

The Australian Sciapodinae (Diptera: Dolichopodidae), with a Review of the Oriental and Australasian Faunas, and a World Conspectus of the Subfamily

DANIEL J. BICKEL

Australian Museum,
PO Box A285, Sydney South, NSW 2000, Australia
Fax: (02) 360-4350 Email: danb@amsg.austmus.oz.au

ABSTRACT. The Sciapodinae (Diptera: Dolichopodidae) of Australia (including Lord Howe, Norfolk, Cocos-Keeling and Christmas Islands) are treated in detail, and 253 species, 208 newly described, are illustrated and keyed. All described Oriental and extralimital Australasian species are critically reviewed, with notes on diagnostic characters, distribution and generic placement, along with many new combinations and synonymies and some keys. Further, the taxonomy of the subfamily is considered at world level, with redefinition and rearrangement of genera and nomenclatural changes for taxa from all regions. The systematic position of the subfamily is discussed and a preliminary phylogenetic analysis presented. The biogeography and natural history of the Australian fauna are treated in detail. Nine new genera are erected, *Dytomyia*, *Negrobovia*, *Narrabeenia*, *Abbemyia*, *Pseudoparentia* and *Pilbara* from Australasia, *Mascaromyia* and *Ethiosciapus* from the Afrotropical Region, and *Amesorrhaga* from the Orient. Genera incorrectly referred to the Sciapodinae are discussed.

The Sciapodinae show extensive parallel evolution, and almost all diagnostic generic-level characters have evolved independently many times. Historically, this has led to uncertain generic limits and a complicated nomenclatural history. Genera are redefined on a polythetic basis, no character in isolation necessarily being diagnostic for all members.

Male secondary sexual characters (MSSC) are reviewed. In some species the female phenotype shows weakened expression of MSSC. A model is presented whereby MSSC could be incorporated into the phenotype of both sexes and thereby become 'higher level' taxonomic characters.

The Australian fauna is analysed in detail, with discussions of historical and ecological biogeography. The genera *Parentia* and *Heteropsilopus* display classical Bassian distribution patterns and have ties with other southern lands, New Zealand/New Caledonia and India, respectively. The disjunction of *Heteropsilopus* in Australia and southern India suggests a widespread eastern Gondwanan distribution dating from the lower Cretaceous. No direct relationship with the Neotropics is evident. Australian *Nothofagus* rainforests are devoid of Sciapodinae, in contrast to such forests in New Zealand. A Torresian fauna of Oriental-Papuan affinity dominates the northern tropics, and has penetrated southwards along the east coast in association with tropical and subtropical rainforest. The major southern limit of Torresian taxa coincides with the southern limit of subtropical rainforest in New South Wales. Lowland Papuan species occur on Cape York

Peninsula and across monsoonal northern Australia. In contrast to eastern Australia, the aridity of Western Australia prevented southward movement of tropical elements, and the Southwest maintains only a Bassian fauna. The faunas of Norfolk and Lord Howe Islands are of Australian origin, while those of Christmas and Cocos-Keeling Islands are of Greater Sunda origin.

The faunas of all major zoogeographic regions are reviewed, with emphasis on Australasia and the Orient. Widespread and accidentally introduced species are discussed. Fossil amber Sciapodinae are treated, including new information on Dominican Republic material. The subfamily is most diverse on the Gondwana continents, where it undoubtedly arose. The possible sister group relationship with the predominately Laurasian subfamily Dolichopodinae is discussed. Vicariant distributions between Australia and India, Australia and New Zealand, and Africa and South America support a early Cretaceous origin and radiation for the Sciapodinae.

The tribe Mesorhagini is established with three genera. *Amesorhaga* n.gen. contains seven Oriental species and is considered the most primitive sciapodine genus. *Negrobovia* n.gen., from eastern and northern Australia, comprises three species, two of them new. The genus *Mesorhaga* Schiner is redefined and its distinctive morphology reviewed. The Australian fauna comprises 36 species, 35 new.

The tribe Sciapodini is established and with the genera *Sciapus* Zeller, *Mascaromyia* n.gen., *Helioxcerus* Lamb, *Naufraga* Bickel, *Dytomyia* n.gen., *Narrabeenia*, n.gen., *Pilbara* n.gen. and *Condylostylus* Bigot. *Sciapus* is greatly restricted in definition and comprises about 65 Holarctic species. The genera *Psilopiella* Van Duzee, *Agastoplax* Enderlein, *Dactylodiscia* Enderlein, *Dactylorhipis* Enderlein and *Placantichir* Enderlein are newly placed in synonymy with *Sciapus*. Many species previously placed in *Sciapus* are newly referred to other genera. *Mascaromyia* includes 15 described species from the western Indian Ocean. *Helioxcerus* occurs on Samoa and New Caledonia. *Naufraga* is known only from New Zealand. *Dytomyia* is found primarily Australian sclerophyll habitats and comprises five species, four newly described. *Narrabeenia* is found on the southern Australian coast and comprises two species, one newly described. The genus *Pilbara* has a single new species, *P. octava*, from north-western Australia. *Condylostylus* comprises some 300 species in the Neotropics, Afrotropics and Orient. The New World *C. longicornis* is recorded from French Polynesia. Neotropical species incorrectly regarded as *Chrysosoma* are given new combinations. The Oriental and eastern Palearctic species are keyed. The genus *Eurostomerus* Bigot, based on a *nomen nudum*, is made a synonymy of *Condylostylus*.

The Tribe Chrysosmatini is defined and includes ten genera – *Parentia* Hardy, *Pseudoparentia* n.gen., *Krakatauia* Enderlein, *Heteropsilopus* Bigot, *Chrysosoma* Guerin-Meneville, *Abbemyia*, n.gen., *Ethiosciapus*, n.gen., *Plagiozopelma* Enderlein, *Austrosociapus* n.gen. and *Amblypsilopus* Bigot. *Parentia* has a temperate distribution in southern Australia, New Zealand and New Caledonia. The Australian fauna, comprising 26 species (21 new), is found mostly in drier habitats. *Pseudoparentia*, comprises five new species from interior Australia. *Krakatauia* comprises nine Australian species (8 newly described) in the *evulgata*, *funeralis*, *alanae* and *tristorum* Groups. The Oriental *anthracoides* Group is defined. *Heteropsilopus* comprises three Groups: the *trilagatus* Group from southern India and Sri Lanka, and the *cingulipes* and *brevicornis* Groups with a Bassian distribution in Australia, comprising 17 species, ten newly described. *Chrysosoma* is redefined. The apical arista, previously used as the key generic character, is shown to have been derived many times within the Sciapodinae. The genus is confined to the Old World tropics and is especially rich in the Australasian and Oriental tropics. The Australian fauna comprises 11 species, two newly described. The genus *Megistostylus* is placed in synonymy with *Chrysosoma*, and *C. crinicornis* replaces *M. longicornis* as the name for the common Oriental-Australasian species noted for its remarkable male antenna. The Afrotropical *Kalocheta* Becker is also placed in synonymy with *Chrysosoma*. The *leucopogon* and *proliciens* Groups are rich in Australasia and Sundaland. The common tramp species, *C. leucopogon*, ranges from eastern Africa to Polynesia, including many isolated islands. The Oriental *vittatum* Group, the Papuan *aeneum*, *arrogans*, *lucigena* and *antennatum* Groups, the New Caledonian *noumeanum* Group, the Pacific *lacteimicans* Group, and the Afrotropical *passiva*, *senegalense* and *gemmarium* Groups are defined. The genus *Abbemyia* occurs in Australasia and includes two Australian species, one newly described. *Ethiosciapus* occurs in Africa and the islands of the western Indian Ocean. *Plagiozopelma* includes many species previously regarded as *Chrysosoma*. The genus occurs widely across the Old World tropics but is richest in the Orient. The Australian fauna comprises six species, four newly described. The *flavipodex* Group occurs across the Orient and Australasia, and includes the widespread *P. flavipodex*. The *alliciens* and *annotatum* Groups are Oriental, the *terminiferum* and *angustifacies* Groups Australasian, and the *bequaerti* Group Afrotropical. The new genus *Austrosociapus* comprises 42 Australian species, 35 newly described. The *proximus* Group is eastern Australian, although

A. connexus appears to have been introduced to various Pacific islands and Perth, WA, and *A. proximus* was introduced to New Zealand. The *tumidus* Group, *sarinensis* Group, *muelleri* Group, *dendrohalma* Group (found on eucalypt trunks), and *storeyi* Group, all occur in eastern Australia, while the *hollowayi* Group is known from Western Australia. *Amblypsilopus* is given new status and includes many species previously regarded as *Sciapus*. New combinations and synonymies are presented from all zoogeographic regions. The genera *Australiola*, *Labeneura*, *Sciopolina* and *Leptorhethum* are new synonyms of *Amblypsilopus*. The genus has 87 Australian species, 78 newly described. The *triscuticatus*, *pallidicornis* and *flaviappendiculatus* Groups are found throughout the tropical Orient and Australasia. The *zonatus* Group, from Australia and Norfolk and Lord Howe Islands, often has strikingly modified male wings. The *argyrodendron*, *bertiensis*, *topendensis*, *cyplus* and *trogon* Groups are northern Australian, while the *anomalicornis* and *glaciunguis*, *neoplatypus* and *rimbija* Groups occur in Australia and New Guinea. The *abruptus* Group is found across the Old World tropics.

BICKEL, D.J., 1994. The Australian Sciapodinae (Diptera: Dolichopodidae), with a review of the Oriental and Australasian faunas, and a world conspectus of the subfamily. Records of the Australian Museum, Supplement 21: 1–394.

Contents

Introduction	11
Materials and methods	11
Nomenclatural changes	13
Historical summary	13
The Sciapodine genera and their definition	13
The historical and nomenclatural problem	13
Definition of genera	14
Morphology	16
General	16
Head	16
Thorax	18
Legs	18
Wing	19
Abdomen	20
Male postabdomen	21
Female terminalia	23
Aberrations	24
Secondary sexual characters, genitalia and evolution	24
Male secondary sexual characters (MSSC)	24
Female secondary sexual characters (FSSC)	26
Male genitalia	26
Male secondary sexual characters and the female phenotype	26
Systematics	27
Position of the Sciapodinae within the Dolichopodidae	27
Groundplan of the Sciapodinae	28
Phylogenetic analysis	29
List of characters	29
Discussion	30
Biogeography I: Australia	30
Analysis of the Australian fauna	30
Introduction	30
Major patterns in the Australian fauna	32
Zoogeographic subregions	34
Ecological biogeography of the Australian fauna	37
Eastern rainforests	37
Sclerophyll habitats	39
Arid interior	39
Monsoonal north	39

Coastal habitats	40
Affinities and history of the Australian Sciapodinae	40
Biogeographic summary of Australian Sciapodinae	41
Biogeography II: World fauna and history	42
Widespread species	42
Naturally widespread species	42
Accidental introductions	42
World biogeographic summary	43
Melanesia and the Pacific	43
Oriental region	44
Afrotropical region	45
Neotropical region	45
Nearctic region	45
Palearctic region	45
Fossil Sciapodinae	45
Historical biogeography of the Sciapodinae	45
The age and origin of the Sciapodinae and Dolichopodidae	46
Natural history	46
Microhabitats	46
Mating behaviour	48
Feeding habits	48
Seasonality	48
Immature stages	49
Collecting techniques	49
Conservation biology	50
World list of Sciapodine genera	50
Genera incorrectly referred to the Sciapodinae	51
Species groups of Sciapodine genera	52
Key to world genera of Sciapodinae	53
<i>Mesorhaga</i> Schiner	56
Key to Australian male <i>Mesorhaga</i>	58
The <i>geoscopa</i> Group	62
<i>Mesorhaga geoscopa</i> n.sp.	62
<i>Mesorhaga queenslandensis</i> n.sp.	64
<i>Mesorhaga danielsi</i> n.sp.	64
The <i>koongarra</i> Group	64
<i>Mesorhaga koongarra</i> n.sp.	64
<i>Mesorhaga zborowskii</i> n.sp.	65
<i>Mesorhaga petrensis</i> n.sp.	67
<i>Mesorhaga martius</i> n.sp.	67
<i>Mesorhaga tindali</i> n.sp.	67
<i>Mesorhaga naumanni</i> n.sp.	67
<i>Mesorhaga toddensis</i> n.sp.	68
<i>Mesorhaga varicornis</i> n.sp.	68
<i>Mesorhaga longipenis</i> n.sp.	68
<i>Mesorhaga emmensis</i> n.sp.	70
<i>Mesorhaga gatesae</i> n.sp.	70
<i>Mesorhaga cockatoo</i> n.sp.	70
<i>Mesorhaga decembris</i> n.sp.	71
<i>Mesorhaga muchei</i> n.sp.	71
<i>Mesorhaga weiri</i> n.sp.	71
<i>Mesorhaga lamondensis</i> n.sp.	73
<i>Mesorhaga wanbi</i> n.sp.	73
<i>Mesorhaga nerrensis</i> n.sp.	73
<i>Mesorhaga turneri</i> n.sp.	74
The <i>canberrensis</i> Group	74
<i>Mesorhaga canberrensis</i> n.sp.	74
<i>Mesorhaga gingra</i> n.sp.	75
<i>Mesorhaga prima</i> Parent	75
<i>Mesorhaga chillagoensis</i> n.sp.	75

<i>Mesorhaga schneiderae</i> n.sp.	75
<i>Mesorhaga tarooma</i> n.sp.	78
<i>Mesorhaga yarratt</i> n.sp.	78
<i>Mesorhaga didillibah</i> n.sp.	78
<i>Mesorhaga coolumensis</i> n.sp.	80
<i>Mesorhaga wirthi</i> n.sp.	80
<i>Mesorhaga actities</i> n.sp.	80
The <i>flavicomma</i> Group	81
<i>Mesorhaga flavicomma</i> n.sp.	81
<i>Mesorhaga similis</i> n.sp.	81
<i>Mesorhaga maceveyi</i> n.sp.	82
<i>Amesorhaga</i> n.gen.	82
<i>Negrobovia</i> n.gen.	83
Key to male <i>Negrobovia</i>	85
<i>Negrobovia australensis</i> (Schiner), n.comb.	85
<i>Negrobovia aculicita</i> n.sp.	87
<i>Negrobovia flavihalteralis</i> n.sp.	88
<i>Sciapus</i> Zeller	88
<i>Dytomyia</i> n.gen.	91
Key to Australian male <i>Dytomyia</i>	91
The <i>sordida</i> Group	92
<i>Dytomyia sordida</i> (Parent), n.comb.	92
<i>Dytomyia bancrofti</i> n.sp.	96
<i>Dytomyia torresiana</i> n.sp.	96
<i>Dytomyia tumifrons</i> n.sp.	97
The <i>flaviseta</i> Group	98
<i>Dytomyia flaviseta</i> n.sp.	98
<i>Pilbara</i> n.gen.	99
<i>Pilbara octava</i> n.sp.	100
<i>Mascaromyia</i> n.gen.	100
<i>Helixocerus</i> Lamb	101
<i>Narrabeenia</i> n.gen.	101
Key to Australian male <i>Narrabeenia</i>	102
<i>Narrabeenia spinipes</i> n.sp.	103
<i>Narrabeenia difficilis</i> (Parent), n.comb.	104
<i>Condylostylus</i> Bigot.....	105
Notes on Neotropical <i>Condylostylus</i>	106
The Oriental, Palearctic and Pacific <i>Condylostylus</i>	107
Key to male Oriental and eastern Palearctic <i>Condylostylus</i>	110
<i>Naufraga</i> Bickel	111
<i>Parentia</i> Hardy	111
Key to Australian <i>Parentia</i> groups	113
The <i>dispar</i> Group	114
Key to Australian <i>Parentia dispar</i> Group	115
<i>Parentia dispar</i> (Macquart)	117
<i>Parentia timothyi</i> n.sp.	119
<i>Parentia barbarae</i> n.sp.	120
<i>Parentia kiwarrak</i> n.sp.	120
<i>Parentia yeatesi</i> n.sp.	120
<i>Parentia orientalis</i> n.sp.	122
<i>Parentia cardaleae</i> n.sp.	122
<i>Parentia backyama</i> n.sp.	123
<i>Parentia royallensis</i> n.sp.	123
<i>Parentia perthensis</i> n.sp.	123
<i>Parentia dongara</i> n.sp.	124
<i>Parentia yunensis</i> n.sp.	124
<i>Parentia solaris</i> n.sp.	126
<i>Parentia caldyanup</i> n.sp.	126
<i>Parentia vulgaris</i> n.sp.	127
<i>Parentia tricolor</i> (Walker)	128

<i>Parentia gemmans</i> (Walker), n.status	128
<i>Parentia chaineyi</i> n.sp.	130
<i>Parentia tinda</i> n.sp.	130
<i>Parentia nigropilosa</i> (Macquart)	131
<i>Parentia occidentalis</i> n.sp.	131
<i>Parentia dubia</i> (Parent)	132
The <i>nudicosta</i> Group	132
Key to males of the <i>Parentia nudicosta</i> Group	132
<i>Parentia kelseyi</i> n.sp.	133
<i>Parentia nudicosta</i> n.sp.	134
<i>Parentia yarragil</i> n.sp.	134
Unplaced Australian <i>Parentia</i>	135
<i>Parentia gladicauda</i> n.sp.	135
<i>Pseudoparentia</i> n.gen.	135
Key to males of <i>Pseudoparentia</i>	137
<i>Pseudoparentia centralis</i> n.sp.	138
<i>Pseudoparentia tricola</i> n.sp.	138
<i>Pseudoparentia nullaborensis</i> n.sp.	140
<i>Pseudoparentia hangayi</i> n.sp.	140
<i>Pseudoparentia advena</i> n.sp.	140
<i>Ethiosciapus</i> n.gen.	141
<i>Krakatauia</i> Enderlein	142
Key to <i>Krakatauia</i> groups and males of Australian species	143
The <i>evulgata</i> Group	144
<i>Krakatauia obversicornis</i> n.sp.	146
<i>Krakatauia macalpinei</i> n.sp.	146
The <i>funeralis</i> Group	148
<i>Krakatauia funeralis</i> (Parent), n.comb.	149
<i>Krakatauia pseudofuneralis</i> n.sp.	151
<i>Krakatauia claudiensis</i> n.sp.	151
The <i>alanae</i> Group	152
<i>Krakatauia alanae</i> n.sp.	152
<i>Krakatauia malanda</i> n.sp.	153
The <i>trustorum</i> Group	153
<i>Krakatauia trustorum</i> n.sp.	155
<i>Krakatauia remota</i> n.sp.	155
The <i>anthracoides</i> Group	155
<i>Heteropsilopus</i> Bigot	156
The <i>triligatus</i> Group	157
Key to males of the <i>Heteropsilopus triligatus</i> Group	159
Key to males of Australian <i>Heteropsilopus</i>	160
The <i>cingulipes</i> Group	162
<i>Heteropsilopus ingenuus</i> (Erichson)	163
<i>Heteropsilopus trifasciatus</i> (Macquart)	165
<i>Heteropsilopus sugdeni</i> n.sp.	165
<i>Heteropsilopus plumifer</i> (Becker)	167
<i>Heteropsilopus khooi</i> n.sp.	167
<i>Heteropsilopus squamifer</i> Hardy	168
<i>Heteropsilopus tweedensis</i> n.sp.	170
<i>Heteropsilopus caelicus</i> (Parent)	171
<i>Heteropsilopus meensis</i> n.sp.	171
<i>Heteropsilopus cingulipes</i> (Walker)	171
<i>Heteropsilopus araluensis</i> n.sp.	174
<i>Heteropsilopus savicensis</i> n.sp.	175
<i>Heteropsilopus tantanoola</i> n.sp.	176
<i>Heteropsilopus brindabellensis</i> n.sp.	176
<i>Heteropsilopus calabyi</i> n.sp.	178
The <i>brevicornis</i> Group	178
<i>Heteropsilopus brevicornis</i> (Macquart)	178
<i>Heteropsilopus intermedius</i> n.sp.	179

<i>Chrysosoma</i> Guérin-Méneville	180
Key to Oriental and Australasian <i>Chrysosoma</i> groups	182
Key to male Australian <i>Chrysosoma</i>	183
The <i>leucopogon</i> Group	183
Key to Australian males of the <i>Chrysosoma leucopogon</i> Group	189
<i>Chrysosoma nobile</i> Parent	189
<i>Chrysosoma leucopogon</i> (Wiedemann)	190
<i>Chrysosoma callosum</i> Parent	192
<i>Chrysosoma pseudocallosum</i> n.sp.	193
<i>Chrysosoma diversicolor</i> Parent	193
The <i>arrogans</i> Group	194
The <i>noumeanum</i> Group	195
The <i>proliciens</i> Group	195
Key to Australian males of the <i>proliciens</i> Group	198
<i>Chrysosoma proliciens</i> (Walker)	198
<i>Chrysosoma inerme</i> (de Meijere)	200
<i>Chrysosoma crinicornis</i> (Wiedemann)	201
<i>Chrysosoma duplociliatum</i> Parent	203
<i>Chrysosoma lucare</i> n.sp.	204
The <i>aeneum</i> Group	204
<i>Chrysosoma interruptum</i> Becker	206
The <i>vittatum</i> Group	207
The <i>lucigena</i> Group	208
The <i>antennatum</i> Group	209
The <i>lacteimicans</i> Group	209
Unplaced Oriental and Australasian <i>Chrysosoma</i>	210
Notes on Afrotropical <i>Chrysosoma</i>	211
<i>Abbemyia</i> n.gen.	212
Key to males of <i>Abbemyia</i>	213
<i>Abbemyia nigrofasciata</i> (Macquart), n.comb.	213
<i>Abbemyia taree</i> n.sp.	214
<i>Plagiozopelma</i> Enderlein	215
Key to Old World <i>Plagiozopelma</i> groups	216
The <i>flavipodex</i> Group	216
Key to Australian males of the <i>Plagiozopelma flavipodex</i> Group	219
<i>Plagiozopelma flavipodex</i> (Becker)	220
<i>Plagiozopelma ashbyi</i> n.sp.	221
<i>Plagiozopelma placidum</i> n.sp.	223
<i>Plagiozopelma aurifrons</i> n.sp.	224
The <i>angustifacies</i> Group	224
<i>Plagiozopelma mouldsorum</i> n.sp.	225
The <i>alliciens</i> Group	227
The <i>annotatum</i> Group	227
The <i>terminiferum</i> Group	228
<i>Plagiozopelma terminiferum</i> (Walker)	228
Unplaced Oriental <i>Plagiozopelma</i>	230
Notes on Afrotropical <i>Plagiozopelma</i>	230
<i>Austrosciapus</i> n.gen.	231
Key to Australian <i>Austrosciapus</i> groups	232
The <i>proximus</i> Group	233
Key to males of the <i>Austrosciapus proximus</i> Group	234
<i>Austrosciapus proximus</i> (Parent), n.comb.	236
<i>Austrosciapus triangulifer</i> (Becker), n.comb.	237
<i>Austrosciapus doddi</i> n.sp.	239
<i>Austrosciapus fraudulentus</i> n.sp.	239
<i>Austrosciapus bifarius</i> (Becker), n.comb.	239
<i>Austrosciapus discretifasciatus</i> (Macquart), n.comb.	240
<i>Austrosciapus frauci</i> n.sp.	241
<i>Austrosciapus zentae</i> n.sp.	241
<i>Austrosciapus connexus</i> (Walker), n.comb.	242

<i>Austrosciapus quadrimaculatus</i> (Parent), n.comb.	244
<i>Austrosciapus capricornis</i> n.sp.	244
<i>Austrosciapus cassisi</i> n.sp.	245
<i>Austrosciapus collessi</i> n.sp.	245
<i>Austrosciapus ascitus</i> n.sp.	246
<i>Austrosciapus magus</i> n.sp.	246
<i>Austrosciapus riparius</i> n.sp.	247
<i>Austrosciapus minnamurra</i> n.sp.	248
<i>Austrosciapus crater</i> n.sp.	248
<i>Austrosciapus ravenshoensis</i> n.sp.	249
The <i>tumidus</i> Group	250
Key to males of the <i>Austrosciapus tumidus</i> Group	250
<i>Austrosciapus tumidus</i> (Hardy), n.comb.	251
<i>Austrosciapus pseudotumidus</i> n.sp.	252
<i>Austrosciapus broulensis</i> n.sp.	252
<i>Austrosciapus aprilis</i> n.sp.	254
The <i>sarinensis</i> Group	254
Key to males of the <i>Austrosciapus sarinensis</i> Group	254
<i>Austrosciapus sarinensis</i> n.sp.	255
<i>Austrosciapus stevensi</i> n.sp.	256
<i>Austrosciapus toloomensis</i> n.sp.	257
<i>Austrosciapus gwynnae</i> n.sp.	257
<i>Austrosciapus flavicauda</i> n.sp.	257
The <i>muelleri</i> Group	258
Key to males of the <i>Austrosciapus muelleri</i> Group	258
<i>Austrosciapus muelleri</i> n.sp.	258
<i>Austrosciapus offordensis</i> n.sp.	259
The <i>dendrohalma</i> Group	260
Key to males of the <i>Austrosciapus dendrohalma</i> Group	260
<i>Austrosciapus dendrohalma</i> n.sp.	261
<i>Austrosciapus dayi</i> n.sp.	261
<i>Austrosciapus cantrelli</i> n.sp.	262
<i>Austrosciapus janae</i> n.sp.	263
<i>Austrosciapus nellae</i> n.sp.	264
The <i>storeyi</i> Group	264
Key to males of the <i>Austrosciapus storeyi</i> Group	264
<i>Austrosciapus storeyi</i> n.sp.	265
<i>Austrosciapus dekeyzeri</i> n.sp.	265
<i>Austrosciapus solus</i> n.sp.	267
<i>Austrosciapus balli</i> n.sp.	267
The <i>hollowayi</i> Group	267
Key to males of the <i>Austrosciapus hollowayi</i> Group	268
<i>Austrosciapus hollowayi</i> n.sp.	268
<i>Austrosciapus pulvillus</i> n.sp.	270
Unplaced Australian <i>Austrosciapus</i>	270
<i>Austrosciapus actensis</i> n.sp.	270
<i>Amblypsilopus</i> Bigot	271
Generic synonymies	272
Oriental and Australasian faunas	273
Key to males of Australian <i>Amblypsilopus</i>	273
The <i>neoplatypus</i> Group	276
Key to Australian males of the <i>Amblypsilopus neoplatypus</i> Group	277
<i>Amblypsilopus nambourensis</i> n.sp.	278
<i>Amblypsilopus septentrionalis</i> n.sp.	280
<i>Amblypsilopus papilliferus</i> n.sp.	280
<i>Amblypsilopus tozerensis</i> n.sp.	282
<i>Amblypsilopus neoplatypus</i> Bickel	282
<i>Amblypsilopus malensis</i> n.sp.	283
<i>Amblypsilopus commoni</i> n.sp.	283
<i>Amblypsilopus fortescuia</i> n.sp.	284

<i>Amblypsilopus nimbuwah</i> n.sp.	284
<i>Amblypsilopus fonticolus</i> n.sp.	284
The <i>triscuticatus</i> Group	286
Key to Australian males of the <i>Amblypsilopus triscuticatus</i> Group	288
<i>Amblypsilopus graciliventris</i> (Parent)	291
<i>Amblypsilopus annanensis</i> n.sp.	291
<i>Amblypsilopus bimestris</i> n.sp.	292
<i>Amblypsilopus byrnei</i> n.sp.	294
<i>Amblypsilopus albisignatus</i> n.sp.	294
<i>Amblypsilopus walkeri</i> n.sp.	296
<i>Amblypsilopus uneorum</i> n.sp.	296
<i>Amblypsilopus canungra</i> n.sp.	297
<i>Amblypsilopus trudis</i> n.sp.	297
<i>Amblypsilopus bimus</i> n.sp.	298
<i>Amblypsilopus loriensis</i> n.sp.	299
<i>Amblypsilopus lismorensis</i> n.sp.	299
<i>Amblypsilopus wokoensis</i> n.sp.	300
<i>Amblypsilopus triscuticatus</i> (Hardy)	300
<i>Amblypsilopus basseti</i> n.sp.	302
<i>Amblypsilopus moggillensis</i> n.sp.	302
<i>Amblypsilopus kaputar</i> n.sp.	303
<i>Amblypsilopus rentzi</i> n.sp.	303
<i>Amblypsilopus brevitibia</i> n.sp.	304
<i>Amblypsilopus arboreus</i> n.sp.	304
<i>Amblypsilopus tortus</i> n.sp.	306
<i>Amblypsilopus montanorum</i> n.sp.	306
<i>Amblypsilopus natalis</i> n.sp.	306
The <i>pallidicornis</i> Group	307
Key to males of the <i>Amblypsilopus pallidicornis</i> Group	308
<i>Amblypsilopus biprovincialis</i> n.sp.	309
<i>Amblypsilopus julius</i> n.sp.	309
<i>Amblypsilopus gressitti</i> n.sp.	311
<i>Amblypsilopus williamsi</i> n.sp.	311
<i>Amblypsilopus pseudexul</i> n.sp.	312
The <i>zonatus</i> Group	312
Key to males of the <i>Amblypsilopus zonatus</i> Group	314
<i>Amblypsilopus zonatus</i> (Parent)	315
<i>Amblypsilopus cursus</i> n.sp.	315
<i>Amblypsilopus paramonovi</i> n.sp.	317
<i>Amblypsilopus liepae</i> n.sp.	317
<i>Amblypsilopus putealis</i> n.sp.	317
<i>Amblypsilopus guntheri</i> n.sp.	317
<i>Amblypsilopus careelensis</i> n.sp.	319
The <i>argyrodendron</i> Group	319
Key to males of the <i>Amblypsilopus argyrodendron</i> Group	319
<i>Amblypsilopus argyrodendron</i> n.sp.	320
<i>Amblypsilopus triduum</i> n.sp.	320
<i>Amblypsilopus fustis</i> n.sp.	321
The <i>glaciunguis</i> Group	322
Key to Australian males of the <i>Amblypsilopus glaciunguis</i> Group	322
<i>Amblypsilopus glaciunguis</i> n.sp.	323
<i>Amblypsilopus jullatensis</i> n.sp.	323
<i>Amblypsilopus kakaduensis</i> n.sp.	323
The <i>anomalicornis</i> Group	325
Key to Australian males of the <i>Amblypsilopus anomalicornis</i> Group	325
<i>Amblypsilopus anomalicornis</i> (Becker)	326
<i>Amblypsilopus uptoni</i> n.sp.	328
<i>Amblypsilopus webbensis</i> n.sp.	328
<i>Amblypsilopus birraduk</i> n.sp.	329
<i>Amblypsilopus baroalba</i> n.sp.	329

<i>Amblypsilopus cooki</i> n.sp.	329
<i>Amblypsilopus mollis</i> (Parent), n.comb.	330
<i>Amblypsilopus bereni</i> n.sp.	331
<i>Amblypsilopus augustus</i> n.sp.	331
The <i>bertiensis</i> Group	338
Key to males of the <i>Amblypsilopus bertiensis</i> Group	333
<i>Amblypsilopus bertiensis</i> n.sp.	333
<i>Amblypsilopus tinarooensis</i> n.sp.	334
The <i>trogon</i> Group	335
Key to males of the <i>Amblypsilopus trogon</i> Group	335
<i>Amblypsilopus trogon</i> n.sp.	335
<i>Amblypsilopus eotrogon</i> n.sp.	336
<i>Amblypsilopus callainus</i> n.sp.	336
The <i>flaviappendiculatus</i> Group	337
Key to Australian males of the <i>Amblypsilopus flaviappendiculatus</i> Group	338
<i>Amblypsilopus flaviappendiculatus</i> (de Meijere)	338
<i>Amblypsilopus edwardsi</i> n.sp.	339
<i>Amblypsilopus fonsecai</i> n.sp.	341
<i>Amblypsilopus cahillensis</i> n.sp.	341
<i>Amblypsilopus mensualis</i> n.sp.	343
<i>Amblypsilopus quldensis</i> n.sp.	343
The <i>topensis</i> Group	343
Key to males of the <i>Amblypsilopus topendensis</i> Group	344
<i>Amblypsilopus borrooloola</i> n.sp.	344
<i>Amblypsilopus topendensis</i> n.sp.	344
The <i>rimbija</i> Group	344
Key to Australian males of the <i>Amblypsilopus rimbija</i> Group	346
<i>Amblypsilopus rimbija</i> n.sp.	346
<i>Amblypsilopus cobourgensis</i> n.sp.	347
<i>Amblypsilopus wellsae</i> n.sp.	348
<i>Amblypsilopus wongabelensis</i> n.sp.	348
<i>Amblypsilopus babindensis</i> n.sp.	349
The <i>cyplus</i> Group	349
Key to males of the <i>Amblypsilopus cyplus</i> Group	350
<i>Amblypsilopus cyplus</i> n.sp.	350
<i>Amblypsilopus bataviensis</i> n.sp.	351
<i>Amblypsilopus gapensis</i> n.sp.	351
The <i>abruptus</i> Group	351
Key to males of the <i>Amblypsilopus abruptus</i> Group from Australian territories	354
<i>Amblypsilopus abruptus</i> (Walker)	354
<i>Amblypsilopus donhi</i> n.sp.	355
<i>Amblypsilopus pectinatus</i> (de Meijere), n.comb.	356
Unplaced Australian <i>Amblypsilopus</i>	356
<i>Amblypsilopus aliciensis</i> n.sp.	357
<i>Amblypsilopus cincinnatus</i> n.sp.	357
<i>Amblypsilopus melasma</i> n.sp.	359
<i>Amblypsilopus sideroros</i> n.sp.	359
Unplaced Oriental and Australasian <i>Amblypsilopus</i>	360
Notes on New World <i>Amblypsilopus</i>	370
Notes on Afrotropical <i>Amblypsilopus</i>	372
Notes on Palearctic <i>Amblypsilopus</i>	373
Nomina dubia	373
Acknowledgments	374
References	375
Appendix – List of Sciapodinae of Australia and its territories	383
Index of generic names	386
Species index	386