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The species of the Australian *Tachys* (*s. l.*) *mastersi* complex
(Coleoptera, Carabidae, Bembidiini, Tachyina)

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Abstract

The Australian populations of the tachyine Carabidae which hitherto were combined to the species *Tachys* (*s. l.*) *mastersi* SLOANE are examined with special aim to their male genitalia. The examination reveals the existence of six different taxa in Australia, according to shape and structure of their aedeagi, which are aligned along the east coast of Australia from central eastern New South Wales to central Cape York Peninsula in North Queensland. Five new species are described from tropical eastern Queensland: *Tachys intermedius* from Paluma Range to Atherton Tableland*, T. macrops* from the vicinity of Ingham and from Iron Range in eastern central Cape York Peninsula, *T. tropicalis* from Atherton Tableland to central Cape York Peninsula*, T. yorkensis* from Iron Range and central Cape York Peninsula, and *T. excisicollis* from Iron Range. A key is provided for this complex.

The male genitalia are structurally fairly similar in five of the six species, whereas in *T. macrops* the aedeagus is remarkably different in shape and structure, although in the external morphology this species does not much deviate from the other species, apart from its larger eyes.

The examination reveals that the ranges of most species widely overlap, so that certain species in parts of their ranges occur sympatrically or even syntopically. In view of the high grade of similarity of the external morphological characters of all species this coexistence is surprising and raises questions about about their evolution and possible differences in their ecology and/or ethology.

Introduction

While recently sorting through the numerous unidentified material of Australian *Tachys s. l.* in the Australian National Insect Collection, Canberra (ANIC) I found a number of specimens from large parts of eastern Australia which according to their body shape, structure of the elytra and other characters of their external morphology would be alluded to the species *Tachys (Paratachys) mastersi* SLOANE, 1921. This was a new name for *Tachys sexstriatus* (MACLEAY, 1871) which name is preoccupied by *Tachys sexstriatus* (DUFTSCHMID, 1812). In view of very slight differences in body size, shape, and colouration of some northern, respective southern specimens I undertook the dissection of the male genitalia of many specimens from various localities throughout the geographical range of the sample. It turned out, then, that six different types of male genitalia are present in the sample, which correspond to partly different ranges along the east coast of Australia in New South Wales and Queensland. The populations which possess different aedeagi herein are described as species, because the differences in the shape of their aedeagi and in the structure of the internal sac are significant, although the differences in most characters of their external morphology are feeble. A key to the Australian species of the complex is provided.

Material and Methods

For dissection of the genitalia the specimens were weakened for a night in a jar under moist atmosphere, then the genitalia were removed and subsequently cleaned for a short while in hot KOH. Measurements were taken using a stereo microscope with an ocular micrometer. Body length was measured from the apex of the

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labrum to the apex of the elytra. Length of the pronotum was measured along midline. Length of the elytra was measured from the most advanced part of the humerus to the very apex.

For the examination of the surface structures I used a Leitz binocular with very high resolvation capacity and with up to 160 x magnification.

The habitus photograph was obtained with a digital camera using ProgRes CapturePro 2.6 and AutoMontage and subsequently was worked with Corel Photo Paint X4.

In the locality records a / with a blank before and after indicates another label. Two blanks denote another line on a label.

Altogether 181 specimens were examined for this study. The types are preserved in the Australian National Insect Collection, Canberra (including the collection of B. P. MOORE) (ANIC), the Working Collection M. BAEHR in Zoologische Staatssammlung, München (CBM), the Carnegie Museum, Pittsburgh (CMP), and the Queensland Museum, Brisbane (QM).

Abbreviations

NSW New South Wales
QLD Queensland
> larger or longer than
< smaller or shorter than

Taxonomy

The Australian species of the genus *Tachys* DEJEAN, 1821 in the widest sense, as, for example, used in the catalogue of MOORE et al. (1987), form a very heterogeneous assemblage of species, many of which in the meantime were included in a couple of subgenera or even genera, according to the opinion of the respective authors. Except for the species that clearly belong to the subgenera (or genera) *Elaphropus* MOTSCHOULSKY, 1839, *Tachylopha* MOTSCHOULSKY, 1862, *Tachyura* MOTSCHOULSKY, 1862, *Sphaerotachys* MÜLLER, 1926, *Polyderis* MOTSCHOULSKY, 1862, *Tachys* (s. str.) DEJEAN, 1821, and *Paratachys* CASEY, 1918, the Australian fauna includes a couple of species the taxonomic status of which still is uncertain (LORENZ 2005). Even the paper of SCIAKY & VIGNA TAGLIANTI (2003) did not touch these problematic species. Of the Australian species of the subtribe Tachyina only the species of the subgenera *Tachylopha*, *Tachyura*, and *Sphaerotachys* have received a modern revision (BAEHR 1988), for identification of the species of the other subgenera the key of SLOANE (1921) still must be used, even though it is very much outdated and several additional undescribed species are known to exist.

The species *Tachys mastersi* SLOANE, however, clearly belongs in the subgenus *Paratachys* which is demonstrated by the presence of the deep mental pits and the structure of the elytral striation and the arrangement of the discal punctures.

The *Tachys mastersi*-complex

Diagnosis: This complex covers species of the subgenus (or genus) *Paratachys* CASEY by virtue of the presence of two deep mental pits, not complete striation of the elytra, and the presence of a single discal setiferous puncture on the elytra apart from the puncture inside the terminal recurrent stria. The species of this complex are distinguished from other described Australian species of the subgenus by the position of the discal seta on the 5th interval, the wide, oval-shaped elytra, the presence of at most three well impressed elytral striae, and the iridescent surface of the elytra.

All Australian species of the *mastersi*-complex are very similar in their external characters: body size, shape, colouration, striation of the elytra, and structure of the surface, but are mainly distinguished by their male aedeagi. Although all species have several small, coiled, sclerotized pieces in the basal part of the internal sac, the aedeagi are fairly differently shaped and have quite different apices, and in some species the internal sac bears additional sclerites in the apical part. The parameres almost always bear three elongate apical setae. The female gonocoxites are rather similarly shaped in all species, but size and position of the ventro-lateral and dorso-median ensiform setae at gonocoxite 2 is quite varied.

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Distribution: The whole eastern margin of Australia from mid-eastern New South Wales in the south to Iron Range in eastern central Cape York Peninsula in the north. According to DARLINGTON (1962) extraterritorial in New Guinea.

Note: DARLINGTON (1962) described two taxa from New Guinea as subspecies of *T. mastersi* but did not distinguish these clearly from the nominate subspecies which only occurs in eastern Australia. Because the male genitalia were not examined, the affiliation of both putative subspecies to the Australian species is doubtful.

Tachys (Paratachys) mastersi SLOANE, 1921 (Figs 1, 7, 14)

Tachys mastersi SLOANE, 1921: 207 (nom. nov. for *Bembidion sexstriatum* W. MACLEAY, 1871). – CSIKI 1928: 186; DARLINGTON 1962: 412; MOORE et al. 1987: 140.
Bembidion sexstriatum W. MACLEAY, 1871: 117 (*non Elaphrus sexstriatus* DUFTSCHMID, 1812).

Examined types: The single typical specimen is a syntype from Gayndah in south-eastern Queensland which I examined some years ago in the Australian Museum, Sydney. According to MOORE et al. (1987) the location of putative additional syntypes is unknown.

Type locality: Gayndah, south-eastern Queensland.

Diagnosis: Distinguished from the other Australian species of the complex mainly by the shape and structure of the aedeagus which bears a sclerotized piece in the apical part of the internal sac, and by the configuration of the sclerotized parts at the base of the internal sac; also distinguished by the combination of large body size, absolutely not microreticulate pronotum, elongate, darkened antenna with pale 1st antennomere, and pale yellow femora but slightly infuscate tibiae.

Partial redescription: Measurements (specimens from NSW and southern QLD): Body length: 3.0-3.35 mm; width: 1.35-1.45 mm. Ratios. Width/length of pronotum: 1.45-1.47; width of pronotum/width of head: 1.41-1.43; length/width of elytra: 1.41-1.42; length/width of 6th antennomere: 3.2-3.4.

Measurements (specimens from Eungella env., central eastern QLD): Body length: 3.05-3.1 mm; width: 1.35-1.4 mm. Ratios. Width/length of pronotum: 1.46-1.49; width of pronotum/width of head: 1.43-1.44; length/width of elytra: 1.44; length/width of 6th antennomere: 3.1.

Colour: More or less pale reddish-castaneous, also lower surface pale reddish. Antenna darkened, but 1st antennomere rather contrastingly pale. Penultimate palpomere of maxillary palpus distinctly paler than basal palpomere. Legs yellow, but tibiae slightly darker, in particular towards apex.

Head (Fig. 14): Of average size but rather elongate. Eye comparatively large, moderately produced, orbit rather short, oblique. Labrum elongate, at apex slightly concave. Mandibles comparatively elongate. Maxillary palpus markedly elongate, longer and slenderer than in other species of the complex. Antenna elongate, surpassing the base of the pronotum by 3 antennomeres. Frontal sulci evenly curved, elongate, attaining the posterior margin of the eye. Clypeus and frons with superficial, about isodimetric microreticulation. Surface rather glossy and slightly iridescent.

Pronotum (Fig. 14): Wide, dorsal surface moderately convex, widest slightly in front of middle. Apical angles rounded, apex gently concave, lateral margins in anterior half convex, in posterior half almost straight and slightly oblique, very slightly concave in front of the rectangular, at tip slightly obtuse basal angles. Base laterally almost straight, in middle slightly produced. Anterior transverse sulcus and median line both shallow, basal transverse sulcus deep, finely punctate and striolate. Surface without microreticulation or with finest, extremely superficial traces of transverse lines, very glossy, rather iridescent.

Elytra: Moderately elongate, oval-shaped, wide at humerus, lateral margin evenly but faintly convex. Humeral margin almost attaining the origin of the 3rd stria. 1st and 2nd striae complete and well impressed, 3rd stria varied, sometimes perceptibly impressed only in basal third, 4th and 5th striae also varied, usually not perceptibly impressed, but still visible. Striae very slightly crenulate, but punctation varied. 8th stria deeply impressed in apical third. Recurrent stria elongate and at apex more or less distinctly incurved. Anterior setiferous puncture situated in the 5th interval, posterior puncture situated inside the recurrent stria close to its apex. Both punctures large and rather deep. Lateral marginal series consisting of four punctures near base and three widely separated punctures in apical third. Surface without microreticulation, very glossy and rather iridescent.

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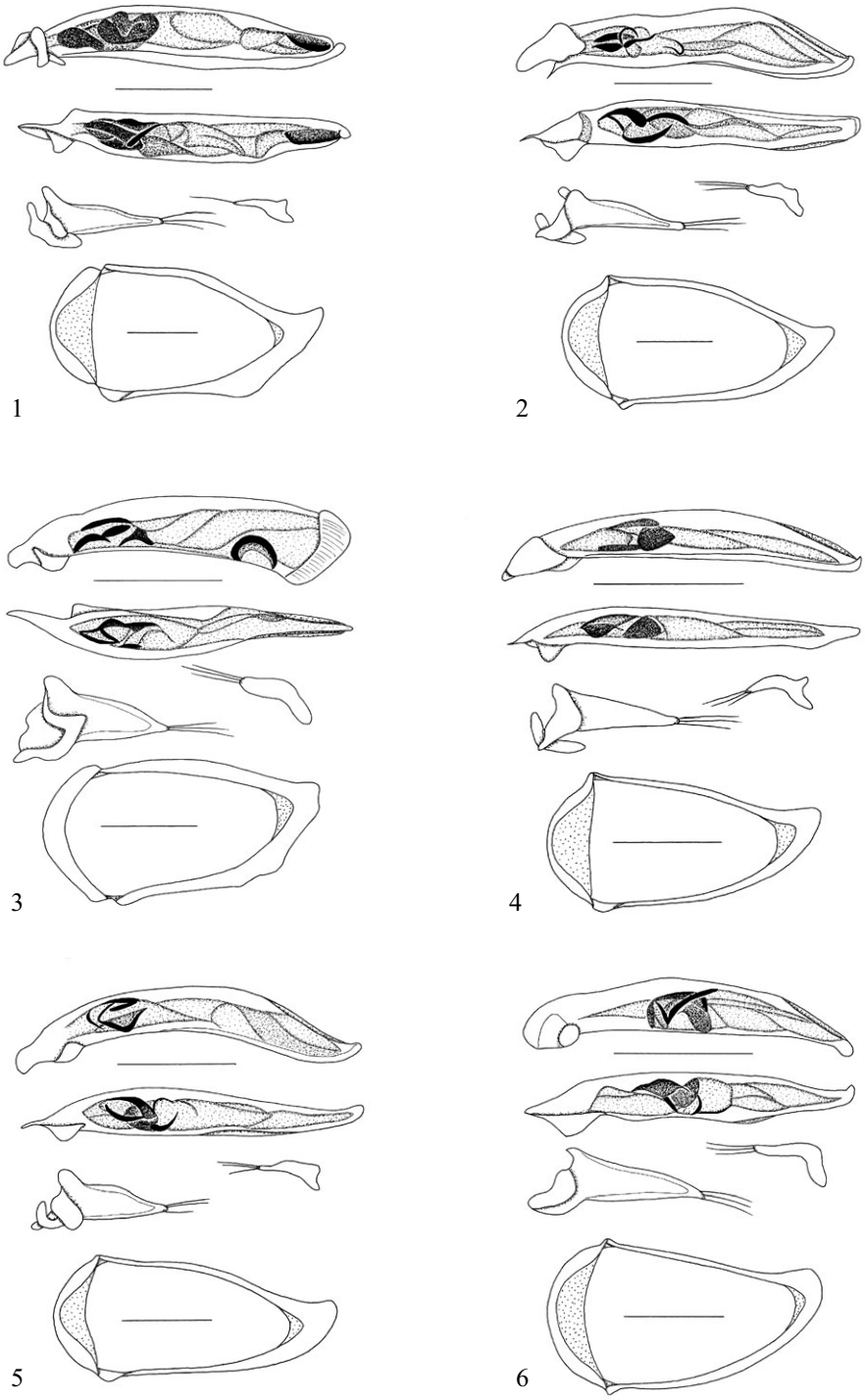

Figs 1-6: Aedeagus, left side, upper surface, left and right parameres, genital ring. Scale bars: 0.25 mm. **Fig. 1.** *Tachys mastersi* SLOANE. **Fig. 2.** *T. intermedius* **sp. n.**, **Fig. 3.** *T. macrops* **sp. n.**, **Fig. 4.** *T. tropicalis* **sp. n.**, **Fig. 5.** *T. yorkensis* **sp. n.**, **Fig. 6.** *T. excisicollis* **sp. n.**

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Male genitalia (Fig. 1): Genital ring large and wide, with very asymmetric, oblique, at tip obtusely angulate apex. Aedeagus comparatively stout, with almost straight lower surface, but with the apex markedly upturned. Apex narrow and, when seen from above, slightly asymmetric and knobbed. Internal sac with several complexly folded sclerotized pieces in basal half, with a sclerotized piece also near apex. Left paramere elongate-triangular, with 3 elongate apical setae. Right paramere short, triangular, with a single elongate apical seta.

Female gonocoxites (Fig. 7): Gonocoxite 1 elongate, with a single seta in latero-apical part of the ventral surface. Gonocoxite 2 narrow and elongate, slightly curved, with two small and narrow ventro-lateral ensiform setae usually located quite near base and above middle, a small, narrow dorso-median ensiform seta situated about at middle, and usually two short nematiform setae below apex, which originate from an oval-shaped pit.

Variation: Little variation noted, except for colour, because some specimens apparently are not fully coloured and therefore rather uniformly pale reddish.

Two female specimens from central eastern Queensland (Eungella Plateau environment) have slightly shorter antenna and are tentatively included in *T. mastersi.* Males are needed to verify or deny this taxonomic decision.

Distribution: South-eastern Queensland, eastern New South Wales.

Collecting circumstances: Specimens were collected by Berlese extraction in "closed forest & turkey mound litter", "in creek debris", some also in malaise traps.

Examined material (15 ex.): **NSW:** 1 ♂, 4 ♀♀, Somersby, 5 km N 33°19'S, 151°18'E 12 May 1991 Tom Gush / Tom Gush Collection (ANIC, CBM); 1 ♀, Chichester St. For. NSW Allyn R. Park 8 Nov. 1982 J. T. Doyen coll. (ANIC). – **QLD:** 1 ♂, 2 ♀♀, 26.53S, 152.11E Balfour Ra. 5 km E Benarkin QLD 19 June 1982, L. Hill / Berlesate ANIC 844 (ANIC, CBM); 1 ♀, 26.52S, 119.03E 5 km E Yarraman QLD 19 June 1982, L. Hill / Berlesate ANIC 849 (ANIC); 1 ♂, QLD: 28.258°Sx153.159°E Lamington NP, IBISCA Qld PlotX IQ-1100-A. 1141m 11-21Mar2007, rainforest C.Lambkin, N.Starick. malaise trap **22048** (QM Reg. No. T155229); 1 ♂, QLD: 28.148°Sx153.137°E Lamington NP, IBISCA Qld PlotX IQ-300-A. 267m 8-18Mar 2007, rainforest C.Lambkin, N.Starick. malaise trap **22014** (QM Reg. No. T155228); 1 ♀, QLD: 28.155°Sx153.139°E Lamington NP, IBISCA Qld PlotX IQ-300-BA. 282m 13-23Jan2007, rainforest C.Lambkin, N.Starick. malaise trap **22139** (QM Reg. No. T151868); 1 ♀, Broken River, Q. 50 mi. W. of Mackay 29.xi.1968 rainforest, at light Britton & Misko (ANIC); 1 ♀, C.Qld: 21°07'Sx148°31'E Pease's Lkt,Eungella,900m 17Nov1992-midApr 1993 D.Cook&G.B. Monteith RF Intercept & Pitfalls (QM).

Tachys (Paratachys) intermedius sp. n. (Figs 2, 8, 13)

Examined types: Holotype: ♂, Paluma Dam Road, Paluma N. Qld. 850 m. 6 Aug. 1982 S. & J. Peck SBP100 / rainforest log and leaf litter (ANIC). – Paratypes: 2 ♂♂, 3 ♀♀, same data (ANIC, CBM); 1 ♀, Laceys Creek QLD 10kmSE El ARish 40m 23 June - 5 Aug. 1982 S. & J. Peck SBP47 / flight intercept trap rainforest (ANIC); 1 ♂, 4 ♀♀, Tully R. Xing, 10km S. Koombooloomba Dam, N.Qld. 8 Dec 1989 – 4 Jan 1990, 750m Monteith,Thompson&Janetzki Pitfall & Intercept Traps (CBM, QM); 2 ♂♂, Wallaman Falls Rd, N.QLD 14 Dec 1986 – 2 Jan 1987 Monteith, Thompson&Hamlet RF, Flight Intercept, 600m (QM); 1 ♂, 12 km nö. Kairi n.Qld., Austral. 29.-30.12.1981 M. Baehr (CBM).

Etymology: The name refers to the intermediate position of this species in body size, as well as to the intermediate range in eastern Queensland.

Diagnosis: Distinguished from the other Australian species of the complex mainly by the shape and structure of the aedeagus which is comparatively compact, has the apical part distinctly curved upwards, and lacks any sclerotized pieces in the apical part of the internal sac; also characterized by comparatively wide pronotum, elongate elytra, moderately projected eyes, and comparatively elongate, uniformly yellow antenna.

Description: Measurements: Body length: 2.8-3.0 mm; width: 1.2-1.3 mm. Ratios. Width/length of pronotum: 1.51-1.54; width of pronotum/width of head: 1.43-1.48; length/width of elytra: 1.47-1.52; length/width of 6th antennomere: 2.8-3.0.

Colour (Fig. 13): More or less pale reddish, also lower surface pale reddish. Palpi and antenna yellow or very slightly darkened. Legs yellow, tibiae barely darker.

Head (Fig. 13): Of average size but rather elongate. Eye comparatively large, moderately produced, orbit rather short, oblique. Labrum elongate, at apex slightly concave. Mandibles comparatively elongate. Maxillary palpus elongate. Antenna elongate, surpassing base of pronotum by almost 3 antennomeres.

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Frontal sulci evenly curved, elongate, almost attaining the posterior margin of the eye. Clypeus and frons with superficial, about isodimetric microreticulation. Surface rather glossy and slightly iridescent.

Pronotum (Fig. 13): Wide, dorsal surface moderately convex, widest slightly in front of middle. Apical angles rounded, apex gently concave, lateral margins in anterior half convex, in posterior half almost straight and slightly oblique, very slightly concave in front of the rectangular, at tip slightly obtuse basal angles. Base laterally almost straight, in middle slightly produced. Anterior transverse sulcus and median line both shallow, basal transverse sulcus deep, finely punctate and striolate. Surface without microreticulation or with finest, extremely superficial traces of transverse lines, very glossy, rather iridescent.

Elytra (Fig. 13): Comparatively elongate, oval-shaped, wide at humerus, lateral margin in middle straight or but faintly convex. Humeral margin attaining the base of the 3rd stria. 1st and 2nd striae almost complete and well impressed, usually also the 3rd and 4th striae slightly but perceptibly impressed, at least in basal half, 5th stria varied, not perceptibly impressed, but still visible. Striae very slightly crenulate, but varied. 8th stria deeply impressed in apical third. Recurrent stria elongate and at apex more or less distinctly incurved. Anterior setiferous puncture situated in the 5th interval, posterior puncture situated inside the recurrent stria close to its apex. Both punctures large and rather deep. Lateral marginal series consisting of four punctures near base and three widely separated punctures in apical third. Surface without microreticulation, very glossy and rather iridescent.

Male genitalia (Fig. 2): Genital ring large and rather wide, with slightly asymmetric, obliquely convex, at tip obtusely angulate apex. Aedeagus comparatively stout, with slightly bisinuate lower surface, but with the apex markedly upturned. Apex rather wide, obtuse. Internal sac with several complexly folded sclerotized pieces in basal half, but without any sclerotized folds in the apical half. Left paramere elongate-triangular, with 3 elongate apical setae. Right paramere short, triangular and slightly odd-shaped, with 3 elongate apical setae.

Female gonocoxites (Fig. 8): Gonocoxite 1 elongate, with a single seta in latero-apical part of the ventral surface. Gonocoxite 2 narrow and elongate, slightly curved, with two rather small and narrow ventro-lateral ensiform setae located near base, a small, narrow dorso-median ensiform seta situated about at middle, and usually a single, short nematiform seta below apex, which originates from an oval-shaped pit.

Variation: Very little variation noted.

Distribution: North-eastern Queensland from Paluma Range to Atherton Tableland.

Collecting circumstances: Specimens were collected in "log and leaf litter" and in flight intercept traps in rain forest.

Tachys (Paratachys) macrops sp. n. (Figs 3, 9, 15)

Examined types: Holotype: ♂, AUST: QLD: NE: Broadwater Park, via Ingham 16 Dec 1986 G.Monteith G.Thompson / Q.M. Berlesate No. 738 18.22'S, 145.57'E Rainforest Sieved litter (QMT169792). – Paratypes: 1 ♂, same data (CBM); 1 ♂, 12.44S 143.14E 3km ENE of Mt. Tozer QLD 28 Jun.-4 Jul.1986 T.Weir & A.Calder (ANIC); 1 ♀, 12.44S 143.14E QLD 3km ENE Mt. Tozer 28June-4July 1986 J.C.Cardale ex pantraps (ANIC).

Etymology: The name refers to the considerably larger and laterad more projecting eyes of this species as compared with all other species of the complex.

Diagnosis: Distinguished from the other Australian species of the complex mainly by the very different shape and structure of the aedeagus which has a very wide, leaf-shaped apex and bears a circular sclerite in the lower apical part of the internal sac; and by the considerably larger eye and very small orbit.

Description: Measurements: Body length: 2.8-2.85 mm; width: 1.3 mm. Ratios. Width/length of pronotum: 1.46-1.47; width of pronotum/width of head: 1.43-1.45; length/width of elytra: 1.38-1.41; length/width of 6th antennomere: 2.95-3.05.

Colour: More or less pale reddish-castaneous, lower surface pale reddish. Palpi and antenna yellow to very slightly darkened. Legs yellow, tibiae barely darker.

Head (Fig. 15): Of average size. Eye very large, far produced, orbit very short, oblique. Labrum fairly elongate, at apex slightly concave. Mandibles comparatively elongate. Maxillary palpus elongate. Antenna rather elongate, surpassing base of pronotum by almost 3 antennomeres. Frontal sulci evenly curved, elongate, attaining the posterior margin of the eye. Clypeus and frons with somewhat superficial, about isodimetric microreticulation. Surface rather glossy and slightly iridescent.

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Pronotum (Fig. 15): Moderately wide, dorsal surface moderately convex, widest slightly in front of middle. Apical angles rounded, apex gently concave, lateral margins in anterior half convex, in posterior half slightly oblique, very slightly concave. Basal angles slightly wider than rectangular, at tip slightly obtuse. Base laterally slightly oblique, in middle slightly produced. Anterior transverse sulcus and median line both shallow, basal transverse sulcus deep, finely punctate and striolate. Surface with or without fine, extremely superficial traces of transverse lines, very glossy, rather iridescent.

Elytra: Comparatively short, oval-shaped, wide at humerus, lateral margin evenly but faintly convex. Humeral margin ending between the origins of the 3rd and 4th striae. 1st and 2nd striae almost complete and well impressed, 3rd and commonly also the 4th stria perceptibly impressed, the 5th stria usually slightly impressed in basal third or half, but varied. Even the 6th stria usually perceptible. Striae slightly crenulate. 8th stria deeply impressed in apical third. Recurrent stria elongate and at apex distinctly incurved. Anterior setiferous puncture situated in the 5th interval, posterior puncture situated inside the recurrent stria close to its apex. Both punctures large and rather deep. Lateral marginal series consisting of four punctures near base and three widely separated punctures in apical third. Surface usually without traces of microreticulation, very glossy and rather iridescent.

Male genitalia (Fig. 3): Genital ring large and rather wide, with asymmetric, oblique, somewhat odd-shaped apex. Aedeagus small, in the apical part narrow and high, somewhat leaf-shaped, with slightly sinuate lower surface. Apex very high, oblique, with narrow, slit-like opening. Internal sac with several complexly folded sclerotized pieces in basal half, and with a conspicuous, almost ring-shaped sclerotized piece at bottom of apical half. Left paramere triangular, comparatively short and stout, with 3 elongate apical setae. Right paramere short and stout, somewhat boomerang-shaped, with wide, obtusely rounded apex, with 3 elongate apical setae.

Female gonocoxites (Fig. 9): Gonocoxite 1 elongate, with a few more or less short setae near the apex on the ventral surface. Gonocoxite 2 narrow and elongate, slightly curved, with two comparatively large, stout ventro-lateral ensiform setae located at and slightly below middle, a fairly large dorso-median ensiform seta situated about at middle, and two short nematiform setae below apex, which originate from an oval-shaped pit.

Variation: Very little variation noted.

Distribution: Vicinity of Ingham and Iron Range, north-eastern Queensland.

Collecting circumstances: The specimens from Broadwater Park were sampled by Berlese extraction of ground litter in rain forest, the single female was collected "in pantraps", most probably likewise in rain forest.

Tachys (Paratachys) tropicalis sp. n. (Figs 4, 10, 16)

Examined types: Holotype: ♂, 15.04S 145.07E Mt. Webb Nat. Pk. QLD 27-30 Apr. 1981 A. Calder & J. Feehan / Berlesate ANIC 715 rainforest litter (ANIC). – Paratypes: 1 ♂, same data (CBM); 2 ♂♂, 15.04S 145.07E Mt. Webb Nat. Pk. QLD 28-30 Sept. 1980 T. Weir / Berlesate ANIC 685/687 Sieved rain- forest litter (ANIC); 1 ♂, 1 ♀, 15.03S 145.09E 3km NE of Mt. Webb QLD 1-3 Oct. 1980 T. Weir / Berlesate ANIC 690 Sieved rain- forest litter (ANIC); 1 ♂, 15.03S 145.09E 3km NE of Mt. Webb QLD 30Apr- 3 May 1981 A. Calder & J. Feehan / Berlesate ANIC 721 rainforest litter (ANIC); 1 ♂, 15.03S 145.09E 3km NE of Mt. Webb QLD 30 Apr. - 3 May 1981 A. Calder (ANIC); 1 ♀, 15.29S 145.16E Mt. Cook Nat. Pk. QLD 10 -12 May 1981 A. Calder & J. Feehan (ANIC); 4 ♀♀, QLD: 15°26'S, 145°07'E Jensen's Ying, Cookqwon, 20m 20Oct2008, G. Monteith Berlesate. litter, RF (QM); 4 ♂♂, 1 ♀, 15.47S 145.17E Moses Ck. 4km NbyE of Mt. Finnigan QLD 14-16 Oct. 1980 T. Weir / Berlesate ANIC 696 Sieved rain-forest litter (ANIC, CBM); 1 ♀, 15.47S 145.14E Shiptons Flat QLD 17-19 Oct. 1980 T. Weir / Berlesate ANIC 697 Sieved rain- forest litter (ANIC); 1 ♂, 5 ♀♀, AUST: QLD: NE: Shiptons Flat, via Helenvale 30 Nov1985 D.Yeates / QM Berlesate No. 687 15.48S 145.14E Rainforest 200m Sieved litter (CBM, QM); 2 ♂♂, NE.Qld. 15°47'S, 145°14'E Shiptons Flat, 280m 6 Dec 1990-19 Jan 1991 Qld Mus. & ANZSES Flight intercept trap (QM); 1 ♂, 2 ♀#♀, 15.50S 145.20E Gap Ck. 5km ESE of Mt. Finnigan QLD 13-16 May 1981 A. Calder & F. Feehan / Berlesate ANIC 736 rainforest litter (ANIC); 2 ♀♀, 15.50S 145.20E Gap Ck. 5km ESE of Mt. Finnigan Q 13-16May 1981 I. D. Naumann ex ethanol (ANIC); 2 ♀♀, Helenvale N.Q. 5/72 GB. / M. 444 / J. G. Brooks Bequest, 1976 (ANIC); 1 ♀, NEQ: 16.01SX145.27E Donovan Ck (Grove) 20m FIT D05F 14Mar-6May1998 S.Grove 2785 (QM); 1 ♂, 4 ♀♀, 16.03S to 16.05S 145.28E QLD, Cape Tribulation area 1 - 11 May 1992 J.F.Lawrence / Winkler ANIC 1234 leaf and log litter (ANIC, CBM); 1 ♂, 2 ♀♀, 16.03S to 16.05S 145.28E Cape Tribulation area QLD 21-28Mar, 1984 A. Calder & T. Weir / Berlesate Anic 943/944 rainforest on steep slope (ANIC, CBM); 2 ♂♂, Cape Tribulation QLD, 40kmN of Daintree 10m 12 July 1982 S. & J. Peck SBP75 / rainforest leaf and log litter (ANIC); 1 ♂, Cape Tribulation N.QLD 10m. 15 July 1982 S. & J. Peck SBP79 / rainforest streamside flood litter (ANIC); 2 ♂♂, 2 ♀♀, NE QLD 1.5km NW of Cape Tribulation (Site 1) 23 Sept 1982 Monteith,Yeates&Thompson / QM Berlesate No. 423 16.05S 145.28E

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Rainforest, 0m Sieved litter (CBM, QM); 1 ♂, 1 ♀, NE QLD 1.5km NW of Cape Tribulation (Site1) 23 April. 1983 G.B.Monteith,D.K.Yeates / QM Berlesate No. 526 16.05S 145.28E Rainforest, 0m Sieved litter (QM); 1 ♀, NE QLD 1.5km NW of Cape Tribulation (Site8) 23 April. 1983 G.B.Monteith,D.K.Yeates / QM Berlesate No. 538 16.05S 145.26E Rainforest, 720m litter (QM); 1 ♂, NE QLD 2km WNW of Cape Tribulation (Site2) 24 April. 1983 G.B.Monteith,D.K.Yeates / QM Berlesate No. 539 16.05S 145.28E Rainforest, 50m sieved litter (QM); 1 ♀, NE QLD 2.0km WNW of Cape Tribulation (Site2) 3 Oct 1982 Monteith,Yeates&Thompson / QM Berlesate No. 447 16.05S 145.28E Rainforest, 50m sieved litter (QM); 2 ♂♂, 2 ♀♀, AUST: QLD: NE: C. Tribulation 14 Oct1980 G. Monteith / QM Berlesate No. 253 16.08S 145.28E Rainforest 20m Sieved litter (QM); 2 ♂♂, 1 ♀, AUST: QLD: NE: C. Tribulation 13 Oct1980 G. Monteith / QM Berlesate No. 254 16.08S 145.28E Rainforest 10m Sieved litter (QM); 3 ♂♂, 1 ♀, AUST: QLD: NE: Noah Road, via Cape Tribulation, 16 Oct1980 G. B. Monteith / QM BERLESATE NO. 260 16.08S 145.27E Rainforest 40m Sieved litter (QM); 1 ♂, 1 ♀, Bloomfield tr. N.QLD. 30m. Cape Tribulation 14 July 1982 S. & J. Peck SBP76 / rainforest log and bark litter (ANIC); 1 ♂, NEQ: 16°04'Sx145°28'E Pilgrim Sands, 5m 19 Nov-10 Dec 1993 Monteith,Roberts&Cook Flight intercept trap (QM); 3 ♂♂, QLD.Cooper Ck. nr. Daintree 50m. 22/6/71 Taylor Feehan (ANIC); 1 ♂, 1 ♀, Australia, Queensland Daintree NP, 22.5.1997 lgt. Fr. Šráhlavský (CBM); 1 ♀, Hutchinson Crk., c.12km N. of Daintree R. Ferry, Q. 11.xii.69, J. G. Brooks (ANIC); 1 ♀, QLD. Thornton Range. 100m 24/vi/1971 Taylor Feehan (ANIC); 1 ♂, Mossman Gorge NP QLD. 6kmSW of Mossman 50m. 11 July 1982 S. & J. Peck SBP69 / rainforest leaf litter (ANIC); 1 ♂, 4 ♀♀, AUST: QLD: NE: Mossman Gorge 20 Oct1980 G. Monteith / QM Berlesate No. 263 16.25S 145.20E Rainforest Sieved litter (CBM, QM); 1 ♂, 3 ♀♀, QUEENSLAND (NEQ) Rex Lookout, via Mossman, 13Oct 1980 G. B. Monteith / QM Berlesate No. 251 Rainforest Sieved litter (QM); 2 ♂♂, N.E.QUEENSLAND Lyons Lookout, Rex Hwy, Mossman, 13 Sept 1981 G.Monteith & D.Cook / QM Berlesate No. 298 Rainforest, 400m Sieved litter (QM); 1 ♀, NEQ: 16.55S X 145.26E Buchanan Ck (Grove) 140m FIT B05F 12Sep-23Oct1998 S.Grove 2698 / *Tachys mastersi* Sloane, 1921 (QM); 1 ♀, c. 4km abv.Bushy Ck., Mt. Lewis Rd., Q. 9.x.70, J. G. Brooks / ex litter (ANIC); 1 ♀, c. 5km abv.Bushy Ck., Mt. Lewis Rd., Q. 9.x.70, J. G. Brooks / ex litter (ANIC); 1 ♂, Julatten N. Qld 22 Aug. 1982 J. & N. Lawrence / Berlesate ANIC 767 log & leaf litter (ANIC); 3 ♀♀, N. E. QUEENSLAND Clacherty Road, via Julatten, 30 Sept 1981 G. Monteith & D. Cook / Q.M.BERLESATE No.290 Rainforest, 450m Sieved litter (QM); 1 ♂, 1 ♀, AUST: QLD: NE: Clacherty Road, via Julatten, 11 Oct 1980 G. B. Monteith / Q.M.BERLESATE NO.248 Rainforest Sieved litter (QM); 3 ♂♂, 2 ♀♀, 1 km W of Kuranda QLD 6 Dec. 1982 J. Doyen / Berlesate ANIC 860 closed forest litter (ANIC, CBM); 1 ♀, QLD. Kuranda Black Mt. Rd. 350m. 27/6/71 Taylor Feehan (ANIC); 1 ♂, Barrow Falls QLD 12.xii.64 J.G. Brooks (ANIC); 1 ♂, 3 ♀♀, NE. Q: 17°00'S x 145°50'E Pine Creek CSIRO Tower 12 Sept. – 20. Oct. 1991. 80m Monteith & Janetzki Pitfall & Intercept traps (QM); 3 ♂♂, 1 ♀, AUST: QLD: NE: Crystal Cascades, via Redlynch 21 Oct1980 G. Monteith / QM Berlesate No. 264 16.58S 145.42E Rainforest 50m Sieved litter (CBM, QM); 2 ♂♂, 2 ♀♀, AUST: QLD: NE: Crystal Cascades, via Redlynch 21 Oct1980 G. Monteith / QM Berlesate No. 264 16.58S 145.42E Rainforest 50m Sieved litter (*Agathis*) (QM); 1 ♀, Bellenden Ker Rangwe , NQ Cableway Base Stn.100m Oct25,1981 EARTHWATCH/QLD.MUSEUM / Q.M.BERLESATE No.363 17.16S, 145.54E Rainforest Sieved litter (QM); 1 ♀, Green Hill N.Q. 12/70 GB. (ANIC); 1 ♂, QLD, Four Mile Scrub nr.Coen 15 June 1971 G. B. Monteith (ANIC); 1 ♂, N.Q. "Four Mile Scrub" nrCoen 15/vi/1971 Dry rainfor. (ANIC).

Etymology: The name refers to occurrence of this species in the tropics of north-eastern Queensland.

Diagnosis: Distinguished from the other Australian species of the complex mainly by the shape and structure of the aedeagus which is comparatively narrow, straight, has the apical part not curved upwards, and lacks any sclerotized parts in the apical part of the internal sac; also characterized by wide pronotum, short elytra, moderately projected eyes, and comparatively short, uniformly yellow antenna.

Description: Measurements: Body length: 2.6-2.8 mm; width: 1.15-1.25 mm. Ratios. Width/length of pronotum: 1.54-1.58; width of pronotum/width of head: 1.46-1.55; length/width of elytra: 1.38-1.40; length/width of 6th antennomere: 2.6-2.7.

Colour: More or less pale reddish-castaneous, lower surface reddish. Palpi and antenna yellow to slightly darkened. Legs yellow, tibiae barely darker.

Head (Fig. 16): Of average size. Eye moderately large, rather produced, orbit moderately elongate, oblique. Labrum rather elongate, at apex not or very slightly concave. Mandibles comparatively elongate. Maxillary palpus elongate. Antenna moderately elongate, surpassing base of pronotum by less than 3 antennomeres. Frontal sulci evenly curved, elongate, almost attaining the posterior margin of the eye. Clypeus and frons with moderately superficial, about isodimetric microreticulation. Surface rather glossy and slightly iridescent.

Pronotum (Fig. 16): Wide, dorsal surface moderately convex, widest slightly in front of middle. Apical angles rounded, apex gently concave, lateral margins in anterior half convex, in posterior half slightly oblique, almost straight. Basal angles much wider than rectangular, at tip slightly obtuse. Base laterally slightly oblique, in middle slightly produced. Anterior transverse sulcus and median line both shallow, basal

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transverse sulcus deep, finely punctate and striolate. Surface without or with fine, extremely superficial traces of transverse lines, very glossy, rather iridescent.

Elytra: Comparatively short, oval-shaped, wide at humerus, lateral margin evenly but faintly convex. Humeral margin attaining the origin of the 4th stria. 1st to 3rd striae complete and well impressed, but the 3rd stria usually shortly interrupted at level of anterior discal puncture. Commonly also the 4th stria perceptibly impressed, the 5th stria usually slightly impressed in basal third or half, but varied. Even the 6th stria usually perceptible. Striae slightly crenulate. in particular the median ones. 8th stria deeply impressed in apical third. Recurrent stria elongate and at apex more or less distinctly incurved. Anterior setiferous puncture situated in the 5th interval, posterior puncture situated inside the recurrent stria close to its apex. Both punctures large and rather deep. Lateral marginal series consisting of four punctures near base and three widely separated punctures in apical third. Surface without or with finest and extremely superficial traces of transverse microreticulation, very glossy and rather iridescent.

Male genitalia (Fig. 4): Genital ring large and rather wide, with slightly asymmetric, obliquely convex, at tip obtusely angulate apex. Aedeagus comparatively slender, with almost straight lower surface. Apex narrow, rather acute, very slightly upturned. Internal sac with several complexly folded sclerotized pieces in basal half, but without any sclerotized folds in the apical half. Left paramere elongate and regularly triangular, with 3 elongate apical setae. Right paramere short, triangular and markedly odd-shaped, with 3 elongate apical setae.

Female gonocoxites (Fig. 10): Gonocoxite 1 more or less elongate, with or without a single seta in latero-apical part of the ventral surface. Gonocoxite 2 rather narrow and elongate, slightly curved, with two rather small ventro-lateral ensiform setae located at or below middle and near base, a fairly small dorso-median ensiform seta situated about at middle, and usually a single, short nematiform seta below apex, which originates from an oval-shaped pit.

Variation: Rather little variation noted, but the ventro-lateral ensiform setae on the female gonocoxite 2 somewhat differently shaped and located.

Distribution: North-eastern Queensland from Atherton Tableland to central Cape York Peninsula south of Coen.

Collecting circumstances: Most specimens were collected by Berlese extraction of ground litter in rain forest, some also in flight intercept traps.

Tachys (Paratachys) yorkensis sp. n. (Figs 5, 11)

Examined types: Holotype: ♂, 12.44 S 143.14 E 3km ENE of Mt. Tozer QLD 1-4 July 1986 T. Weir / Berlesate ANIC 1054 flood debris rainforest (ANIC). – Paratypes: 3 ♂♂, 2 ♀♀, same data (ANIC, CBM); 4 ♂♂, 3 ♀♀, 12.43 S 143.18 E 11km ENE of Mt. Tozer QLD 11-16 July 1986 T. Weir / Berlesate ANIC 1063 rainforest litter (ANIC, CBM); 1 ♂, 3 ♀♀, 12.44 S 143.14 E 8km E by N of Mt. Tozer QLD 7 July 1986 T. Weir & A. Calder (ANIC); 2 ♀♀, 12.43 S 143.17 E 9km ENE of Mt. Tozer QLD 5-10 July 1986 T. Weir & A. Calder / Berlesate ANIC 1058 rainforest litter (ANIC); 3 ♂♂, 3 ♀♀, 12.44S 143.14E QLD 3km ENE Mt. Tozer 28June-4July 1986 D.H.Colless Malaise trap (ANIC, CBM); 1 ♂, Peach Riv. Coen N.Q. 15.VIII.84 Walford-Huggins / WALFORD-HUGGINS COLLECTION Carnegie Museum Accession 35338 / *Tachys mastersii* SL. det. M. Baehr'93 (CMP).

Etymology: The name refers to the occurrence of this species in Cape York Peninsula.

Diagnosis: Distinguished from the other Australian species of the complex mainly by the shape and structure of the aedeagus which is moderately compact, has the apical part distinctly curved upwards and to the left, and lacks any sclerotized parts in the apical part of the internal sac; also characterized by comparatively wide pronotum, short elytra, moderately projected eyes, and comparatively short antenna.

Description: Measurements: Body length: 2.6-2.75 mm; width: 1.15-1.3 mm. Ratios. Width/length of pronotum: 1.52-1.57; width of pronotum/width of head: 1.46-1.49; length/width of elytra: 1.35-1.42; length/width of 6th antennomere: 2.7-2.75.

Colour: More or less dark castaneous, lower surface reddish-casteaneous. Palpi and antenna yellow to slightly darkened. Legs yellow, but tibiae slightly darker, in particular towards apex.

Head: Of average size. Eye comparatively large, moderately produced, orbit rather elongate, oblique. Labrum moderately elongate, at apex slightly concave. Mandibles comparatively elongate. Maxillary palpus elongate. Antenna moderately elongate, surpassing base of pronotum by less than 3 antennomeres. Frontal sulci evenly curved, elongate, almost attaining the posterior margin of the eye. Clypeus and frons with rather superficial, about isodiametric microreticulation. Surface rather glossy and slightly iridescent.

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Pronotum: Wide, dorsal surface moderately convex, widest slightly in front of middle. Apical angles rounded, apex gently concave, lateral margins in anterior half convex, in posterior half slightly oblique, almost straight or very slightly concave. Basal angles much wider than rectangular, at tip slightly obtuse. Base laterally slightly oblique, in middle slightly produced. Anterior transverse sulcus and median line both shallow, basal transverse sulcus deep, finely punctate and striolate. Surface with fine, extremely superficial traces of transverse lines, very glossy, rather iridescent.

Elytra: Moderately elongate, oval-shaped, wide at humerus, lateral margin evenly but faintly convex. Humeral margin attaining the origin of the 3rd stria. 1st and 2nd striae almost complete and well impressed, 3rd and commonly also the 4th stria perceptibly impressed, the 5th stria usually slightly impressed in basal third or half, but varied. Even the 6th stria usually perceptible. Striae slightly crenulate. 8th stria deeply impressed in apical third. Recurrent stria elongate and at apex more or less distinctly incurved. Anterior setiferous puncture situated in the 5th interval, posterior puncture situated inside the recurrent stria close to its apex. Both punctures large and rather deep. Lateral marginal series consisting of four punctures near base and three widely separated punctures in apical third. Surface usually with traces of transverse microreticulation, glossy and rather iridescent.

Male genitalia (Fig. 5): Genital ring large, but slightly narrower than in the other species, with slightly asymmetric, obliquely convex, at tip obtusely rounded apex. Aedeagus comparatively stout, with distinctly concave lower surface, but with the apical fourth markedly upturned. Apex narrow, at tip obtuse, curved right. Internal sac with several complexly folded sclerotized pieces in basal half, but withou any sclerotized folds in the apical half. Left paramere elongate-triangular but rather stout, with 3 elongate apical setae. Right paramere short, triangular and slightly odd-shaped, with 3 elongate apical setae.

Female gonocoxites (Fig. 11): Gonocoxite 1 elongate, with a single seta in latero-apical part of the ventral surface. Gonocoxite 2 narrow and elongate, slightly curved, with two rather small ventro-lateral ensiform setae located near base, a fairly small dorso-median ensiform seta situated about at middle, and one or two short nematiform seta below apex, which originate from an oval-shaped pit.

Variation: Some sexual variation present, because females usually possess shorter and wider elytra than males.

Distribution: Iron Range and Mungkan Kandji National Park north of Coen, central Cape York Peninsula, north Queensland.

Collecting circumstances: Most specimens were collected by Berlese extraction of ground litter in rain forest, few also in "flood debris".

Tachys (Paratachys) excisicollis sp. n. (Figs 6, 12, 17)

Examined types: Holotype: ♂, 12.44 S 143.16 E 6km ENE of Mt. Tozer QLD 30 June 1986 T. Weir & A. Calder (ANIC). – Paratype: 1 ♀, 12.43 S 143.17 E 9km ENE of Mt. Tozer QLD 5-10 July 1986 T. Weir & A. Calder / Berlesate ANIC 1058 rainforest litter (CBM).

Etymology: The name refers to the distinct prebasal excision of the lateral margins of the pronotum.

Diagnosis: Distinguished from the other Australian species of the complex mainly by the shape and structure of the aedeagus which is moderately compact, has a knob-shaped apex, and lacks any sclerotized parts in the apical part of the internal sac; also distinguished by combination of small body size, wide pronotum with distinct prebasal sinuation, elongate elytra, and comparatively short antenna.

Description: Measurements: Body length: 2.5 mm; width: 1.05 mm. Ratios. Width/length of pronotum: 1.60-1.62; width of pronotum/width of head: 1.37-1.40; length/width of elytra: 1.54-1.55; length/width of 6th antennomere: 2.55-2.65.

Colour: Pale reddish-castaneous, lower surface pale reddish. Palpi and antenna yellow. Legs yellow, tibiae barely darker.

Head (Fig. 17): Of average size. Eye comparatively large, produced, orbit short, oblique. Labrum comparatively short, at apex straight. Mandibles comparatively short. Maxillary palpus elongate. Antenna comparatively short, surpassing base of pronotum by less than 3 antennomeres. Frontal sulci evenly curved, moderately elongate, not attaining the posterior margin of the eye. Clypeus and frons with moderately superficial, about isodimetric microreticulation. Surface moderately glossy and slightly iridescent.

Pronotum (Fig. 17): Very wide, dorsal surface moderately convex, widest slightly in front of middle. Apical angles rounded, apex gently concave, lateral margins very convex throughout, just in front of the basal

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angles markedly sinuate. Basal angles rectangular. Base laterally slightly oblique, in middle slightly produced. Anterior transverse sulcus and median line both shallow, basal transverse sulcus deep, finely punctate and striolate. Anterior marginal seta situated at apical third, far in front of the widest diameter of the pronotum. Surface with fine, extremely superficial traces of transverse lines, very glossy, rather iridescent.

Elytra: Elongate, gently oval-shaped but almost parallel-sided in middle, wide at humerus. Basal margin attaining the origin of the 4th stria. 1st and 2nd striae, and in the holotype also the 3rd stria almost complete and well impressed, 3rd and 4th striae perceptibly impressed, the 5th stria slightly impressed in basal third. Even the 6th stria perceptible. Striae very slightly crenulate. 8th stria deeply impressed in apical third. Recurrent stria elongate and at apex distinctly incurved. The anterior setiferous puncture situated in the 5th interval, the posterior puncture situated inside the recurrent stria close to its apex. Both punctures large and rather deep. Lateral marginal series consisting of four punctures near base and three widely separated punctures in apical third. Surface with extremely superficial traces of transverse microreticulation, very glossy and rather iridescent.

Male genitalia (Fig. 6): Genital ring large, asymmetric, with wide, obliquely convex apex. Aedeagus rather slender, with straight lower surface, but slightly down-curved apex. Apex small, knob-shaped. Internal sac with several complexly folded sclerotized pieces in basal half, but without any sclerotized folds in the apical half. Left paramere triangular and very elongate, with 3 elongate apical setae. Right paramere comparatively elongate, boomerang-shaped, with 3 elongate apical setae.

Female gonocoxites (Fig. 12): Gonocoxite 1 shorter and wider than in other species, with a single seta in latero-apical part of the ventral surface. Gonocoxite 2 narrow and elongate, slightly curved, with two rather small ventro-lateral ensiform setae located near base, a small dorso-median ensiform seta situated likewise near base, and a single, short nematiform seta below apex, which originates from an oval-shaped pit.

Variation: Very little variation noted.

Distribution: Iron Range, mid Cape York Peninsula, north Queensland.

Collecting circumstances: The paratype was collected by Berlese extraction of ground litter in rain forest.

Tab. 1. Measurements and ratios of the species of the *Tachys mastersi* complex.
N – number of measured specimens; l – body length in mm; w/l pr – ratio width/length of pronotum; pr/h – ratio width of pronotum/width of head; l/w el – ratio length/width of elytra; 6th – ratio length/width of the 6th antennomere.

	N	l	w/l pr	pr/h	l/w el	6th
T. mastersi	6	3.0-3.35	1.45-1.47	1.41-1.43	1.41-1.42	3.2-3.4
T. intermedius	6	2.8-3.0	1.51-1.54	1.43-1.48	1.47-1.52	2.8-3.0
T. macrops	4	2.8-3.0	1.45-1.47	1.43-1.46	1.38-1.41	2.95-3.05
T. tropicalis	6	2.6-2.8	1.54-1.58	1.46-1.55	1.38-1.40	2.6-2.7
T. yorkensis	6	2.6-2.8	1.52-1.57	1.46-1.49	1.35-1.42	2.7-2.75
T. excisicollis	2	2.5	1.60-1.62	1.37-1.40	1.54-1.55	2.55-2.65

Remarks

All species of the *Tachys mastersi*-complex are very similar in their external morphology. In five of the six recorded species the aedeagus is structurally rather similar, but differs more or less distinctly in size, overall shape, shape of the apex, and number and shape of the sclerites in the internal sac. In *T. macrops*, however, the aedeagus is strikingly different, as well in the shape of the apex, as in the structure of the internal sclerites. Apart from the slightly larger eyes, this species nevertheless is very similar to the other five species in its external morphology. The reasons for the striking difference in the male genitalic characters are puzzling.

The complex ranges from central eastern New South Wales to the centre of the Cape York Peninsula in North Queensland, but the ranges of several species widely overlap and thus, in parts of their ranges they occur sympatrically and even syntopically. The sympatric occurrence of extremely similarly shaped species raises not only the question, how this complex could evolve, but also, in which way the species can coexist and how they may differ in their habits and way of life. Unfortunately, except for a few raw notes about

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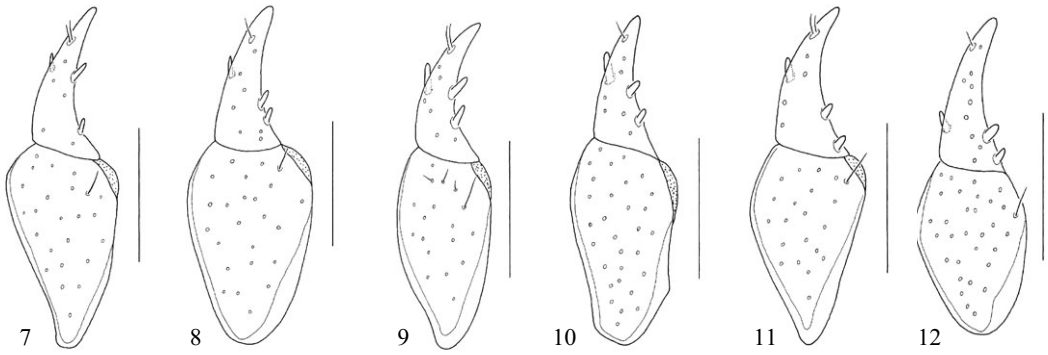
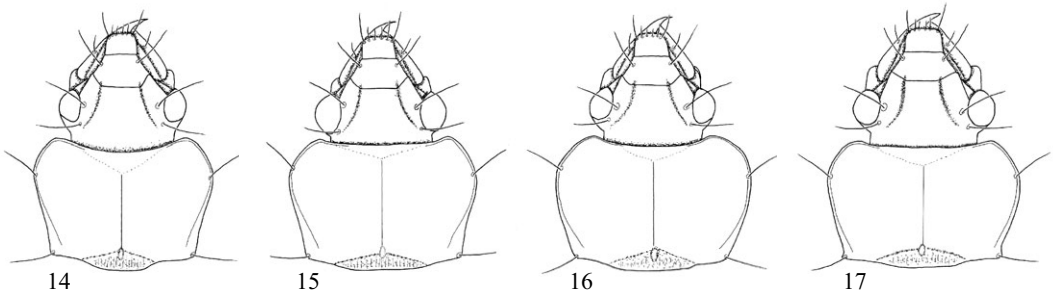
collecting circumstances, nothing has been reported so far about the ecology and/or the behaviour of any species of the complex. Most species seem to occur in rain forest where they apparently live in litter on the forest floor. The occurrence in Malaise traps demonstrates that they deliberately fly, and this may explain the wide ranges of some species.

The present distribution pattern suggests sympatric evolution of the species, but without a clear indication as to the original population or to the area where the complex evolved. Additional material would be needed to further elucidate the distribution patterns, and additional methods, e.g. those based on DNA extraction, may help to answer to the questions about the origin and the evolution of the complex.



Figs 7-12: Female gonocoxites 1 and 2. Scale bars: 0.1 mm. **Fig. 7.** *Tachys mastersi* SLOANE. **Fig. 8.** *T. intermedius* sp. n. **Fig. 9.** *T. macrops* sp. n. **Fig. 10.** *T. tropicalis* sp. n. **Fig. 11.** *T. yorkensis* sp. n. **Fig. 12.** *T. excisicollis* sp. n.



Figs 14-17: Head and pronotum. **Fig. 14.** *Tachys mastersi* SLOANE. **Fig. 15.** *T. macrops* sp. n. **Fig. 16.** *T. tropicalis* sp. n. **Fig. 17.** *T. excisicollis* sp. n.

Key to the Australian species of the *Tachys mastersi*-complex

1. Body size > 3.0 mm; antenna longer, ratio l/w of 6th antennomere > 3.2, antenna distinctly darkened, except for 1st antennomere; tibiae considerably darker than femora; aedeagus with slightly knobbed apex and a sclerotized piece in the apical part (Fig. 1). Northern half of eastern NSW, south-eastern QLD, perhaps also in mid-eastern QLD (Eungella env.) . . . . . *T. mastersi* SLOANE, 1921

– Body size < 3.0 mm; antenna shorter, ratio l/w of 6th antennomere < 3.0, antenna less darkened, or uniformly yellow; tibiae variously coloured, but usually not as dark as in *mastersi*; apex of aedeagus not knobbed and usually without a sclerotized piece in the apical part (Figs 2, 4-6), except for *T. macrops* which has a semicircular sclerite at the bottom of the internal sac (Fig. 3). North-eastern QLD from Paluma Range to mid Cape York Peninsula . . . . . 2.

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2. Pronotum distinctly sinuate in front of the basal angles (Fig. 17); elytra elongate, ratio l/w > 1.54; body size small, length 2.5 mm; aedeagus with down-curved, knobbed apex (Fig. 6). Iron Range, eastern central Cape York Peninsula . . . . . *T. excisicollis* **sp. n.**

– Pronotum not or barely sinuate in front of the basal angles (Figs 13-16); elytra shorter, ratio l/w < 1.52, usually less; body size usually larger; aedeagus differently shaped (Figs 2-5) . . . . . 3.

3. Eye larger and laterad more produced, orbit very small (Fig. 15); prothorax narrower, ratio w/l < 1.47; aedeagus stout, with very large, convexly oblique, leaf-like apex and with a circular sclerite in the lower apical part of the internal sac (Fig. 3). Vicinity of Ingham, and Iron Range, eastern central Cape York Peninsula . . . . . *T. macrops* **sp. n.**

– Eye smaller and laterad less produced, orbit larger, oblique (Figs 13, 14, 16); prothorax wider, ratio w/l > 1.50; aedeagus less stout, with smaller, not leaf-like apex and without a circular sclerite in the lower apical part of the internal sac (Figs 2, 4, 5) . . . . . 4.

4. Elytra longer and narrower, ratio l/w > 1.47; aedeagus comparatively stout with wide, obtusely rounded apex (Fig. 2). Paluma Range to Atherton Tableland . . . . . *T. intermedius* **sp. n.**

– Elytra shorter and wider, ratio l/w < 1.42; aedeagus less stout with narrower apex (Figs 4, 5). Atherton Tableland to mid Cape York Peninsula . . . . . 5.

5. Aedeagus narrower, lower surface straight; apex very slightly upturned, straight (Fig. 4). Atherton Tableland to central Cape York Peninsula south of Coen . . . . . *T. tropicalis* **sp. n.**

– Aedeagus wider, lower surface concave; apex markedly curved upwards, turned to the right (Fig. 5). Iron Range, eastern central Cape York Peninsula . . . . . *T. yorkensis* **sp. n.**

Fig. 13. *Tachys intermedius* **sp. n.** Habitus. Body length 3.0 mm.

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