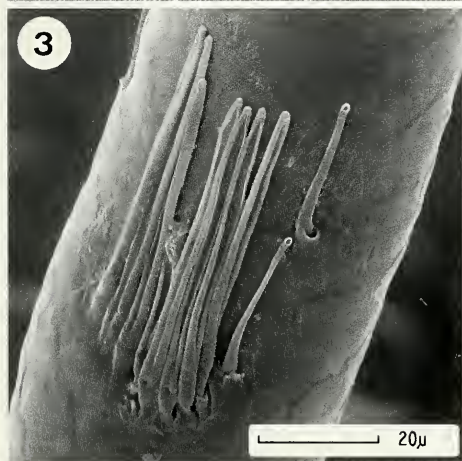
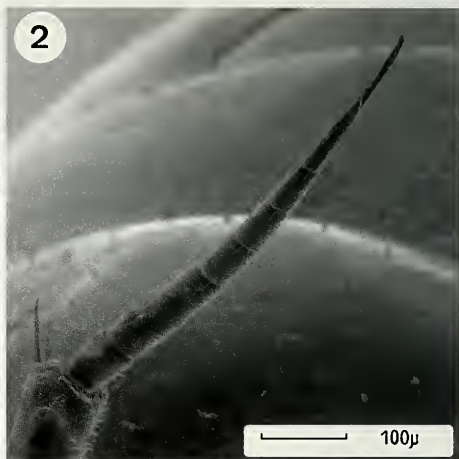
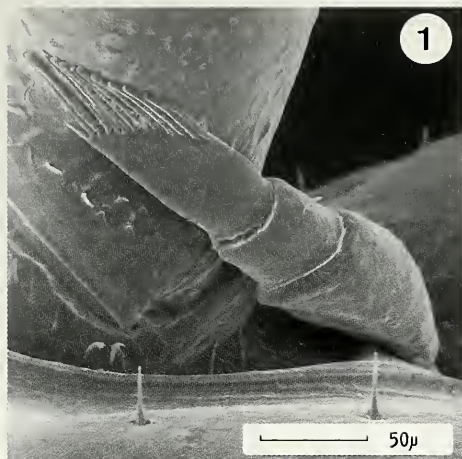
La recherche de zones de contact entre certaines des espèces ayant fait l'objet de précédentes publications (DALENS *et al.* 1996; 1997) a révélé, dans une toute petite vallée pyrénéenne transversale, celle du ruisseau de Beyrède, située au sud des Baronnies, une espèce nouvelle, laquelle fait l'objet de la présente note.

***Oritoniscus rousseti* sp. n.**

(Figs 1-12)

Matériel examiné: Holotype (MNHN-IS 5069): 1 ♂ provenant de la station type au Cap de la Pène sur la route forestière de Bignec, Cne de Beyrède-Jumet (Htes-Pyrénées), alt.: 940 m, UTM31: 283400/4759450, 29.V.1997, Dalens & Rousset réc. dans des suintements sur schistes. Paratypes (pour partie au Muséum d'histoire naturelle de Genève: 5 ♂♂, 5 ♀♀; pour partie dans la collection de l'auteur): 44 ♂♂ trouvés dans la même station avec 1 ♂ appartenant à l'espèce *O. simplex* et 89 ♀♀; ruisseau du Mounet, route du col de Beyrède, Cne de Beyrède-Jumet (Htes-Pyrénées), alt. 850 m, UTM31: 284550/4759600; 2 ♂♂, 2 ♀♀, 29.V.1997, Dalens & Rousset réc.; Cne de Beyrède-Jumet (Htes-Pyrénées), alt. 1350 m, UTM31: 283400/4758000, 1 ♂, 14.IX.1997, Bedos & Deharveng, dans la litière de hêtre.

DESCRIPTION: Holotype de 6 mm ce qui est la taille la plus grande observée pour les mâles jusqu'ici. Coloration brun-acajou clair, assez uniforme, mais laissant apparaître en clair des insertions musculaires et une bande à la limite tergite-pleurépimère. Périopodes avec un réseau pigmentaire diffus, mais pléopodes non pigmentés. A1 (fig. 1) de 3 articles portant à son apex jusqu'à 12 aesthétascs disposés en peigne et flanqués sur le bord externe d'une soie courte et trapue. Flagelle antennaire (fig. 2) formé de 6 pseudo-articles, le second nettement plus long que les autres, portant une plume de 7 longs aesthétascs flanqués de 2 autres plus courts et étagés (fig. 3). Les



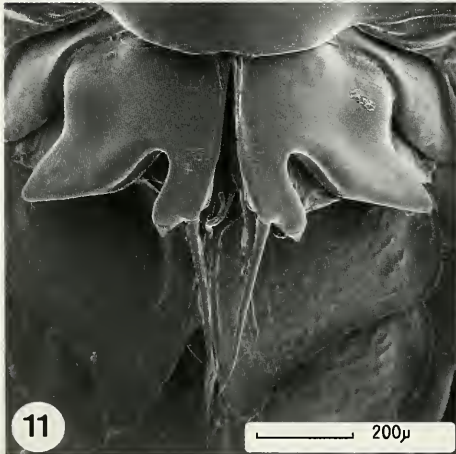
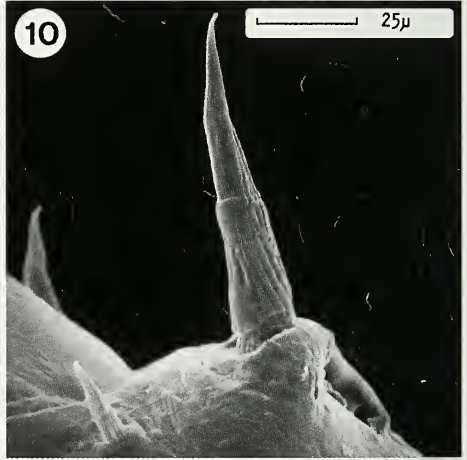
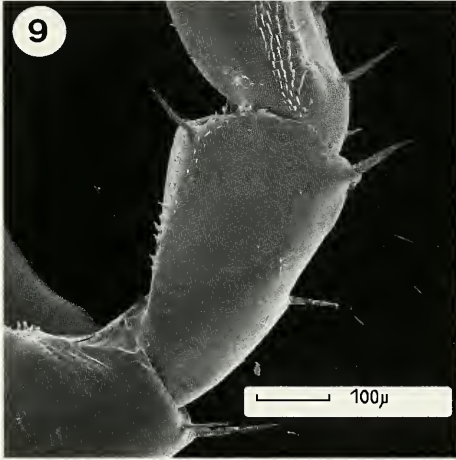
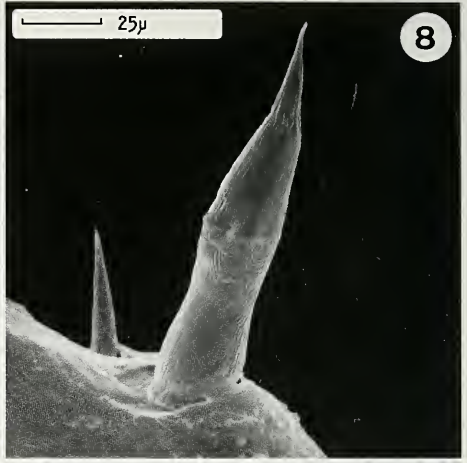
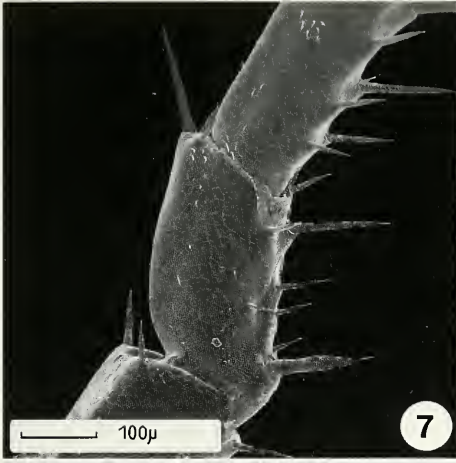
caractères sexuels secondaires mâles affectent le péréionite I et les péréiopodes V, VI et VII. Le péréionite I présente une fossette médiane parfaitement circulaire et discernable à l'œil nu sur les plus gros individus de sexe mâle (figs 4 & 5). Péréiopodes V (figs 7 & 8) avec la soie sterno-basale du mérus légèrement hypertrophiée mais rectiligne. Péréiopode VI avec la soie sterno-distale de l'ischion portée par un tubercule basal (figs 9 & 10). Enfin au niveau des péréionites VII, l'angle sterno-distal du basis porte une petite touffe de soies. Les pléopodes 1 du mâle (fig. 11) présentent des exopodites à bord externe fortement concave différenciant très nettement une pointe latero-externe distale, tandis que les endopodites se terminent par une pointe courte et fine qui à fort grossissement se révèle creusée d'une gouttière (fig. 12).

DISCUSSION: La fossette présente sur le péréionite I rappelle beaucoup au premier abord celle d'*O. baroussensis*, elle s'en différencie cependant par sa taille qui est plus réduite et par le degré et le type de différenciation des soies. Chez *O. baroussensis* les soies qui ceinturent la fossette sont à base élargie et nettement distinctes de celle du reste du tergite; chez *O. rousseti*, elles sont certes concentriques mais elles ne sont en rien différentes de celles du reste du tergite. Chez *O. baroussensis*, le fond de la dépression est tapissé de soies ou de formations squameuses qui forment un tapis plus ou moins plat; chez *O. rousseti*, seule la zone centrale présente des soies hypertrophiées qui forment comme un cône avec apparemment une sorte de puits central (fig. 6). Par ailleurs par rapport à *O. baroussensis* la zone tergale portant la fossette est beaucoup moins bombée et les zones latérales du bord postérieur du péréionite I sont nettement moins sinuées. Pour ce qui est des péréiopodes V et VI, ils ne permettent nullement de différencier cette nouvelle espèce d'*O. aurensis* ou d'*O. baroussensis*. En ce qui concerne le péréiopode VII, la touffe de soies sterno-distale du basis est peut-être un peu plus développée que chez *O. aurensis* et *O. baroussensis* où elle se trouve être très discrète au point de passer souvent inaperçue. Quant aux pléopodes 1 du mâle ils ne présentent pas non plus une conformation qui puisse permettre de les différencier de façon certaine des deux autres espèces: *O. aurensis* et *O. baroussensis*; seule l'extrémité de l'endopodite 1 examinée à fort grossissement se révèle quelque peu différente de celle des deux autres espèces.

AFFINITÉS: La nouvelle espèce semble manifestement très proche des espèces *O. aurensis* et *O. baroussensis* et partage avec elles les caractères suivants: une fossette circulaire, une soie mérale du P.V peu différenciée et rectiligne, la soie distale de l'ischion VI du mâle portée par un tubercule et des pléopodes 1 du mâle très semblables. Seul le degré de différenciation de la fossette permet de les discriminer sans risque d'erreur, car si le schéma de base de la fossette reste le même pour les

FIGS 1-6

Oritoniscus rousseti N. sp. 1: A1 droite; 2: flagelle antennaire; 3: détail des aesthéscas du 2e article flagellaire; 4: péréionite I avec fossette en vue dorsale; 5: péréionite I avec fossette en vue latérale gauche; 6: détail de la zone centrale de la fossette du péréionite I. (clichés H. Dalens avec Hitachi S 450).



3 espèces, il existe des différences nettes au niveau des composantes de cette fossette, différences qui sont déjà marquées chez l'immaturation. Il paraît donc tout à fait logique d'en faire 3 espèces distinctes mais très proches et dérivant manifestement d'une souche commune.

RÉPARTITION: Cette espèce paraît jusqu'ici localisée dans la vallée de la Beyrède. Encore doit-on noter que dans la partie haute de la vallée, elle paraît supplantée par *O. flavus*. Peut-être cependant y subsiste-t-elle par places et avec des peuplements épars et peu denses. En effet, après réexamen des échantillons, il ne fait aucun doute que 3 individus trouvés le 8 octobre 1996 dans une station de la vallée du Gripp et classés alors comme *O. aurensis* ou *O. baroussensis* atypiques, sont en fait des *O. rousseti*. Un prélèvement très important fait en mai 1997 dans la même station n'a toutefois permis d'y retrouver cette espèce, mais seulement des *O. flavus*.

Derivatio nominis: Je dédie cette espèce à mon collègue et ami André Rousset, tout récemment disparu, avec qui au cours de nombreuses sorties dans les Pyrénées, nous avons fait progresser les connaissances sur les formes épigées du genre *Oritoniscus*. Egalement co-découvreur de cette dernière espèce, la maladie ne lui a pas permis d'en faire l'étude.

REMERCIEMENTS: Ce travail s'inscrit et est financé dans le cadre du projet européen CEE n° EV5V-CT94-0435 «High Endemism areas, Endemic biota and the conservation of Biodiversity in Western Europe».

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FIGS 7-12

Oritoniscus rousseti n. sp. 7: méros du périopode V avec soie basale hypertrophiée; 8: détail de la soie basale du méros V; 9: ischion du périopode VI avec soie sterno-distale sur tubercule basal; 10: détail de la soie sterno-distale de l'ischion VI; 11: première paire de pléopodes mâles; 12: détail de l'extrémité de l'endopodite 1 droit. (clichés H. Dalens avec Hitachi S 450).

Notes sur les Psélaphines néotropicaux (Coleoptera, Staphylinidae, Pselaphinae) 10 - un nouveau genre et quatre nouvelles espèces de la tribu des Metopiasini

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Notes on Neotropical pselaphines (Coleoptera, Staphylinidae, Pselaphinae) 10 - A new genus and four new species of the tribe Metopiasini. The genus *Chandleria* is described to accommodate five species, all described and/or redescribed: *Metopias elegans* Sharp, *C. angusta* sp.n., *C. biguttula* sp. n., *C. spinosa* sp. n. from Panama, and *C. colombiana* sp. n. from Colombia.

Key-words: Coleoptera - Staphylinidae - Pselaphinae - Metopiasini - taxonomy - Neotropics.

INTRODUCTION

La tribu des Metopiasini est constituée de six genres confinés à la région néotropicale. Elle est caractérisée par la forme de la tête et par les antennes coudées, avec un scape particulièrement long (SHARP 1877, RAFFRAY 1908, PARK 1942). Parmi les Metopiasini étudiés, *Metopias elegans* Sharp et quatre espèces nouvelles, provenant de Panama et de Colombie, forment un groupe homogène, isolé des autres Metopiasini. Le genre *Chandleria* gen. n. est établi et ces espèces sont décrites ci-dessous.

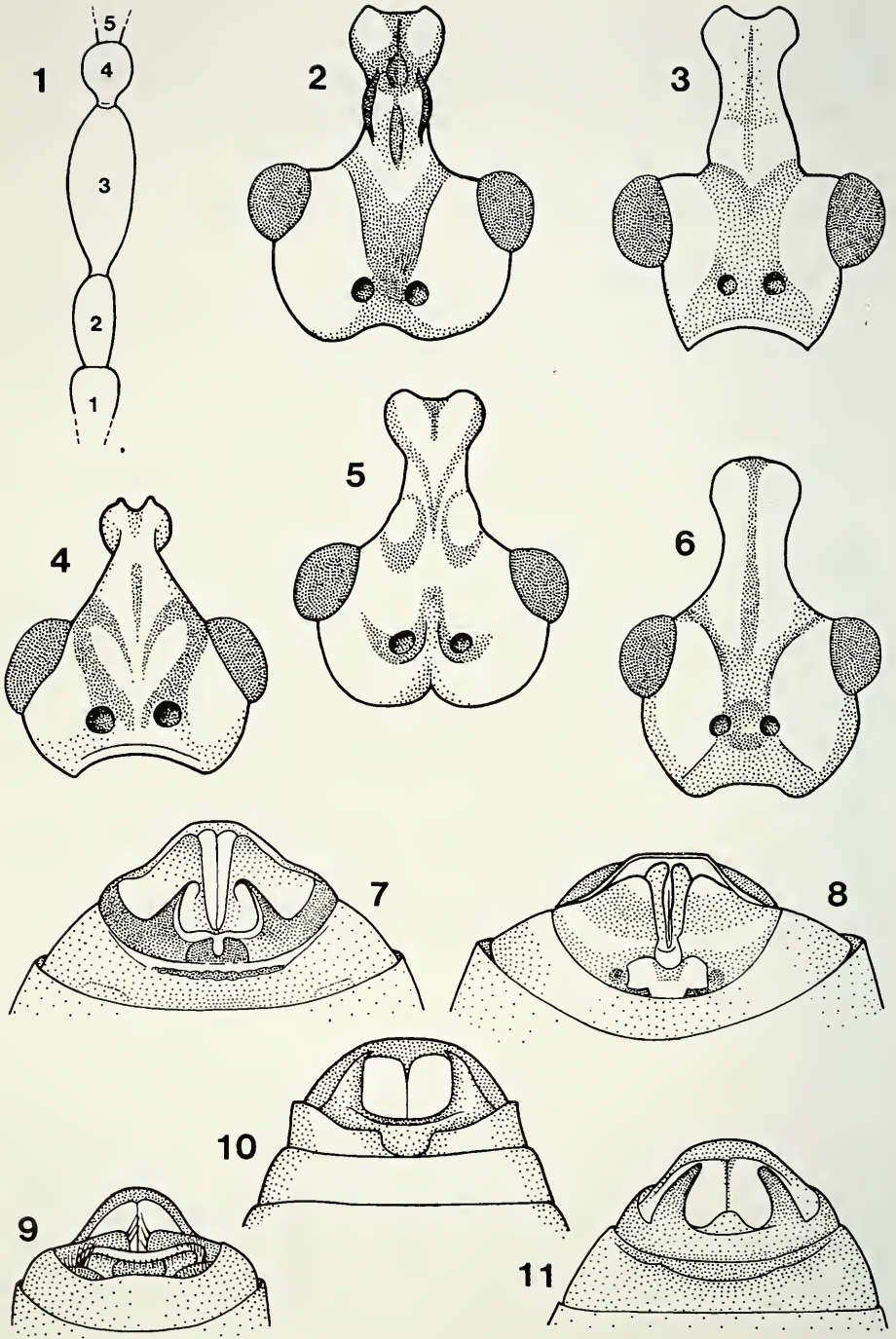
Les dessins des mêmes structures sont à la même échelle. Les abréviations suivantes ont été utilisées: BMNH = British Museum of Natural History, London; CNCI = Canadian National Collection of Insects, Ottawa; DENH = University of New Hampshire Insect Collection, Durham; FMNH = Field Museum of Natural History, Chicago; MHNG = Muséum d'histoire naturelle, Genève.

SYSTÉMATIQUE

Chandleria gen. n.

Espèce type: *Chandleria angusta* sp.n.

Ce genre est en premier lieu caractérisé par les antennes (fig. 1). L'article 3 de celles-ci est bien plus grand que les articles 2 et 4; le tégument de l'antenne est brillant, finement granulé-ponctué. Les yeux sont gros. Les élytres réunis sont plus longs que larges avec deux fossettes basales sur chacun. Un sillon longitudinal part de chaque fossette; il est profond en avant et s'efface vers l'arrière; le sillon externe est moins marqué que l'interne. Le dessous de l'abdomen, particulièrement les sternites 6



et 7, forme chez les mâles une structure très caractéristique, différente pour chaque espèce. La pilosité des pattes est dirigée vers l'extrémité de celles-ci.

Étymologie: Genre dédié au Dr. Donald S. Chandler de l'Université du New Hampshire, Durham, USA; genre grammatical: féminin.

Chandleria angusta sp. n.

Tête (fig. 2) avec une large dépression entre les yeux. Tégument brillant, très finement et éparsément ponctué. Pilosité fine, claire et longue, plus dense sur les côtés, dirigée vers l'apex.

Pronotum nettement plus long que large avec les côtés arrondis; sa plus grande largeur au milieu. Un large et profond sillon transversal au tiers postérieur. Tégument lisse et brillant, très éparsément et finement ponctué. Pilosité longue et claire, recourbée, plus courte et plus dense sur les côtés.

Elytres avec les sillons longitudinaux effacés avant la moitié antérieure. Angles huméraux marqués en crête arrondie. Tégument brillant, finement et assez densément ponctué-granuleux. Pilosité claire, longue et fine, dirigée vers l'arrière, plus dense sur les côtés et à l'apex.

Dessous de l'abdomen chez le mâle: fig. 7

Pattes à pilosité claire et assez longue. Tégument brillant, très finement ponctué-granuleux.

Longueur: 2,50 à 2,75 mm.

Edéage: fig. 12 et 13; longueur 0,31 - 0,32 mm.

♂, holotype: Panama, Province de Bocas del Toro, Miramar, 9°N, 82°15'W, V. 16.80. H. Wolda, UV It (DENH).

18 ♂, paratypes, même provenance, différentes dates de capture (DENH et MHNG).

Chandleria biguttula sp. n.

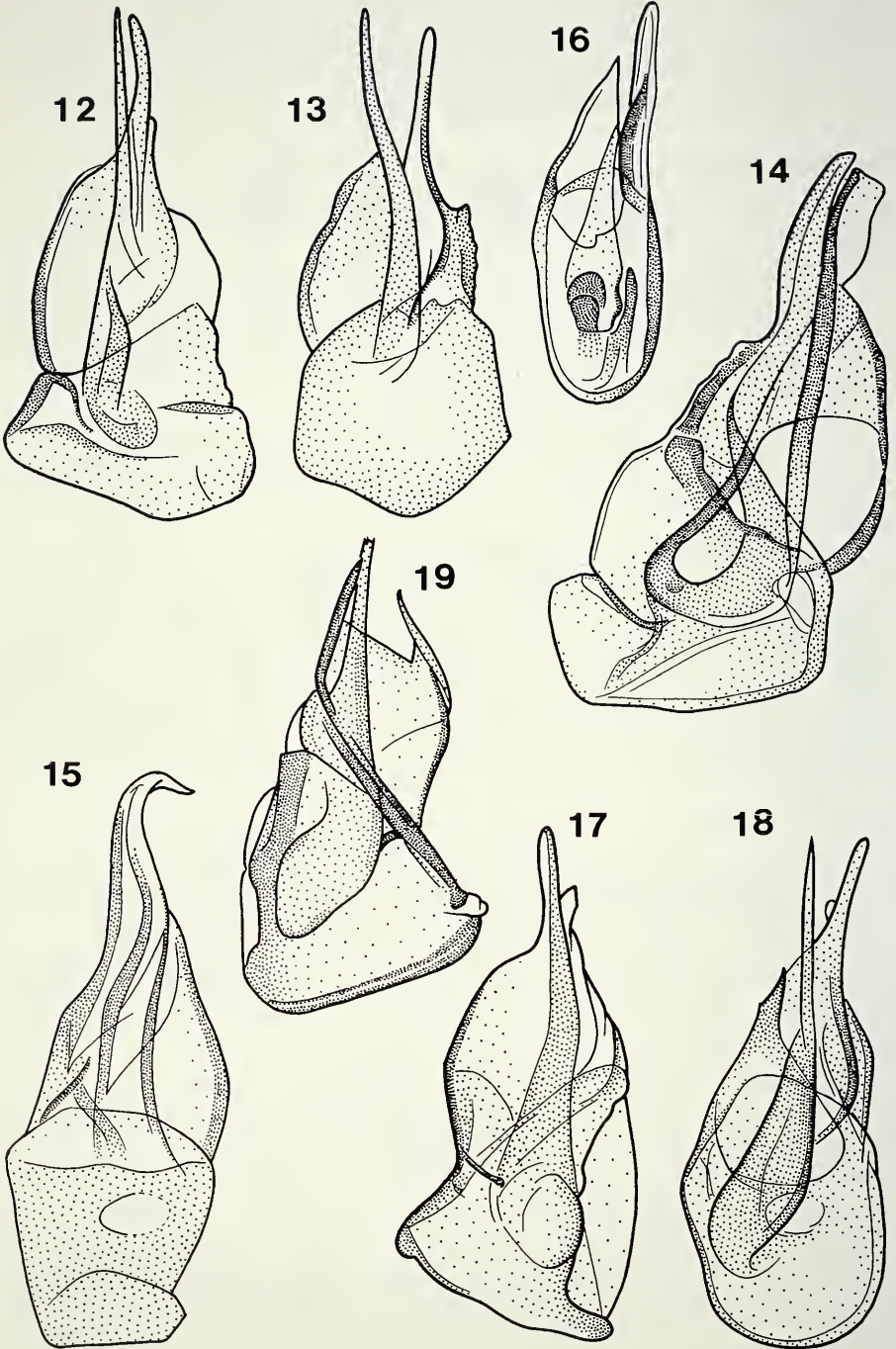
Tête (fig. 3) avec les deux bosses à la base du lobe frontal très en relief, en forme de goutte. Tégument brillant finement et densément ponctué. Pilosité claire et longue. Pilosité des antennes longue et assez abondante, dirigée vers l'apex.

Pronotum nettement plus long que large, avec les côtés arrondis, brusquement plus étroits au tiers postérieur à la hauteur du large sillon transversal. Tégument brillant, plus lisse et plus finement ponctué que celui de la tête. Pilosité claire, longue et fine, plus abondante, plus épaisse et plus courte sur les côtés.

Elytres avec les sillons longitudinaux s'effaçant déjà au quart antérieur. Angles huméraux arrondis, peu marqués. Tégument brillant, finement ponctué-strié, plus ou moins densément par place. Pilosité claire, fine et longue, plus dense sur les côtés et en arrière.

FIGS 1-11

1, *Chandleria* sp., antenne. Dessus de la tête; 2, *Chandleria angusta* sp. n.; 3, *C. biguttula* sp. n.; 4, *C. colombiana* sp. n.; 5, *C. elegans* (Sharp); 6, *C. spinosa* sp. n. Derniers sternites: 7, *C. angusta* sp. n.; 8, *C. biguttula* sp. n.; 9, *C. colombiana* sp. n.; 10, *C. elegans* (Sharp); 11, *C. spinosa* sp. n.



Dessous de l'abdomen chez le mâle: fig. 8.

Pattes à pilosité claire et assez longue. Tégument brillant, très finement ponctué-granuleux.

Longueur: 2,50 à 2,75 mm

Edéage: fig. 14 et 15; longueur 0,35 - 0,36 mm.

♂. h o l o t y p e : Panama. Province de Bocas del Toro. Miramar, 9°N, 82°15'W. 24. VIII. 1979, H. Wolda, UV It (DENH); 19 paratypes Ⓢ, même provenance, différentes dates de capture (DENH et MHNG).

***Chandleria colombiana* sp. n.**

Tête (fig. 4) avec une large dépression entre les yeux, limitée en arrière par une crête granuleuse. Pilosité claire, assez longue et dense, plus rare sur le dessus. Pilosité des antennes également assez longue et dense, claire, dirigée vers l'apex.

Pronotum à peine un plus large que long avec un fort sillon transversal au tiers basal et les côtés nettement aplatis. Tégument brillant, lisse, avec une fine ponctuation éparse. Pilosité claire, longue et très fine, plus dense sur les côtés.

Elytres avec les sillons longitudinaux s'effaçant déjà au quart antérieur. Angles huméraux peu marqués, arrondis. Tégument brillant, assez densément ponctué. Pilosité claire, assez longue et fine, plus dense et plus épaisse vers l'arrière.

Dessous de l'abdomen chez le mâle: fig. 9

Pattes à pilosité assez longue, claire et fine. Tégument brillant, lisse et ponctué.

Longueur: 2,1 mm.

Edéage: fig. 16; longueur 0,25 mm.

♂. h o l o t y p e : Colombie, Anchicaya, 1000'. VII.22-27.1970, J. M. Campbell, Malaise trap (CNCI).

***Chandleria elegans* (Sharp), comb. n.**

Metopias elegans Sharp, 1887

Tête (fig. 5) avec un bourrelet transversal à l'arrière, échancré au milieu, couvert de grosses granulations; ce bourrelet est précédé d'une dépression assez profonde. Tégument brillant, irrégulièrement granulé-ponctué, plus fortement sur les côtés de la tête. Pilosité assez longue, claire, plus fine et plus éparse sur le dessus, plus dense et plus épaisse sur les côtés. Pilosité des antennes assez longue, fine et dense, dirigée vers l'apex.

Pronotum plus long que large, cordiforme, partagé au tiers postérieur, sur toute sa largeur, par un large sillon en circonflexe transversal. Ponctuation du tégument très fine, irrégulière et éparse, granulée par places. Pilosité longue et assez dense, plus éparse sur le dessus.

FIGS 12-19

Edéages: *Chandleria angusta* sp. n., 12, profil et 13, face; *C. biguttata* sp. n., 14, profil et 15, face; *C. colombiana* sp. n., 16, face; *C. elegans* (Sharp), 17, profil et 18, face; *C. spinosa* sp. n., 19, profil.

Elytres avec les sillons longitudinaux très atténués vers le milieu s'effaçant complètement ensuite. Angles huméraux très obtus, arrondis. Tégument brillant, très finement ponctué-granulé. Pilosité assez dense, courbe et longue sur les côtés et en arrière, dirigée vers l'apex.

Dessous de l'abdomen chez le mâle: fig. 10

Pattes à pilosité courte et assez dense. Tégument peu brillant, finement et assez densément ponctué.

Longueur: 2,4 mm.

Edéage: fig. 17 et 18; longueur 0,32 mm.

♂, t y p e : Chiriqui (Volcan), Panama (BMNH)

Chandleria spinosa sp. n.

Tête (fig. 6) avec une assez forte dépression en arrière. Tégument finement ponctué-strié. Pilosité courte, claire, plus épaisse sur les côtés du lobe frontal et sur les tempes. Pilosité des antennes courte et claire, dirigée vers l'apex.

Pronotum aussi long que large, avec les côtés régulièrement convexes; sa plus grande largeur un peu en arrière du milieu; au quart postérieur un large sillon transversal Tégument brillant, plus fortement ponctué-réticulé que la tête. Pilosité courte, plus dense sur les côtés.

Elytres avec les sillons longitudinaux s'effaçant déjà au tiers antérieur. Angles huméraux arrondis. Tégument brillant, très finement granuleux-réticulé. Pilosité claire et courte, assez épaisse, plus dense sur les côtés.

Dessous de l'abdomen chez le mâle: fig. 11

Pattes avec à l'apex des fémurs I une série de petites épines sur le dessus de la partie épaisse. Pilosité courte et assez épaisse. Ponctuation du tégument peu brillant, très fine, éparse et granuleux.

Longueur: 2,6 mm.

Edéage: fig. 19; longueur 0,30 mm.

♂, h o l o t y p e : Volcan Chiriqui, Panama, 1930, A. Bierig Colln (FMNH).

REMERCIEMENTS

Madame E. De Boise, London et messieurs D.S. Chandler, Durham, A.F. Newton, Chicago et J.M. Campbell, Ottawa m'ont communiqués le matériel étudié. Monsieur G. Roth, Genève, a mis au net les dessins.

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Agathidiini from China, with description of 14 new species (Coleoptera, Leiodidae)

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Agathidiini from China, with description of 14 new species (Coleoptera, Leiodidae). - Records and/or descriptions are given for 18 species of Agathidiini from China, deposited in the Geneva Museum. New species are: *Agathidium (Neoceble) sichuanicum* n.sp. (Sichuan), *A. (A.) vagum* n.sp. (Guangxi), *A. (A.) occultum* n.sp. (Yunnan), *A. (A.) gonggaense* n.sp. (Sichuan), *A. (A.) rufescens* n.sp. (Sichuan), *A. (A.) procerum* n.sp. (Sichuan), *A. (A.) celatum* n.sp. (Hubei), *A. (A.) huaense* n.sp. (Shaanxi), *A. (A.) brunneipenne* n.sp. (Hubei), *A. (A.) inerme* n.sp. (Hubei), *A. (A.) lugubre* n.sp. (Guangxi), *A. (A.) indubium* n.sp. (Sichuan), *A. (Microceble) corticinum* n.sp. (Yunnan), *A. (Microceble) solutum* n.sp. (Guangxi). New records for China are: *A. (Microceble) venustum* Ang. & Dmz. (Guangxi), *A. (Microceble) manasicum* Ang. & Dmz. (Guangxi).

Key-words: Leiodidae - Agathidiini - China - new species - new records.

INTRODUCTION

A large amount of new data on the Agathidiini fauna of China results from a study of the following material deposited in the Geneva Museum:

- 16 species (87 specimens), from 5 localities in Sichuan, Guangxi, Hubei, Shaanxi and Yunnan, leg. S. Kurbatov;

- 2 species (8 specimens), from 1 locality in Sichuan, leg. A. Smetana.

The new data concern:

- 14 new species: *Agathidium (Neoceble) sichuanicum* n.sp. (Sichuan), *A. (A.) vagum* n.sp. (Guangxi), *A. (A.) occultum* n.sp. (Yunnan), *A. (A.) gonggaense* n.sp. (Sichuan), *A. (A.) rufescens* n.sp. (Sichuan), *A. (A.) procerum* n.sp. (Sichuan), *A. (A.) celatum* n.sp. (Hubei), *A. (A.) huaense* n.sp. (Shaanxi), *A. (A.) brunneipenne* n.sp. (Hubei), *A. (A.) inerme* n.sp. (Hubei), *A. (A.) lugubre* n.sp. (Guangxi), *A. (A.) indubium* n.sp. (Sichuan), *A. (Microceble) corticinum* n.sp. (Yunnan), *A. (Microceble) solutum* n.sp. (Guangxi).

- 2 new records for China: *Agathidium (Microceble) venustum* Ang. & Dmz. (Guangxi), *A. (Microceble) manasicum* Ang. & Dmz. (Guangxi).

The specimens are now deposited either in the Geneva Museum (MHNG) or in Angelini's collection (AC).

We are indebted to Dr. Ivan Löbl for making the material available for study and comments on the earlier version of the manuscript.

Anisotoma Panzer, 1797

Anisotoma becvari Ang. & Švec

Anisotoma becvari Angelini & Švec, 1994: 5.

M a t e r i a l : China, West Hubei, Shennongjia Nat. Res., 2000-2200 m, 3-8.VI.1995, leg. S. Kurbatov, 2 exx. (MHNG), 1 ex. (AC).

DISTRIBUTION: China (Yunnan and Hubei). New record for Hubei.

Agathidium Panzer, 1797

Subg. **Neoceble** Gozis, 1886

marginatum group

Agathidium (Neoceble) sichuanicum n.sp.

Figs 1-5

Length 2.7-3.1 mm (holotype ♂: 2.95 mm). Dorsum reddish-brown; venter reddish-brown, mesosternum lighter; antennae uniformly testaceous; legs reddish-brown. Microreticulation superficial on entire dorsum; puncturation fine and sparse on head and pronotum, absent from elytra. Sutural striae absent.

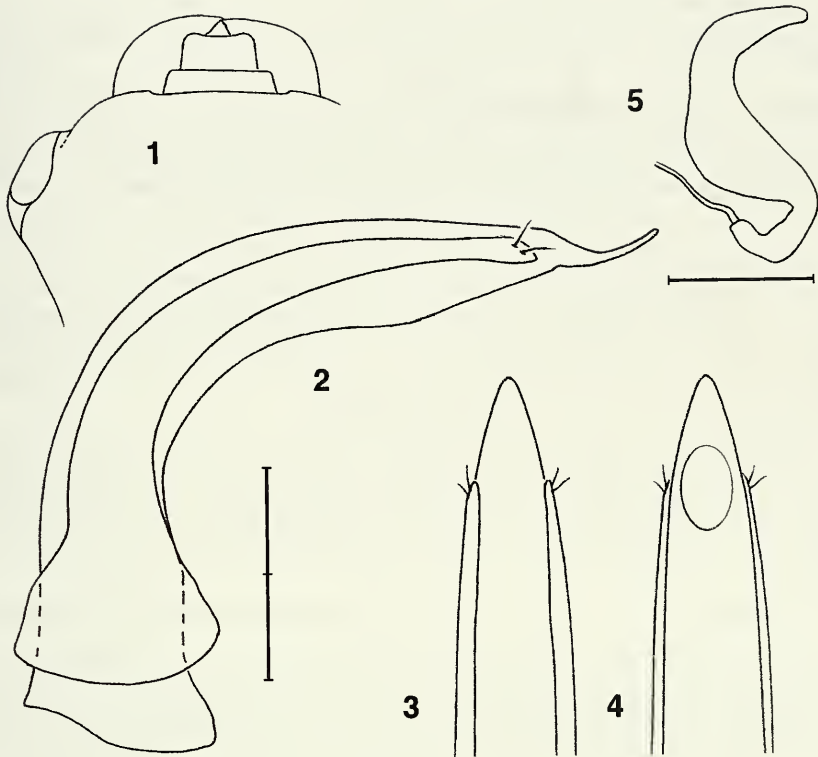
Head: Widest just behind eyes: temple 1/4 as long as the eye; anterior-lateral margins not raised; clypeus slightly emarginate; clypeal line very superficial; eyes prominent (fig. 1). Antennal segment 3 1.3 times as long as 2 and longer than 4 and 5 combined. Hamann's organ: gutter with 1 vesicle in 9th and 10th antennal segments. Microreticulation very superficial; punctures very small, superficial, separated from each other by 1-6 times their diameter; some extremely small punctures interposed.

Pronotum: 1.45 times as broad as head, moderately broader than long (W/L = 1.7), moderately convex (W/H = 1.61); anterior margin sharply curved; lateral outline broadly rounded. Microreticulation more distinct than on head, uniform; punctures as large as those on head, sparser, separated from each other by 5-15 times their diameter. Holotype: length 0.85 mm, width 1.45 mm, height 0.90 mm.

Elytra: Moderately narrower than pronotum, nearly as long as broad (W/L = 0.96), moderately convex (W/H = 1.77); lateral outline with sharp humeral angle. Microreticulation very superficial; puncturation absent, except for some very small and poorly distinct punctures. Holotype: length 1.40 mm, width 1.35 mm, height 0.76 mm.

Metathoracic wings absent. Meso- and metasternum: median carina weak, lateral lines complete, femoral lines absent.

Legs. Tarsal formula: ♂ 5-5-4, ♀ 4-4-4.



FIGS 1-5

Head, male copulatory organ (lateral view, dorsal and ventral view of apex) and spermatheca of *Agathidium sichuanicum* n.sp. Scale: 1 division = 0.1 mm.

Male copulatory organ (figs 2-4): Aedeagus comparatively stout, with proximal part simple and lateral margins gently converging towards a rounded tip. Ventral piece absent. Parameres slender, slightly enlarged at apex.

Spermatheca (fig. 5): S-shaped, enlarged at mid-length.

HOLOTYPE ♂: China, Sichuan, Wolong Nat. Res., 1700 m, 17.V.1994, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype, 3 ♀ (MHNG), 1 ♂ and 1 ♀ (AC).

Discussion: *Agathidium sichuanicum* n.sp. is the only Chinese species of the *marginatum* group; therefore, it is easy to distinguish from the other species of the subg. *Neoceble*, as it lacks sutural striae and exhibits microreticulate dorsum.

Distribution: China (Sichuan).

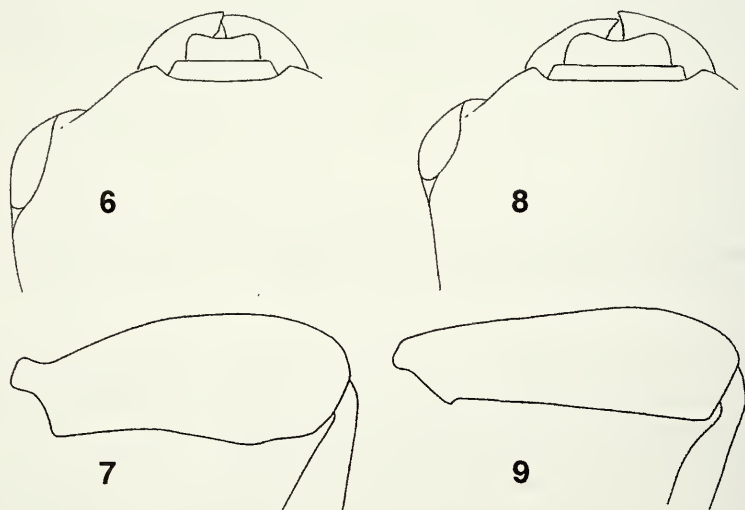
Subg. *Agathidium* Panzer, 1797*madurense* group*Agathidium (Agathidium) vagum* n.sp.

Figs 6, 7, 10-12

Length 3.4 mm (holotype ♂ and paratype). Dorsum reddish-brown; venter reddish-brown, mesosternum lighter; antennae uniformly testaceous; legs reddish-brown. Microreticulation absent from entire dorsum; puncturation fine and sparse on head and pronotum, absent from elytra. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins distinctly raised; clypeus slightly emarginate; clypeal line absent; eyes prominent (fig. 6). Antennal segment 3 1.4 times as long as 2 and as long as 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Punctures small, superficial, separated from each other by 2-8 times their diameter.

Pronotum: 1.6 times as broad as head, moderately broader than long ($W/L = 1.45$), very convex ($W/H = 1.45$); anterior margin sharply curved; lateral outline broadly rounded. Punctures as large as those on head, sparser, separated from each other by 8-15 times their diameter. Holotype: length 1.10 mm, width 1.40 mm, height 1.10 mm.



FIGS 6-9

Head and male metafemora of: 6-7, *Agathidium vagum* n.sp.; 8-9, *A. occultum* n.sp.

Elytra: Slightly narrower than pronotum, slightly longer than broad ($W/L = 0.96$), moderately convex ($W/H = 1.82$); lateral outline with very weak humeral angle. Punctuation almost absent: only some very small, sparse punctures present. Holotype: length 1.55 mm, width 1.50 mm, height 0.82 mm.

Metathoracic wings present. Meso- and metasternum: median carina sharp, lateral lines absent, femoral lines incomplete; a small tubercle between the metacoxae.

Legs: Male hind femora broadened distally (fig. 7). Tarsal formula: ♂ 5-5-4, ♀ not known.

Male copulatory organ (figs 10-12): Aedeagus slender, with hook-like proximal part, lateral margins sinuate and converging towards a subacute tip, deeply bifid ventral piece. Parameres slender, gently narrowing towards apex.

HOLOTYPE ♂: China, Guangxi, 15 Km North Longsheng, 1000 m, 15-22.VI.95, leg. S. Kurbatov (MHNG).

PARATYPE: as holotype but 20.VI.95, 1 ♂ (AC).

Discussion: *Agathidium vagum* n.sp. is closely related to *A. occultum* n.sp. and *A. becvari* Ang. & Švec, from which it differs in the colour of the antennae, the ratio of the 3rd/2nd antennal segment and the shape of the male hind femora.

Distribution: China (Guangxi).

Agathidium (Agathidium) occultum n.sp.

Figs 8, 9, 13-16

Length 3.0-3.2 mm (holotype ♂: 3.1 mm). Dorsum reddish-brown; venter reddish-brown, mesosternum lighter; antennae darker at segments 9-10; legs reddish-brown. Microreticulation almost absent, traceable on elytra; punctuation fine and sparse on entire dorsum. Sutural striae absent.

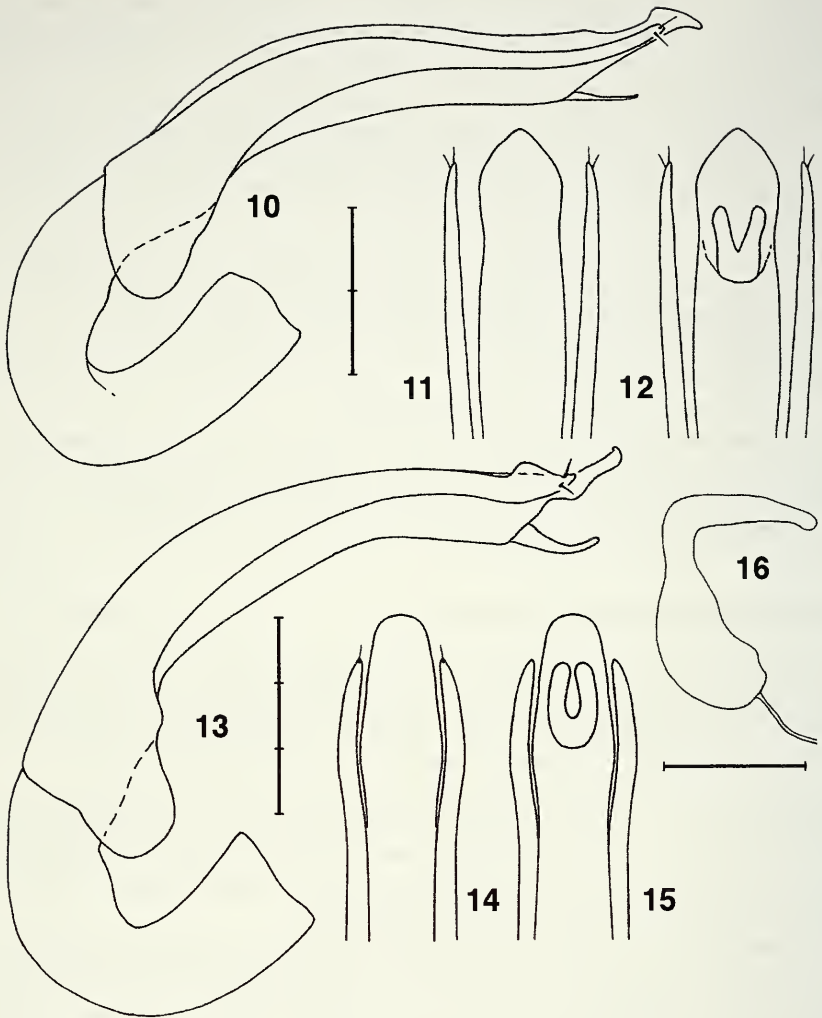
Head: Widest at eyes; anterior-lateral margins distinctly raised; clypeus slightly emarginate; clypeal line absent; eyes prominent (fig. 8). Antennal segment 3 1.7 times as long as 2 and as long as 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Punctures small, superficial, separated from each other by 1-6 times their diameter.

Pronotum: 1.57 times as broad as head, moderately broader than long ($W/L = 1.5$), moderately convex ($W/H = 1.65$); anterior margin slightly curved; lateral outline broadly rounded. Punctures larger and more distinctly impressed than on head, separated from each other by 4-6 times their diameter. Holotype: length 1.10 mm, width 1.65 mm, height 1.00 mm.

Elytra: Moderately narrower than pronotum, slightly broader than long ($W/L = 1.1$), slightly convex ($W/H = 1.93$); lateral outline with very weak humeral angle. Microreticulation almost absent, only traceable; punctures smaller and less well impressed than on head, separated from each other by 4-15 times their diameter. Holotype: length 1.40 mm, width 1.55 mm, height 0.80 mm.

Metathoracic wings present. Meso- and metasternum: median carina sharp, lateral lines absent, femoral lines incomplete; a small tubercle between the metacoxae.

Legs: Male hind femora broadened distally (fig. 9). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.



FIGS 10-16

Male copulatory organ (lateral view, dorsal and ventral view of apex) of: 10-12, *Agathidium vagum* n.sp.; 13-15, *A. occultum* n.sp. Spermatheca of: 16, *A. occultum* n.sp. Scale: 1 division = 0.1 mm.

Male copulatory organ (figs 13-15): Aedeagus slender, with hook-like proximal part, lateral margins sinuate and converging towards a largely rounded apex, deeply bifid ventral piece. Parameres slender, abruptly enlarged at apex.

Spermatheca (fig. 16): Basal part pear-shaped; apical part short.

HOLOTYPE ♂: China, South Yunnan, Mengyang Nat. Res., 9.IX.94, 500 m, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype, 2 ♀ (MHNG), 1 ♀ (AC); as holotype but 8.IX.94, 1 ♂ (AC).

Discussion: See under *A. vagum* n.sp.

Distribution: China (South Yunnan).

seminulum group

Agathidium (Agathidium) uliginosum Ang. & Švec

Agathidium (s.str.) uliginosum Angelini & Švec, 1994: 17.

M a t e r i a l: China, Sichuan, Gongga Shan, above Camp 3, 3050 m, 22.VII.94, leg. A. Smetana, 3 exx. (MHNG), 2 exx. (AC).

Distribution: China (Yunnan and Sichuan).

laevigatum group

***Agathidium (Agathidium) gonggaense* n.sp.**

Figs 17, 18, 25-27

Length 4.2-4.6 mm (holotype ♂: 4.5 mm). Dorsum black; venter reddish-brown, mesosternum lighter; antennae uniformly testaceous; legs reddish-brown. Entire dorsum with superficial microreticulation and very small punctures. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins not raised; clypeus moderately emarginate; clypeal line absent; eyes flattened (fig. 17). Antennal segment 3 2.1 times as long as 2 and longer than 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Microreticulation superficial, uniform; punctures very small, superficial, hardly evident, separated from each other by 3-10 times their diameter.

Pronotum: 1.4 times as broad as head, slightly broader than long ($W/L = 1.35$), very convex ($W/H = 1.45$); anterior margin sharply curved; lateral outline broadly rounded. Microreticulation less well impressed than on head; punctures as large as those on head, separated from each other by 5-6 times their diameter. Holotype: length 1.55 mm, width 2.10 mm, height 1.45 mm.

Elytra: Slightly narrower than pronotum, as broad as long, slightly convex ($W/H = 1.9$); lateral outline with very weak humeral angle. Microreticulation more distinctly impressed than on pronotum; punctures as large as those on head, separated from each other by 10-15 times their diameter. Holotype: length 2.00 mm, width 2.00 mm, height 1.05 mm.

Metathoracic wings absent. Meso- and metasternum: median carina sharp, lateral lines absent, femoral lines complete; a small tubercle between the metacoxae.

Legs: Male hind femora with pronounced tooth at posterior margin (fig. 18). Tarsal formula: ♂ 5-5-4, ♀ not known.

Male copulatory organ (figs 25-27): Aedeagus slender, with hook-like proximal part, lateral margins sinuate, apex emarginate, ventral piece spatula-like. Parameres slender, gently narrowing toward apex and curved down.

HOLOTYPE ♂: China, Sichuan, Gongga Shan, above Camp 3, 3050 m, 22.VII.94, leg. A. Smetana (MHNG).

PARATYPES: China, Sichuan, Gongga Shan, Lake above Camp 2, 2750 m, 24.VII.94, leg. A. Smetana, 1 ♂ (MHNG), 1 ♂ (AC).

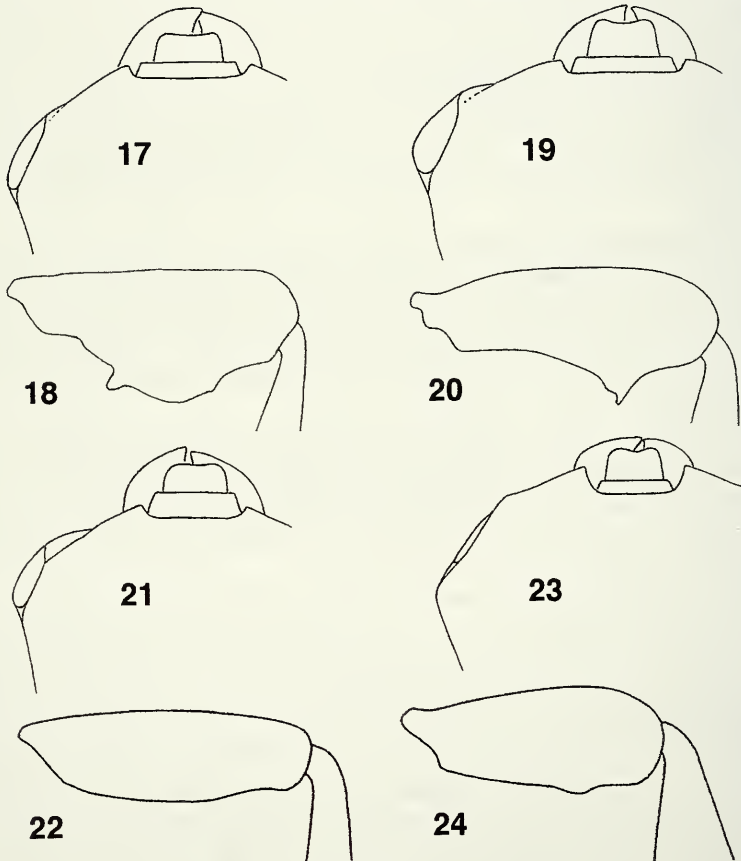
Discussion: Within the Chinese species of the *laevigatum* group, *A. gonggaense* n.sp. shares its large size only with *A. rufescens* n.sp.; it differs from the latter in the ratio of the 3rd/2nd antennal segment and the presence of microreticulation on the entire dorsum.

Distribution: China (Sichuan).

Agathidium (Agathidium) rufescens n.sp.

Figs 19, 20, 28-31

Length 3.6-3.9 mm (holotype ♂: 3.8 mm). Dorsum reddish-brown, venter reddish-brown, mesosternum lighter; antennae uniformly testaceous; legs reddish-



FIGS 17-24

Head and male metafemora of: 17-18, *Agathidium gonggaense* n.sp.; 19-20, *A. rufescens* n.sp.; 21-22, *A. procerum* n.sp.; 23-24, *A. celatum* n.sp.

brown. Microreticulation absent from head and pronotum, superficial on elytra; puncturation fine and sparse on entire dorsum. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins not raised; clypeus moderately emarginate; clypeal line absent; eyes flattened (fig. 19). Antennal segment 3 2.3 times as long as 2 and longer than 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Microreticulation absent; punctures small but clearly impressed, separated from each other by 3-4 times their diameter.

Pronotum: 1.26 times as broad as head, slightly broader than long ($W/L = 1.17$), very convex ($W/H = 1.37$); anterior margin sharply curved; lateral outline broadly rounded. Microreticulation absent; punctures smaller and less well impressed than on head, separated from each other by 1-6 times their diameter. Holotype: length 1.40 mm, width 1.65 mm, height 1.20 mm.

Elytra: As broad as pronotum, as broad as long, slightly convex ($W/H = 2.05$); lateral outline with very weak humeral angle. Microreticulation slightly impressed, difficult to see, more distinct in the less coloured specimens; punctures as large those on head, sparser, separated from each other by 2-15 times their diameter. Holotype: length 1.60 mm, width 1.65 mm, height 0.80 mm.

Metathoracic wings absent. Meso- and metasternum: median carina absent, lateral lines weak and incomplete, femoral lines complete.

Legs: Male hind femora with pronounced tooth at posterior margin (fig. 20). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 28-30): Aedeagus slender, with proximal part simple, lateral margins sinuate, apex emarginate, ventral piece not bifid. Parameres slender, gently narrowing toward apex.

Spermatheca (fig. 31): S-shaped; enlarged at the duct connection.

HOLOTYPE ♂: China, Sichuan, Wolong Nat. Res., 900 m, 23.V.94, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype, 1 ♀ (MHNG), 1 ♂ (AC).

Discussion: See under *A. gonggaense* n.sp.

Distribution: China (Sichuan).

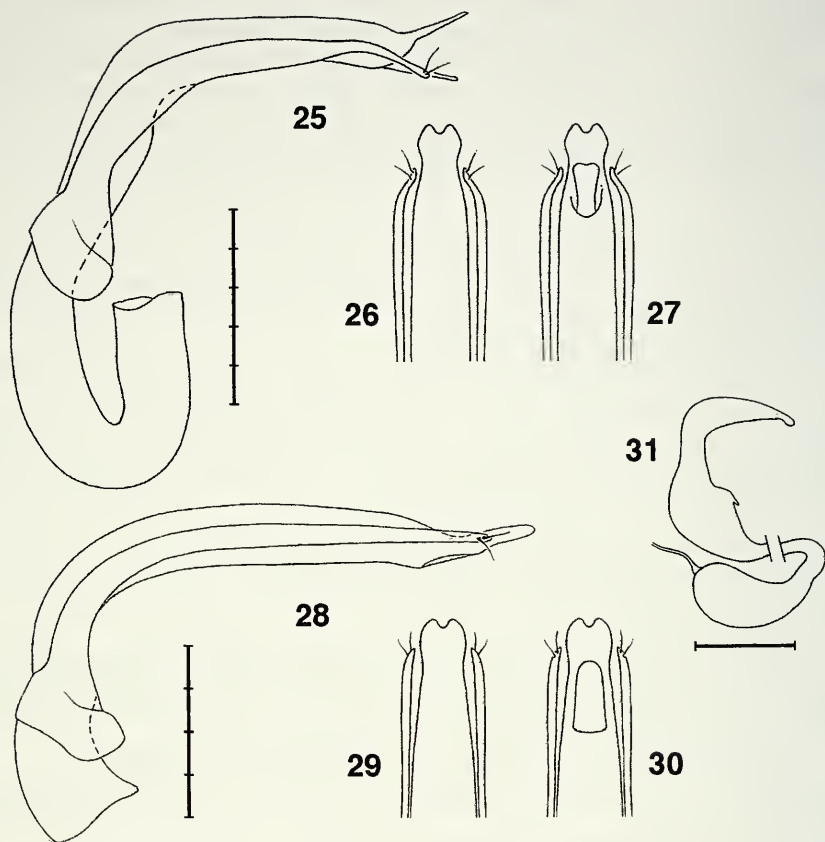
Agathidium (Agathidium) procerum n.sp.

Figs 21, 22, 32-35

Length 2.15-2.30 mm (holotype ♂: 2.25 mm). Dorsum reddish-brown; venter reddish-brown, mesosternum lighter; antennae uniformly testaceous; legs reddish-brown. Microreticulation superficial, uniform on entire dorsum; puncturation absent. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins not raised; clypeus moderately emarginate; clypeal line absent; eyes flattened (fig. 21). Antennal segment 3 1.1 times as long as 2 and shorter than 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Microreticulation uniform, very superficial.

Pronotum: 1.4 times as broad as head, moderately broader than long ($W/L = 1.57$), very convex ($W/H = 1.46$); anterior margin slightly curved; lateral outline



FIGS 25-31

Male copulatory organ (lateral view, dorsal and ventral view of apex) of: 25-27, *Agathidium gonggaense* n.sp.; 28-30, *A. rufescens* n.sp. Spermatheca of: 31, *A. rufescens* n.sp. Scale: 1 division = 0.1 mm.

broadly rounded. Microreticulation as that on head. Holotype: length 0.70 mm, width 1.10 mm, height 0.75 mm.

Elytra: As broad as pronotum, as broad as long, slightly convex ($W/H = 2$); lateral outline with very weak humeral angle. Microreticulation as that on head. Holotype: length 1.05 mm, width 1.10 mm, height 0.55 mm.

Metathoracic wings absent. Meso- and metasternum: median carina absent, lateral lines absent, femoral lines complete; a small tubercle between the metacoxae.

Legs: Male hind femora broadened distally (fig. 22). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 32-34): Aedeagus slender, with spiral proximal part, lateral margins abruptly converging toward subacute tip, deeply bifid ventral piece. Parameres slender, gently narrowing towards apex.

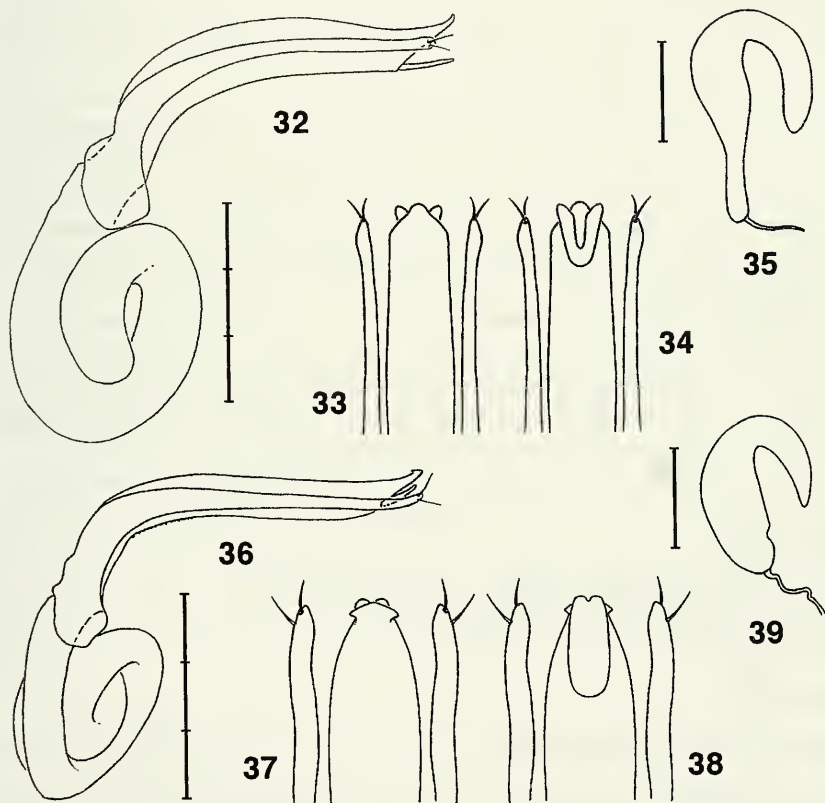
Spermatheca (fig. 35): Basal and apical parts very different in shape and length.

HOLOTYPE ♂: China, Sichuan, Wolong Nat. Res., 1500 m, 22.V.94, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype but 1700 m, 17.V.94, 1 ♂ (AC); same but 18.V.94, 1 ♀ (MHNG), 1 ♀ (AC); same but 900 m, 23.V.94, 1 ♂ and 2 ♀ (MHNG), 1 ♂ (AC).

Discussion: See under *A. gonggaense* n.sp. Within the *laevigatum* group, *A. procerum* n.sp. is closely related to *A. celatum* n.sp.; it differs from the latter in the head size, the ratio of the 3rd/2nd antennal segments, the ratio of the pronotum/head width and the tarsal formula in female.

Distribution: China (Sichuan).



FIGS 32-39

Male copulatory organ (lateral view, dorsal and ventral view of apex) and spermatheca of: 32-35, *Agathidium procerum* n.sp.; 36-39, *A. celatum* n.sp. Scale: 1 division = 0.1 mm.

Agathidium (Agathidium) celatum n.sp.

Figs 23, 24, 36-39

Length 2.2-2.3 mm (holotype ♂: 2.2 mm). Dorsum and venter reddish-brown; antennae uniformly testaceous; legs reddish-brown. Microreticulation present only on elytra; puncturation fine and sparse on head and pronotum. Sutural striae absent.

Head: Widest just behind eyes; temple 1/2 as long as the eye; anterior-lateral margins not raised; clypeus deeply emarginate; clypeal line absent; eyes flattened, hardly distinct in dorsal view (fig. 23). Antennal segment 3 1.3 times as long as 2 and longer than 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Punctures very small, superficial, separated from each other by 1-8 times their diameter.

Pronotum: 1.2 times as broad as head, moderately broader than long ($W/L = 1.5$), moderately convex ($W/H = 1.54$); anterior margin sharply curved; lateral outline broadly rounded. Punctures larger and more distinctly impressed than on head, separated from each other by 2-6 times their diameter. Holotype: length 0.70 mm, width 1.05 mm, height 0.68 mm.

Elytra: Slightly narrower than pronotum, as broad as long, moderately convex ($W/H = 1.58$); lateral outline with very weak humeral angle. Microreticulation superficial, uniform; puncturation absent, except for some very small punctures. Holotype: length 0.95 mm, width 0.95 mm, height 0.60 mm.

Metathoracic wings absent. Meso- and metasternum: median carina weak, lateral lines absent, femoral lines complete; a small tubercle between the metacoxae. Metasternum very short.

Legs: Male hind femora broadened distally (fig. 24). Tarsal formula: ♂ 5-5-4, ♀ 4-4-4.

Male copulatory organ (figs 36-38): Aedeagus slender, with spiralled proximal part, lateral margins gently converging towards a arrow-like apex, ventral piece not bifid. Parameres slender, gently narrowing towards apex.

Spermatheca (fig. 39): Basal part pear-shaped; apical part short and tapered.

HOLOTYPE ♂: China, West Hubei, Shennongjia Nat. Res., 2000-2200 m, 7.VI.95, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype, 3-8.VI.95, 1 ♀ (MHNG), 1 ♀ (AC).

Discussion: See under *A. procerum* n.sp.

Distribution: China (West Hubei).

dentatum group**Agathidium (Agathidium) huaense** n.sp.

Figs 40, 45, 50-53

Length 2.9-3.1 mm (holotype ♂: 3.1 mm). Dorsum and venter reddish-brown; antennae uniformly testaceous; legs reddish-brown. Microreticulation almost absent, traceable on elytra; puncturation fine and sparse on entire dorsum. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins not raised; clypeus slightly emarginate; clypeal line absent; eyes flattened (fig. 40). Antennal segment 3 1.5 times

as long as 2 and longer than 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Punctures small, superficial, separated from each other by 4-6 times their diameter.

Pronotum: 1.27 times as broad as head, slightly broader than long ($W/L = 1.33$), moderately convex ($W/H = 1.55$); anterior margin slightly curved; lateral outline broadly rounded. Punctures smaller and more superficial than on head, separated from each other by 1-6 times their diameter. Holotype: length 1.05 mm, width 1.40 mm, height 0.90 mm.

Elytra: As broad as pronotum, as broad as long, slightly convex ($W/H = 2$); lateral outline with very weak humeral angle. Microreticulation almost absent, only traceable; punctures larger than on pronotum, very superficial, separated from each other by 3-10 times their diameter. Holotype: length 1.30 mm, width 1.40 mm, height 0.70 mm.

Metathoracic wings absent. Meso- and metasternum: median carina sharp, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora with pronounced tooth at posterior margin (fig. 45). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 50-52): Aedeagus slender, with hook-like proximal part, lateral margins sinuate, apex truncate, ventral piece not bifid. Parameres slender, enlarged at apex.

Spermatheca (fig. 53): Basal part pear-shaped; apical part short and tapered.

HOLOTYPE ♂: China, Shaanxi, Mt. Hua, 500 m, 12.V.94, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype, 1 ♀ (MHNG), 1 ♂ and 1 ♀ (AC).

Discussion: *A. huaense* n.sp. is closely related to *A. fukiense* Ang. & Dmz. and *A. brunneipenne* n.sp.; it differs from *A. fukiense* in the colour of antennae and the lack of metathoracic wings; it differs from *A. brunneipenne* n.sp. in the ratio of the 3rd/2nd antennal segments, the shape of the male hind femora and the tarsal formula.

Distribution: China (Shaanxi).

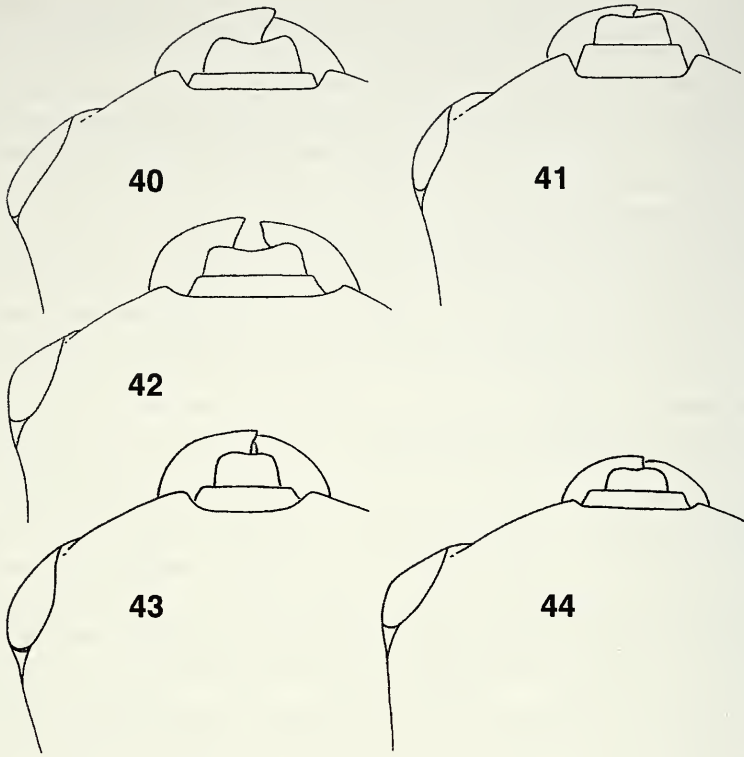
Agathidium (Agathidium) brunneipenne n.sp.

Figs 41, 46, 54-57

Length 2.7-3.0 mm (holotype ♂: 2.9 mm). Head and pronotum reddish-brown, elytra either black or reddish-brown; venter reddish-brown, mesosternum lighter; antennae uniformly testaceous; legs reddish-brown. Microreticulation almost absent, traceable on elytra; punctures very small and sparse on entire dorsum. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins not raised; clypeus deeply emarginate; clypeal line absent; eyes flattened (fig. 41). Antennal segment 3 1.1 times as long as 2 and shorter than 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Microreticulation absent; punctures small, superficial, hardly distinct, separated from each other by 4-10 times their diameter.

Pronotum: 1.39 times as broad as head, slightly broader than long ($W/L = 1.32$), very convex ($W/H = 1.46$); anterior margin slightly curved; lateral outline broadly rounded. Microreticulation absent; puncturation as that on head. Holotype: length 1.00 mm, width 1.32 mm, height 0.90 mm.



FIGS 40-44

Head of: 40, *Agathidium huaense* n.sp.; 41, *A. brunneipenne* n.sp.; 42, *A. inerme* n.sp.; 43, *A. lugubre* n.sp.; 44, *A. indubium* n.sp.

Elytra: Moderately narrower than pronotum, slightly longer than broad ($W/L = 0.96$), very convex ($W/H = 1.36$); lateral outline with very weak humeral angle. Microreticulation almost absent, only traceable; punctures as those on head. Holotype: length 1.25 mm, width 1.20 mm, height 0.88 mm.

Metathoracic wings absent. Meso- and metasternum: median carina weak, lateral lines absent, femoral lines incomplete; a small tubercle between the metacoxae. Metasternum very short.

Legs: Male hind femora broadened distally (fig. 46). Tarsal formula: ♂ 4-4-4, ♀ 4-4-4.

Male copulatory organ (figs 54-56): Aedeagus comparatively stout, with spiralled proximal part, lateral margins subparallel, apex broadly rounded, deeply bifid ventral piece. Parameres slender, gently narrowing towards apex.

Spermatheca (fig. 57): Basal part pear-shaped; apical part slender.

HOLOTYPE ♂: China, West Hubei, Shennongjia Nat. Res., 2000-2200 m, 3-8.VI.95, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype, 4 ♂ and 13 ♀ (MHNG), 3 ♂ and 3 ♀ (AC).

Discussion: See under *A. huaense* n.sp.

Distribution: China (West Hubei).

Agathidium (Agathidium) inerme n.sp.

Figs 42, 47, 58-60

Length 5.6-6.0 mm (holotype ♂: 5.95 mm). Dorsum black, venter reddish-brown, mesosternum lighter; antennae uniformly dark; legs reddish-brown. Microreticulation almost absent, traceable on elytra; puncturation fine on entire dorsum. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins not raised; clypeus moderately emarginate; clypeal line absent; eyes prominent (fig. 42). Antennal segment 3 2.3 times as long as 2 and longer than 4 and 5 combined. Hamann's organ: gutter with 2 vesicles in 9th and 10th antennal segments; gutter without vesicles in the 7th antennal segment. Microreticulation absent; punctures small, impressed, separated from each other by 2-4 times their diameter.

Pronotum: 1.48 times as broad as head, slightly broader than long ($W/L = 1.37$), very convex ($W/H = 1.41$); anterior margin sharply curved; lateral outline broadly rounded. Microreticulation absent; punctures smaller and less well impressed than on head, separated from each other by 4-6 times their diameter, some very small punctures interposed. Holotype: length 2.00 mm, width 2.75 mm, height 1.95 mm.

Elytra: Moderately narrower than pronotum, slightly longer than broad ($W/L = 0.95$), moderately convex ($W/H = 1.79$); lateral outline with very weak humeral angle. Microreticulation almost absent, only traceable; punctures as large as those on head, less well impressed, separated from each other by 3-8 times their diameter. Holotype: length 2.75 mm, width 2.60 mm, height 1.45 mm.

Metathoracic wings absent. Meso- and metasternum: median carina weak, lateral lines complete, femoral lines complete.

Legs: Male hind femora with pronounced distal tooth (fig. 47). Tarsal formula: ♂ 5-5-4, ♀ not known.

Male copulatory organ (figs 58-60): Aedeagus slender, with hook-like proximal part, lateral margins sinuate, apex truncate, deeply bifid ventral piece. Parameres slender, gently narrowing towards apex.

HOLOTYPE ♂: China, West Hubei, Shennongjia Nat. Res., 2000-2200 m, 3-8.VI.95, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype, 1 ♂ (AC).

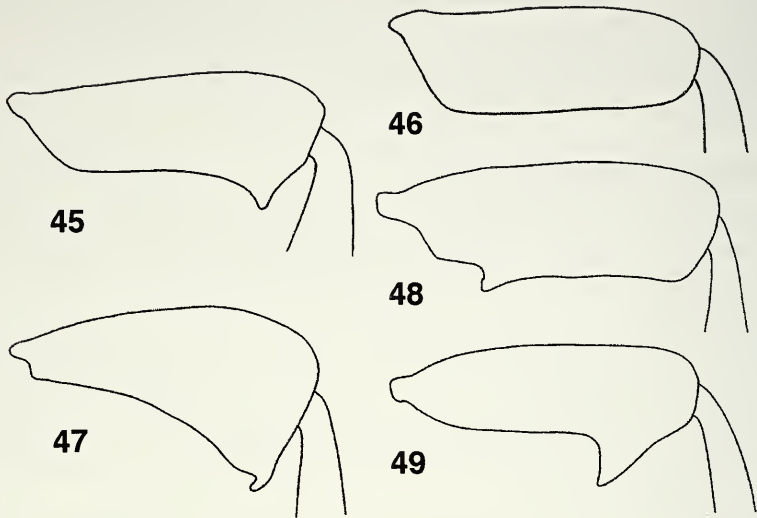
Discussion: *A. inerme* n.sp. is clearly different from all the Chinese *Agathidium* in its very large size and the ratio of the 3rd/2nd antennal segment.

Distribution: China (West Hubei).

Agathidium (Agathidium) lugubre n.sp.

Figs 43, 48, 61-64

Length 3.95 mm (holotype ♂ and paratype). Dorsum entirely black in the paratypes, reddish-brown at head in the holotype; mesosternum testaceous, meta-



FIGS 45-49

Male metafemora of: 45, *Agathidium huaense* n.sp.; 46, *A. brunneipenne* n.sp.; 47, *A. inerme* n.sp.; 48, *A. lugubre* n.sp.; 49, *A. indubium* n.sp.

sternum reddish-brown, abdomen black; antennae uniformly testaceous; legs reddish-brown. Microreticulation almost absent, only some traces on elytra; puncturation fine and sparse on head and pronotum. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins not raised; clypeus moderately emarginate; clypeal line absent; eyes prominent (fig. 43). Antennal segment 3 2.1 times as long as 2 and longer than 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Microreticulation absent; punctures small, superficial, separated from each other by 2-6 times their diameter.

Pronotum: 1.3 times as broad as head, slightly broader than long ($W/L = 1.38$), very convex ($W/H = 1.4$); anterior margin sharply curved; lateral outline broadly rounded. Puncturation as that on head. Holotype: length 1.32 mm, width 1.82 mm, height 1.30 mm.

Elytra: Slightly narrower than pronotum, as broad as long, moderately convex ($W/H = 1.7$); lateral outline with very weak humeral angle. Punctures as large as those on head, less clearly impressed, more superficial, difficult to see. Holotype: length 1.70 mm, width 1.70 mm, height 1.00 mm.

Metathoracic wings absent. Meso- and metasternum: median carina sharp, lateral lines absent, femoral lines complete.

Legs: Male hind femora with weak distal tooth (fig. 48). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 61-63): Aedeagus slender, with hook-like proximal part, lateral margins sinuate, apex truncate and slightly emarginate, deeply bifid ventral piece. Parameres slender, gently narrowing towards apex.

Spermatheca (fig. 64): Basal part globose; apical part slender.

HOLOTYPE ♂: China, Guangxi, 15 Km North Longsheng, 1000 m, 20.VI.95, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype, 1 ♂ and 3 ♀ (MHNG), 1 ♂ and 1 ♀ (AC).

Discussion: *Agathidium lugubre* n.sp. is closely related to *A. yunnanicum* Ang. & Švec and *A. indubium* n.sp. Its identification must be based on the male copulatory organ.

Distribution: China (West Hubei).

***Agathidium (Agathidium) indubium* n.sp.**

Figs 44, 49, 65-68

Length 3.7-4.0 mm (holotype ♂: 3.95 mm). Dorsum black, reddish-brown at head, venter reddish-brown, mesosternum lighter; antennae uniformly testaceous; legs reddish-brown. Microreticulation almost absent, traceable on elytra; puncturation fine and hardly distinct on entire dorsum. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins slightly raised; clypeus slightly emarginate; clypeal line absent; eyes prominent (fig. 44). Antennal segment 3 2 times as long as 2 and longer than 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Microreticulation absent; punctures very small, superficial, hardly visible, separated from each other by 4-10 times their diameter.

Pronotum: 1.4 times as broad as head, slightly broader than long ($W/L = 1.28$), very convex ($W/H = 1.38$); anterior margin slightly curved; lateral outline broadly rounded. Microreticulation absent; puncturation smaller and less well impressed than on head, hardly distinct, separated from each other by 5-15 times their diameter. Holotype: length 1.40 mm, width 1.80 mm, height 1.30 mm.

Elytra: As broad as pronotum, moderately broader than long ($W/L=1.09$), slightly convex ($W/H = 2.25$); lateral outline with very weak humeral angle. Microreticulation almost absent, only traceable; puncturation absent, except for some very small punctures. Holotype: length 1.65 mm, width 1.80 mm, height 0.80 mm.

Metathoracic wings absent. Meso- and metasternum: median carina short, lateral lines complete, femoral lines complete; a small tubercle between the metacoxae.

Legs: Male hind femora with sharp tooth at posterior margin (fig. 49). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 65-67): Aedeagus slender, with hook-like proximal part, lateral margins subparallel, apex deeply emarginate, bifid ventral piece. Parameres slender, gently narrowing towards apex and curved up.

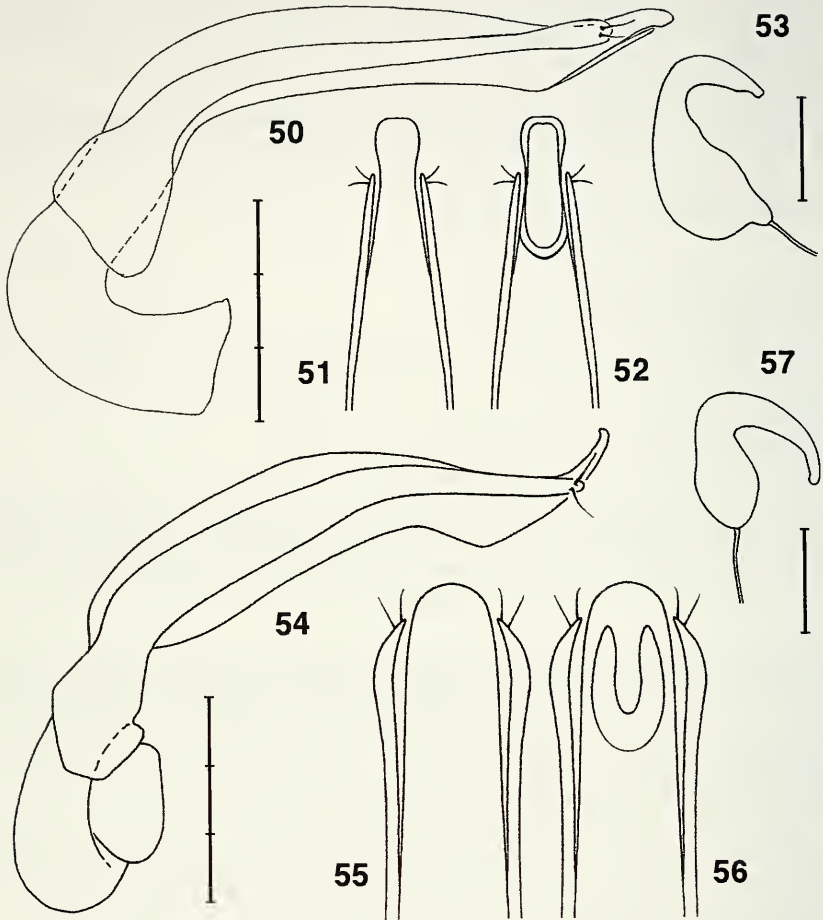
Spermatheca (fig. 68): Basal part globose; apical part short.

HOLOTYPE ♂: China, Sichuan, Mt. Emei, 1600 m, 28.IX.94, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype, 1 ♀ (AC).

Discussion: See under *A. lugubre* n.sp.

Distribution: China (Sichuan).



FIGS 50-57

Male copulatory organ (lateral view, dorsal and ventral view of apex) and spermatheca of: 50-53, *Agathidium huaense* n.sp.; 54-57, *A. brunneipenne* n.sp. Scale: 1 division = 0.1 mm.

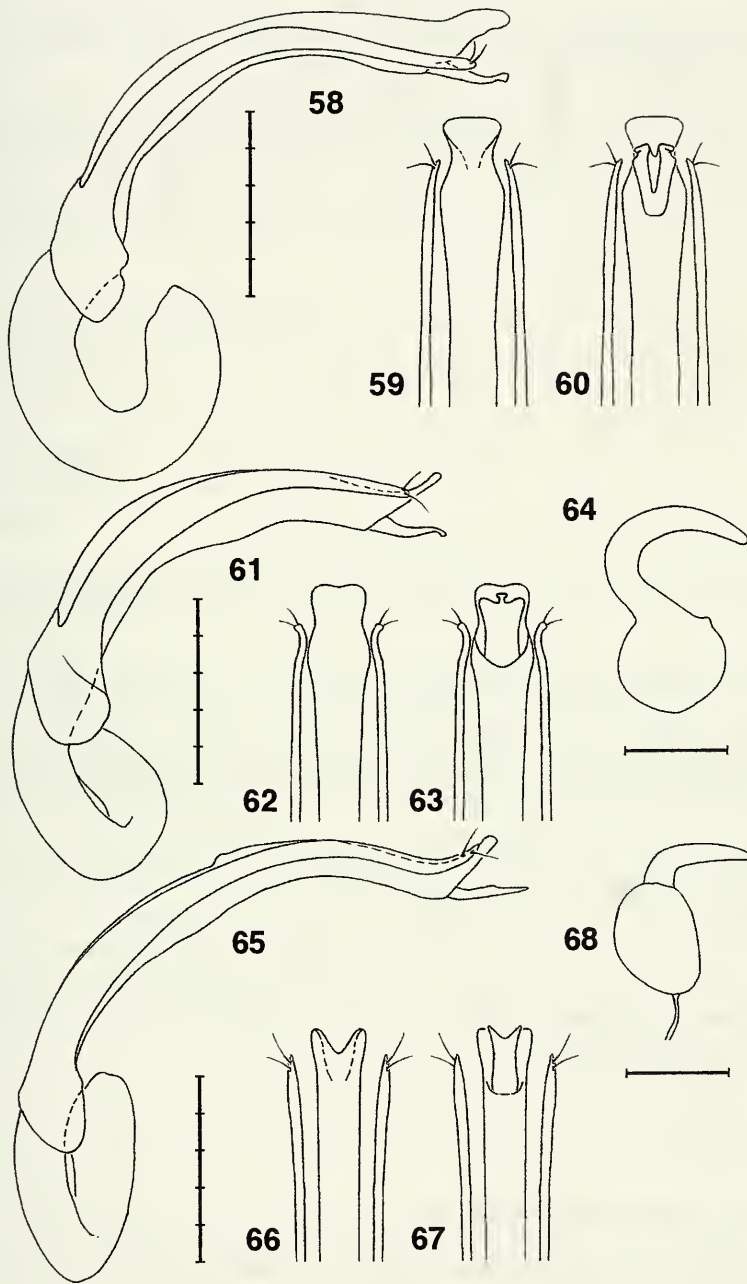
Subg. *Microceble* Angelini & De Marzo, 1986

grouvellei group

Agathidium (Microceble) corticinum n.sp.

Figs 69, 70, 73-76

Length 2.65-2.80 mm (holotype ♂: 2.65 mm). Dorsum reddish-brown, darker at elytra, venter reddish-brown, mesosternum lighter; antennae with segments 7-10



FIGS 58-68

Male copulatory organ (lateral view, dorsal and ventral view of apex) of: 58-60, *Agathidium inerme* n.sp.; 61-63, *A. lugubre* n.sp.; 65-67, *A. indubium* n.sp. Spermatheca of: 64, *A. lugubre* n.sp.; 68, *A. indubium* n.sp. Scale: 1 division = 0.1 mm.

darker; legs reddish-brown. Head striolate only on clypeus, pronotum with some traces of microreticulation; puncturation fine and sparse on head and pronotum. Sutural striae absent.

Head: Widest at eyes; anterior-lateral margins distinctly raised; clypeus slightly emarginate, with a short groove and a small pit at each side; eyes hemispherical (fig. 69). Antennal segment 3 1.2 times as long as 2 and as long as the 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Head striolate only on clypeus; punctures small, superficial, separated from each other by 4-6 times their diameter.

Pronotum: 1.73 times as broad as head, slightly broader than long ($W/L = 1.38$), very convex ($W/H = 1.47$); anterior margin slightly curved; lateral outline broadly rounded. Microreticulation almost absent, only traceable; punctures smaller and less well impressed than on head, separated from each other by 8-10 times their diameter. Holotype: length 0.90 mm, width 1.25 mm, height 0.85 mm.

Elytra: Slightly narrower than pronotum, longer than broad ($W/L = 0.98$), moderately convex ($W/H = 1.71$); lateral outline with very weak humeral angle. Microreticulation absent; puncturation absent, except for some very small punctures. Holotype: length 1.22 mm, width 1.20 mm, height 0.70 mm.

Metathoracic wings present. Meso- and metasternum: median carina weak, lateral lines absent, femoral lines incomplete; a pronounced tubercle between the metacoxae.

Legs: Male hind femora broadened distally (fig. 70). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 73-75): Aedeagus slender, with lateral margins gently converging towards a subacute tip, deeply bifid ventral piece. Parameres slender, gently narrowing towards apex.

Spermatheca (fig. 76): Basal part pear-shaped; apical part short.

HOLOTYPE ♂: China, South Yunnan, Mengyang Nat. Res., 9.IX.94, 500 m, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype, 1 ♀ (MHNG), 1 ♀ (AC).

Discussion: *A. corticinum* n.sp. does differs from the only other known Chinese species of the grouvellei group, *A. melanarium* Ang. & Švec, in the size, the microsculpture of head and pronotum, the colour of antennae and dorsum, the ratio of the 3rd/2nd antennal segment.

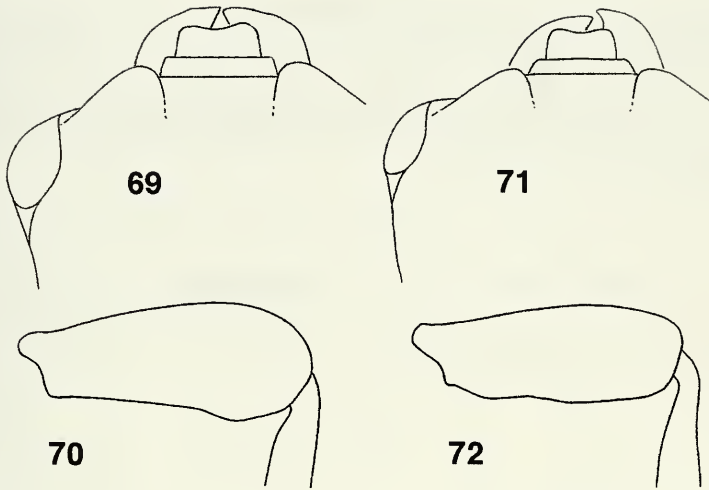
Distribution: China (South Yunnan).

andrewesi group

Agathidium (Microceble) solutum n.sp.

Figs 71, 72, 77-80

Length 2.6-2.8 mm (holotype ♂: 2.65 mm). Dorsum reddish-brown, venter reddish-brown, mesosternum lighter; antennae uniformly testaceous; legs reddish-brown. Microreticulation absent; puncturation fine and sparse on entire dorsum. Sutural striae absent.



Figs 69-72

Head and male metafemora of: 69-70, *Agathidium corticinum* n.sp.; 71-72, *A. solutum* n.sp.

Head: Widest at eyes; anterior-lateral margins distinctly raised; clypeus slightly emarginate, with a short groove and a small pit at each side; eyes hemispherical (fig. 71). Antennal segment 3 1.3 times as long as 2 and as long as the 4 and 5 combined. Hamann's organ: gutter without vesicles in 9th and 10th antennal segments. Microreticulation absent; punctures small, superficial, separated from each other by 3-6 times their diameter.

Pronotum: 1.65 times as broad as head, slightly broader than long ($W/L = 1.28$), very convex ($W/H = 1.31$); anterior margin sharply curved; lateral outline broadly rounded. Microreticulation absent; puncturation as that on head. Holotype: length 0.90 mm, width 1.16 mm, height 0.88 mm.

Elytra: Slightly narrower than pronotum, moderately longer than broad ($W/L = 0.91$), moderately convex ($W/H = 1.57$); lateral outline with very weak humeral angle. Microreticulation absent; puncturation as that on head. Holotype: length 1.20 mm, width 1.10 mm, height 0.70 mm.

Metathoracic wings absent. Meso- and metasternum: median carina weak, lateral lines absent, femoral lines incomplete; a pronounced tubercle between the metacoxae.

Legs: Male hind femora simple (fig. 72). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 77-79): Aedeagus stout, with twisted proximal part, lateral margins sinuate and converging towards a broadly rounded apex, deeply bifid ventral piece. Parameres slender, moderately enlarged at apex.

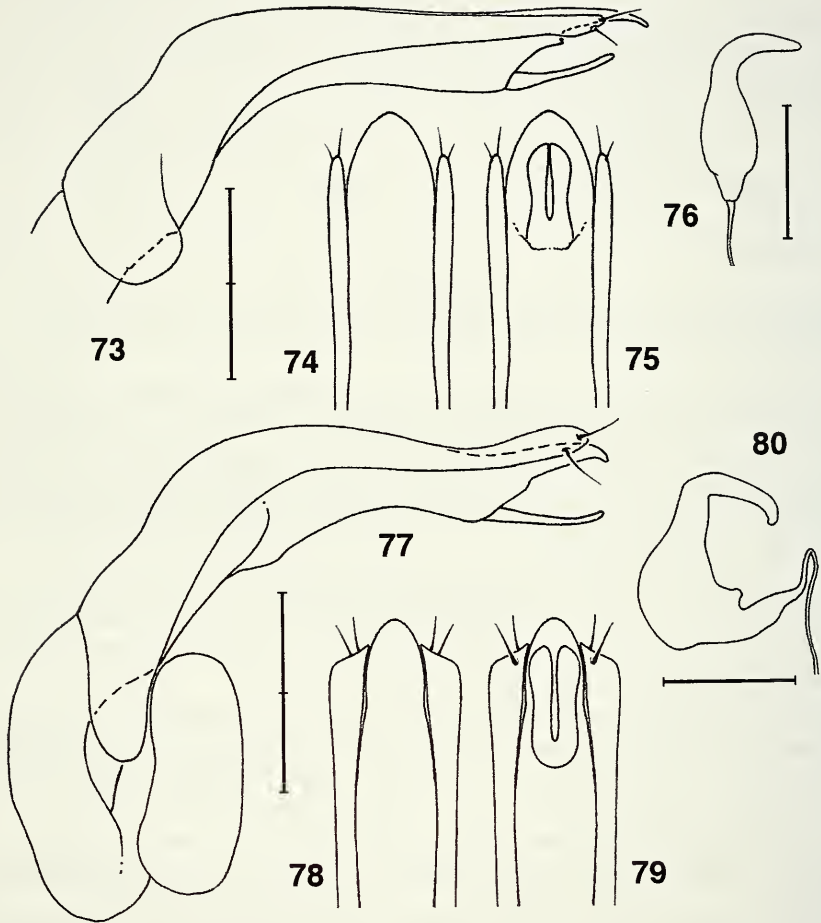
Spermatheca (fig. 80): Basal part pear-shaped, prolonged towards the duct connection; apical part short.

HOLOTYPE ♂: China, Guangxi, 15 Km North Longsheng, 1000 m, 20.VI.95, leg. S. Kurbatov (MHNG).

PARATYPES: as holotype, 1 ♀ (AC); same but 21.VI.95, 1 ♂ (AC); same but 15-22.VI.95, 3 ♀ (MHNG), 1 ♂ (AC).

Discussion: In China, the andrewesi group includes a total of 3 species, which can be distinguished from each other only on the basis of the male copulatory organ.

Distribution: China (Guangxi).



Figs 73-80

Male copulatory organ (lateral view, dorsal and ventral view of apex) and spermatheca of: 73-76. *Agathidium corticinum* n.sp.; 77-80, *A. solutum* n.sp. Scale: 1 division = 0.1 mm.

Agathidium (Microceble) venustum Ang. & Dmz.

Agathidium (Microceble) venustum Angelini & De Marzo, 1995: 250.

M a t e r i a l: China, Guangxi, 15 Km North Longsheng, 1000 m, 22.VI.95, leg. S. Kurbatov, 3 exx. (MHNG), 2 exx. (AC).

Distribution: China (Guangxi), Taiwan. New record for China.

Agathidium (Microceble) manasicum Ang. & Dmz.

Agathidium (Microceble) manasicum Angelini & De Marzo, 1986: 445; ANGELINI, 1992: 209.

M a t e r i a l: China, Guangxi, 15 Km North Longsheng, 1000 m, 22.VI.95, leg. S. Kurbatov, 2 exx. (MHNG), 1 exx. (AC).

Distribution: China (Guangxi), Thailand, India (Assam). New record for China.

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The genus *Laena* Latreille (Coleoptera: Tenebrionidae) in Thailand, with descriptions of new species

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The genus *Laena* Latreille (Coleoptera: Tenebrionidae) in Thailand, with descriptions of new species. - *Laena burkhardti* sp.n., *Laena loebli* sp.n., *Laena masumotoi* sp.n., *Laena pseudosiamica* sp.n. and *Laena schwendingeri* sp.n. from Thailand are described as new, another 5 known species are redescribed. All species of the genus *Laena* Latreille, 1829 are supposed to be endemic in that country. An identification key for all known 10 species from Thailand is provided.

Key-words: Coleoptera - Tenebrionidae - *Laena* - New species - Thailand.

INTRODUCTION

The tenebrionid genus *Laena* Latreille, 1829 contains numerous species, distributed from eastern Europe and the Caucasus to Middle Asia (SCHAWALLER 1995a), the Himalayas (KASZAB 1977; SCHUSTER 1926, 1935), China, Vietnam (MASUMOTO 1995, 1996a, 1996b), Japan and southward up to continental Malaysia (SCHAWALLER 1995b). From Thailand, 5 species were known by now (KASZAB & CHUJO 1966, KASZAB 1973, MASUMOTO 1989, 1996b), but new collections mainly by Drs D. Burckhardt and I. Löbl from the Geneva museum show, that at least 10 species occur in Thailand. These are summarized alphabetically in the present paper.

None of the species from Thailand could be found in huge material which I have seen from the Himalayas and from Malaysia. Neither are they conspecific with recently described species from China and Vietnam, so far it can be judged by the descriptions and by the comparison of single types. The species characters within the genus are discussed by SCHAWALLER (1995b), a natural subgeneric classification of the species-rich genus is still lacking. Thus, the very probably endemic Thaiandese species are not compared herein with species from other regions, but separated by an own identification key. The flightless species usually possess quite small areas.

The species of *Laena* are characteristic elements of the soil fauna in mature forests of different composition, thus all Thaiandese specimens have been collected by soil sifting in forests. However, in other regions some species also live in treeless alpine or steppe habitats.

MATERIAL

MHNG Muséum d'histoire naturelle Genève

NSMT National Science Museum Tokyo

SMNS Staatliches Museum für Naturkunde Stuttgart

* Contribution to Tenebrionidae, no. 20. For no. 19 see: Stuttgarter Beitr. Naturk. (A) 566, 1997.

THE SPECIES OF *LAENA* FROM THAILAND***Laena angkhangensis*** Masumoto, 1996

(Figs 1-3)

M a t e r i a l: Thailand, Chiang Mai, Fang Distr., Doi Angkhang, 7.II.1989 leg. K. Masumoto, 1 male holotype NSMT.

DESCRIPTION: Head with equal punctures, distance of punctures 1-3times as diameters, nearly all punctures with a long seta; diameter of eyes consists of about 8 facets. Pronotum shape Fig. 1; pronotum shining, punctures somewhat smaller and distinctly more scattered than on head, clothed only at all sides with setae as head; lateral margin with distinct and crenulate border, basal and distal margin unbordered; propleures with punctation distinctly smaller and with setation somewhat shorter than on pronotum. Elytra with 10 rows of punctures, second row with about 38 punctures, nearly all punctures with a long seta (Fig. 2); intervals gently convex, shining, scattered with small punctures, most with a long erect seta; basal part of elytra impressed along sutura; interval III with a distinct setiferous umbilicate pore at the tip, interval VII with a distinct setiferous umbilicate pore at the shoulders and interval IX with 4 setiferous umbilicate pores between the shoulders and the tip. Profemur, mesofemur and metafemur each with a distinct and acute spine. Aedeagus Fig. 3. Body length 7.5 mm.

DISTRIBUTION: Known only from the type locality Doi Angkhang in northern Thailand.

Laena burckhardtii sp.n.

(Figs 4-6)

H o l o t y p e (male): Thailand, NE Bangkok, Khao Yai Nat. Park, Khao Khieo, 1150 m, 28.XI.1985 leg. D. Burckhardt & I. Löbl, MHNG.

Paratypes: Same data as holotype, 9 ex. MHNG, 5 ex. SMNS.

Derivatio nominis: Dedicated to Dr Daniel Burckhardt, Museum of Natural History in Basel, one of the collectors of the type series.

DESCRIPTION: Head with equal and large punctures, distance of punctures 0.5-1times as diameters, nearly all punctures with a long seta; diameter of eyes consists of about 5-6 facets. Pronotum shape Fig. 4; pronotum shining, punctured and clothed with setae as head; lateral margin marked as a distinct waved line, basal and distal margins unbordered; propleures with punctation but without setation as on pronotum. Elytra scattered with large punctures as on head and pronotum, not forming distinct rows and intervals (Fig. 5), all punctures with a long and erect seta; space between punctures flat and shining, elytra with 2 distinct setiferous umbilicate pores at the shoulders and with 4 distinct setiferous umbilicate pores at the tip. Legs without peculiarities. Aedeagus Fig. 6. Body length 1.9-3.2 mm.

Laena fangensis Masumoto, 1996

(Figs 7-9)

M a t e r i a l: Thailand, Chiang Mai, Fang Distr., 22.V.1993, male holotype NSMT.

DESCRIPTION: Head roughly punctured, distance of punctures 0.5-1times as diameters, nearly all punctures with a long seta; diameter of eyes consists of about 12 facets. Pronotum shape Fig. 7; pronotum shagreened, somewhat uneven, roughly punctured as

head, clothed only laterally with setae shorter than on head; lateral margin distinctly bordered, basal and distal margins unbordered; propleures with punctation distinctly smaller and sparser and with setation shorter than on pronotum. Elytra with 10 rows of punctures, lateral rows irregularly and fused, second row with about 50 punctures, punctures without distinct seta (only with microseta shorter than diameter of puncture) (Fig. 8); internal intervals feebly convex, external intervals convexer, interval IX distinctly ridged, shagreened, very sparsely scattered with small punctures, each with a short seta; basal part of elytra impressed along sutura; interval XI with 3 setiferous umbilicate pores between the shoulders and the tip. Profemur with a distinct spine at the dorsal anterior margin, metatibia with a distinct spine at the inner distal margin. Aedeagus Fig. 9. Body length 10.5 mm.

DISTRIBUTION: Known only from the type locality Fang Distr. in northern Thailand.

Laena loebli sp.n.

(Figs 10-11)

H o l o t y p e (female): Thailand, Chiang Mai, Doi Inthanon, 2450 m, 9.XI.1985 leg. D. Burckhardt & I. Löbl, MHNG.

Derivatio nominis: Dedicated to Dr Ivan Löbl, Muséum d'histoire naturelle in Geneva, one of the collectors of the type series.

DESCRIPTION: Head with equal punctures, distance of punctures 2-5times as diameters, nearly all punctures with a long seta; diameter of eyes consists of about 7-8 facets. Pronotum shape Fig. 10; pronotum shining, punctured and clothed with setae as head; lateral margin distinctly bordered, basal and distal margins unbordered; propleures with same punctation but without setation as pronotum. Elytra with 10 rows of punctures, second row with about 35 punctures, punctures without distinct seta (only with microseta shorter than diameter of puncture) (Fig. 11); intervals flat, shining, very sparsely scattered with small punctures, each with a long erect seta as on pronotum; interval VII with a distinct setiferous umbilicate pore at the shoulders and interval IX with 4 setiferous umbilicate pores between the shoulders and the tip. Legs without peculiarities. Aedeagus unknown. Body length 8.5 mm.

Laena masumotoi sp.n.

(Figs 12-14)

H o l o t y p e (male): Thailand, Chanthaburi, Khao Sabap Nat. Park, 150-300 m, 23.-24.XI.1985 leg. D. Burckhardt & I. Löbl, MHNG.

Paratypes: Same data as holotype, 2 ex. MHNG, 1 ex. SMNS. Thailand, Phetchaburi, Kaeng Krachan Nat. Park, 450 m, 19.XI.1985 leg. D. Burckhardt & I. Löbl, 1 ex. MHNG.

Derivatio nominis: Dedicated to Dr Kimio Masumoto, Tokyo, who published important taxonomic contributions to the Tenebrionid fauna of Thailand and adjacent countries.

DESCRIPTION: Head roughly punctured, distance of punctures 1-2times as diameters, nearly all punctures with a long seta; diameter of eyes consists of about 6-7 facets. Pronotum shape Fig. 12; pronotum shining, punctured and clothed with setae as head; lateral margin marked as a distinct waved line, basal and distal margins unbordered;

propleures with punctation distinctly smaller and with setation somewhat shorter than on pronotum. Elytra with 10 rows of large punctures, second row with about 27 punctures, nearly all punctures with a seta only somewhat shorter than those on the intervals (Fig. 13); intervals convex, shining, scattered with small punctures, each with a long erect seta, on lateral intervals these punctures elevated, thus intervals crenulated; interval VII with a indistinct setiferous umbilicate pore at the shoulders, interval IX with 3 indistinct setiferous umbilicate pores between the shoulders and the tip. Legs without peculiarities. Aedeagus Fig. 14. Body length 2.8-4.0 mm.

***Laena pseudosiamica* sp.n.**

(Figs 15-17)

H o l o t y p e (male): Thailand, Kanchanaburi, Sai Yok Nat. Park, 100 m, 21.VII.1987 leg. P. Schwendinger, MHNG

DESCRIPTION: Head roughly punctured, distance of punctures 1-2times as diameters, nearly all punctures with a long seta; diameter of eyes consists of about 6-7 facets. Pronotum shape Fig. 15; pronotum shining, punctures bigger than on head and partly confluent, clothed with setae as head; lateral margin marked as a distinct waved line, basal margin deeper than disc of pronotum, distal margin unbordered; propleures with punctation somewhat smaller and with setation somewhat shorter than on pronotum. Elytra with 10 rows of large punctures, second row with about 25 punctures, nearly all punctures with a seta only somewhat shorter than those on the intervals (Fig. 16); intervals convex, shining, scattered with small punctures, each with a long erect seta, on lateral intervals these punctures elevated, thus intervals crenulated; interval IX with 2 indistinct setiferous umbilicate pores between the shoulders and the tip. Legs with all the femora with 2 spines situated on the internal and external margin, and with all the tibiae distinctly bended. Aedeagus Fig. 17. Body length 4.0 mm.

***Laena schwendingeri* sp.n.**

(Figs 19-21)

H o l o t y p e (male): Thailand, Chiang Mai, Doi Inthanon, 1650 m, 7.XI.1985 leg. D. Burckhardt & I. Löbl, MHNG.

Paratypes: Same data as holotype, 2 ex. MHNG, 2 ex. SMNS. Thailand, Chiang Mai, Doi Suthep, 1450 m, 4.XI.1985 leg. D. Burckhardt & I. Löbl, 2 ex. MHNG. Mae Hong Son, Doi Chang, 20 km E Pai, 1930 m, 4.VI.1986 leg. P. Schwendinger, 1 ex. MHNG.

Derivatio nominis: Dedicated to Dr Peter Schwendinger, who improved our knowledge about the soil fauna of Thailand with huge collections.

DESCRIPTION: Head roughly punctured, distance of punctures 1-4times as diameters, nearly all punctures with a long seta; diameter of eyes consists of about 6-7 facets. Pronotum shape Fig. 19; pronotum shining, punctures somewhat smaller and distinctly more scattered than on head, clothed with setae as head; lateral margin marked only as a feeble line or nearly absent, basal margin deeper than disc of pronotum, distal margin unbordered; propleures with punctation somewhat smaller and with setation somewhat shorter than on pronotum. Elytra with 10 rows of punctures, second row with about 25

punctures, nearly all punctures with a long seta only somewhat shorter than those on the intervals (Fig. 20); intervals convex, shining, scattered mainly laterally with small punctures, each with a long erect seta; basal part of elytra impressed along sutura; interval III with a distinct setiferous umbilicate pore at the tip, interval VII with a distinct setiferous umbilicate pore at the shoulders and interval IX with 4 setiferous umbilicate pores between the shoulders and the tip. Legs without peculiarities. Aedeagus Fig. 21. Body length 4.3-6.0 mm.

Laena siamica Kaszab, 1973

(Fig. 18)

Material: Not available.

Remarks: From the outer appearance, the above described *pseudosiamica* sp.n. is quite similar to *siamica* and on the first view they might be considered as conspecific. However, *siamica* is said to have the femora with only 1 spine (in *pseudosiamica* sp.n. with 2 spines situated on the internal and external margin), and the parameres are quite prolonged (Fig. 18) (in *pseudosiamica* sp.n. triangular, Fig. 17). In particular the last difference is significant and can not be neglected, thus both must be considered as different species.

DISTRIBUTION: Known only from the type locality Kachong forest in southern Thailand (not located).

Laena thailandica Kaszab & Chujo, 1966

Material: Not available.

Remarks: This species can be recognized by the short body length (3.5 mm) and the round shape of the elytra, the lacking of a dorsal setation, the shining surface and the pattern of the elytral punctures (foto in KASZAB & CHUJO 1966: plate I,6). The original description points to distinct "knobs" on the elytral intervals VII and IX, which are very probably distinct setiferous umbilicate pores. The sex of the single type and the shape of the aedeagus are unknown.

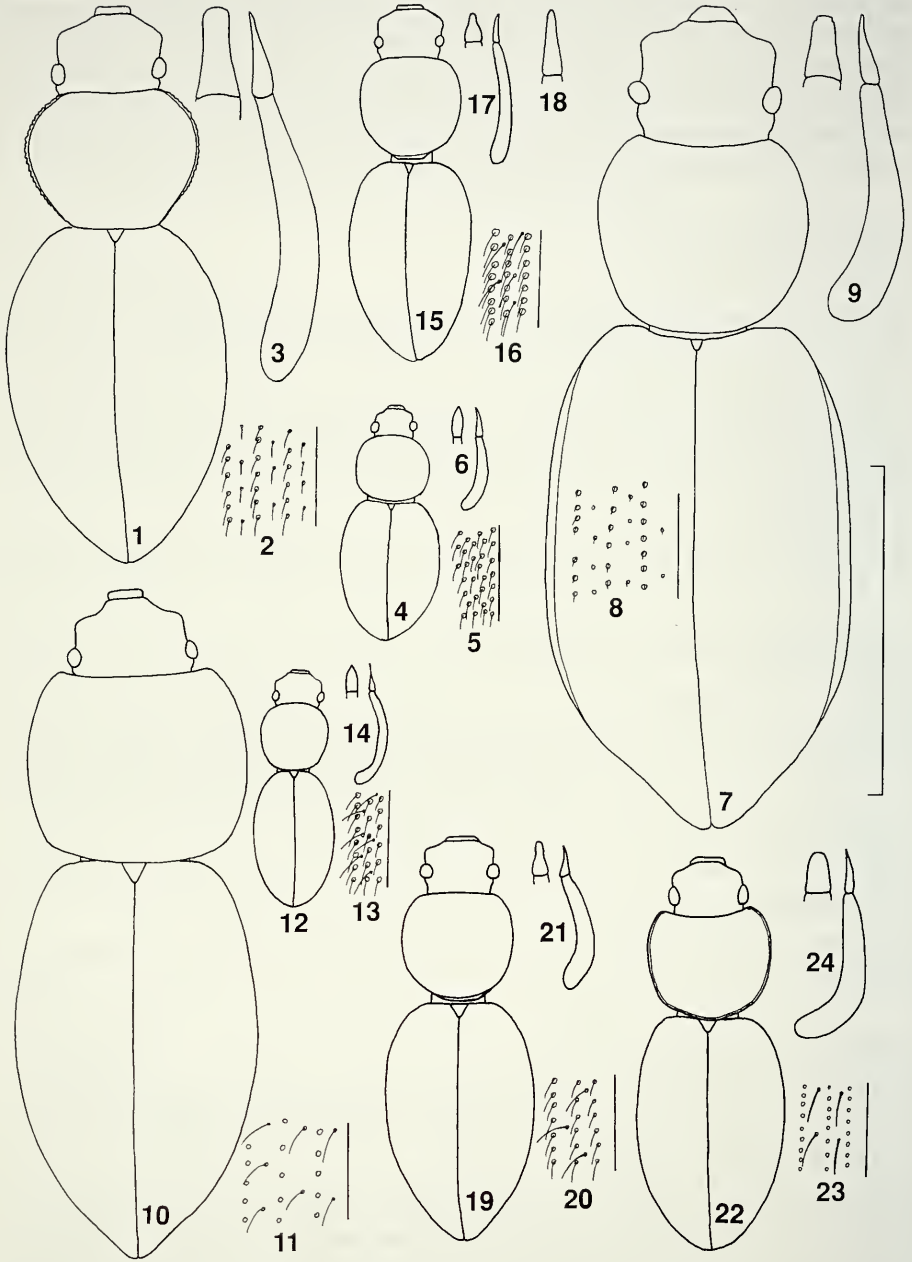
DISTRIBUTION: Known only from the type locality Khao Luang in Thailand (not located).

Laena uenoi Masumoto, 1989

(Figs 22-24)

Material: Thailand, Chiang Mai, Doi Inthanon, 2500 m, 2.I.1981 leg. L. Deharveng, 2 ex. MHNG. Thailand, Chiang Mai, Doi Inthanon, 1650 m, 7.XI.1985 leg. D. Burckhardt & I. Löbl, 3 ex. MHNG. Thailand, Chiang Mai, Doi Inthanon, 2450-2500 m, 9.XI.1985 leg. D. Burckhardt & I. Löbl, 4 ex. MHNG, 4 ex. SMNS.

DESCRIPTION: Head with punctures of different size, distance of punctures 2-5times as diameters, nearly all punctures with a long seta; diameter of eyes consists of about 6-7 facets. Pronotum shape Fig. 22; pronotum shagreened, punctured and clothed with setae as head; lateral and basal margins distinctly bordered, distal margin unbordered; propleures without punctation. Elytra with 10 rows of small punctures, second row with



about 40 punctures, punctures without seta (Fig. 23); intervals slightly convex, shagreened, sparsely scattered with punctures as on pronotum, each with a long erect seta as on pronotum: interval III with a distinct setiferous umbilicate pore at the tip and interval IX with 4 setiferous umbilicate pores between the shoulders and the tip. Legs without peculiarities. Aedeagus Fig. 24. Body length 4.8-6.8 mm.

Remarks: The shape of the parameres of the above listed material (Fig. 24) is somewhat different in comparison to the figures given by MASUMOTO (1989: Figs 3-4), nevertheless I am convinced of the conspecificity of both series.

DISTRIBUTION: Known only from the type locality Doi Inthanon in northwestern Thailand.

KEY TO THE *LAENA* SPECIES FROM THAILAND

1. All femora or only profemur at the inner side with 1 or 2 spines 2
- All femora without spines 5
2. Only profemur with a spine at the inner side, metatibia with a spine at the inner side, elytral interval IX distinctly ridged *fangensis*
- All femora with 1 or 2 spines, metatibia without spines, elytral intervals equal. 3
3. All tibiae strongly curved, pronotum with rough punctation, punctures partly confluent, body length 4.0-5.4 mm 4
- All tibiae not distinctly curved, pronotum with sparser punctation with shiny spaces between the punctures, body length 7.5 mm *angkhangensis*
4. All femora on the ventral side with a single spine on the internal margin, parameres long (Fig. 18) *siamica*
- All femora on the ventral side with 2 spines situated on the internal and external margin, parameres triangular (Fig. 17) *pseudosiamica* sp.n.
5. Elytra scattered with large punctures, not forming distinct rows and intervals *burckhardti* sp.n.
- Elytra with 10 distinct rows of punctures 6
6. Elytra without any setation, shape of elytra nearly round *thailandica*
- Elytral intervals and sometimes also the punctures of the elytral rows with long setae, shape of elytra long and oval 7
7. Elytral intervals and sometimes also the punctures of the elytral rows with long setae 8
- Only the elytral intervals with long setae 9

FIGS 1-24

Laena species from Thailand: dorsal view of head, pronotum and elytra; punctation and setation of elytra near sutura; aedeagus from lateral and parameres from dorsal. -- 1-3: *angkhangensis*, holotype male; 4-6: *burckhardti* sp.n., holotype male; 7-9: *fangensis*, holotype male; 10-11: *loebli* sp.n., holotype female; 12-14: *masumotoi* sp.n., holotype male; 15-17: *pseudosiamica* sp.n., holotype male; 18: *siamica*, redrawn after KASZAB 1973; 19-21: *schwendingeri* sp.n., holotype male; 22-24: *uenoi*, male. -- Scale: 4 mm (dorsal view), 2 mm (punctation and aedeagus).

8. Pronotum with the basal margin of pronotum distinctly deeper than disk, punctures of pronotum smaller and distinctly more scattered than on head, body length 4.3-6.0 mm *schwendingeri* sp.n.
 - Pronotum with the basal margin on the same level as disk, punctuation of pronotum as on head, body length 2.8-4.0 mm *masumotoi* sp.n.
9. Lateral and basal margins of pronotum distinctly bordered, disk of pronotum only with scattered punctuation, propleures without punctuation, body length 4.8-6.8 mm *uenoi*
 - Lateral margin of pronotum only with a fine border, basal margin unbordered, disk of pronotum with dense punctuation, propleures with same punctuation as on disk, body length 8.5 mm *loebli* sp.n.

ACKNOWLEDGMENTS

For the loan of this interesting material and for the possibility to keep some duplicates for the museum in Stuttgart I thank Dr Ivan Löbl (Geneva). Dr S. Nomura kindly loaned type material for comparison from the National Science Museum (Tokyo) and last, but not least, Dr K. Masumoto (Tokyo) contributed with some helpful comments.

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Die Gattung *Stenus* Latreille in Vietnam (Coleoptera, Staphylinidae)*

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The genus *Stenus* Latreille in Vietnam (Coleoptera, Staphylinidae). - List of 67 *Stenus*- species known from Vietnam including descriptions of 3 new species: *Stenus* (*Hypostenus*) *voluptabilis* sp. n., *S. (Parastenus) perrotianus* sp. n., *S. (P.) unguiventris* sp. n.), new synonyms (*S. Parastenus*) *horridulus* Ryvkin, 1992 and *S. (P.) unguinosus* Ryvkin, 1992 = *S. (Hypostenus) deliculus* Ryvkin, 1992; *S. (P.) mangpuensis* Cameron, 1943 = *S. (P.) salebrosus* L. Benick, 1942), and new species- records. The shape of paraglossae is used for the first time as a taxonomic character.

Key-words: Coleoptera - Staphylinidae - *Stenus* - Vietnam - Taxonomy - paraglossa.

EINLEITUNG

Die letzte Zusammenstellung der *Stenus*- Arten Vietnams ist 1981 erfolgt, in der Zwischenzeit kamen einige Arten hinzu. Das Naturhistorische Museum Genf erhielt durch den Ankauf der Sammlung Curti (in der sich coll. Ochs und coll. Perrot befinden) älteres Material aus Vietnam, das mir zur Bearbeitung vorgelegt wurde. Darin fanden sich drei neue Arten, die im Folgenden beschrieben werden, eine Serie von *Stenus deliculus* Ryvkin, dessen Männchen bisher unbekannt war und einige Erstnachweise. Ich nehme deshalb die Gelegenheit wahr, den gegenwärtigen Kenntnisstand der *Stenus*- Fauna dieses ostasiatischen Landes festzuhalten und füge noch eine weitere Synonymie hinzu, die ich jüngst herausfand. Insgesamt liegen aus Vietnam jetzt 67 *Stenus*- Arten und - Rassen vor.

Zum ersten Mal verwende ich in dieser Arbeit ein bisher unbeachtetes Merkmal für die Taxonomie: die Gestalt der Paraglossen (vgl. u. und Figs 8, 9). - Als Abkürzungen gelten die in meinen früheren Arbeiten gebrauchten.

Stenud (*Hypostenus*) *voluptabilis* sp. n.

Diese neue Art erinnert auf den ersten Blick an Vertreter der Spezies um *S. amoenus* L. Benick, ist aber mit diesen nicht eng verwandt. Wegen ihres Kopfbaues

* 251. Beitrag zur Kenntnis der Steninen.
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und wegen ihres lateral spitzen 9. Sternums steht sie - soweit ich sehe - isoliert, ich kann keinen orientalischen *Stenus* nennen, der eine ganz ähnliche Gestalt besässe.

Glänzend, schwarz, Elytren mit einer grossen orange- gelben Makel, Vorderkörper ziemlich grob und dicht, Abdomen etwas weniger grob und mässig dicht punktiert; Beborstung kurz, anliegend. Fühler gelb, ab der Mitte gebräunt, Kiefern- taster gelb, Beine rötlichgelb, die Knie deutlich verdunkelt, Tarsenglieder zum Teil verdunkelt. Oberlippe braun, Clypeus und Oberlippe mässig dicht beborstet. 9. Sternum apikolateral spitz (Fig. 1).

Länge: 3,0 - 3,8 mm (Vorderkörper: 2,0-2,1 mm).

♀-Holotypus: Vietnam (Tonkin): Hoa Binh, H. Perrot (MHNG). Paratypen: 2 ♂♂, 1 ♀: 40 km NW An Khe, Buon Luoi, 620-750 m, 14°10'N, 108°30'E, 28.3.-12.4.1995, Pacholatko & Dembicky (NHMW, coll. Puthz). Vermutlich gehört hierher auch das ♀ von Tam Dao, da ich 1981 (11) als "spec. *amoenus*- Gruppe" gemeldet habe, das mir aber jetzt nicht vorliegt (Museum Leningrad).

PM des HT: Kbr.: 33; AA: 16,5; Pbr: 24,5; Plg: 30; Ebr: 37; Elg: 40; Nlg: 33.

Kopf deutlich schmaler als die Elytren, Stirn vergleichsweise breit, mit zwei deutlichen Längsfurchen und einem spiegelglatten, rundlich erhobenen Mittelteil, dieser hinten so breit wie jedes der Seitenstücke; Stirn insgesamt mit 5 Spiegelflecken, die Punktierung im übrigen ziemlich grob und dicht, mittlerer Punktdurchmesser so gross wie der basale Querschnitt des 3. Fühlergliedes. Fühler mässig lang, zurückgelegt mit dem 11. Glied den Pronotumhinterrand überragend, vorletzte Glieder etwa doppelt so lang wie breit. Pronotum in der vorderen Mitte am breitesten, daselbst eine kurze Strecke fast parallelseitig, vorn schräg eingezogen, hinten konkav- eingeschnürt verengt; Oberfläche gleichmässig gewölbt und ganz gleichmässig grob und dicht punktiert, mittlerer Punktdurchmesser so gross wie der apikale Querschnitt des 3. Fühlergliedes, Punktabstände fast überall kleiner als die Punktradien. Elytren etwa quadratisch, mit deutlichen Schultern, hinten rundlich eingezogen, Naht- und Schultereindrücke flach; die grosse orange- gelbe Makel ist etwas kürzer als die halbe Elytrenlänge (18: 20), vom Vorderrand etwa um 2/3 ihrer Länge, vom Hinterrand gut um 1/3 ihrer Länge getrennt, innen erreicht sie fast die Naht, aussen erstreckt sie sich bis auf den Deckenabfall, ohne den Seitenrand zu erreichen; die Scheibenpunktierung der Elytren ist deutlich etwas gröber als diejenige des Pronotums, Punktabstände wenig grösser. Abdomen nach hinten deutlich verschmälert, basale Quereinschnürungen der ersten Segmente sehr tief, 7. Tergit mit breitem, apikalem Hautsaum (= makroptere Art); Punktierung vom ziemlich grob und ziemlich dicht, nach hinten feiner und weitläufiger, auf dem 6. Tergit sind die Punkte so gross wie eine mittlere Augenfacette, ihre Abstände 1,5 - 2 x so gross wie die Punkte, das 10. Tergit trägt mehrere, mässig feine Punkte. Beine schlank, Hintertarsen 3/5 schienenlang, 1. Glied deutlich länger als die beiden folgenden zusammen mittlere Glieder breit gelappt. Nur das 8. Tergit an der Basis mit Netzungsspuren, die restliche Oberfläche spiegelglatt.

MÄNNCHEN: Vordersternite grob und dicht punktiert, 7. Sternit in der hinteren Mitte fein und ziemlich dicht punktiert und beborstet, nicht eingedrückt. 8. Sternit mit dreieckigem Ausschnitt etwa im hinteren Fünftel. 9. Sternit (Fig. 1), apikolateral mit

spitzem Zahn und feinem, langen Borstenpinsel. 10. Tergit breit abgerundet. A e d o e - a g u s (Fig. 2), Medianlobus gerundet- konisch verengt, Apikalpartie ventral mit zwei Zähnenleisten, Basalteil im Innern mit zwei dünnen Versteifungsleisten (Ausstülphilfen) und einem breittubigen Innensack; Parameren gut so lang wie der Medianlobus, apikal leicht löffelförmig und daselbst mit zahlreichen langen Borsten versehen.

WEIBCHEN: 8. Sternit breit abgerundet. Valvifer alikal abgestutzt mit kurzem Lateralzahn und dünnem Borstenpinsel. 10. Tergit breit abgerundet.

Stenus voluptabilis sp. n. - "der, der Vergnügen macht" - unterscheidet sich durch die Kombination der Merkmale: erhobene, geglättete Stirnmitte, kurze, unauffällige Beborstung und die Gestalt des 9. Sternums sowie die des 10. Tergits von allen orientalischen Arten; von den wegen ihrer Makeln allenfalls ähnlichen Vertretern um *S. amoenus* L. Benick (*S. alumoenus* Rougemont, *S. amenous* Rougemont, *S. amoenulus* Puthz und *S. aneomus* Rougemont, vermutlich auch von *S. chlorostigma* L. Benick) durch geringere Grösse und den Kopfbau: diese verglichenen Arten besitzen grössere Augen, ihre Stirnmitte ist relativ schmaler und ganz flach, die Stirn zeigt keine auffälligen 5 Spiegelflecken. Durch grössere Elytrenmakel und den Stirnbau lässt sich die neue Art auch leicht von *S. changi* Puthz und *S. delectus* Puthz trennen.

Stenus (Hypostenus) deliculus Ryvkin

Stenus (Parastenus) deliculus Ryvkin, 1992: 51 ff. figs.

Stenus (Parastenus) horridulus Ryvkin, l.c.: 45 ff. figs, **syn. n.**

Stenus (Parastenus) unguinosus Ryvkin, l.c.: 49 ff. figs, **syn. n.**

Diese Art gehört zu den abweichenden (*Hypostenus*-) bzw. (*Parastenus*-) Arten mit ausserordentlich langer, abstehender Beborstung und unterschiedlich starker Seitenrandung des Abdomens. Solange keine phylogenetische Analyse der Gattung *Stenus* vorliegt, stelle ich diejenigen Arten dieser monophyletischen Gruppe, die eine vollständige, wenn auch oft nur linienförmig- schmale Seitenrandung des Abdomens haben, zu *Parastenus* und nenne den Komplex "cirrus"- Komplex, diejenigen Spezies aber, bei denen die abdominale Seitenrandung nur am 3. Segment und dann wieder als Schnittlinie vom 7. Segment an auftritt, bei denen also die Segmente 4-6 ohne jede Spur einer Seitenrandung sind, stelle ich - *per definitionem* - zu *Hypostenus* und nenne diesen Komplex ab jetzt den "falsus"- Komplex.

Stenus deliculus Ryvkin gehört in den *falsus*- Komplex. Für die Beschreibung seiner drei Taxa hat der genannte Autor 7 Weibchen zur Verfügung gehabt, von denen 5 von Tam Dao stammen. In der Sammlung OCHS fanden sich nun 4 ♂♂, 4 ♀♀ ebenfalls von Vietnam (Tonkin): Tam Dao, H. Perrot, die ich mit den Holotypen von *S. horridulus* und *S. deliculus* sowie einem Paratypus von *S. unguinosus* vergleichen konnte. Die von RYVKIN präparierten Spermatheken liegen in den Präparaten verschieden und sind bei *S. deliculus* zerbrochen. Die unterschiedliche Kontur des 8. Sternits und der Valvifera (l.c. S. 48) liegen im Rahmen der Variationsbreite. Die in

den Beschreibungen bemerkten Unterschiede in Bezug auf die Mikroskulptur sind nicht vorhanden: es handelte sich bei dem Material aus Moskau um verschmutzte Exemplare! Und was die Punktierungsunterschiede angeht, so finde ich solche auch in der mir vorliegenden Serie von Tam Dao. Als erster Revisor wähle ich den Namen *S. deliculus* als denjenigen, den diese Spezies künftig tragen soll, die beiden anderen Taxa werden eingezogen.

PM eines ♂ von Tam Dao: Kbr: 32,5; AA: 15,5; Pbr: 23; Plg: 25; Ebr: 27; Elg: 29 [bei anderen Stücken sind die Elytren so lang wie breit]; Nlg: 22. Vorderkörperlänge: 1,8 mm, Gesamtlänge: 3,2-4,0 mm (stark ausgezogen bis 4,5 mm).

MÄNNCHEN: Vordersternite ohne besondere Merkmale, 7. Sternit median sehr fein und viel dichter als an den Seiten punktiert und beborstet. 8. Sternit mit flach-runder Apikalausrandung etwa im hinteren Zweiundzwanzigstel (3: 67). 9. Sternit (Fig. 11). 10. Tergit breit abgerundet. A e d o e a g u s (Fig. 12) mit gerundeter Apikalpartie, umfangreichen, stark sklerotisierten Ausstülpungen und breittubigem Innensack.

WEIBCHEN: 8. Sternit zur Hinterrandmitte kaum vorgezogen, breit abgerundet. Valvifer apikolateral spitz. Spermatheka (Fig. 5; aber je nach Lage auch andere Gestalten). 10. Tergit breit abgerundet.

Stenus deliculus Ryvkin unterscheidet sich von den ungemakelten Arten des *falsus*-Komplexes wie folgt: Vom ebenfalls sehr grob punktierten, glänzenden *S. splendidulus* Puthz durch längere Elytren und vorn erheblich gröber punktiertes Abdomen, von *S. punctifer* Naomi durch breiteren Kopf sowie glänzenderen, gröber punktierten Vorderkörper, von *S. falsus* L. Benick (dessen Aedeagus ich hier erstmalig abbilde: Fig. 10) und *S. amamiensis* Naomi durch erheblich gröbere Vorderkörperpunktierung, viel gröber punktiertes Abdomen und (meist) längere Elytren, von allen durch den Aedeagus.

***Stenus (Parastenus) perrotianus* sp. n.**

Diese neue Art ist die Schwesterart des aus Indien beschriebenen *S. pseudopicatus* Cameron, einer schlanken Art mit ausserordentlich langen Fühlern. Die äusseren Unterschiede sind gering, aber die Spermatheken differieren so deutlich, dass ich dieses einzige Weibchen für eine neue Art halten muss.

Schwarz mit Metallschimmer, jede Elytre mit grosser, ovaler, schräger, orangefarbener Makel in der hinteren Aussenhälfte. Punktierung der Stirn grob und sehr dicht, die des Pronotums grob, sehr dicht, leicht rugos, diejenige der Elytren grob, ebenfalls sehr dicht, in der Aussenhälfte längs- zusammenfliessend. Abdomen ziemlich grob und dicht, aber nicht gedrängt punktiert. Fühler gelb, die Keule wenig dunkler. Kiefertaster gelb. Paraglossen oval (vgl. u.). Beine einfarbig rötlichgelb. Oberlippe schwarzbraun, heller gesäumt. Clypeus und Oberlippe wenig dicht beborstet.

Länge: 6,2 - 7,3 mm (Vorderkörper: 3,6 mm).

♀ - Holotypus: Vietnam (Tonkin): Tam Dao, H. Perrot (MHNG).

PM des HT: Kbr: 49; AA: 27; Pbr: 34; Plg: 44; Ebr: 50; Elg: 56; Nlg: 43. Hintertarsen: Hinterschienen = 46: 65, Hintertarsen: 22- 10- 6- 7- 8.

MÄNNCHEN: unbekannt.

WEIBCHEN: 8. Sternit am Hinterrand deutlich rund vorgezogen, die Seiten davor leicht konkav. Valvifer mit langem Apikolateralzahn (Fig. 7). Spermatheka (Fig. 7), die langen Schläuche mit 5 Windungen. 10. Tergit breit abgerundet.

Stirn wie bei *S. pseudopictus*, ihre Mitte mit flacher, aber deutlicher Erhebung, die hinten verflacht und insgesamt unterhalb des Augeninnenrandniveaus liegt; Punkte so gross wie der mittlere Querschnitt des 3. Fühlergliedes, Punktzwischenräume fast überall viel kleiner als die Punktradien, keine Glättungen. Fühler sehr lang, zurückgelegt überragen mehr als die letzten 4 Glieder den Pronotumhinterrand, das 9. Glied ist dreimal, das 10. doppelt so lang wie breit. Pronotum erheblich länger als breit mit deutlicher Quereinschnürung kurz hinter der Mitte, die Seiten nach vorn fast gerade verengt, nach hinten konkav verengt; in der Vorder- und in der Hinterhälfte einige Längseindrücke: insgesamt erscheint das Pronotum also bemerkenswert (wenn auch nicht sehr tief) uneben; Punktierung durchschnittlich so grob wie auf der Stirn, aber nicht so gleichmässig grob und, obwohl überall sehr dicht, auch unterschiedlich dicht, in der Nähe des Vorder- und des Hinterrandes auch leicht zusammenfliessend. Elytren seitlich lang gerundet, uneben: Nahteindruck tief, je ein mittlerer und ein hinterer Eindruck ziehen sich von der Naht schräg nach aussen, der Schultereindruck ist weniger auffällig; die schrägstehende ovale Makel im hinteren Aussenviertel der Elytren ist so lang wie das 3. Fühlerglied und etwa so breit wie das 4. Fühlerglied; Punktierung gröber als am Pronotum, in der Innenhälfte dicht, aber überwiegend getrennt, in der Aussenhälfte, vor allem um die Elytrenmakel herum, lang zusammenfliessend. Abdomen mit schmalen, ventrad abfallenden Paratergiten, diejenigen des 4. Segmentes fast so breit wie das 1. Hintertarsenglied (also schmaler als das 2. Fühlerglied), mit einer Reihe feiner, wenig dicht stehender Punkte versehen; 7. Tergit mit apikalem Hautsaum (= makroptere Art); die Punktierung ist deutlich dichter als bei *S. pseudopictus*, so sind zum Beispiel die Punktabstände in der Mitte des 3. Tergits überall kleiner als die Punkte (bei der verglichenen Art mehrfach so gross wie oder deutlich grösser als diese), auf dem 6. Tergit sind die Punktabstände höchstens 1,5 mal so gross wie die Punkte (bei *S. pseudopictus* oft doppelt so gross). Nur das 4. Tarsenglied ist lang und schmal gelappt. Die ganze Oberseite ist deutlich genetzt.

Von *S. pseudopictus* Cameron unterscheidet sich die neue Art auch durch ihre Spermatheka, die 5 statt 2 Windungen aufweist (vgl. Fig. 6).

Da es in der Orientalis zahlreiche prinzipiell ähnliche, gemakelte Arten gibt, möchte ich ausführlich angeben, wie sich diese neue Art von ihnen unterscheidet. Dabei verwende ich hier erstmalig ein Merkmal, das bisher taxonomisch noch nicht berücksichtigt worden ist: die Form der Paraglossen. In seinen beispielhaften Arbeiten hat O. BETZ diese zu Klebpolstern umgestalteten Paraglossen von zahlreichen *Stenus*-Arten untersucht und dabei einen sogenannten (ovalen) "Grundtyp" (Fig. 8) von anderen unterschieden. Unter den orientalischen Parastenen besitzen nun zahlreiche Arten einen auffällig vom Grundtyp abweichenden spitzkegeligen (koniformen) Typ, den BETZ von *S. cf. luteolunatus* publiziert hat (Fig. 9). Dies ist bisher die einzige Spezies, von der dieser besondere Paraglossenbau mitgeteilt worden ist. Ich habe nun festgestellt, daß sich anhand der beiden genannten Paraglossentypen (ich will sie ab

jetzt mit den Begriffen "oval" und "koniform" bezeichnen) auch an trockenem Material die orientalischen Parastenen leicht in zwei Gruppen unterscheiden lassen, Gruppen, in denen äusserlich sonst recht ähnliche Spezies stehen. Man muss allerdings, um dieses Merkmal festzustellen, den Kopf von der Unterseite betrachten und - in seltenen Fällen - sogar die "Zunge" (das Praementum) herauspräparieren, was leicht gelingt, wenn man bei gekochtem Material den Kopf abtrennt, ihn mit der einen Nadel in der hinteren Öffnung festhält, mit der anderen Nadel hinter dem Mentum einsticht und Mentum + Praementum nach vorn herauszieht.

Bisher konnte ich noch nicht alle orientalischen Arten auf dieses Merkmal hin untersuchen. Was aber nun die Unterscheidung der hier beschriebenen neuen Art von anderen, relativ grossen, gemakelten Arten angeht, so lassen sich erst einmal die folgenden Spezies wegen ihrer koniformen Paraglossen klar von *S. perrotianus* trennen: *S. abdominalis* Fauvel, *S. bicolon* Sharp, *S. bilunatus* Puthz, *S. biplagiatus* Puthz, *S. brachati* Puthz, *S. chakratianus* Cameron, *S. cham* Puthz, *S. commaculatus* Puthz, *S. coronatus* L. Benick, *S. diversus*, L. Benick, *S. jenisi* Hromadka, *S. languor* L. Benick, *S. leileri* Puthz, *S. lopchuensis* Cameron, *S. luteonotatus* Puthz, *S. luteomaculatus* Rougemont, *S. malabarensis* Cameron, *S. rafflesi* Rougemont, *S. rougemonti* Puthz (die Subspezies einzelner Arten eingeschlossen).

Von *S. diversus* L. Benick unterscheidet sich die neue Art aussenden durch feiner und nicht gedrängt-dicht punktiertes Abdomen, vor allem durch feiner punktierte Paratergite, von *S. invocatus* Ryvkin (der ebenfalls von Tam Dao beschrieben wurde, mir bisher aber nicht vorgelegen hat) durch viel längere Fühler (diese sollen bei *S. invocatus*, zurückgelegt, den Pronotumhinterrand kaum überragen), durch erheblich breiteren Kopf und durch bedeutendere Grösse, von den folgenden Arten, die alle den ovalen Paraglossentyp besitzen, so: von *S. subthoracicus* Rougemont durch schmalere, nur in einer Reihe punktierte Paratergite und viel grössere Elytren mit relativ kleinerer Makel, von *S. signatipennis* Puthz durch viel längere Fühler, von *S. miwai* Cameron durch feiner punktiertes, längeres Pronotum und breitere Paratergite, von *S. grandimaculatus* L. Benick durch längeres Pronotum und breitere Paratergite.

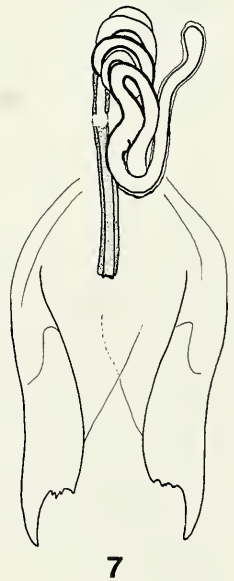
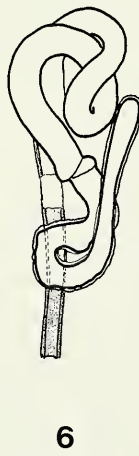
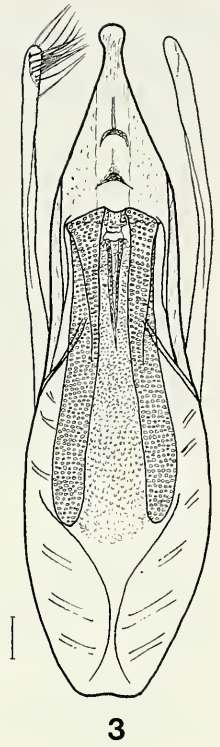
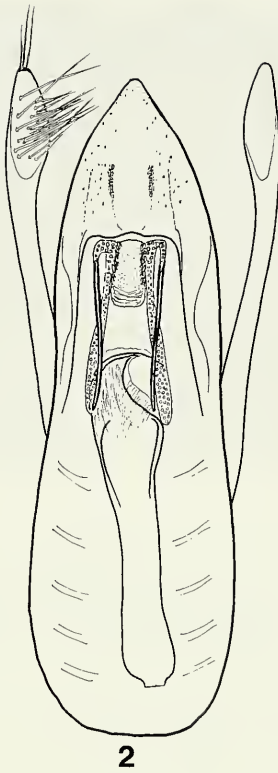
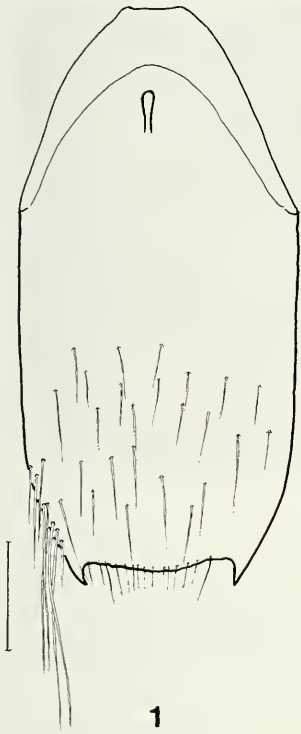
Stenus (Parastenus) unguiventris sp. n.

Diese neue Art ist die Schwesterart des *S. habropus* Puthz, dem sie zum Verwechseln ähnlich sieht; eine ausführliche Beschreibung hätte deshalb nur wiederholenden Charakter. Ich beschränke mich also auf das Wesentliche.

Schwarz, metallisch schimmernd, Kopf grob und wenig dicht punktiert, Pronotum sehr grob und sehr dicht, leicht rugos punktiert, Elytren mit sehr grober,

FIGS 1-7

9. Sternit (1) Ventralansichten der Aedoeagi (2, 3), Valvifer (4, 7) und Spermatheken (5- 7) von *Stenus (Hypostenus) voluptabilis* sp. n. (PT, 1, 2), *S. (Parastenus) unguiventris* sp. n. (PTT, 3, 4), *S. (H.) deliculus* Ryvkin (5), *S. (P.) pseudopictus* Cameron (PT, 6) und *S. (P.) perrotianus* sp. n. (HT, 7).- Mass- Stab = 0,1 mm (1= 2, 5; 3= 4, 6, 7).



stark rugoser Skulptur (die Punkte sind in langen, gedrehten Furchen verbunden). Abdomen mässig grob bis fein und ziemlich weitläufig punktiert. Die ganze Oberseite dicht genetzt. Beborstung sehr kurz, anliegend, kaum auffällig. Fühler gelblich, zur Spitze etwas gebräunt, Kiefertaster gelb, Beine rötlichgelb, Schenkelspitzen und Tarsengliedspitzen etwas dunkler. Clypeus und Oberlippe schwarz (-braun), wenig dicht beborstet. Paraglossen oval. 10. Tergit in beiden Geschlechtern breit abgerundet.

Länge: 6,5 - 7,5 mm (Vorderkörper: 3,6 mm).

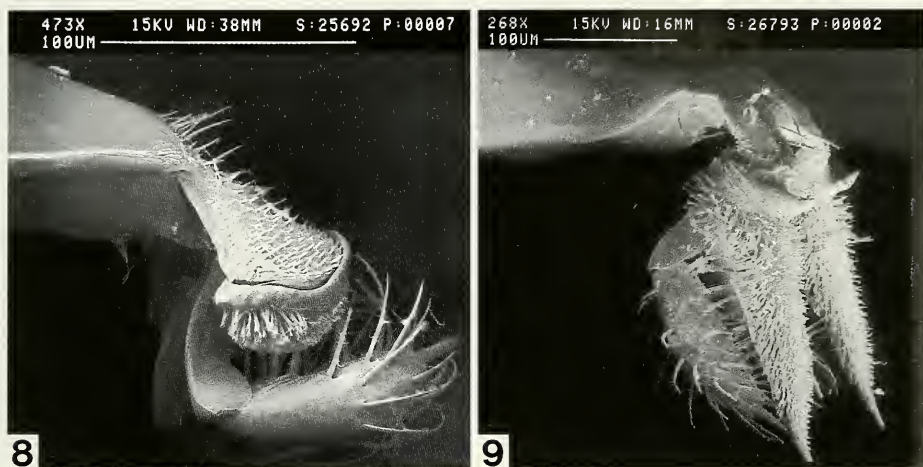
♂ - Holotypus und 1 ♀, 2 ♂♂ - Paratypen: Vietnam (Tonkin): Tam Dao, H. Perrot (MHNG, coll. Puthz). 1 ♂: Indien: Meghalaya: W Garo Hills, Nokrek N.P., ca. 1100 m, 25° 29,6' N, 90° 9,5' E, 9.-17.5.1996, Jendek & Sousa (NHMW).

PM des HT: Kbr: 50,5; AA: 26; Pbr: 37; Plg: 40; Ebr: 51; Elg: 57; Nlg: 44. Hintertarsen: Hinterschienen = 62: 68. Hintertarsen: 28- 12- 8- 9- 11. Bei ♀ - Paratypen kann der Kopf deutlich breiter als die Elytren sein!

MÄNNCHEN: Schenkel gekeult, Hinterbeine mit Trochanterzahn, Mittelschienen mit starkem Apikaldorn, Hinterschienen mit schwachem Präapikaldorn. Metasternum breit-dreieckig eingedrückt/ abgeflacht, wenig grob und mässig dicht auf flach genetztem Grund punktiert, vordere Mitte (zwischen den Mittelhüften) plattenartig-abgesetzt erhoben und daselbst dicht skulptiert und lang beborstet, Hinterhüftumrandungen glatt. 4. Sternit median leicht abgeflacht, 5. Sternit in der hinteren Mitte flach eingedrückt, 6. Sternit daselbst mit tiefem Eindruck, Hinterrand flach ausgerandet, 7. Sternit mit langem Mitteleindruck, dieser proximal tiefer als distal, dichter als an den Seiten punktiert und beborstet, Hinterrand flach ausgerandet. 8. Sternit mit schmalem Apikalausschnitt im hinteren Viertel. 9. Sternit apikolateral mit sehr langem, krallenförmig leicht ventrad gebogenem Zahn (Name !). A e d o e a g u s (Fig. 3), Medianlobus mit knopfförmiger Spitze, Apikalpartie mit zwei kräftigen Ventralzähnen, Innenkörper aus membranösen Strukturen bestehend.

WEIBCHEN: Metasternum abgeflacht, ohne auffallende Merkmale zwischen den Mittelhüften. 8. Sternit am Hinterrand breit und stumpf vorgezogen. Valvifer mit krallenförmigem Apikalzahn (Fig. 4). Keine sklerotisierte Spermatheka, jedoch mit einem länglichen, plattenartigen Sklerit in Höhe der Valvifer.

Von *Stenus habropus* Puthz lässt sich die neue Art sicher nur durch den Aedoeagus trennen. Äusserlich unterscheidet sie sich von ihm durch breiteren Kopf, weniger grobe und weniger dichte Stirnpunktierung und durch etwas feiner und weitläufiger punktiertes Abdomen. Da jedoch über die Variationsbreite dieser Arten zu wenig bekannt ist, müssen diese Skulpturunterschiede mit Vorsicht betrachtet werden, zumal auch schon in der Typenserie hier bemerkbare Unterschiede auftreten.- Das oben genannte Weibchen aus den Garo Hills, Indien, kann ich nicht sicher von der neuen Art unterscheiden und stelle es deshalb mit Vorbehalt zu ihr. Das von mir 1981 aus Yunnan gemeldete Weibchen (Museum Leningrad) liegt mit jetzt nicht vor; auch hier kann nicht ausgeschlossen werden, dass es zu *S. unguiventris* gehört. - Von anderen (*Parastenus*-) Arten mit linienartig- schmal gerandetem Abdomen und spinnendünnen Extremitäten lässt sich die neue Art durch ihre Grösse, fehlende Elytrenmakeln, weitläufige Abdomenpunktierung und langen "krallenförmigen" Apikolateralzahn des 9. Sternums trennen. Bei *S. rugosipennis* Cameron und noch



FIGS 8-9

Paraglossen von *Stenus*: ovaler Typ (8, *Stenus comma* LeConte, Blick von der Seite auf die Spitze des Praementums; unterhalb der Paraglossen die Labialpalpen) und koniformer Typ (9, *S. cf. luteolumatus* Puthz, Blick auf die Spitze des Praementums mit Paraglossen und Labialpalpen). Die REM- Aufnahmen wurden mir liebenswürdig von Dr O. Betz, Kiel, zur Verfügung gestellt, wofür ich auch an dieser Stelle herzlich danke.

unbeschriebenen taiwanesischen Arten ist dieser Zahn weniger auffällig und erheblich kürzer; diese Arten besitzen auch eine sklerotisierte Spermatheka. Nicht so ist das aber bei den beiden näher verwandten, aber viel kleineren *S. guenai* Rougemont und *S. calcariventris* Puthz, bei denen das Metasternum zwischen den Hinterhüften ebenfalls, jedoch nicht erhoben- abgesetzt, dicht skulptiert ist; beiden Arten fehlt ebenfalls eine sklerotisierte Spermatheka.

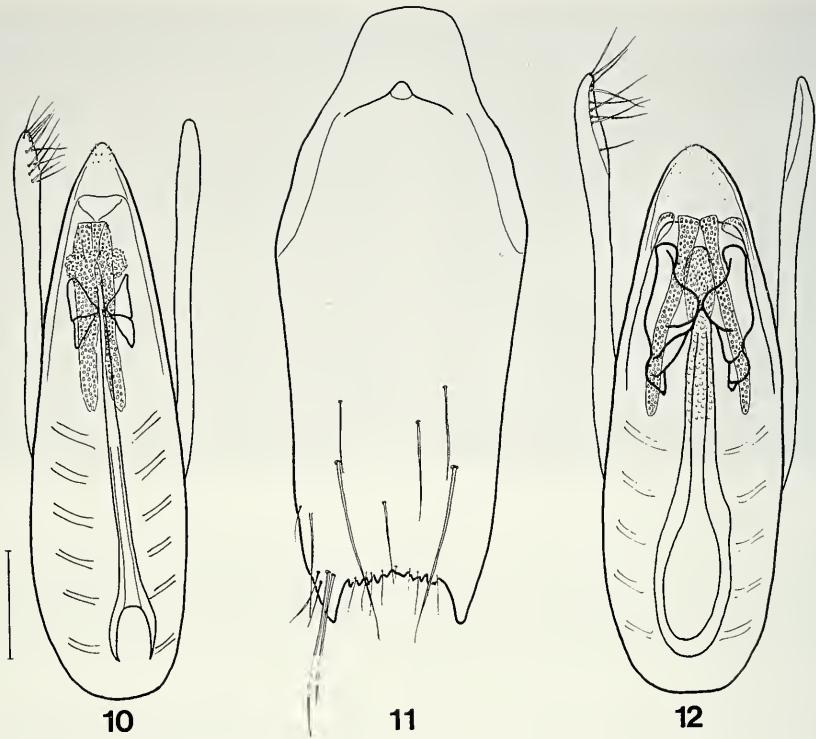
Stenus (*Parastenus*) *salebrosus* L. Benick

Stenus salebrosus L. Benick, 1942: 25 ff.

Stenus mangpuensis Cameron, 1943: 3 **syn. n.**; PUTHZ 1978: 130.

Von beiden Taxa konnte ich die Typen, darunter männliche Stücke, untersuchen und feststellen, dass sie konspezifisch sind. *S. salebrosus* war aus Burma beschrieben, *S. mangpuensis* aus Indien, Darjeeling District. Ausser den schon mitgeteilten Stücken sah ich inzwischen noch: 1 ♀ Sikkim: Lacher 9000', from moss, leaf mould, earth. Pine wood, 29.2.1952, T. Clay (BMNH); 1 ♂ China: Yunnan: 100 km W Baoshan. Gaolionshan N. Res., 14.-21.6.1993, Jendek & Sousa (NHMW): neu für China!

Die Typen unterscheiden sich etwas durch den Grad der Kurzflügligkeit, die Stücke aus Darjeeling zeigen eher trapezoide Elytren, die aus Burma eher rechteckige; dies ist aber nur Ausdruck der Variabilität. *S. salebrosus* gehört zu den Arten mit koniformen Paraglossen.



FIGS 10-12

Ventralansichten der Aedoeagi und 9. Sternit des Männchens: *Stenus (Hypostenus) falsus* L. Benick (Chinkiang, 10), *S. (H.) deliculus* Ryvkin (Tam Dao, 11, 12). Mass- Stab = 0,1 mm.

LISTE DER BISHER AUS VIETNAM BEKANNTEN *Stenus*- ARTEN

Sofern nicht in Klammern anders angegeben, sind die aufgezählten Taxa schon in meinen Arbeiten von 1981 und 1983 genannt. Ich gebe nur bei solchen Taxa Fundorte an, bei denen es sich um Ersthachweise für Vietnam handelt. Von den übrigen Arten liegen durch die Aufsammlungen Perrots zahlreiche weitere Funde vor, die ich hier nicht verzeichne.

Stenus s.str. + *Nestus*

S. formosanus L. Benick

S. insignatus Puthz

S. louwerensi Cameron

S. megacephalus Cameron (inkl. spec. A, PUTHZ 1980)

S. melanarius annamita Fauvel

S. puberulus fukiensis L. Benick

S. venator Fauvel: neu! 1 ♀ S. Vietnam: 14 km SW Bao Loc, 16-29.5.1994, Pacholatko & Dembicky (NHMW).

S. spec. B. (rugicollis- Gruppe): von beiden Arten sind immer noch keine Männchen bekannt.

*Hypostenus**S. amoenulus* Puthz*S. amoenus* L. Benick*S. angusticollis* Eppelsheim

S. arachnoides Bernhauer: Neu! 1 ♂: Da Lat, cam Ly area, rainforest, swept and Beaten, No. 691, 4.12.1994, S. Mahunka et al. (Museum Budapest). Dieses Männchen lässt sich genitaler und skulpturell nicht vom javanischen *S. arachnoides* unterscheiden; die äusseren Körperrumrisse sind jedoch etwas anders: der Kopf ist so breit wie die Elytren, während er bei javanischen Exemplaren meist deutlich breiter ist als dieselben (z.B. 39,5 : 35). Es kann nicht ausgeschlossen werden, dass auch enge Beziehungen zum Komplex um *S. velox* Sharp bestehen, doch liegt zur Klärung dieser Frage zur Zeit noch nicht genügend Material vor.

S. basicornis Kraatz*S. basicornis subtropicus* Cameron*S. bicuspis* Puthz*S. bispinoides* Puthz (PUTHZ 1985)*S. cicindeloides* (Schaller)*S. chlorostigma* L. Benick*S. currax* Sharp*S. cursorius* L. Benick (RYVKIN 1992)*S. deliculus* Ryvkin (RYVKIN 1992)*S. echiniventris* Puthz*S. elegantulus* Cameron*S. fistulosus* L. Benick*S. flavidulus paederinus* Champion*S. flavittatus* Champion*S. flavovittatus obliterated* Cameron

S. flavovittatus sinuatus Cameron: Neu! 1 ♂ (Tonkin) Thank Moi, Perrot; 1 ♂ Bac Kan, Perrot (MHNG); 1 ♀ N. Vietnam: Sapa (Lao Cai) 22°20'N, 103°50'E, 26.5-10.6, Horak (NHMW).

S. frater L. Benick*S. gastralis* Fauvel

S. hirtellus Sharp: neu! 1 ♂, 1 ♀: Saigon, 12.11. und 13.12.1950, J. Barbier (MNP); 1 ♂ Hanoi, Perrot; 3 ♀ ♀: Hoa Bink, Perrot (MHNG, coll. Puthz). Bisher aus Japan und Taiwan gemeldet.

S. loebli Puthz: neu! 1 ♂, 1 ♀: Hanoi (Coll. Fauvel, IRScNB); 1 ♀: Annam) Muong Sen, Perrot (MHNG)

S. lorifer Puthz

S. vegetus Puthz: Von Tam Dao, Perrot, liegen jetzt 1 ♂, 2 ♀ ♀ vor, die meine unsichere Meldung von 1983 (als *S. nitidulus* Cam.) bestätigen (MHNG, coll. Puthz).

S. oblitus Sharp*S. piliferus* Motschulsky*S. pulchrivestis* Puthz (PUTHZ 1991)*S. pustulatus* Bernhauer: neu! 1 ♂: (Tonkin): Kep, Perrot (MHNG).*S. puthzianus* Rougemont: neu! 1 ♀ (Tonkin) Yen Bay, Perrot (MNP).*S. spenceri* Puthz*S. topali* Puthz*S. tuberculicollis* Cameron*S. verticalis* L. Benick*S. voluptabilis* sp. n.“*Hemistenus*”*S. depressus secessus* Puthz*Parastenus**abdominalis* Fauvel

belli Fauvel: neu! 1 ♀: (Tonkin) Kep, Perrot (MHNG); 1 ♀: S. Vietnam: 40 km NW An Khe, Buon Luoi, 620-750 m, 14°10'N, 108°30'E, 28.3-12.4.1995, Pacholatko & Dembicky

(NHMW). Bisher gut aus Südindien bekannt, aber auch aus Nordindien (Haldwani District) gemeldet. Die Stücke aus Vietnam belegen eine weitere Verbreitung in der Orientalis. Diese Art besitzt übrigen ovale Paraglossen.

bicolor posticus Fauvel

biplagiatus Puthz: neu! 1 ♀ (Tonkin) Tam Dao, Perrot (MNP).

cham Puthz

gestroi callifrons L. Benick: neu! 1 ♀ (Tonkin) Tam Dao, Perrot (MNP).

gestroi grandiculus L. Benick

gestroi stigmatipennis L. Benick

invocatus Ryvkin (RYVKIN 1992)

languor L. Benick (RYVKIN 1992)

maculifer Cameron

marginifer Puthz

pallidipes Cameron

perfidiosus Puthz

perroti Puthz

perrotianus sp. n.

signatipennis Puthz: neu! 1 ♂ (Tonkin); Tam Dao, Perrot (MHNG)

stigmaticus Fauvel

tenuimargo Cameron

vietnamensis Puthz

virgula Fauvel

unguliventris sp. n.

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Aleocharinae della Cina: Parte II (Coleoptera, Staphylinidae)

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Aleocharinae from China: Part II (Coleoptera, Staphylinidae). - In this paper further 67 species are described as new to science. These new species belong to following tribes: Falagriini (20 n. sp.), Deremini (2) and Athetini, part I (45). Three genera are described as new, assigned to following two tribes: Deremini (*Kamptomerus* n. gen. near *Longiprimittarsus*), Athetini (*Enkoilogeneia* n. gen. near *Hydrosmecta*, and *Amphibolusa* n. gen. near *Amidobia*). Two new combinations are proposed. The main diagnostic characters are illustrated.

Key-words: Coleoptera - Staphylinidae - Aleocharinae - Taxonomy - China.

INTRODUZIONE

Sono qui descritti i taxa ritenuti nuovi per la scienza raccolti prevalentemente dal Dr Ales Smetana del "Centre for Land and Biological Resources Research" di Ottawa e dal collega stafilinidologo Guillaume de Rougemont di Londra in occasione di lunghi viaggi o soggiorni in Cina.

Le specie note o nuove per la Cina sono elencate nella prima parte di questa stessa serie (PACE 1998). Le nuove specie appartenengono alle tribù Falagriini, Deremini e Athetini. Specie di quest'ultima tribù saranno descritte anche e in numero maggiore nella terza parte della presente serie di articoli. La trattazione separata in due delle specie della tribù Athetini si è resa necessaria al fine di non aumentare il numero di pagine e di tavole, sì da rendere il lavoro difficilmente pubblicabile. I disegni delle tavole sono stati da me eseguiti in tutte le loro fasi.

Gli holotypi delle nuove specie sono depositati nel Museo di Storia Naturale di Ginevra (MHNG).

FALAGRIINI

***Cordalia occipitalis* sp. n.**

Figg. 1-4

Holotypus ♂, China, Beijing, Xishan, IX.1992, de Rougemont leg. (MHNG).

Paratypi: 4 ♂♂ e 3 ♀♀, stessa provenienza; 1 ♀, Beijing, B.N.V., Malaise trap, 10.VI-10.VII.1993, de Rougemont leg.; 3 ♀♀, China, Luayang, 10.IX.1994, de Rougemont leg.

(140° Contributo alla conoscenza delle Aleocharinae).

Manoscritto accettato il 13.02.1998

DESCRIZIONE. Lunghezza 2,4 mm. Corpo debolmente lucido, giallo-rossiccio con capo nero-bruno e uriti liberi quarto e quinto bruni; antenne bruno-rossicce con i due antennomeri basali rossicci; zampe giallo-rossicce. Il capo presenta una punteggiatura distinta, ma assente a metà della fronte, e una depressione mediana che termina in una fossetta basale. La superficie del capo non presenta reticolazione, come il resto del corpo. Il fine solco mediano del pronoto raggiunge solo la metà della lunghezza del pronoto che è coperto di fini e fitti tubercoletti. La superficie delle elitre è come quella del pronoto. Tubercoletti salienti coprono la superficie degli uroterghi. Edeago figg. 2-3, spermateca fig. 4.

COMPARAZIONI. La nuova specie si pone tassonomicamente in posizione intermedia tra *C. vestita* (Boheman, 1858), presente pure in Cina e *C. chinensis* Pace, 1993a, dello Yunnan. Dalla prima si distingue esternamente per l'assenza di lunga pubescenza ai lati del pronoto e delle elitre, per la presenza di una fossetta occipitale (assente in *vestita*); dalla seconda per la presenza della fossetta occipitale (e non discale come in *chinensis*) e per l'assenza di profonda depressione discale del pronoto. Per la forma della spermateca, la nuova specie può essere più affine a *chinensis*, ma è ben distinta da essa perché ha bulbo distale poco sviluppato, con introflessione apicale breve, mentre in *chinensis* ha tale introflessione assai profonda in bulbo dilatato.

ETIMOLOGIA. La profonda fossetta nella regione occipitale ha suggerito il nome della nuova specie.

***Cordalia yunnanensis* sp. n.**

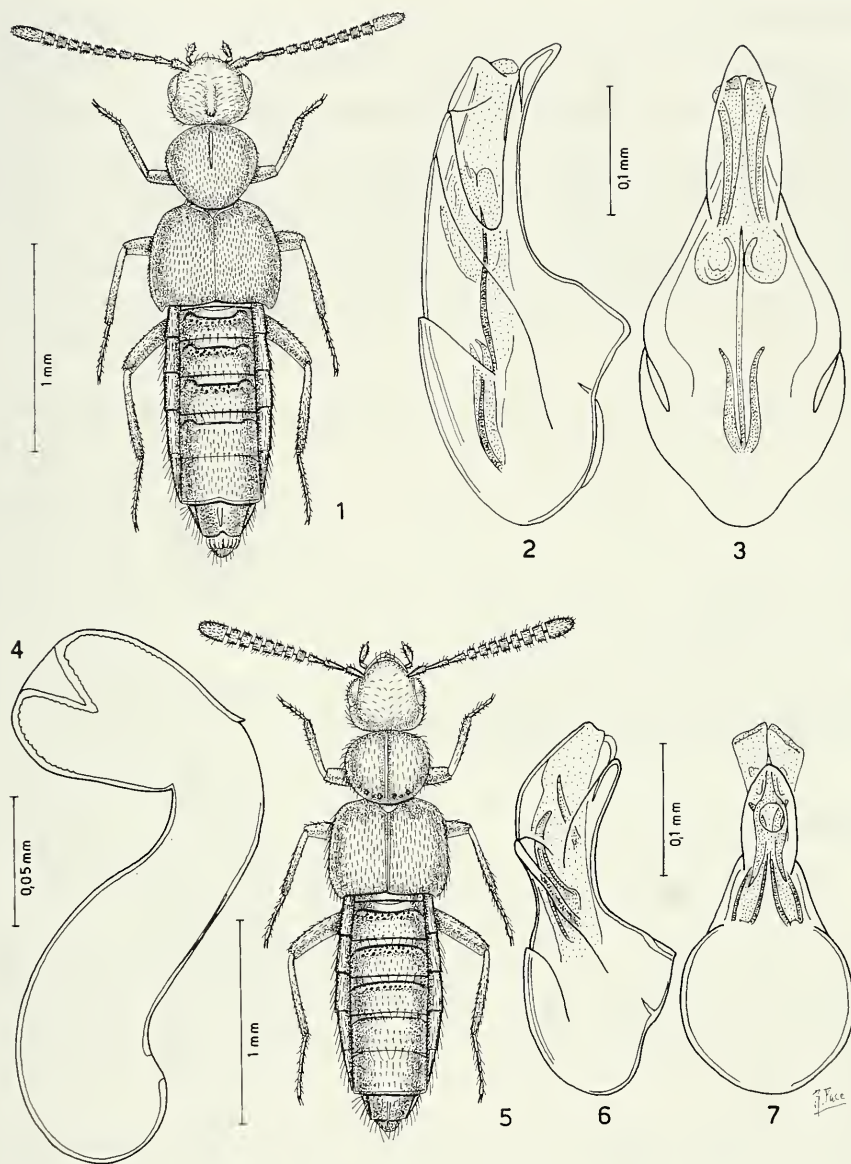
Figg. 5-7

Holotypus ♂. China. Yunnan, Ruili, ca. 700 m. 3.II.1993, de Rougemont leg. (MHNG).

Paratypi: 2 ♂♂, stessa provenienza; 1 ♂, China, Yunnan, Xishuangbanna, Jinghong, II. 1993, de Rougemont leg.

DESCRIZIONE. Lunghezza 2,4 mm. Corpo lucido e giallo-rossiccio con capo, elitre tranne la base e gli uriti liberi quarto e metà basale del quinto bruni; antenne brune con l'antennomero basale bruno rossiccio e l'undicesimo giallo-rossiccio; zampe rossicce. L'avancorpo è coperto di tubercoletti finissimi, l'addome di tubercoletti ben salienti e netti. L'intera superficie del corpo è priva di reticolazione. Il solco mediano del pronoto è profondo su una superficie convessa. Edeago figg. 6-7.

COMPARAZIONI. La nuova specie è affine a *C. chinensis* Pace, 1993a per la forma dell'edeago. Ma quest'organo nella nuova specie è più di un terzo meno sviluppato, con due spine dell'armatura genitale interna corte e robuste, mentre le corrispondenti in *chinensis* sono assai lunghe e sottili. Inoltre l'apice dell'edeago della nuova specie è ogivale, mentre in *chinensis* è a punta stretta e arrotondata. Anche esternamente la nuova specie è differenziata da *chinensis*. Le antenne della nuova specie sono brune con undicesimo antennomero giallo-rossiccio, mentre in *chinensis* le antenne sono uniformemente rossicce. Il pronoto della nuova specie è convesso con solco esteso dal margine anteriore fino alla base e ha distinti punti basali, mentre in *chinensis* il pronoto ha un'ampia depressione mediana, un solco mediano non raggiungente per notevole tratto la base del pronoto stesso e assenza di robusti punti basali del pronoto.



FIGG. 1-7

Habitus, edeago in visione laterale e ventrale e spermateca. 1-4: *Cordalia occipitalis* sp. n.: 5-7: *Cordalia yunnanensis* sp. n.

***Cordalia funebris* sp. n.**

Figg. 8-11

Holotypus ♂, China, Yunnan, Xishuangbanna, Mengdian, 26.I.1993, de Rougemont leg. (MHNG).

Paratypi: 2 ♀♀, stessa provenienza; 4 es., Yunnan, Ruili, ca. 700 m, 3.II.1993, de Rougemont leg.

DESCRIZIONE. Lunghezza 2,8 mm. Corpo lucidissimo privo di reticolazione, con capo e pronoto neri, elitre e addome rossicci con uriti liberi quarto e quinto bruni; antenne bruno-rossicce; zampe rossicce. L'avancorpo è coperto di punteggiatura finissima, l'addome di tuberoletti fini. Il capo presenta una larga depressione mediana dal disco all'area occipitale. Il solco mediano del pronoto è profondo, posto nel fondo di una larga depressione a forma di lettera V molto larga. Edeago figg. 9-10, spermateca fig. 11.

COMPARAZIONI. Per il colore nero del capo e del pronoto e per la forma della spermateca, la nuova specie è comparabile con *C. rougemonti* Pace, 1993a, pure della Cina. E' tuttavia facilmente distinguibile se si osservano gli antennumeri 4° a 10° della nuova specie, non o appena trasversi, mentre in *rougemonti* sono tutti fortemente trasversi. Inoltre il pronoto della nuova specie è lungo quanto largo, con netti punti basali, mentre in *rougemonti* è nettamente trasverso, privo di punti basali e con ampia concavità mediana posteriore, assente sul pronoto della nuova specie. Inoltre l'introflessione apicale del bulbo distale della spermateca è meno profondo nella nuova specie e profondissima in *rougemonti*.

ETIMOLOGIA. La nuova specie è chiamata *funebris* per il colore nero del capo e del pronoto, tipico colore adottato nei funerali occidentali.

***Melagria beijingensis* sp. n.**

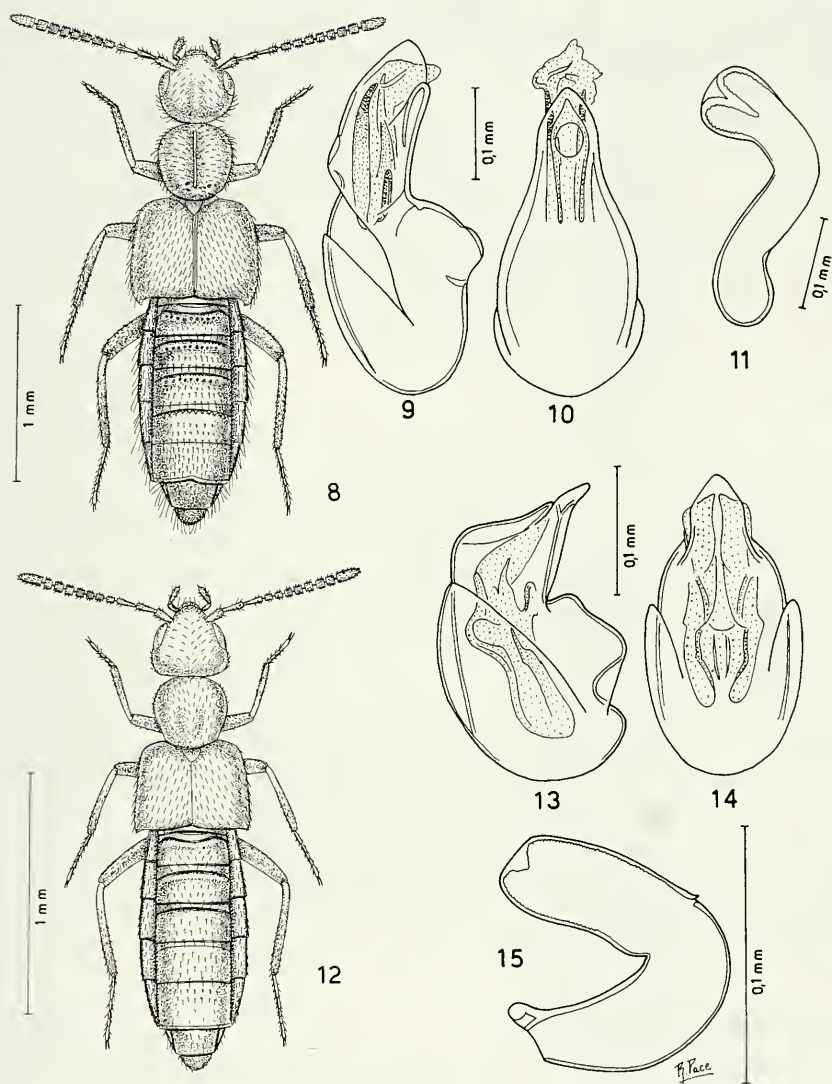
Figg. 12-15

Holotypus ♂, China, Beijing, B.N.U., at light, V-VI.1993, de Rougemont (MHNG).

Paratypi: 2 ♀♀, China, Yingtaogou, III.1993, de Rougemont.

DESCRIZIONE. Lunghezza 1,9 mm. Corpo lucido, senza reticolazione, bruno con margine posteriore delle elitre largamente giallo; antenne brune con i due antennumeri basali giallo-bruni; zampe gialle. La punteggiatura del capo e delle elitre è fine e distinta. Il pronoto e l'addome sono coperti di tuberoletti distinti e salienti. Il pronoto mostra una larga concavità mediana posteriore. Edeago figg. 13-14, spermateca fig. 15.

COMPARAZIONI. Per i caratteri esterni e dell'edeago, la nuova specie si mostra affine a *M. gratella* Erichson, 1840, della Mesopotamia. E' distinta per avere l'edeago tozzo, con apice, in visione laterale, corto e largo e non edeago snello con apice, in visione laterale, molto stretto e ricurvo al lato ventrale come in *gratella*. Inoltre le antenne della nuova specie sono brune, con i due antennumeri basali giallo-bruni e le elitre sono brune marginate posteriormente di giallo, mentre in *gratella* le antenne sono interamente giallo-rossicce e le elitre dello stesso colore con una macchia discale scura.



FIGG. 8-15

Habitus, edeago in visione laterale e ventrale e spermateca. 8-11: *Cordalia funebris* sp. n.;
12-15: *Melagria beijingensis* sp. n.

Melagria marginata sp. n.

Figg. 16-17

Holotypus ♀, China, Beijing, Panshan, 8.V.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 1,8 mm. Corpo lucidissimo e nero con elitre brune, con margine posteriore e metà posteriore della sutura gialli; antenne brune; zampe giallo-brune, le posteriori bruno-rossicce. La punteggiatura del capo è fine. Tuberoletti fini, meno densi sulle elitre, coprono la superficie del corpo al di fuori del capo. Il pronoto ha una fossetta posteriore mediana davanti allo scutello. Spermateca fig. 17.

COMPARAZIONI. La nuova specie è affine alla precedente nuova specie *M. beijingensis*. Ne è distinta per le antenne interamente brune, con antenomeri nono e decimo nettamente trasversi, per le tempie parallele, per il pronoto nettamente trasverso, per il margine giallo delle elitre risalente lungo la sutura e per la spermateca con bulbo distale corto e trasparente (nero quasi opaco in *beijingensis*).

Falagria (Leptagria) salamannai sp. n.

Figg. 18-20

Holotypus ♂, China, Zhejiang, Tienmushan, 2.IX.1994, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,6 mm. Corpo lucido e bruno con capo e uriti liberi 3°, 4° e base del 5° bruno-rossicci; antenne brune con i due antenomeri basali giallo-rossicci; zampe gialle. La punteggiatura del capo è poco distinta e assente sulla fascia mediana. Le due fossette frontali sono deboli. I tuberoletti della superficie del pronoto sono fini al di fuori dell'area anteriore mediana dove sono grossolani. Quelli delle elitre sono più salienti e più fitti intorno allo scutello e quelli degli uroterghi sono ben distinti. Edeago figg. 19-20.

COMPARAZIONI. La nuova specie è molto affine a *F. sichuanensis* Pace, 1993a, pure della Cina, nota sulla sola femmina. La nuova specie se ne distingue per gli occhi meno sviluppati, per la presenza di due fossette frontali e per la presenza di grossolani tubercoli anteriori mediani del pronoto, assenti in *sichuanensis*.

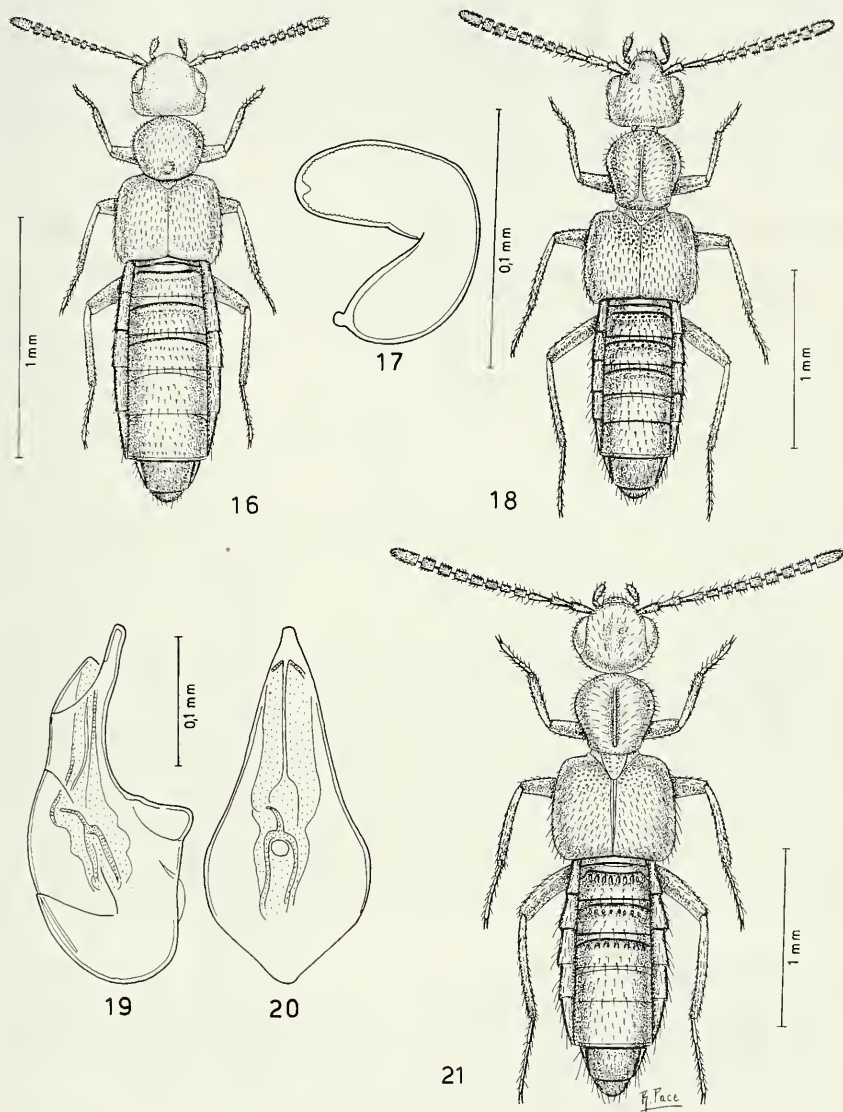
ETIMOLOGIA. La nuova specie è dedicata al Prof. Giovanni Salamanna dell'Università di Genova, noto ditterologo, per tanti anni direttore delle pubblicazioni della Società Entomologica Italiana, in segno di riconoscenza per l'aiuto dimostrato nei miei confronti per la pubblicazione di miei lavori.

Falagria (Leptagria) occulta sp. n.

Figg. 21-23

Holotypus ♂, China, Yunnan, Xishuangbanna, Sanchahe, elephant res., 24.I.1993, de Rougemont (MHNG).

DESCRIZIONE. Lunghezza 2,9 mm. Corpo lucido e bruno-rossiccio con capo e uriti liberi 4° e 5° bruni; antenne brune con i due antenomeri basali bruno rossicci; zampe gialle. La punteggiatura del capo è finissima e quella del pronoto è svanita. Il capo presenta una debole depressione longitudinale mediana. Il solco mediano del pronoto è profondissimo: alla sua estremità posteriore si notano alcuni tuberoletti assai salienti. Le elitre mostrano tuberoletti assai salienti solo alla base. Edeago figg. 22-23.



FIGG. 16-21

Habitus, spermateca ed edeago in visione laterale e ventrale. 16-17: *Melagria marginata* sp. n.; 18-20: *Falagria (Leptagria) salamannai* sp. n.; 21: *Falagria (Leptagria) occulta* sp. n.

COMPARAZIONI. La nuova specie avendo occhi molto sviluppati, tempie assai sfuggenti e granuli alla base delle elitre radi, si distingue esternamente da *F. densipennis* Cameron, 1939a, da *F. assamensis* Pace, 1985a e da *F. sichuanensis* Pace, 1993a che hanno occhi meno sviluppati e tempie arrotondate. Per gli occhi assai sviluppati e le tempie molto sfuggenti, la nuova specie si avvicina tassonomicamente a *F. vilis* Kraatz, 1859, dell'India, nota sul solo tipo femmina, ma *vilis* ha antenomeri 5° a 10° nettamente trasversi, pronoto non sinuato ai lati davanti agli angoli posteriori e i tubercoletti basali delle elitre più fitti.

Falagria (Myrmecocephalus) xishanensis sp. n.

Figg. 24-25

Holotypus ♀, China, Beijing, Xishan, IX.1992, de Rougemont leg. (MHNG).

Paratypus: 1 ♀, China, Henan, Luoyang, 10.IX.1994, de Rougemont leg.

DESCRIZIONE. Lunghezza 3,2 mm. Capo e pronoto opachi, resto del corpo lucido. Corpo bruno-rossiccio con elitre gialle e uriti liberi 4° e 5° bruni; antenne brune con i due antenomeri basali giallo-rossicci e i tre seguenti bruno-rossicci; zampe gialle con metà distale dei femori mediani e posteriori bruno-rossiccia. La reticolazione della superficie del capo e del pronoto è quasi vigorosa, con punteggiatura o tubercoletti non visibili. Il pronoto ha un profondo solco mediano. I tubercoletti basali delle elitre sono appena più salienti di quelli visibili sul resto della superficie elitrale. I tubercoletti dei due uroterghi basali sono distinti, quelli sui restanti uroterghi sono quasi indistinti. Spermateca fig. 25.

COMPARAZIONI. Per le elitre gialle e la forma della spermateca, la nuova specie appare affine a *F. pallipennis* Cameron, 1939a, dell'India. Se ne distingue per avere le antenne brevi, con antenomeri 8° a 10° lunghi quanto larghi, per gli occhi più lunghi delle tempie che sono sfuggenti e per il pronoto sinuato davanti agli angoli posteriori che sono non evidenti. In *pallipennis* le antenne sono lunghissime, con gli antenomeri 8° a 10° molto più lunghi che larghi, gli occhi più corti delle tempie che sono largamente arrotondate e il pronoto non sinuato ai lati, con angoli posteriori sporgenti. Inoltre la parte della spermateca, escluso il bulbo distale, è nettamente più corta e più larga nella nuova specie rispetto all'analogo parte della spermateca di *pallipennis*.

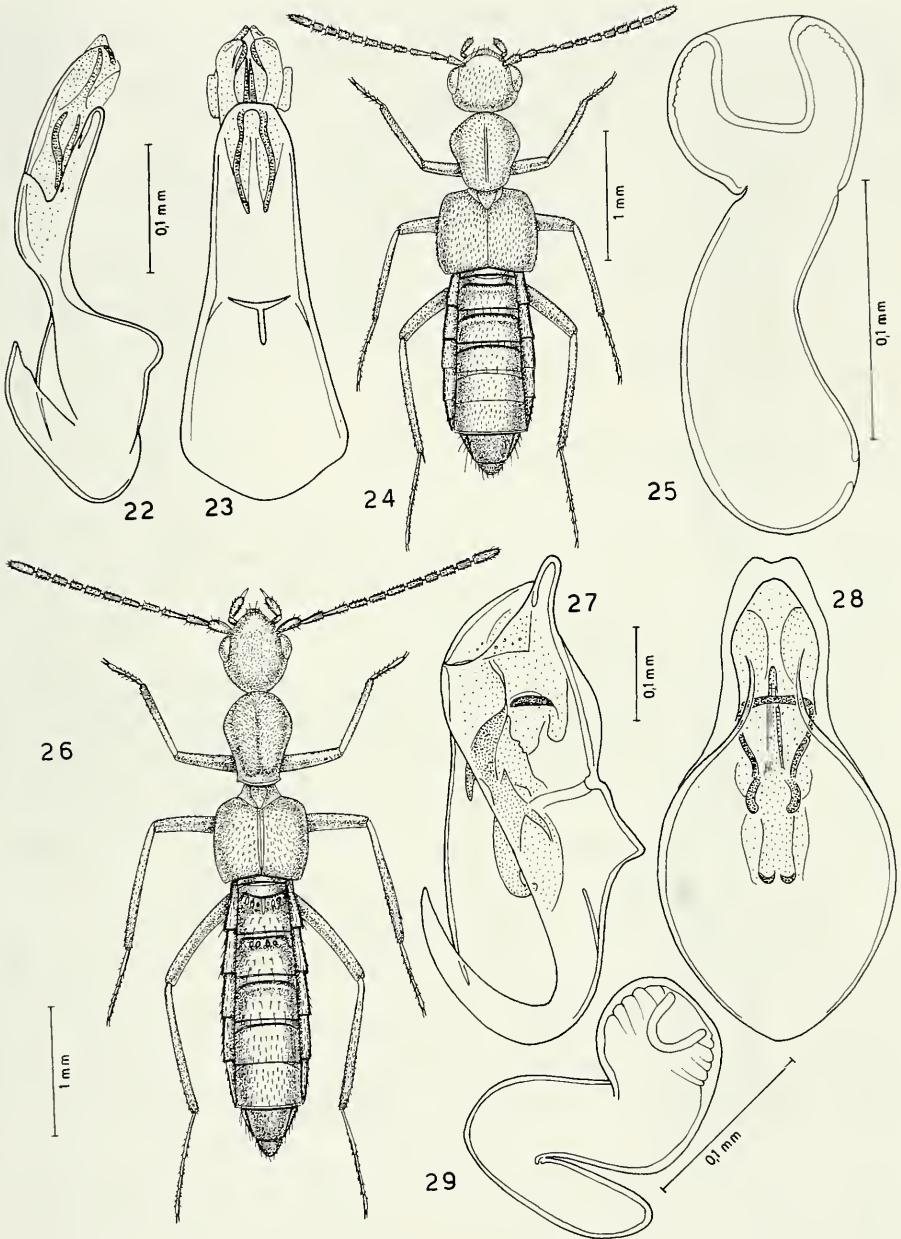
Falagria (Myrmecocephalus) zhejiangensis sp. n.

Figg. 26-29

Holotypus ♂, China, Zhejiang, Tienmushan, 29.IV.1993, de Rougemont leg. (MHNG).

Paratypi: 5 es., stessa provenienza; 9 es., stessa provenienza, ma in data 2.IX.1994, de Rougemont leg.; 2 ♀ ♀, China, Shaanxi, Nanwutai, 17.IX.1995, de Rougemont leg.

DESCRIZIONE. Lunghezza 4,1 mm. Capo e pronoto opachi, resto del corpo lucido. Corpo bruno-rossiccio con i due uriti basali gialli e i restanti bruni; antenne rossicce; zampe giallo-rossicce con metà distale dei femori mediani e posteriori bruna. La superficie del capo e dell'addome è coperta di reticolazione nettissima e regolare, cioè composta di maglie di grandezza uniforme. Il capo ha un debole e largo solco mediano. Il fine solco mediano del pronoto sta nel fondo di una depressione a larga V. Le elitre presentano superficie a reticolazione molto superficiale e tubercoletti più



FIGG. 22-29

Eedeago in visione laterale e ventrale, habitus e spermatheca. 22-23: *Falagria (Leptagria) occulta* sp. n.; 24-25: *Falagria (Myrmecocephalus) xishanensis* sp. n.; 26-29: *Falagria (Myrmecocephalus) zhejiangensis* sp. n.

distinti in avanti che all'indietro. L'urotergo basale mostra una carena mediana nel fondo del solco trasverso basale. La pubescenza dei tre uroterghi basali è rada, quella dei restanti uroterghi è fitta. I due uroterghi basali sono privi di reticolazione, il terzo l'ha estremamente svanita, il quarto, il quinto e il sesto l'hanno netta. Edeago figg. 27-28, spermateca fig. 29.

COMPARAZIONI. Per la forma della spermateca e la struttura dell'edeago la nuova specie va associata a *F. flavocinta* Kraatz, 1859, dello Sri Lanka e a *F. latesulcata* Cameron, 1939b, di Giava (nec *latesulcata* Cameron 1939a dell'India = *F. assamensis* Pace, 1985a). Queste due specie non hanno l'apice dell'edeago bisinuato come quello della nuova specie e il sacco interno presenta un lungo tubulo in *flavocinta* e una robusta lama in *latesulcata*. Inoltre il pronoto della nuova specie è molto più stretto rispetto quello delle due citate specie.

Ischnopoda (Caliusa) hebeiensis sp. n.

Figg. 30-32

Holotypus ♂, China, Hebei Beidaihe, 29.V.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,8 mm. Corpo lucido e nero; antenne brune con i due antennomeri basali e la base del terzo rossicci; zampe bruno-rossicce con tarsi giallo-rossicci. Il corpo ha superficie priva di reticolazione. I tubercoletti della superficie del capo e delle elitre sono salienti, quelli del pronoto sono molto salienti e quelli dell'addome sono radi. Edeago figg. 31-32.

COMPARAZIONI. La nuova specie è simile a *I. chinensis* (Pace, 1993a), **comb. n.** (olim *Tachyusa chinensis*). Ne è differente per l'edeago meno sviluppato, privo di lama ricurva del sacco interno, presente in *hebeiensis* sp. n. e per l'addome più ristretto alla base.

Ischnopoda (Caliusa) gilvipes sp. n.

Figg. 33-37

Holotypus ♀, China, Beijing, Panshan, 8.V.1993, de Rougemont leg. (MHNG).

Paratypus: 1 ♂, China, Zhedang, Tianmushan, 29.IV.1993.

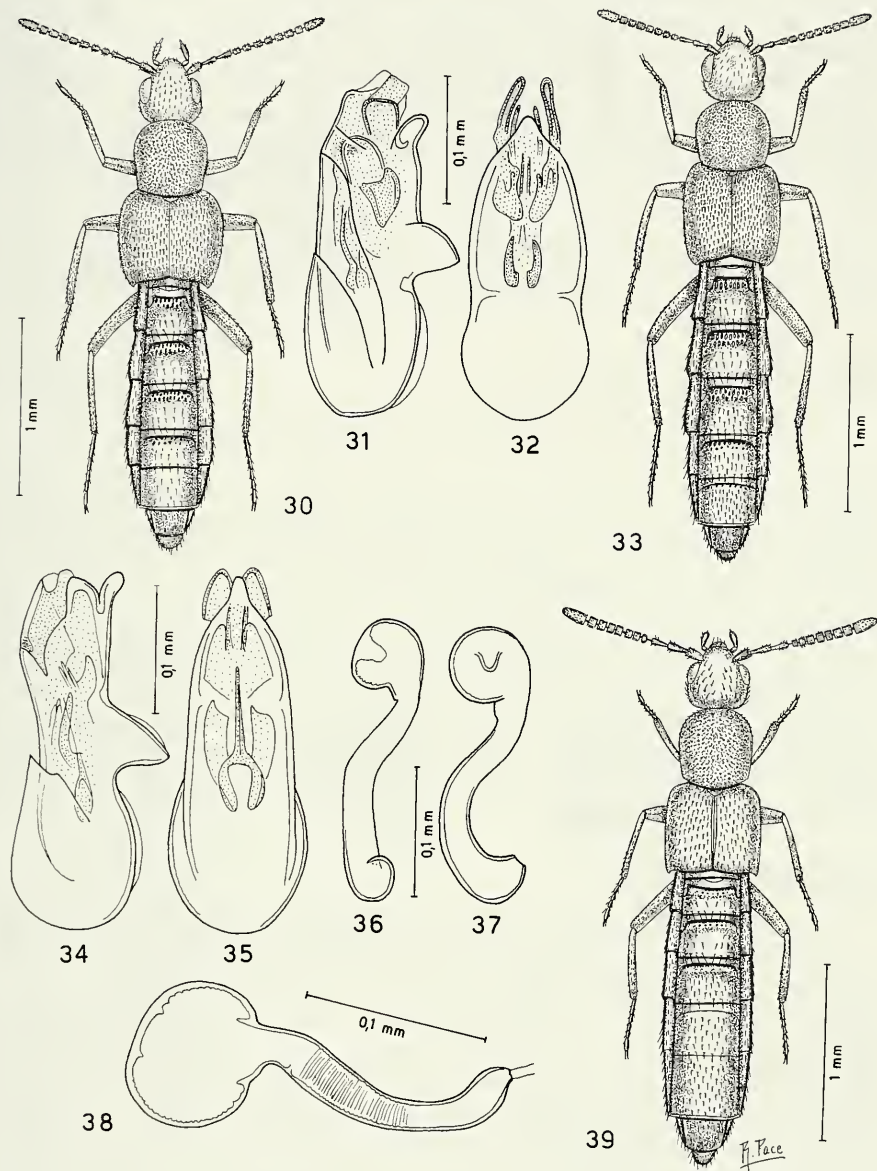
DESCRIZIONE. Lunghezza 2,9 mm. Corpo lucido e nero; antenne brune con i due antennomeri basali bruno-rossicci; zampe brune con i tarsi gialli. L'intera superficie del corpo è priva di reticolazione. I tubercoletti della superficie del capo sono estremamente superficiali, quelli del pronoto sono distinti, quelli delle elitre sono netti e meno fitti di quelli del pronoto, quelli dell'addome sono salienti. Edeago figg. 34-35, spermateca figg. 36-37.

COMPARAZIONI. La nuova specie è affine a *I. chinensis* (Pace, 1993a). Ne è distinta per l'edeago meno sviluppato e non ricurvo al lato ventrale e per la spermateca molto meno sviluppata, con introflessione apicale del bulbo distale più profondo e più stretto (larga e poco profonda in *chinensis*).

Ischnopoda (Caliusa) turfanensis sp. n.

Figg. 38-39

Holotypus ♀, China, Xinjiang, Turfan, 40 m, 11.X.1993, de Rougemont leg. (MHNG).



FIGG. 30-39

Habitus, edeago in visione laterale e ventrale e spermateca. 30-32: *Ischnopoda (Caliusa) hebeiensis* sp. n.; 33-37: *Ischnopoda (Caliusa) gilvipes* sp. n.; 38-39: *Ischnopoda (Caliusa) turfanensis* sp. n.

DESCRIZIONE. Lunghezza 2,9 mm. Corpo lucido e bruno con elitre giallo-rossicce con base bruna e con margine posteriore degli uroterghi liberi 1°, 2° e 3° e restanti uroterghi bruno-rossicci; antenne brune; zampe rossicce. L'avancorpo è privo di reticolazione come i tre uriti basali, i restanti uriti presentano una reticolazione distinta. La punteggiatura del capo è molto superficiale e assente sulla linea mediana. I tubercoletti della superficie del pronoto sono distinti, quelli delle elitre sono poco salienti e quelli degli uroterghi sono un po' allungati longitudinalmente. Spermatea fig. 38.

COMPARAZIONI. Le elitre giallo-rossicce con base bruna e la caratteristica forma della spermatea, rendono unica questa nuova specie nell'ambito del genere a cui è attribuita.

Ischnopoda (Caliusa) finitima sp. n.

Figg. 40-43

Holotypus ♂, Hong Kong, N. T., IV.1996, de Rougemont leg. (MHNG).
Paratypi: 2 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 2,2 mm. Corpo lucido e bruno-rossiccio con capo e quarto urite libero bruni; antenne brune con i due antennomeri basali e la base del terzo giallo-rossicci; zampe giallo-rossicce. L'intero corpo è privo di reticolazione. La punteggiatura del capo è indistinta e quella del pronoto è finissima e svanita. Il capo ha un solco mediano e il pronoto una fossetta mediana posteriore trasversa. I tubercoletti che coprono la superficie delle elitre sono fini ed estremamente svaniti, quelli dell'addome sono al contrario distinti. Edeago figg. 41-42, spermatea fig. 43.

COMPARAZIONI. La nuova specie, in base alla forma della spermatea, sembra tassonomicamente affine a *I. song* (Pace, 1993a), **comb. n.** (Olim *Tachyusa song*), pure della Cina. Se ne distingue per il pronoto più trasverso e per la parte prossimale della spermatea nettamente più lunga.

Gnypeta beijingensis sp. n.

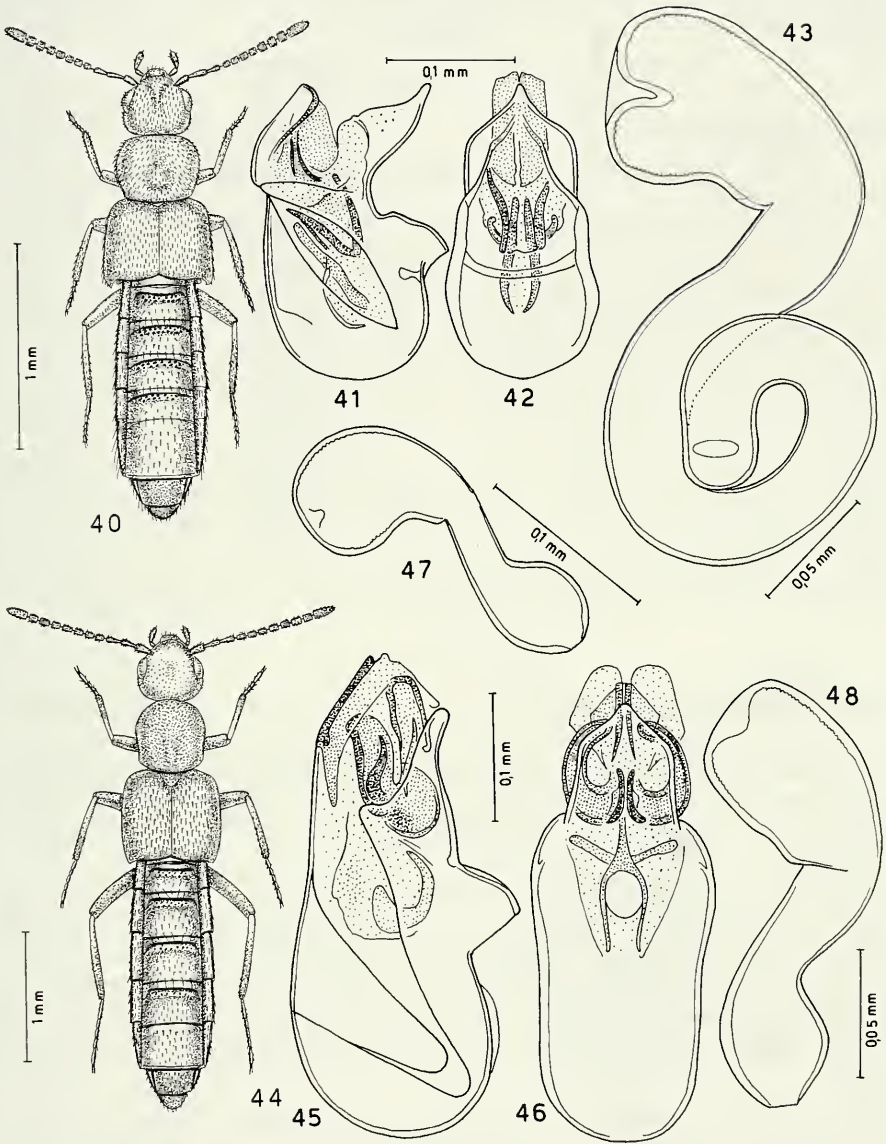
Figg. 44-48

Holotypus ♀, China, Beijing, Xiaolongmen, I.VII.1993, de Rougemont leg. (MHNG).

Paratypi: 8 es., China, Shanxi, Wutaishan, 4-5.VI.1993, de Rougemont leg.; 1 ♂ e 1 ♀, China, Gansu, Dalijia Shan, 46 Km W Linxia, 2980 m, 10.VII.1994, A. Smetana leg.

DESCRIZIONE. Lunghezza 3,7 mm. Corpo lucido e bruno con capo nero-bruno e con margine posteriore dei due uriti basali largamente rossicci; antenne brune con i due antennomeri basali e la base del terzo rossicci; zampe anteriori rossicce, zampe intermedie rossicce con femori bruno-rossicci, zampe posteriori brune con tarsi gialli. La reticolazione della superficie del capo è distinta, quella del pronoto è superficiale e quella delle elitre e degli uriti liberi 4° e 5° è estremamente svanita; assente è sui due uroterghi basali. I tubercoletti della superficie del capo sono fini e non fitti, quelli del pronoto e dell'addome sono salienti e quelli delle elitre sono distinti. Edeago figg. 45-46, spermatea figg. 47-48.

COMPARAZIONI. La nuova specie è affine, ma ben distinta da *G. modesta* Bernhauer, 1915 di Sumatra, Thailandia, Birmania, Bali e Hong Kong, per l'habitus snello (tozzo



FIGG. 40-48

Habitus, edeago in visione laterale e ventrale e spermatheca. 40-43: *Ischopoda (Caliusa) finitima* sp. n.; 44-48: *Gnypeta beijingensis* sp. n.

in *modesta*), per l'edeago con robusta armatura genitale interna (armatura appena distinta in *modesta*) e per il bulbo prossimale della spermateca ben conformato (indistinto in *modesta*).

Gnypteta chinensis sp. n.

Figg. 49-52

Holotypus ♂, China, Yunnan, Xishuangbanna, Chayanhe F. P., 24.I.1993, de Rougemont leg. (MHNG).

Paratypi: 1 ♂ e 6 ♀♀, stessa provenienza; 1 ♀, stessa provenienza, ma Mengadien, 26.I.1993, de Rougemont leg.; 1 ♂, stessa provenienza, ma Jinghoo, 3.I.1993, de Rougemont.

DESCRIZIONE. Lunghezza 2,8 mm. Avancorpo debolmente opaco, addome debolmete lucido. Corpo bruno con margine posteriore delle elitre giallo e con uriti liberi 4° e 5° neri; antenne brune con i due antenomeri basali e la base del terzo giallo-rossicci, undicesimo rossiccio; tarsi gialli, tibie rossicce e femori bruni. L'intero corpo è coperto di tubercoletti fini tra loro contigui. Edeago figg. 50-51, spermateca fig. 52.

COMPARAZIONI. La nuova specie è simile a *G. yaoana* Pace, 1992 della Thailandia, a motivo della forma dell'edeago e della spermateca. Ne è distinta, tra l'altro, per l'apice dell'edeago largo e arcuato e non stretto e a lati sinuati come in *yaoana* e per il bulbo distale della spermateca più lungo, con la parte prossimale della stessa spermateca molto più breve rispetto la medesima parte della spermateca di *yaoana*.

Gnypteta samchunensis sp. n.

Figg. 53-56

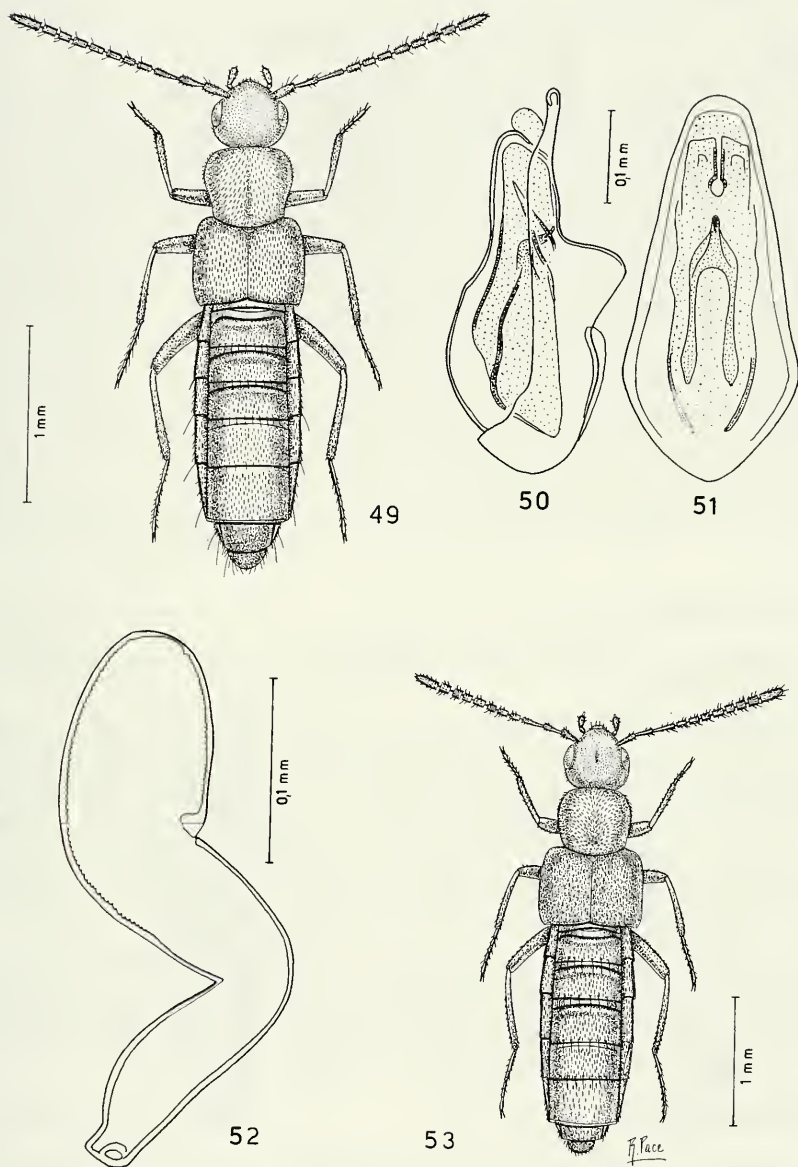
Holotypus ♀, Hong Kong, XII-I.1996, de Rougemont leg. (MHNG).

Paratypi: 16 ♀♀, Hong Kong, Kadoorie Agricultural Research Centre, flight interception trap, 19-31.V.1996, de Rougemont leg.; 1 ♀, Hong Kong, Tai Po, Malaise trap, V.1966, de Rougemont leg.; 25 es., Hong Kong, N.T., V.1996, vegetable refuse, de Rougemont; 11 es., Hong Kong, N.T. IX.1996, de Rougemont leg.

DESCRIZIONE. Lunghezza 3,3 mm. Avancorpo debolmente lucido, addome lucido. Corpo bruno con elitre bruno-rossicce aventi il margine posteriore finemente giallo; antenne brune con i quattro antenomeri basali e l'apice dell'undicesimo giallo-rossicci; zampe gialle con femori giallo-bruni. L'intero corpo è coperto di tubercoletti superficiali. La reticolazione del capo è assente sul disco, quella del pronoto e delle elitre è svanita e quella dell'addome è assente. Edeago figg. 54-55, spermateca fig. 56.

COMPARAZIONI. Anche questa nuova specie, come la precedente, è simile a *G. yaoana* Pace, 1992 della Thailandia. Ne è distinta per avere la sporgenza ventrale dell'edeago poco saliente (molto in *yaoana*), l'apice dello stesso organo ogivale (e non sinuato come in *yaoana*) e per il bulbo distale della spermateca più sviluppato, con presenza di introflessione apicale del bulbo distale dello stesso organo (introflessione assente nella spermateca di *yaoana*).

ETIMOLOGIA. Il nome della nuova specie deriva da Samchun, il fiume di Hong Kong.



FIGG. 49-53

Habitus, edeago in visione laterale e ventrale e spermatteca. 49-52: *Gnypeta chinensis* sp. n.; 53: *Gnypeta samchunensis* sp. n.

Gnypeta pagodarum sp. n.

Figg. 57-58

Holotypus ♀, China, Yunnan, Xishuangbanna, Mengdian, 26.I.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 3,3 mm. Avancorpo debolmente opaco, addome lucido. Corpo nero pece con elitre brune con base e stretto margine posteriore rossicci, con i due uriti basali di un giallo sporco e con il sesto bruno; antenne nero pece con i due antennomeri basali e la base del terzo e l'undicesimo giallo-rossicci; zampe gialle con femori anteriori bruni e medi e posteriori nero-bruni. Una distinta reticolazione è presente solo sugli uroterghi. Il capo e il pronoto sono coperti di tubercoletti fittissimi, contigui e netti. Il capo ha una debole impressione discale. I tubercoletti della superficie delle elitre sono distinti e meno fitti di quelli del capo e del pronoto, quelli dell'addome sono superficiali, ma sempre fitti. Spermateca fig. 58.

COMPARAZIONI. In base alla forma della spermateca, la nuova specie sembra affine a *G. modesta* Bernhauer, 1915, di Sumatra, Giava, Hong Kong, ecc. Ne è distinta per avere tutti gli antennomeri più lunghi che larghi (antennomeri 4° a 10° da lunghi quanto larghi a trasversi in *modesta*) e per il bulbo distale della spermateca piriforme e privo di introflessione apicale (e non ovale e con introflessione apicale come in *modesta*).

Gnypeta immodesta sp. n.

Figg. 59-61

Holotypus ♂, China, Yunnan, Xishuangbanna, Chayanhe F.P., 24.I.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,7 mm. Avancorpo debolmente opaco, addome lucido. Corpo nero con pronoto e base dell'addome bruni e con elitre brune con omeri e margine posteriore giallo-bruni; antenne brune con i due antennomeri basali rossicci; zampe anteriori rossicce con tibie gialle, quelle medie e posteriori gialle con femori bruni. L'intero corpo è privo di reticolazione. I tubercoletti che coprono la superficie del capo sono fitti e poco salienti, quelli del pronoto sono svaniti e quelli dell'addome sono fini e distinti. La punteggiatura delle elitre è superficiale. Edeago figg. 60-61.

COMPARAZIONI. Esternamente la nuova specie è pressoché identica a *G. modesta* Bernhauer, 1915, tranne che per il colore delle elitre e delle zampe. La differenza più vistosa che separa le due specie è l'apice dell'edeago in visione ventrale che nella nuova specie è stretto, mentre in *modesta* è molto largo.

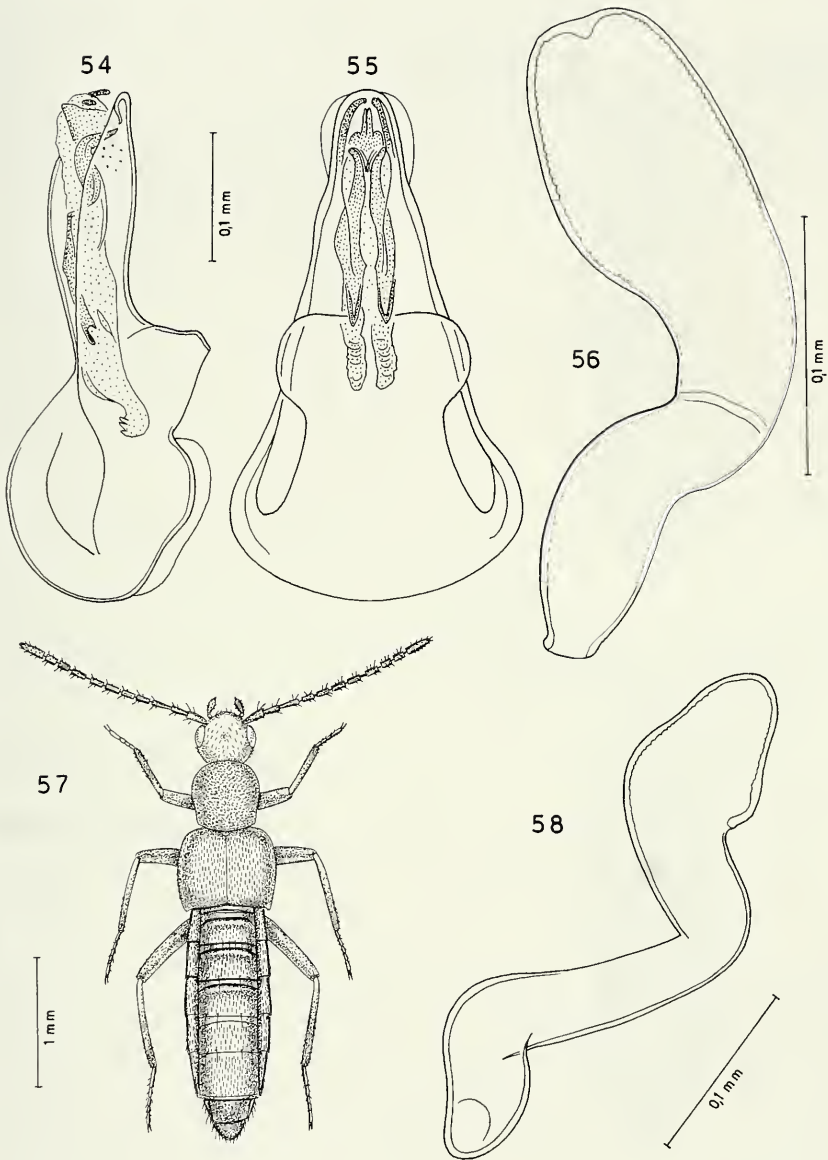
Gnypeta lucidula sp. n.

Figg. 62-63

Holotypus ♀, Hong Kong, N.T., vegetable refuse, V.1996, de Rougemont leg. (MHNG).

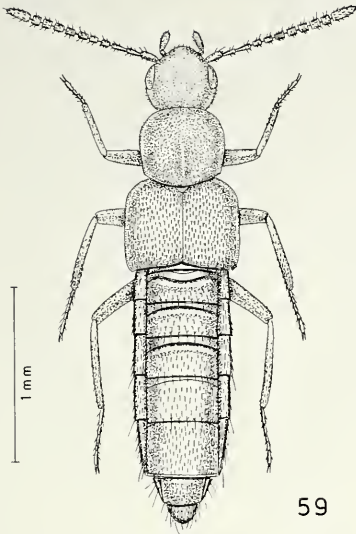
Paratipi: 1 ♀, Hong Kong, Tai Po, VII.1996, de Rougemont leg.; 3 ♀♀ Hong Kong, Kadoorie Agricultural Research Centre, VIII.1996, de Rougemont leg.

DESCRIZIONE. Lunghezza 2,6 mm. Corpo lucido e nero; antenne nero-brune con i due antennomeri basali e la base del terzo gialli; femori bruni, tibie e tarsi giallo-rossicci. Sulla superficie del corpo non vi è traccia di reticolazione. La punteggiatura del capo

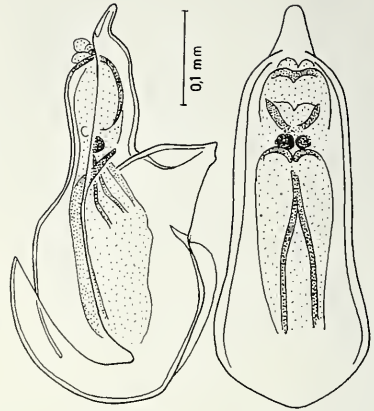


FIGG. 54-58

Edeago in visione laterale e ventrale, spermateca e habitus. 54-56: *Gnypeta samchunensis* sp. n.; 57-58: *Gnypeta pagodarum* sp. n.

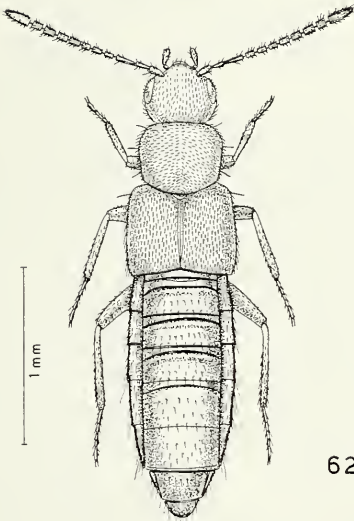


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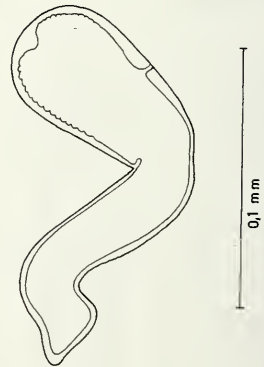


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61



62



63

FIGG. 59-63

Habitus, edeago in visione laterale e ventrale e spermateca. 59-61: *Gnypeta immodesta* sp. n.;
62-63: *Gnypeta lucidula* sp. n.

è svanita, quella del pronoto è molto superficiale e quella delle elitre è distinta. Tuberoletti molto salienti stanno sugli uroterghi. Spermateca fig. 63.

COMPARAZIONI. Specie simile a *G. rougemonti* Pace, 1984a, della Brimania, data la forma simile della spermateca. Se ne distingue per gli occhi più sviluppati e per le elitre poco più larghe del pronoto (molto più larghe del pronoto in *rougemonti*). Il bulbo distale della spermateca è troncoconico con calotta sferica, mentre in *rougemonti* è ellittico. La parte prossimale della stessa spermateca è breve nella nuova specie e lunga in *rougemonti*.

Gnypeta yunnanensis sp. n.

Figg. 64-67

Holotypus ♂, China, Yunnan, Dali, 9.II.1993, de Rougemont leg. (MHNG).
Paratypi: 13 es., stessa provenienza.

DESCRIZIONE. Lunghezza 2,8 mm. Corpo lucido e nero; antenne nero-brune; zampe nere con ginocchia gialle e tarsi rossicci. Non è presente una reticolazione sulla superficie del corpo, tranne che sul disco del capo dove la reticolazione è distinta nel fondo di una fossetta. La punteggiatura del capo è fitta, distinta e assente sulla linea mediana longitudinale. I tuberoletti della superficie del pronoto, che ha una fossetta mediana posteriore profonda, sono finissimi e distinti come quelli delle elitre e dell'addome. Edeago figg. 65-66, spermateca fig. 67.

COMPARAZIONI. La presenza di una fossetta discale del capo e il particolare colore delle tibie, distinguono la nuova specie da *G. hauseri* Bernhauer, 1940 della Cina.

DEREMINI

Demerinda hongkongensis sp. n.

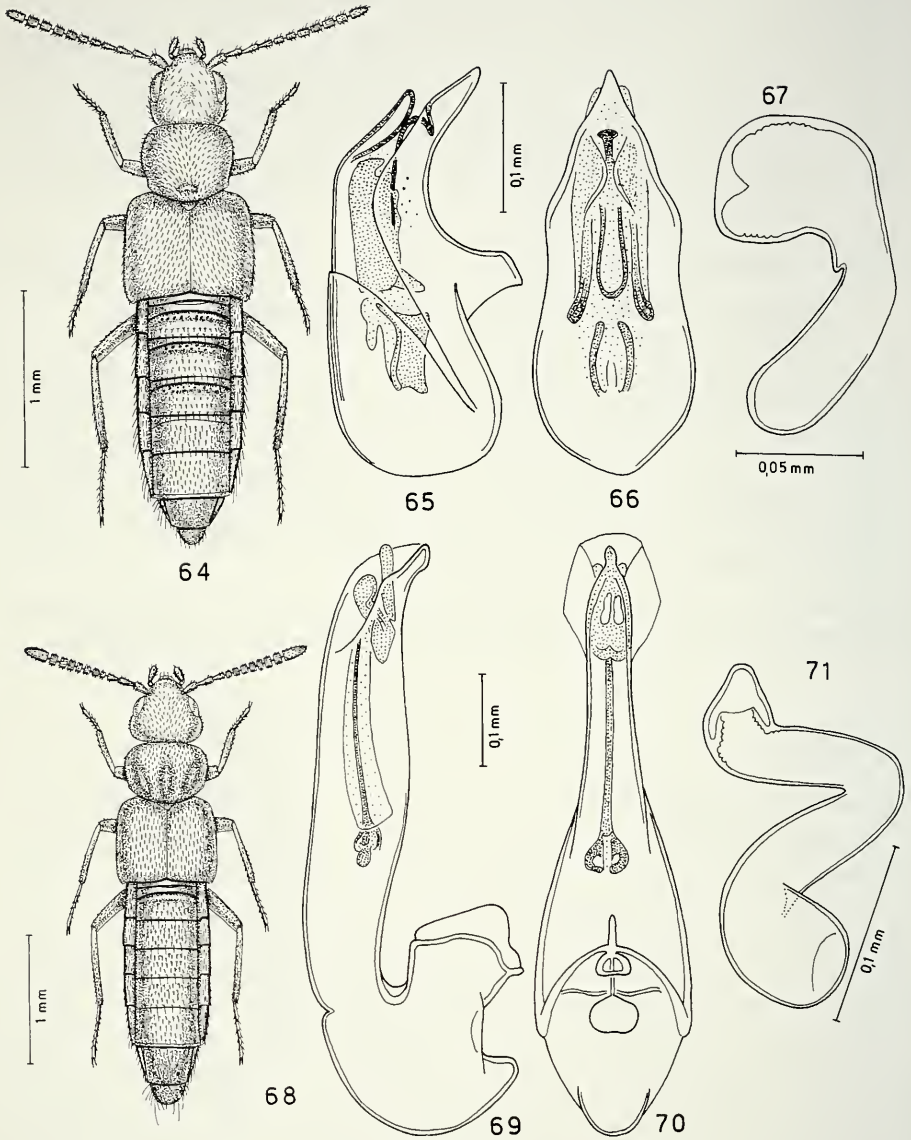
Figg. 68-73

Holotypus ♂, Hong Kong, XII.1995-I.1996, flight interception trap, de Rougemont leg. (MHNG).

Paratypi: 2 ♂♂ e 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 3,2 mm. Corpo lucido. Capo nero-bruno, pronoto bruno-rossiccio, elitre giallo-brune, addome rossiccio con uriti 4° e base del 5° bruni; antenne brune con i due antennomeri basali giallo-bruni; zampe gialle. La reticolazione del capo è estremamente svanita, quella del pronoto è superficiale, quella delle elitre è distinta e quella dell'addome è assente. I tuberoletti della superficie del capo e del pronoto sono fini e distinti, quelli delle elitre sono svaniti e quelli dell'addome sono salienti. Il pronoto presenta un profondo solco mediano e uno altrettanto profondo a ciascun lato: essi non raggiungono il margine anteriore, ma solo quello posteriore. Edeago figg. 69-70, spermateca fig. 73, labio con palpo labiale 72, mento fig. 73.

COMPARAZIONI. La nuova specie è distinta da *D. termitophila* Cameron, 1927, dell'India, per gli antennomeri 4° e 5° nettamente trasversi (lunghi quanto larghi in *termitophila*), per la presenza di un largo solco mediano del pronoto (fine e corta linea longitudinale mediana impressa e una fossetta davanti allo scutello in *termitophila*).



FIGG. 64-71

Habitus, edeago in visione laterale e ventrale e spermateca. 64-67: *Gnypeta yunnanensis* sp. n.; 68-71: *Demerinda hongkongensis* sp. n.

Kamptomerus gen. n.

Figg. 74-78

DIAGNOSI. Il nuovo genere è da distinguere dal genere *Longiprimitarsus* Eichelbaum, 1915, dell'Africa orientale, e *Demerinda* Cameron, 1927, dell'India, per la presenza di due profonde foveole sul pronoto (fig. 74) e per il margine anteriore del mento profondamente arcuato all'indietro (fig. 78).

DESCRIZIONE. Corpo poco depresso, fittamente pubescente, soprattutto sulle elitre e sull'addome; tempie non marginate; palpi labiali di tre articoli; ligula larga e divisa all'estremità; paraglosse sporgenti in avanti; palpi mascellari di quattro articoli; mento profondamente incavato al margine anteriore; processo mesosternale acuto: la sua punta raggiunge quella del processo metasternale; mesocoxe contigue; formula tarsale 4-5-5; primo tarsomero posteriore molto lungo.

TYPUS GENERIS. *Kamptomerus bifoveolatus* sp. n.

ETIMOLOGIA. Il nome del nuovo genere significa "Lato arcuato" e allude a quello anteriore del mento. Il genere grammaticale evidentemente è maschile.

Kamptomerus bifoveolatus sp. n.

Figg. 74-78

Holotypus ♂, Hong Kong, Tai Po, III. 1996, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,4 mm. Corpo lucido, senza reticolazione, tranne che sulle elitre dove la reticolazione è distinta (forse le elitre non appartengono a questo esemplare perché recuperate staccate nel liquido di conservazione in provetta). Capo ed elitre bruni, pronoto rossiccio, addome giallo-rossiccio con gli uriti liberi 2° e 3° bruno-rossicci, tranne il margine posteriore, e con il 4° bruno; antenne giallo-brune con i tre antennomeri basali gialli; zampe gialle. La punteggiatura del capo e del pronoto è netta. Tuberoletti fini e distinti coprono le elitre (forse non pertinenti all'esemplare) e l'addome. Edeago figg. 75-76, labio con palpo labiale fig. 77, mento fig. 78.

ATHETINI (parte I)

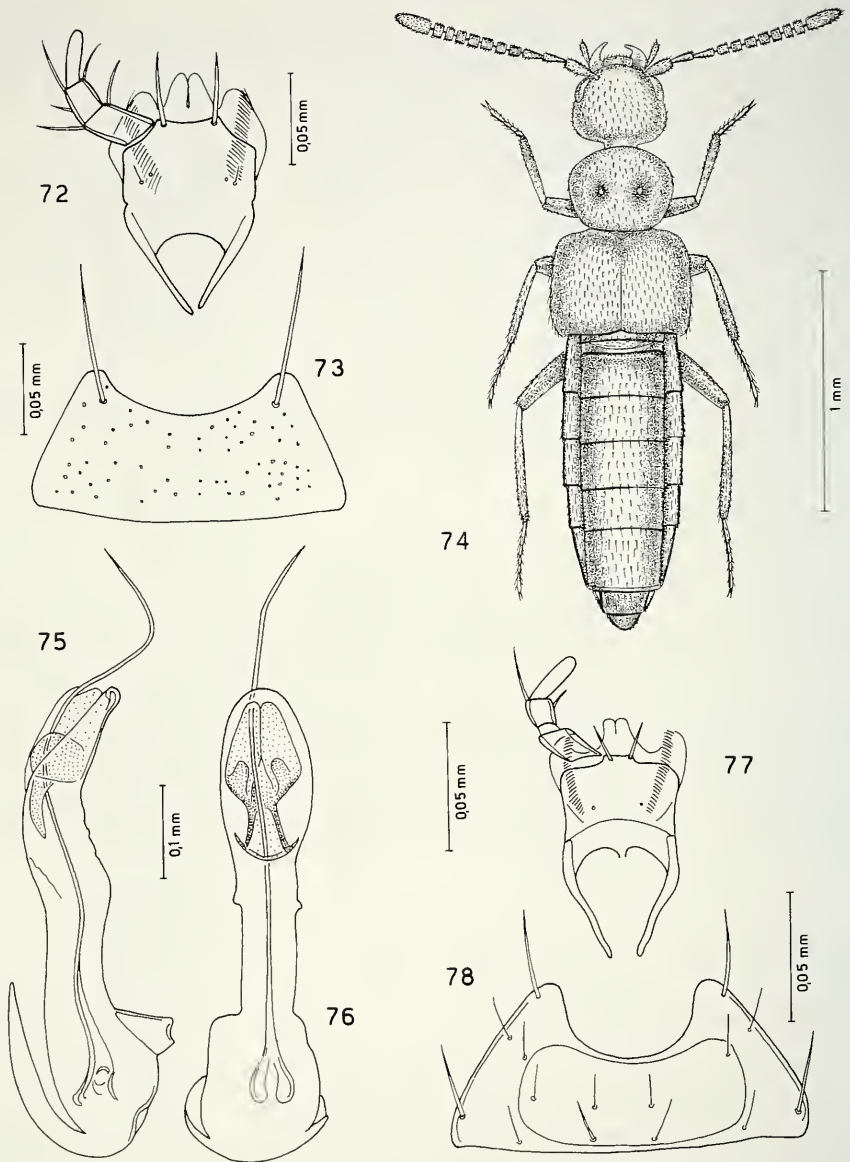
Brachyusa rougemonti sp. n.

Figg. 79-81

Holotypus ♂, China, Shaanxi, Nanwutai, 17.IX.1995, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,7 mm. Corpo debolmente opaco e nero pece, comprese le antenne; zampe gialle con femori rossicci. L'intera superficie del corpo è coperta di tuberoletti fitti e di pubescenza sericea fitta su un fondo a reticolazione distinta. Il pronoto mostra un solco mediano posteriore. Edeago figg. 80-81.

COMPARAZIONI. La nuova specie è ben distinta da *B. velox* Cameron, 1939a, dell'India, per avere le elitre non marginate di giallo posteriormente e per molti caratteri differenziali dell'edeago, tra cui l'apice di quello della nuova specie che è acuto, mentre quello di *velox* è ovale e largo.



FIGG. 72-78

Labio con palpo labiale, mento, habitus, edeago in visione laterale e ventrale. 72-73: *Demerinda hongkongensis* sp. n.; 74-78: *Kamptomerus bifoveolatus* gen. n., sp. n.

ETIMOLOGIA. La nuova specie è dedicata al suo raccoglitore, il collega Guillaume de Rougemont, noto studioso di Staphylinidae di Londra.

Outachyusa chinensis sp. n.

Figg. 82-83

Holotypus ♀, China, Yunnan, Ruili, ca. 700 m, 3.II.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,0 mm. Corpo debolmente opaco e bruno con margine posteriore delle elitre giallo; antenne brune; zampe gialle. L'intera superficie del corpo è coperta di fitta pubescenza sericea e di fittissimi tubercoletti che simulano una reticolazione. Spermateca fig. 83.

COMPARAZIONI. La nuova specie è distinta da *O. nepalensis* Pace, 1991a, per le elitre poco più larghe del pronoto (molto più larghe del pronoto in *nepalensis*) e marginate di giallo all'indietro (uniformemente picee in *nepalensis*). Inoltre la spermateca della nuova specie è meno sviluppata, con distinta introflessione apicale del bulbo distale (assente in *nepalensis*).

Hydrosmecta cooteri sp. n.

Figg. 84-87

Holotypus ♂, China, Zhejiang Prov., Anji County, ca. 500 m, Long Wang Shan N.R., 17.V.1996, J. Cooter leg. (MHNG).

Paratypus: 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 2,9 mm. Corpo poco convesso, debolmente lucido e nero pece; antenne nero-brune; zampe gialle. La reticolazione della superficie del capo e del pronoto è netta e regolare, quella delle elitre è svanita e quella dell'addome è a maglie un po' trasverse distinte. La punteggiatura del capo (assente sulla linea mediana) e del pronoto è estremamente superficiale. I tubercoletti delle elitre sono fini ed estremamente svaniti e quelli dell'addome sono distinti. Edeago figg. 85-86, spermateca fig. 87.

COMPARAZIONI. In base alla forma simile della spermateca, la nuova specie è tassonomicamente avvicicabile a *H. aquarum* Pace, 1985b, del Nepal. Ne è ben distinta per avere gli occhi lunghi quanto le tempie (occhi molto più corti delle tempie in *aquarum*), antenne più lunghe e per la robusta introflessione apicale del bulbo distale della spermateca (assente in quello di *aquarum*).

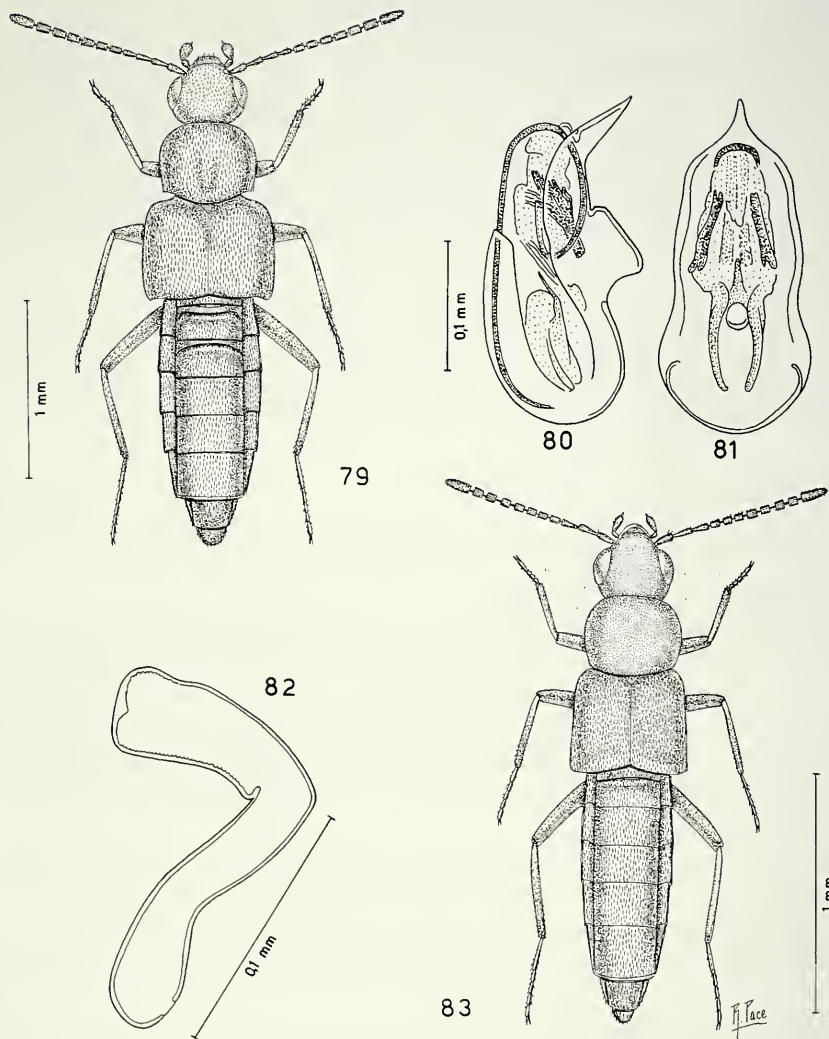
ETIMOLOGIA. La nuova specie è dedicata al suo raccoglitore Jonathan Cooter di Hereford (Gran Bretagna) noto studioso di Liodidae.

Hydrosmecta perignota sp. n.

Figg. 88-90

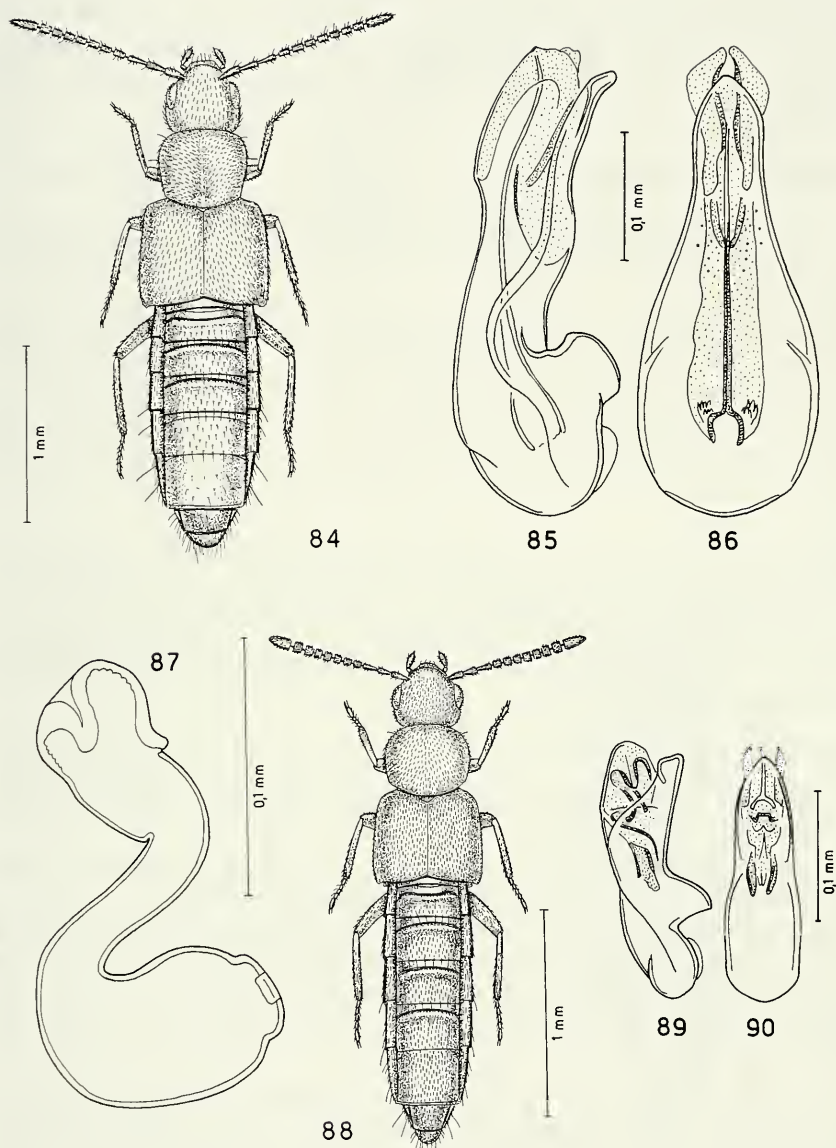
Holotypus ♂, China, Beijing, B.N.U., at light, V-VI.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,2 mm. Corpo debolmente lucido e bruno, comprese le antenne; zampe gialle. Il corpo è coperto di pubescenza sericea fitta e non ha reticolazione, tranne che sul capo dove è estremamente svanita. Tubercoletti fini e fitti coprono la superficie di tutto il corpo.



FIGG. 79-83

Habitus, edeago in visione laterale e ventrale e spermateca. 79-81: *Brachyusa rougemonti* sp. n.; 82-83: *Outachyusa chinensis* sp. n.



FIGG. 84-90

84-87: *Hydrosmehta cooteri* sp. n.; 88-90: *Hydrosmehta perignota* sp. n.

COMPARAZIONI. In base alla forma simile dell'edeago, la nuova specie sembra tassonomicamente vicina a *H. interiecta* Pace, 1985b, pure presente in Cina. Il pronoto e le elitre della nuova specie sono meno trasversi. Tra le molte differenze dell'edeago, l'apice in visione ventrale è ogivale nella nuova specie e a punta stretta in *interiecta*.

Hydrosmecta rougemonti sp. n.

Figg. 91-95

Holotypus ♂, Hong Kong, XII.1995-I.1996, de Rougemont leg. (MHNG).

Paratypi: 12 es. stessa provenienza: 1 ♂ e 1 ♀, Hong Kong, Kadoorie Agricultural Research Centre, flight interception trap, 18-31.V.1996; 2 es., Hong Kong, Tai Po, VII.1996, de Rougemont leg.

DESCRIZIONE. Lunghezza 2,1 mm. Corpo lucido, depresso e bruno con capo, lati delle elitre e uriti liberi 4° e 5° nero-bruni; antenne brune con l'antennomero basale rossiccio e il secondo bruno-rossiccio; zampe gialle. L'intero corpo è coperto di pubescenza sericea e di tubercoletti fitti, tranne che sui tre uroterghi apicali. Il capo ha un largo solco mediano. Un appiattimento mediano della superficie è visibile sul pronoto. Edeago figg. 92-93, spermateca fig. 94, sesto urotergo libero del maschio fig. 95.

COMPARAZIONI. La nuova specie è affine a *H. newarica* Pace, 1988, del Nepal, ma gli occhi sono più lunghi delle tempie (in *newarica* occhi più corti delle tempie) ed è assente una larghissima introflessione apicale del bulbo distale della spermateca.

ETIMOLOGIA. La nuova specie è dedicata al collega Guillaume de Rougemont, noto studioso di Stafilinidi di Londra.

Hydrosmecta longwangensis sp. n.

Figg. 96-97

Holotypus ♀, China, Zhejiang Prov., Anji County, ca. 500 m, Long Wang Shan N.R., 12.V.1996, J. Cooter leg. (MHNG).

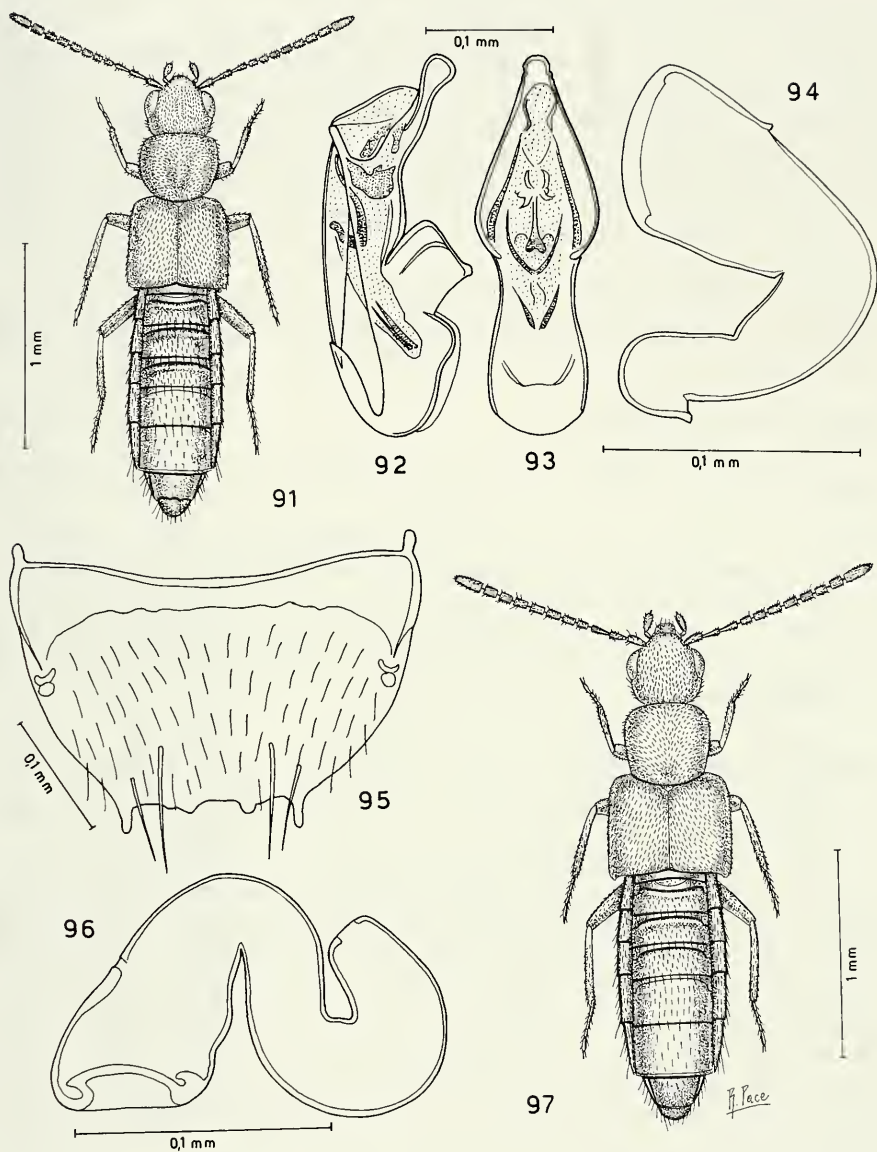
DESCRIZIONE. Lunghezza 2,4 mm. Corpo lucido e nero pece con base dell'addome bruna; antenne brune; zampe gialle. La reticolazione del capo è assente, quella del pronoto è superficiale, quella delle elitre distinta e quella degli uroterghi è a maglie trasverse e nette: solo sul quinto urotergo libero la reticolazione è un po' superficiale. La punteggiatura del capo è fitta e fine, quella del pronoto e delle elitre è assente. Gli uroterghi sono coperti di tubercoletti svaniti. Il disco del capo è impresso. Spermateca fig. 96.

COMPARAZIONI. La nuova specie è affine a *H. newarica* Pace, 1988, del Nepal. Ne è distinta per avere gli occhi lunghi quanto le tempie (e non molto più corti delle tempie come in *newarica*) e per le parti apicale e distale della spermateca più corte rispetto alla parte mediana della stessa spermateca.

Enkoilogeneia gen. n.

Figg. 98-101

DIAGNOSI. Il nuovo genere è affine al genere *Hidrosmecta* Thomson, 1858. Infatti la ligula è pressoché identica. Tuttavia è chiaramente distinto per la profonda incavatura



FIGG. 91-97

Habitus, edeago in visione laterale e ventrale, spermateca e sesto urotergo libero del maschio.
 91-95: *Hydrosmecta rougemonti* sp. n.; 96-97: *Hydrosmecta longwanensis* sp. n.

del lato anteriore del mento che perciò ha angoli anteriori spinti molto in avanti. Anche il tipo di spermateca è di tipo differente.

DESCRIZIONE. Antenne corte, con antenomeri 4° a 10° assai trasversi; tempie a profilo divergente all'indietro e marginate solo all'indietro; palpi labiali di tre articoli; ligula larga e divisa in due lembi uniti; paraglosse poco sporgenti in avanti (fig. 101); mento profondamente incavato al lato anteriore (fig. 100); palpi mascellari di quattro articoli simili a quelli del genere *Hydrosmecta*; processo mesosternale corto non insinuato tra le mesocoxe che sono tra loro contigue; formula tarsale 4-5-5; spermateca fig. 99.

TYPUS GENERIS: *Enkoilogeneia rougemonti* sp. n.

ETIMOLOGIA. Il nome del nuovo genere significa "Mento incavato". Genere grammaticale femminile.

Enkoilogeneia rougemonti sp. n.

Figg. 98-101

Holotypus ♀, Hong Kong, Tai Po, flight interception trap, V.1996, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 1,8 mm. Corpo lucido e giallo-rossiccio con uriti liberi 4° e base del 5° rosicci; antenne rossicce con i tre antenomeri basali gialli; zampe gialle. La reticolazione del capo, del pronoto e dell'addome è distinta, quella delle elitre è superficiale. La superficie dell'avancorpo è coperta di tubercoletti fini e svaniti, quella dell'addome di tubercoletti distinti. Spermateca fig. 99, mento fig. 100, labio con palpo labiale fig. 101.

Geostibida smetanai sp. n.

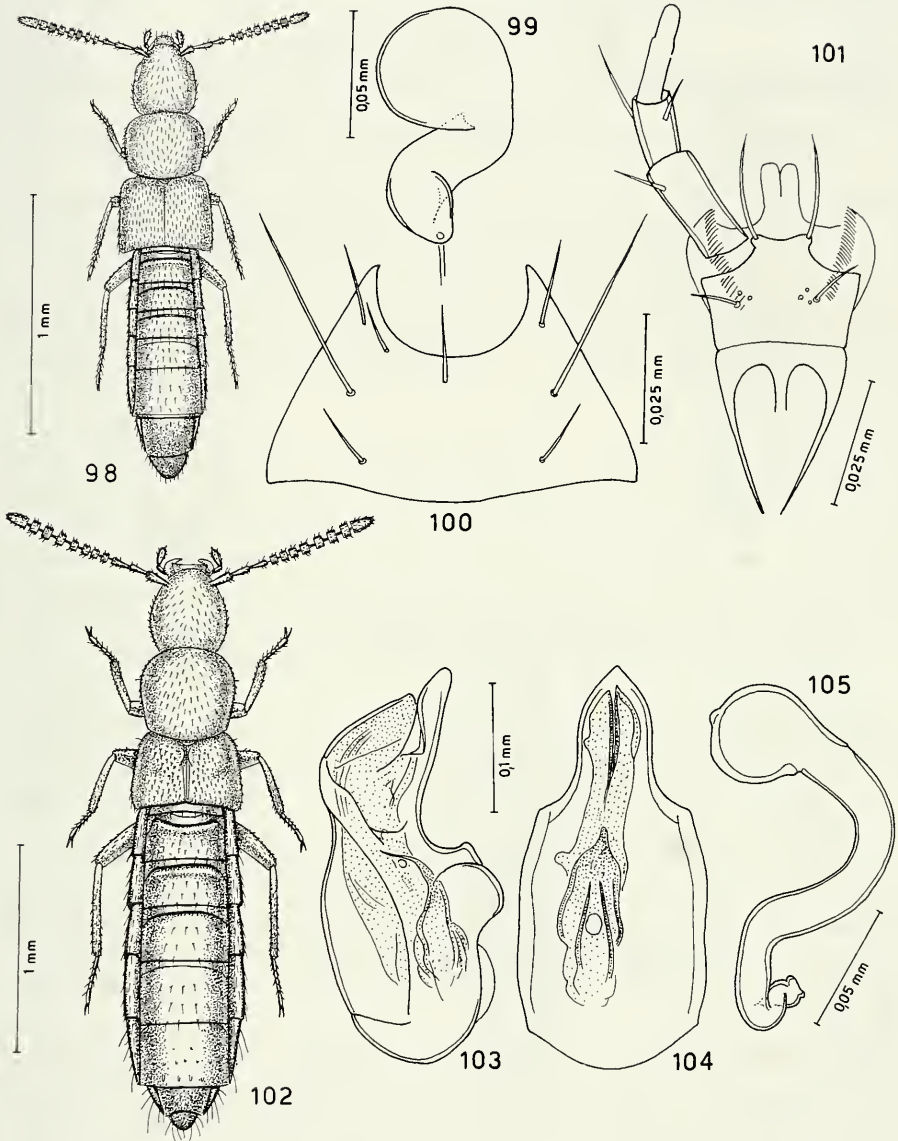
Figg. 102-105

Holotypus ♂, Taiwan. Kaohsiung Hsien, Peinantashan trail. ridge at 2800 m, 3.VII. 1993, A. Smetana leg. (MHNG).

Paratypi: 1 ♂ e 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 2,7 mm. Capo e pronoto debolmente opachi, elitre e addome lucidi. L'intero corpo, comprese antenne e zampe è giallo-rossiccio. La reticolazione del capo è netta, quella del pronoto è vigorosa, quella degli uriti liberi 1°, 2°, 3° e 6° è estremamente svanita e quella degli uroterghi liberi 4° e 5° è distinta. Gli occhi sono composti di 15 ommatidi ben salienti. Il capo ha un fine solco mediano. La plica periscultellare del maschio è molto saliente. I tubercoletti della superficie del capo sono assai svaniti, quelli del pronoto sono distinti e quelli delle elitre sono salienti, tranne che nell'area posteriore esterna dove sono svaniti. Il 5° urotergo libero ha tubercoletti allungati molto salienti, sulla metà posteriore. Edeago fig. 103-104, spermateca fig. 105.

COMPARAZIONI. La nuova specie è affine, ma ben distinta da *G. himalayiensis* Pace, 1984b, del Nepal, per gli occhi maggiormente ridotti, per il pronoto appena trasverso (molto trasverso in *himalayiensis*), per la presenza di due pliche periscutellari basali delle elitre del maschio (assenti in *himalayica*) e per l'edeago più sviluppato, con parte apicale più stretta in visione ventrale.



FIGG. 98-105

Habitus, spermateca, mento, labio con palpo labiale ed eedeago in visione laterale e ventrale.
 98-101: *Enkoilogeneia rougemonti* gen. n., sp. n.; 102-105: *Geostibida smetanai* sp. n.

ETIMOLOGIA. La nuova specie è dedicata al suo raccoglitore, il Dr Ales Smetana, noto studioso di Staphylinidae di Ottawa.

Aloconota gonggensis sp. n.

Figg. 106-107

Holotypus ♀, China, Sichuan, Gongga Shan, above camp 2, 2800 m, 26.VII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 4,2 mm. Corpo lucido e nero-bruno con elitre giallo-brune e uriti liberi 4° e 5° neri; antenne nere con i due antennomeri basali bruni; zampe rossicce. La reticolazione del capo è estremamente superficiale, quella del pronoto e delle elitre è distinta e quella dell'addome è a maglie molto trasverse e svanite sui tre uroterghi basali e distinta sui restanti. La punteggiatura del capo è estremamente svanita e assente sulla linea mediana. I tubercoli della superficie del pronoto sono distinti, quelli delle elitre sono indistinti e quelli dell'addome sono svaniti. Spermateca fig. 107.

COMPARAZIONI. In base alla forma della spermateca, la nuova specie sembra tassonomicamente affine ad *A. chakratiana* (Cameron, 1939a), (olim *Atheta* (*Metaxya*) *chakratiana* Cameron, 1939a, **comb. n.**) dell'India, tuttavia se ne differenzia per il lunghissimo undicesimo antennomero, per il pronoto non fortemente ristretto all'indietro, per la debole introflessione apicale del bulbo distale della spermateca (profonda introflessione in *chakratiana*) e per il bulbo prossimale dello stesso organo molto più dilatato di quello corrispondente della spermateca di *chakratiana*.

Aloconota lanzhouensis sp. n.

Figg. 108-110

Holotypus ♀, China, Gansu, Xinlong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, A. Smetana leg. (MHNG).

Paratypus: 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 3,7 mm. Corpo lucido e nero, comprese le antenne; zampe giallo-rossicce con femori posteriori di un giallo sporco. La reticolazione della superficie del capo è distinta, quella del pronoto e delle elitre è netta e quella degli uroterghi è a maglie molto trasverse ed estremamente superficiali. L'avancorpo è coperto di tubercoli fini e distinti, l'addome mostra tubercoli svaniti. Spermateca figg. 109-110.

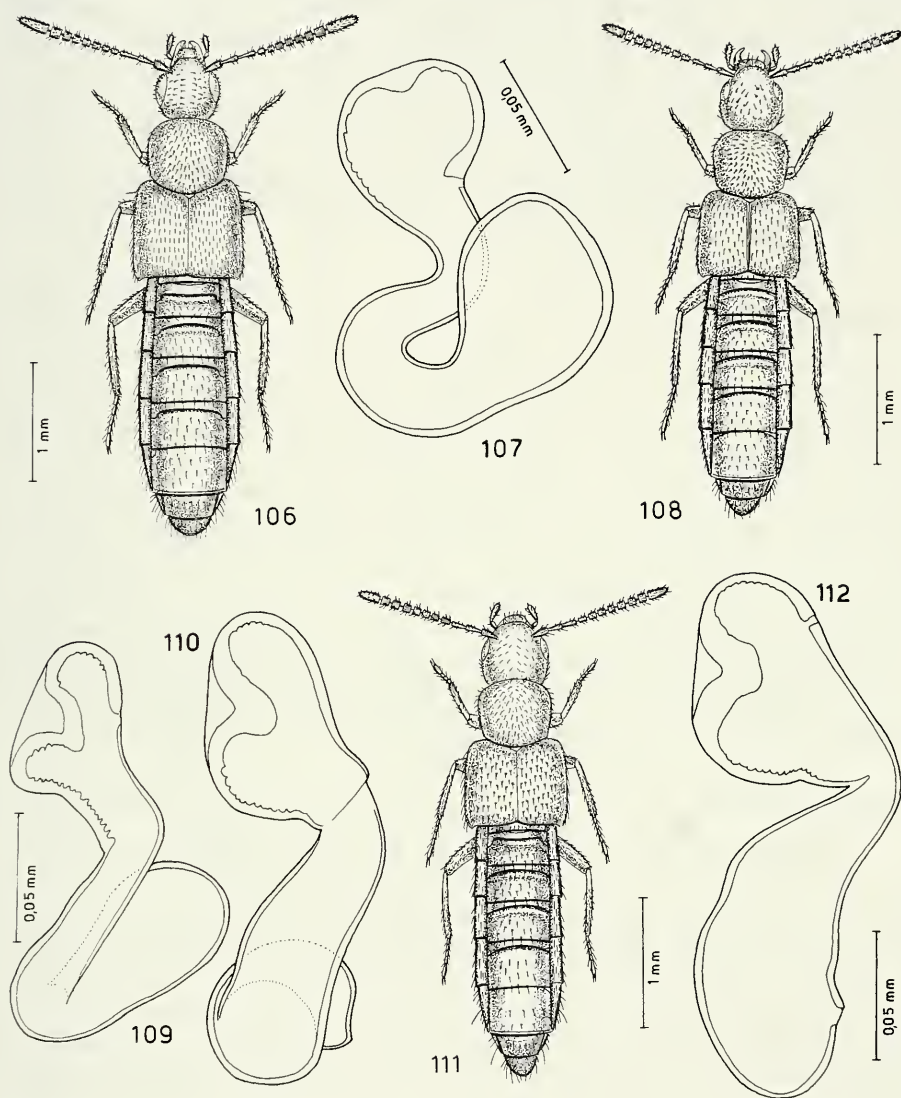
COMPARAZIONI. La nuova specie è simile ad *A. inaequalis* Cameron, 1944, dell'India. Se ne distingue per il corpo meno robusto, per gli antennomeri 6° a 10° nettamente trasversi (appena trasversi in *inaequalis*) e per le elitre poco più larghe del pronoto (molto più larghe del pronoto in *inaequalis*). Di *A. inaequalis* non è nota la femmina.

Aloconota beijingensis sp. n.

Figg. 113-114

Holotypus ♀, China, Beijing, Xiaolongmen, 1.VII.1993, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 4,0 mm. Corpo lucido e bruno con elitre giallo-brune ed estremità addominale bruno-rossiccia; antenne brune con antennomero basale ros-



FIGG. 106-112

Habitus e spermateca. 106-107: *Aloconota gonggensis* sp. n.; 108-110: *Aloconota lanzhouensis* sp. n.; 111-112: *Aloconota sulcifrons* (Stephens).

siccio; zampe giallo-rossicce. La reticolazione della superficie del capo e dell'addome è distinta, quella del pronoto e delle elitre è molto netta. I tubercoletti della superficie del capo sono distinti e assenti sulla linea mediana, quelli del pronoto e delle elitre sono superficiali e quelli dell'addome sono distinti. Il capo ha un debolissimo solco occipitale e il pronoto presenta un debolissimo solco mediano. Spermateca fig. 114.

COMPARAZIONI. In base alla forma e alla taglia del corpo, la nuova specie può essere avvicinata tassonomicamente ad *A. beesoni* Cameron, 1939a, dell'India. Se ne distingue per le elitre giallo-brune e non bruno-scure, nettamente più larghe e poco più lunghe del pronoto, e non più larghe e un quarto più lunghe del pronoto come in *beesoni*. Non è nota la femmina di *beesoni*.

***Lasiosomina lii* sp. n.**

Figg. 119-120

Holotypus ♀, China, Hebei Yongniang, 6.X.1995, Shuqiang Li leg., (MHNG).

DESCRIZIONE. Lunghezza 1,8 mm. Avancorpo opaco, addome debolmente lucido. Corpo bruno con pronoto bruno-rossiccio e con larga fascia marginale posteriore delle elitre ed estremità addominale gialle; antenne bruno-rossicce con i due antennomeri basali rossicci; zampe gialle. La reticolazione del capo e del pronoto è distinta, quella delle elitre e dell'addome è netta. L'intero corpo è coperto di pubescenza fitta d'aspetto sericeo. Il pronoto ha un'impressione mediana posteriore. Spermateca fig. 120.

COMPARAZIONI. Finora il genere *Lasiosomina* Pace, 1990, era noto solo delle Filippine. La nuova specie è distinta da *L. collaris* Pace, 1990, appunto delle Filippine, per il colore bruno-rossiccio del pronoto e non giallo paglierino come in *collaris*, per gli occhi più sviluppati e per la parte posteriore delle elitre gialla al margine (elitre uniformemente brune in *collaris*). Non è nota la femmina di *collaris*.

***Amischa beijingensis* sp. n.**

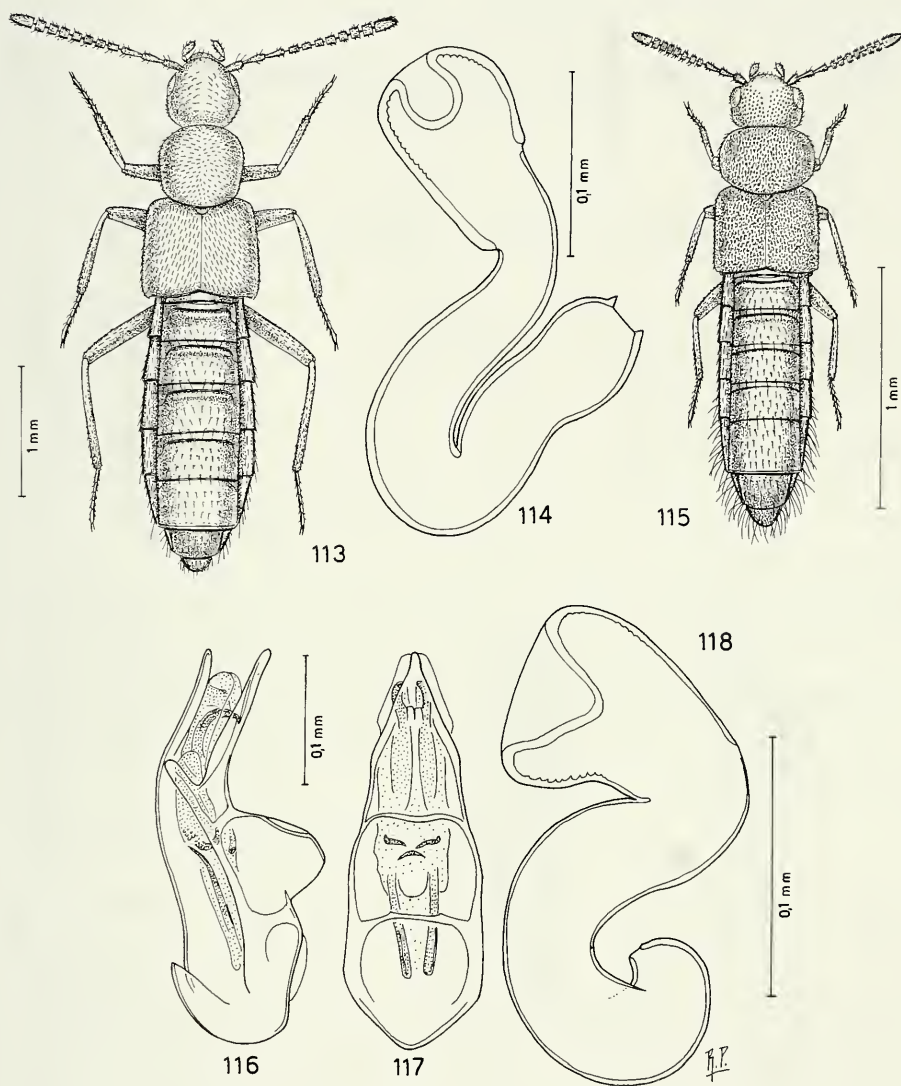
Figg. 121-124

Holotypus ♂, China, Beijing, B.N.U., at light, V-VI.1993, de Rougemont leg. (MHNG).

Paratypi: 1 ♂ e 1 ♀, Beijing, Yingtaogou, III.1993, de Rougemont leg.

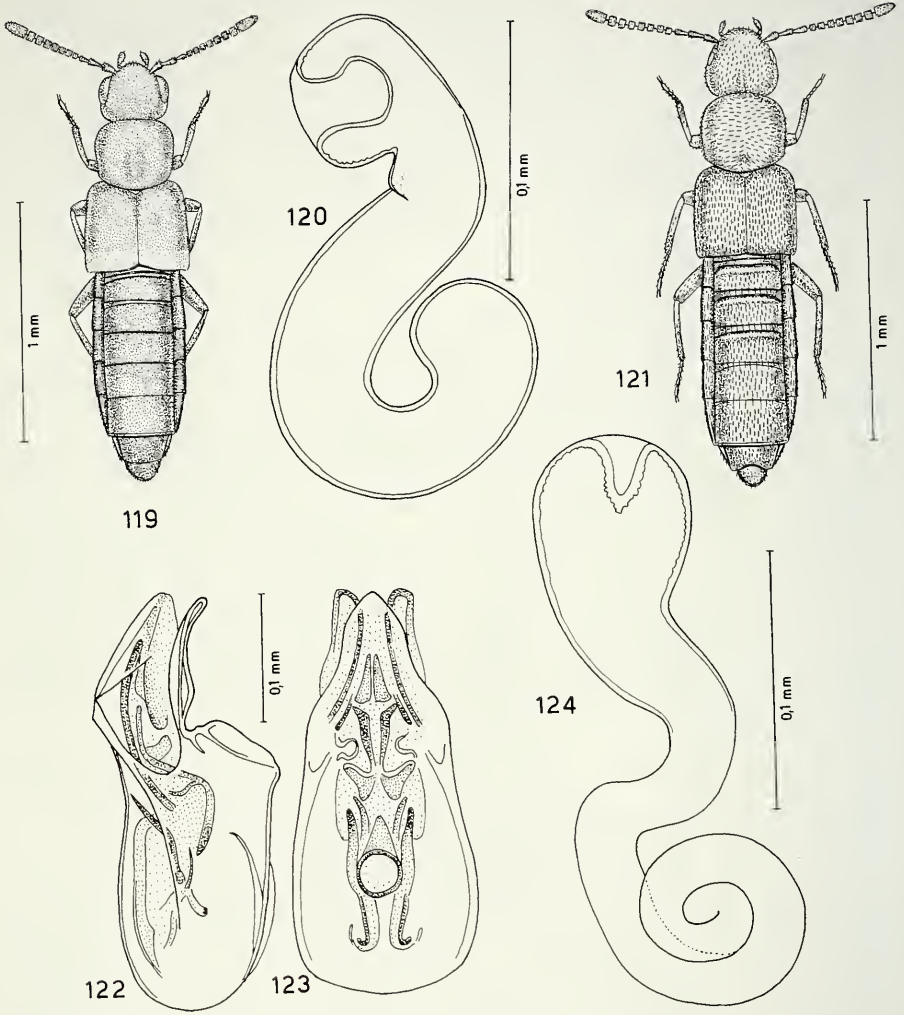
DESCRIZIONE. Lunghezza 1,8 mm. Corpo depresso con capo e addome bruno-rossicci, pronoto giallo-rossiccio ed elitre e margine posteriore degli uroterghi liberi 1° e 2° giallo-bruni; antenne bruno-rossicce con i due antennomeri basali giallo-rossicci; zampe gialle. La reticolazione della superficie dell'avancorpo è coperta di reticolazione distinta. Il disco del capo è appiattito e vi è nella regione occipitale una debolissima impressione longitudinale. Le elitre sono coperte di tubercoletti finissimi e distinti. Sui tre uroterghi basali i tubercoletti sono più salienti di quelli sui restanti uroterghi. Edeago figg. 122-123, spermateca fig. 124.

COMPARAZIONI. La nuova specie è simile ad *A. kashmirica* Cameron, 1939a, dell'India, dato che ha pronoto giallo-rossiccio, occhi ridotti e tipo di edeago. Ne è distinta per avere il sesto urotergo libero del maschio più largamente e poco profondamente incavato al margine posteriore (profondamente incavato in *kashmirica*), per il pronoto meno trasverso e di un rossiccio più chiaro, per il quarto antennomero trasverso



FIGG. 113-118

Habitus, spermatheca ed edeago in visione laterale e ventrale. 113-114: *Aloconota beijungensis* sp. n.; 115-118: *Tomoglossa luteicornis* (Erichson).



FIGG. 119-124

Habitus, spermatheca ed edeago in visione laterale e ventrale. 119-120: *Laiosomina lii* sp. n.;
121-124: *Amischa beijingensis* sp. n.

(lungo quanto largo in *kashmirica*). Ma è l'edeago che presenta molteplici caratteri differenziali, il più evidente dei quali è l'apice appuntito in visione ventrale nella nuova specie, mentre in *kashmirica* è tronco. La spermateca della nuova specie è molto più sviluppata, con parte prossimale avvolta a spirale nettamente più lunga rispetto alla parte corrispondente della spermateca di *kashmirica*.

Amischa rougemonti sp. n.

Figg. 125-128

Holotypus ♂, China, Shanxi, Wutaishan, 4-5.VI.1993, de Rougemont leg. (MHNG).

Paratypi: 1 ♀, stessa provenienza; 1 ♂, China, Gansu, Yonghai, ca. 20 Km SW Yuzhong, 2700-2800 m, 9.VIII.1994, Smetana leg.

DESCRIZIONE. Lunghezza 2,2 mm. Corpo lucido e bruno con metà posteriore del 5° urite libero e il 6° bruno-rossiccio; antenne brune con antennumero basale bruno-rossiccio; zampe giallo-rossicce. La reticolazione della superficie del capo è svanita, quella del pronoto e delle elitre è distinta e quella dell'addome è netta. Il capo presenta una punteggiatura estremamente svanita, quasi indistinta e il disco piatto. I tubercoletti del pronoto e delle elitre sono superficiali, quelli dei quattro uroterghi basali sono salienti e quelli del quinto superficiali su un fondo a reticolazione netta solo su questo quinto urotergo. Edeago figg. 125-127, spermateca fig. 128.

COMPARAZIONI. La nuova specie è ben distinta dall'affine *A. kashmirica* Cameron, 1939a, dell'India, per il differente colore del corpo: bruno con estremità addominale rossiccia, invece di bruno-rossiccio con pronoto rossiccio, come in *kashmirica*. I più evidenti caratteri differenziali si osservano nell'edeago che, tra l'altro, è profondamente e strettamente ricurvo al lato ventrale e ha apice appuntito, in visione ventrale, mentre l'edeago di *kashmirica* non è ricurvo al lato ventrale e il suo apice è tronco.

ETIMOLOGIA. La nuova specie è dedicata al suo raccoglitore, il noto studioso di Staphylinidae londinese, Guillaume de Rougemont.

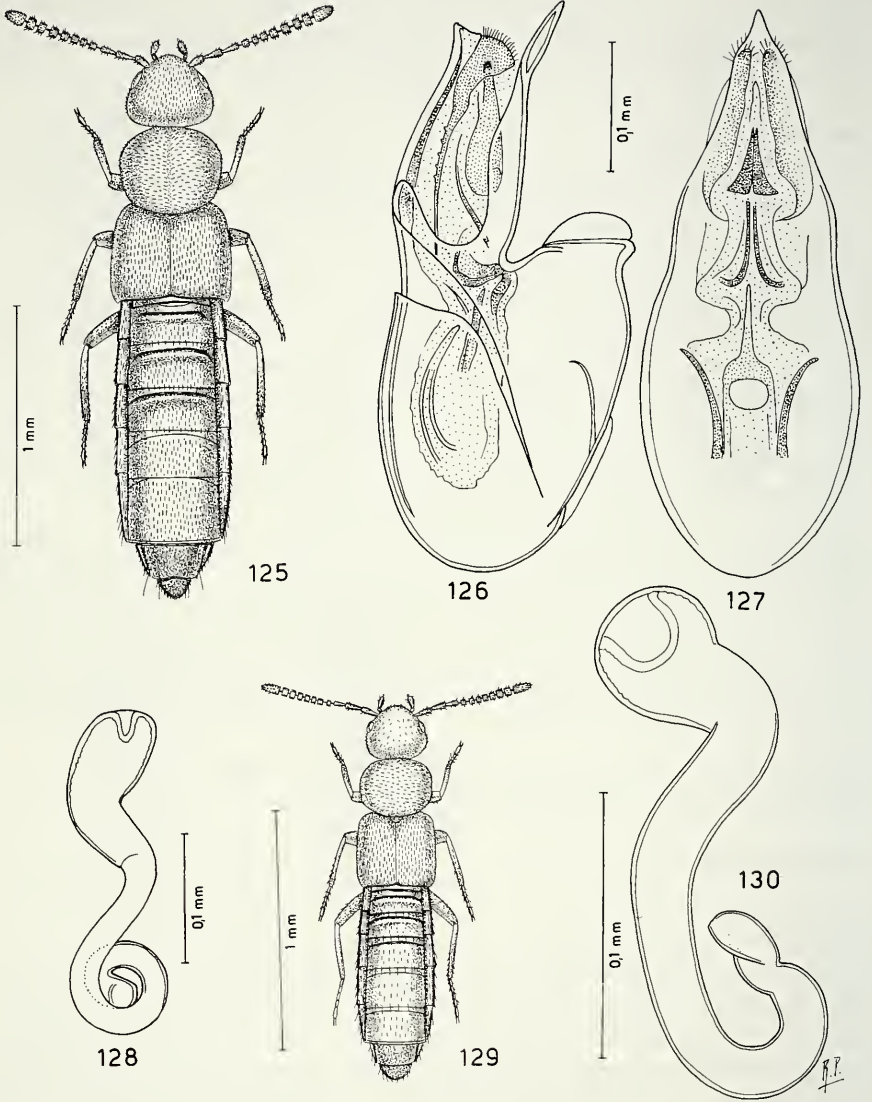
Amischa nana sp. n.

Figg. 129-130

Holotypus ♀, China, Yunnan, Xishuangbanna, Sanchahe, elephant res., 24.I.1992, de Rougemont leg.

DESCRIZIONE. Lunghezza 1,6 mm. Capo e pronoto debolmente lucidi, resto del corpo lucido. Corpo nero con estremità addominale nero-bruna; antenne nere; zampe giallo-brune. La reticolazione della superficie del capo e delle elitre è distinta, quella del pronoto e dell'addome è netta, nel fondo dei solchi trasversi basali. I tubercoletti della superficie del capo e delle elitre sono distinti, quelli che coprono il pronoto sono un po' confusi nella reticolazione e quelli degli uroterghi sono superficiali. Spermateca fig. 130.

COMPARAZIONI. Per la taglia ridotta del corpo e per la forma della spermateca, la nuova specie sembra simile ad *A. kathmanduensis* Pace, 1991a, del Nepal, ne è distinta nettamente per avere le elitre più lunghe del pronoto (elitre più corte del pronoto in *kathmanduensis*) e per il bulbo distale della spermateca meno sviluppato e



FIGG. 125-130

Habitus, edeago in visione laterale e ventrale e spermateca. 125-128: *Amischa rougemonti* sp. n.; 129-130: *Amischa nana* sp. n.

con introflessione apicale del bulbo distale della stessa spermateca, profonda e larga (introflessione profonda e stretta in *kathmanduensis*).

Geostiba (Indatheta) hongkongensis sp. n.

Figg. 131-135

Holotypus ♂, Hong Kong, XII.1995-I.1996, flight interception trap, de Rougemont leg. (MHNG).

Paratypi: 5 es., stessa provenienza; 5 es., Hong Kong, Tai Po, III.1996, de Rougemont leg.; 12 es. Hong Kong, N.T., IV.1996, de Rougemont leg.

DESCRIZIONE. Lunghezza 2,5 mm. Corpo lucido e giallo-rossiccio con metà posteriore delle elitre, tranne il margine posteriore, e metà basale del quarto urite libero, bruni; antenne bruno-rossicce con i tre antenomeri basali e l'undicesimo giallo-rossicci; zampe gialle. La reticolazione della superficie del capo e del pronoto è superficiale, quella delle elitre è estremamente svanita e quella dell'addome assente. La punteggiatura del capo è assai superficiale e assente sulla fascia longitudinale mediana. Tuberoletti fini e superficiali stanno sulla superficie del resto del corpo. Edeago figg. 132-133, spermateca fig. 134; piastra apicale di paramero fig. 135.

COMPARAZIONI. La nuova specie è affine a *G. rougemonti* Pace, 1993a, pure della Cina. Se ne distingue per gli occhi lunghi quanto le tempie e non molto più corti delle tempie come in *rougemonti*, per le elitre meno accorciate, per l'edeago di un terzo meno sviluppato e in visione ventrale con parte apicale stretta (larga in *rougemonti*). Inoltre le spine dell'armatura genitale interna dell'edeago sono nettamente più robuste di quelle dell'edeago di *rougemonti*.

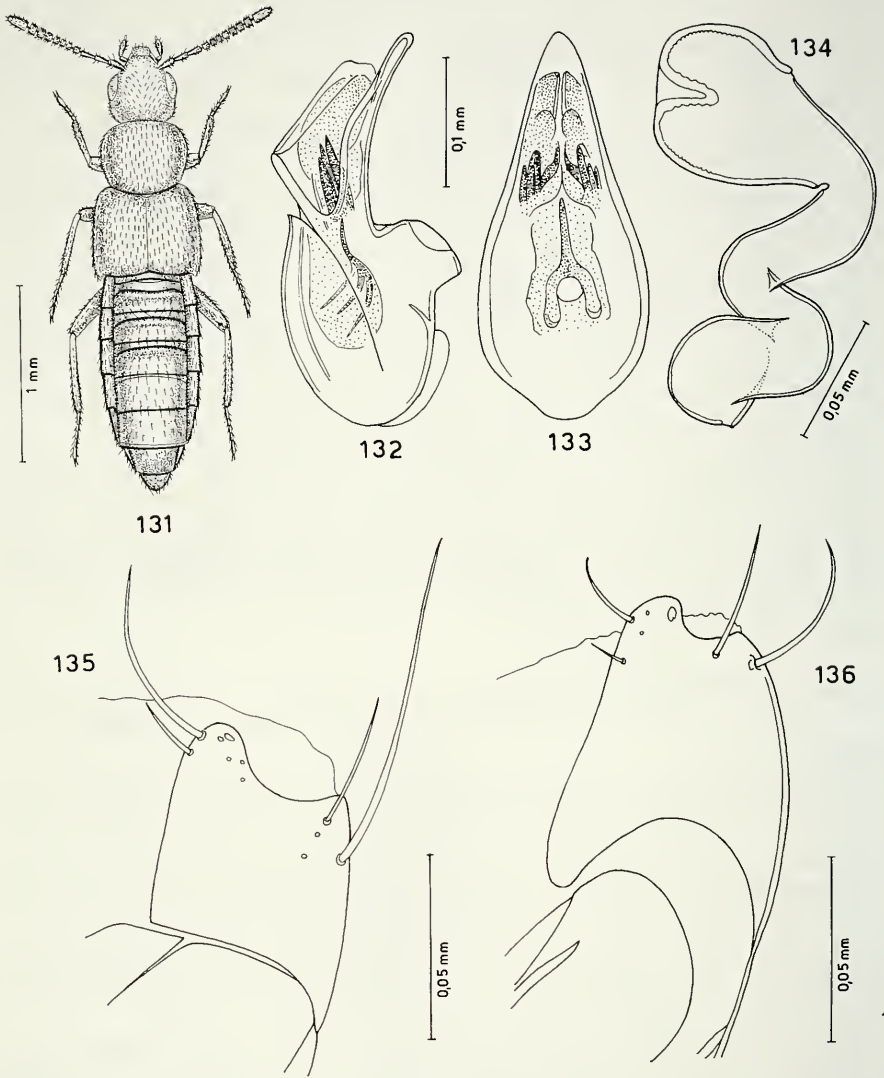
Geostiba (Indatheta) pervolans sp. n.

Figg. 136-139

Holotypus ♂, Hong Kong, XII.1995-I.1996, flight interception trap, de Rougemont leg. (MHNG).

DESCRIZIONE. Lunghezza 2,1 mm. Corpo lucido. Capo bruno, pronoto giallo-rossiccio, elitre brune con omeri e angoli posteriori esterni bruno-rossicci, addome giallo-rossiccio con uriti liberi 3°, 4° e base del 5° bruni; antenne brune con i tre antenomeri basali gialli e l'undicesimo bruno-rossiccio; zampe gialle. Una reticolazione è presente solo sul disco del capo e sulla fascia longitudinale mediana del pronoto. La punteggiatura del capo è fitta, superficiale e assente sulla fascia mediana. Il pronoto è coperto di tuberoletti fini e poco distinti. La punteggiatura delle elitre e dell'addome è distinta. Edeago figg. 138-139, piastra apicale di paramero fig. 136.

COMPARAZIONI. Tutte le specie del sottogenere *Indatheta* Cameron, 1939a, mostrano occhi molto più corti delle tempie, tranne la specie *hongkongensis* sp. n. sopra descritta. Inoltre la nuova specie mostra elitre molto più larghe del pronoto che denunciano una vocazione della specie al volo attivo (infatti è stata catturata al volo). Le elitre sono poco più larghe del pronoto nelle restanti specie. L'edeago della nuova specie ha l'armatura genitale interna priva di spine. Per questo carattere la nuova specie è avvicicabile a *G. notabilis* (Cameron, 1939a), dell'India, ma il maschio di questa specie presenta un tubercolo mediano sui due uroterghi liberi basali e due carene mediane posteriori accostate tra loro sul sesto urotergo libero, caratteri questi



FIGG. 131-136

Habitus, edeago in visione laterale e ventrale, spermateca e piastra apicale di paramero. 131-135: *Geostiba (Indatheta) hongkongensis* sp. n.; 136: *Geostiba (Indatheta) pervolans* sp. n.

assenti sull'addome del maschio della nuova specie. Non vi è dubbio sulla sua appartenenza al sottogenere *Indatheta*, per la forma delle piastre apicali dei parameri, unica in questo sottogenere (fig. 136).

***Geostibasoma satyrus* sp. n.**

Figg. 140-143

Holotypus ♂, Hong Kong, XII.1995-I.1996, de Rougemont leg. (MHNG).

Paratypi: 7 es., stessa provenienza: 1 ♀, Hong Kong, Tai Po, V.1996, de Rougemont leg.; 1 ♀, Hong Kong, N.T., IV.1996, de Rougemont leg.

DESCRIZIONE. Lunghezza 2,7 mm. Corpo lucido e bruno con elitre giallo-brune con base di un giallo sporco e con margine posteriore dei tre uroterghi basali rossiccio; antenne nero-brune con i due antennomeri basali rossicci; zampe gialle. Su capo e pronoto non vi è reticolazione che sulle elitre è distinta e sull'addome è netta. La punteggiatura del capo è assai superficiale e assente sulla fascia mediana. I tubercoli che coprono la superficie del pronoto sono svaniti, quelli delle elitre sono distinti e quelli dell'addome superficiali. Edeago figg. 141-142, spermateca fig. 143.

COMPARAZIONI. L'attribuzione di questa nuova specie al genere *Geostibasoma* Pace, 1985c, della Nuova Zelanda, si basa sulla forma simile della ligula e della spermateca. La nuova specie è distinta da *G. antipodum* (Bernhauer, 1941), della Nuova Zelanda, per avere gli occhi lunghi quanto le tempie (occhi molto ridotti in *antipodum*), per la presenza di una lamina ventrale dell'edeago (assente nell'edeago di *antipodum*) e per il bulbo distale della spermateca allungato e non subsferico come in *antipodum*.

ETIMOLOGIA. Per lo sviluppo in lunghezza notevole dell'apice dell'edeago, la nuova specie prende nome dai satiri, divinità minori della mitologia greca caratterizzati dalla loro lussuria.

***Paraloconota montium* sp. n.**

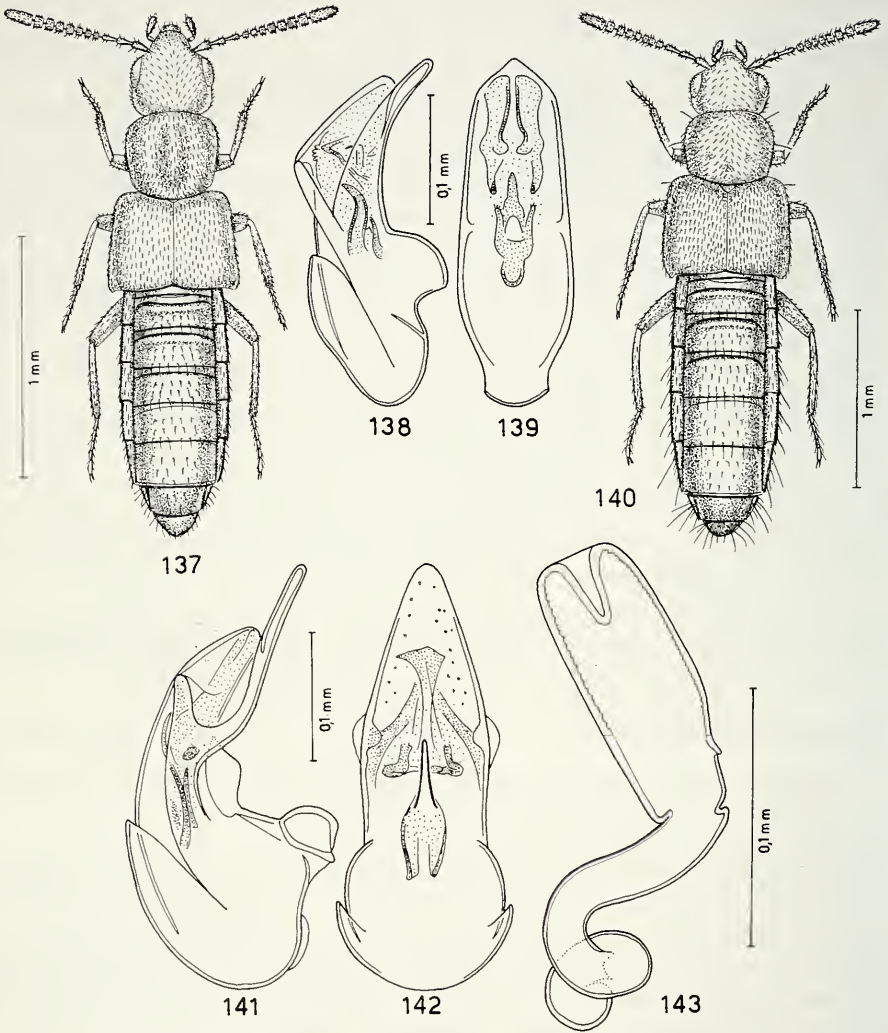
Figg. 144-147

Holotypus ♂, China, Gansu, M. ts 25 KM E Xiahe, 3000 m, 5.VIII.1994, A. Smetana leg. (MHNG).

Paratypus: 1 ♀, stessa provenienza.

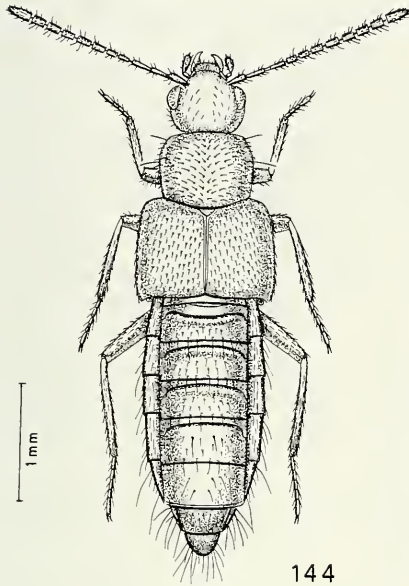
DESCRIZIONE. Lunghezza 4,1 mm. Corpo lucido e nero con elitre nero-brune; antenne brune con i quattro antennomeri basali bruno-rossicci; zampe rossicce. La reticolazione della superficie dell'avancorpo è netta, quella dell'addome è a maglie molto trasverse e distinte. I tubercoli che coprono la superficie del capo sono pressoché indistinti, al contrario quelli del resto della superficie del corpo sono salienti. Il pronoto ha un debole solco mediano posteriore. Edeago figg. 145-146, spermateca fig. 147.

COMPARAZIONI. In base alla struttura della spermateca e dell'edeago, la nuova specie è avvicicabile tassonomicamente a *P. coiffaiti* (Pace, 1984a), **comb. n.** (olim *Liogluta*), del Nepal, nonostante i caratteri dell'esoscheletro. Infatti *P. coiffaiti* ha zampe lunghe e pronoto fortemente ristretto all'indietro. Ciò non si osserva nella nuova specie. Il bulbo distale della spermateca della nuova specie è enormemente largo, mentre in *coiffaiti* lo è poco. L'apice dell'edeago della nuova specie è largo, mentre quello di *coiffaiti* è strettissimo.

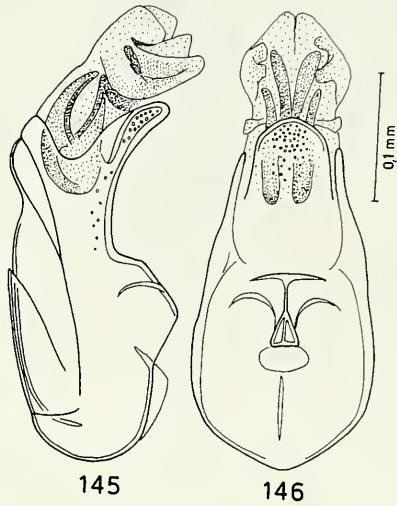


FIGG. 137-143

Habitus, edeago in visione laterale e ventrale e spermateca. 137-139: *Geostiba (Indatheta) pervolans* sp. n.; 140-143: *Geostibasoma satyrus* sp. n.

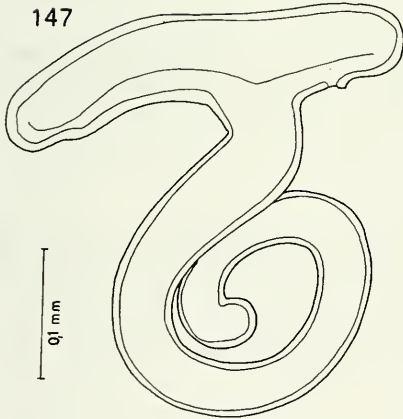


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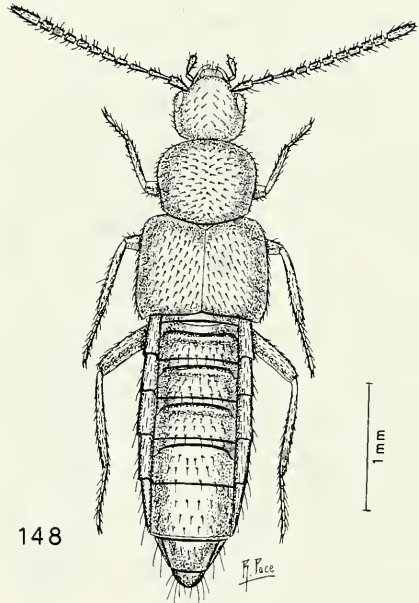


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147



148

F. Pace

FIGG. 144-148

Habitus, edeago in visione laterale e ventrale e spermateca. 144-147: *Paraloconota montium* sp. n.; 148: *Paraloconota fengicola* sp. n.

Paraloconota fengicola sp. n.

Figg. 148-151

Holotypus ♂, China, Gansu, Xinlong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, A. Smetana leg. (MHNG).

Paratypi: 19 es., stessa provenienza; 1 ♀, China, Gansu, Dalijia Shan, 60 Km W Linxia, 3475 m, 11.VII.1994, A. Smetana leg.

DESCRIZIONE. Lunghezza 4,0 mm. Corpo lucido e nero-bruno con elitre e apice addominale bruno-rossicci; antenne brune con i quattro antennomeri basali bruno-rossicci; zampe giallo-rossicce. La reticolazione che copre la superficie dell'avancorpo è nettissima, quella dell'addome è a maglie molto trasverse e distinte. I tubercoletti diffusi sulla superficie del capo sono poco salienti, quelli sul resto della superficie del corpo sono distinti. Il pronoto ha una depressione mediana posteriore. Edeago figg. 149-150, spermateca fig. 151.

COMPARAZIONI. Poiché l'edeago ha l'apice largo e la spermateca ha la parte prossimale avvolta in numerose spire, la nuova specie è ben differente da *P. coiffaiti* (Pace, 1984a), del Nepal, che mostra apice dell'edeago strettissimo e parte prossimale della spermateca con una sola spira.

ETIMOLOGIA. Il nome della nuova specie significa "Colei che abita i picchi montani". Infatti "feng" in cinese significa piccolo montano.

Paraloconota almaatensis sp. n.

Figg. 152-155

Holotypus ♂, Kazakhstan, Alma Ata, 1000 m, 18.IX.1994, de Rougemont leg. (MHNG).

Paratypi: 16 es., stessa provenienza.

DESCRIZIONE. Lunghezza 3,6 mm. Corpo lucido e nero pece; antenne rossicce; zampe giallo-rossicce. La reticolazione del capo è vigorosissima, quella sul resto del corpo è netta o distinta. Il capo e le elitre sono coperti di tubercoletti quasi indistinti, il pronoto e l'addome li hanno fini e molto superficiali. Edeago figg. 154-155, spermateca fig. 153.

COMPARAZIONI. Tra le varie specie di *Paraloconota* Cameron, 1939a, quella che presenta i due lembi dell'apice dell'edeago strettissimi come quelli dell'edeago della nuova specie, è *P. jaloriensis* Cameron, 1939a, dell'India. Tuttavia l'edeago della nuova specie non è profondamente ricurvo come quello di *jaloriensis*, nè la "crista apicalis" dell'edeago della nuova specie è molto sviluppata quanto quella di *jaloriensis*.

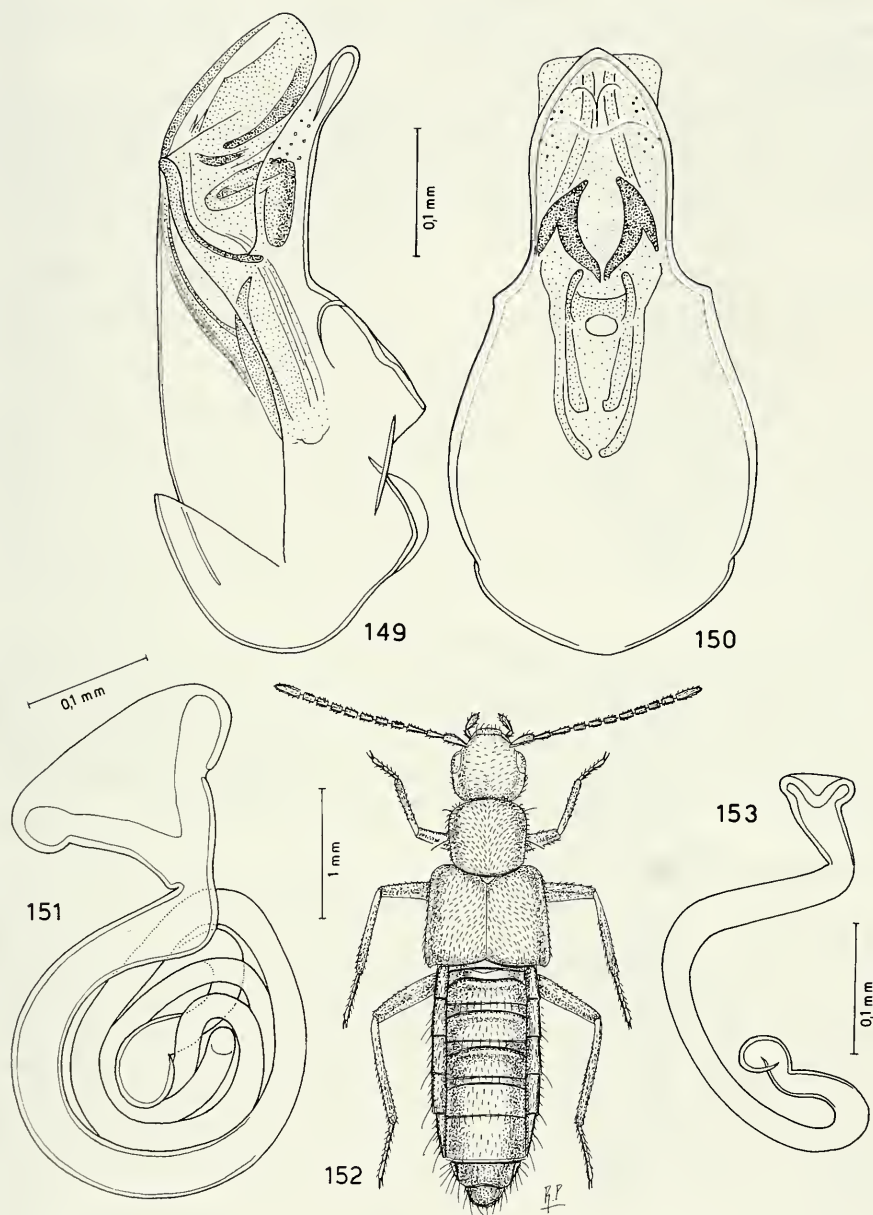
Paraloconota gansuensis sp. n.

Figg. 156-157

Holotypus ♀, China, Gansu, Dalijia Shan, 46 Km W Linxia, 2980 m, 10.VII.1994, A. Smetana leg. (MHNG).

Paratypus: 1 ♀, stessa provenienza, ma 60 Km W Linxia, 3475 m, 11.VII.1994, A. Smetana leg.

DESCRIZIONE. Lunghezza 3,9 mm. Corpo debolmente lucido e nero; antenne bruno-rossicce con antennomero basale bruno; zampe bruno rossicce con femori bruni. La reticolazione del capo e del pronoto è vigorosa, quella delle elitre e dell'addome



FIGG. 149-153

Edeago in visione laterale e ventrale, spermateca ed habitus. 149-151: *Paraloconota fengicola* sp. n.; 152-153: *Paraloconota almaatensis* sp. n.

distinta, fine sulle elitre e a maglie nettamente trasverse sull'addome. L'avancorpo è coperto di tubercoletti indistinti o poco distinti, l'addome invece presenta tubercoletti salienti. Spermateca fig. 157.

COMPARAZIONI. La nuova specie è simile a *P. smetanai* Pace, 1991b, del Nepal, per la presenza di una fossetta discale del capo e per il largo bulbo distale della spermateca. Tuttavia la parte prossimale della spermateca della nuova specie è estremamente sviluppata in lunghezza, ciò non si osserva nella parte prossimale della spermateca di *smetanai* che ha questa porzione corta e robusta.

Paraloconota yonghaiensis sp. n.

Figg. 158-160 bis

Holotypus ♂, China, Gansu, Yonghai, ca. 20 Km SW Yuzhong, 2700-2800 m, 9.VIII.1994, A. Smetana leg. (MHNG).

Paratypi: 1 ♂ e 2 ♀♀, stessa provenienza.

DESCRIZIONE. Lunghezza 4,1 mm. Corpo lucido e nero; antenne e zampe nero-brune, tarsi rossicci. La reticolazione della superficie del capo e del pronoto è netta, quella delle elitre è distinta e quella dell'addome è svanita sui tre uriti basali e netta e a maglie poligonali irregolari sul resto degli uroterghi. Il capo e le elitre presentano punteggiatura quasi indistinta, il pronoto ha tubercoletti della superficie fini e superficiali e due profonde fossette sulla metà posteriore. Edeago figg. 159-160, spermateca fig. 160 bis.

COMPARAZIONI. Soprattutto in base alla forma della spermateca, la nuova specie può essere tassonomicamente assai vicina a *P. almoresis* Cameron, 1939a, dell'India. Tuttavia l'edeago di *almoresis* è profondamente arcuato al lato ventrale e i suoi due lembi apicali sono larghi, mentre l'edeago della nuova specie è poco ricurvo al lato ventrale e i suoi due lembi apicali sono strettissimi. Inoltre le due profonde fossette del pronoto della nuova specie sono assenti sul pronoto di *almoresis*.

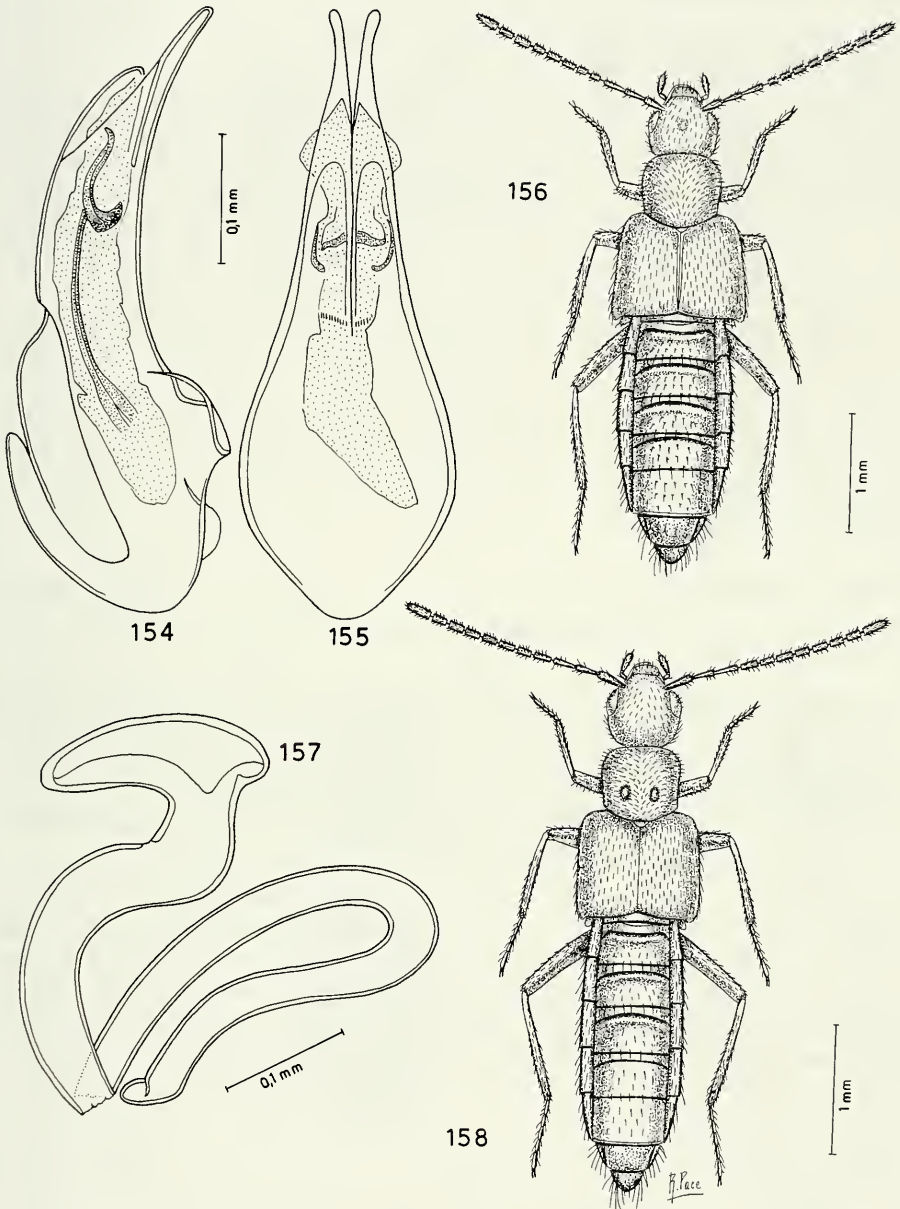
Paraloconota difficilis sp. n.

Figg. 161-162

Holotypus ♀, China, Gansu, M. ts 25 Km E Xiahe, 3000 m, 5.VIII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 4,1 mm. Corpo lucido e nero con estremità addominale bruno-rossiccia; antenne brune con antennumero basale nero-bruno; zampe rossicce con femori bruno-rossicci. La reticolazione della superficie del capo è netta, quella del pronoto e delle elitre è quasi vigorosa e quella dell'addome a maglie molto trasverse distinte. I tubercoletti della superficie del capo sono salienti e assenti sulla fascia mediana, quelli del pronoto e delle elitre sono molto salienti, quelli dei tre uroterghi basali sono distinti e quelli sui restanti uroterghi sono svaniti. Spermateca fig. 162.

COMPARAZIONI. In base alla forma della spermateca, la nuova specie appare affine a *P. naddiana* Cameron, 1939a, dell'India. Ma la nuova specie non ha pronoto poco trasverso come quello di *naddiana*, ma lo è molto. Inoltre la spermateca della nuova specie è molto più piccola, con inflessione apicale del bulbo distale subconica e non ovale come in *naddiana*.



FIGG. 154-158

Edeago in visione laterale e ventrale, habitus e spermateca. 154-155: *Paraloconota almaatensis* sp. n.; 156-157: *Paraloconota gansuensis* sp. n.; 158: *Paraloconota yonghaiensis* sp. n.

Emmelostiba chinensis sp. n.

Figg. 163-165

Holotypus ♂, China, Gansu, Dalijia Shan, 46 Km W Linxia, 2980 m, 10.VII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 2,2 mm. Corpo lucidissimo e nero, comprese le antenne; zampe nero-brune con tarsi rossicci. La reticolazione sulla superficie del capo è assente, quella del pronoto è superficiale, quella delle elitre è molto svanita e quella dell'addome è assente sui tre uroterghi basali e a maglie poligonali irregolari distinte sui restanti uroterghi. La punteggiatura dell'avancorpo è superficiale, quella dell'addome è distinta. Il capo è privo di punteggiatura sulla linea mediana e il pronoto presenta un debole solco mediano posteriore. Edeago figg. 164-165.

COMPARAZIONI. Tra le poche specie del genere *Emmelostiba* Pace, 1982, aventi elitre più lunghe del pronoto, la più affine sembra essere *E. brachycephala* (Cameron, 1939a), dell'India. La nuova specie però ha il quarto antennumero molto trasverso, mentre quello di *brachycephala* è lungo quanto largo e l'edeago della nuova specie ha "crista apicalis" molto più sviluppata, mentre in *brachycephala* la "crista apicalis" è quasi del tutto assente e presso essa sta una lamina sporgente, assente sull'edeago della nuova specie.

Liogluta sinensis sp. n.

Figg. 166-169

Holotypus ♂, China, Gansu, Dalijia Shan, 60 Km W Linxia, 3475 m, 11.VII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 3,7 mm. Corpo lucido e nero, antenne comprese; zampe rossicce con femori bruni. L'intero corpo è coperto di reticolazione netta. Il capo presenta punteggiatura fitta e superficiale e una profonda fossetta discale. I tubercoli della superficie delle elitre sono poco distinti, quelli del pronoto e dell'addome sono distinti. Il pronoto mostra un appiattimento dorsale mediano. Edeago figg. 167-168, sesto urotergo libero del maschio fig. 169.

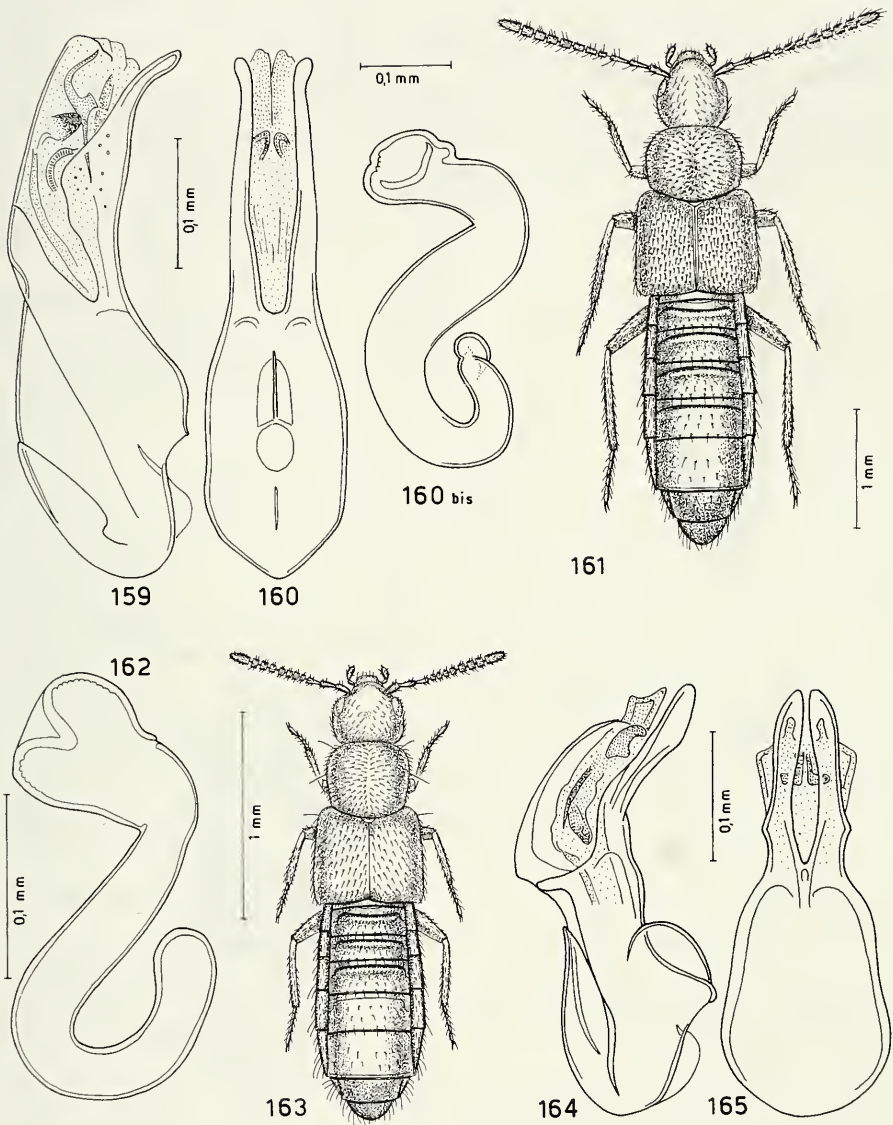
COMPARAZIONI. La nuova specie è affine a *L. nepalica* Scheerpeltz, 1976, del Nepal., sia per la struttura dell'edeago, che per i caratteri del sesto urotergo libero del maschio. L'edeago della nuova specie è meno sviluppato e ha armatura genitale interna robusta ed estesa, mentre quella di *nepalica* è evanescente e corta. I rilievi laterali del margine posteriore del sesto urotergo libero del maschio della nuova specie sono sottili, mentre quelli di *nepalica* sono robusti. Inoltre il disco del capo della nuova specie ha una profonda fossetta, mentre quello di *nepalica* ne è privo.

Liogluta xiahensis sp. n.

Figg. 170-172

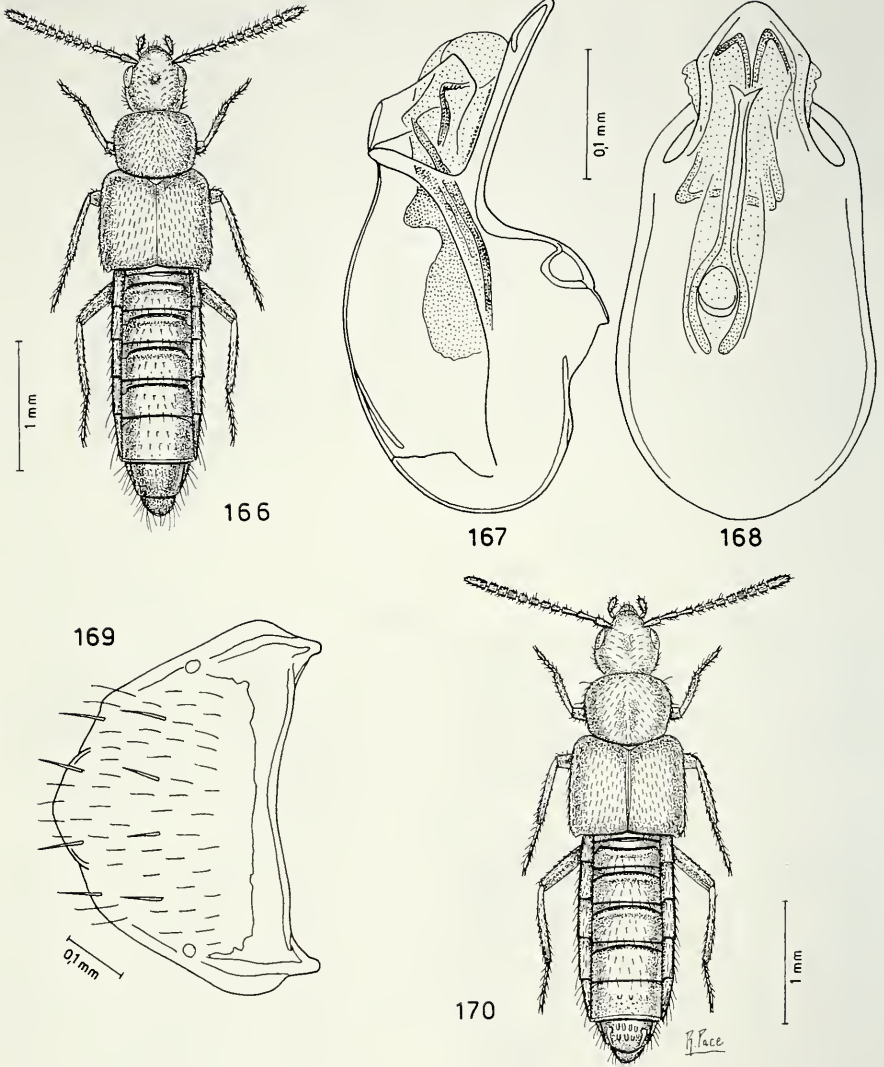
Holotypus ♂, China, Gansu, M. ts 25 Km E Xiahe, 3000 m, 5.VIII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 3,8 mm. Corpo lucido e nero, antenne comprese; zampe rossicce con femori bruni. La reticolazione del capo è netta sull'impressione discale e svanita sul resto della superficie. La reticolazione del pronoto è netta, quella delle elitre è vigorosa e quella dell'addome è a maglie debolmente trasverse e svanite. La



FIGG. 159-165

Edeago in visione laterale e ventrale, spermatozoon e habitus. 159-160bis: *Paraloconota yonghaiensis* sp. n.; 161-162: *Paraloconota difficilis* sp. n.; 163-165: *Emmelostiba chinensis* sp. n.



FIGG. 166-170

Habitus, edeago in visione laterale e ventrale e sesto urotergo libero del maschio. 166-169: *Liogluta sinensis* sp. n.; 170: *Liogluta xiahensis* sp. n.

punteggiatura del capo è superficiale. I tuberoletti sulla superficie del pronoto e delle elitre sono poco distinti. Edeago figg. 171-172.

COMPARAZIONI. Per i caratteri dell'esoscheletro e soprattutto del sesto urotergo libero del maschio, la nuova specie appare molto simile a *L. subumbonata* Cameron, 1939a, dell'India. Tuttavia l'edeago della nuova specie è profondamente arcuato al lato ventrale e un'armatura genitale del suo interno è un tubulo cortissimo. Questi caratteri non sono presenti nell'edeago di *subumbonata* che non è arcuato al lato ventrale e ha un'armatura genitale composta tra l'altro di una membrana coperta di dentini e di una piastra terminante a punta triangolare.

***Liogluta inverecunda* sp. n.**

Figg. 173-176

Holotypus ♂, China, Gansu, Dalijia Shan, 60 Km W Linxia, 3475 m, 11.VII.1994, A. Smetana leg. (MHNG).

Paratypi: 3 ♂♂ e 1 ♀, stessa provenienza; 1 ♂ e 4 ♀♀, China, Gansu, M. ts 25 Km E Xiahe, 3000 m, 5.VIII.1994, A. Smetana leg.

DESCRIZIONE. Lunghezza 3,7 mm. Corpo lucido e nero, comprese le antenne; zampe bruno-rossicce con tarsi rossicci e femori bruni. La reticolazione del capo è svanita, quella del pronoto molto superficiale, quella delle elitre è netta e quella dell'addome è a maglie poligonali irregolari distinte. La punteggiatura del capo è distinta e assente sulla linea mediana, quella del pronoto è svanita. I tuberoletti della superficie delle elitre sono poco distinti. Il disco del capo è impresso. La pubescenza delle zampe è molto lunga. Edeago figg. 174-175, spermateca fig. 176.

COMPARAZIONI. La nuova specie è probabilmente affine a *L. verecunda* Cameron, 1939a, dell'India, a motivo della forma simile della spermateca. Tuttavia la nuova specie mostra occhi più sviluppati e bulbo distale della spermateca non ovale come in *verecunda*, con introflessione apicale del bulbo distale della stessa spermateca triangolare a base stretta, ma triangolare a base larga.

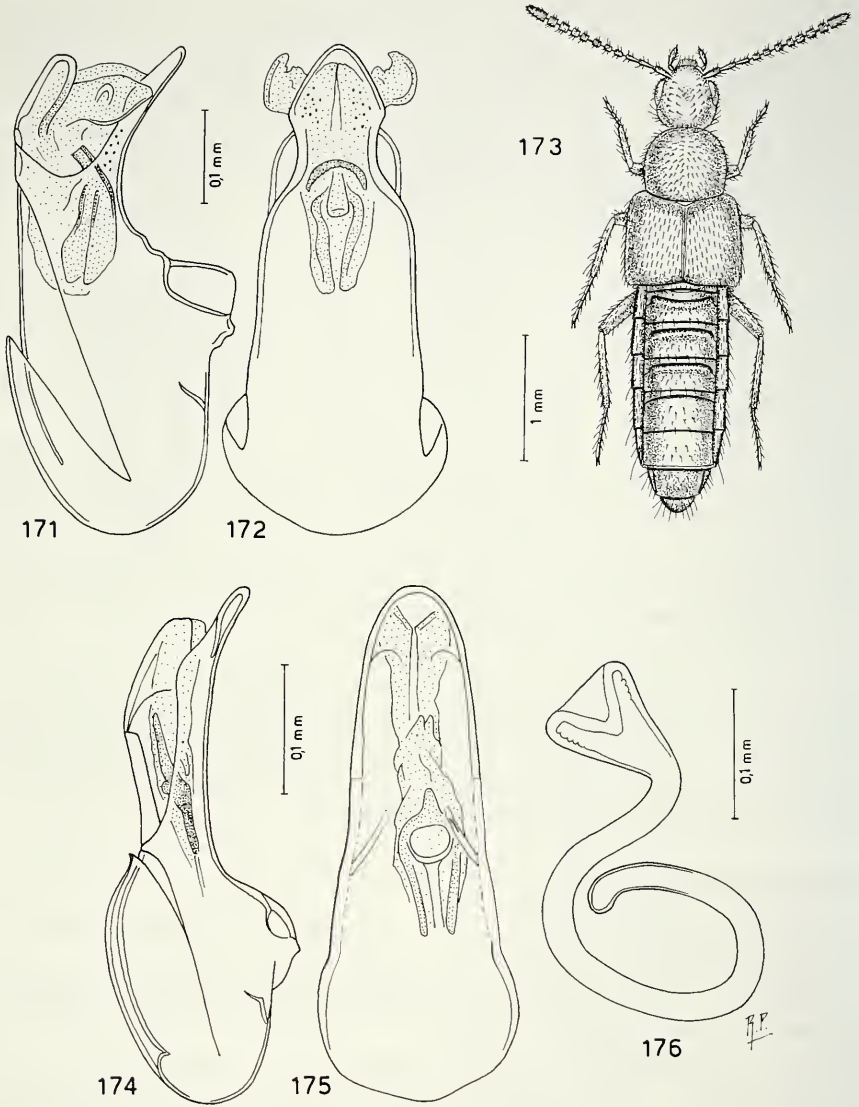
***Liogluta xiaheorum* sp. n.**

Figg. 177-180

Holotypus ♂, China, Gansu, M. ts 25 Km E Xiahe, 2805-2925 m, 3.VIII.1994 A. Smetana leg. (MHNG).

Paratypi: 1 ♀, stessa provenienza; 1 ♂; stessa provenienza, ma 3000 m, 5.VIII.1994, A. Smetana leg.; 1 ♂ e 2 ♀♀, Gansu, Xinlong Shan; ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, A. Smetana leg.

DESCRIZIONE. Lunghezza 3,3 mm. Corpo lucido e nero con elitre giallo-rossicce; antenne nere; zampe di un giallo sporco con femori bruni. Il capo e il pronoto sono privi di reticolazione. Quella delle elitre è distinta, quella dei quattro uroterghi basali è a maglie molto trasverse e distinte e quella sul quinto urotergo libero è a maglie meno trasverse di quelle sui precedenti uroterghi e nette. Il sesto urotergo libero del maschio presenta robusti granuli davanti a un rilievo marginale semiellittico. La punteggiatura ombelicata del capo è svanita e assente su una larga fascia longitudinale mediana, quella del pronoto è fine e quella delle elitre è indistinta. Edeago figg. 178-179, spermateca fig. 180.



FIGG. 171-176

Edeago in visione laterale e ventrale, habitus e spermateca. 171-172: *Liogluta xiahensis* sp. n.; 173-176: *Liogluta inverecunda* sp. n.

COMPARAZIONI. La nuova specie è simile a *L. subumbonata* Cameron, 1939a, dell'India, ma gli antennomeri 6° a 10° sono più trasversi, le elitre meno larghe rispetto alla larghezza del pronoto e il margine posteriore del sesto urotergo libero del maschio è ispessito per intero (solo ai lati in *subumbonata*). L'edeago della nuova specie ha taglia nettamente minore e se visto ventralmente è fortemente ristretto nel quarto anteriore (largo in *subumbonata*). L'enorme introflessione apicale del bulbo distale della spermateca permette di distinguere la nuova specie dalla femmina di *subumbonata* che ha introflessione apicale del bulbo distale della spermateca breve.

***Liogluta gonggana* sp. n.**

Figg. 181-185

Holotypus ♂, China, Sichuan, Gongga Shan, above camp 3, 3050 m, 22.VII.1994, A. Smetana leg. (MHNG).

Paratypes: 112 es., stessa provenienza; 3 es., stessa provenienza, ma above camp 2, 2800 m, 26.VII.1994, A. Smetana leg.

DESCRIZIONE. Lunghezza 3,7 mm. Avancorpo debolmente lucido, addome lucido. Capo bruno, pronoto ed elitre giallo-bruni, addome nero con base e apice giallo-rossicci; antenne bruno-rossicce con i sei antennomeri basali giallo-rossicci; zampe giallo-rossicce. La reticolazione della superficie del capo è nettissima sul disco e superficiale sul resto dell'epicranio, quella del pronoto è pure nettissima, quella delle elitre è distinta e quella degli uroterghi è composta di maglie molto trasverse e svanite. I tuberoletti che coprono la superficie del capo sono assai fini, poco fitti e assenti sulla fascia longitudinale mediana, quelli del pronoto sono fini e netti, quelli delle elitre svaniti e quelli dell'addome distinti. Sesto urotergo libero del maschio fig. 182, edeago figg. 183-184, spermateca fig. 185.

COMPARAZIONI. La nuova specie è simile a *L. philhygroides* Cameron, 1939a, dell'India e del Nepal. Se ne distingue per la forma del margine posteriore del sesto urotergo libero del maschio, fig. 182, e per l'edeago maggiormente sviluppato con parte apicale, in visione ventrale, molto più stretta del bulbo basale dell'edeago stesso e non appena più stretta come nell'edeago di *philhygroides*. L'introflessione apicale del bulbo distale della spermateca è profonda in *philhygroides* e breve nella nuova specie.

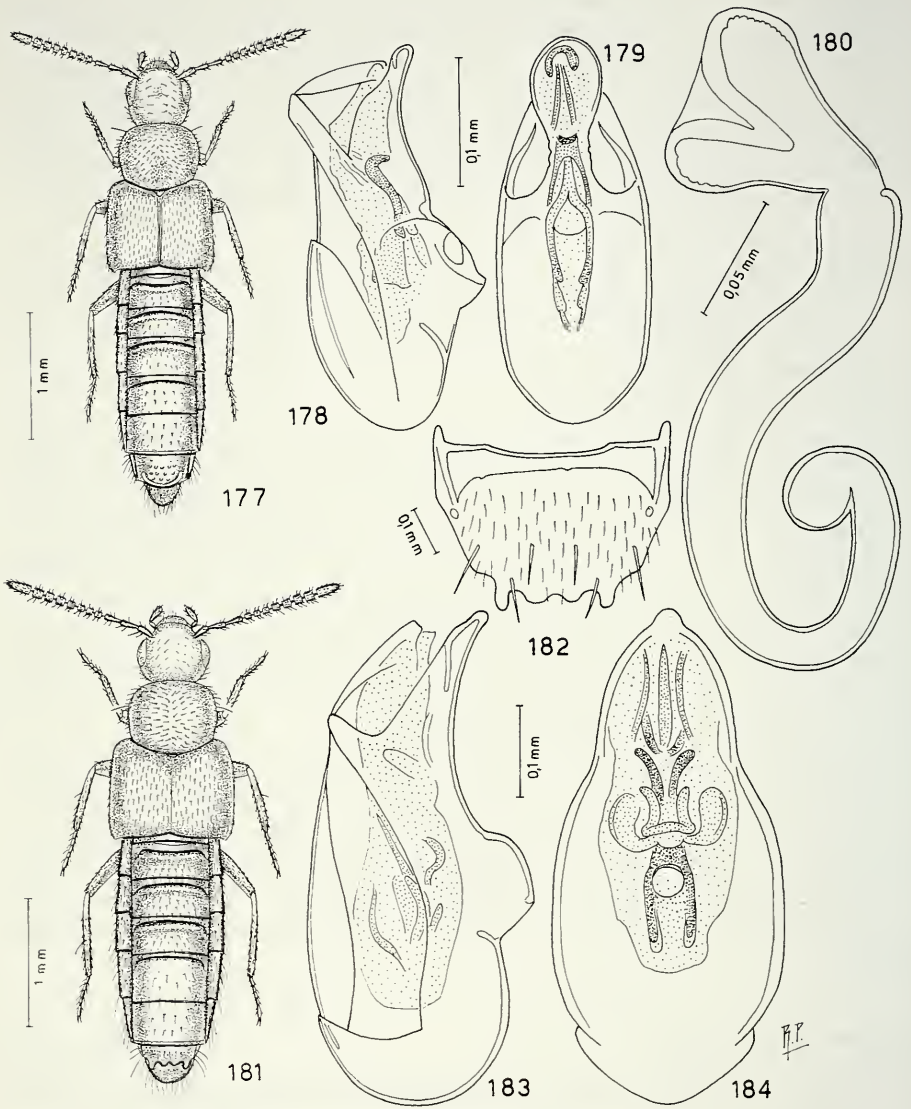
***Liogluta lacustris* sp. n.**

Figg. 186-189

Holotypus ♂, China, Sichuan, Gongga Shan, lake above camp 2, 2750 m, 27.VII.1994, A. Smetana leg. (MHNG).

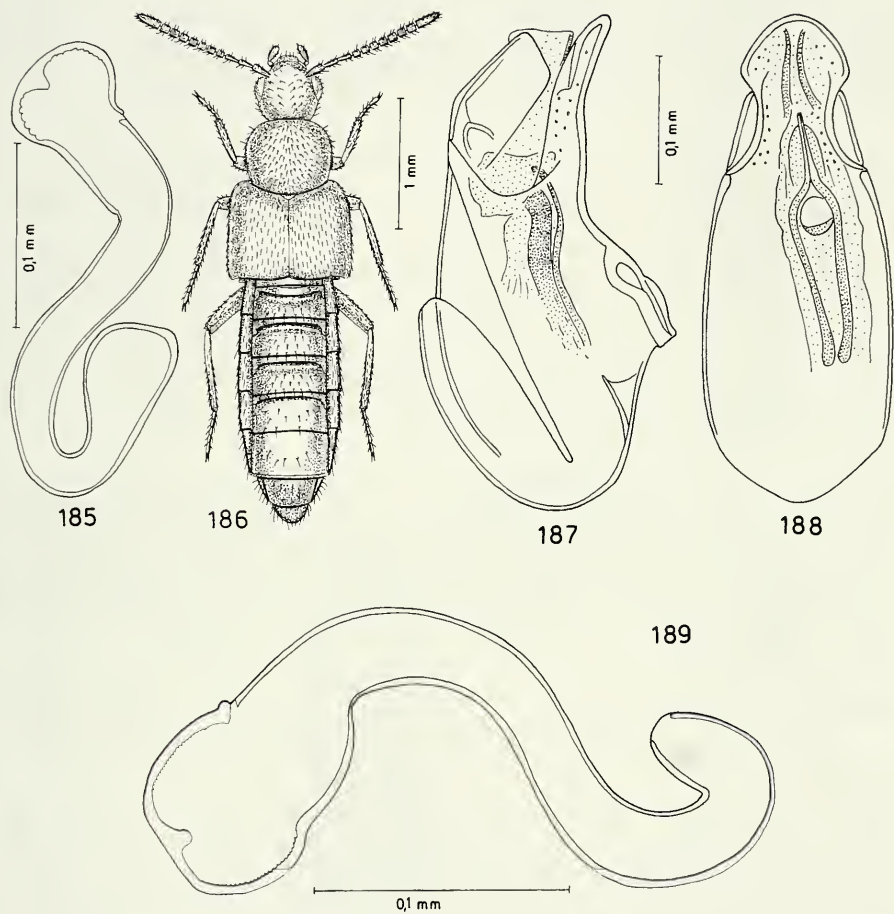
Paratypes: 1 ♀, China Sichuan, Gongga Shan, above camp 2, 2800 m, 26.VII.1994, A. Smetana leg.

DESCRIZIONE. Lunghezza 3,7 mm. Corpo lucido e nero con elitre giallo-brune; antenne interamente nere; zampe giallo-rossicce. La reticolazione della superficie del capo è distinta, quella del pronoto è netta, quella delle elitre è quasi vigorosa e quella degli uroterghi è a maglie molto trasverse ed estremamente svanite: solo sul quinto urotergo libero essa è distinta. La punteggiatura del capo e del pronoto è distinta e quella delle



FIGG. 177-184

Habitus, edeago in visione laterale e ventrale, spermatteca e sesto urotergo libero del maschio.
 177-180: *Liogluta xiaheorum* sp. n.; 181-184: *Liogluta gonggana* sp. n.



FIGG. 185-189

Spermateca, habitus ed edeago in visione laterale e ventrale. 185: *Liogluta gonggana* sp. n.;
 186-189: *Liogluta lacustris* sp. n.

elitre è molto svanita; sul capo è assente sulla fascia longitudinale mediana. Edeago figg. 187-188, spermateca fig. 189.

COMPARAZIONI. Il profilo ventrale dell'edeago della nuova specie è simile a quello dell'edeago di *L. nepalica* Scheerpeltz, 1976, del Nepal. Tuttavia, in visione ventrale, la parte distale dell'edeago della nuova specie è bruscamente incavata a ciascun lato: ciò non si osserva nella parte apicale dell'edeago di *nepalica*. Inoltre l'armatura genitale interna dell'edeago di *nepalica* è evanescente, al contrario di ciò che si osserva nell'edeago della nuova specie.

***Liogluta gansuensis* sp. n.**

Figg. 190-192

Holotypus ♂, China, Dalijia Shan, 46 Km W Linxia, 2980 m, 10.VII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 3,6 mm. Corpo lucido e nero-bruno con capo e uriti liberi 4° e 5° neri; antenne nere con i tre antennomeri basali bruno-rossicci; zampe gialle. La reticolazione del capo è netta sul disco e svanita ai lati, quella del pronoto e delle elitre è assente e quella degli uroterghi è a maglie molto trasverse e molto superficiali. La punteggiatura dell'avancorpo è distinta, quella dell'addome è netta. Essa è assente su una fascia mediana del capo. Edeago figg. 191-192.

COMPARAZIONI. Poiché ha l'edeago esile, la nuova specie è probabilmente tassonomicamente vicina a *L. philhygroides* Cameron, 1939a, dell'India, che ha pure edeago esile. La nuova specie si distingue da essa per avere il bulbo basale dell'edeago meno sviluppato della parte restante dello stesso organo (bulbo basale molto più sviluppato in *philhygroides*) e per la parte apicale dell'edeago molto stretta in visione ventrale (larga in *philhygroides*).

***Liogluta hezuoensis* sp. n.**

Figg. 193-194

Holotypus ♀, China, Pass btw Hezuo-Amqog, 3300 m, 12.VII.1994, A. Smetana leg. (MHNG).

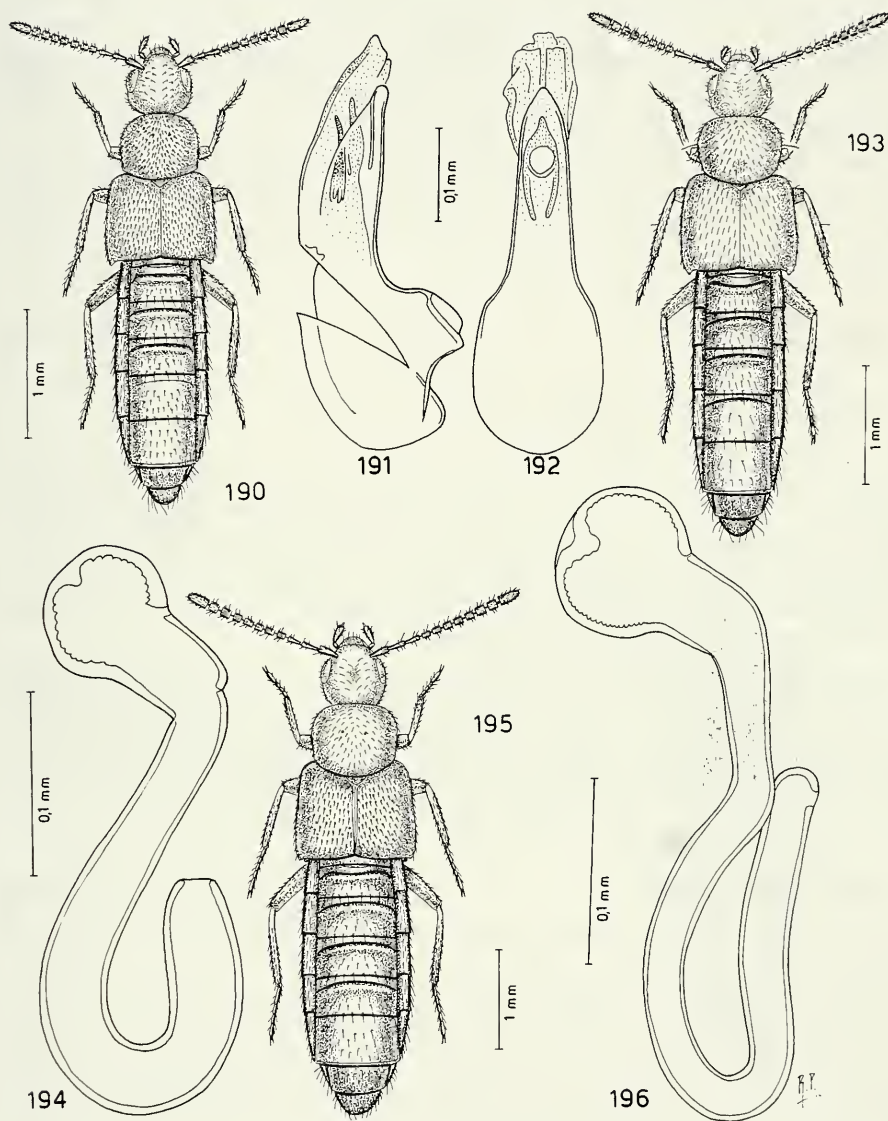
DESCRIZIONE. Lunghezza 4,0 mm. Corpo lucido e nero, antenne comprese; zampe rossicce con femori bruni. La reticolazione della superficie del capo è svanita, quella del pronoto è netta, quella delle elitre è nettissima e quella degli uroterghi è a maglie trasverse distinte. Il capo presenta punteggiatura assai svanita e una larga depressione discale. I tubercoletti della superficie del pronoto sono fini e distinti come quelli degli uroterghi, quelli delle elitre sono indistinti. Spermateca fig. 194.

COMPARAZIONI. La spermateca della nuova specie è simile a quella di *L. kulliorum* Pace, 1991b, del Nepal. Se ne distingue per il bulbo distale della stessa spermateca meno sviluppato, con introflessione apicale brevissima (profonda in *kulliorum*) e per avere gli occhi lunghi quanto le tempie (occhi assai ridotti in *kulliorum*).

***Liogluta dalijiensis* sp. n.**

Figg. 195-196

Holotypus ♀, China, Gansu, Dalijia Shan, 46 Km W Linxia, 2980 m, 10.VII.1994, A. Smetana leg. (MHNG).



FIGG. 190-196

Habitus, edeago in visione laterale e ventrale e spermatheca. 190-192: *Liogluta gansuensis* sp. n.; 193-194: *Liogluta hezuoensis* sp. n.; 195-196: *Liogluta dalijiensis* sp. n.

DESCRIZIONE. Lunghezza 4,8 mm. Corpo lucido e nero, antenne comprese; zampe rossicce con femori bruno-rossicci. La reticolazione della superficie del capo è svanita, quella del pronoto è distinta, quella delle elitre è netta e quella dell'addome è a maglie molto trasverse e molto svanite. Il capo presenta una punteggiatura molto svanita e il disco impresso. I tubercoletti sparsi sul pronoto sono poco distinti e quelli delle elitre sono ben conformati. Spermateca fig. 196.

COMPARAZIONI. Per la forma della spermateca è probabile l'affinità tassonomica della nuova specie con *L. franzi* Pace, 1991b, del Nepal. Ne è distinta per gli occhi lunghi quanto le tempie (occhi assai ridotti in *franzi*) e per la parte prossimale della spermateca molto più lunga nella nuova specie.

Liogluta attenuata sp. n.

Figg. 198-199

Holotypus ♀, China, Gansu, Xilong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, A. Smetana leg. (MHNG).

Paratypi: 3 ♀♀, stessa provenienza.

DESCRIZIONE. Lunghezza 3,6 mm. Corpo lucido e nero con elitre e i tre uriti basali nero-bruni; antenne nere; zampe giallo-rossicce. La reticolazione della superficie delle elitre è nettissima, quella sul resto del corpo è distinta. Le maglie di reticolazione degli uroterghi sono molto trasverse. La punteggiatura del capo è svanita e assente sulla fascia mediana, quella del pronoto è distinta. Tubercoletti poco distinti coprono la superficie delle elitre. Spermateca fig. 199.

COMPARAZIONI. In base alla forma della spermateca, la nuova specie è forse affine a *L. phillygroides* Cameron, 1939a, dell'India. Se ne distingue per le elitre meno larghe rispetto alla larghezza del pronoto e per una reticolazione molto trasversa e distinta degli uroterghi, assente in *phillygroides*. Il bulbo distale della spermateca della nuova specie è nettamente più largo che lungo (quasi sferico in *phillygroides*).

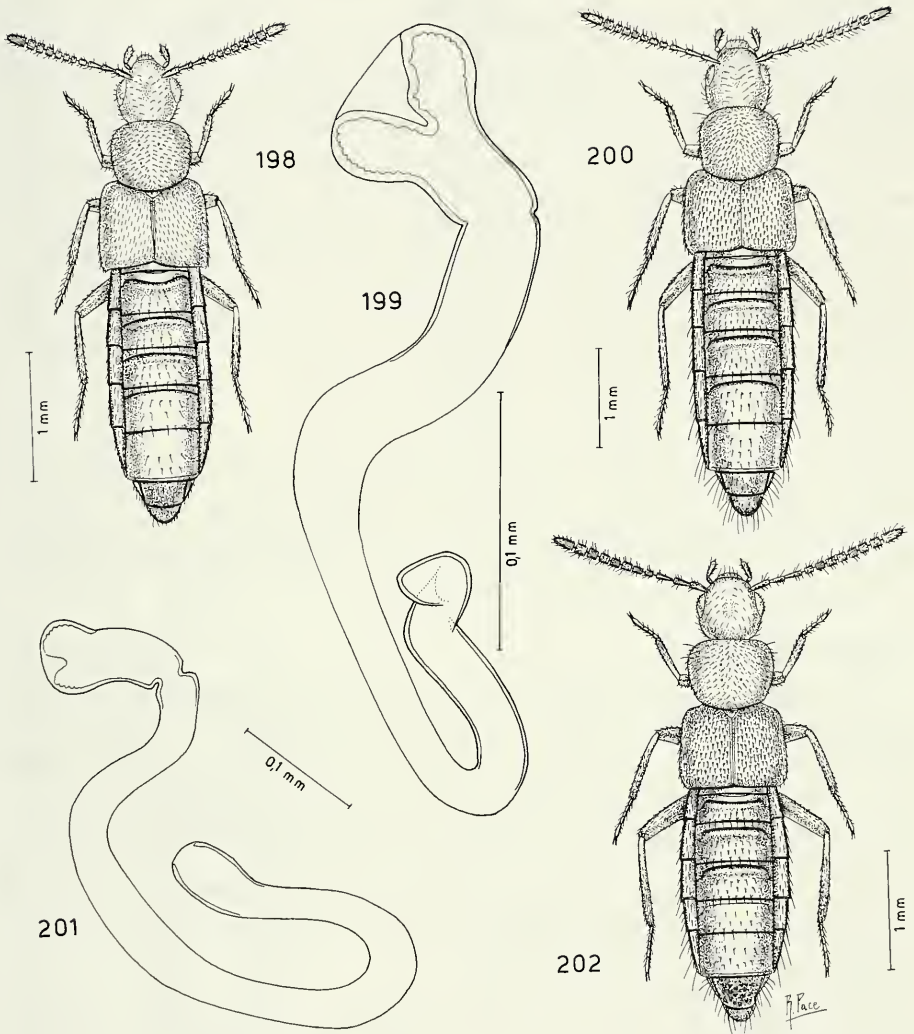
Liogluta langmusiensis sp. n.

Figg. 200-201

Holotypus ♀, China, Sichuan, Langmusi, 3500-3600 m, 13.VII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 4,8 mm. Corpo lucido e bruno-rossiccio con capo e uriti liberi 4° e 5° neri; antenne brune con i cinque antenomeri basali rossicci; zampe giallo-rossicce. La reticolazione della superficie del capo è distinta e quella sul resto del corpo è netta. Le maglie di reticolazione degli uroterghi sono molto trasverse. I tubercoletti che coprono la superficie del capo sono distinti, quelli del pronoto e delle elitre sono salienti. Spermateca fig. 201.

COMPARAZIONI. La nuova specie ha la spermateca di forma simile a quella della spermateca di *L. franzi* Pace, 1991b, del Nepal. Se ne differenzia per la parte prossimale della stessa spermateca più sviluppata. Inoltre gli occhi della nuova specie sono poco più corti delle tempie, mentre in *franzi* sono molto più corti e la reticolazione molto trasversa degli uroterghi è netta nella nuova specie e superficiale in *franzi*.



FIGG. 197-202

Habitus e spermateca. 198-199: *Liogluta attenuata* sp. n.; 200-201: *Liogluta langmusiensis* sp. n.; 202: *Liogluta granulipyga* sp. n.

Liogluta granulipyga sp. n.

Figg. 202-205

Holotypus ♂, China, Beijing, Xiaolongmen, 1100-1500 m, 1.VII.1993, de Rougemont leg. (MHNG).

Paratypi: 2 ♂♂ e 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 3,8 mm. Corpo lucido e bruno con elitre ed estremità addominale bruno-rossicci; antenne brune con antennumero basale, la metà basale del secondo e la base del terzo rossicci; zampe gialle. La reticolazione del disco del capo è distinta e composta di maglie ampie, quella sul resto della superficie del capo è svanita, quella sul pronoto è netta, quella delle elitre è distinta, quella dei quattro uroterghi basali è a maglie trasverse e distinte e quella sul quinto urotergo libero è a maglie poligonali irregolari nette. Il sesto urotergo libero del maschio è coperto di granuli robusti e di reticolazione vigorosa a maglie ampie. Il capo presenta una punteggiatura svanita e assente sulla fascia mediana e un'impressione discale. I tubercolletti della superficie del pronoto sono fini e salienti, quelli delle elitre sono robusti e molto salienti. Edeago figg. 203-204, spermateca fig. 205.

COMPARAZIONI. La forma della spermateca indica che la nuova specie può essere affine a *L. langmusiensis* sp. n. sopra descritta. Ma la nuova specie ha la sutura delle elitre appena più corta della lunghezza del pronoto, mentre *langmusiensis* ha lunghezza della sutura delle elitre nettamente più corta della lunghezza del pronoto. Gli occhi lunghi quanto le tempie permettono di distinguere la nuova specie da *L. franzi* Pace, 1991b, che mostra occhi assai ridotti.

Liogluta claripennis sp. n.

Figg. 206-207

Holotypus ♀, China, Zhejiang, Tianmushan, 29.IV.1993, de Rougemont leg. (MHNG):

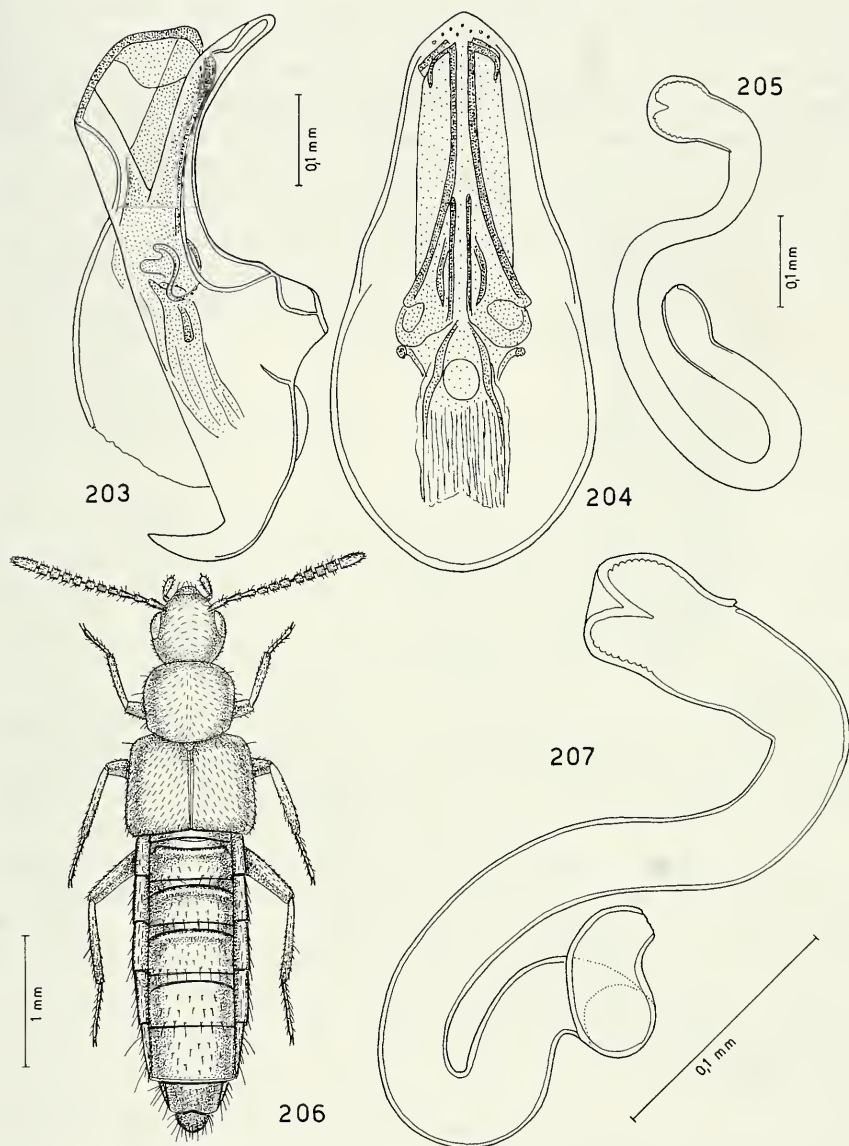
DESCRIZIONE. Lunghezza 4,2 mm. Corpo lucidissimo e nero con elitre giallo-rossicce con zona periscutellare, lato esterno e sutura bruni; antenne nere con antennumero basale bruno; zampe rossicce. La reticolazione del disco del capo è distinta e svanita sul resto della superficie del capo stesso, quella del pronoto è superficiale, quella delle elitre è distinta e quella sui due uroterghi basali è molto svanita, sui restanti uroterghi è a maglie molto trasverse, ondulate e superficiali. Il capo presenta una punteggiatura fine e distinta soprattutto ai lati e assente sulla fascia mediana. Il pronoto mostra una punteggiatura svanita. Spermateca fig. 207.

COMPARAZIONI. Grazie alla forma molto simile della spermateca è possibile affermare che la nuova specie è affine a *L. subumbonata* Cameron, 1939a, dell'India. Tuttavia la nuova specie mostra la sutura delle elitre appena più corta della lunghezza del pronoto, mentre la sutura delle elitre di *subumbonata* è nettamente più lunga della lunghezza del pronoto che è inoltre più trasverso. La parte prossimale della spermateca della nuova specie oltre la curva prossimale è molto più lunga della parte corrispondente della spermateca di *subumbonata*.

Liogluta ceraillita sp. n.

Figg. 208-209

Holotypus ♀, China, Yunnan, Ruili, ca. 700 m, 3.II.1993, de Rougemont leg., (MHNG).



FIGG. 203-207

203-205: *Liogluta granulipyga* sp. n.; 206-207: *Liogluta claripennis* sp. n.

DESCRIZIONE. Lunghezza 3,3 mm. Corpo lucidissimo e nero con elitre giallo-brune con lati esterni bruni; antenne nere; zampe gialle con femori giallo-bruni. Solo sul disco del capo la reticolazione è distinta: sul resto della superficie del corpo è da svanita ad estremamente svanita. Sui quattro uroterghi basali la reticolazione è a maglie molto trasverse, sul quinto urotergo libero le maglie non sono trasverse. La punteggiatura del capo è superficiale e assente su una fascia mediana. Il pronoto ha punteggiatura fine. Tuberoletti fini e poco distinti coprono la superficie delle elitre. Spermateca fig. 209.

COMPARAZIONI. La nuova specie in base alla forma della spermateca può essere affine a *L. franzi* Pace, 1991b, del Nepal, ma ha taglia della spermateca minore e più robusta, con parte prossimale più corta e distintamente dilatata (non dilatata in *franzi*). Anche gli occhi più lunghi delle tempie permettono di distinguere la nuova specie da *franzi* che mostra occhi molto più corti delle tempie.

Dacrila smetanai sp. n.

Figg. 210-213

Holotypus ♂, China, Gansu, Dalijia Shan, 60 Km W Linxia, 3475 m, 11.VII.1994, A. Smetana leg. (MHNG).

Paratypus: 1 ♀, stessa provenienza.

DESCRIZIONE. Lunghezza 2,8 mm. Corpo lucido e nero; antenne nero-brune; zampe giallo-brune. La reticolazione della superficie del capo e del pronoto è netta, quella delle elitre è distinta e quella dell'addome è a maglie molto trasverse evidenti. I tuberoletti della superficie del capo sono distinti e assenti sulla fascia mediana, quelli del pronoto sono salienti e quelli delle elitre sono svaniti. Edeago figg. 211-212, spermateca fig. 213.

NOTA. Questa specie è attribuita al genere *Dacrila* Mulsant & Rey, 1874, a motivo essenziale della forma della ligula che è divisa in due lembi fino alla base dove sono uniti, per le tempie arcuate e per la struttura dell'armatura genitale interna dell'edeago. Finora il genere *Dacrila* non era noto in Cina.

COMPARAZIONI. La nuova specie si distingue da *D. fallax* (Kraatz, 1858), della regione paleartica occidentale, per i lati del pronoto sinuati davanti agli angoli posteriori e per gli antennomeri 4° a 10° più lunghi. L'edeago della nuova specie, oltre a essere meno profondamente e più largamente arcuato al lato ventrale, è bruscamente ristretto, se visto dal lato ventrale, e non profondamente e strettamente arcuato al lato ventrale e non ristretto al lato ventrale come in *fallax*. Inoltre la spermateca della nuova specie ha la parte prossimale lunghissima e flessa in due parti: tale parte nella spermateca di *fallax* è assente.

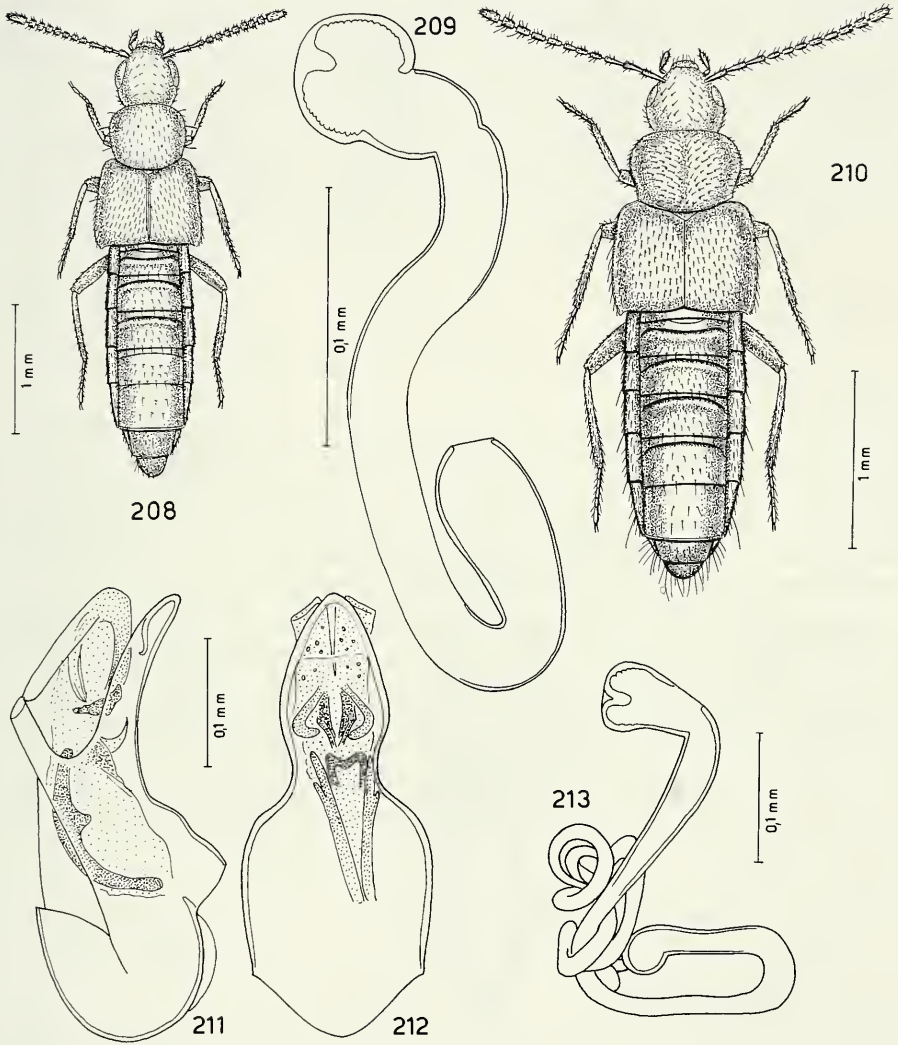
ETIMOLOGIA. La nuova specie è dedicata al suo raccogliitore, il noto studioso di Staphylinidae Dr Ales Smetana di Ottawa.

Dacrila setigera sp. n.

Figg. 214-218

Holotypus ♂, China, Sichuan, Langmui, 3500-3600 m, 13.VII.1994, A. Smetana leg. (MHNG).

Paratypi: 5 es., stessa provenienza: 1 ♂, China, Sichuan, Gongga Shan, above camp 3, 3300-3350 m, 23.VII.1994, A. Smetana leg.



FIGG. 208-213

Habitus, spermateca ed eedeago in visione laterale e ventrale. 208-209: *Liogluta ceraillita* sp. n.;
210-213: *Dacrila smetanai* sp. n.

DESCRIZIONE. Lunghezza 2,7 mm. Avancorpo debolmente lucido, addome lucido. Corpo nero, antenne comprese; zampe nero-brune. La reticolazione della superficie del capo è nettissima, quella del pronoto è vigorosa, quella delle elitre svanita e quella dell'addome è a maglie molto trasverse ed estremamente superficiali. I tubercoletti che coprono il capo sono distinti e assenti sulla fascia mediana, quelli del pronoto sono netti quelli delle elitre ben salienti e quelli dell'addome sono ben visibili. Edeago figg. 215-216, spermateca fig. 217, sesto urotergo libero del maschio fig. 218.

COMPARAZIONI. La nuova specie è distinta da *D. smetanai* sp. n. sopra descritta, per i lati del pronoto non sinuati davanti agli angoli posteriori, per gli antennomeri 5° a 10° più larghi che lunghi, per l'edeago poco profondamente arcuato al lato ventrale e per l'introflessione apicale del bulbo distale della spermateca.

Taxicera smetanai sp. n.

Figg. 219-220

Holotypus ♀, China. Gansu, pass btw Hezuoc-Amqog, 3300 m, 12.VII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 3,0 mm. Corpo lucido e nero, comprese le antenne; zampe anteriori con tarsi e tibie giallo-rossicci e femori giallo-bruni, medie con tarsi e tibie bruno-rossicci e femori bruni, posteriori brune con tarsi giallo-bruni. La reticolazione della superficie del capo e del pronoto è svanita, quella delle elitre è distinta e quella dell'addome è a maglie trasverse nette. La punteggiatura del capo e del pronoto è superficiale, quella delle elitre è poco distinta. Spermateca fig. 220.

COMPARAZIONI. La nuova specie, presentando ligula divisa, con una setola a ciascun lato e spermateca corta, va attribuita al genere *Taxicera* Mulsant & Rey, 1873. Il genere era finora sconosciuto in estremo oriente. La nuova specie si distingue da *T. deplanata* (Gravenhorst, 1802) della regione paleartica occidentale, per avere il pronoto coperto da tubercoletti superficiali (netti in *deplanata*) per il differente colore del corpo (pronoto, elitre ed estremità addominale giallicci in *deplanata*) e delle zampe: zampe giallo-brune invece di zampe giallo-rossicce con femori bruni come nella nuova specie.

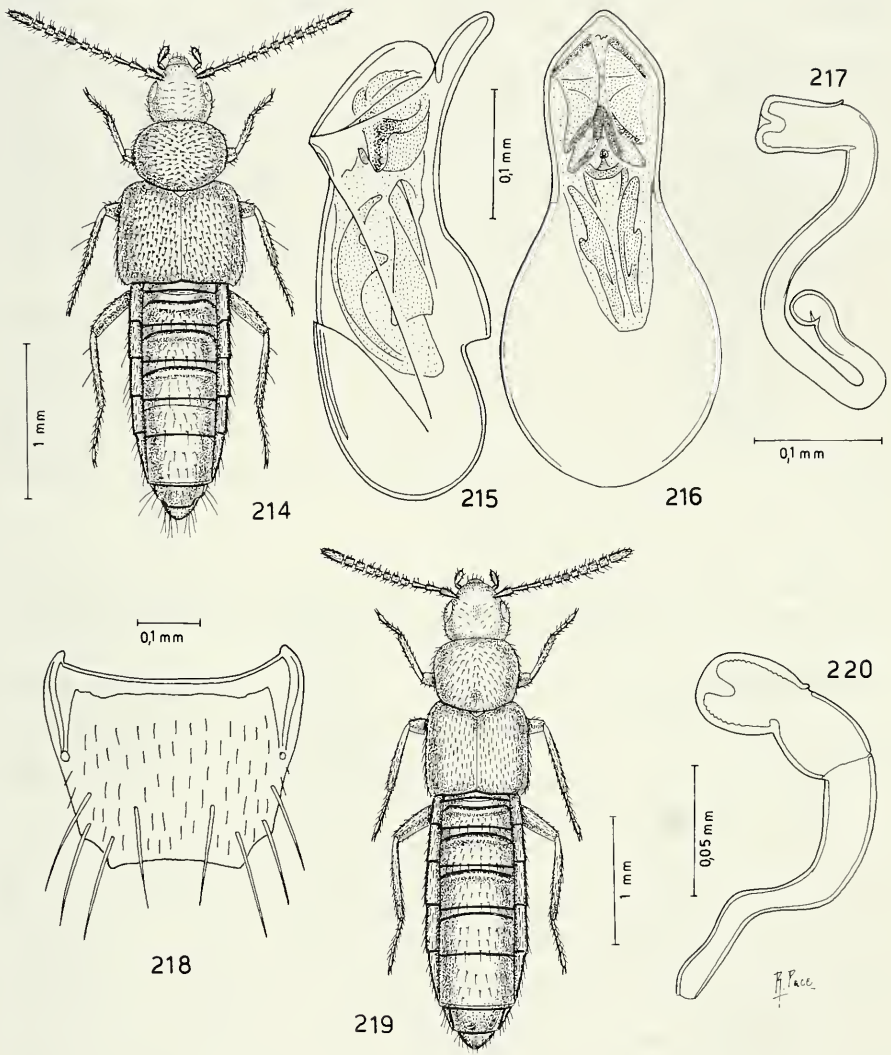
Amidobia smetanai sp. n.

Figg. 221-222

Holotypus ♀, China, Sichuan, Gongga Shan, above camp 3, 3300-3350 m, 23.VII.1994, A. Smetana leg. (MHNG).

DESCRIZIONE. Lunghezza 4,0 mm. Corpo lucido e nero con elitre nero brune; antenne nere; zampe rossicce con femori bruni. L'avancorpo è coperto di reticolazione distinta. L'addome da reticolazione molto trasversa e svanita. La punteggiatura dell'avancorpo è poco distinta: è assente sulla linea mediana del capo. Spermateca fig. 222.

COMPARAZIONI. La nuova specie è attribuita al genere *Amidobia* Thomson, 1858, per la forma della ligula e per la struttura della spermateca che è minuscola rispetto alla taglia corporea e lineare come nelle specie del genere. La nuova specie è distinta da *A. talpa* (Heer, 1842) della regione paleartica occidentale, per la taglia corporea molto



FIGG. 214-220

Habitus, edeago in visione laterale e ventrale, spermateca e sesto urotergo libero del maschio.
 214-218: *Dacrila setigera* sp. n.; 219-220: *Taxicera smetanai* sp. n.

maggiore (4,0 mm invece di 1,8 mm), per gli antennumeri 7° a 10° poco trasversi (molto trasversi in *talpa*) e per la spermateca priva di parte prossimale ricurva come in *talpa*.

Amphibolusa gen. n.

Figg. 223-229

DIAGNOSI. Il nuovo genere è affine al genere *Amidobia* Thomson, 1858, per la forma della ligula, ma distinta per la presenza di setole apicali sui due lembi della ligula stessa, per il pronoto ristretto in avanti, per il primo tarsomero posteriore lunghissimo e per la struttura della spermateca più simile a quella di alcune specie di *Oxyroda* Mannerheim, 1831, che presentano, come nel nuovo genere, microscultura all'interno della parte mediana della stessa spermateca.

DESCRIZIONE. Palpi labiali di tre articoli, fig. 228, ligula robusta, divisa in due lembi fino a metà, l'apice di ciascun lembo con setole corte; paraglosse non sporgenti in avanti; palpi mascellari di quattro articoli, fig. 229; tempie marginate; pronoto ristretto in avanti; processo mesosternale acuto, insinuato fino a metà delle mesocoxe che sono fra loro contigue; formula tarsale 4-5-5, primo tarsomero posteriore molto lungo rispetto ai successivi tre; edeago di grande taglia, figg. 224-225, spermateca simile a quella di certe specie di *Oxyroda*.

TYPUS GENERIS: *Amphibolusa smetanai* sp. n.

ETIMOLOGIA. Il nome del nuovo genere significa "Coei che è ambigua", infatti presenta caratteri morfologici esterni ed interni sia degli Athetini che degli Oxyrodini.

Amphibolusa smetanai sp. n.

Figg. 223-229

Holotypus ♂, China, Sichuan, Langmui, 3500-3600 m, 13.VII.1994, A. Smetana leg. (MHNG).

Paratypi: 1 ♂ e 1 ♀, stessa provenienza; 1 ♀, China, Gansu, M. ts 25 Km E Xiahe, 2805-2925 m, 3.VIII.1994, A. Smetana leg.

DESCRIZIONE. Lunghezza 3,7 mm. Avancorpo debolmente lucido, addome lucido. Corpo bruno con addome nero-bruno; antenne brune con i tre antennumeri basali bruno-rossicci; zampe giallo-rossicce. La reticolazione del capo è distinta, quella del pronoto netta, quella delle elitre svanita e quella dell'addome assente. Il capo presenta superficie coperta di distinti tubercoletti e il disco debolmente impresso. I tubercoletti che coprono il pronoto sono salienti e quelli delle elitre sono talmente fitti da dare un aspetto scabro alla superficie. La pubescenza sui tre uriti basali è fittissima, d'aspetto sericeo, quella del quarto urite è fitta, quella del quinto a sesto è rada. Edeago figg. 224-225, spermateca fig. 226, mento fig. 227.

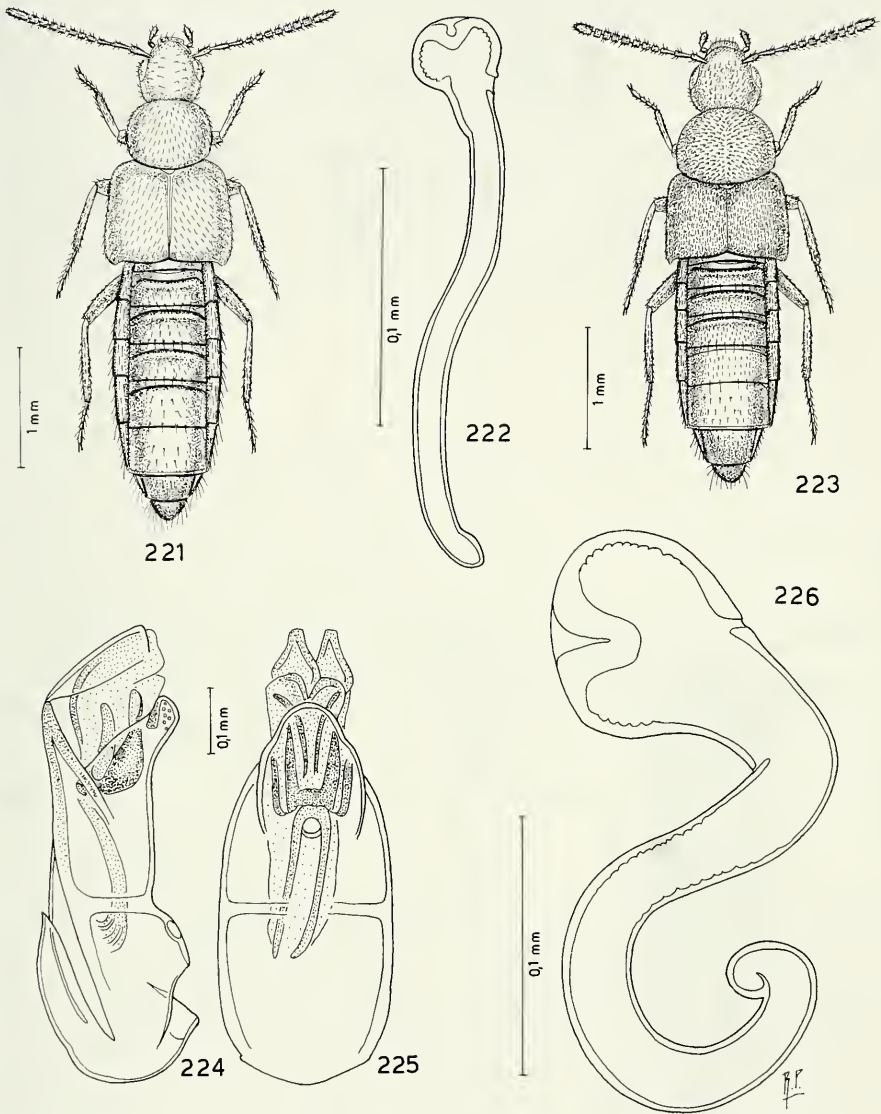
Nehemitropia chinicola sp. n.

Figg. 230-233

Holotypus ♂, China, Zhejiang, Tianmushan, 23.IV.1993, de Rougemont leg. (MHNG).

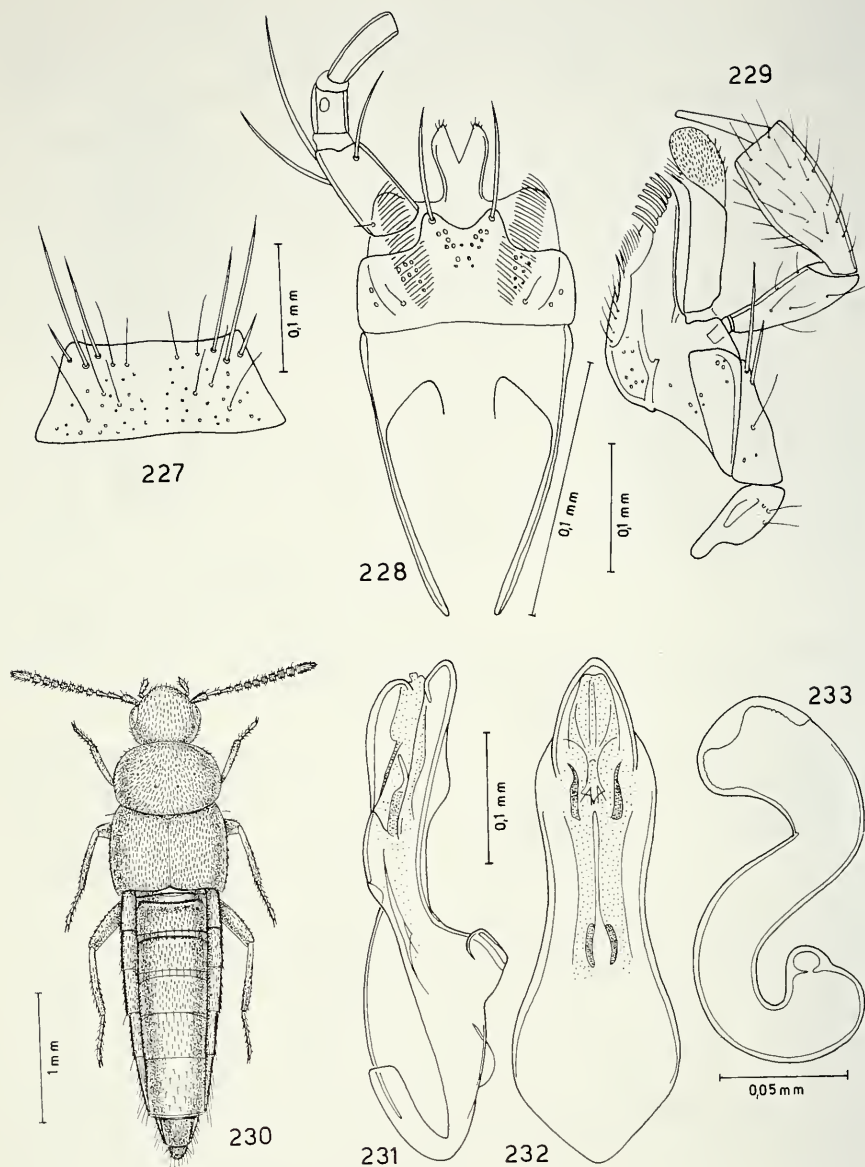
Paratypi: 12 es., stessa provenienza.

DESCRIZIONE. Lunghezza 3,7 mm. Corpo lucido. Capo bruno, pronoto bruno chiaro, elitre giallo-brune con angoli posteriori esterni bruni, i due uriti basali rossicci, il terzo



FIGG. 221-226

Habitus, spermateca ed edeago in visione laterale e ventrale. 221-222: *Anidobia smetanai* sp. n.; 223-226: *Amphibolusa smetanai* gen. n., sp. n.



FIGG. 227-233

Mento, labio con palpo labiale, maxilla con palpo mascellare, habitus, edeago in visione laterale e ventrale e spermateca. 227-229: *Amphibolusa smetanai* gen. n., sp. n.; 230-233: *Nehemitropia chinicola* sp. n.

bruno, i successivi nero-bruni; antenne nero-brune con i tre antennomeri basali rossicci; zampe giallo-rossicce. La reticolazione della superficie del capo è svanita, quella del pronoto e delle elitre è distinta e quella dell'addome è estremamente superficiale e a maglie trasverse. La punteggiatura del capo è fitta e superficiale. Il pronoto e le elitre sono coperti di tubercolotti fini e salienti. Edeago figg. 231-232, spermateca fig. 233.

COMPARAZIONI. La nuova specie è nettamente differente da *N. jiniana* Pace, 1993a, pure della Cina, come da *N. sordida* (Marsham, 1802) a diffusione subcosmopolita, per la forma dell'edeago e della spermateca. In *jiniana* l'edeago non è così profondamente arcuato al lato ventrale, come quello della nuova specie e la spermateca è robusta sia in *jiniana* che in *sordida* e non esile come quella della nuova specie.

ADDENDA

All'elenco delle specie note o nuove per la Cina, dato nella parte I della presente serie di lavori sulle Aleocharinae della Cina, va aggiunta la seguente specie:

Aloconota sulcifrons (Stephens, 1832)

figg. 111-112

Homalota sulcifrons Stephens, 1832: 121

Atheta (Aloconota) sulcifrons: BENICK 1954: 139

Aloconota sulcifrons: LOHSE 1974: 96

1 ♀, China, Gansu, Xinlong Shan, ca. 70 Km S Lanzhou, 2225-2380 m, 7.VIII.1994, A. Smetana leg.

Specie cosmopolita.

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Rivolgo i miei più sentiti ringraziamenti a coloro che mi hanno affidato in studio le Aleocharinae della Cina oggetto del presente lavoro e frutto di recenti raccolte: il Dr Ales Smetana di Ottawa, i colleghi Guillaume de Rougemont di Londra, Jonathan Cooter di Hereford (Gran Bretagna), Garry Ades, Graham Reels di Hong Kong e il Dr Shuqiang Li di Stuttgart (Germania). Per il prestito di tipi e di materiale di confronto ringrazio molto il Dr A.F. Newton del "Field Museum of Natural History" di Chicago, il Dr P.M. Hammond del "Natural History Museum" di Londra, il Dr L. Baert dell'"Institut Royal des Sciences Naturelles de Belgique" di Bruxelles, il Dr H. Schönmann del "Naturhistorisches Museum" di Vienna et il Dr L. Zerche del D.E.I. di Eberswalde.

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