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Taxonomic revision of the Australian genus *Sternopriscus* SHARP, 1882 (Coleoptera: Dytiscidae: Hydroporinae)

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Abstract

The Australian genus *Sternopriscus* SHARP, 1882 (Coleoptera: Dytiscidae: Hydroporinae) of the subfamily Hydroporinae is revised. All the 14 previously recognised species [*S. browni* SHARP, 1882, *S. clavatus* SHARP, 1882, *S. hansardi* (CLARK, 1862), *S. meadfootii* (CLARK, 1862), *S. marginatus* WATTS, 1978, *S. minimus* LEA, 1898, *S. montanus* WATTS, 1978, *S. multimaculatus* (CLARK, 1862), *S. mundanus* WATTS, 1978, *S. signatus* SHARP, 1882, *S. tarsalis* SHARP, 1882, *S. tasmanicus* SHARP, 1882, *S. wattsi* PEDERZANI, 2000, *S. wehnckei* SHARP, 1882] are redescribed and 12 species [*S. alligatorensis* sp.n., *S. alpinus* sp.n., *S. aquilonaris* sp.n., *S. balkei* sp.n., *S. barbarae* sp.n., *S. goldbergi* sp.n., *S. mouchampsi* sp.n., *S. pilbaraensis* sp.n., *S. storeyi* sp.n., *S. wallumphilia* sp.n., *S. weckwerthi* sp.n. and *S. weiri* sp.n.] are described as new. *Sternopriscus tarsalis* ssp. *oscillator* SHARP, 1882 is considered to be a synonym of *S. tarsalis* SHARP, 1882, *S. obscurus* SHARP, 1882 to be a synonym of *S. browni* SHARP, 1882, and *S. cervus* WATTS, 1978 to be a synonym of *S. hansardi* (CLARK, 1862). A lectotype for *S. minimus* LEA, 1898 is designated. Monophyly of *Sternopriscus* is suggested by one apomorphy: Fourth segment of pro- and mesotarsi distinctly visible. The genus is found in all kinds of aquatic habitats and is distributed all over Australia; the southeast, Tasmania and the southwest appear to be centres of speciation. The northern species are mostly rheobiotic, whereas the southern ones occur in all kinds of standing water with some stenotopic peatland species. Important species characters [median lobes, male antennae and colour patterns] are illustrated. A key to all species is provided. The known distribution and ecology of each species is briefly outlined.

Key words: Coleoptera, Dytiscidae, Hydroporinae, *Sternopriscus*, Australia, taxonomy, zoogeography.

Introduction

The genus *Sternopriscus* SHARP, 1882 of the subfamily Hydroporinae is restricted to Australia except for a single specimen reported from the Highlands of Irian Jaya, Indonesia (BALKE 1995). The species are small (2.5 - 5.0 mm) with a distinctive convex shape and occur commonly in all but the most arid regions of Australia in both standing and running water. When last revised (WATTS 1978) 15 species were recognized, all from southern and eastern regions. One further species, *S. wattsi* PEDERZANI, 1999, has since been described from south-western Australia.

During the last few years extensive collections have been made by the authors, by Gilbert L. Challet (USA), Kelly B. Miller (USA), Fernando Pederzani (Italy), Günther Wewalka (Austria), Peter Zwick (Germany) and by members of wetlands survey teams in Western Australia (e.g. Adrian Pinder and Andrew Storey), which has led to the recognition of an additional 12 species, four of which are from northern Australia. Others seem to be restricted to relatively local peats-wamp habitats and several are endemic to Tasmania. With the 26 species now recognized, *Sternopriscus* is one of the most speciose dytiscid genera in Australia.

The restricted distribution of a number of the new species suggests that further species will be discovered in the future. We also suspect that sibling species may exist within several of the

currently recognized eastern Australian species, but that these will be difficult to detect using classical taxonomic methodologies.

In wetland management, Dytiscidae prove to be an important biomonitoring group. The genus *Sternopriscus* inhabit virtually every kind of fresh and brackish water habitat, from the smallest puddles up to large lakes and swamps and from streams to irrigation ditches and reservoirs. Due to their diversity in terms of variation in ecological niches they represent an ideal group for environmental impact assessments (EIAs), conservation assessments and biodiversity studies in a wider sense. The authors hope this much needed contribution will prove useful for limnologists and technicians monitoring the biological functionality of rivers and wetlands in Australia.

Material and methods

This study is based on the examination of more than 4026 specimens, most of them deposited in ANIC, SAMA and the collection of the senior author. Type specimens were reexamined for all species. New synonyms were based on comparisons of types. Drawings were made with the aid of an Olympus VMZ and a Leica MZ 8, supported by SEMs for median lobe drawings and colour slides for the habitus drawings.

The material used for this study is deposited in the following collections:

AM	Australian Museum, Sydney, New South Wales, Australia
ANIC	Australian National Insect Collection, Canberra, Australia
BM(NH)	Natural History Museum, London, England
CFP	Collection Fernando Pederzani, Ravenna, Italy
CGC	Collection Gilbert L. Challet, California, United States; property of The Bohart Museum (University of California at Davis, United States)
CGW	Collection Prof. Dr. Günther Wewalka, Vienna, Austria
CKM	Collection Dr. Kelly B. Miller, Cornell University, Ithaca, United States
CLH	Collection Dr. Lars Hendrich, Berlin, Germany; property of the NMW
CPZ	Collection Prof. Dr. Peter Zwick, Schlitz, Germany
MCZ	Harvard University Collection, Boston, United States
MZH	Zoological Museum, Helsinki, Finland
NMV	Museum of Victoria, Melbourne, Victoria, Australia
NTM	Northern Territory Museum, Darwin, Northern Territory, Australia
NMW	Naturhistorisches Museum Wien, Vienna, Austria
QDPIM	Queensland Department of Primary Industries, Mareeba, Queensland, Australia
QM	Queensland Museum, Brisbane, Queensland, Australia
RMNH	Nationaal Natuurhistorisch Museum, Leiden, The Netherlands
SAMA	South Australian Museum, Adelaide, South Australia, Australia
UQIC	University of Queensland Insect Collection, Brisbane, Queensland, Australia
WAM	Western Australian Museum, Perth, Western Australia, Australia

Collecting procedures

Most of the specimens obtained by the authors were collected using different kinds of aquatic dip nets and kitchen strainers. Diameters of meshes varied from 500 to 1000 µm. Leaf litter and aquatic vegetation were swept heavily; the material obtained was then placed on a white nylon sheet (1 m^2) or a white plastic box. Specimens were sorted with forceps and/or an aspirator.

Less active specimens of high mountain species were collected by carefully sorting the substrate. Some species were frequently collected by washing leaf litter and grass mats at the edge of a water body. The beetles, which usually cling to the substrate, are thus released and try to escape on the bottom of the habitat, where they can then easily be obtained by using a small kitchen

strainer. Only few specimens of some tropical northern species [mainly females] were obtained by operating a black-light trap.

Genus *Sternopriscus* SHARP, 1882

A genus of 26 small elongate rugose-punctate species with the fourth segment of pro- and mesotarsi distinctly visible. Mesosternum prominent between prosternum and metasternum. Metatibia rugose-punctate. Males with slight notch in protibia and with segments of antenna often greatly expanded.

Abbreviations: ACT = Australian Capital Territory, NG = New Guinea, NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia. The single record of *S. clavatus* [NG] from Irian Jaya, New Guinea (BALKE 1995) needs to be confirmed.

World Checklist-list:

S. alpinus sp.n.	Alpine regions of VIC, TAS, NSW
S. alligatorensis sp.n.	N-WA, NT, N-QLD
S. aquilonaris sp.n.	N-WA, NT, N-QLD
S. balkei sp.n.	N-WA, NT, N-QLD
S. barbarae sp.n.	NW-TAS
S. browni SHARP, 1882	SW-WA
S. clavatus SHARP, 1882	SA, VIC, TAS, NSW, QLD, NG
S. goldbergi sp.n.	NT, N-QLD
S. hansardi (CLARK, 1862)	VIC, NSW, ACT
S. meadfootii (CLARK, 1862)	VIC, TAS, NSW, ACT
S. marginatus WATTS, 1978	SW-WA
S. minimus LEA, 1898	SW-WA
S. mouchampsi sp.n.	VIC, NSW
S. montanus WATTS, 1978	Alpine regions of TAS
S. multimaculatus (CLARK, 1862)	WA, SA, VIC, TAS, NSW, ACT, QLD, NT
S. mundanus WATTS, 1978	VIC, TAS, NSW, ACT
S. pilbaraensis sp.n.	C-WA
S. signatus SHARP, 1882	? SA
S. storeyi sp.n.	SW-WA
S. tarsalis SHARP, 1882	SA, VIC, TAS, NSW
S. tasmanicus SHARP, 1882	SA, VIC, TAS
S. wallumphilia sp.n.	S-QLD
S. wattsi PEDERZANI, 2000	SW-WA
S. weckwerthi sp.n.	TAS
S. wehnckei SHARP, 1882	SA, VIC, TAS, NSW, ACT
S. weiri sp.n.	TAS, NSW, QLD

Within the genus we tentatively recognise one major phylogenetic subdivision and several lesser ones:

Sternopriscus hansardi group, characterised by large size, weak-obsolete pronotal plicae without a depressed area between them, prosternal process reaching metasternum, males with strongly modified antennal segments 7 and 8, and apex of median lobe of the aedeagus complex [*S. alligatorensis*, *S. aquilonaris*, *S. balkei*, *S. clavatus*, *S. goldbergi*, *S. hansardi*, *S. wallumphilia*, *S. mouchampsi*, *S. pilbaraensis* and *S. weiri*].

Sternopriscus tarsalis group, characterised by small size, moderate to strong pronotal plicae with a depressed area between them, prosternal process not reaching metasternum, males with antennal segments not or only moderately modified, median lobe of the aedeagus simple [*S. alpinus*, *S. barbarae*, *S. meadfootii*, *S. minimus*, *S. montanus*, *S. multimaculatus*, *S. mundanus*, *S. storeyi*, *S. tarsalis*, *S. tasmanicus*, *S. weckwerthi* and *S. wehnckei*].

Within the *S. tarsalis* group we recognise, based solely on male characters [antennae, mesotarsi, median lobe], several species complexes.

a) *Sternopriscus tarsalis* complex, characterised by greatly elongate mesotarsi and relatively simple antennae [*S. tarsalis* and *S. weckwerthi*].

b) *Sternopriscus meadfootii* complex, characterised by normal or moderately expanded mesotarsi, and antennae in the male with the central segments (6 - 8 or 8 - 10) most enlarged [*S. barbarae*, *S. meadfootii*, *S. montanus* and *S. mundanus*].

c) *Sternopriscus tasmanicus* complex, characterised by normal mesotarsi and apical segments of the male antennae (9 - 11) most enlarged, particularly the apical segment [*S. alpinus*, *S. tasmanicus* and *S. wehnckei*].

d) Unassociated species within the *S. tarsalis* group [*S. minimus*, *S. multimaculatus*, *S. signatus* and *S. storeyi*].

In addition to the species groups above we cannot place three western Australian species [*S. marginatus* WATTS, *S. browni* SHARP and *S. wattsi* PEDERZANI] which appear to be phylogenetically isolated. Although it is tempting to group these and perhaps also *S. minimus* and *S. storeyi* into a south-western clade there is little morphological evidence to support this.

Sternopriscus hansardi group

Sternopriscus alligatorensis sp.n.

TYPE LOCALITY: South Alligator River, Kakadu National Park, Northern Territory.

TYPE MATERIAL: **Holotype**: ♂, Australia, "N.T./ Kakadu N.P., Mary River District, 3 km ESE Gunlom Camping Area. South Alligator River, 50 m, 2.11.1996 S 13°27. 276' E 132° 26. 268', L. Hendrich leg. / Lok. 14." (SAMA). – **Paratypes**: **Northern Territory**: 2 ♂♂ and 3 ♀♀ with the same data as holotype; 18 ♂♂ and 31 ♀♀, "Australia N.T./ Kakadu N.P., Jim Jim District, Jim Jim Falls Camping Area, Jim Jim Creek, 60 m, 26. & 27.10. 1996 S 13°16. 218' E 132°49. 276', L. Hendrich leg. / Lok. 2." (CLH, NMW); 1 ♀, "Australia N.T. / Kakadu N.P., Nourlangie District, Gubara, 50 m, 25.10.1996 S 12°50. 101' E 132°52. 501', L. Hendrich leg. / Lok. 1." (CLH); 1 ♀, "Australia N.T. / Kakadu N.P., Mary River District, Old Darwin Road, Black Jungle Spring, 30 m, 30.10.1996 S 13°02. 908' E 132°09. 715', L. Hendrich leg. / Lok. 7." (CLH); 1 ♂, "S 12.41' E 132.56' Georgetown Billabong 7 km NbyW Mt. Brockman NT 12 Aug. 1981 P. Outridge" (ANIC); 1 ♀, "Kambolgie Ck. N.T. 9.82 T. Reardon" (SAMA); 4 ♀♀, "Adelaide River NW Australia J.J. Walker", "G.C. Champion Coll. B.M.1927-409", "Sternopriscus hansardii Clk. Balfour-Browne det." (BMNH); 1 ♀, "4947", "Adelaide River 92-2", "Sternopriscus hansardii Clk. Balfour-Browne det." (BMNH). **Western Australia**: 18 ♂♂, "AUSTRALIA/ WA/ East Kimberley, Kalumburu Road, Meelarie Creek, 5 km N Drysdale Crossing, 350 m, 19.6.1999, Hendrich leg./coll. Loc. 15/ 115" (CLH); 12 exs., "AUSTRALIA/ WA/ East Kimberley, Mitchell Plateau, Port Warrender Road/Kalumburu Road, Lowya Creek, 290

m, 18.6.1999, Hendrich leg./coll. Loc. 13/ 113" (CLH); 1 ex., "AUSTRALIA/ WA/ East Kimberley, East Gibb River Road, Manning Gorge, 400 m, 20. + 21.6.1999, Hendrich leg./coll. Loc. 18/118" (CLH); 1 ex., "AUSTRALIA/ WA/ East Kimberley, East Gibb River Road, Galvans Gorge, 420 m, 21.6.1999, Hendrich leg./coll. Loc. 19/ 119" (CLH); 1 ex., "AUSTRALIA/ WA/ East Kimberley, Kalumburu Road, 25 km NW King Edward Homestead, 370 m, 18.6.1999, Hendrich leg./coll. Loc. 14/114" (CLH); 2 ex., "AUSTRALIA/ WA/ East Kimberley, East Gibb River Road, King Edward River Crossing, 280 m, 15.6.1999, Hendrich leg./coll. Loc.10/110" (CLH); 1 ex., "AUSTRALIA/ WA/ East Kimberley, East Gibb River Road, Creek 10 km W Bidoola Creek, 13.6.1999, Hendrich leg./coll. Loc. 5/105" (CLH); 1 ex., "AUSTRALIA/ WA/ East Kimberley, N.N. Creek 40 km W Kununurra, 50 m, 29.6.1999, Hendrich leg./coll. Loc. 30/130" (CLH); 3 exs., "AUSTRALIA/ WA/ East Kimberley, Mitchell Plateau, Surveyors Pool, 150 m, 17.6.1999, Hendrich leg./coll. Loc. 12/ 112" (CLH); 1 ex., "AUSTRALIA/ WA/ East Kimberley, Mitchell Plateau, Little Mertens Falls, 15.6.1999, Hendrich leg./coll. Loc.11a/111a" (CLH); 43 exs., "AUSTRALIA/ WA/ East Kimberley, East Gibb River Road, Barnett River Gorge, 450 m, 19.6.1999, Hendrich leg./coll. Loc.17/ 117" (CLH); 9 exs., "AUSTRALIA/ WA/ East Kimberley, Gibb River Road, Saddler Spring, lminji Aboriginal Community, 350 m, 22.6.1999, Hendrich leg./coll. Loc. 20/120" (CLH).

DIAGNOSIS: Elongate-oval, widest behind middle, weakly convex (Fig. 2).

DESCRIPTION: Measurements. Holotype, male: TL = 3.12 mm, TL-H = 2.84 mm; width = 1.48 mm. Paratypes, males: TL = 2.80 - 3.12 mm, TL-H = 2.48 - 2.84 mm; width = 1.32 - 1.48 mm; females: 2.68 - 2.88 mm, TL-H = 2.36 - 2.56 mm; width = 1.32 - 1.44 mm.

Colour: Head dark brown, front edge between antennal bases testaceous, pronotum dark brown to black, lateral edges and illdefined small areas inwards from plicae testaceous; elytron dark brown to black with three vague illdefined lateral testaceous spots, apex lighter; ventral surface dark brown to black, appendages lighter, antennal segments 4 -7 darker, tips of palpi darker (Fig. 5).

Sculpture: Moderately reticulate, punctures moderate, evenly spaced, close, weaker on head. Pronotal plicae well-marked reaching to half way or a bit more along pronotum. Edge of elytron weakly serrate, weakly widened towards apex, apex weakly acuminate. Pronotal process, rugose-punctate, ridged, sides subparallel, reaching mesosternum. Metacoxal lines raised, relatively close, weakly diverging in anterior half.

Male: Larger. Antennal segments 5 - 7 progressively enlarged, segment 8 as wide as segment 7 and one third length, segments 9 and 10 weakly expanded, apical segment wider than segment 10, about as long as segments 9 and 10 combined (Fig. 31). Basal three segments of protarsus expanded; protibia thin, curved; profemur with small spine in centre of anterior edge. Mesofemur with small peg-like structure adjacent to ridge on mesotrochanter. Mesotarsus with basal segment moderately expanded; mesotibia stout. Median lobe of aedeagus broad, tip relatively simple, sharply pointed, ventral finger very short, parameres broad (Figs. 56, 57).

Female: Smaller. Appendages simple.

AFFINITIES: A member of the *S. hansardi* group. Relatively elongate, tips of the palpi dark, head dark, sides of pronotum to or a bit beyond the plicae lighter, pronotal plicae relatively strongly developed, apical segment of male antenna only a little expanded, without a finger-like ventral extension on the median lobe of the aedeagus.

ETYMOLOGY: Named after the Alligator River Region.

DISTRIBUTION: Northern coastal (N-WA, Kimberley, NT, Kakadu National Park and Alligator Rivers) (Fig. 112).

HABITAT: A rheophilic species. At Jim Jim Falls *S. alligatorensis* was collected in exposed, deep (60 - 100 cm), broad (up to 6 m), low-gradient parts of the river. The bottom consisted of stones, gravel and sand, with a thin layer of organic debris. The riverine forest was dominated by Swamp Bloodwood or Anbamberre. Most of the specimens were collected in mats of floating grass and roots along the edge of the stream (Fig. 128). A few were obtained from a small, semi-

shaded, flood-zone pool with a bottom of coarse sand and gravel in an otherwise mostly dry area of the Jim Jim Creek river bed. The bottom was covered with a few decaying leaves (Fig. 129). At Gunlom the species was collected among leaf-litter in protected, shallow, shaded (Giant Bamboo, *Eucalyptus*) embayments along a sandy bank of the South Alligator River. At Gubara the species was collected in small, shaded pools in the flood-zone of a monsoon rainforest stream dominated by Native Nutmeg, *Calophyllum*, *Horsfieldia* and Antwolbon Trees. The water was clear, up to 20 cm deep, with a bottom of gravel and sand covered with a thick layer of decaying leaves. In the dry season the Black Jungle Spring is a spring-fed, slow flowing, shallow (up to 30 cm deep) stream, rich in organic debris and partly shaded by *Pandanus* trees. The bottom consists of gravel and coarse sand, partly covered with a thick layer of dark organic silt.

Sternopriscus aquilonaris sp.n.

TYPE LOCALITY: Intermittent creek near Mount Borradaile, Northern Territory.

TYPE MATERIAL: **Holotype**: ♂, "Cooper Creek nr. Mt. Borradaile N.T. 7/10/98 C.Watts" (SAMA). – **Paratypes**: **Northern Territory**: 12 ♂♂ and 11 ♀♀ same data as holotype (SAMA); 3 ♀♀, "NT Kakadu Hwy 31km from Pine Creek 31/1/99 C.H.S.Watts" (SAMA); 8 ♂♂ and 17 ♀♀, "N.T. 5km. SE Mt. Borradaile stn 8/10/98 C. Watts", "Shallow rock pool, dead leaves" (SAMA); 3 ♂♂ and 6 ♀♀, "45k W Borroloola NT. T.Reardon 8/82" (SAMA); 2 ♀♀, "Moriarity Creek N.T. T. Reardon 8/82" (SAMA); 5 ♂♂ and 7 ♀♀, "Australia N.T./ Kakadu N.P., Jim Jim District, Jim Jim Falls Camping Area, Jim Jim Creek, 60 m, 26. & 27.10. 1996 S 13°16. 218' E 132°49. 276', L. Hendrich leg. / Lok. 2." (CLH, NMW); 3 ♂♂ and 2 ♀♀, "Australia N.T. / Kakadu N.P., Mary River District, Old Darwin Road, Black Jungle Spring, 30 m, 30.10.1996 S 13°02. 908' E 132°09. 715', L. Hendrich leg. / Lok. 7." (CLH); 1 ♀, "Australia, N.T./ Kakadu N.P., Mary River District, 3 km ESE Gunlom Camping Area. South Alligator River, 50 m, 2.11.1996 S 13°27. 276' E 132°26. 268', L. Hendrich leg. / Lok. 14." (CLH); 1 ♀, "Australia N.T./ Kakadu N.P., Jim Jim District, Old Darwin Road, Barramundi Creek, 30 m, 30.10.1996 S 12°59. 652' E 132°22. 928', L. Hendrich leg. / Lok. 8" (CLH); 2 ♀♀, "Australia N.T./ Kakadu N.P., Jim Jim District, Gungurul Lookout, 50 m, 1.11.1996 S 13°59. 359' E 132°19. 904', L. Hendrich leg. / Lok. 11" (CLH); 1 ♂, "12.41S 132.56E Georgetown Billabong 7 km NbyW Mt. Brockman NT 12 Nov. 1981 P. Outridge" (ANIC); 10 ♂♂ and 7 ♀♀, "12.06S 133.04E Cooper Ck., NT 19km E by S of Mt. Borradaile 3.xi.72, in stagnant pool in sandy creek bed, E. Britton" (ANIC); 1 ♀, "N.T. Gosse R. Murchison Ranges 29.ix.1983 H.Larson" (NTM); 3 ♂♂, "Australia No. Terr. Pond @ junction Edith Falls road & Hwy 1, Oct. 1, 1992 G.L.Challet" (CGC); 4 ♂♂, "Australia No. Terr. Large pond nr. Butterfly Gorge Nature Park, Oct. 1, 1992 G.L.Challet" (CGC); 12 exs., "AUSTRALIA/ NT/ Great Northern Hwy., 50 km S Wyndham, Black Flag Creek, 13.8.1999, Hendrich leg./coll. Loc. 4/ 104" (CLH); 14 exs., "AUSTRALIA/ NT/ Great Northern Hwy., 38 km WSW Katherine, King River Bridge, 50 m, 12.2.1999, Hendrich leg./coll. Loc. 2/ 102" (CLH); 1 ♂ and 8 ♀♀, "Adelaide River NW Australia J.J. Walker", "G.C. Champion Coll. B.M.1927-409", "Sternopriscus hansardii Clk. Balfour-Browne det."; 4 ♀♀, "4947", "Adelaide River 92-2", "Sternopriscus hansardii Clk. = clavatus Sharp Balfour-Browne det." (BMNH). **Queensland**: 1 ♂ and 1 ♀, "Australia N.Qld./Atherton Tableland, 30km NNW Mareeba n. Mitchell lake, 9.11.1996, Hendrich leg./Lok.20" (CLH); 2 ♀♀, "40k N. Coen Qld. 25/7/82 C. Watts" (SAMA); 1 ♂, "Lakeland Downs Qld. 10/83 C. Watts" (SAMA); 2 ♂♂ and 3 ♀♀, "8 km N Bluewater QLD 3.2.97 C.Watts" (SAMA); 1 ♀, "Bowen Queensland A. Simson", "865/1787" (SAMA); 1 ♂ and 6 ♀♀, "Bluewater 8 km N QLD 3.11.95 C.Watts" (SAMA); 1 ♀, "Almaden, Qld. 8/82, T. Reardon" (SAMA); 1 ♂, "Australia (QLD) Atherton Tableland creek Mareeba env. 18/11/98 Pederzani" (CLH); 17 exs., "13.06'S 142.56'E QLD Wenlock River Xing 26 Oct. 1992 T. Weir, P. Zborowski still stagnant pools in dry river bed" (ANIC); 1 ♂ and 2 ♀♀, "13.26'S 142.19'E QLD Archer River 27 Oct. 1992 T. Weir, P. Zborowski stagnant rocky pools" (ANIC); 2 ♀♀, "13.06'S 142.56'E QLD Wenlock River Xing 22 Nov. 1992 A. Calder, P. Zborowski water sweep" (ANIC); 1 ♀, "11.07'S 142.39'E QLD 16 km W by N of Ussher Point 18.Oct.1992 T.Weir, P. Zborowski water sweep" (ANIC); 1 ♀, "12.06'S 142.33'E Rocky Ck QLD 17 Aug 1992 water sweep, P. Zborowski & J. Cardale" (ANIC); 1 ♂, "16.28S 144.46E Reedy St. George R. Cooktown Rd., Q. 22.V.76, E.B. Britton" (ANIC); 1 ♂, "15.26'S 144.11'E QLD Kennedy River Xing 16 Jun. 1992 T. Weir temp.pool in dry river bed, sandy base" (ANIC); 1 ♀, "12.40'S 142.39'E Batavia Downs QLD 22 Jun - 23 Aug 1992 Flight Intercept Trap, P. Zborowski & J. Cardale" (ANIC); 5 ♀♀, "12.12'S 142.22'E Bertiehaugh Creek QLD 13 Aug. 1993 watersweep P. Zborowski & J.Balderson" (ANIC); 1 ♀, "18.35'S 138.03'E GPS Murrays Spring 8 km WbyN of Musselbrook Mining Camp (QLD)NT 9-20 May 1995 T.Weir" (ANIC); 1 ♀, "18.37'S 137.59'E GPS Border Waterhole, Musselbrook Ck 15km W by S Musselbrook Mining Camp (QLD)NT 14 May 1995 T.Weir at light" (ANIC); 1 ♂, "18.39S 138.12E GPS 10km SE Musselbrook Mining Camp QLD 13 May 1995 T.Weir at light" (ANIC); 1 ♂, "Australia: N. QLD Southedge R.D. via Mareba 30.ix.1990 D. Larson ex. Farm dam"

(QDPIM); 1 ♂, "Australia: N. QLD Little Mitchell R. 40 km N Mareeba 21.ix.1990 D. Larson" (QDPIM); 1 ♂, "Australia: N. Qld 11 km WSW of Petford 3-4-IV-1988 R.I. Storey at light" (QDPIM); 3 ♂♂ and 7 ♀♀, "Australia N Qld. Crk. in Silver Valley 14.4 km from Hwy 1 Dec.7, 1997, G. Challet" (CGC); 1 ex., "Australia: N Qld. Silver Valley, Dec 8 1997 G. L. Challet" (CGC); 8 ♀♀, "Australia N Qld. pond at E Annan Riv. Dec. 9, 1997, G. Challet" (CGC); 2 exs., "Australia: N Qld. Pond on Development Rd. 2km S. Cookshire line Dec 9, 1997 G. Challet" (CGC); 4 exs., "Australia: N Qld. Emu Creek near Petford Dec 4, 1997 G. L. Challet" (CGC); 7 exs., "Australia: N Qld. Chiligie Creek Dec 8, 1997 G. L. Challet" (CLH, CGC); 1 ♀, "Hann River 110km S of Coen N. Qld, 27 June 1970 J.C. LeSouef" (NMV), 1 ♀, "Australia: N Qld. Archer Creek south of Ravenshoe Petford Dec 6, 1997 G. L. Challet" (CGC); "Australia: N Qld. Bismark Creek @ Hwy Dec 4, 1997 G. L. Challet" (CGC). **Western Australia**: 2 exs., "AUSTRALIA/ WA/ East Kimberley, East Gibb River Road, Barnett River Gorge, 450 m, 19.6.1999, Hendrich leg./coll. Loc.17/ 117" (CLH); 4 exs., "AUSTRALIA/ WA/ East Kimberley, Kalumburu Road, Meelarie Creek, 5 km N Drysdale Crossing, 350 m, 19.6.1999, Hendrich leg./coll. Loc. 15/ 115" (CLH); 2 exs., "AUSTRALIA/ WA/ East Kimberley, Kalumburu Road, 25 km NW King Edward Homestead, 370 m, 18.6.1999, Hendrich leg./coll. Loc. 14/ 114" (CLH); 1 ex., "AUSTRALIA/ WA/ East Kimberley, Mitchell Plateau, Mitchell Falls Camp. Area, 300 m, 14. + 15.6.1999, Hendrich leg./coll. Loc.11/ 111" (CLH); 1 ex., "AUSTRALIA/ WA/ East Kimberley, Mitchell Plateau, Little Mertens Falls, 15.6.1999, Hendrich leg./coll. Loc.11a/ 111a" (CLH); 2 exs., "AUSTRALIA/ WA/ East Kimberley, N.N. Creek 40 km W Kununurra, 50 m, 29.6.1999, Hendrich leg./coll. Loc. 30/ 130" (CLH); 6 exs., "AUSTRALIA/ WA/ East Kimberley, Mitchell Plateau, Surveyors Pool, 150 m, 17.6.1999, Hendrich leg./coll. Loc. 12/ 112" (CLH); 1 ex., "AUSTRALIA/ WA/ East Kimberley, Gibb River Road/Fairfield Leopold Road, Lennard River Bridge, 50 m, 24.6.1999, Hendrich leg./coll. Loc. 23/ 123" (CLH); 7 exs., "AUSTRALIA/ WA/ East Kimberley, Gibb River Road, Saddler Spring, Iminji Aboriginal Community, 350 m, 22.6.1999, Hendrich leg./coll. Loc. 20/ 120" (CLH).

DIAGNOSIS: Narrowly oval, widest in middle, weakly convex (Fig. 1).

DESCRIPTION: Measurements. Holotype, male: TL = 3.40 mm, TL-H = 3.04 mm; width = 1.64 mm. Paratypes, males: TL = 3.16 - 3.40 mm, TL-H = 2.84 - 3.04 mm; width = 1.62 - 1.66 mm; females: 2.84 - 3.08 mm, TL-H = 2.52 - 2.80 mm; width = 1.46 - 1.56 mm.

Colour: Head dark brown to black, central triangular area from antennal bases to rear margin, testaceous; pronotum testaceous, front and rear margins widely dark brown to black except near lateral edges; elytron dark brown to black with three testaceous bands, often breaking up into two spots, tip testaceous; ventral surface dark brown to black, prosternum, appendages lighter, antennal segments 5 - 7 darker, palpi testaceous (Fig. 6).

Sculpture: Moderately reticulate, punctures moderate, weaker on head. Pronotal plicae moderately raised reaching halfway or a bit more along pronotum. Edge of elytron weakly serrate towards tip, slightly wider towards tip, abruptly narrowing near apex, apex acuminate. Pronotal process relatively broad, rugose-punctate, curved in lateral view, reaching mesosternum. Centre of mesosternum ridged anteriorly. Metacoxal lines raised, relatively close, moderately diverging in apical half.

Male: Larger. Antennal segments 5 - 7 progressively enlarged, segment 8 as wide as segment 7 about two thirds length, segments 9 and 10 weakly expanded, apical segment a little wider than segment 10 about as long as segments 9 and 10 combined, segments 7 - 8 concave beneath (Fig. 32). Apical segment of labial palpi very stout, tip bifid. Pro- and mesotrochanters with thin ridge near apex. Protarsus moderately expanded; protibia curved on inside near base; profemur with small spine on front edge near middle. Mesotarsal segments 1 and 2 moderately, asymmetrically, expanded; mesotibia weakly curved; mesofemur with small peg-like structure at base, adjacent to ridge on mesotrochanter. Median lobe of aedeagus broad, tip complex with strong ventral finger, very thin in lateral view, parameres broad (Figs. 60, 61).

Female: Smaller. Appendages simple, tarsal segments symmetrical, weakly expanded.

AFFINITIES: A member of the *S. hansardi* group. The only *Sternopriscus* in northern Australia with the palpi evenly pale. Median lobe of aedeagus with well developed ventral finger-like extention.

ETYMOLOGY: A widespread species in coastal northern Australia [*aquilonaris*: Latin, the northern one].

DISTRIBUTION: N coastal, N Gulf, NE coastal, NT, QLD, WA (Fig. 113).

HABITAT: A rheophilic species. In the Northern Territory the species was collected in exposed, deep (60 - 100 cm), broad (up to 6 m), low-gradient parts of rivers with bottoms consisting of stones, gravel and sand, and with a thin layer of organic debris. The riverine forest was dominated by Swamp Bloodwood or Anbamberre. Most of the specimens were collected in mats of floating grass and roots along the edge of the water (Fig. 128). A few were obtained from small, semi-shaded, flood-zone pools with coarse sand and gravel and the bottom covered with a few decaying leaves in an otherwise mostly dry area of the Jim Jim Creek river bed (Fig. 129). At Gunlom the species was collected among leaf litter in protected, shallow, shaded (Giant Bamboo, *Eucalyptus*) embayments along the sandy bank of the South Alligator River. At Gubara the species was collected in small, shaded pools in the flood-zone of a monsoon rainforest stream dominated by Native Nutmeg, *Calophyllum*, *Horsfieldia* and Antwolbon Trees. The water was clear, up to 20 cm deep, the bottom gravely and sandy with a thick layer of decaying leaves. In the dry season the Black Jungle Spring is a spring fed, slow flowing, shallow (up to 30 cm deep) stream, rich in organic debris and partly shaded by *Pandanus* trees with a bottom of gravel and coarse sand, partly covered with a thick layer of dark organic silt.

Sternopriscus balkei sp.n.

TYPE LOCALITY: Intermittent creek near Mount Borradaile, Northern Territory.

TYPE MATERIAL: **Holotype**: ♂, "N.T. 5 km SE Mt. Borradaile stn 8/10/98/ C. Watts" (SAMA). – **Paratypes**: **Northern Territory**: 4 ♂♂ and 10 ♀♀ with the same data as holotype; 6 ♂♂ and 6 ♀♀, "Australia N.T./ Kakadu N.P., Jim Jim District, Jim Jim Falls Camping Area, Jim Jim Creek, 60 m, 26. & 27.10. 1996 S 13°16. 218' E 132°49. 276', L. Hendrich leg. / Lok. 2." (CLH, NMW); 2 ♂♂ and 1 ♀, "Australia, N.T./ Kakadu N.P., Mary River District, 3 km ESE Gunlom Camping Area. South Alligator River, 50 m, 2.11.1996 S 13°27. 276' E 132°26. 268', L. Hendrich leg. / Lok. 14." (CLH); 1 ♀, "12.25'S 132.56'E Red Lilly Lagoon, N.T. 3.xi.72, edge of water in billabong, E Britton" (ANIC); 1 ♀, "12.23'S 132.56'E 7 km NW. by N. of Mt. Cahills Crossing, East Alligator River, N.T. 9.vi.73, Upton & Feehan" (ANIC); 1 ♂ "Nourlangie ck. 20 km SSW Jabiru N.T. 11/10/98 C. Watts" (SAMA); 1 ♀ "6 km SE Mt Borradaile N.T. 8/19/98 C. Watts" (SAMA); 1 ♂, "NT 1 km W Gubara Kakadu NP 29/1/99 C. Watts" (SAMA). **Western Australia**: 6 exs., "AUSTRALIA/ WA/ East Kimberley, East Gibb River Road, Barnett River Gorge, 450 m, 19.6.1999, Hendrich leg./coll. Loc.17/ 117" (CLH); 3 exs., "AUSTRALIA/ WA/ East Kimberley, Mitchell Plateau, Surveyors Pool, 150 m, 17.6.1999, Hendrich leg./coll. Loc. 12/ 112" (CLH); 1 ex., "AUSTRALIA/ WA/ East Kimberley, East Gibb River Road, Galvans Gorge, 420 m, 21.6.1999, Hendrich leg./coll. Loc. 19/ 119" (CLH).

DIAGNOSIS: Narrowly oval, widest in middle of elytra, weakly convex (Fig. 3).

DESCRIPTION: Measurements. Holotype, male: TL = 3.20 mm, TL-H = 2.80 mm; width = 1.60 mm. Paratypes, males: TL = 2.92 - 3.20 mm, TL-H = 2.60 - 2.80 mm; width = 1.48 - 1.60 mm; females: 2.60 - 2.92 mm, TL-H = 2.36 - 2.60 mm; width = 1.32 - 1.60 mm.

Colour: Dark brown to black with only occasional lighter areas on dorsal surface, appendages dark testaceous, antennal segments 5 - 7 bit darker than others, tips of palpi darker (Fig. 7).

Sculpture: Strongly reticulate, punctures relatively strong, evenly spaced, close, those on head small but well-marked. Edge of elytron quite strongly serrate towards apex, elytron slightly widened towards apex, abruptly narrowing near apex, apex moderately acuminate. Pronotal plicae well-marked, reaching to about half way along pronotum. Pronotal process robust, subparallel, reaching metasternum, curved in lateral view. Midline of metasternum ridged anteriorly; metacoxal lines strongly raised, moderately separated, weakly divergent in front half.

Male: Larger. Antennal segment 6 weakly expanded, segment 7 strongly expanded, segment 8 not quite as wide and about half length of segment 7, segments 9 and 10 normal, apical segment same width as segment 10 a little shorter than segments 9 and 10 combined (Fig. 33). Pro- and mesotrochanters with sharp thin ridge near apex. Protarsus moderately expanded; protibia curved; profemur with small spine on front edge towards base. Mesofemur with small peg-like spine at base adjacent to raised ridge on mesotrochantera; basal three segments of mesotarsus moderately asymmetrically expanded. Median lobe of aedeagus broad in apical half, narrowing towards base, tip complex, with well developped finger-like ventral piece (Figs. 60, 61).

Female: Smaller. Appendages simple, tarsi moderately expanded, somewhat less so than in male, symmetrical.

AFFINITIES: A member of the *S. hansardi* group. Dorsal surface black except for one or two small lateral testaceous spots on elytron, strongly punctate, pronotal plicae strong, antennae in male with the three apical segments little modified, well developed finger-like ventral extension to the median lobe of the aedeagus.

ETYMOLOGY: Dedicated to Dr. Michael Balke.

DISTRIBUTION: N coastal (Kimberley Region, Kakadu National Park and Alligator Rivers) (Fig. 114).

HABITAT: A rheophilic species similar in habitat to *S. alligatorensis* and *S. aquilonaris*. At Mt. Borradaile the species was collected from small, shallow, semi-shaded rock-pools in a river bed with a substrate of sand and decaying leaves.

Sternopriscus clavatus SHARP, 1882

Sternopriscus clavatus SHARP, 1882: 386; ZIMMERMANN 1920: 62.
Sternopriscus clavatus SHARP syn. [= *hansardi*] BALFOUR-BROWNE, 1944: 345.
Sternopriscus hansardi (CLARK, 1862); WATTS, 1978: 77, 79; LAWRENCE et al., 1987: 343; LARSON 1993: 59; LARSON 1997: 273; BALKE 1995: 1016; NILSSON 2001: 185.

TYPE LOCALITY: Sydney, New South Wales, Australia.

TYPE MATERIAL: **Lectotype**: ♂, "Hydroporus clavatus Wehncke ♂ Type mihi Sydney D.S.", "Lectotype", "Type", "Australia", "New S. Wales Australia", "Sharp Coll. 1905-313", "Type 161 Hydroporus clavatus Wehncke", "Hydroporus clavatus Sydney", "Sternopriscus Hansardii CLK = clavatus Shp J. Balfour-Browne det." (BMNH). – **Paralectotypes**: 1 ♀, "Hydroporus clavatus Wehncke ♀ Type mihi Sydney D.S.", "Paralectotype", "Type", "New S. Wales Australia", "Sharp Coll. 1905-313", "Sternopriscus Hansardii Clk = clavatus Shp J. Balfour-Browne det.", "Sternopriscus clavatus Sharp 1974 Det. C. Watts 1974" (BMNH); 1 ♀, "Hydroporus clavatus Wehncke", "Paralectotype", "Cotype", "Australia", "Australia", "Sharp Coll. 1905-313", "Sternopriscus clavatus Sharp Det. C. Watts 1974" (BMNH).

ADDITIONAL MATERIAL EXAMINED:

Queensland: 7 exs., North Queensland, pond on Development Road, 2 km S. Cookshire line, 9.XII.1997, G. Challet leg. (CGC); 7 ex., North Queensland, pond near Caldwell, 7.XII. 1997, G. Challet leg. (CGC); 6 exs., North Queensland, Silver Valley, creek 14.4 km from Highway 1, 7.XII.1997, G. Challet leg. (CGC); 12 exs., North Queensland, Archer Creek south of Ravenshoe Petford, 6.XII.1997, G. Challet leg. (CGC); 21 exs., North Queensland, Bismarck Creek at highway, 4.XII. 1997, G. Challet (CLH, CGC); 3 exs., North Queensland, 43.5 km W. Kennedy Creek pool, 7.XII.1997, G. Challet leg. (CGC); 13 exs., North Queensland, cutoff pool in Blancoe River near Mount Garnet, 7.XII.1997, G. Challet leg. (CLH, CGC); 2 exs., North Queensland, Little Mitchell River, 40 km N Mareeba, 21.IX.1990, D. Larson leg. (QDPIM); 1 ex., North Queensland, Wild River, VIII.1969 (ANIC); 1 ex., North Queensland, Wild River, XI.1970 (ANIC); 4 exs., North Queensland, Archer Bend, 28.IX.1983, C.H.S. Watts leg. (SAMA); 1 ex., North Queensland, Lake Barrine, 12.IX.1965, E. Britton leg. (ANIC); 1 ex., North Queensland, Mary Creek, X.1970, GB (ANIC); 4 exs., Petrie District, Pine River, 20.XII.1931, Wasell leg. (ANIC); 1 ex., N Pine River, Brisbane, 5.III.1932, Harvard Expedition Darlington (ANIC); 1 ex., Petrie District, Pine River, 18.III.1932, Wasell leg. (ANIC); 7 exs., 10 km W Petrie, 23.XI.1995, C.H.S. Watts leg. (SAMA); 7 exs., Bundaberg, 31.III.1963, C.H.S. Watts leg. (SAMA); 1 ex., 25 km N of Coen,

29.IX.1984, C.H.S. Watts leg. (SAMA); 2 exs., Rockhampton, 3.IV.1963, C.H.S. Watts leg. (SAMA); 2 exs., Brisbane (SAMA); 1 ex., Brisbane (NMV); 2 exs., Queensland (NMV); 2 exs., L. Beadle, 4.XI.1972 (NMV); 1 ex., Ipswich (AM); 2 exs., 37 km S Townsville, 6.XI.1997, C.H.S. Watts leg. (SAMA); 3 exs., 40 km S Townsville, 2.II.1997, C.H.S. Watts leg. (SAMA); 1 ex., Townsville, 12 km NW, 8.II.1997, C.H.S. Watts leg. (SAMA); 1 ex., Burdekin River, 2.XI.1996, C.H.S. Watts leg. (SAMA); 1 ex., Wallaman Falls 5 km E, 6.XI.1995, C.H.S. Watts leg. (SAMA); 16 exs., Ripley, 20.XI.1995, C.H.S. Watts leg. (SAMA); 8 exs., Greenvale, 27.III.1996, C.H.S. Watts leg. (SAMA); 4 exs., 20 km W Petford, 28.III.1996, C.H.S. Watts leg. (SAMA); 2 exs., Watson, 14 km W Herberton, 31.III.1996, C.H.S. Watts leg. (SAMA); 1 ex., Nardello's Lagoon near Mareeba, 29.III.1996, C.H.S. Watts leg. (SAMA); 24 exs., 2 km S Mount Molloy, 30.III.1996, C.H.S. Watts leg. (SAMA); 1 ex., Julatten, 9.IX.1982, Walford-Huggins leg. (QDPIM); 1 ex., Atherton area, Leslie Creek, 8.XI.1994, B. Herbert leg. (QDPIM); 2 exs., Atherton area, Mazlin Creek, 10.I.1995; B. Herbert leg., 1 ex., Atherton area, Mazlin Creek, 15.IX.1994; B. Herbert leg., 1 ex., Atherton area, Mazlin Creek, 5.IV.1995, B. Herbert leg. (QDPIM); 7 exs., Caloundra, 27.III.1963, C.H.S. Watts leg. (SAMA); 1 ex., billabong at Clermont, 19.III.1992, H. & P. Zwick leg. (CPZ); 7 exs., Bruce Highway near Raglan, 12 Mile Creek, 14.XI.1996, L. Hendrich leg. (CLH); 11 exs., Bruce Highway, Childers, 10 km N Howards, small creeks, 17.XI.1996, L. Hendrich leg. (CLH).

New South Wales: 2 exs., "Sternopriscus clavatus Sharp", Sydney (SAMA); 5 exs., Sydney, "Sternopriscus clavatus Sharp N.S. Wales", Lea leg. (SAMA); 1 ex., Sydney, E.W. Ferguson coll. (ANIC); 1 ex., "North Sydney, 1.4.19" (NMV); 1 ex., "Sydney", "Ms Godfr.", "10649", "Hydroporus clavatus" (MZH); 1 ex., Canterbury, 11.X. (NMV); 1 ex., Sydney, Carter leg. (NMV); 1 ex., Berry, I.1968, C.H.S. Watts leg. (SAMA); 3 exs., Collector, II.1961, C.H.S. Watts leg. (SAMA); 1 ex., Barrington, 17.VIII.1998, C.H.S. Watts leg. (SAMA); 1 ex., Quaama, 18.I.1997, C.H.S. Watts leg. (SAMA); 1 ex., Collector, 20.I.1997, C.H.S. Watts leg. (SAMA); 1 ex., Smith's Lake, V.1970, C.H.S. Watts leg. (SAMA); 3 exs., Maclean, I.1961, C.H.S. Watts leg. (SAMA); 2 exs., Boonoo Boonoo National Park, Ropers Gully, 24.II.1992, G. Challet leg. (CGC); 2 exs., St. Albans, 29.II.1992, G. Challet leg. (CGC); 1 ex., Cathedral Rocks National Park, 28.II.1992, G. Challet leg. (CGC); 1 ex., Kempsey, 28.II.1992, G. Challet leg. (CGC); 10 exs., 6 km N Niangala, 23.II.1992, G. Challet leg. (CGC); 1 ex., 3.5 km N. Bostobrick near Dorrigo, 28.II.1992, G. Challet leg. (CGC); 3 exs., 2.7 km N. Manilandra, 21.II.1991, G. Challet leg. (CGC); 1 ex., Creek N Nelligen, 4.XI.2001, G. Challet leg. (CGC); 1 ex., Cathedral Rock near Guyra, 12.-13.III.1992, P. Zwick leg. (CPZ).

Victoria: 8 exs., Spring Gully Reserve, near Bendigo Valley, ex trout stomach, 7.X.1951 (NMV); 4 exs., 12 km Casterton, 12.X.1997, C.H.S. Watts leg. (SAMA); 2 exs., Grampians, II.1963, C.H.S. Watts leg. (SAMA); 1 ex., Stawell, XII.1968, C.H.S. Watts leg. (SAMA); 3 exs., Dartmoor, XII.1961, C.H.S. Watts leg. (SAMA); 10 exs.; pond 4 km W Maryborough, 37°05'54"S 143°29'41"E, 9.XI.2000, K.B. Miller leg. (CKM); 14 exs., farm pond near Wron Wron, 38°24'33"S 146°45'13"E, 213 m, 30.X.2000, K.B. Miller leg. (CKM); 2 exs., roadside pool 35 km W Cowwarr, 38°00'49"S 146°30'08"E, 7.XI.2000, K.B. Miller leg. (CKM).

South Australia: 1 ex., Myponga, I.1923, H.M. Hales leg., Wilson coll. (NMV); 2 exs., "Southern Australia", "Sternopriscus clavatus", Lea identified (AM); 2 exs., 10 km N Forreston, 17.IX.1996, C.H.S. Watts leg. (SAMA); 1 ex., 5 km NE Inglewood, 6.X.1996, C.H.S. Watts leg. (SAMA); 1 ex., Mount Crawford, Forrest, 10.XI.1996, C.H.S. Watts leg. (SAMA); 6 exs., Inglewood, I.1993, C.H.S. Watts leg. (SAMA); 1 ex., Chain of Ponds, 4.XII.1989, C.H.S. Watts leg. (SAMA); 25 exs., Southern Mount Lofty Ranges, Scott Creek Conservation Park, 18.XII.1999, T. Hands & L. Hendrich leg. (CLH); 17 exs., Mount Compass, XII.1960, C.H.S. Watts leg. (SAMA); 2 exs., Mount Compass, VIII.1961, C.H.S. Watts leg. (SAMA); 8 exs., Fleurieu Peninsula, 10 km SE of Mount Compass, 100 m, 6.XII.1999, L. Hendrich & C.H.S. Watts leg. (CLH).

Tasmania: 1 ex., Swan River at Cranbrook near Swansea, 4.II.1973, E. & S. Britton (ANIC); 41 exs., 2 km N of Ellendale, 26.I.1998, L. Hendrich leg. (6/47) (CLH); 1 ex., St. Helens, 19.I.1958, C.H.S. Watts leg. (SAMA); 13 exs., 2 km S Nichollas Rivulet, 4.XII.2000, C.H.S. Watts leg. (SAMA); 23 exs., 6 km W Bronte Park, 30.XII.2000, C.H.S. Watts leg. (SAMA); 5 exs., 3 km SW Clifton Beach, 4.XII.2000, C.H.S. Watts leg. (SAMA); 7 exs., 2 km SW Ellendale, 1.XII.2000, C.H.S. Watts leg. (SAMA); 12 exs., 10-20 km SW Orford, 23.I.1997, G. Wewalka leg. (CGW, MZH).

Indonesia: **Irian Jaya**: 1 ex., "Museum Leiden Njeuw Guinea Ex p. K.N.A.G. 1939 Paniai 25.VIII.1939 meer by Bobairo" (RMNH).

DIAGNOSIS: Elongate, widest just behind middle, moderately convex, shiny.

DESCRIPTION: Measurements. Males: TL = 4.04 - 4.28 mm, TL-H = 3.72 - 3.92 mm; width = 2.00 - 2.08 mm. Females: TL = 3.32 - 3.76 mm, TL-H = 3.00 - 3.48 mm; width = 1.72 - 2.00 mm.

Colour: Head testaceous, variably sized area inwards from eyes and along rear edge dark brown to black; pronotum testaceous, front margin broadly dark brown to black, rear margin with broad

bilobed dark area in centre and narrow area of dark brown to black along rear to variable extent; elytron dark brown with three large lateral testaceous patches, the foremost not reaching humeral angle, three smaller patches near suture and some smaller linear areas near base, apex testaceous. Ventral surface light to dark brown, appendages somewhat lighter, antennal segments 3 - 7 and tips of palpi darker (Fig. 8).

Sculpture: Elytral edges weakly serrate and weakly expanded towards apex, expansion ending abruptly close to apex. Pronotal plicae weak, reaching a bit beyond half way along pronotum. Prothoracic process robust, narrow between coxae then slightly widening before narrowing to broad tip, strongly rugose-punctate, reaching mesosternum, weakly ridged in apical portion. Metasternum strongly keeled in midline, strongly raised in middle in front. Metacoxal lines raised, well separated, moderately diverging in basal half and extreme apex.

Male: Larger. Antennal segment 6 enlarged, segment 7 greatly enlarged, segment 8 about half length of segment 7 and same width, segments 9 and 10 weakly enlarged, apical segment enlarged as wide as segment 10 longer than segments 9 and 10 combined, segments 7 and 8 concave beneath (Fig. 34). Pro- and mesotrochanters with thin ridge near apex. Protarsus moderately expanded; protibia bent near apex, thin. Mesotarsus with basal three segments moderately, asymmetrically expanded; mesotibia curved, broadened towards apex, dense tuft of setae in inner apical angle, mesofemur with small protrubance at base on inside. Median lobe of aedeagus broad, tip complex, lacking finger-like ventral projection; parameres broad, strongly bent in middle (Figs. 62, 63).

Female: Smaller; appendages simple; tarsi less expanded than in male, symmetrical.

AFFINITIES: A member of the *S. hansardi* group, the dark tips to the maxillary palpi and extensive testaceous colour on the ventral surface separate *S. clavatus* from all group members other than *S. goldbergi* and *S. weiri*. *Sternopriscus clavatus* is larger (3.3 - 4.3 mm) than *S. goldbergi* (2.6 - 3.0 mm), which is only known from the Northern Territory whereas *S. clavatus* is restricted to eastern Australia. It differs from *S. weiri* by the stronger (although still weak) pronotal plicae, which are scarcely traceable in *S. weiri*. Otherwise characters of the aedeagus and antennae separate the three species.

DISTRIBUTION: S Gulfs, Murray-Darling basin, SE coastal, NE coastal, TAS, SA, ACT, VIC, NSW and QLD (WATTS 1978; LAWRENCE et al. 1987) (Fig. 115). The single record from the highlands of Irian Jaya (Indonesia), Paniai Lakes, 1900 m, near Enarotali (BALKE 1995) needs to be confirmed.

HABITAT: A common and widespread species in eastern and south-eastern Australia inhabiting all kinds of permanent standing and slow flowing water (ditches, intermittent creeks, protected embayments of slow flowing rivers, ponds and dams) (Fig. 133).

Sternopriscus goldbergi sp.n.

TYPE LOCALITY: Stream, Jim Jim Creek, Kakadu National Park, Northern Territory.

TYPE MATERIAL: **Holotype**: ♂, "Australia N.T./ Kakadu N.P., Jim Jim District, Jim Jim Falls Camping Area, Jim Jim Creek, 60 m, 26. & 27.10. 1996 S 13°16. 218' E 132°49. 276', L. Hendrich leg. / Lok. 2" (SAMA). – **Paratypes**: **Northern Territory**: 4 ♂♂ and 11 ♀♀ with the same data as holotype (CLH, NMW); 3 ♂♂ and 5 ♀♀, "Australia, N.T./ Kakadu N.P., Mary River District, 3 km ESE Gunlom Camping Area. South Alligator River, 50 m, 2.11.1996 S 13°27. 276' E 132°26. 268', L. Hendrich leg. / Lok. 14." (CLH); 3 ♀♀, "N.T. 5 km SE Mt. Borradaile stn 8/10/98/ C. Watts" (SAMA).

ADDITIONAL MATERIAL EXAMINED:
1 ♀, "W.Aust. Upper Camp Ck. 14°49'S, 125°51'E, 20.9.1982, B.V.Timms leg" (SAMA).

DIAGNOSIS: Elongate, widest near middle of elytra, weakly convex (Fig. 4).

DESCRIPTION: Measurements. Holotype, male: TL = 2.90 mm, TL-H = 2.60 mm; width = 1.44 mm. Paratypes, males: TL = 2.80 - 2.92 mm, TL-H = 2.48 - 2.64 mm; width = 1.44 - 1.52 mm; females: 2.60 - 2.76 mm, TL-H = 2.32 - 2.52 mm; width = 1.30 - 1.48 mm.

Colour: Head dark brown to black, area between antennal bases and small central spot near rear margin testaceous; pronotum dark brown to black, wide central transverse area and at sides in front half, testaceous; elytron dark brown to black with three pairs of small testaceous spots (one lateral and one near suture), apex testaceous; ventral surface dark testaceous, prosternum lighter. Appendages lighter; antennal segments 5 - 7 or 8 somewhat darker, tips of palpi darker (Fig. 9).

Sculpture: Strongly reticulate, punctures relatively large, even, close, those on head weaker but well-marked. Pronotal plicae only traceable in some lights to a third way along pronotum. Elytron slightly widened towards apex, narrowing abruptly near apex, apex acuminate. Setae on pronotum and elytron well developed. Pronotal process narrow, rugose-punctate, reaching metasternum. Midline of metasternum raised anteriorly; metacoxal lines strongly raised, moderately diverging in anterior half, relatively close.

Male: Longer. Antennal segment 6 expanded, segment 7 greatly expanded, segment 8 about as wide as segment 7 but half length, segments 9 and 10 expanded, apical segment wider than segment 10 a little shorter than segments 9 and 10 combined (Fig. 35). Protarsus moderately expanded; protibia bent near apex; profemur with small spine on front edge towards base. Mesotibia weakly curved; mesotarsus with segments 1 - 3 quite strongly and asymmetrically expanded. Pro- and mesotrochanters with a thin ridge near apex, mesofemur without peg-like structure near base. Median lobe of aedeagus thin, tip moderately complex, short stout ventral finger-like extension present; parameres broad, tips rounded with fringe of strong setae (Figs. 64, 65).

Female: Shorter. Appendages simple; tarsi moderately and symmetrically expanded.

AFFINITIES: A member of the *S. hansardi* group. Relatively small (2.3 - 3.0 mm), palpi with dark tips, extensive areas of head and pronotum testaceous. Median lobe of aedeagus thin, parameres broad, contorted with fringe of strong setae at tips, apical segment of male antenna relatively squat.

ETYMOLOGY: Dedicated to John Goldberg of Adelaide, a strong supporter of the work of the South Australian Museum and, in particular, the organiser of the expedition to Arnhem Land, which collected several of the new *Sternopriscus* species, described in this paper.

DISTRIBUTION: Northern coastal (NT, Kakadu National Park, Arnhem Land and WA, Kimberley) (Fig. 114).

HABITAT: A rheophilic species similar in habitat to *S. alligatorensis* and *S. balkei.*

Sternopriscus hansardi (CLARK, 1862)

Hydroporus hansardi CLARK, 1862: 417; ZIMMERMANN 1920: 62.
Sternopriscus clavatus SHARP syn. [= *hansardi*] BALFOUR-BROWNE, 1944: 345.
Sternopriscus hansardi (CLARK, 1862); WATTS, 1978: 77, 79; LAWRENCE et al., 1987: 343; NILSSON 2001: 185.
Sternopriscus cervus WATTS, 1978: 80, 81; WATTS 1985: 25; LAWRENCE et al., 1987: 343; NILSSON 2001: 185, **syn.n.**

TYPE LOCALITY: Australia.

TYPE MATERIAL:

Sternopriscus hansardi: **Lectotype**: ♂, "Lectotype", "Type H.T.", "6756", "Hansardi CLARK Australia", "Hydroporus hansardi CLK Det. C. Watts 1974" (BMNH).

Sternopriscus cervus: **Holotype**: ♂, "Dorrigo N. S. W Australia, W. Heron", "Museum of Comparative Zoology" (ANIC). – **Paratypes**: 4 ♂♂, "N.S.W. Cabbage-Tree Ck, Canberra-coast Rd, 19/8/65", "Paratype Sternopriscus cervus Det. C. Watts. 1974" (SAMA); 1 ♀, "20 m W. Nerringa N.S.W. 1/68 C.W." (SAMA).

ADDITIONAL MATERIAL EXAMINED:

New South Wales: 2 exs., Blackheath, 5.III.1956, E.S. Brown leg. (BMNH); 2 exs., Barrington River, Barrington Tops, XI.1935, ex trout stomach, C. Anderson leg. (AM); 3 exs., Eccleston 4 km N, 27.XI.1996, C.H.S. Watts leg. (SAMA); 3 exs., 4 km W Eccleston, 15.VIII.1997, C.H.S. Watts leg. (SAMA); 6 exs., Williams R, 10 km N Dungog, 16.VIII.1997, C.H.S. Watts leg. (SAMA); 17 exs., 20 km W Nelligen, 15.VIII.1997, C.H.S. Watts leg. (SAMA); 8 exs., Cabbage Tree Creek, 20 km W Nelligen, 19.I.1997, C.H.S. Watts leg. (SAMA); 7 exs., Cabbage Tree Creek, 20 km W Nelligen, 30.XI.1995, C.H.S. Watts leg. (SAMA); 2 exs., Quaama, 18.I.1997, C.H.S. Watts leg. (SAMA); 9 exs., Macquarie Rivulet, 3 km W Albion Park, 27.XI.1998 C.H.S. Watts leg. (SAMA); 4 exs., Macquarie Rivulet, 3 km W Albion Park, 7 km W Albion Park, C.H.S. Watts leg. (SAMA); 6 exs., Boonoo Boonoo National Park, Ropers Gully, 24.II.1992, G. Challet leg. (CGC); 2 exs., Creek N Nelligen, 4.XI.2001, G. Challet leg. (CGC); 1 ex., Bombala River 6.I.2001, W.D. Shephard leg. (CGC); 1 ex., Gouldburn-Oberon Road, Huttons Ridge, Middle Station Creek, 1008 m, 9.II.1998, L. Hendrich leg. (CLH).

Australian Capital Territory: 1 ex., Corin Road, Gibraltar Creek, Gibraltar Falls, 750 m, 10.II.1998, L. Hendrich leg. (CLH).

Victoria: 3 ♀♀, King Parrot Creek, Kerrisdale, XI.1950, F.G. Wilson leg., ["Paratype, R. Mouchamps det. 65 Sternopriscus costatus nsp."] (CLH, NMV); 1 ♂, King Parrot Creek, Kerrisdale, XI.1950, F.G. Wilson leg., ["Type"] (NMV); 1 ♀, without locality label but just "NMV"; 3 exs., Rose River, 16.5 km W. of Dandongadale, 1.XII.1997, G. Challet leg. (CGC); 4 exs., Dandongadale, Rose River near Lake Buffalo, 300 m, 15.II.1998, L. Hendrich leg. (CLH); 1 ex., Tooronga Road 6 km N Noojee, 16.I.1997, C.H.S. Watts leg. (SAMA); 2 exs., Lake Tali Karng, 21.I.1973, B. Timms leg. (SAMA); 1 ex., Grampians, Halls Gap, 9.X.1987, C.H.S. Watts leg. (SAMA); 1 ex., 12 km N Manfield, Broken River, 350 m, 15.II.1998, L. Hendrich leg. (CLH).

Tasmania: 1 ex., N-Tasmania, 12 km SW Deloraine, Meander River, Barretts Bridge, 100 m, 2.II.1998, L. Hendrich leg. (CLH); 1 ex., north-western Tasmania, 12 km SW Mawbanna, Black River Picnic Area, 31.I.1998, L. Hendrich leg. (CLH); 1 ex., Black River, 9 km NW Mawbanna, 21.I.2000, C.H.S. Watts leg. (SAMA).

DIAGNOSIS: Elongate, widest behind middle, little if any constriction at base of pronotum, moderately convex, sutural region of elytra raised.

DESCRIPTION: Measurements. Males: TL = 3.40 - 3.64 mm, TL-H = 3.08 - 3.32 mm; width = 1.68 - 1.80 mm. Females: TL = 2.84 - 3.20 mm, TL-H = 2.48 - 2.88 mm; width = 1.56 - 1.70 mm.

Colour: A very variable species. Head black or yellowish (specimens from New South Wales), narrowly to broadly testaceous anteriorly; pronotum black, diffusely testaceous at sides and across middle to varying degrees; elytron black with basal, central, subapical and apical bands usually coalescing to varying degrees; ventral surface dark brown, appendages lighter, palpi evenly testaceous, centre of front portion of prothoracic process testaceous (Fig. 10).

Sculpture: Side of elytron weakly serrate. Pronotal plicae short, weakly impressed, reaching to a bit more than halfway along pronotum, area immediately inwards from plicae somewhat depressed. Strongly rugose-punctate, head less so, each puncture with a short seta. Prothoracic process robust, parallel-sided, rugose-punctate posteriorly, lightly punctate and shiny anteriorly, curved in lateral view, reaching metasternum. Midline of metasternum strongly raised in extreem front to meet pronotal process. Metacoxal lines strongly raised, reaching metasternum, strongly diverging in anterior two thirds.

Male: Larger. Segment 7 of antenna very greatly expanded, segments 8 and 11 strongly expanded, apical segment strongly enlarged (Fig. 36). Apical segment of labial palpi enlarged, weakly bifid. Pro-and mesotrochanters with narrow transverse ridge near base. Protarsus not expanded; protibia robust, curved, with a bulge on ventral edge near base; profemur expanded with a small spine on anterior ventral edge near apex. Mesofemur with small peg-like protrubance on inside near base. Mesotarsus robust, elongate, weakly expanded; mesotibia nearly straight. Median lobe of aedeagus broad, tip moderately complex, but without short stout

ventral finger-like extension (Figs. 66, 67); parameres broad, tips rounded with fringe of strong setae.

Female: Smaller. Appendages simple.

AFFINITIES: A member of the *S. hansardi* group. It can be easily separated from the other known species of the group by the distinctive raised sutural area, and the form of the male antenna.

DISTRIBUTION: SE coastal, New South Wales (WATTS 1978, LAWRENCE et al. 1987), VIC and TAS (Fig. 112).

HABITAT: A rheobiotic species, which occurs mainly in permanent, cold, forest or mountain streams with a stony and/or sandy substrate.

Sternopriscus mouchampsi sp.n.

TYPE LOCALITY: Pond near Orbost, Victoria, Australia.

TYPE MATERIAL: **Holotype**: ♂, "VIC 12k SW Orbost 5/1/97 C. Watts" (SAMA). – **Paratypes: Victoria**: 1 ♂, "Simpson Creek, 12 km SW Orbost 30/11/98 CHS Watts" (SAMA); 2 ♀♀, "Australie Vic. IV.57 Glenmaggie F.G. Wilson", "R. Mouchamps det. Sternopriscus hansardi Clk." (NMV); 2 ♀♀, "Glenmaggie Weir. Vic. Apr 57 F.G. Wilson" (CLH, NMV).

DIAGNOSIS: Elongate, widest in middle of elytron, little if any constriction at base of pronotum, weakly convex, shiny.

DESCRIPTION: Measurements. Holotype, male: TL = 4.50 mm, TL-H = 4.20 mm; width = 2.20 mm. Paratypes, male: TL = 4.44 mm, TL-H = 4.16 mm; width = 2.12 mm; females: 3.84 - 4.02 mm, TL-H = 3.40 - 3.60 mm; width = 1.88 - 2.00 mm.

Colour: Head testaceous, hind margin narrowly dark brown to black; pronotum testaceous, front margin quite widely dark brown to black but not reaching lateral edge, hind margin broadly but more diffusely dark brown to black reaching lateral edge; elytron dark brown to black, inner testaceous spots narrow, elongate, lateral ones tending to coalesce, extreme humeral angle dark brown to black; ventral surface light testaceous, segments 3 - 5 or 6 much darker, tips of palpi darker (Fig. 12).

Sculpture: Elytral tip slightly acuminate, sides very weakly serrate, moderately reticulate, punctures close, evenly spaced, each with small seta, relatively small, weaker on head. Pronotal plicae obsolete only traceable in some lights, middle of pronotum weakly raised behind. Pronotal process very narrow, parallel-sided, bluntly pointed, apically keeled, strongly angular in lateral view, reaching metasternum. Midline of metasternum ridged in front; metacoxal lines raised, relatively close, subparallel except at extreme apex.

Male: Larger. Antennal segments 5 - 7 progressively enlarging, segment 8 about same width and a little shorter than segment 7, segments 9 and 10 weakly expanded, apical segment narrower than segment 10 shorter than segments 9 and 10 combined (Fig. 38). Pro- and mesotrochanters with sharp raised ridge at apex. Protarsus weakly expanded; profemur with large subapical spine on front edge on top of small protrubance; protibia bent, apical half narrow. Mesotarsus with segments 2 and 3 elongate. Mesofemur thin, relatively elongate with prominent peg-like spine at base opposite raised ridge on trochanter. Median lobe of aedeagus complex; (Figs. 70, 71); parameres broad.

Female: Smaller. Appendages simple; tarsi weakly expanded, mesotarsi not as elongate as in male, mesofemur thicker than in male, without basal spine.

AFFINITIES: A member of the *S. hansardi* group. Largest species of the genus, shiny, tips of palpi dark, pronotal plicae obsolete, dark area on head reduced to a thin posterior band, ventral surface testaceous, male mesotarsus relatively thin, small spine on inside of male profemur near apex, segment 10 of male antennae longer than wide, median lobe of aedeagus broad, complex, without ventral projection.

ETYMOLOGY: Dedicated to the late Belgian aquatic beetle specialist R. Mouchamps who examined part of the type material.

DISTRIBUTION: SE coastal, Victoria (Fig. 113).

HABITAT: Poorly known. The specimens from near Orbost were taken from a large, part-shaded pond in the base of a wide drainage depression through open Eucalypt forest. The beetles were amongst thick weed in shallow water growing on a muddy substrate in a relatively open area of the pond.

Sternopriscus pilbaraensis sp.n.

TYPE LOCALITY: At light, mouth of Dawson Creek, Pilbara, Western Australia.

TYPE MATERIAL: **Holotype**: ♂: "WA Gregory Gorge nr Millstream 24/5/01 C.H.S.Watts" (SAMA). – **Paratypes: Western Australia**: 2 ♂♂, 12 ♀♀, same data as holotype (CLH, SAMA); 1 ♂, 1 ♀, "WA 12k W Mt Florance Stn 25.5.01 C.H.S.Watts" (SAMA); 1 ♂, 1 ♀ "(21.35'S117.04'E) Millstream, WA., nr. Mouth of Dawson's Ck., 7.XI.70, at light. E.B. Britton" (ANIC); 1 ♂, "Tambrey, 4.VIII.58, Collector R.P. McMillan 6.9.-1390" (WAM); 1 ♀, "(21.35'S 117.04'E) Millstream, WA., 3.XI.70, shallow weed-grown pool, E.B. Britton" (ANIC); 1 ♀, "(21.35'S 117.04'E) Millstream, WA., 29.X.70, at light, spinifex-eucalypt junction, E. Britton" (ANIC); 2 ♀♀, "8 mi ENE of Millstream, W.A., 20.Oct.1970, D.H. Colless" (ANIC); 1 ♀, "Gregory Gorge, Fortescue River, 2.XII.74, W.A., Coll. K.F. Walker" (ANIC); 6 exs., "AUSTRALIA, WA, Pilbara, Millstream Chichester N.P., McKenzie Springs, 200 m a.s.l., 25.VIII.2002, 21°18'S 117°12'E, Hendrich leg./ Loc. WA 3/167" (CLH); 2 exs., "AUSTRALIA, WA, Pilbara, Millstream Chichester N.P., Palm Pool at Fortescue River Crossing, 26.VIII.2002, 21°33'S 117°03'E, Hendrich leg./ Loc. WA 5/169" (CLH); 11 exs., "AUSTRALIA, WA, Pilbara, Hamersley Range, Wittenoom Gorge, Wittenoom "Town Pool", 400 m a.s.l., 27.VIII.2002, 22°15'S 118°19'E, Hendrich leg./ Loc. WA 8/172" (CLH); 1 ♀, "AUSTRALIA, WA, Pilbara, Hamersley Range, Karijini N.P., Kalamina Gorge, 450 m a.s.l., 29.VIII.2002, 22°25'S 118°23'E, Hendrich leg./ Loc. WA 11/175" (CLH).

DIAGNOSIS: Narrowly oval, weakly convex, shiny, widest about middle, weakly constricted at base of pronotum.

DESCRIPTION: Measurements. Holotype, male: TL = 3.80 mm, TL-H = 3.52 mm; width = 1.96 mm. Paratypes, male: TL = 3.76 mm, TL-H = 3.40 mm; width = 1.84 mm; females: 3.12 - 3.24 mm, TL-H = 2.80 - 2.96 mm; width = 1.68 - 1.70 mm.

Colour: Head dark brown to black, front margin and central spot testaceous; pronotum dark brown to black, lateral margins narrowly testaceous; elytron dark brown to black with three small lateral testaceous spots, apex narrowly testaceous, occasionally with narrow subbasal testaceous band; ventral surface dark brown to black, prosternum and appendages lighter, antennal segments 6 - 7 diffusely darker, palpi testaceous (Fig. 13). In some specimens the testaceous areas are more extensive, particularly the central portion of the pronotum and maculae at the base of the elytra.

Sculpture: Reticulate, punctures relatively strong, even, close, those on head much weaker. Pronotal plicae weak but clear, reaching to about half way along pronotum. Elytral edges weakly serrate, broadened towards apex. Broadening ending abruptly a short distance from apex giving tip a truncated look. Pronotal process robust, rugose-punctate, weakly keeled, sides subparallel, curved, in lateral view reaching mesosternum. Midline of mesosternum strongly raised in front to meet pronotal process; metacoxal lines raised, well separated, quite strongly diverging in front half.

Male: Larger. Antennal segments 5 - 7 progressively enlarging, segment 7 large, segment 8 shorter and narrower than segment 7, segments 9 and 10 not enlarged, apical segment a little narrower than segment 10 and approximately equal to segments 9 and 10 in length (Fig. 39). Pro- and mesotrochanters with thin ridge near apex. Protarsus weakly expanded. Protibia thin, bent near base. Profemur with small spine on a small protuberance very near apex. Mesofemur without peg-like structure near base. Mesotarsus stout, elongate; mesotibia curved, thickened towards apex with dense group of long setae on inner apical angle. Median lobe of aedeagus complex; without ventral finger-like projection (Figs. 72, 73); parameres broad.

Female: Smaller. Appendages simple; tarsi weakly expanded.

AFFINITIES: A member of the *S. hansardi* group and close to *S. clavatus* and *S. hansardi*. Large (TL = 2.8 - 3.8 mm), palpi evenly testaceous, pronotum predominantly dark, strongly punctate, pronotal plicae weak, apical segment of male antenna slight, spine on inner edge of male profemur close to apex, median lobe of aedeagus broad, complex, without ventral projection.

ETYMOLOGY: After the general geographical area in which the species is found.

DISTRIBUTION: Endemic to the Pilbara Region, Western Australia (Fig. 113).

HABITAT: Taken in shallow water at the sides of open, permanent and temporary pools in moderate to large river beds with sandy substrates, most abundantly in areas with some emergent vegetation (Fig. 132) and HENDRICH (2003).

Sternopriscus wallumphilia sp.n.

TYPE LOCALITY: Intermittent heathland creek, Glasshouse Mts., Queensland.

TYPE MATERIAL: **Holotype**: ♂, "Qld. Glasshouse Mts. 26 53 12S, 153 00 36E C. Marshall 6/7/2000" (SAMA). – **Paratypes**: 3 ♀♀, 1 ♂, same data as holotype (CLH, SAMA, QM).

DIAGNOSIS: Elongate oval, only weakly constricted at base of pronotum, moderately convex, shiny.

DESCRIPTION: Measurements. Holotype, male: TL = 3.90 mm, TL-H = 3.65 mm; width = 2.10 mm. Paratypes, female: 3.00 - 3.25 mm, TL-H = 2.6 - 2.8 mm; width = 1.50 -1.75 mm.

Colour: Head blackish, with anterior area reddish. Pronotum dark brown to black with central band across whole width testaceous, band undulating in thickness. Elytron dark brown to black with two subbasal, two central and two apical testaceous spots. The degree of colour pattern, particularly on elytra variable from virtually evenly dark brown to quite strongly marked. Ventral surface dark testaceous with appendages lighter. Antenna with segments 4 - 9 and apical slightly darker. Palpi with pale tips (Fig. 11).

Sculpture: Prosternum moderately reticulate, closely and evenly punctate, punctures relatively weak for *Sternopriscus*. Pronotal plicae obsolete, only traceable in certain lights. Elytral edges weakly serrate, narrowly but quite noticeable flanged in apical half, apex acuminate. Pronotal process narrow between procoxae then widening in front of them before narrowing to rounded tip, apical portion keeled, flat in lateral view, just reaching metasternum. Midline of metasternum weakly raised in front; metacoxal lines raised, reaching mesosternum, moderately separated, weakly diverging in front half.

Male: Larger. Antennal segments 4, 5 and 6 short, 7 greatly expanded, segments 10 and 11 wide, longer than segments 8 and 9 (Fig. 37). Segment 7 strongly concave beneath. Apical segment of labial palpus moderately expanded, moderately bifid. Pro-and mesotrochanters with thin ridge towards apex. Protarsus moderately expanded; protibia narrow, bent near base; profemur with

small spine on front edge at extreme apex. Mesotarsus with basal three segments elongate, weakly asymmetrically expanded; mesofemur with small but well-marked protuberance at base on inside. Tip of median lobe of aedeagus; without ventral finger-like projection (Figs. 68, 69).

Female: Smaller. Appendages simple; protarsus moderately expanded, symmetrical; basal segment of mesotarsus moderately expanded, other segments relatively thin.

AFFINITIES: A member of the *S. hansardi* group. A large species (TL = 3.25 - 3.90 mm), palpi with dark tips, dark ventral surface, pronotal plicae obsolete, segments 7 and 8 of male antenna similar in form, apical segment of male antenna with small protuberance near apex, small spine on inside of male profemur atop a small but prominent protuberance near apex.

ETYMOLOGY: A reference to the species presumed fondness for Wallum heath.

DISTRIBUTION: Only known from the type locality in south Queensland (Fig. 116).

HABITAT: The only known specimens were found in a creek in a remnant of Wallum Heath. The area includes a number of rare and threatened heath plants, three frog species and two fish species which are restricted to sandy acid-water habitats in SE Queensland and northern New South Wales. The creek is essentially a series of water holes that are only connected when spates flow. The water is very dark stained, extremely soft and acidic (pH 4.5). The bed is sand. Macrophytes present were *Lepironia articulata* (emergent reed) and *Batrachospermum* sp. (red alga) (Chris Marshall pers. com.). The species cooccurs with *Sternopriscus weiri*.

Sternopriscus weiri sp.n.

TYPE LOCALITY: Drainage ditch, in an open peatland swamp near Pioneer, Tasmania.

TYPE MATERIAL: **Holotype**: ♂, "6 km N Pioneer TAS 23.1.00. C.H.S. Watts" (SAMA). – **Paratypes**; 10 ♂♂ and 13 ♀♀, same data as holotype (SAMA); 1 ♂ and 3 ♀♀, "NSW 3k N Bulli, 2/11/97 C Watts" (CLH, SAMA); 1 ♀, "Berry NSW 1/68 C. Watts" (SAMA); 1 ♂, "North Stradbroke Island sedge pool Flinders Beach Road 4. Sept. 1974 A. Bensink" (ANIC); 3 ♀♀, "North Stradbroke Island perched swamp n. Ferny Gully Q. 15. Mar. 1975 A. Arthington" (ANIC).

DIAGNOSIS: Elongate oval, only weakly constricted at base of pronotum, moderately convex, shiny.

DESCRIPTION: Measurements. Holotype, male: TL = 4.20 mm, TL-H = 3.90 mm; width = 1.96 mm. Paratypes, male: TL = 3.68 - 4.20 mm, TL-H = 3.40 - 4.00 mm; width = 1.84 - 2.10 mm; females: 3.28 - 3.60 mm, TL-H = 2.96 - 3.26 mm; width = 1.64 - 1.85 mm.

Colour: Head testaceous, with area inwards from eyes to level of antenna bases dark brown to black. Pronotum dark brown to black with central band across whole width testaceous, band undulating in thickness. Elytron dark brown to black with two subbasal, two central and two apical testaceous spots. The degree of colour pattern, particularly on elytra variable from virtually evenly dark brown to quite strongly marked. Ventral surface dark testaceous with appendages lighter. Antenna with segments 5 - 7 and apical slightly darker. Palpi with pale tips (Fig. 14).

Sculpture: Prosternum moderately reticulate, closely and evenly punctate, punctures relatively weak for *Sternopriscus*. Pronotal plicae obsolete, only traceable in certain lights. Elytral edges weakly serrate, narrowly but quite noticeable flanged in apical half, apex acuminate. Pronotal process narrow between procoxae then widening in front of them before narrowing to rounded tip, apical portion keeled flat in lateral view, just reaching metasternum. Midline of metasternum weakly raised in front; metacoxal lines raised, reaching mesosternum, moderately separated, weakly diverging in front half.

Male: Larger. Antennal segments 7 and 8 greatly expanded with segment 8 longer, segments 9 and 10 short and wide, apical segment wide, longer than segments 9 and 10 combined, segments 7 and 8 strongly concave beneath (Fig. 40). Apical segment of labial palpus moderately expanded, moderately bifid. Pro- and mesotrochanters with thin ridge towards apex. Protarsus moderately expanded; protibia narrow, bent near base; profemur with small spine on front edge at extreme apex. Mesotarsus with basal three segments elongate, weakly asymmetrically expanded; mesofemur with small but well-marked protuberance at base on inside. Tip of median lobe of aedeagus complex; lacking ventral finger-like projection (Figs. 74, 75).

Female: Smaller. Appendages simple; protarsus moderately expanded, symmetrical; basal segment of mesotarsus moderately expanded, other segments relatively thin.

AFFINITIES: A member of the *S. hansardi* group. Large (TL = 2.9 - 4.2 mm), palpi with dark tips, dark ventral surface, pronotal plicae obsolete, segments 7 and 8 of male antenna similar in form, apical segment of male antenna with small protuberance near apex, small spine on inside of male profemur atop a small but prominent protuberance near apex.

ETYMOLOGY: Dedicated to Tom Weir of ANIC, Canberra, who was the first to recognise the species.

DISTRIBUTION: NE coastal, SE coastal, QLD, NSW and TAS (Fig. 116).

HABITAT: Probably a stenotopic species of peatland habitats. The specimens from Bulli were collected from an acidic pool in a small creek/drain in an area of open peaty heath. On Stradbrooke Island the species was found in a sedge pool and a perched swamp. In Tasmania the species was taken from the edges of moderately deep (to 1 m) drainage ditches through an open peaty swamp with low heathy vegetation. See also under Habitat of *S. wallumphilia*.

Sternopriscus tarsalis group (*S. tarsalis* complex)

Sternopriscus tarsalis SHARP, 1882

Sternopriscus tarsalis SHARP, 1882: 386; ZIMMERMANN 1920: 62; WATTS, 1978: 81, 82; NILSSON 2001: 185.
Sternopriscus oscillator SHARP, 1882: 388; ZIMMERMANN 1920: 62.
Sternopriscus tarsalis tarsalis SHARP, 1882: 386; LAWRENCE et al. 1987: 344.
Sternopriscus tarsalis ssp. *oscillator* SHARP, 1882, WATTS 1978: 82; WATTS 1985: 25; LAWRENCE et al. 1987: 344; NILSSON 2001: 185, **syn.n.**

TYPE LOCALITY: Sydney, Australia.

TYPE MATERIAL: **Holotype** of *S. tarsalis*: ♂, "Type 162.", "Holotype", "Sydney", "Sternopriscus tarsalis n. sp.", "Sharp Coll. 1905-313." (BMNH). **Lectotype** of *S. oscillator*: ♂, "Lectotype", "Type", "Adelaide Austr.", "S.Australia", "Sharp Coll. 1905-313.", "433 oscillator", "Sternopriscus oscillator Types", "Sternopriscus oscillator Sharp Det. C.Watts 1974" (BMNH). **Paralectotype** of *S. oscillator* (on the same card as lectotype): ♀, with the same data as lectotype but "Paralectotype" (BMNH).

ADDITIONAL MATERIAL EXAMINED:

Queensland: 7 exs., Caloundra, 27.III.1963, C.H.S. Watts leg. (SAMA); 5 exs., Brisbane, I.1961, C.H.S. Watts leg. (SAMA); 4 exs., Ripley, 20.XI.1996, C.H.S. Watts leg. (SAMA).

New South Wales: 4 exs., Sydney, Clarence River, Lea leg. (SAMA); 1 ex., 9 miles SE of Grafton, XII.1948, E.B. Britton leg. (BMNH); 5 exs., Station. No. 212, Prospect-St Mary's Road, 24.III.1965, M.E. Bacchus leg. B.M. 1965-120 (BMNH); 1 ex., Blue Mountains., Foulcon Bridge, 500 m, 15.I.1993, G. Wewalka leg. (CLH); 4 exs., Smith's Lake, V.1970, C.H.S. Watts leg. (SAMA); 2 exs., Booral, 18.VIII.1997, C.H.S. Watts leg. (SAMA); 1 ex., 3 km N Bulli, 27.XI.1998, C.H.S. Watts leg. (SAMA); 2 exs., Nelligen Creek, 5 km W Nelligen, 19.I.1997, C.H.S. Watts leg. (SAMA); 3 exs., Collector, 20.I.1997, C.H.S. Watts leg. (SAMA); 2 exs., Failford 8 km N, 18.VIII.1997, C.H.S. Watts leg. (SAMA); 1 ex., Mount Kosciusko 5-7000 feet, 12.XII.1931, Australia, Havard Expedition Darlington (ANIC); 1 ex., Creek N Nelligen, 4.XI.2001, G. Challet leg. (CGC); 1 ex., Bombala River, 6.I.2001, W.D. Shephard leg. (CGC); 2 exs., Boowra River 30.XII.2000, W.D. Shephard leg. (CGC); 5

exs., Jerrabatgula Creek, near Laurieville, 3.I.2001, W.D. Shephard leg. (CGC); 1 exs., Mowambah River near Jindabyne 7.I.2001, W.D. Shephard leg. (CGC); 3 exs., Cathedral Rock near Guyra, 12. - 13.III.1992, P. Zwick leg. (CPZ).

Victoria: 3 exs., Turret Falls, 5 km NW Halls Gap, 13.I.1997, C.H.S. Watts leg. (SAMA); 8 exs., 12 km W Casterton, 12.X.1997, C.H.S. Watts leg. (SAMA); 3 exs., Simpson Creek, 12 km SW Orbost, 30.XI.1998, C.H.S. Watts leg. (SAMA); 1 ex., 10 km E Warburton, 14.I.1997, C.H.S. Watts leg. (SAMA); 3 exs., 1 km S Drik Drik, 11.X.1997, C.H.S. Watts leg. (SAMA); 2 exs., 5 km S Mount Hotham, 5.XI.1997, C.H.S. Watts leg. (SAMA); 6 exs., Merrijig, 16.III.1989, C.H.S. Watts leg. (SAMA); 2 exs., Bogong High Plains, XII.1983, A. Watts leg. (SAMA).

South Australia: 3 exs., Port Lincoln, 1884, Blackburn leg., Sharp Coll. 1905-313 (BMNH); 16 exs., Myponga, 5.I.1988, C.H.S. Watts leg. (SAMA); 6 exs., 10 km SE Myponga, 5.I.1988, C.H.S. Watts leg. (SAMA); 26 exs., Myponga, 9.XII.1996, C.H.S. Watts leg. (SAMA); 5 exs., Adelaide, Parra Wirra, IX.1969, C.H.S. Watts leg. (SAMA); 4 exs., Port Lincoln, Blackburn leg. (SAMA); 5 exs., Lobethal, IX.1962, C.H.S. Watts leg. (SAMA); 5 exs., Williamstown, IX.1962, C.H.S. Watts leg. (SAMA); 5 exs., Torrens Gorge, IV.1961, C.H.S. Watts leg. (SAMA); 3 exs., Chain of Ponds, XII.1962, C.H.S. Watts leg. (SAMA); 3 exs., Inglewood, I.1993, C.H.S. Watts leg. (SAMA); 8 exs., 5 km NE Inglewood, 6.X.1996, C.H.S. Watts leg. (SAMA); 3 exs., Kuitpo, 35.14S 138.41E, 5.X.1995, C.H.S. Watts leg. (SAMA); 7 exs., Mt Crawford Forrest, 10.XI.1996, C.H.S. Watts leg. (SAMA); 2 exs., Eudunda 10 km 34.16S 139.05E, 3.X.1995, C.H.S. Watts leg. (SAMA); 1 ex., 13 km W Meadows, 35°11'S 138°36'E, 28.IX.1996, C.H.S. Watts leg. (SAMA); 2 exs., 6 km S Willunga, 26.IX.1996, C.H.S. Watts leg. (SAMA); 5 exs., 13 km N Forreston, 10.XI.1996, C.H.S. Watts leg. (SAMA); 1 ex., Kyeema, 33.54S 136.32E, 5.X.1995, C.H.S. Watts leg. (SAMA); 1 ex., Lyndock, 27.I.1979, R. Toaffe leg. (SAMA); 1 ex., Birdwood, I.1968, C.H.S. Watts leg. (SAMA); 1 ex., Yundi 3 km W, 35.19 S 138.36E, 5.X.1996, C.H.S. Watts leg. (SAMA); 14 exs., Southern Mount Lofty Ranges, 30 km SE Adelaide, Scott Creek Conservation Park, 18.XII.1999, T. Hands & L. Hendrich leg. (CLH); 3 exs., Fleurieu Peninsula, Cape Jervis, Deep Creek Conservation Park near beach, 25.II.1998, L. Hendrich leg. (CLH); 7 exs., Fleurieu Peninsula, 10 km SE of Mount Compass, 100 m, 6.XII.1999, L. Hendrich & C.H.S. Watts leg. (CLH).

Tasmania: 8 exs., Deloraine, I.1962, C.H.S. Watts leg. (SAMA); 6 exs., St. Helens, I.1958, C.H.S. Watts leg. (SAMA); 6 exs., 25 km E Bridport, 23.I.2000, C.H.S. Watts leg. (SAMA); 59 exs., Dove Lake Cradle Mountain, Lake St Clair National Park, 19.I.2000, C.H.S. Watts leg. (SAMA); 1 ex., Cradle Valley, Cradle Mountain, Lake St Clair National Park, 19.I.2000, C.H.S. Watts leg. (SAMA); 13 exs., 5 km E Bridport, 23.I.2000, C.H.S. Watts leg. (SAMA); 2 exs., Hobart, Tasmania, J. Walker leg. (BMNH).

DIAGNOSIS: Narrowly oval, elytron widest behind middle, convex.

DESCRIPTION: Measurements. Males: TL = 2.64 - 2.80 mm, TL-H = 2.40 - 2.52 mm; width = 1.28 - 1.32 mm. Females: TL = 2.28 - 2.36 mm, TL-H = 2.08 - 2.12 mm; width = 1.16 - 1.18 mm.

Colour: Head testaceous, posterior angles broadly black, or with testaceous area reduced to two apical spots and one basal spot; pronotum testaceous, front and rear edges broadly black, joined in midline, or with testaceous area reduced to narrow marginal stripes; elytron mottled dark brown to black and testaceous; ventral surface dark brown to black, sides of prosternum and appendages lighter, middle and apical segments of antenna darker in most (Fig. 15).

Sculpture: Reticulate. Punctures on head well-marked, moderately dense, rest of body closely and strongly rugose-punctate. Pronotal plicae well-marked reaching to about half way along pronotum, area between them weakly depressed. Prothoracic process robust, subparallel, strongly rugose-punctate, not or only just reaching metasternum. Metacoxal lines short, strongly diverging towards front.

Male: Larger. Antenna stout, segments 6 - 11 somewhat expanded, increasingly so towards apex (Fig. 41). Profemur with a short prominent ridge anteriorly near base, thickened; protibia thickened, strongly curved, with a broad well-marked basal excavation on inside; protarsus moderately expanded. Mesotibia a little curved; mesotarsus robust and greatly elongate. Median lobe of aedeagus moderately broad, tip bluntly pointed, weakly bulbous apically (Figs. 76, 77).

Female: Smaller. Appendages simple.

AFFINITIES: A member of the *S. tarsalis* complex. Morphologically close to *S. weckwerthi*, *S. tarsalis* is usually clearly light patterned and dark dorsally, whereas *S. weckwerthi* is diffusely coloured, is more strongly sculptured, and is found at higher altitudes. Both species occur together at Cradle Valley, Tasmania, where the lack of morphological intermediates suggests that they do not interbreed. We could find no way to reliably separate females from those of *S. weckwerthi*, *S. mundanus*, *S. meadfootii*, and *S. wehnckei*.

DISTRIBUTION: S Gulfs, SE coastal, NE coastal, Murray Darling basin, TAS, SA, QLD, NSW (WATTS 1978; LAWRENCE et al. 1987) (Fig. 117).

HABITAT: Widespread in south-eastern Australia living in larger ponds and farm dams (Figs. 126, 133) but also in sheltered embayments and side-pools of creeks and rivers.

Sternopriscus weckwerthi sp.n.

TYPE LOCALITY: Peatland pool, south of Frodshams Pass, 300 m, western Tasmania.

TYPE MATERIAL: **Holotype**: ♂, "AUSTRALIA, W-Tasmania, SW National Park, 15 km S Frodshams Pass, 300m, 25.1.1998 (Lok. 5/46), Lars Hendrich leg." (SAMA). – **Paratypes**: **Tasmania**: 21 exs., same data as holotype (CLH, NMW); 2 exs., "AUSTRALIA, W-Tasmania, Mount Field National Park, Beatties Tarn, 600m 24.1.1998 (Lok. 1/42) Lars Hendrich leg." (CLH); 14 exs., "AUSTRALIA, W-Tasmania, SW National Park, Creepy Crawly Nature Trail, 500m 25.1.1998 (Lok. 3/44) Lars Hendrich leg." (CLH); 9 exs., "AUSTRALIA, W-Tasmania, 30 km N of Strahan, 150m 29.1.1998 (Lok. 14/55) Lars Hendrich leg." (CLH); 75 exs., "AUSTRALIA, NW-Tasmania, Murchison Hwy, 5 km N Parawee, 29.1.1998 (Lok. 17/58) Lars Hendrich leg." (CLH); 2 exs., "AUSTRALIA, NW-Tasmania, Bass Hwy, Welcome River near Dismal Swamp, 31.1.1998 (Lok. 19/60) Lars Hendrich leg." (CLH); 29 exs., "AUSTRALIA, E-Tasmania, 23 E Campbell Town, Lake Leake Camping Site, 610 m, 3.2.1998 (Lok. 26/67) Lars Hendrich leg." (CLH); 19 exs., "AUSTRALIA, W-Tasmania, South West National Park, 40 km W Maydena, 160m 25.1.1998 (Lok. 2/43) Lars Hendrich leg." (CLH); 29 exs., "AUSTRALIA, C-Tasmania, Lake St. Clair, Cuvier Valley Track, 4 km NW Cynthia Bay 800 m, 27.1.1998 (Lok. 10/51) Lars Hendrich leg." (CLH); 24 exs., "AUSTRALIA, C-Tasmania, Lake St. Clair, Narcissus Bay 750 m, 27.1.1998 (Lok. 11/52) Lars Hendrich leg." (CLH); 2 exs., "Nivarre River Tas. 12 Feb 1967 E.F. Riek" (ANIC); 1 ex., "42.49'S 146.13'E, Frodshams Pass, 18 Nov. 1988 Tube 61 temporary pools on roadside, P. Greenslade", "Coleoptera Voucher No. 88-0017", "Sternopriscus tasmanicus Shp det. R.E. Roughley 1996" (ANIC); 8 exs., "Cradle Mt. Nat. Pk. Tas. Jan. [January 1959] C.W [C.H.S. Watts]" (SAMA); 17 exs., "TAS Narcissus Bay Lake St Clair 18 km NW Derwent Bridge, 24.1.2000, C.H.S. Watts" (SAMA); 1 ex., "15 km NE Miena TAS 23.1.00, C.H.S. Watts" (SAMA); 4 exs., "Little Pine Lagoon TAS, 8 km W Miena, 23.1.00 C.H.S. Watts" (SAMA); 19 exs., "TAS Lake St Clair 4 km N Derwent Bridge, 25.1.2000 C.H.S. Watts" (SAMA); 18 ex., "Cradle Valley TAS Cradle Mountain-Lake St. Clair National Park, 19.1.2000 C.H.S. Watts" (SAMA); 45 exs., "Dove Lake TAS Cradle Mountain-Lake St Clair N Pk.,19.1.00 C.H.S. Watts" (SAMA); 2 exs., "Deloraine TAS 19.1.00 C. Watts" (SAMA); 6 exs., "AUS.: C-Tasmania South West NP, 17.1. 30 km W Maydena, 1997 Wewalka leg. (11)" (CGW); 9 exs., "AUS.: C-Tasmania 20 km NW Tarraleah 18.1.1997 Wewalka leg. (15)" (CGW); 11 exs., "AUS.: E-Tasmania, 21.1. 60 km E Launceston, 1997 10-20 km W Mathinna Wewalka leg. (23)" (CGW, MZH); 1 ex., "AUS.: NW-Tasmania 40 km N Rosebery 20.1.1997 Wewalka leg. (20)" (CGW); 1 ex., "AUS.: E-Tasmania 10-20 km SW Orford 23.1.1997 Wewalka leg. (24)" (CGW); 1 ex., "AUS.: C-Tasmania South West NP, 16.1. 5 km W Maydena, 1997 Wewalka leg. (10)" (CGW); 2 exs., "AUS.: C-Tasmania 60 km NW New Norfolk 5 km NW Ouse, 17.1.1997 Wewalka leg. (12)" (CGW); 2 exs., "AUS.: W-Tasmania, 20 - 30 km N Strahan, 19.1.1997 Wewalka leg. (19)".

ADDITIONAL MATERIAL EXAMINED:

Tasmania: 5 exs., "Tas lakes", without any further data (SAMA); 26 exs., "TAS 9 km N Queenstown on B26 road 28/11/00 C.H.S. Watts leg." (SAMA); 5 exs., "S end L St Clair TAS 30/11/00 C.H.S. Watts leg." (SAMA); 2 exs., "TAS Central Plateau 27/11/00 C.H.S. Watts leg." (SAMA); 1 ex., "N-Tasmania, 12 km SW Deloriane, Meander River, Barretts Bridge, 100 m, 2.2.1998 (Lok. 24/65) Lars Hendrich" (CLH).

DIAGNOSIS: Almost rectangular, widest behind middle, weakly constricted at pronotal base.

DESCRIPTION: Measurements. Holotype, male: TL = 2.96 mm, TL-H = 2.76 mm; width = 1.48 mm. Paratypes, males: TL = 2.68 - 2.96 mm, TL-H = 2.40 - 2.76 mm; width = 1.32 - 1.48 mm; females: 2.60 - 2.72 mm, TL-H = 2.36 - 2.48 mm; width = 1.36 - 1.40 mm.

Colour: Head dark brown to black, large triangular area from antennal bases to rear margin often testaceous; pronotum dark testaceous, disc and parts of front and rear margins diffusely darker; elytron dark brown to black, lateral margin and near apex with diffuse lighter areas; ventral surface dark testaceous, appendages lighter, tips of palpi dark, antennae variable from wholly testaceous to segments 4 - 11 dark (Fig. 16).

Sculpture: Reticulate, punctures strong, close, even, sparser and weaker on head. Edge of elytron moderately to strongly serrate towards apex; weakly, broadly flanged. Pronotal plicae strongly raised, nitid, area between with slight transverse depression. Pronotal process narrow, sides subparallel, rugose-punctate, tip rounded, not reaching metasternum. Midline of metasternum ridged in front; metacoxal lines raised, relatively close, weakly diverging in front quarter.

Male: Larger. Antennal segment 7 weakly widened, segment 8 a little more so, segments 8 - 10 subequal, apical segment elongate triangular a little longer than segment 10 (Fig. 42). Protarsus with basal three segments moderately expanded; protibia bent, shallow notch on inside edge towards base. Mesotarsus greatly elongate, basal two segments about twice as long as wide, segments 3 and 4 same length. Median lobe of aedeagus broad, tip simple (Figs. 78, 79), apical portion broad in ventral view.

Female: Smaller. Appendages simple; protarsus moderately enlarged; mesotarsus with basal two segments somewhat enlarged.

ETYMOLOGY: Named after Ingo Weckwerth (Berlin, Germany) who joined the Tasmanian field trip of the senior author.

AFFINITIES: A member of the *S. tarsalis* complex. Relatively large (TL = 2.6 - 3.0 mm), dark, reticulation and punctation strong, apical segment of male antenna widest at base then rapidly narrowing towards apex.

DISTRIBUTION: Tasmania, the most common species on the Central Plateau and in Western Tasmania (Fig. 113).

HABITAT: *Sternopriscus weckwerthi* occurs in almost all kinds of standing water, but most commonly in open, peaty habitats with acidic water, such as small pools and lakes surrounded by *Sphagnum* (Fig. 127) and button-grass (*Gymnoschoenus sphaerocephalus*) or in open Eucalypt Forest, usually in areas with sparce to extensive amounts of submerged vegetation growing on a peaty to stony substrate.

Note: The differences between *S. tarsalis* and *S. weckwerthi* are ones of degree only and the two species are morphologically close. We could find no external character(s) that unequivocally separate the two species. In some localities, e.g. Cradle Valley, both species are clearly present. In other localities the distinction between the two is more problematical. We feel that more cryptic species may exist but that it is unlikely that these will be easily separable on morphological characters alone. In Tasmania *S. weckwerthi* seems to be restricted to higher regions and *S. tarsalis*, apart from Dove Lake in Cradle Valley, to lower altitudes.

***Sternopriscus tarsalis* group (*S. meadfootii* complex)**

***Sternopriscus barbarae* sp.n.**

TYPE LOCALITY: Black River, 12 km SW Mawbanna, north-western Tasmania.

TYPE MATERIAL: **Holotype**: ♂, "Australia, NW-Tasmania 12 km SW Mawbanna, Black River Picnic Area, 31.1.1998 (Lok. 22/63) Lars Hendrich leg." (SAMA). – **Paratypes**: **Tasmania**: 1 ♂, same data as holotype (CLH); 1 ♂ and 1 ♀, "Australia, NW-Tasmania, Bass Hwy, Welcome River near Dismal Swamp, 31.1.1998 (Lok. 19/60) Lars Hendrich leg./Coll." (CLH); 6 ♂♂ and 12 ♀♀, "Harcus Riv. TAS 14 km S W Montagu, 22.1.00 C.H.S. Watts"

(SAMA); 1 ♀, "Welcome Riv. TAS 15 km S W Montagu, 22.1.00 C.H.S. Watts" (SAMA); 1 ♀, "Cradle Valley TAS Cradle Mountain - Lake St Clair N Pk, 19.1.00 C.H.S. Watts" (SAMA); 1 ♂, "3 km S Togari TAS, 22.1.00 C.H.S. Watts" (SAMA); 1 ♂ and 1 ♀, "Black Riv TAS 9 km N W Mawbanna, 21.1.00 C.H.S. Watts" (SAMA); 1 ♂, "AUS.: W-Tasmania 20-30 km N Strahan 19.1.1997 Wewalka leg. (19)" (CGW); 4 exs., "6 k W Bronte Park TAS 30/1/00 C.H.S.Watts leg." (SAMA).

DIAGNOSIS: Elongate oval, widest behind middle, moderately constricted at base of pronotum.

DESCRIPTION: Measurements. Holotype, male: TL = 2.40 mm, TL-H = 2.20 mm; width = 1.20 mm. Paratypes, males: TL = 2.28 - 2.40 mm, TL-H = 2.12 - 2.20 mm; width = 1.08 - 1.20 mm; females: TL = 2.20 - 2.35 mm, TL-H = 2.04 - 2,15 mm; width = 1.08 - 117 mm.

Colour: Head dark brown, front margin and small spot on disc testaceous; pronotum dark brown, area lateral to plicae and often diffuse central band testaceous; elytron dark brown, laterally with small indistinct lighter areas; ventral surface dark brown to black, appendages lighter, tips of palpi dark, central and apical segments of antenna slightly darker, apical portions of metatarsi darker (Fig. 17).

Sculpture: Pronotal plicae well-marked, area between them somewhat depressed, Strongly reticulate, many shallow punctures on elytra and pronotum with well-marked seta, weaker on head. Pronotal process thin, sides subparallel, rugose-punctate, tip rounded, not reaching metasternum. Midline of metasternum ridged in front; metacoxal lines raised, relatively close, moderately diverging in front and rear quarters.

Male: Larger. Antennal segments 3 - 6 progressively enlarged, segments 7 - 9 progressively smaller, segment 10 longer than segment 9, apical segment about same width as segment 10 and about twice as long (Fig. 43). Protarsus with basal three segments broad; protibia stout, small notch on inside near middle; profemur with small, broad, triangular, extension on front edge near base. Mesotarsus with basal three segments moderately expanded. Median lobe of aedeagus broad, thin, tip bifid (Figs. 80, 81); paramere relatively thin (Fig. 108).

Female: Smaller. Appendages simple; protarsus with basal three segments moderately expanded; mesotarsus with basal segment moderately expanded.

ETYMOLOGY: Named after Barbara Lee, for her support on the field trip to Tasmania in 2000 during which specimens of this species were collected.

AFFINITIES: A member of the *S. meadfootii* complex. Small (TL = 2.2 - 2.4 mm), rather shiny, pronotum dark with usually well-marked testaceous areas lateral to plicae, male antenna more enlarged than in *S. meadfootii*, less so than in *S. montanus*.

DISTRIBUTION: Tasmania, Central Plateau and north-western Tasmania (Fig. 116).

HABITAT: A rheophilic species which occurs in small streams and among floating roots and gravel of larger, slow flowing rivers.

Sternopriscus meadfootii (CLARK, 1862)

Hydroporus meadfootii CLARK, 1862: 419.
Sternopriscus maedfooti (CLARK); WATTS 1978: 85; WATTS 1985: 25; TIMMS & WATTS 1987: 4; DAVIS & CHRISTIDIS 1997: 126 (misidentification).
Sternopriscus meadfooti (CLARK): SHARP, 1882: 387; ZIMMERMANN 1920: 62.
Sternopriscus meadfootii (CLARK): LAWRENCE et al. 1987: 343; NILSSON 2001: 185.

TYPE LOCALITY: Australia.

TYPE MATERIAL: **Lectotype**: ♂: no data. Hamlet Clark's label "Meadfootii Clark Australia" (BMNH). – **Paralectotypes**: 1 ex., "Paralectotype", no data, Hamlet Clark's label "Meadfootii Clark"; 4 exs. (2 ♂♂, 2 ♀♀), no data, labelled "Paralectotype", "Co-type" by J. Balfour-Browne, "Sternopriscus meadfootii Clk Co-type"; 3 exs., "Paralectotype", "S. Austr., Bakewell 59-24", "Sternopriscus maedfootii Clk J. Balfour-Browne det." (BMNH).

ADDITIONAL MATERIAL STUDIED:

New South Wales: 1 ex., "Sydney", "Ms Godfr.", "10649", "Hydroporus clavatus" (MZH); 1 ex., Blue Mountains, Mount Wilson, 3500 feet, I.1932, Harvard Expedition Darlington (ANIC); 2 exs., N.S.Wales (NMV); 5 exs., Cooma Island Lake, 26.VIII.1964, W.D. Williams leg. (CLH, CPZ).

Victoria: 3 exs., Grampians, Wannon River Dunkeld, 150 m, 18.II.1998, L. Hendrich leg. (CLH); 6 exs., Grampians, Burong Falls, 650 m, 20.I.1998, L. Hendrich leg. (CLH); 13 exs., Halls Gap, Grampians, 13.I.1962, C.H.S. Watts leg. (SAMA); 7 exs., Turret Falls 5 km N Halls Gap, Grampians, 13.I.1997, C.H.S. Watts leg. (SAMA); 9 exs., 12 km W Casterton, 12.X.1997, C.H.S. Watts leg. (SAMA); 8 exs., 5 km NW Portland, 10.X.1997, C.H.S. Watts leg. (SAMA); 6 exs., 5 km NE Dartmoor, 11.X.1997, C.H.S. Watts leg. (SAMA); 4 exs., Bangor, 9.XI.1997, C.H.S. Watts leg. (SAMA); 1 ex., Hamilton (NMV); 1 ex., creek near Dartmoor, 27.II.1994, G. Challet leg. (CGC); 1 ex., 18.6 km W Casterton, 37°35'57"S 141°09'46"E, 135 m, marsh, 11.XI.2000, K.B. Miller leg. (CKM); 5 exs., 20 km SW Benalla, Monee Monee Creek, 3.III.1992, H. & P. Zwick leg. (CPZ); 1 ex., Lake Mardeluke, creek flowing into Lake Mardeluke, II.1962, W.D. Williams leg. (CPZ).

South Australia: 13 exs., 1 km S Nangwarry, 9.X.1997, C.H.S. Watts leg. (SAMA); 4 exs., ponds along road S Nangwarry, 37°34'53"S 140°48'42"E, 13.XI.2000, K.B. Miller leg.; 1 ex., 10 km S. Robe, I.1983, C.H.S. Watts leg. (SAMA); 1 ex., Western River Conservation Park, near Billygoat Falls in water, 3.XI.1990, E.G. Matthews leg. (SAMA); 1 ex., Bool Lagoon, 23.IV.1979, in artificial pond remaining in middle of dried up lagoon, S.A. Museum Party leg. (SAMA).

Tasmania: 1 ex., Launceston, J.J. Walker, C.G. Champion Coll. B.M. 1927-409 (BMNH); 2 exs., north-western Tasmania, Bass Highway, Welcome River near Dismal Swamp, 31.I.1998, L. Hendrich leg. (CLH); 18 exs., north-western Tasmania, Bass Highway, Montagu River, 100 m, 31.I.1998, L. Hendrich leg. (CLH); 16 exs., Harcus River 14 km S W Montagu, 22.I.2000, C.H.S. Watts leg. (SAMA); 10 exs., 9.2 km W Gladstone, 23.I.2000, C.H.S. Watts leg. (SAMA); 3 exs., 9 km S Gladstone, 23.I.2000, C.H.S. Watts leg. (SAMA); 4 exs., 3 km S Togari, 22.I.2000, C.H.S. Watts leg. (SAMA); 11 exs., 6 km N Pioneer, 23.I.2000, C.H.S. Watts leg. (SAMA); 9 exs., 15 km NE Miena, 23.I.2000, C.H.S. Watts leg. (SAMA); 1 ex., 25 km E Bridport, 23.I.2000, C.H.S. Watts leg. (SAMA); 2 exs., 8 km W Kingston, 3.XII.2000, C.H.S. Watts leg. (SAMA); 1 ex., 3 km SW Clifton Beach, 4.XII.2000, C.H.S. Watts leg. (SAMA); 1 ex., 20 km N Tarraleah, 18.I.1997, G. Wewalka leg. (CGW); 2 exs., 10-20 km SW Orford, 23.I.1997, G. Wewalka leg. (CGW); 2 exs., 60 km E Launceston, 10-20 km W Mathinna, 21.I.1997, G. Wewalka leg. (CGW).

DIAGNOSIS: Narrowly oblong, elytron widest behind middle, convex.

DESCRIPTION: Measurements. Specimens from mainland Australia. Males: TL = 2.44 - 2.52 mm, TL-H = 2.16 - 2.32 mm; width = 1.20 - 1.24 mm. Females: TL = 2.40 - 2.60 mm, TL-H = 2.16 - 2.32 mm; width = 1.24 - 1.32 mm.

Specimens from Tasmania. Males: TL = 2.56 - 2.60 mm, TL-H = 2.38 - 2.40 mm; width = 1.24 - 1.26 mm. Females: TL = 2.44 - 2.64 mm, TL-H = 2.20 - 2.40 mm; width = 1.26 - 1.32 mm.

Colour: Head testaceous, front angles widely black; pronotum black, sides narrowly to broadly testaceous; elytron testaceous with numerous coalescing black spots; ventral surface dark brown to black, sides of prosternum and appendages lighter, apical segments of antenna, base of metafemur and portions of tibiae and tarsi darker (Fig. 18).

Sculpture: Strongly reticulate throughout. Head with numerous shallow punctures, rest of body closely covered with strong, rather shallow, rugose punctures. Pronotal plicae moderately strong, area between them somewhat depressed. Pronotum and elytra very weakly margined. Prothoracic process robust, subparallel, strongly rugose-punctate, not reaching metasternum. Metacoxae not touching. Metacoxal lines well separate, short, weakly diverging towards front.

Male: Larger. Antennal segments 5 - 7 a little expanded, apical segment longer (Fig. 44). Protarsus quite strongly expanded; protibia expanded with a shallow indentation on inner edge of basal half, curved; profemur with basal ridge on inside near base strongly developed. Mesotarsus expanded, apical segments a little elongate; mesotibia a little curved. Median lobe of aedeagus relatively short, tip either relatively narrow and bluntly pointed or broad with tip bifid (Fig. 82, 83). [Note: As in most *Sternopriscus* the central part of the median lobe is very weakly sclerotized and the two forms seem to depend on the extent to which the median lobe has widened or narrowed during preparation.]

Female: Smaller. Antennae simple; basal segments of pro- and mesotarsi somewhat expanded.

AFFINITIES: A member of the *S. meadfootii* complex. Antennae in the male more modified than in *S. mundanus*, but less so than in *S. barbarae* or *S. montanus* (see Figs. 43, 45, 46, and Key).

DISTRIBUTION: S Gulfs, SE coastal, Murray-Darling basin, TAS, SA, NSW, ACT and VIC (WATTS 1978; LAWRENCE et al. 1987). The records from SW Australia (DAVIS & CHRISTIDIS 1997) need to be confirmed (Fig. 114).

HABITAT: Ponds and farm dams or still water at the edge of creeks and rivers.

Sternopriscus montanus WATTS, 1978

Sternopriscus montanus WATTS, 1978: 87; WATTS 1985: 25; LAWRENCE et al. 1987: 343; NILSSON 2001: 185.

TYPE LOCALITY: Cradle Mountain, Tasmania.

TYPE MATERIAL: **Holotype** [red marked on same card with 6 Paratypes]: ♂, "Cradle Mtn., Tasmania, Carter & Lea" (SAMA), "Holotype Sternopriscus montanus Det. C. Watts 1976" (SAMA). – **Paratypes**: 4 ♂♂ and 26 ♀♀, same data as holotype (SAMA).

ADDITIONAL MATERIAL EXAMINED:

Tasmania: 19 exs., Narcissus Bay, Lake St Clair National Park, 18 km NW Derwent Bridge, 24.1.2000, C.H.S. Watts leg. (CLH, SAMA); 8 exs., Lake Dobson, Mount Field National Park, 26.1.2000, C.H.S. Watts leg. (SAMA).

DIAGNOSIS: Small, strongly reticulate, reddish-brown species.

DESCRIPTION: Measurements. Males: TL = 2.44 - 2.52 mm, TL-H = 2.16 - 2.28 mm; width = 1.12 - 1.16 mm. Females: TL = 2.20 - 2.28 mm, TL-H = 1.92 - 2.08 mm; width = 1.08 - 1.12 mm.

Colour: Dark red to brown, parts of front of head, sides of pronotum, parts of elytron and parts of appendages lighter (Fig. 19).

Sculpture: Strongly reticulate. Elytral margins weakly serrated towards apex. Pronotum and elytron covered with rather long setae. Head with relatively sparse, rather shallow punctures, pronotum covered with strong, evenly placed punctures very rugose at sides, rest of body strongly rugose-punctate. Pronotal plicae well-marked, reaching a little over half way along pronotum, joined by a shallow, narrow depression. Prothoracic process robust, subparallel, strongly rugose-punctate, not reaching metasternum. Metacoxal lines strongly raised, relatively close, diverging slightly towards front.

Male: Larger. Antennal segments 5 - 9 quite strongly expanded, particularly 6 and 7, apical rather elongate (Fig. 45). Protarsus strongly expanded; profemur expanded with basal ridge on inside near base strongly developed; protibia moderately expanded, curved, with a slight excavation near base on inside. Basal three segments of mesotarsus moderately expanded. Median lobe of aedeagus broad, very thin apically, tip bilobed (Figs. 84, 85); paramere relatively thin (Fig. 107).

Female: Smaller. Antenna short, robust, middle and apical segments a little expanded. Protarsus strongly expanded, basal segments of mesotarsus moderately expanded.

AFFINITIES: A member of the *S. meadfootii* complex. Within the complex *S. montanus* has the most strongly expanded male antennae next to *S. barbarae*, another Tasmanian endemic (Figs. 43, 45). Within the complex it is characterised by its relatively strong sculpture, broad male protarsi, dark head and pronotum and, in the male, the middle segments of the antenna more expanded than the apical and segment three of the antenna squat, not much longer than wide. In

addition, females can also be recognised by their stout antennae and strongly expanded pro- and mesotarsi.

DISTRIBUTION: Alpine lakes and peatland swamps of the Central Plateau of Tasmania (Fig. 119).

HABITAT: Open, small, shallow, peaty pools or embayments of larger lakes, usually with bare silty substrates (Fig. 126).

Sternopriscus mundanus WATTS, 1978

Sternopriscus mundanus WATTS, 1978: 85, 86; WATTS 1985: 25; LAWRENCE et al. 1987: 344; NILSSON 2001: 185.

TYPE LOCALITY: Pond, Healesville, Victoria.

TYPE MATERIAL: **Holotype**: ♂ [together with three paratypes on one card, marked with red dot]: "Healesville V. 12/68, CW", "Holotype", "Paratype", "Holotype Sternopriscus mundanus det. C. Watts 1976" (ANIC). – **Paratypes**: 17 exs., same data as holotype (4 exs. in ANIC, 13 in SAMA); 10 exs., "Canberra, Feb' 61, CW." (SAMA); 2 exs., "Marysville, Victoria, Dec. 1968, C. Watts leg." (SAMA).

ADDITIONAL MATERIAL STUDIED:

Australian Capital Territory: 2 exs., Paddy's River, station no. 231, near Murray's Corner, 3.IV.1965, M.E. Bacchus B.M. 1965-120.

New South Wales: 5 exs., Forest Reefs, Lea leg. (SAMA); 1 ex., Mount Kosciusko, 5-7000 feet, 12.XII.1931, Australia, Harvard Expedition Darlington (ANIC).

Victoria: 24 exs., Rose River, 16.5. km N Dandongadale, 1.XII.1997, C. Challet leg. (CLH, CGC); 3 exs., Rose River, 8.5 km W Dandongadale, 26.II.1994, G. Challet leg. (CGC); 2 exs., Dandongadale, Rose River near Lake Buffalo, 300 m, 15.II.1998, L. Hendrich leg. (CLH); 5 exs., Abbeyard, Buffalo River, 26.II.1994, G. Challet leg. (CGC); 2 exs., King Parrot Creek, Highway 168 near Yea, 26.II.1994, G. Challet leg. (CGC); 4 exs., Creek at Lobbs Bridge, near Walen, 23.II.2001, G. Challet leg. (CLH, CGC); 3 exs., 10 km E Chesthunt, 400 m, 15.II.1998, L. Hendrich leg. (CLH); 2 exs., Halls Gap, 13.I.1997, C.H.S. Watts leg. (SAMA); 1 ex., Mount Buffalo National Park, The Cathedral/Leviathan, 1550 m, 14.II.1998, L. Hendrich leg. (CLH); 11 exs., Grampians, Burong Falls, 650 m, 20.I.1998, L. Hendrich leg. (CLH); 14 exs., 5 km W Dandongadale, 350 m, 15.II.1998, L. Hendrich leg. (CLH); 1 ex., Ballarat, W.W. Frogatt collection (ANIC); 2 exs., Melbourne No 547, E. Fischar leg. (NMV); 1 ex., Melbourne District H.W. Davey leg. (NMV); 1 ex., Werribee River, Ballan, 10.VI.1976, A. Calder leg. (NMV); 1 ex., Melbourne (NMV); 1 ex., Oakleigh (NMV); 1 ex., Melbourne District, H.W. Davey leg. (NMV); 2 exs., 5 km S Mount Hotham, 5.XI.1997, C.H.S. Watts leg. (SAMA); 6 exs., Vic Merrijig, 16.III.1969, C.H.S. Watts leg. (SAMA); 13 exs., 20 km SW Benalla, Monee Monee Creek, 3.III.1992, H. & P. Zwick leg. (CPZ); 30 exs., Broken River near Mansfield, II.1987, P. Zwick leg. (CLH, CPZ); 5 exs., NW Melbourne, II.1987, P. Zwick leg. (CPZ); 6 exs., Fryer's Creek, near mouth into Lake Eildon, 3.X.1972, P. Zwick leg. (CPZ); 1 ex., Big River at Lake Eildon, 3.X.1972, P. Zwick leg. (CPZ); 10 exs., Fryer's Creek at Lake Eildon, 3.X.1972, P. Zwick leg. (CPZ); 1 ex., Delatite River, 25.V.1972, H.B.N. Hynes leg. (CPZ); 4 exs., Acheron River, 25.V.1975, L. Macmillan leg. (CPZ); 1 ex., Geelong, pond near Twin Lake, 13.XII.1964, W.D. Williams leg. (CPZ); 2 exs., Jamieson River, 3.X.1972, P. Zwick leg. (CPZ); 3 exs., Howqua River, Stockyard Flats, 15.IV.1972, P. Zwick leg. (CPZ).

DIAGNOSIS: Elongate-oval, elytron widest about middle.

DESCRIPTION: Measurements. Males: TL = 2.20 - 2.32 mm, TL-H = 1.92 - 2.08 mm; width = 1.08 - 1.12 mm. Females: TL = 2.12 - 2.24 mm, TL-H = 1.88 - 2.00 mm; width = 1.04 - 1.08 mm.

Colour: Head black with one central and two apical testaceous spots; pronotum black, quite widely testaceous at sides; elytron black with numerous narrow testaceous patches; ventral surface. Dark brown to black, sides of prosternum and appendages lighter, middle and apical segments of antenna darker (Fig. 20).

Sculpture: Very strongly reticulate. Punctures on head shallow tending to be masked by reticulation, those on rest of body large, moderately dense and rugose. Pronotal plicae strongly raised, reaching to two-thirds way along pronotum, area between them with well-marked

depression. Sides of pronotum and elytron narrowly but sharply margined, margins weakly serrate, more so towards apex of elytron. Prothoracic process robust, sides subparallel, strongly punctate, not reaching metasternum. Mesocoxae not touching. Metacoxal lines relatively close, short, moderately diverging in front half.

Male: Larger. Antenna stout, simple, segments 5 - 10 similar, apical elongate (Fig. 46). Protarsus moderately expanded; protibia a little expanded with a small excavation on inner edge near base. Profemur expanded with ridge on inside near base quite strongly developed. Mesotarsus a little expanded, a little elongate; mesotibia a little thickened. Median lobe of aedeagus broad, tip simple, apical portion broad in ventral view (Figs. 86, 87); paramere thin (Fig. 106).

Female: Smaller. Antenna stout, simple; pro- and mesotarsi a little expanded; pronotum with sides moderately sinuate.

AFFINITIES: A member of the *S. meadfootii* complex. Within this complex male *S. mundanus* have the antennae least modified, in fact barely different from females. In south-western Australia *S. wattsi* has similar antennae but is readily separable by its greatly extended metacoxal processes. Females cannot be separated from a number of other members of the *S. tarsalis* group.

DISTRIBUTION: SE coastal, Murray-Darling basin, ACT, NSW, VIC (WATTS 1978; LAWRENCE et al. 1987). In the Great Dividing Range up to 1550 m (Fig. 119).

HABITAT: In artificial ponds and farm dams, at the edge of slow flowing rivers as well as in peaty ponds at higher altitudes. In general the species prefers habitats with dense aquatic vegetation such as mats of floating grasses or sedges.

Sternopriscus tarsalis group (*S. tasmanicus* complex)

Sternopriscus alpinus sp.n.

TYPE LOCALITY: Shallow embayment of Lake St. Clair, Great Lakes Area of Central Tasmania.

TYPE MATERIAL: **Holotype**: ♂, "Australia, C-Tasmania, Lake St. Clair, Narcissus Bay, 747m, 27.1.1998 (Lok.8/49) Lars Hendrich leg." (SAMA). – **Paratypes**: **Tasmania**: 3 ♂♂ and 5 ♀♀, same data as holotype (CLH, SAMA); 20 ♂♂ and 23 ♀♀, "TAS Lake St Clair 4 km N Derwent Bridge, 25.1.00 C.H.S. Watts" (SAMA); 2 ♂♂ and 3 ♀♀, "TAS Narcissus Bay Lake St Clair 18 km NW Derwent Bridge, 24.1.00 C.H.S. Watts" (SAMA); 15 ♂♂ and 8 ♀♀, "S end L St Clair TAS 30/11/00 C.H.S. Watts leg." (SAMA). **New South Wales**: 2 ♂♂ and 3 ♀♀, "Blue Lake Snowy Mts. N.S.W., 8. Febr. 1979 D. K. McAlpine & B. J. Day", "on damp soil under stones" (AM, CLH); 1 ♂ and 4 ♀♀, "Australia NSW Stream between Hedley Tarn and Blue Lake, Mt. Kosciusko 3.2.1976 J. Campbell leg." (CLH, CPZ); 1 ♂, "NSW, Mt. Kosciusko Hedley tarn 23.II.69 Williams" (CPZ); AUSTRALIA: NSW Mt. Kosciusko Blue Lake 3.2.1976 Campbell" (CLH). **Victoria**: 1 ♂, "Australia/Victoria Mt. Buffalo NP, Povepunkah, 700m, 14.2.1998 (Lok. 40/81) Lars Hendrich leg." (CLH); 53 exs., "Australia/Victoria Mt. Buffalo NP, The Cathedral/Leviathan, 1550m, 14.2.1998 (Lok.41/82) Lars Hendrich leg." (CLH).

DIAGNOSIS: Elongate, moderately constricted at base of pronotum, elytron widest just behind middle.

DESCRIPTION: Measurements. Holotype, male: TL = 2.80 mm, TL-H = 2.40 mm; width = 1.28 mm. Paratypes, males: TL = 2.64 - 2.80 mm, TL-H = 2.40 - 2.48 mm; width = 1.28 mm; females: 2.56 - 2.64 mm, TL-H = 2.28 - 2.36 mm; width = 1.20 - 1.28 mm.

Colour: Head dark brown to black, extreme front edge and small spot on disc testaceous; pronotum dark brown to black; elytra testaceous with small dark patches tending to coalesce on disc; ventral surface dark brown, appendages slightly lighter, tips of palpi dark, antennal segments 4 - 11 progressively darker (Fig. 21).

Sculpture: Pronotal plicae well-marked, area between them weakly depressed. Moderately reticulate, punctures relatively large, shallow, those on pronotum strong, those on head sparse and weak. Pronotal process thin, sides subparallel, rugose-punctate, not reaching metathorax. Mesosternal lines raised, well separated, weakly diverging in front half.

Male: Larger. Antennal segment 3 larger that segment 4, segments 5 - 10 progressively but weakly enlarging, apical segment wider than 10 bluntly pointed at tip a bit over twice as long as segment 10 (Fig. 47). Apical segment of labial palpus expanded, tip bifid. Protarsus strongly expanded; protibia curved with shallow notch on inner edge behind middle; profemur with strongly raised ridge on front edge near base. Mesotarsus moderately expanded, elongate, basal two segments about as wide as long. Median lobe of aedeagus broad, tip simple, tip thin in lateral view (Figs. 88, 89).

Female: Smaller. Antenna stout, labial palpus less enlarged; sides of pronotum slightly sinuate; tarsi weakly expanded.

AFFINITIES: A member of the *S. tasmanicus* complex. Small (TL = 2.5 - 2.8 mm), head and pronotum predominantly dark, elytron mottled dark and light, coxal plates and ventrites with very strong punctures, apical segment of male antenna bluntly pointed, apical portion of median lobe of aedeagus broad and flat. Male mesotarsi slightly broader than in *S. tasmanicus* and *S. wehnckei.*

ETYMOLOGY: A species which occurs at higher altitudes of Tasmania and the alpine zone of the Great Dividing Range in New South Wales and Victoria.

DISTRIBUTION: SE coastal. Higher mountain and alpine regions (700 - 1500 m) of New South Wales and Victoria (Snowy Mountains and Mount Buffalo) and the Great Lakes area of Tasmania. Probably more widespread at higher altitudes of the Great Dividing Range (Fig. 113).

HABITAT: In Tasmania the species has been taken in sheltered regions at the edge of large lakes in areas with sparse to thick vegetation over a substrate of pebbles (Fig. 126). In the Mount Buffalo National Park all specimens were collected in small peatland pools and puddles, completely covered with thin sedges.

Sternopriscus tasmanicus SHARP, 1882

Sternopriscus tasmanicus SHARP, 1882: 388; ZIMMERMANN 1920: 62; WATTS 1978: 83; WATTS 1985: 25; LAWRENCE et al. 1987: 344; TIMMS & WATTS 1987: 4; NILSSON 2001: 185.

TYPE LOCALITY: Tasmania.

TYPE MATERIAL: **Holotype** ♂: "Tasmania", "Holotype", "Tasmania 1134 Tasmania", "Sternopriscus tasmanicus Shp Type" (BMNH).

ADDITIONAL MATERIAL STUDIED:

Victoria: 2 exs., 30 km W Portland, 10.X.1997, C.H.S. Watts leg. (SAMA); 2 exs., Great Ocean Road, Port Campbell, Sherbrooke River, 20 m, 18.II.1998, L. Hendrich leg. (CLH).

South Australia: 6 exs., Robe, VII.1989, C.H.S. Watts leg. (SAMA); 145 exs., Little Dip Conservation Park, 10 km S Robe, Freshwater Lake, 22.II.1998, L. Hendrich leg. (CLH, NMW); 6 exs., 30 km N Robe, roadside lake, 36°54'41"S 139°50'10"E, 13.XI.2000, K.B. Miller leg. (CKM); 1 ex., Fleurieu Peninsula, Mount Compass, Wetland Board-walk Conservation Area, 400 m, 24.II.1998, L. Hendrich leg. (CLH); 10 exs., 15 km N Kingston, shallow roadside pool, 36°40'11"S 139°53'08"E, 13.XI.2000, K.B. Miller leg. (CKM); 1 ex., Mount Lofty Range, A.H. Elston (AM); 6 exs., Tumby Bay, Blackburn leg. (SAMA); 1 ex., Beachport, H.M. Hale leg. (SAMA); 1 ex., South East Bool Lagoon, in artificial pond remaining in middle of dried up lagoon, 23.IV.1979, S.A. Museum Party leg. (SAMA); 1 ex., 25 km NE Mount Gambier, swamp amongst pines of Linwood Park, 26.III.1982, J.A. Forrest leg. (SAMA); 5 exs., Valley L. Mount Gambier, 1.I.1975, Coll. K.F. Walker (SAMA); 9 exs., 10 km S. Robe, I.1983, C.H.S. Watts leg. (SAMA); 3 exs., Port Lincoln, Blackburn leg. (SAMA); 4 exs., Port Lincoln, I.1982, C.H.S. Watts leg. (SAMA); 10 exs., Robe, VIII.1961, C.H.S. Watts leg. (SAMA); 11 exs.,

Mount Gambier, XII.1961, C.H.S. Watts leg. [5 specimens on one card with label "Comp. Type Sternopriscus tasmanicus Sharp C.H.S. Watts 1966"] (SAMA); 3 exs., Lake Leake, Kalangadoo, 26.III.1964, W.D. Williams leg. (CPZ); 1 ex., Mount Gambier, Blue Lake, 26.III.1964, W.D. Williams leg. (CPZ).

Tasmania: 1 ex., Deloraine, I.1962, C.H.S. Watts leg. (SAMA); 4 exs., Hobart, VIII.1961, C.H.S. Watts leg. (SAMA); 2 exs., Harcus River, 14 km SW Montague 22.I.2000, C.H.S. Watts leg. (SAMA); 9 exs., 20-30 km N Strahan, 19.I.1997, G. Wewalka leg. (CGW, MZH).

DIAGNOSIS: Elongate-oval, elytron widest behind middle, convex.

DESCRIPTION: Measurements. Specimens from mainland Australia. Males: TL = 2.68 - 2.86 mm, TL-H = 2.40 - 2.60 mm; width = 1.32 - 1.36 mm. Females: TL = 2.48 - 2.72 mm, TL-H = 2.28 - 2.52 mm; width = 1.28 - 1.40 mm.

Specimens from Tasmania. Males: TL = 2.92 - 3.08 mm, TL-H = 2.68 - 2.80 mm; width = 1.40 - 1.44 mm. Females: TL = 2.72 - 2.76 mm, TL-H = 2.40 - 2.60 mm; width = 1.30 - 1.40 mm.

Colour: Head black, front margin and a basal spot testaceous; pronotum black, broadly testaceous at sides; elytron mottled dark brown and testaceous; ventral surface dark brown to black, sides of prosternum and appendages lighter, antenna darker apically (Fig. 22).

Sculpture: Head with very strong reticulation and moderately dense, shallow punctures, rest of body reticulate and strongly and closely rugose-punctate. Pronotal plicae well-marked, reaching to about half way along pronotum, with well-marked depression between them. Prothoracic process robust, subparallel, strongly punctate, not reaching metasternum. Metacoxal lines raised, moderately diverging anteriorly.

Male: Larger. Antenna stout, segments 7 - 10 a little expanded, apical segment greatly expanded, its inner edge straight, outer edge curved, apex pointed (Fig. 48). Protarsus greatly expanded; protibia expanded, curved, with a small basal indentation on inside; profemur slightly ridged on inside near base. Mesotarsus robust a little expanded and a little elongate; mesotibia a little curved. Median lobe of aedeagus simple, parallel-sided, slightly bulbous towards apex (Figs. 90, 91).

Female: Smaller. Edge of pronotum a little sinuate; antenna relatively stout, segments simple; basal segments of pro- and mesotarsi moderately expanded.

AFFINITIES: A member of the *S. tasmanicus* complex. From *S. alpinus* it differs in having extensive testaceous areas on the pronotum and the median lobe of the aedeagus somewhat bulbous apically rather than flat as in *S. alpinus*. It is more difficult to distinguish from S. *wehnckei* but the more pointed shape of the apical segment of the antennae will separate them. Specimens from Tasmania appear, on average, to be larger and possibly more strongly sculptured but otherwise differ little from mainland specimens. As in most of the *S. tarsalis* group the extent of testaceous colour on the head and pronotum is highly variable.

DISTRIBUTION: S Gulfs, SE coastal, lower altitudes of TAS, SA and VIC (WATTS 1978, LAWRENCE et al. 1987) (Fig. 120).

HABITAT: Found mainly in open ponds, coastal swamps and farm dams, only occasionally at the edges of creeks and rivers. Tolerates slightly saline water (Fig. 130).

Sternopriscus wehnckei SHARP, 1882

Sternopriscus wehnckei SHARP, 1882: 387; ZIMMERMANN 1920: 62; WATTS 1978: 87, 88; WATTS 1985: 25; LARSON 1993: 60; LARSON 1997: 273; NILSSON 2001: 185.

TYPE LOCALITY: Australia.

TYPE MATERIAL: **Lectotype**: ♂, "Sternopriscus wehnckei ♂ Type D.S. Australia", "Lectotype", "Type", "Australia", "Australia", "Sharp Coll. 1905-313", "Sternopriscus wehnckei Sharp Det. Watts 1979" (BMNH). –

Paralectotype: 1 ♀, "Sternopriscus wehnckei Types D.S. Australia", "Paralectotype", "Type", "Australia", "Sharp Coll. 1905-313", "Sternopriscus wehnckei Sharp Det. Watts 1979" (BMNH).

ADDITIONAL MATERIAL EXAMINED:

Queensland: 4 exs., Stanthorpe, I.1981, C.H.S. Watts leg. (SAMA); 1 ex., Nicolas Creek near Malanda, 6.XI.1990, D. Larson leg. (QDPIM); 1 ex., Wild River, 2 km S Herberton, 18.X.1990, D. Larson leg. (QDPIM); 1 ex., 32 km W. Ingham, stream, 6.XII.1997, G. Challet leg. (CGC).

New South Wales: 4 exs., Glendagie Creek, 9 miles SE of Grafton, 5.XII.1948, E.B. Britton & B.B. Carne leg. (BMNH); 13 exs., Prospect-St. Mary's Road, Station No. 212, 24.III.1965, M.E. Bacchus leg. (BMNH); 3 exs., Parramatta [Sydney], Station No. 216, 26.III.1965, M.E. Bacchus leg. (BMNH); 1 ex., Parramatta, 26.III.1965, M.E. Bacchus B.M. 1965-120 (BMNH); 1 ex., Cathedral Rocks National Park, 28.II.1992, G. Challet leg. (CGC); 11 exs., Berry, I.1968, C.H.S. Watts leg. (SAMA); 5 exs., Armidale, 21.III.1963, C.H.S. Watts leg. (SAMA); 2 exs., Cabbage Tree Creek 20 km W Nelligan, 30.XI.1995, C.H.S. Watts leg. (SAMA); 2 exs., Booral, 18.VIII.1997, C.H.S. Watts leg. (SAMA); 1 ex., 2 km S of Delegate, 4.XI.1997, C.H.S. Watts leg. (SAMA); 13 exs., 10 km E Braidwood, 30.XI.1995, C.H.S. Watts leg. (SAMA); 13 exs., Braidwood, 19.I.1997, C.H.S. Watts leg. (SAMA); 1 ex., 8 km N Bombala, 3.XI.1997, C.H.S. Watts leg. (SAMA); 1 ex., roadside pool 6 km SW Braidwood, 35°29'52"S 149°44'09"E, 687 m, 2.XI.2000, K.B. Miller leg. (CKM); 2 exs., muddy pool 3 km W Cooma, 36°16'39"S 149°80'05"E, 895 m, 4.XI.2000, K.B. Miller leg. (CKM); 6 exs., Saucey Creek, 5 km W Bombala, 13.I.1997, C.H.S. Watts leg. (SAMA); 2 exs., St. Albans, pond, 29.II.1992, G. Challet leg. (CGC); 2 ex., Hartley Vale Blue Mountains, 30.I.1932, Australian Harvard Expedtion, Darlington leg. (ANIC); 2 exs., Jindabyne, 1.II.1987, P. Zwick leg. (CPZ).

Australian Capital Territory: 1 ex., Kambah Rd., Murrumbidgee River, 20.I.1969, J. Balfour-Browne leg. (BMNH); 1 ex., near Canberra, 28.III.1965, M.E. Bacchus B.M. 1965-120; 1 ex., Canberra, stream entering Lake Burley-Griffin, 30.III.1965, M.E. Bacchus B.M. 1965-120 (BMNH); 1 ex., Gibraltar Creek, Gibraltar Falls, 35°29'40"S 148°56'18"E, 4.XI.2000, K.B. Miller leg. (CKM).

Victoria: 4 exs., 12 km SW Orbost, 5.XI.1997, C.H.S. Watts leg. (SAMA); 5 exs., Healsville, XII.1968, C.H.S. Watts leg. (SAMA); 2 exs., Ferntree Gully, XII.1961, C.H.S. Watts leg. (SAMA); 4 exs., Mount Gambier, II.1961, C.H.S. Watts leg. (SAMA); 9 exs., Simpson Creek 12 km SW Orbost, 16.I.1997, C.H.S. Watts leg. (SAMA); 3 exs., Healsville, 15.I.1997, C.H.S. Watts leg. (SAMA); 2 exs., Kiewa Valley Highway near Redbank, 13.II.1998, L. Hendrich leg. (CLH); 3 exs., Dandongadale, Rose River near Lake Buffalo, 300 m, 15.II.1998, L. Hendrich leg. (CLH); 1 ex., grassy pond near Stradbroke, 38°18'11"S 147°01'28"E, 210 m, 30.X.2000, K.B. Miller (CKM); 1 ex., marsh 2.7 km W Casterton, 37°35'46"S 141°20'23"E, 11.XI.2000, K.B. Miller leg. (CKM); 3 exs., muddy pool 8 km W Cowwarr, 38°00'32"S 146°37'03"E, 7.XI.2000, K.B. Miller leg. (CKM); 3 exs., farm pond near Wron Wron, 38°24'33"S 146°45'13"E, 213 m, 30.X.2000, K.B. Miller leg. (CKM); 1 ex., roadside pool near Pernim, 38°12'45"S 142°29'28"E, 10.XI.2000, K.B. Miller leg. (CKM); 1 ex., Benambra, farm pond, 36°58'16"S 147°42'26"E, 707 m, 5.XI.2000, K.B. Miller leg. (CKM); 1 ex., Tambo R. 3 km S Swifts Creek, 37°16'54"S 147°44'12"E, 5.XI.2000, K.B. Miller leg. (CKM); 3 exs., Stoney Creek 5 km E Meeniyan, 38°35'44"S 146°04'30"E, 25 m, 30.X.2000, K.B. Miller leg. (CKM); 3 exs., small stream near Mirboo North, 38°32'39"S 146°05'27"E, 312 m, 30.X.2000, K.B. Miller leg. (CKM); 1 ex., 20 km SW Benalla, Monee Monee Creek, 3.III.1992, H. & P. Zwick leg. (CPZ); 2 exs., Dandenongs, 4.VIII.1972, P. Zwick leg. (CPZ).

South Australia: 1 ex., 10 km N Coonawarra, 26.IX.1998, C.H.S. Watts leg. (SAMA); 2 exs., Mount Gambier, XII.1961, C.H.S. Watts leg. (SAMA); 8 exs., Eudunda 10 km S, 34°16'S 139.06'E, 3.X.1995, C.H.S. Watts leg. (SAMA); 3 exs., ponds along road S Nangwarry, 37°34'53"S 140°48'42"E, 13.XI.2000, K.B. Miller leg. (CKM).

DIAGNOSIS: Elongate-oval, elytron widest in middle.

DESCRIPTION: Measurements. Males: TL = 2.60 - 2.80 mm, TL-H = 2.32 - 2.60 mm; width = 1.24 - 1.36 mm. Females: TL = 2.44 - 2.52 mm, TL-H = 2.12 - 2.20 mm; width = 1.20 - 1.28 mm.

Colour: Head testaceous, areas inwards from eyes and along rear edge dark red-brown to varying degrees, occasionally completely testaceous; pronotum dark brown to black, broadly testaceous at sides; elytron variegated dark brown and testaceous; ventral surface dark brown to black, prosternum and appendages lighter, middle and apical segments of antenna darker, metatarsus with darker bands (Fig. 23).

Sculpture: Elytral margin weakly serrated. Pronotal plicae well-marked, reaching to about half way along pronotum, joined by a moderate depression. Strongly reticulate. Head with numerous rather shallow punctures, rest of body closely and strongly punctate. Prothoracic process robust,

subparallel, strongly rugose-punctate, not or only just reaching metasternum. Midline of metasternum raised in front; metacoxal lines strongly raised, well separated, weakly diverging towards front.

Male: Larger. Antenna stout, segments progressively more expanded towards apex, apical segment largest, inner edge straight, outer a smooth arc (Fig. 49). Protarsus moderately expanded; protibia expanded, curved with a small but well-marked excavation on inside near base; profemur with a strong, short ridge on inside at base. Mesotarsus robust moderately elongate; mesotibia a little curved; mesofemur elongate. Median lobe of aedeagus simple, bluntly pointed, strongly bulbous apically (Figs. 92, 93).

Female: Smaller. Antenna simple; basal segments of protarsus moderately expanded, mesotarsus rather less so.

AFFINITIES: A member of the *S. tasmanicus* complex. From *S. alpinus* it can be separated by its lighter coloured head and pronotum and bulbous apical portion of the median lobe of the aedeagus. From *S. tasmanicus* it differs only in the more rounded apex to the apical segment of the male antenna. We have been unable to separate females from *S. tasmanicus*, *S. tarsalis*, *S. meadfootii* or *S. mundanus*.

DISTRIBUTION: S Gulfs, SE coastal, NE coastal, Murray-Darling basin, SA, ACT, VIC, NSW and QLD (WATTS 1978, LAWRENCE et al. 1987) (Fig. 118).

HABITAT: Open pools and man-made dams (Fig. 133), edges of creeks and rivers. Perhaps found more often in running water than other species in the *S. tarsalis* group.

Sternopriscus tarsalis group (not associated with any complex)

Sternopriscus minimus LEA, 1898

Sternopriscus minimus LEA, 1898: 525; ZIMMERMANN 1920: 62; WATTS 1978: 86; WATTS 1985: 25; LAWRENCE et al. 1987: 343; PEDERZANI 1999: 7; BALKE et al. 2000: 226; HENDRICH 2001a: 302; HENDRICH 2001b: 21; NILSSON 2001: 185.

TYPE LOCALITY: Swan River, south-western Australia.

TYPE MATERIAL: **Lectotype**, ♂ [herewith designated]: "minimus Lea TYPE Swan R. Donnybrook", "14473 Sternopriscus minimus Lea W. Australia", "LECTOTYPE *Sternopriscus minimus* LEA Hendrich & Watts des. 99" (SAMA). – **Paralectotype**, 1 ♀: "Swan River Donnybrook" (SAMA).

ADDITIONAL MATERIAL EXAMINED:

Western Australia: 25 exs., 5 km S Northcliffe, 10 m, 27.XI.1996, L. Hendrich leg. (CLH); 2 exs., Dog Pool on Shannon River, 34°46'S 116°22'E, 27-30.IV.1990, M.S. Harvey & J.M. Waldock leg. (WAM); 2 ex., Bunbury (AM); 2 exs., W. Australia (NMV); 3 exs., Bunbury, F.L. Whitlock leg. (ANIC); 1 ex., Vasse Highway, 4 km W Beedelup National Park, Carey Brook/Bridge, 100 m, 1.I.2000, 34°24'S 115°48'E, L. Hendrich leg. (CLH); 8 exs., Albany, 3 km ENE Manypeaks, Lake Pleasant Nature Reserve, 7.I.2000, 34°49'S 118°10'E, L. Hendrich leg. (CLH); 8 exs., Albany Highway, Muir Lakes Nature Reserve, SW part of Byenup Lagoon, 4.-5.I.2000, 34°29'S 116°44'E, L. Hendrich leg. (CLH); 3 exs., Lake Poorginup, 20.IX.2000, C.H.S. Watts leg. (SAMA); 150 exs., D'Entrecasteaux National Park, 20 km S Northcliffe, Windy Harbour Road, 50 m, 3.I.2000, 34°46'S 116°04'E, L. Hendrich leg. (CLH, NMW, SAMA); 1 ex., Beedelup Falls, IV.1972, P. Zwick leg. (CPZ).

DIAGNOSIS: Oval, elytron widest in middle.

DESCRIPTION: Measurements. Males: TL = 1.96 - 2.00 mm, TL-H = 1.80 - 1.84 mm; width = 1.00 - 1.02 mm. Females: TL = 1.84 - 1.88 mm, TL-H = 1.70 - 1.72 mm; width = 0.96 - 1.00 mm.

Colour: Head dark brown to black with two confluent testaceous spots on front edge; pronotum dark brown to black, widely testaceous at sides and parts of disc; elytron dark brown to black

with testaceous markings at side and vague ones elsewhere. Ventral surface dark brown to black, appendages and parts of abdomen testaceous, apical and middle segments of antenna and parts of metatibia darker (Fig. 24).

Sculpture: Pronotal plicae weak, reaching to two-thirds way along pronotum, areas immediately inwards from plicae slightly depressed. Moderately strongly reticulate. Head with scattered shallow punctures, more numerous and stronger on rest of body. Prothoracic process narrow, parallel-sided, supported on a central pillar of the mesosternum well below level of metasternum, not reaching metasternum. Midline of metasternum strongly raised in front; metacoxal lines strongly raised, well separated, weakly diverging towards front.

Male: Larger. Antenna stout, segments 7 - 9 weakly expanded (Fig. 50). Profemur with a short ridge on inside at base, inside of protibia with a slight excavation just behind middle. Basal segments of pro- and mesotarsi moderately expanded. Median lobe of aedeagus narrow, tip simple (Figs. 94, 95) and quite broad in lateral view.

Female: Smaller. Antenna simple; basal segments of protarsus a little expanded, mesotarsus less so.

AFFINITIES: The small size and the gap above the prosternal process are distinctive, as is the simple, though quite stout, male antenna.

DISTRIBUTION: SW coastal, WA (WATTS 1978, LAWRENCE et al. 1987). A species only known from the most humid parts of south-western Australia (Fig. 114).

HABITAT: An acidophilic species. In shallow, temporary or summer-dry and semi-exposed peatland sedge swamps. Only occasionally at the edge of creeks or rivers. The pool near Northcliffe was partly shaded by *Melaleuca* shrubs and covered with large stands of *Juncus* L. and dense beds of macrophytes dominated by *Triglochin* L. and *Callitriche* L.; depth up to 40 cm. Bottom consisted of sedge-filled peat (pH 5.5) twigs and rotten leaves (HENDRICH 2001a, b). Most specimens were obtained from shallow and half-shaded pools in a *Melaleuca* blackwater swamp with a few clumbs of *Juncus* spp. and extensive beds of macrophytes; depth up to 20 cm. Bottom consisted of sedge-filled peat (pH 5.5), twigs and rotten leaves (Fig. 122).

Sternopriscus multimaculatus (CLARK, 1862)

Hydroporus multimaculatus CLARK, 1862: 417.
Hydroporus sinuaticollis CLARK, 1862: 418; SHARP 1882: 387.
Sternopriscus multimaculatus (CLARK, 1862), SHARP 1862: 382; ZIMMERMANN 1920: 62; WATTS 1978: 83, 84; MATTHEWS 1980: pl. 29, fig. 93; WATTS 1985: 25; LAWRENCE et al. 1987: 344; TIMMS & WATTS 1987: 4; BAYLY 1997: 169; DAVIS & CHRISTIDIS 1997: 127; LARSON 1993: 60; LARSON 1997: 273; PEDERZANI 1999: 7; NILSSON 2001: 185.

TYPE LOCALITY: Australia.

TYPE MATERIAL: **Holotype** of *multimaculatus*: ♂, "Holotype", "Australia", "multi-maculatus Clark Australia" (BMNH). **Lectotype** of *sinuaticollis*, "S. Australia Bakewell 59. 24.", "sinuaticollis Clark" (BMNH). – **Paralectotypes** of *sinuaticollis*: 6 exs., no data, "Paralectotype", "67-56", Hamlet Clark coll. (BMNH). Synonymy after ZIMMERMANN (1920) and WATTS (1978).

ADDITIONAL MATERIAL STUDIED:

Northern Territory: 1 ex., Todd River 9 km N by E of Alice Springs, 10.X.1978, M.S. Upton leg. (ANIC); 1 ex., Ormiston Creek below Gorge, West Macdonnells National Park, 23.38'S 132.44'E, 10.III.1995, T. Weir leg. (ANIC); 2 exs., 10 km N by E of Alice Springs, 6.XI.1979, T. Weir leg. (ANIC); 2 exs., Waterhouse Range, 39 km SW by S of Alice Springs, 23.59'S 133.38'E, 11.X.1978, M.S. Upton leg. (ANIC); 1 ex., Lake 35 km SE Janami, 3.VIII.1969, D.D. Giulini leg. (WAM); 5 exs., Yuendumu, II.1968, C.H.S. Watts leg. (SAMA).

Queensland: 1 ex., Quard Dam, N Mareeba, 21.IX.1990, D. Larson leg. (QDPIM); 1 ex., Lake Buchanan, 25.IX.1983, B. Timms leg. (SAMA); 1 ex., Dalrymple, 300 m, 30 km N Charters Towers, 18.I.1993, G. Wewalka leg. (CGW); 1 ex., North Queensland Bismarck Creek at highway, 4.XII.1997, G. Challet leg. (CGC).

New South Wales: 1 ex., 15 km W. Baradine, 22.II.1992, G. Challet leg. (CGC); 1 ex., Fowlers Gap Research Station, 8.-9.XII.1982, J.C. Cardale coll. (ANIC); 2 exs., Willandra Bridge, 11 km N of Mossgiel, dry swamp, 33.16'S 144.34'E, 21.XII.1970, at light, Britton, Misko & Pullen leg. (ANIC); 3 exs., Corobimilla, 15 km S of Narrandera, 17.XII.1979, Barlow & Bock leg. (ANIC); 1 ex., Whitton, Lea leg. (SAMA); 2 exs., NW Bulla Bulla tank, V.1961, C.H.S. Watts leg. (SAMA); 4 exs., Nyngan, 16.VIII.1963, C.H.S. Watts leg. (SAMA); 1 ex., Singleton, I.1961, C.H.S. Watts leg. (SAMA); 3 exs., Armidale, III.1967, C.H.S. Watts leg. (SAMA); 2 exs., Jindabyne, 1.II.1987, P. Zwick leg. (CPZ).

Australian Capital Territory: 1 ex., Canberra, XI.1965 (ANIC).

Victoria: 3 ex., Lake Fyan, Grampians, 21.XI.1969, E.F. Riek leg. (ANIC); 1 ex., Lake Learmouth, 13.XII.1966, E.F. Riek leg. (ANIC); 1 ex., Lake Hattah, light trap, 9.-15.III.1969, G.W. Anderson leg. (ANIC); 1 ex., Lake Hattah, light trap, 9.XII.1969, G.W. Anderson leg. (ANIC); 1 ex., 7.3 km SW of Wemen, 25.X.1988, T. Weir, J. Lawrence & M. Hansen leg. (ANIC); 1 ex., Spring Gully Reservoir near Bendigo, ex trout stomach, 21.IX.1951, Fish and Game Department (NMV); 2 exs., Hamilton, C. French Coll., 6.I.1908 (NMV); 5 exs., Victoria, Blackburn leg. (SAMA); 1 ex., Stanwell, XII.1968, C.H.S. Watts leg. (SAMA); 1 ex., Lake Boga, I.1961, C.H.S. Watts leg. (SAMA); 1 ex. 5 km NW Portland V, 24.IX.1997, C.H.S. Watts leg. (SAMA); 2 exs., 5 km W Dandongadale, 350 m, 15.II.1998, L. Hendrich leg. (CLH); 1 ex., Rose River, 16.5 km N Dandongadale, 1.XII.1997, G. Challet leg. (CGC); 1 ex., Benambra, farm pond, 36°58'16"S 147°42'26"E, 707 m, 5.XI.2000, K.B. Miller leg. (CKM); 1 ex., pool near Bridgewater on Lodon, 36°36'01"S 143°56'31"E, 9.XI.2000, K.B. Miller leg. (CKM); 1 ex., roadside pond 10 km S Serpentine, 36°31'53"S 143°56'59"E, 9.XI.2000, K.B. Miller leg. (CKM); 1 ex., marsh 18.6 km W Casterton, 37°35'57"S 141°09'46"E, 135 m, 11.XI.2000, K.B. Miller leg. (CKM); 1 ex., roadside pool near Pernim, 38°12'45"S 142°29'28"E, 10.XI.2000, K.B. Miller leg. (CKM); 2 exs., Thomson River at Walhalla, 25.XI.1962, W.D. Williams leg. (CPZ); 1 ex., Lake Bolac, W.D. Williams leg. (CPZ); 2 exs., Lake Hindmarsh SE of Big Desert, I.1962, W.D. Williams leg. (CPZ); 2 exs., Hopetoun Lake, I.1962, W.D. Williams leg. (CPZ); 1 ex., 12 km N Manfield, Broken River, 350 m, 15.II.1998, L. Hendrich leg. (CLH); 2 exs., Grampians, Burong Falls, 650 m, 20.I.1998, L. Hendrich leg. (CLH).

South Australia: 1 ex., Dulkaninna HS, 37 km SSW of Etadunna HS, 16.IX.1972, J. Upton leg. (ANIC); 2 exs., Myponga, A.H. Elston leg. (AM); Barossa, A.H. Elston leg. (AM); 1 ex., Flinders Range, Angorichina Creek below Hostel, 22.X.1978, E.B. Britton leg. (ANIC); 1 ex., Adelaide, Blackburn leg. (SAMA); 1 ex., Adelaide, Griffith leg. (SAMA); 1 ex., Oodnadatta, Blackburn leg. (SAMA); 1 ex., Flinders Range, Parachilna, E.L. Savage leg. (SAMA); 1 ex., Flinders Range, Terrapinna Spring WH., 12.V.1981, J.A. Forrest leg. (SAMA); 2 exs., Flinders Range, Parachilna, VIII.1976, W.D. Williams leg. (SAMA); 1 ex., Flinders Range, Williogon Creek, Third Spring, 18.XII.1976, J.E. Bishop & J.H. Diener leg. (SAMA); 1 ex., 20 km N Whyalla, Tregalana Ponds, 137°36'59'E 32°50'17'S, 13.V.1990, P. Hudson leg. (SAMA); 1 ex., Williamstown, X.1961, C.H.S. Watts leg. (SAMA); 2 exs., Mount Compass, I.1960, C.H.S. Watts leg. (SAMA); 2 ex., Dongalle National Park, I.1985, C.H.S. Watts leg. (SAMA); 2 exs., Port Lincoln, I.1982, C.H.S. Watts leg. (SAMA); 2 exs., Chain of Ponds, XII.1962, C.H.S. Watts leg. (SAMA); 1 ex., Torrens Gorge, IV.1961, C.H.S. Watts leg. (SAMA); 1 ex., 1 km S Nangwarry, 29.VIII.1999, C.H.S. Watts leg. (SAMA); 6 exs., 15 km N Kingston, shallow roadside pool, 36°40'11"S 139°53'08"E, 13.XI.2000, K.B. Miller leg. (CKM); 5 exs., ponds along road S Nangwarry, 37°34'53"S 140°48'42"E, 13.XI.2000, K.B. Miller leg. (CKM); 1 ex., roadside pond 10 km W Mount Gambier, 37°45'08"S 140°36'13"E, 12.XI.2000, K.B. Miller leg. (CKM).

Tasmania: 1 ex., north-western Tasmania, Bass Highway, Montagu River, 100 m, 31.I.1998, L. Hendrich leg. (CLH); 1 ex., Deloraine, 19.I.2000, C.H.S. Watts leg. (SAMA); 1 ex., Lake Rosebury near Tullah, 28.XI.2000, C.H.S. Watts leg. (SAMA); 2 exs., 1 km S Sandford, 4.XII.2000, C.H.S. Watts leg. (SAMA); 11 exs., 30 km E Hobart, Sorell, 13.I.1997, G. Wewalka leg. (CGW, MZH).

Western Australia: 1 ex., Murchison River, 8.I.1966, J.A. Grant, B.M./CSIRO Expedition (BMNH); 1 ex., 7.6 km W Boxwood Hill, Pallinup Riv., 3.III.1994, G. Challet leg. (CGC); 2 exs., pond 88 km E Albany Highway 1, 5.III.1994, G. Challet leg. (CGC); 3 exs., 6 km E by S of New Springs H.S., 14.XI.1970, E.B. Britton leg. (ANIC); 1 ex., 11 miles S by W. of Cocklebiddy, 25'32.45'S 123.27'E, at light, 22.XI.1969, Taylor & Upton leg. (ANIC); 3 exs., *Juranda Rockhole, 60 miles S of Balladonia*, 33.13'S 123.27'E, 21.XI.1969, Mallee, at light, E. Britton leg. (ANIC); 1 ex., Jilakin Lake, 16.IX.1965, E. Britton leg. (ANIC); 2 exs., Kalbarri National Park, 54 miles N. Northhampton, 19.IV.1968, I.F.B Common & M.S. Upton leg. (ANIC); 2 exs., Kuliba, Raventhorpe-Hopetoun, 21.X.1965, E. Britton leg. (ANIC); 1 ex., Mullewa, 22.II.1927, H. Poole leg. (WAM); 1 ex., 20 km ESE Busselton, Vasse Hwy., 50 m, 25.XI.1996, L. Hendrich leg. (CLH); 1 ex., Nannup, "Wildflower Walk" n. Nannup, 100 m, 25.XI.1996, L. Hendrich leg. (CLH); 1 ex., 5 km S Northcliffe, 10 m, 27.XI.1996, L. Hendrich leg. (CLH); 9 exs., 20 km NW Walpole, Interstate Highway No. 1, 27.XI.1996, L. Hendrich leg. (CLH); 3 exs., Stirling Range, Caravan Park, 34°19'S 118°12'E, 29.III-2.IV.1993, M.S. Harvey & J.M. Waldock leg. (WAM); 1

ex., Stirling Range National Park, Stirling Range Drive in direction Red Gum Pass, 450 m, 29.XI.1996, L. Hendrich leg. (CLH); 1 ex., Darlington (Perth), XII.1976, G.H. Lowe leg. (WAM); 1 ex., Lake Cohen, 24°26'S 125°05'E, 5.VIII.1983, T.F. Houston & R.P. McMillan leg. (WAM); 2 exs., Buldania Peaks, XII.1959 (SAMA); 2 exs., Rottnest Island (SAMA); 8 exs., 6 km NW Kendenup, 16.IX.2000, C.H.S. Watts leg. (SAMA); 8 exs., 16 km N Woodanilling, brackish water, 15.IX.2000, C.H.S. Watts leg. (SAMA); 1 ex., 20 km W Strachan, 21.IX.2000, C.H.S. Watts leg. (SAMA); 5 exs., Perth, Ellen Brook Nature Reserve, 14.IX.2000, C.H.S. Watts leg. (SAMA); 1 ex., Darling Range, Nalyerin Lake, 22.IX.2000, C.H.S. Watts leg. (SAMA); 1 ex., Coorinup Swamp, 21.IX.2000, C.H.S. Watts leg. (SAMA); 1 ex., Lake Parkeyerring, 15.IX.2000, C.H.S. Watts leg. (SAMA); 1 ex., Perth, 11th Road, pond, 4.IX.1960, Edwards leg. (SAMA); 1 ex., Lake Cronin, XII.1964, Edwards leg. (SAMA); 26 exs., 30 km SSE Marvel Loch, Mallee, 300 m, 9.I.2000, L. Hendrich leg. (CLH); 3 exs., 70 km E of Heyden, Mallee, 300 m, 9.I.2000, 32°24'S 119°34'E, L. Hendrich leg. (CLH); 2 exs., Darling Range, Serpentine River, 5 km NNE North Bannister, Albany Highway, 200 m, 28.XII.1999, L. Hendrich leg., 10 exs., 20 km W Gingin Brook East, 10 m, 26.XII.1999, L. Hendrich leg. (CLH); 6 exs., Dyott Range, 30 km WNW Beverly, 13.I.2000, L. Hendrich leg. (CLH); 1 ex., Esperance, freshwater dune lake, 1.IV.1972, P. Zwick leg. (CPZ); Collins, Harris River, 1.IV.1972, P. Zwick leg. (CPZ); 2 exs., Kalgoorlie, IV.1972, P. Zwick leg. (CPZ).

DIAGNOSIS: Elongate-oval, elytron widest behind middle, convex.

DESCRIPTION: Measurements. Males: TL = 2.40 - 2.76 mm, TL-H = 2.20 - 2.48 mm; width = 1.16 - 1.28 mm. Females: 2.36 - 2.72 mm, TL-H = 2.16 - 2.52 mm; width = 1.12 - 1.32 mm.

Colour: Head testaceous, hind angles and base usually dark brown; pronotum testaceous, broadly black in middle sometimes reduced to front and rear patches; elytron testaceous with numerous rather small, often isolated black spots; ventral surface dark brown to black with diffuse lighter areas, sides of prosternum and appendages lighter, tips of maxillary palpi occasionally darker (Fig. 26).

Sculpture: Strongly rugose-reticulate, punctures all but obliterated on head. Rest of body strongly and closely rugose-punctate. Pronotal plicae well-marked, reaching to half way or a bit more along pronotum, area between them depressed. Pronotum and elytra weakly margined. Prothoracic process robust, subparallel, strongly rugose-punctate, not quite reaching metasternum. Midline of metasternum raised in extreme front; metacoxal lines short, strongly diverging towards front.

Male: Larger. Antennal segments 8 and 9 a little expanded, apical segment elongate (Fig. 52). Basal segments of protarsus strongly expanded; protibia a little expanded with a very slight basal indentation on side; profemur with small triangular expansion on inner margin near base. Mesotarsus stout, a little expanded and elongate. Median lobe of aedeagus narrow, tip rounded or occasionally a little bifid; in lateral view central portion thin, then rapidly widening in apical quarter giving a very deep apical portion (Figs. 98, 99).

Female: Smaller. Antennal segments relatively stout but simple; pro- and mesotarsi relatively stout; sides of pronotum strongly sinuate.

AFFINITIES: The strongly spotted colour pattern of the elytra can be confused only with some *S. meadfootii*. Humeral angles light coloured. The sides of the pronotum in the female strongly sinuate. Median lobe of aedeagus strongly expanded dorsal-ventrally in apical quarter. The characters of the male antennae are also diagnostic (Fig. 52).

DISTRIBUTION: NW coastal, W plateau, Lake Eyre basin, Murray-Darling basin, S Gulfs, NT, QLD, WA, SA, NSW, VIC and TAS (WATTS 1978, LAWRENCE et al. 1987) (Fig. 121).

HABITAT: A widespread species with the most inland distribution of any *Sternopriscus*. Common in open ponds, roadside ditches, puddles and stock dams often with little or no vegetation, but also, less frequently, at the edges of small creeks and rivers among small stones and gravel (Fig. 125).

Sternopriscus signatus SHARP, 1882

Sternopriscus signatus SHARP, 1882: 386; ZIMMERMANN 1920: 62; WATTS 1978: 82; WATTS 1985: 25; LAWRENCE et al. 1987: 344; NILSSON 2001: 185.

TYPE LOCALITY: Murray River, South Australia.

TYPE MATERIAL: **Holotype**: ♀, "Holotype", "S.Australia", "Murray River", "Type 163 Sternopriscus signatus n.sp." (BMNH).

DIAGNOSIS: Elongate oval, elytron widest in middle, relatively flat.

DESCRIPTION: Measurements. Holotype, female: TL = 2.40 mm, TL - H = 2.16 mm; width = 1.20 mm.

Colour: Head testaceous; pronotum testaceous, anterior and posterior margins of pronotum black; elytron variegated dark brown and testaceous; ventral surface dark brown to black, appendages and sides of prosternum lighter (Fig. 30).

Sculpture: Reticulate, strongly and closely rugose-punctate, weaker on head. Pronotal plicae distinct, reaching to about half way along pronotum, area between them shallowly depressed.

Male: Not known.

Female: Antenna and legs simple; basal segments of pro- and mesotarsi moderately expanded.

DISTRIBUTION: Murray Darling Basin, SA (WATTS 1978, LAWRENCE et al. 1987).

HABITAT: Unknown.

Note: Only the female holotype is known. The specimen is unusually light coloured with the head and pronotum almost totally testaceous as well as much of the elytron. The darker areas on the elytron tend to form stripes rather that blotches, and there are a few small dark spots. The specimen most nearly resembles specimens of *S. wehnckei* from Healsville (SAMA). However, some *S. tarsalis* are also close, including the series in the (BMNH) commented on by WATTS (1978).

Sternopriscus storeyi sp.n.

TYPE LOCALITY: *Melaleuca* peatland swamp, Byenup Lagoon, Manjimup, south-western Australia.

TYPE MATERIAL: **Holotype**: ♂, "N end Byenup Lagoon E of Manjimup WA 17/10/97 A W Storey" (WAM). – **Paratypes**: 4 exs. with the same data as holotype (SAMA, WAM); 6 exs., "Nalyerin Lake WA J.McRae 8.10.97" (CLH, WAM); 23 exs., "Albany, 3 km ENE Manypeaks, Lake Pleasant Nature Reserve, 7.1.2000, 34°49'S 118°10'E, Hendrich leg. Loc. WA 13/159" (CLH, NMW); 4 exs., "Albany Hwy, Muir Lakes Nature Reserve, SW part of Byenup Lagoon, 4.- 5.1.2000, 34°29'S 116°44'E, Hendrich leg. Loc. WA 11/157" (CLH); 5 exs. "WA Lake Pleasant View 17/9/00 C.H.S.Watts" (SAMA); 1 ex. "WA Nalyerin Lake 22/9/00 C.H.S.Watts" (SAMA).

DIAGNOSIS: Elongate oval, widest behind middle, moderately constricted at base of pronotum.

DESCRIPTION: Measurements. Holotype, male: TL = 2.04 mm, TL-H = 1.76 mm; width = 0.96 mm. Paratypes, males: TL = 1.94 - 2.04 mm, TL-H = 1.68 - 1.76 mm; width = 0.92 - 0.96 mm; females: 1.82 - 1.92 mm, TL-H = 1.64 - 1.72 mm; width = 0.92 - 0.96 mm.

Colour: Head dark brown, central region from bases of antennae to rear margin lighter; pronotum dark testaceous, diffusely darker on disc; elytron dark brown with vague lighter areas particularly laterally; ventral surface testaceous, appendages lighter, tips of palpi dark, antennal segments 4 - 6 and apical sometimes darker (Fig. 25).

Sculpture: Strongly reticulate, punctures relatively large, smaller on head. Pronotal plicae well-marked, reaching to about half way along pronotum, setae on pronotum and elytron moderately developed. Pronotal process thin, sides subparallel, rugose-punctate, tip blunt, not reaching metasternum. Midline of mesosternum strongly raised in front; metacoxal lines raised, weakly diverging in posterior quarter, less strongly so in anterior quarter.

Male: Larger. Antennal segments 5 - 8 progressively wider, segment 9 same length or a little smaller and a little narrower than segment 8, segment 10 a little longer than segment 6, apical segment as wide as segment 10 and 1.5x as long (Fig. 51). Protarsus quite strongly enlarged; protibia bent near base. Mesotarsus with basal three segments moderately enlarged. Median lobe of aedeagus narrow, tip simple (Figs. 96, 97) tip quite broad in lateral view.

Female: Smaller. Antennal segments 5 - 11 weakly enlarged; protarsus moderately enlarged; basal segment of mesotarsus weakly enlarged; sides of pronotum weakly sinuate.

AFFINITIES: South-western endemic, very small (TL = 1.9 - 2.5 mm), pronotal plicae well developed and connected by depression, without clear dorsal colour pattern, male with antennal segments 5, 6 and 7 most enlarged, segment 6 greater than segment 9, median lobe of aedeagus simple. Possibly a member of the *S. tarsalis* complex. Immature females can be confused with *S. minimus* which has two well separated yellowish spots on the head whereas *S. storeyi* has the central region of head from bases of antennae to rear margin yellow.

ETYMOLOGY: Named after Andrew Storey who first brought the species to our attention.

DISTRIBUTION: SW coastal, Western Australia. A species only known from the most humid parts of south-western Australia (Fig. 116).

HABITAT: An acidophilic species. At Manypeaks collected in a shallow, temporary or semi-permanent, summer-dry and exposed peatland sedge swamp (Fig. 131). Depth up to 20 cm. Bottom consisted of peat and rotten sedges. At Byenup Lagoon all specimens were collected in shallow water (up to 10 cm) of a freshwater *Melaleuca rhaphophylla* sedge swamp, rich in aquatic vegetation (e.g. *Baumea articulata*, *Montia australasica*, *Utricularia* sp.) and mats of floating grasses. The area is surrounded by Jarrah/Marri woodland (HENDRICH 2001a, b).

Species incertae sedis

Sternopriscus browni SHARP, 1882

Sternopriscus browni SHARP, 1882: 385; ZIMMERMANN 1920: 62; WATTS 1978: 78; WATTS 1985: 24; LAWRENCE et al. 1987: 344; DAVIS & CHRISTIDIS 1997: 126; PEDERZANI 1999: 7; BALKE et al. 2000: 226; HENDRICH 2001a: 302; HENDRICH 2001b: 21; NILSSON 2001: 185.

Sternopriscus obscurus SHARP, 1882: 385; ZIMMERMANN 1920: 62; WATTS 1978: 80; WATTS 1985: 25; LAWRENCE et al. 1987: 344; LARSON 1993: 60; LARSON 1997: 273; NILSSON 2001: 185, **syn.n.**

TYPE LOCALITY: King George Sound [Albany], Western Australia.

TYPE MATERIAL: *Sternopriscus browni*: **Lectotype**: ♂, "Sternopriscus browni Type D.S. K. Geo. Sound", "Lectotype", "Type", "Australia", "W.Australia", "Sharp Coll. 1905-313", "Type 159 Sternopriscus browni", "Sternopriscus browni Sharp 1971 Det. C. Watts 1979" (BMNH). – **Paralectotypes**: 10 exs. (4 ♂♂, 6 ♀♀) with same data as lectotype but "Paralectotype", previously with BMNH "Type" label; 2 ♂♂, "Paralectotype", "Australia", "Sharp Coll. 1905-313", "Sternopriscus browni Shp det. Sharp", "Sternopriscus browni Sharp, Det C. Watts 1979" (BMNH).

Sternopriscus obscurus: **Lectotype**: ♀, "Sternopriscus obscurus Type D.S. K. Geo. Sound", "Lectotype", "Type", "Australia", "W. Australia", "Sharp Coll. 1905-313", "Type 160 Sternopriscus obscurus", "Sternopriscus obscurus Sharp Det. C. Watts 1974" (BMNH). **Paralectotype**: ♀, "Sternopriscus obscurus ♂ Ind. Typ., D.S. K. Geo. Sound D.S.", "Paralectotype", "Cotype", "W. Australia", "Sharp Coll. 1905-313", "Sternopriscus obscurus Sharp Det. C. Watts 1974" (BMNH).

ADDITIONAL MATERIAL STUDIED:

Western Australia: 1 ex., N Bunbury, Yalgorup National Park, near Preston Beach, 24.XI.1996, L. Hendrich leg. (CLH); 6 exs., N Bunbury, Yalgorup National Park, 2 km east of Preston Beach, 24.XI.1996, L. Hendrich leg. (CLH); 22 exs., 20 km ESE Busselton, Vasse Highway, 50 m, 25.XI.1996, L. Hendrich leg. (CLH); 3 exs., Nannup, "Wildflower Walk" near Nannup, 100 m, 25.XI.1996, L. Hendrich leg. (CLH); 55 exs., Nannup, Balingup-Nannup Road, Blackwood River, Revelly Bridge, 130 m, 25.XI.1996, L. Hendrich leg. (CLH); 1 ex., Nannup, Blackwood River, 20.X.1996, C.H.S. Watts leg. (SAMA); 22 exs., Lake Poorinup, 20.IX.2000, C.H.S. Watts leg. (SAMA); 35 exs., 5 km S Northcliffe, 10 m, 27.XI.1996, L. Hendrich leg. (CLH); 11 exs., Vasse Highway, 4 km W Beedelup National Park, Carey Brook/Bridge, 100 m, 1.I.2000, 34°24'S 115°48'E, L. Hendrich leg. (CLH); 7 exs., Walepole-Nornalup National Park, Peaceful Bay, 28.XI.1996, L. Hendrich leg. (CLH); 12 exs., Stirling National Park, 22.IX.1965, E. Britton & Uther Baker leg. (ANIC); 51 exs., Stirling Range National Park, Stirling Range Drive in direction Red Gum Pass, intermittent stream, 450 m, 29.XI.1996, L. Hendrich leg. (CLH); 1 ex., Donnybrook, Lea leg. (SAMA); 23 exs., Ironstone Gully Falls, 13 km SW Donnybrock, 22.X.1996, C.H.S. Watts leg. (SAMA); 1 ex., Swan View, E of Midland Junction, 1.X.1965, E. Britton leg. (ANIC); 3 exs., 10 km S Freemantle, 24.X.1996, C.H.S. Watts leg. (SAMA); 1 ex., 18 km S Northcliffe, 19.X.1996, C.H.S. Watts leg. (SAMA); 2 exs., 8 km S Dwellingup, 17.X.1996, C.H.S. Watts leg. (SAMA); 1 ex., 10 km E Kalamunda, 16.X.1996, C.H.S. Watts leg. (SAMA); 2 exs., 24 km SW Lancelin, 15.X.1996, C.H.S. Watts leg. (SAMA); 2 exs., 4 km N Mumballup, 23.X.1996, C.H.S. Watts leg. (SAMA); 1 ex., 30 km N Perth, 14.X.1996, C.H.S. Watts leg. (SAMA); 1 ex., South Dandalup River, 8 miles E of Pinjarra, clear brook flowing over stones, 17.XI.1969, E. Britton leg. (ANIC); 3 exs., 6 km S Pinjarrah, 23.X.1996, C.H.S. Watts leg. (SAMA); 6 exs., 12 km W Serpentine, 24.X.1996, C.H.S. Watts leg. (SAMA); 1 ex., Darlington (Perth), 1924-969 (WAM); 3 exs., Darlington (Perth), XII.1976, G.H. Lowe leg. (WAM); 2 exs., M. Archer, Inglewood, 29.VIII.1969 (WAM); 6 exs., Dog Pool on Shannon River, 34°46'S 116°22'E, 27.-30.IV.1990, M.S. Harvey & J.M. Waldock leg. (WAM); 3 exs., Bunbury, F.L. Whitlock leg. (AM); 11 exs., Bunbury, F.L. Whitlock leg. (ANIC); 10 exs., Picton [= Picton Junction] near Preston River, VI.1931 (AM); 5 exs., Preston River, Whitlock leg. (ANIC); 4 exs., K.G. Sound, K 18644, Lea leg. (AM); 2 exs., Pemberton, X.1931, Australia, Harvard Expedition Darlington (SAMA); 1 ex., Pemberton, 25.XI.1926, K.R. Norris leg. (ANIC); 2 exs., Capel, 29.X.1965, E. Britton leg. (ANIC); 3 exs., Mowen Road, 10 miles E of Mowen near Margret River, roadside pond, 14.XI.1969, E. Britton leg. (ANIC); 1 ex., Margret River, X.1931, Australia, Harvard Expedition Darlington (SAMA); 2 exs., Denmark, 21.IX.1965, E. Britton leg. (ANIC); 1 ex., Boranup Drive, 4 km NW Karridale, 31.X.1984, J. & N. Lawrence leg. (ANIC); 12 exs., 15 km NW Pemberton, 17.V.1987; C.H.S. Watts leg. (SAMA); 3 exs., Bridgetown, 9.IX.1931, Harvard Expedition Darlington (SAMA); 2 exs., Hay River (SAMA); 3 exs., Beverley, Lea leg. (SAMA); 2 exs., Armadale, VII.1962 (SAMA); 3 exs., Balingup, Blackwood River, Fern Picnic Area, 1.III.1994, G. Challet leg. (CGC); 5 exs., Donnybrook, creek, 1.III.1994, G. Challet leg. (CGC); 1 ex., pond 88 km E Albany, 1.III.1994, G. Challet leg. (CGC); 1 ex., Turner Brook near Augusta on Cave Road, 5.III.1994, G. Challet leg. (CGC); 3 exs., Bridgetown, creek entering Blackwood River, 1.III.1994, G. Challet leg. (CGC); 4 exs., 1 km N Cuthbert, 15 km W Albany, 6.I.2000, 35°00'S 117°46'E, L. Hendrich leg. (CLH); 6 exs., Dyott Range, 30 km WNW Beverley, Tolbi River, 13.I.2000, 32°03'S 116°40'E, L. Hendrich leg. (CLH); 148 exs., Albany Highway, Muir Lakes Nature Reserve, SW part of Byenup Lagoon, 4.-5.I.2000, 34°29'S 116°44'E, L. Hendrich leg. (CLH); 39 exs., Darling Range, Serpentine River, 5 km NNE North Bannister, Albany Highway, 200 m, 28.XII.1999, L. Hendrich leg. (CLH).

DIAGNOSIS: Oblong-oval, elytron widest behind middle, convex.

DESCRIPTION: Measurements. Males: TL = 3.48 - 3.60 mm, TL-H = 3.12 - 3.20 mm; width = 1.76 - 1.80 mm. Females: TL = 2.84 - 3.12 mm, TL-H = 2.56 - 2.80 mm; width = 1.48 - 1.64 mm.

Colour: Head dark brown, with small testaceous basal spot, anterior margin testaceous tending to be broken up into six spots; pronotum brown, widely testaceous laterally, with two testaceous spots occasionally connected in midline. Elytron reddish brown with numerous diffuse testaceous mottlings tending to form about 12 alternating dark and light patches along margin. Ventral surface dark brown to black; sides of prosternum and appendages lighter (Fig. 27).

Sculpture: Strongly and closely reticulate throughout; strongly and densely rugose-punctate, punctures on head weaker but well-marked. Pronotum with moderately distinct plicae, reaching about two-thirds of way along pronotum, with transverse depression between them. Elytral margin weakly serrate, especially towards apex of elytra. Prothoracic process narrow, flat, very long, narrow between procoxae, not reaching mesosternum, well separated from mesocoxae

which touch, portion of mesosternum supporting the prothoracic process, directed forward. Midline of metasternum strongly keeled anteriorly but not raised to meet prothoracic process. Metacoxal lines strongly raised, well separated, weakly diverging in anterior third.

Male: Antennal segments 4 and 5 very small, segment 8 greatly and narrowly produced outwards, segments 9 and 10 with prominent inturned flanges, segments 6 and 7 somewhat expanded (Fig. 53). Apical segment of labial palpus enlarged, deeply bifid. Protrochanter strongly produced apically. Profemur strongly produced apically on rear ventral edge; protibia rather narrow, curved, weakly excavated on inner edge near middle; protarsus weakly expanded. Basal segments of mesotarsus weakly expanded, apical segment immensely expanded dorsoventrally, segment 4 moderately so, thickly covered with long setae; mesotibia elongate, strongly curved, expanded apically; mesofemur elongate with two rows of long golden setae on posterior edges. Metatarsus elongate, expanded dorsoventrally. Median lobe of aedeagus simple, relatively broad, rapidly narrowing to point, bulbous apically; parameres thin (Figs. 100, 101).

Female: Smaller. Appendages simple, apical segment of labial palpus weaker, basal segments of pro- and mesotarsi weakly expanded.

AFFINITIES: Male specimens are readily distinguished by their greatly expanded antennae (Fig. 53) and the uniquely expanded apical segment of the mesotarsi. The species is restricted to the southwest where females can be confused with *S. browni* and *S. wattsi*. The lack of flanged elytra separate it from *S. browni* and the absence of small medial backward extensions to the mesocoxae separate it from *S. wattsi* in which they are present (Figs. 109 - 111).

DISTRIBUTION: SW coastal, WA (WATTS 1978, LAWRENCE et al. 1987). South and southwest of a line between Perth and the Stirling Ranges. Some records along coastal areas north of Perth (Fig. 112).

HABITAT: *Sternopriscus browni* is the most common species of the genus in south-western Australia and inhabits all kinds of standing and slow flowing water, from sea level up to an altitude of 450 m. It is most abundant in peaty and often temporary pools in coastal wetlands, swamps and riverine ponds and has been found in the following specific habitats: I. Large (30 - 40 sqm), shallow (up to 15 cm), semi-exposed, salty pools near seashore with a bottom of sand and broken shells. II. Permanent and slow flowing streams (width 1 - 2 m, depth 10 - 30 cm), partly shaded with a bottom of sand and larger stones. Vegetation: *Utricularia* and green algae. III. Isolated floodzone ponds of the Blackwood River, partly shaded, and up to 50 cm deep. IV. Summer-dry peatland and *Melaleuca* sedge swamps (pH 5.0), up to 20 cm deep, with dense stands of various sedges and submerged vegetation (Fig. 123). V. Shaded pools of intermittent streams in Jarrah and Karri forests, with bottom of sand and pebbles, often with a thin layer of leaves and twigs. *Sternopriscus browni* is sympatric and often syntopic with *Sternopriscus minimus*, *S. marginatus*, *S. multimaculatus*, *S. storeyi* and *S. wattsi*.

Sternopriscus marginatus WATTS, 1978

Sternopriscus marginatus WATTS, 1978: 84; WATTS 1985: 25; LAWRENCE et al. 1987: 343; PEDERZANI 1999: 7; NILSSON 2001: 185.

TYPE LOCALITY: Margaret River, Western Australia.

TYPE MATERIAL: **Holotype**: ♂, "Margaret River Oct'31 S.W.A.", "Australia Harvard Exped. Darlington", "Museum of Comparative Zoology", "Holotype" (ANIC). – **Paratypes**: 6 exs., same data as holotype [4 exs. in ANIC, 2 exs. in MCZ (WATTS 1978)]; 1 ♂ and 1 ♀, "Bridgetown, SW Aust Nov 9.1931", "Australia Harvard Exped. Darlington", "Museum of Comparative Zoology" [2 exs. with same data in MCZ (Watts 1978)] (SAMA); 1 ♂, "Pemberton, W.A., Oct' 31, Australia Harvard Exped. Darlington", "Museum of Comparative Zoology" (SAMA).

ADDITIONAL MATERIAL STUDIED:

Western Australia: 8 exs., 15 km NW Pemberton, 17.V.1987; C.H.S. Watts leg. (SAMA); 7 exs., 25 km W Pemberton, 20.X.1996, C.H.S. Watts leg. (SAMA); 1 ex., Stirling National Park, 22.IX.1965, E. Britton & U. Baker leg. (ANIC); 1 ex., Donnybrook, Lea leg. (SAMA); 1 ex., Stirling Range (SAMA); 1 ex., Canning R. Gosnolls, X.1959 (SAMA); 1 ex., Pemberton, creek across Vasse Highway, 30.XI.1998, F. Pederzani leg. (CLH); 3 exs., Donnybrook, creek, 1.III.1994, G. Challet leg. (CGC); 7 exs., Vasse Highway, 4 km W Beedelup National Park, Carey Brook/Bridge, 100 m, 1.I.2000, 34°24'S 115°48'E, L. Hendrich leg. (CLH); 1 ex., D'Entrecasteaux National Park, 15 km S Northcliffe, Windy Harbour Road, 34°42'S 116°05'E, 50 m, 3.I.2000, L. Hendrich leg. (CLH); 10 exs., Darling Range, Serpentine River, 5 km NNE North Bannister, Albany Highway, 200 m, 28.XII.1999, L. Hendrich leg. (CLH); 1 ♂, "Bridgetown, SW Aust Nov 9.193", "Australia Harvard Exped. Darlington", "Museum of Comparative Zoology" (SAMA).

DIAGNOSIS: Oval, elytron widest in middle, weakly constricted at base of pronotum, convex, apical half of elytra broadly flanged, shiny.

DESCRIPTION: Measurements. Males: TL = 3.40 - 3.52 mm, TL-H = 3.08 - 3.52 mm; width = 1.76 - 1.84 mm. Females: TL = 3.08 - 3.28 mm, TL-H = 2.76 - 3.00 mm; width = 1.60 - 1.68 mm.

Colour: Head testaceous, hind angles brown; pronotum testaceous, front and rear edges diffusely darker in middle; elytron diffusely mottled testaceous and brown; ventral surface brown with darker and lighter patches, appendages lighter except segments 5 - 7 of antenna which are darker (Fig. 28).

Sculpture: Reticulate. Punctures on head well-marked, of moderate size and density, rest of body moderately strongly rugose-punctate. Pronotal plicae almost straight, well-marked, reaching to about two thirds way along pronotum. Midline of metasternum strongly keeled but not raised in front to meet prothoracic process. Prothoracic process robust, subparallel, rugose-punctate, keeled, curved in lateral view, reaching metasternum. Metacoxal lines raised to metasternum, weakly diverging towards front.

Male: Larger. Antennal segment 7 moderately expanded, segments 8 - 11 progressively less so, segments 7 and 8 same length, segments 7 - 10 concave and spongose beneath, apical segment same width but longer than penultimate (Fig. 54). Apical segment of labial palpus thick moderately bifid. Basal three segments of protarsus moderately expanded; protibia weakly notched near base; profemur simple; protrochanter with sharp ridge at apex. Mesotarsus moderately expanded; mesotibia almost straight; mesofemur elongate, relatively dense moderately long setae along inner edges, mesotrochanter with similar setae. Median lobe of aedeagus elongate, thin, tip expanded, spoon-shaped, tip weakly bifid [illustration in WATTS 1978 is of a damaged specimen] (Figs. 102, 103).

Female: Smaller. Appendages simple, labial palpus weaker; pronotum a little constricted behind.

AFFINITIES: A western Australian species, readily separable from all other *Sternopriscus* by the broadly flanged elytra in both sexes. Males can be separated from the more common and slightly smaller *S. browni* by the simple mesotarsi and simply modified antennae.

DISTRIBUTION: SW coastal, WA (WATTS 1978, LAWRENCE et al. 1987). South and southwest of a line from Bunbury to the Stirling Ranges (Fig. 113).

HABITAT: A rheophilic species which inhabits, small creeks, clear, slow moving rivers and pools of intermittent forest streams, usually in places with little submerged vegetation and sandy or gravely bottom (Fig. 124).

Sternopriscus wattsi PEDERZANI, 1999

Sternopriscus wattsi PEDERZANI, 1999: 6; NILSSON 2001: 185.

TYPE LOCALITY: Pond, Della Franca Farm near Pemberton, south-western Australia.

TYPE MATERIAL: **Holotype**: ♂, "Australia (WA), Pemberton, pond, Della Franca Farm, 3.12.1998, Pederzani" (SAMA). – **Paratypes**: 5 exs., same data as holotype (CFP, CLH, SAMA); 2 exs., "Australia (WA), creeks across Vasse Hwy, 3.11.1998, Pederzani leg." (CFP, SAMA); 4 exs., "Australia (WA), Nannup, roadside creek, 1.12.1998, Pederzani leg." (CFP).

ADDITIONAL MATERIAL STUDIED:

Western Australia: 2 exs., Nannup, Balingup-Nannup Road, Blackwood River, Revelly Bridge, 130 m, 25.XI.1996, L. Hendrich leg. (CLH); 2 exs., 15 km NW Pemberton, 17.V.1987, C.H.S. Watts leg. (SAMA); 1 ex., Darlington (Perth), XII.1976, G.H. Lowe leg. (WAM); 1 ex., Bunbury, Lea leg. (AM); 1 ex., Bridgetown, 9.IX.1931, Harvard Expedition Darlington (SAMA); 1 ex., Armadale, VII.1962 (SAMA); 1 ex., Stirling Range National Park, 12 km W Lake Matilda 16.IX.2000, C.H.S. Watts leg. (SAMA); 12 exs., Albany Highway, Muir Lakes Nature Reserve, SW part of Byenup Lagoon, 4.-5.I.2000, 34°29'S 116°44'E, L. Hendrich leg. (CLH).

DIAGNOSIS: Oblong-oval, elytron widest just behind middle, convex. Sides of pronotum weakly sinuate.

DESCRIPTION: Measurements. Males: TL = 2.95 - 3.1 mm, TL-H = 2.76 - 2.90 mm; width = 1.60 - 1.68 mm. Females: TL = 2.85 - 2.95 mm, TL-H = 2.70 - 2.85 mm; width = 1.55 - 1.65 mm.

Colour: Head black with two testaceous spots at the anterior margin; pronotum black, widely testaceous at sides, with two testaceous spots occasionally connected in midline, the posterior spot sometimes absent. Elytron dark brown to black, with diffuse testaceous mottling, sometimes absent on disc; ventral surface dark brown to black, appendages and apical sternites paler, antenna with segments 5 - 7 and 11 darker, tibiae and tarsal segments apically darkened, hind legs particularly so (Fig. 29).

Sculpture: Reticulate, strongly and densely rugose-punctate, punctures weaker but well-marked on head. Pronotal plicae well-marked reaching about half way along pronotum, well-marked transverse depression between them. Elytral margins weakly serrate towards apex. Prothoracic process narrow, sides parallel, not reaching metasternum. Midline of metasternum weakly raised in extreme front; metacoxal lines strongly raised, weakly diverging forward.

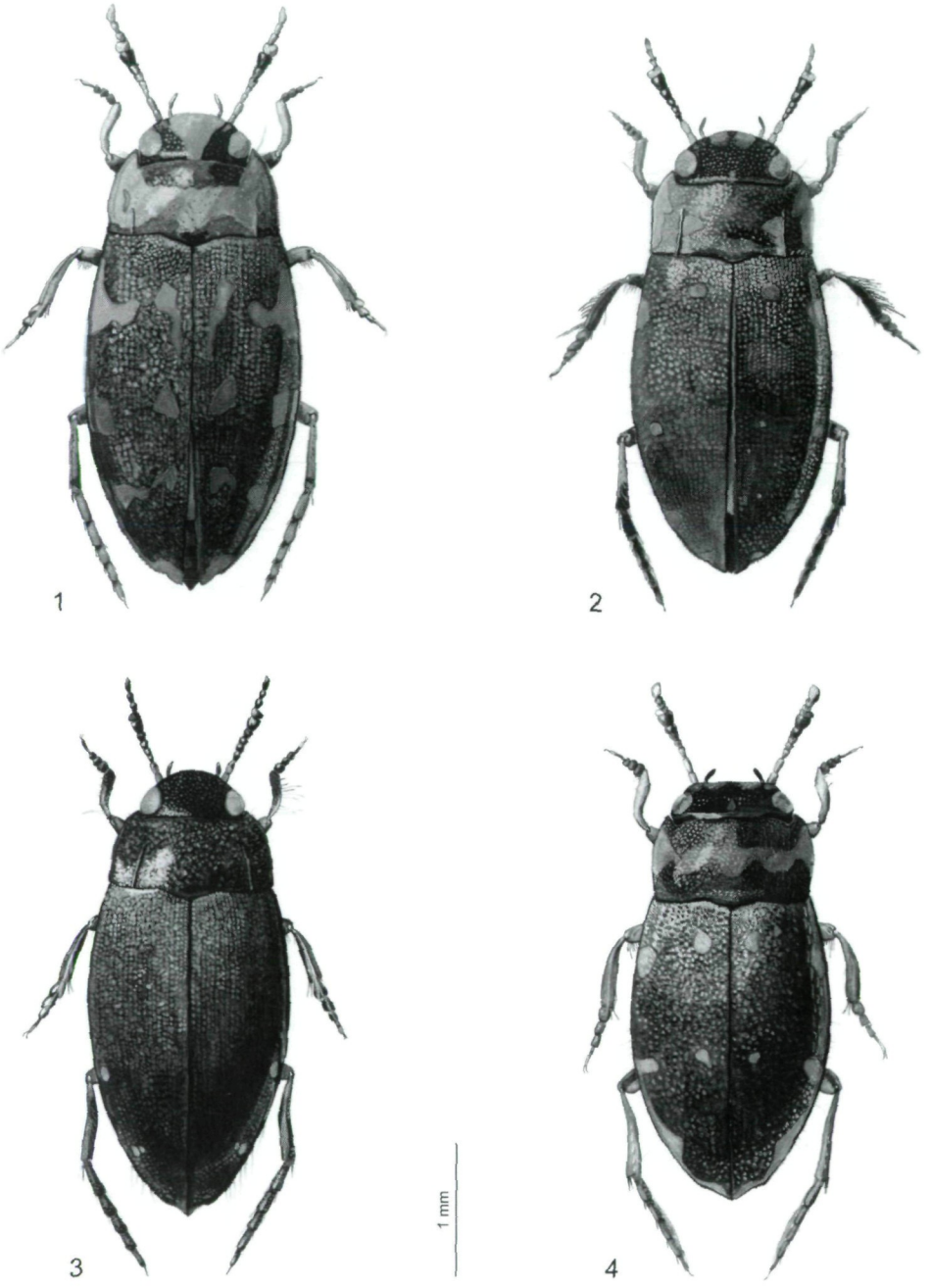
Male: Larger. Antennae simple, not expanded. Pro- and mesotarsi moderately dilated. Protibia moderately expanded with a slight excavation near base on inside. Mesotibia slightly expanded and curved. Metacoxal processes very long, projecting backward, jointly fork-shaped, almost attaining the sutural line between third and fourth visible sternites (Fig. 55). Median lobe of aedeagus apically swollen, flower-shaped, tip broad in lateral view (Figs. 104, 105).

Female: Smaller. Appendages simple, metacoxal processes projecting backwards but much shorter than in the male.

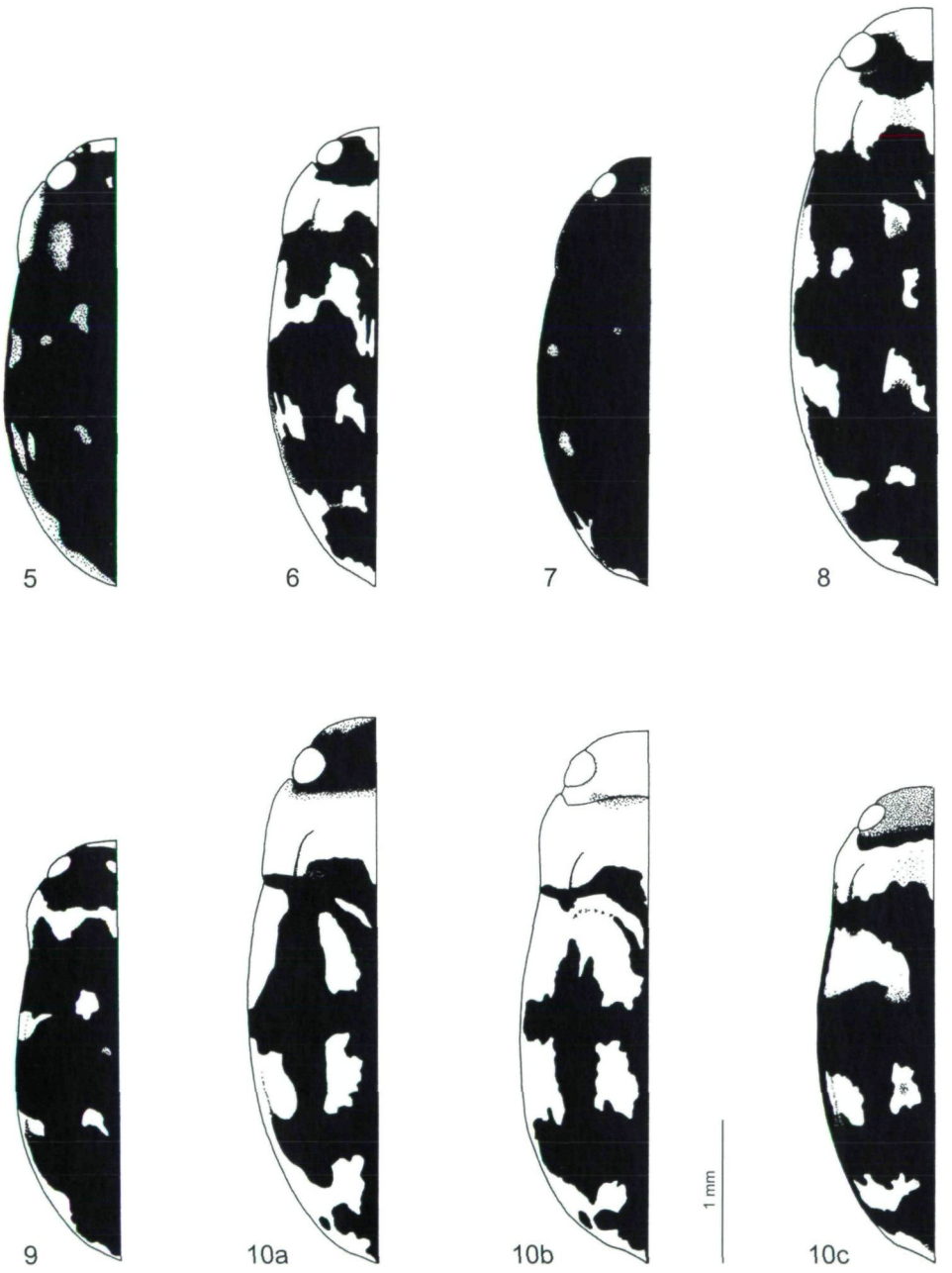
AFFINITIES: *Sternopriscus wattsi* is unique among *Sternopriscus* in having the metacoxal processes projecting backward, strongly so in the males, covering the interlaminar bridge (Figs. 109 - 111). The simple male antennae distinguish them from other western Australian species but females can be easily confused with *S. browni* and can only be separated by the form of the metacoxal processes.

DISTRIBUTION: SW coastal, Western Australia. South and southwest of a line from Perth to Manjimup (Fig. 119).

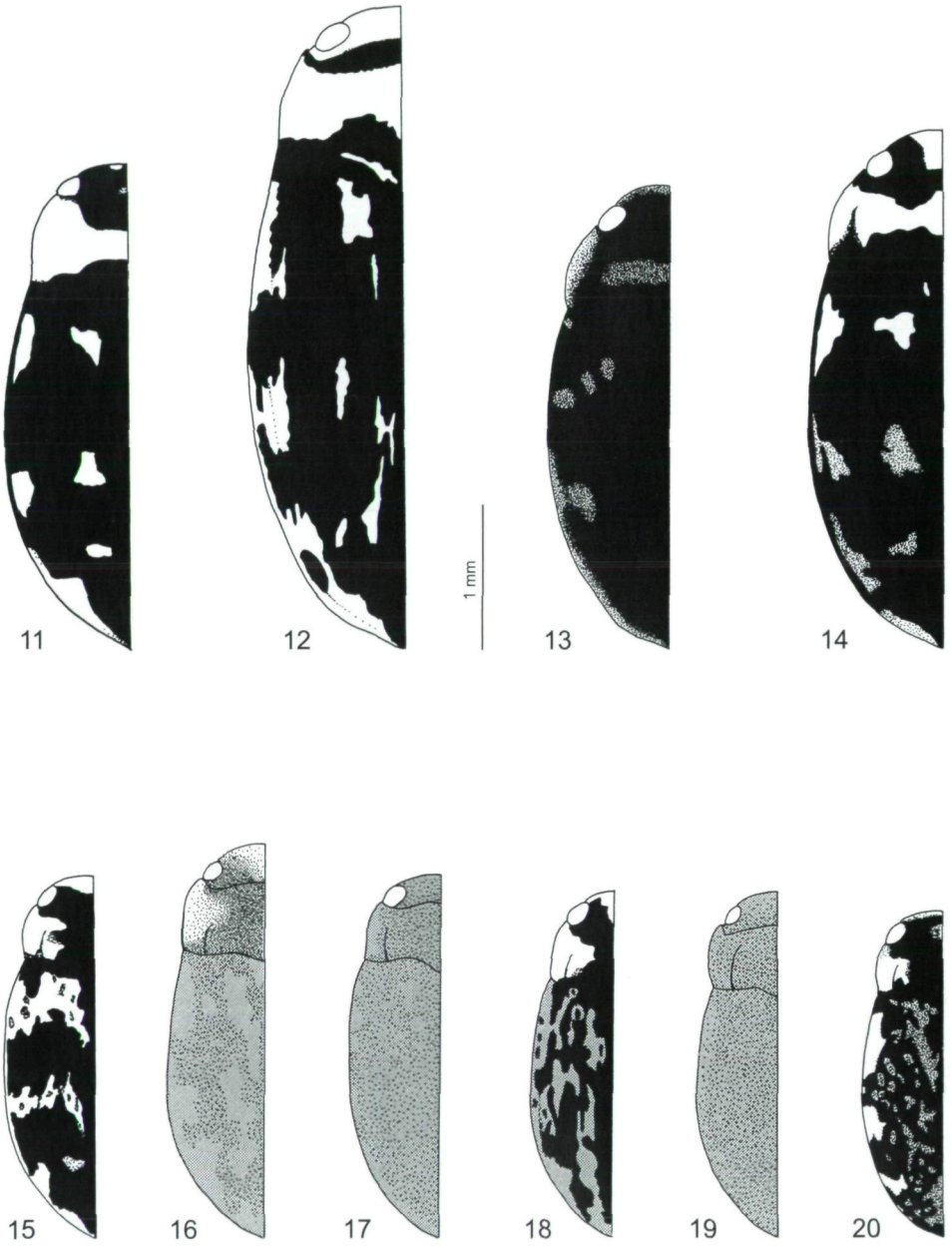
HABITAT: The species inhabits either lentic sites such as well vegetated small farm dams and ponds beside larger streams or lotic sites such as small pools in seasonal woodland streams. At Byenup Lagoon all specimens were collected in shallow water (up to 10 cm) of a freshwater *Melaleuca rhaphophylla* sedge swamp, rich in aquatic vegetation (e.g. *Baumea articulata*, *Montia australasica*, *Utricularia* sp.) and mats of floating grasses. The area is surrounded by Jarrah/Marri woodland. It is sympatric and sometimes syntopic with *S. browni*, *S. marginatus*, *S. minimus*, *S. multimaculatus* and *S. storeyi*.



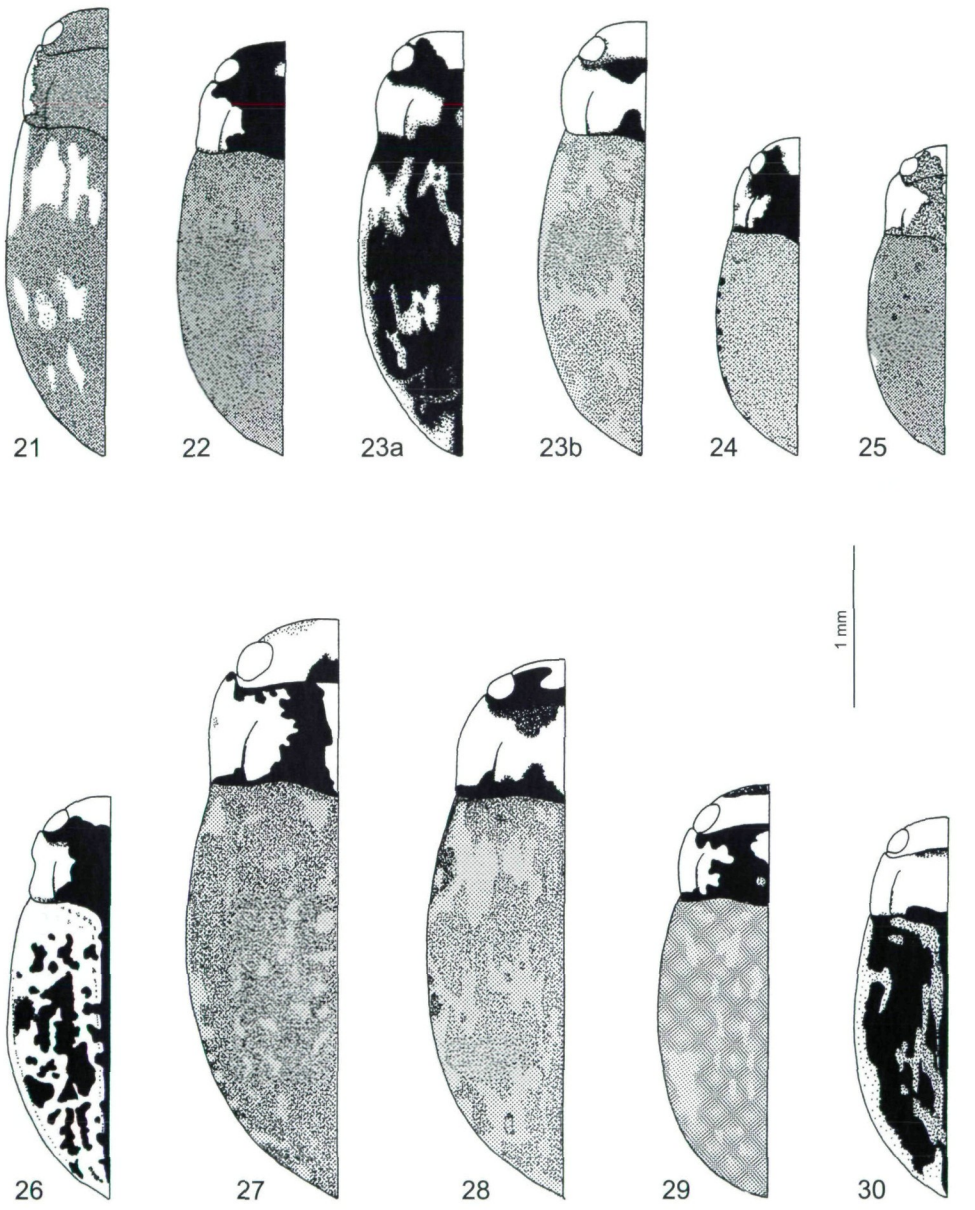
Figs. 1 - 4: Males, paratypes, 1) *Sternopriscus aquilonaris*, 2) *S. alligatorensis*, 3) *S. balkei*, 4) *S. goldbergi*.



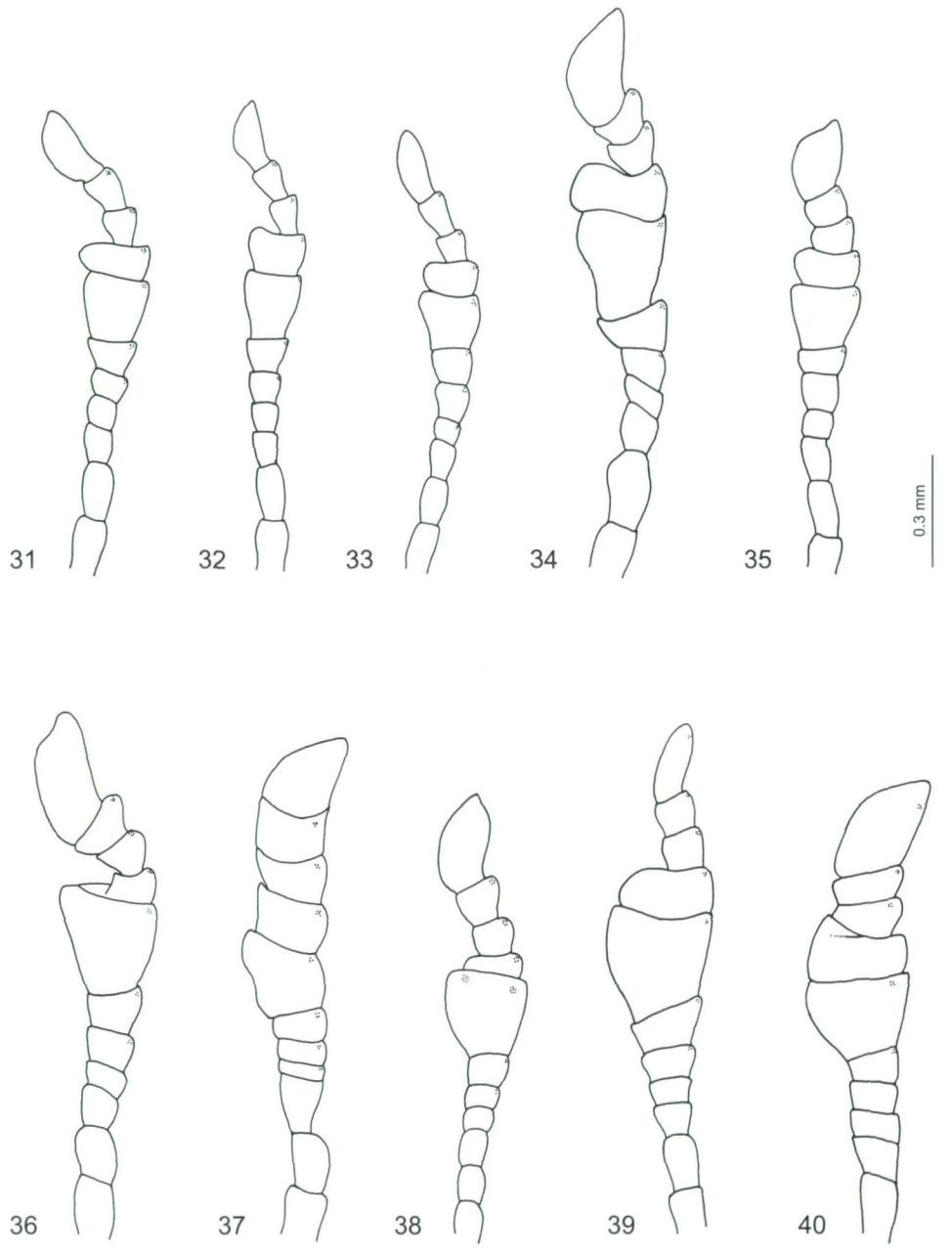
Figs. 5 - 10: Body outlines and colour patterns, 5) *Sternopriscus alligatorensis*, 6) *S. aquilonaris*, 7) *S. balkei*, 8) *S. clavatus*, 9) *S. goldbergi*, 10) *S. hansardi*: a, Victoria, Simpson Creek; b, New South Wales, Eccleston; c, north-western Tasmania, Mawbanna.



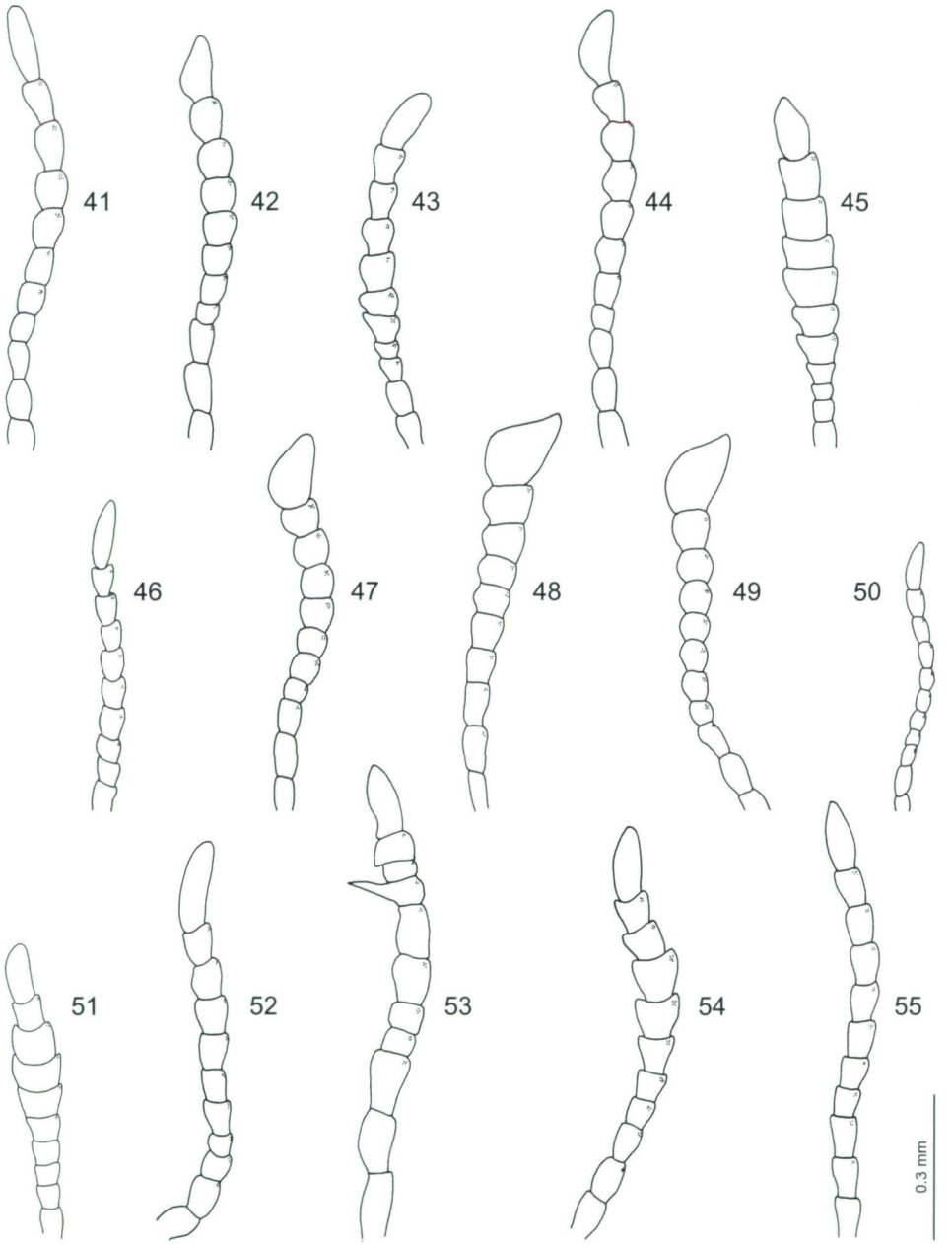
Figs. 11 - 20: Body outlines and colour patterns, 11) *Sternopriscus wallumphilia*, 12) *S. mouchampsi*, 13) *S. pilbaraensis* 14) *S. weiri*, 15) *S. tarsalis*, 16) *S. weckwerthi*, 17) *S. barbarae*, 18) *S. meadfootii*, 19) *S. montanus*, 20) *S. mundanus*.



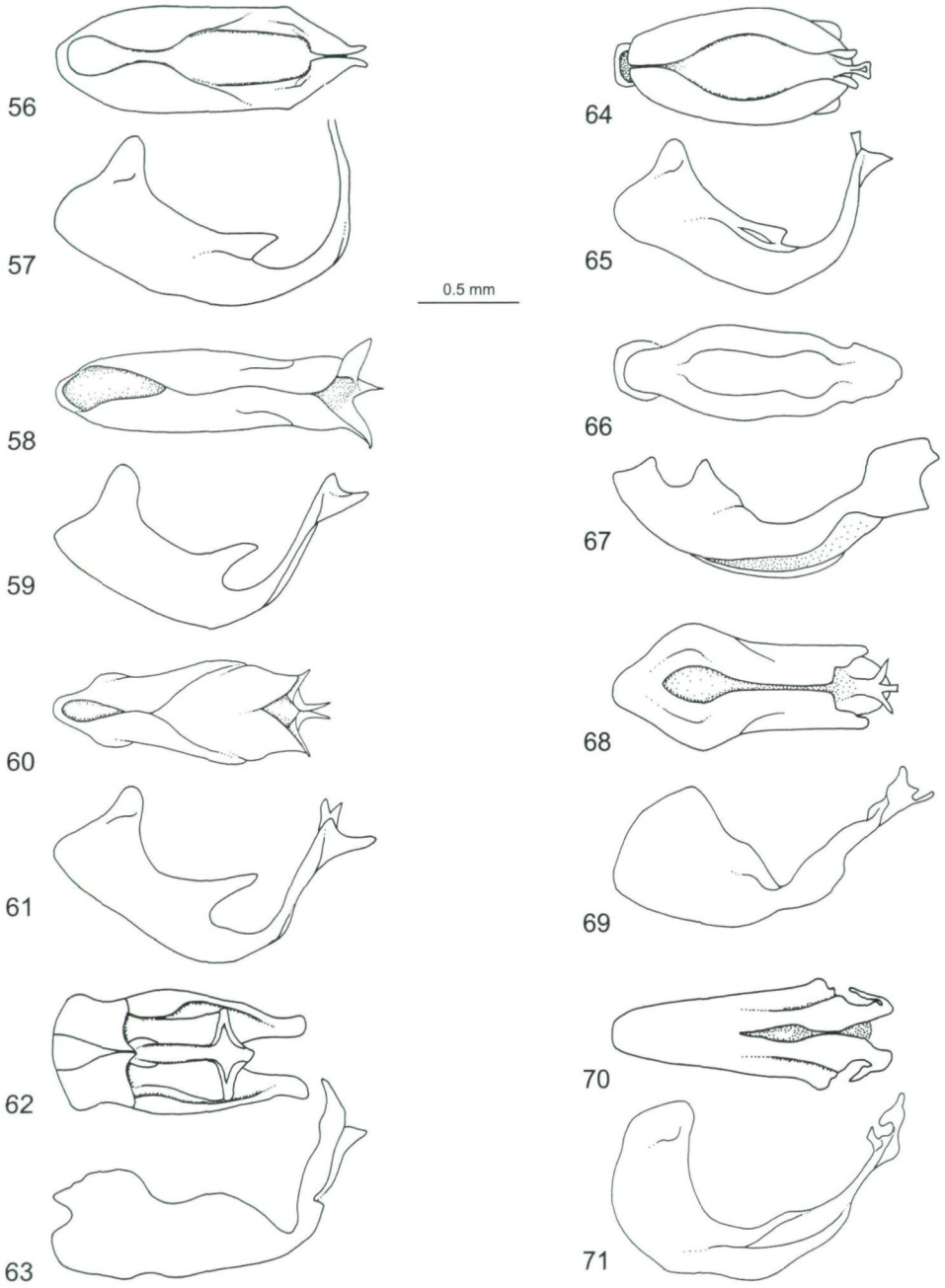
Figs. 21 - 30: Body outlines and colour patterns, 21) *Sternopriscus alpinus*, 22) *S. tasmanicus*, 23) *S. wehnckei*, 24) *S. minimus*, 25) *S. storeyi*, 26) *S. multimaculatus*, 27) S. *browni* 28) *S. marginatus*, 29) *S. wattsi*, 30) *S. signatus*.



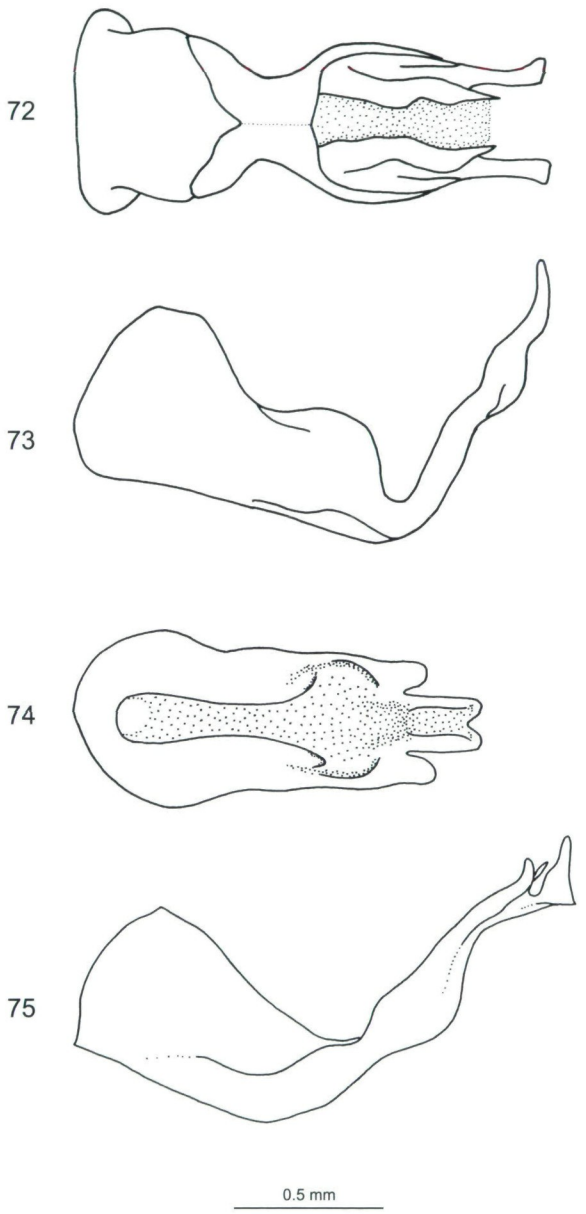
Figs. 31 - 40: Male antenna (left side) of *hansardi*-group, 31) *Sternopriscus alligatorensis*, 32) *S. aquilonaris*, 33) *S. balkei*, 34) *S. clavatus*, 35) *S. goldbergi*, 36) *S. hansardi*, 37) *S. wallumphilia*, 38) *S. mouchampsi*, 39) *S. pilbaraensis*, 40) *S. weiri*.



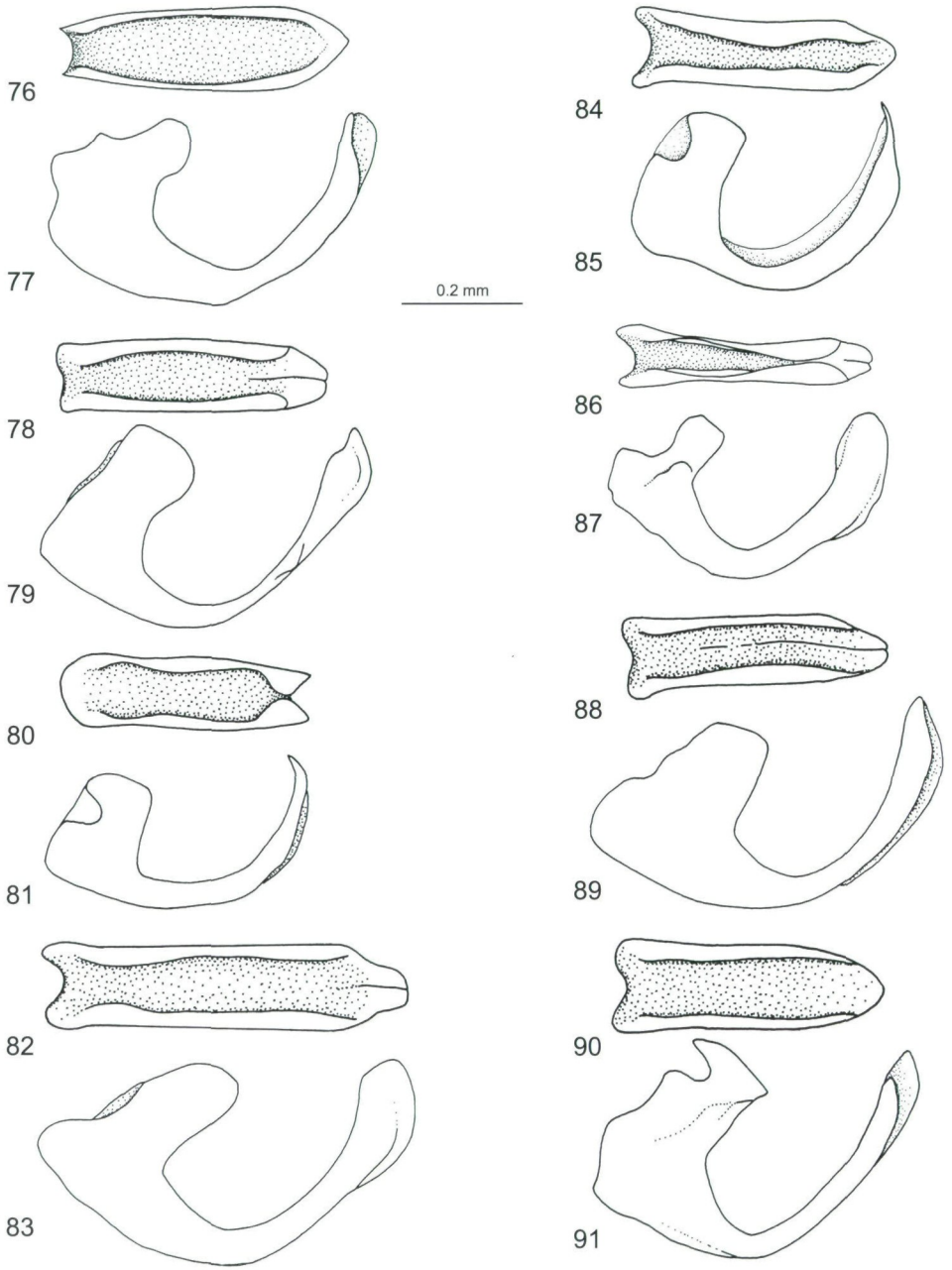
Figs. 41 - 55: Male antenna (left side), 41) *Sternopriscus tarsalis*, 42) *S. weckwerthi*, 43) *S. barbarae*, 44) *S. meadfootii*, 45) *S. montanus*, 46) *S. mundanus*, 47) *S. alpinus*, 48) *S. tasmanicus*, 49) *S. wehnckei*, 50) *S. minimus*, 51) *S. storeyi*, 52) *S. multimaculatus*, 53) *S. browni*, 54) *S. marginatus*, 55) *S. wattsi*.



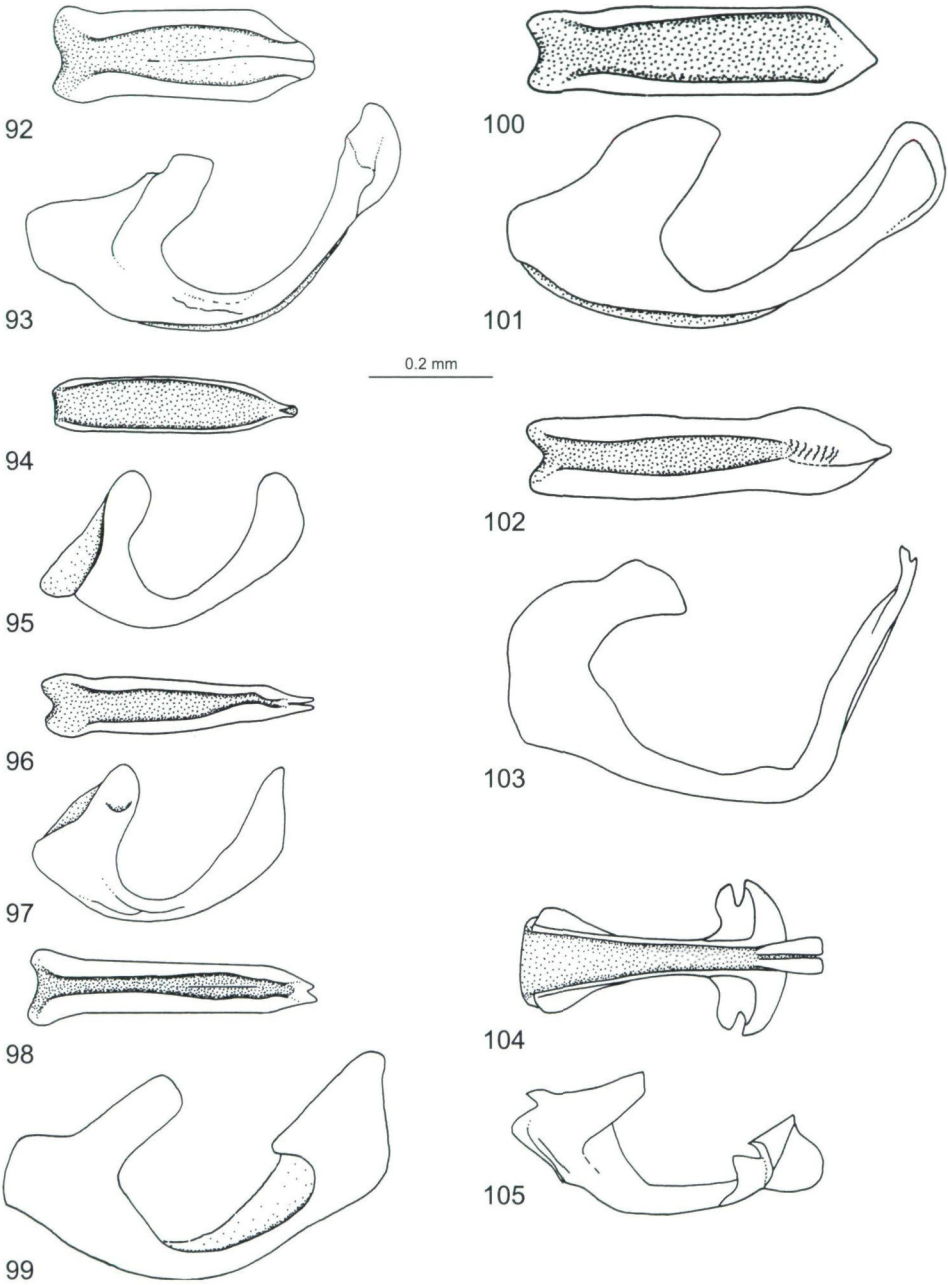
Figs. 56 - 71: Penis, dorsal (left) and lateral (right) view, *Sternopriscus hansardi*-group: 56/57) *S. alligatorensis*, 58/59) *S. aquilonaris*, 60/61) *S. balkei*, 62/63) *S. clavatus*, 64/65) *S. goldbergi*, 66/67) *S. hansardi*, 68/69) *S. wallumphilia*, 70/71) *S. mouchampsi*.



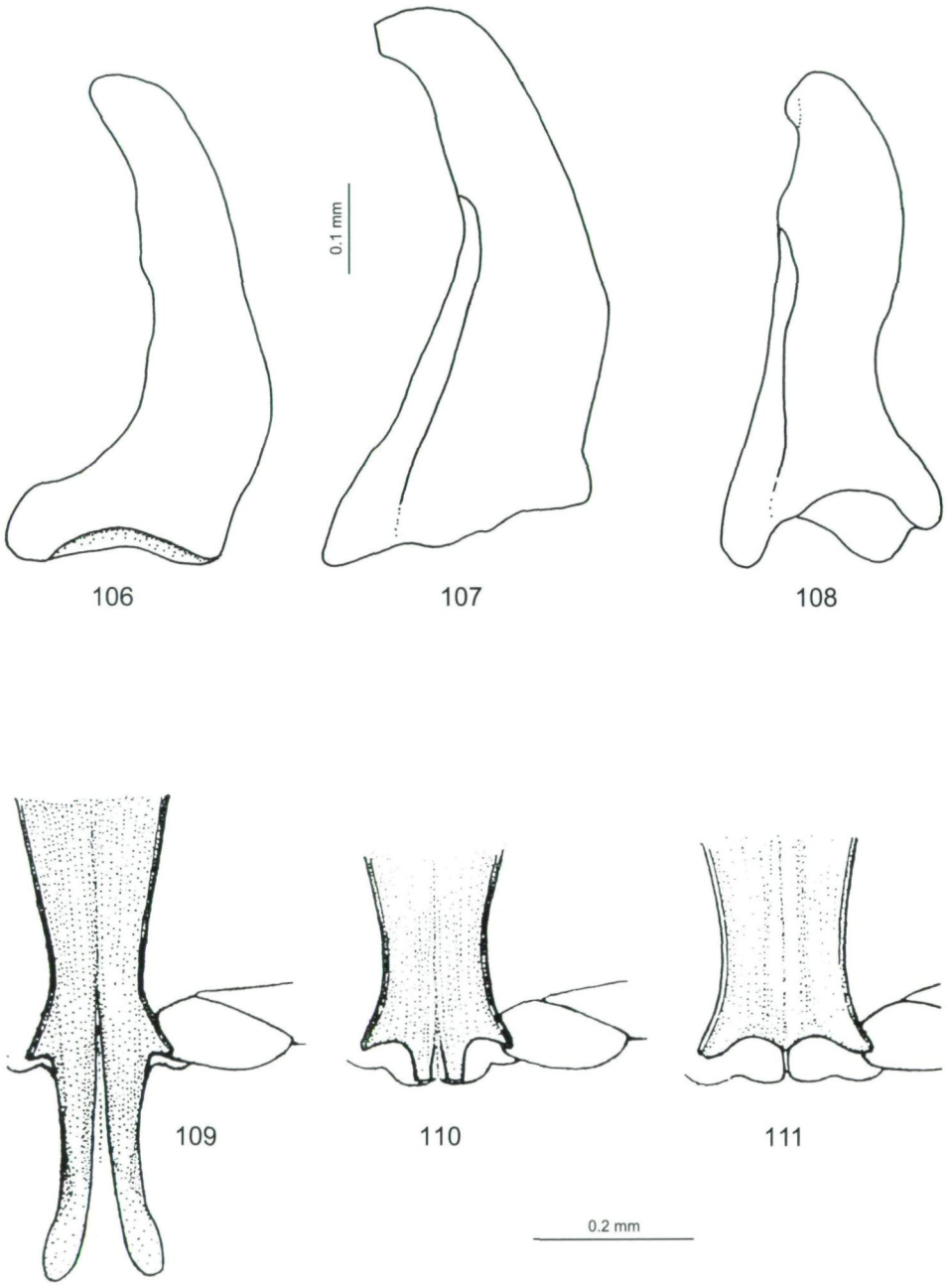
Figs. 72 - 75: Penis, dorsal (left) and lateral (right) view, *Sternopriscus hansardi*-group: 72/73) *S. pilbaraensis*, 74/75) *S. weiri*.



Figs. 76 - 91: Penis, dorsal (left) and lateral (right) view, 76/77) *Sternopriscus tarsalis*, 78/79) *S. weckwerthi*, 80/81) *S. barbarae*, 82/83) *S. meadfootii*, 84/85) *S. montanus*, 86/87) *S. mundanus*, 88/89) *S. alpinus*, 90/91) *S. tasmanicus*.



Figs. 92 - 105: Penis, dorsal (left) and lateral (right) view, 92/93) *Sternopriscus wehnckei*, 94/95) *S. minimus*, 96/97) *S. storeyi*, 98/99) *S. multimaculatus*, 100/101) S. *browni*, 102/103) *S. marginatus*, 104/105) *S. wattsi*.



Figs. 106 - 111: Left paramere, lateral view, 106) *Sternopriscus mundanus*, 107) *S. montanus*, 108) *S. barbarae*; metacoxal processes: 109) *S. wattsi* (male), 110) *S. wattsi* (female), 111) *S. browni* (female) (after PEDERZANI 1999).

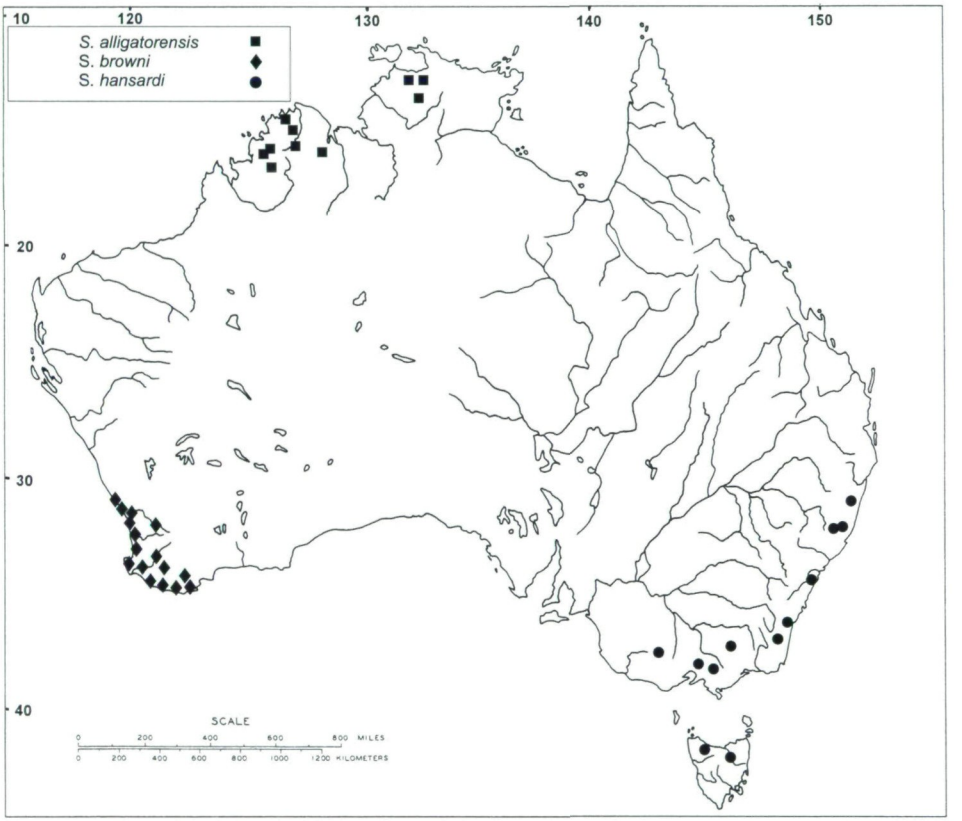


Fig. 112: Distribution of *Sternopriscus alligatorensis*, *S. browni* and *S. hansardi*.

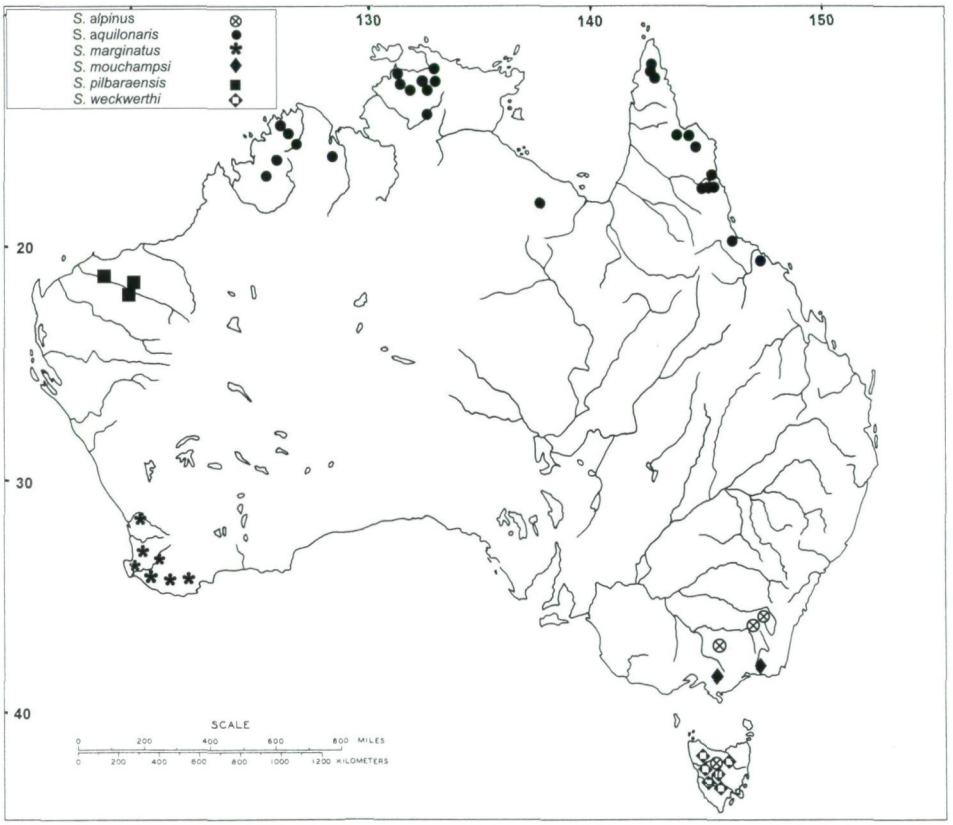


Fig. 113: Distribution of *Sternopriscus alpinus*, *S. aquilonaris*, *S. marginatus*, *S. mouchampsi*, *S. pilbaraensis* and *S. weckwerthi*.

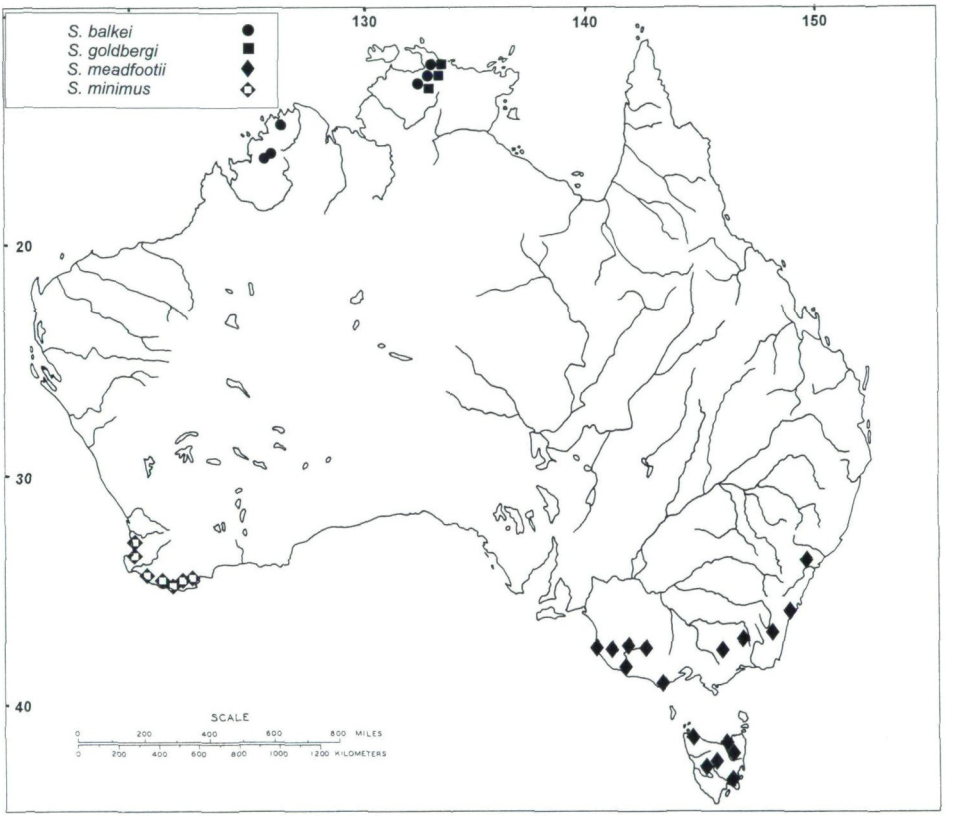


Fig. 114: Distribution of *Sternopriscus balkei*, *S. goldbergi*, *S. meadfootii* and *S. minimus*.

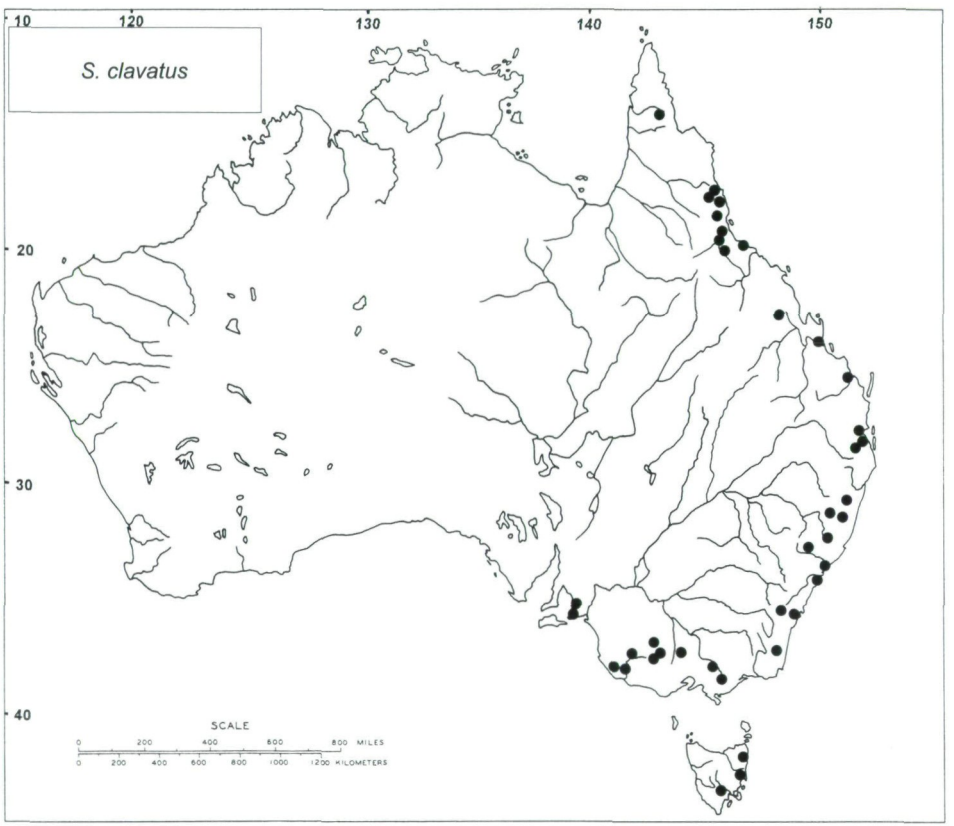


Fig.115: Distribution of *Sternopriscus clavatus*.

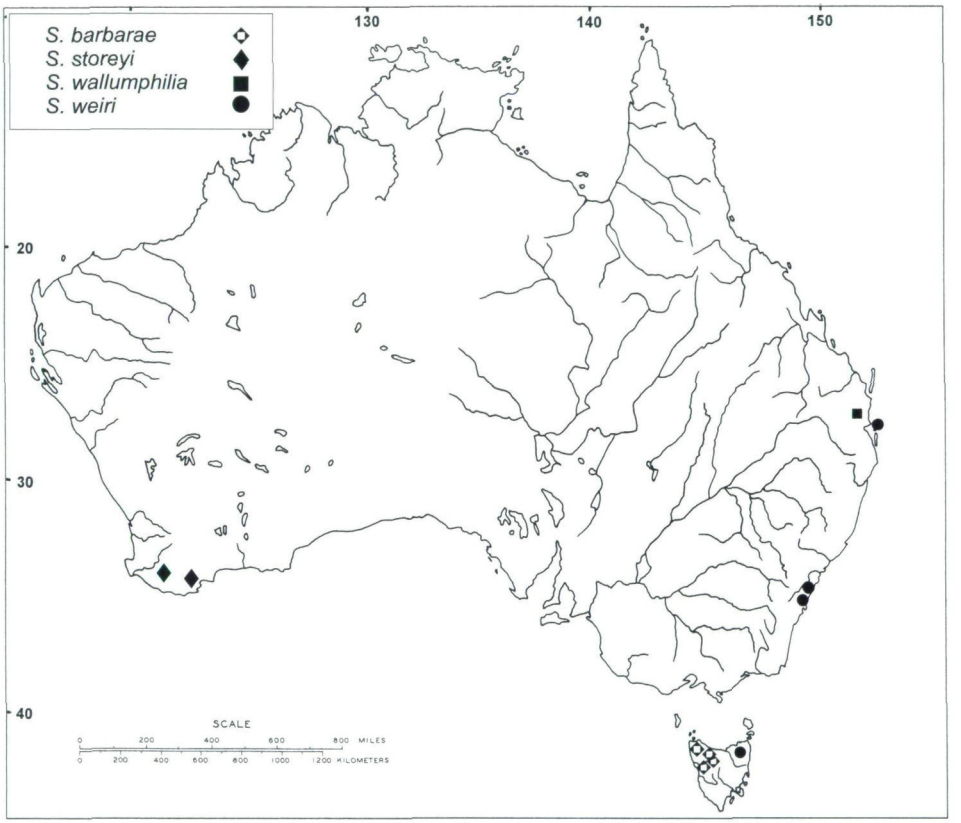


Fig. 116: Distribution of *Sternopriscus barbarae*, *S. storeyi*, *S. wallumphilia* and *S. weiri*.

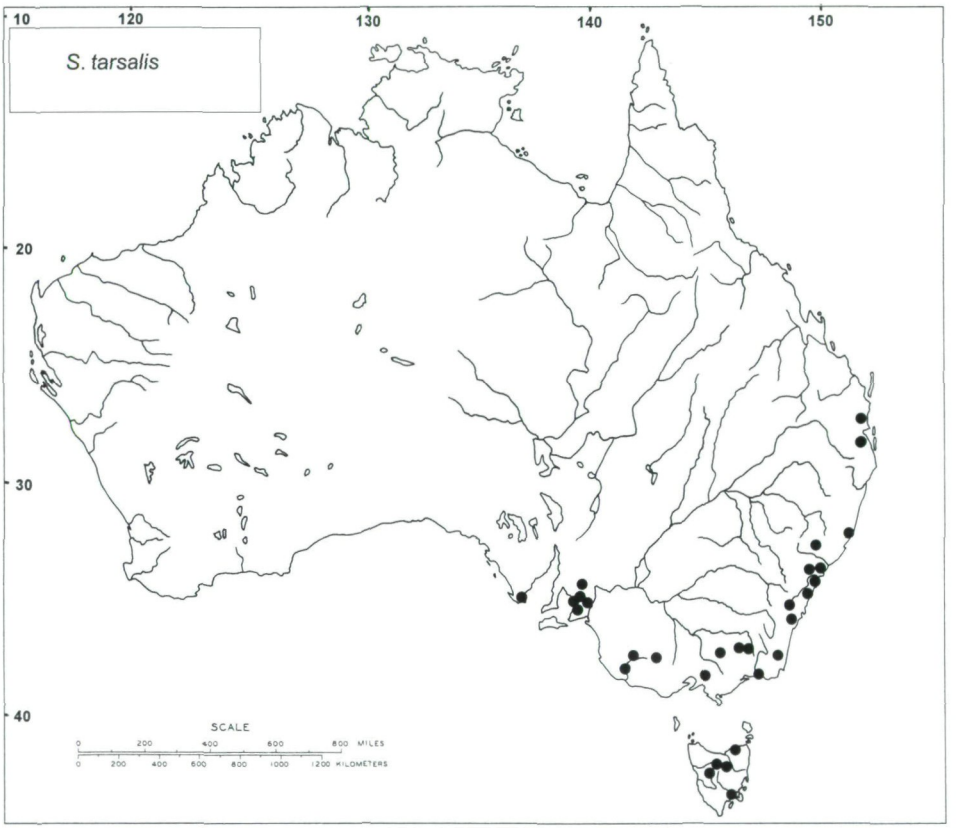


Fig. 117: Distribution of *Sternopriscus tarsalis*.

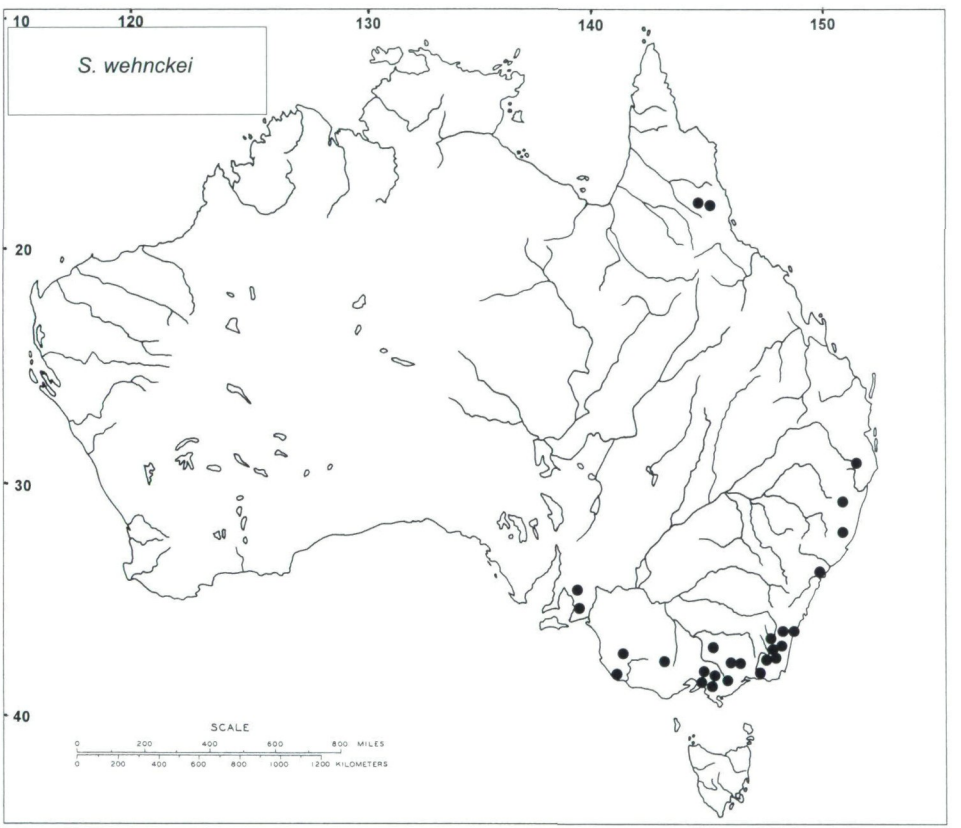


Fig. 118: Distribution of *Sternopriscus wehnckei*.

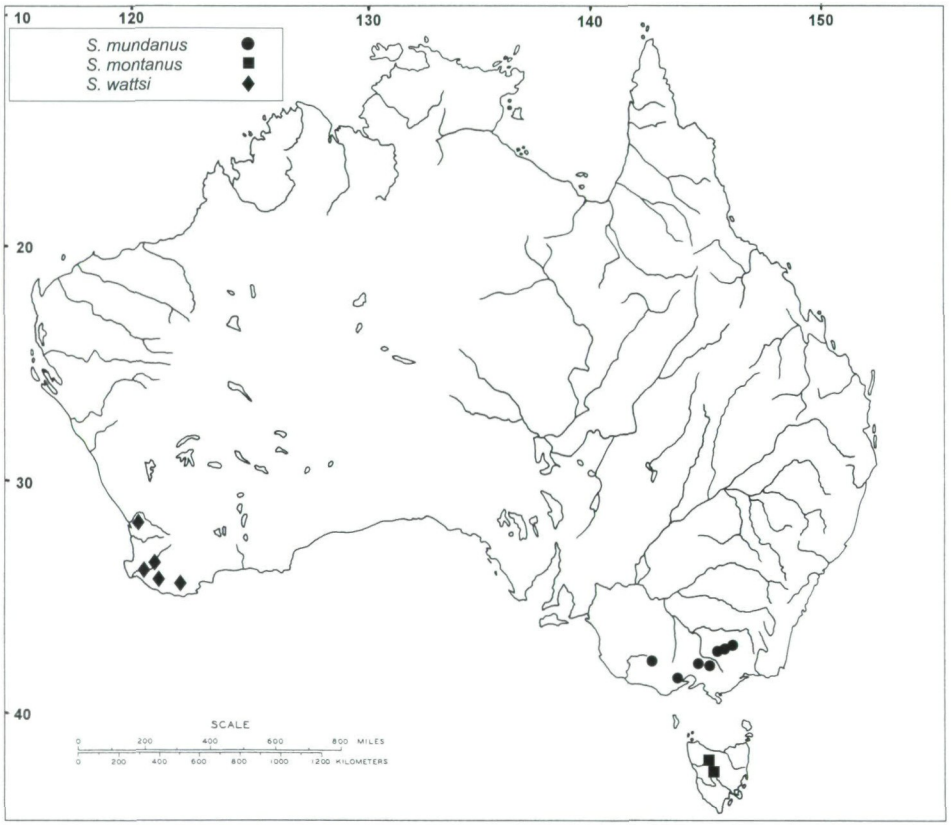


Fig. 119: Distribution of *Sternopriscus mundanus*, *S. montanus* and *S. wattsi*.

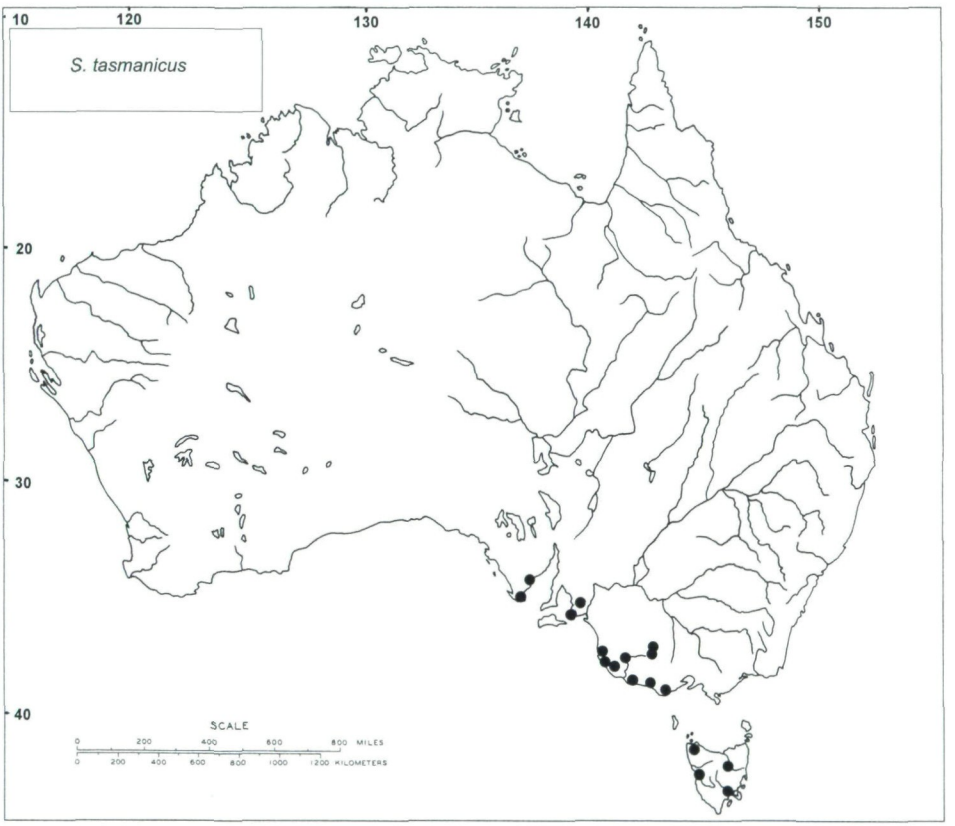


Fig. 120: Distribution of *Sternopriscus tasmanicus*.

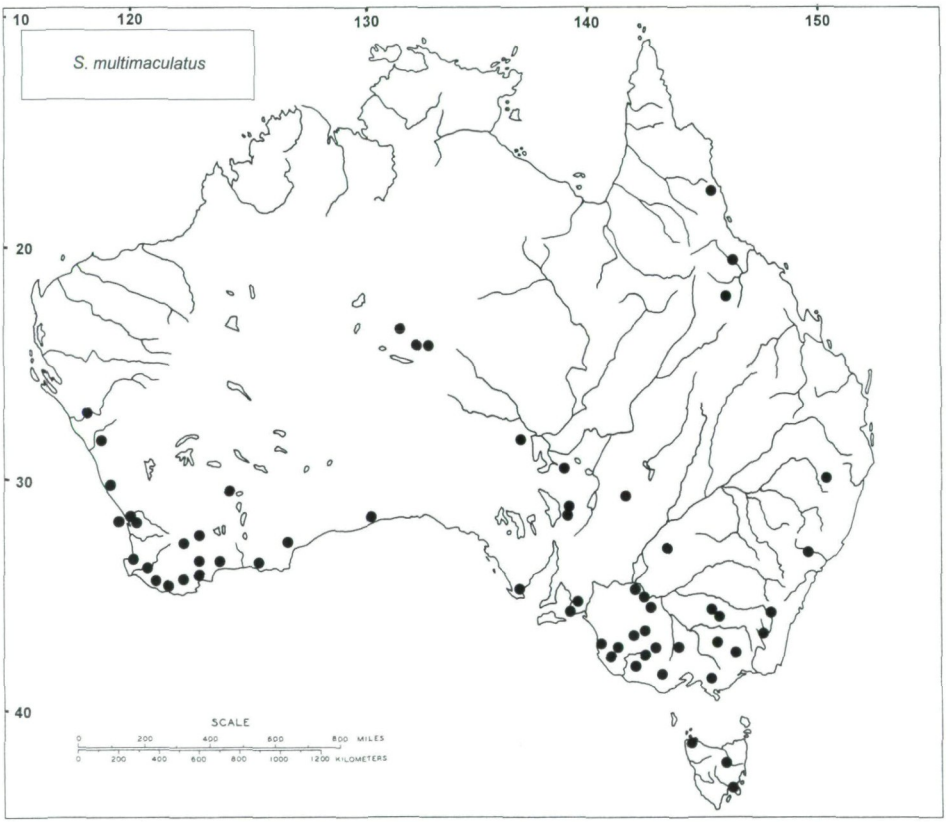


Fig. 121: Distribution of *Sternopriscus multimaculatus*.

Ecology

Table 1: Habitat information and altitudinal distribution of *Sternopriscus* in Australia.

Species	Altitude	Habitat
S. alpinus	Above 1000 m	Acidophilic
S. alligatorensis	50 - 100 m	Rheophilic
S. aquilonaris	50 - 100 m	Rheophilic
S. balkei	50 - 100 m	Rheophilic
S. barbarae	50 - 300 m	Rheophilic
S. browni	0 - 400 m	Eurytopic
S. clavatus	20 - 700 m	Eurytopic
S. goldbergi	50 - 100 m	Rheophilic
S. hansardi	200 - 500 m	Rheophilic
S. meadfootii	200 - 1000 m	Rheophilic
S. marginatus	50 - 400 m	Rheophilic
S. minimus	0 - 100 m	Acidophilic
S. mouchampsi	0 - 100 m	Acidophilic ?
S. montanus	Above 1000 m	Acidophilic/rheophilic
S. multimaculatus	0 - 100 m	Eurytopic
S. mundanus	200 - 1550 m	Acidophilic ?
S. pilbaraensis	50 - 500 m	Rheophilic
S. signatus	?	?
S. storeyi	0 - 50 m	Acidophilic
S. tarsalis	0 - 500 m	Eurytopic
S. tasmanicus	0 - 500 m	Eurytopic
S. wallumphilia	0 - 200 m	Acidophilic
S. wattsi	0 - 100 m	Eurytopic
S. weckwerthi	200 - 1000 m	Acidophilic
S. wehnckei	0 - 500 m	Eurytopic
S. weiri	0 - 50 m	Acidophilic

The currently known altitudinal distribution and ecology of *Sternopriscus* species in Australia is shown in Table 1. Nine species of the genus are rheophilic inhabiting rivers, streams and springs; nine species are acidophilic living in seasonal or permanent swamps, ponds and pools in different types of peatlands, and seven species seem to be more or less eurytopic occuring in various water bodies in open or forested country. The highest diversity is in lowland or coastal areas and hilly or low mountain ranges from 0 - 500 m. Only six species were collected up to 1000 m or above (*S. alpinus*, *S. meadfootii*, *S. montanus*, *S. mundanus* and *S. weckwerthi*).

Biogeography

The genus is rather speciose in south-eastern Australia with 16 species of which three are endemic to Tasmania. Only two of these 16 species have a wider distribution over mainland Australia (*S. multimaculatus* and *S. clavatus*). Five species are endemic to the southwest and four are distributed over the tropical north. None, or only one, species is shared by two or more of these areas of endemism. This distribution reflects the restriction of all but *S. multimaculatus* to the more humid coastal areas of Australia. The high level of endemism in the southeast and southwest suggests that the arid barrier between these two regions is of long standing. Another strong pattern is the virtual absence of members of the *S. tarsalis* group from the north of the continent wheras members of the *S. hansardi* group are more widespread.

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Figs. 122 - 127: Habitat of 122) *Sternopriscus minimus*, temporary coastal heathland pool south of Northcliffe, south-western Australia; 123) *S. browni*, *Melaleuca* peatland swamp near Northcliffe, south-western Australia; 124) *S. marginatus*, forest stream in Karri-woodland, Carey Brook, 4 km west of Beedelup National Park, south-western Australia; 125) *S. multimaculatus*, Gingin Brook, east of Lancelin, south-western Australia; 126) *S. alpinus* and *S. montanus*, Lake St. Clair, Narcissus Bay, Central Tasmania; 127) *S. weckwerthi*, Mount Field National Park, Beatties Tarn, north-western Tasmania.

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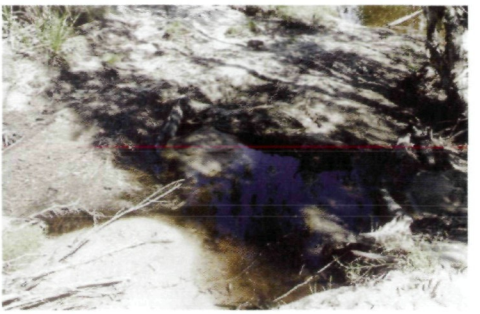

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Figs. 128 - 133: Habitat of 128/129) *Sternopriscus alligatorensis*, *S. aquilonaris*, *S. balkei* and *S. goldbergi*, Jim Jim Creek at Jim Jim Falls Camping Area, Kakadu National Park, Northern Territory, 129) isolated floodzone pool; 130) *S. tasmanicus*, coastal freshwater dune lake 10 km south of Robe, South Australia; 131) *S. storeyi*, Manypeaks, Lake Pleasant, summer-dry peatland sedge swamp, south-western Australia;132) *S. pilbaraensis*, Palm Pool river crossing, Millstream National Park Pilbara, Western Australia; 133) *S. clavatus* and *S. tarsalis*, Scotts Creek Conservation Park, South Australia, old farm dam (all photographs: L. Hendrich).

Coloration

Some of the species studied, especially tropical members of the more lentic *S. hansardi*-group, have a contrasting black/yellow surface making the beetles inconspicuous against the ground. The ground pattern of the genus includes various yellow or reddish spots. Within the Dytiscidae, the variegated color pattern has evolved convergently several times, especially among lotic species. The dark surface color combined with contrasting yellow pattern may help to disrupt the body outline of beetles when viewed by visually hunting predators such as birds specializing on aquatic invertebrate prey (SVENSSON 1991), frogs and fish. A similar color pattern is also present in some lotic Laccophilinae (e.g. *Neptosternus* SHARP, *Philaccolilus* GUIGNOT, some species of *Laccophilus* LEACH, see BALKE et al. 1997, HENDRICH & BALKE 1997) and lentic Dytiscinae such as *Sandracottus* SHARP and *Thermonectus* DEJEAN (LARSON 1996).

Conservation

Some of the south-western endemic species mentioned above (*S. minimus*, *S. storeyi* and *S. wattsi*) are thought to be endangered by peatland swamp drainage (drains, peat mining), nutrient enrichment, fire, riparian buffer and catchment clearing, increased inundation and increases in salinity (DAVIS & CHRISTIDIS 1997, HENDRICH 2001a, b). All across southern Australia freshwater swamps are drying out and show signs of dramatic increases in salinity. By the late 1980's, degradation in general and salinity in particular is one of Australia's most critical environmental problems. The type localities of *S. storeyi* are protected as Nature Reserves (Muir Lakes) or lie within State Forest (Lake Nalyerin). In addition, Lake Muir is included in the List of Wetlands of International Importance developed under Ramsar Convention. The Department of Conservation and Land Management (CALM), Agriculture Western Australia, the water and Rivers Commission, local landowners and other agencies are combining forces to save these unique freshwater habitats (CLEWS 1999).

Key to *Sternopriscus*

Much of the key requires male specimens - identifiable by a small notch or indentation on the inside of the protibia. However, specimens in the *S. hansardi* group can be keyed using either sex, as can an occasional pair of other species. The first three species keyed out are endemic to the southwest of Western Australia. *Sternopriscus signatus*, which is only known from a single female, is not included in the key.

1 Elytron strongly flanged, particularly in apical two thirds; apical segment of antenna in male only moderately expanded (Fig. 54) (SW Australia) ..... ***marginatus***

\- Elytron not flanged, male antenna variously expanded 2

2 Apical segment of male mesotarsi immensely expanded, segments 8, 9 and 10 of male antenna grotesquely enlarged (Fig. 53) (SW Australia) ..... ***browni***

\- Apical segment of male mesotarsi normal; segments 8, 9 and 10 of male antenna if expanded then in relatively simple way 3

3 Metacoxal plates in male greatly extended backwards in middle, reaching abdominal segment three, in the female coxal plates slightly extended; antenna in male simple (Figs. 55, 109) (SW Australia) ..... ***wattsi***

\- Metacoxal plates normal in both sexes; antenna in male usually expanded 4

4 2.1 - 3.2 mm long, pronotal plicae strong with slightly depressed area between them, antenna in male not or only weakly expanded or with more than segments 7 - 8 moderately expanded, median lobe of aedeagus simple, parameres relatively thin (*tarsalis* group, E and SE Australia, Tasmania) 14

- 2.6 - 4.5 mm long, pronotal plicae with depressed area between them usually weak, antenna in male with segments 7 - 8 greatly enlarged, other segments much less so, medium lobe of aedeagus with complex tip, parameres relatively broad (*hansardi* group, N, E and SE Australia, Tasmania) 5

5 Elytron with a broad shallow depression parallel to and near suture, which appears thus slightly raised, humeral angle testaceous, maxillary palpi testaceous ..... ***hansardi***

- Elytron lacking such a depression, humeral angle dark, maxillary palpi variable in colour..... 6

6 Tips of maxillary palpi paler than rest of palpi (N and W Australia) 7

- Tips of maxillary palpi darker than rest of palpi (Australia wide)..... 8

7 Pronotum testaceous with relatively narrow areas along front and rear edges dark; apical segment of male antenna large, with curved outer edge (Fig. 32) (N Australia)..... ***aquilonaris***

- Pronotum predominantly dark with testaceous areas in centre and laterally; apical segment of male antenna weak, sides parallel (Fig. 39) (West coast: Pilbara)..... ***pilbaraensis***

8 Pronotum dark with at most illdefined testaceous areas laterally and just inwards of plicae; pronotal plicae well developed; male with apical segment of antenna weak (Fig. 31)..... 9

- Pronotum with at least a central testaceous panel; pronotal plicae obsolete to moderately developed; male with apical segment of antenna well developed (Figs. 35, 38)..... 10

9 Head, pronotum and elytron with illdefined testaceous spots; median lobe of aedeagus with ventral finger-like extension (Northern Territory) (Fig. 57)..... ***alligatorensis***

- Black, except for one or two small lateral testaceous spots on elytron; median lobe of aedeagus with well developed ventral finger-like extension (Northern Territory) (Fig. 61)..... ***balkei***

10 Head testaceous except for narrow band on rear edge; male with antennal segment 10 longer than wide (SE Australia) (Fig. 38)..... ***mouchampsi***

- Head with at least the area adjacent to the eyes dark; male with antennal segment 10 wider than long..... 11

11 Length < 3.0 mm; apical segment of male antenna more rounded (Fig. 35). Median lobe of aedeagus thick (Northern Territory) (Fig. 64)..... ***goldbergi***

- Length > 3.2 mm; apical segment of male antenna more elongate (Fig. 37). Median lobe of aedeagus thin (E and SE Australia) (Fig. 68)..... 12

12 Head black except for front margin and parts of rear margin. Male with claws on mesotarsi strongly elongate, spatulate; last two antennal segments subequal in area (Fig. 37)..... ***wallumphilia***

- Head testaceous except for area inwards from eyes. Male mesoclaws normal, penultimate segment of antenna much smaller than apical (Fig. 34, 40)..... 13

13 Dark areas inwards from eyes small, much narrower than central testaceous area. Male antenna with segment 7 much greater in area than segment 8, apical segment without prominent bump on outside near apex (Fig. 34) (E and SE Australia, Tasmania)..... ***clavatus***

- Dark areas inwards from eyes extensive, each as wide as central testaceous area. Male antenna with segments 7 and 8 relatively similar in area, apical segment with prominent bump on inside near apex (Fig. 40)..... ***weiri***

14 (Males only). Mesotarsi elongate, segments 2 - 3 at least twice as long as wide (*tarsalis* complex) (Australia wide) 15

- (Males only). Mesotarsi with basal three segments only slightly elongated, with general shape of protarsal segments, not longer than wide..... 16

15 Rugose; elytron seldom with clear colour pattern; apical segment of antenna narrowly triangular (Fig. 42) (higher altitudes of Tasmania)..... ***weckwerthi***

- Less rugose; elytron with clear colour pattern; apical segment of antenna with outer edge more rounded (Fig. 41) (E and SE Australia) ..... ***tarsalis***

16 Apical segment of antenna significantly larger than others, segments increase progressively in width towards apex (Fig. 48) (*tasmanicus* complex) 23

- Apical segment about the same width as penultimate, middle segments wider than segments 9 - 10, or little modified 17

17 Elytron testaceous, with numerous small dark spots, extreme base testaceous (Australia wide) ..... ***multimaculatus***

- Elytron dark or with dark\light pattern but never with more than an occasional small dark spot, extreme base predominantly dark (except for the Tasmanian endemic *S. montanus* which lacks elytral spots and has the middle segments of the antenna greatly enlarged) 18

18 South-western Australia 19

- South-eastern Australia (*meadfootii* group) 20

19 Antennal segments 7, 8 and 9 enlarged, segment 5 approximately half the width of segment 8 (Fig. 50); extreme edge of elytron with 5 - 8 alternating dark and light patches ..... ***minimus***

- Antennal segments 5 - 10 weakly enlarged, subequal (Fig. 51); edge of elytron with at most a few ill-defined dark and light patches ..... ***storeyi***

20 Antenna virtually unmodified, segments 5 - 10 approximately the same shape, segment 6 much longer than wide (Fig. 46) (SE Australia) ..... ***mundanus***

- Antenna with middle segments enlarged to some degree, segments 6 and 7 larger than segments 9 and 10, segment 6 about as wide as long 21

21 Antenna thinner, width of segment 5 < length, width of segment 6 < length (Fig. 44) (SE Australia, Tasmania) ..... ***meadfootii***

- Antenna strongly expanded, width of segment 5 > length, width of segment 6 > length (Fig. 43, 45) 22

22 Pronotum lateral to plicae and parts of head testaceous. Antenna less robust, segment 9 equal in width to segment 4 (Fig. 43) (NW Tasmania) ..... ***barbarae***

- Pronotum and head usually dark brown to black. Antenna more robust, segment 9, 1.2 - 1.5 times width of segment 4 (Fig. 45) (higher altitudes of Tasmania) ..... ***montanus***

23 Pronotum dark; median lobe relatively flat (Fig. 89) (Alpine regions of SE Australia and Tasmania) ..... ***alpinus***

- Pronotum broadly testaceous; median lobe of aedeagus with tip bulbous in ventral view (Fig. 93). 24

24 Outer margin of apical segment curves forward before meeting inner margin giving apex a pointed appearance, segments 8 - 10 increase in size (Fig. 48) (SE Australia, Tasmania)..... ***tasmanicus***

- Outer margin of apical segment a smooth arc giving apex a more rounded appearance, segments 8 - 10 increase little if any in size (Fig. 49) (SE Australia, Tasmania) ..... ***wehnckei***

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References

BALKE, M. 1995: The Hydroporini (Coleoptera: Dytiscidae: Hydroporinae) of New Guinea: systematics, distribution and origin of the fauna. – Invertebrate Taxonomy 9: 1009-1019.

BALKE, M., LARSON, D.J. & HENDRICH, L. 1997: A review of the New Guinea species of *Laccophilus* Leach 1815 with notes on regional melanism (Coleoptera Dytiscidae). – Tropical Zoology 10: 295-320.

BALKE, M., KOVAC, D., HENDRICH, L. & FLECHTNER, G. 2000: Rediscovery of the New Zealand water beetle *Rhantus plantaris* Sharp and notes on the south west Australian *R. simulans* Régimbart, with an identification key (Coleoptera: Dytiscidae). – New Zealand Journal of Zoology 27: 223-227.

BAYLY, I.A.E. 1997: Invertebrates of temporary water in gnammas on granite outcrops in Western Australia. – Journal of the Royal Society of Western Australia 80: 167-172.

CLARK, H. 1862: Catalogue of the Dytiscidae and Gyrinidae of Australasia with descriptions of new species. – Journal of Entomology. 1: 399-421.

CLEWS, M. 1999: Saving the swamps. – Landscope 14 (3): 43-47.

DAVIS, J. & CHRISTIDIS, F. 1997: A Guide to Wetland Invertebrates of Southwestern Australia. – Perth: F. Daniels, 177 pp.

HENDRICH, L. 1997: A new species of *Cybister* Curtis from the Kakadu National Park in northern Australia (Coleoptera: Dytiscidae). – Entomological Problems 28 (2): 105-108.

HENDRICH, L. 2001a: A new species of *Antiporus* Sharp, 1882 from peatland swamps of south-western Australia (Coleoptera: Dytiscidae). – Linzer biologische Beiträge 33 (1): 299-308.

HENDRICH L. 2001b: A new *Hygrobia* Latreille, 1804 from peatland swamps of south-western Australia (Coleoptera: Hygrobiidae). – Koleopterologische Rundschau 71: 17-25.

HENDRICH, L. 2003: *Austrodytes plateni* n.sp., and a faunal analysis of the Hydradephaga of the Pilbara region, Western Australia (Coleoptera: Haliplidae, Dytiscidae, Gyrinidae). – Koleopterologische Rundschau 73: 43-58.

HENDRICH, L. & BALKE, M. 1997: Taxonomische Revision der südostasiatischen Arten der Gattung *Neptosternus* Sharp, 1882 (Coleoptera: Dytiscidae: Laccophilinae). – Koleopterologische Rundschau 67: 53-97.

LARSON, D.J. 1993: Ecology of tropical Australian Hydradephaga (Insecta: Coleoptera). Part 1. Natural history and distribution of northern Queensland species. – Proceedings of the Royal Society of Queensland 103: 47-63.

LARSON, D.J. 1996: Color patterns of dytiscine water beetles (Coleoptera: Dytiscidae, Dytiscinae) of arroyos, billabongs and wadis. – The Coleopterists Bulletin 50 (3): 231-235.

LARSON, D.J. 1997: Habitat and Community Patterns of Tropical Australian Hydradephagan Water Beetles (Coleoptera: Dytiscidae, Gyrinidae, Noteridae). – Australian Journal of Entomology 36: 269-285.

LAWRENCE, J.F., WEIR, T.A. & PYKE, J.E. 1987: Haliplidae, Hygrobiidae, Noteridae, Dytiscidae and Gyrinidae. – In: Zoological Catalogue of Australia, Volume 4, Coleoptera: Archostemata, Myxophaga and Adephaga ed by Bureau of Flora and Fauna, Canberra. Australian Government Publishing Service, Canberra, 444 pp.

LEA, A.M. 1899: Descriptions of new species of Australian Coleoptera. Part V. – Proceedings of the Linnean Society of New South Wales 23: 521-645.

MATTHEWS, E.G. 1980: A Guide to the Genera of Beetles of South Australia, Part 1: Archostemata and Adephaga. Special Education Bulletin Series, South Australian Museum, Adelaide, 50 pp.

NILSSON, A.N. 2001: Dytiscidae (Coleoptera). – In: World Catalogue of Insects Volume 3. Stenstrup: Apollo Books, Denmark, 1-395.

PEDERZANI, F. 1999: *Sternopriscus wattsi* n.sp. from SW Australia (Insecta Coleoptera Dytiscidae). – Quaderno di Studi e Notizie di Storia Naturale della Romagna 11: 5-8.

SHARP, D. 1882: On Aquatic Carnivorous Coleoptera or Dytiscidae. – Scientific Transactions of the Royal Dublin Society 2: 179-1003.

SVENSSON, B.W. 1991: Morphological variation in *Gyrinus sericeolimbatus* Rég. in New Guinea and description of a new *Gyrinus* species (Coleoptera: Gyrinidae). – Systematic entomology 16: 499-514.

TIMMS, B.V. & WATTS, C.H.S. 1987: Water Beetles of Salt Lakes near Colac, Victoria. – Australian Society for Limnology 11: 1-7

WATTS, C.H.S. 1978: A revision of the Australian Dytiscidae (Coleoptera). – Australian Journal of Zoology, Supplement Series 57: 1-166.

WATTS, C.H.S. 1985: A faunal assessment of Australian Hydradephaga. – Proceedings of the Academy of Natural Sciences of Philadelphia 137: 22-28.

ZIMMERMANN, A. 1920: Dytiscidae. – In: Schenkling, S. (eds.): Coleopterorum Catalogus 4, pars 71. – Berlin: W. Junk, 326 pp.

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