NEW SPECIES AND ADDITIONAL RECORDS OF THE TACHYINE PHILIPIS ERWIN (COLEOPTERA: CARABIDAE: BEMBIDIINAE)

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As a supplement to the Revision of the genus Philipis Erwin (Baehr 1995) three new species are described: P. unistriata sp. nov. from Mt Elliot near Townsville, P. striatoides sp. nov. from Mt. Murray Prior near Cairns, both northern Queensland, and P. inespectata sp. nov. from Gibraltar Range in northern New South Wales. The latter is the first record of the genus from outside of Queensland. Additional records of 20 known species are recorded, slightly enlarging the geographic or altitudinal range in some cases. Coleoptera, Carabidae, Philipis, Queensland, new species.

As a supplement to the revision of the tachyine Philipis Erwin (Baehr, 1995) additional records of described species are presented that have been since collected by G. B. Monteith and co-workers of the Queensland Museum on mountains of eastern Queensland, some being mountain tops that had not been worked before. Some records enlarge the geographical range or the altitudinal range of certain species, and of some species that were known from few specimens only, additional material now is at hand. This may justify recording of all localities. Also three new species are described. One is of special interest, because it represents the first record of any Philipis in northern New South Wales.

A few species have been collected by members of the Cooperative Research Centre for Tropical Rainforest Ecology and Management, Cairns. Such records are marked CRC, those from Queensland Museum are without special labelling.

Species are arranged in alphabetical order. Format of the descriptions follows that used in Baehr (1995).

Philipis alticola Baehr


NOTE. This species was known from a single specimen collected at the summit of Bellenden Ker; its range is extended to include the top of adjacent Mt. Bartle Frere.

Philipis alutacea Baehr


NOTE. This species was known from Bellenden Ker only; its range is extended to the summit of adjacent Mt. Bartle Frere.

Philipis bicolor Baehr


ADDITIONAL RECORDS. 22 ex, NEQ: 16°30'S 145°19'E, Mt. Demi summit, 1000m, 16-17 Dec 1995, Monteith, Pyrethrum, trees.

NOTE. The new record is from within the known range.

Philipis castanea Baehr


ADDITIONAL RECORD. 1 ex, NEQ: 16.11S 145.24E, Pimm’s Block (Grove), 1000m, FIT PO6F, 13 Mar-8 May 1998, S. Grove, 8097 (CRC).

NOTE. The new record is from just south of the known range.

Philipis cooki Baehr


ADDITIONAL RECORD. 1 ex, NEQ: 16°31’S 146°16’E, Mt Lewis Rd (Hut) 14 July 1996, 1200m, G. Monteith, Pyrethrum, trees.

NOTE. The new record is from within the known range.
**Philipis distinguenda** Baehr


NOTE. The new record slightly enlarges the range of this species to the south.

**Philipis frerei** Baehr


NOTE. The new record is from within the known range.

**Philipis laevigata** Baehr


NOTE. The new record is from within the known range.

**Philipis lustrans** Baehr


NOTE. The new records are from within the known range.

**Philipis picta** Baehr


NOTE. The new records are from localities just outside the known range.

**Philipis planicola** Baehr


NOTE. The new records are close to the recorded range, but the altitude range is greater than reported before, because the species was recorded previously only in lowland. Nevertheless, this does not really seem to be a montane species.

**Philipis rufescens** Baehr


NOTE. The new record is from within the known range.

**Philipis ruficollis** Baehr


NOTE. The new record is from within the known range.

**Philipis sinuata** Baehr


NOTE. The new records are close to the recorded range, but the altitude range is greater than reported before, because the species was recorded previously only in lowland. Nevertheless, this does not really seem to be a montane species.

**Philipis subtropica** Baehr

ADDITIONAL RECORDS. 1 ex, NEQ: 16.13S 145.24E, Hutchinson Ck (Grove) 30 m, FIT HO3F, 11 Feb-14 Mar 1998, S. Grove 2900 (CRC); 1 ex, NEQ: 16.09S 145.24E, Cooper Creek (Grove) 140 m, FIT COIF, 10 Feb-16 Mar 1998, S. Grove 2722 (CRC).

NOTE. The new records are from localities just outside the known range.

NOTE. The new records are from within the known range.

**Philipis sulcata** Baehr


NOTE. The new record enlarges the range of this species slightly to the south.

**Philipis thompsoni** Baehr


ADDITIONAL RECORDS. 3 ex, AUST: QLD: NE: Upper Boulder Ck. 8 km N. Tully, 7 Dec 1989 Monteith Thompson Janetski/ Q.M. Berleseate No. 828, 145.55'E. 17.50'S. Rainforest. 1000m, Moss; 2 ex, NEQ: 16°55'S 145°40'E, Mt. Williams, 0.5 km NW,28 Nov. 1997, 870m, G B. Monteith. 1662, Pyrethrum, trees & logs; 3 ex, NEQ: 17°13'S 145°25'E, 3 km W. Bones Knob, 10 Dec 1995, 1100m, Monteith Cook Thompson. Pyrethrum, trees, & logs; 1 ex, NEQ: 17°26'S 145°42'E, Hughes Rd. Topaz, 650m, 4 Dec 1993, Monteith & Janetzki. Pyrethrum, trees & logs; 1 ex, NEQ: 17°36'S 145°42'E, Maalan Rd. 2 km S. of Palmerston Hwy, 750m, 18 May 1995, G. Monteith, Pyrethrum, tree bases; 5 ex, NEQ: 17°54'S 145°41, Mt Kooroomool, summit 7 km S, 4 Dec 1998, 1050m, G B. Monteith, Pyrethrum trees & logs, 2011; 3 ex, NEQ: 17°54'S 145°41, Mt Kooroomool, saddle 7 km S, 3 Dec 1998, G Monteith, Pyrethrum trees, 660m, 2006; 12 ex, NEQ: 17°33'S 145°33'E, Mt Fisher, summit, 1360 m, 8 Feb 1999, GB Monteith, Pyrethrum trees & logs, 2176; 1 ex, NEQ: 17°33'S 145°33'E, Mt Fisher, ½ km NW, 8 Feb 1999, 1280 km R/F. GB Monteith, Pyrethrum trees & logs, 2178: 3 ex, 17°36.945'S 145°47.748'E, Palmerston Nt. Pk. QLD, Pyrethrum mist, Planted Trans. 1, 30 m, 2 Dec 2000, C. Ozanne (CRC).

NOTE. The new records of this very widespread fully winged species are within the known range.

**Philipis tribulationis** Baehr


NOTE. The new records are from within the known range.

**Philipis unicolor** Baehr

FIG. 1. Philipis unistriata sp. nov. A, aedeagus, and B, C, parameres; scale bar = 0.25mm.

Sutural stria very faintly crenulate. Only inner striae in basal half perceptible as rows of extremely superficial punctures, outer striae absent, though all striae except for sutural one barely perceptible. Sutural interval basally slightly convex. 8th stria deeply impressed, punctate-crenulate, barely attaining posterior marginal pore. Recurrent striole rather evenly curved, anteriorly free. Anterior discal pore in anterior third, posterior pore slightly in front of posterior third. Microreticulation absent on disk, present though highly superficial at base, composed of transverse meshes. Surface glossy.

Wings slightly shortened.

Lower surface. Metepisternum slightly longer than wide.

Male genitalia. Genital ring slightly asymmetric, triangular, apex rather elongate. Aedeagus moderately elongate, lower surface basally straight, gently curved to apex, apex fairly short, widely rounded off. Both parameres 4-setose.

Female genitalia. Unknown.

DISTRIBUTION. Mt Elliot near Townsville, N Queensland. Known only from type locality.

HABITAT. Sampled by Berlese extraction from rainforest litter at 1000m.

RELATIONSHIP. This species belongs to the striata-group of species and is perhaps nearest related to P. tribulationis Baehr and P. thompsoni Baehr.

Philipis striatoides sp. nov. (Fig. 2B)

ETYMOLOGY. Like striata.


DIAGNOSIS. Rather small, short and wide, markedly convex species with s-shaped fascia in posterior half of elytra. Easily distinguished from species with similar elytral pattern by well-developed outer striae but rather depressed intervals and by weak microreticulation of the elytra. Further distinguished from most similar P. striata Baehr by broader pronotum with more convex margins and narrower base, and by considerably shorter and more convex elytra.

DESCRIPTION. Measurements. Length 2.15mm, width 1.08mm. Ratios: width pronotum/head: 1.50; width/length of pronotum: 1.59; width base/apex of pronotum: 1.41; width widest diameter/base of pronotum: 1.08; length/width of elytra: 1.27.

Colour. Dark piceous, pronotum and apex of elytra very slightly lighter. Elytra with a well-defined, contrasting, oblique, s-shaped, light reddish fascia in posterior 2/5, medially attaining 2nd stria. Legs yellow.

Head. Median antennomeres c. 1.3 x as long as wide. Microreticulation distinct on labrum and anterior border of clypeus, superficial on frons, absent on vertex, about isodiametric. Surface glossy.


Elytra. Rather short, highly convex, egg-shaped, widest about in middle. Lateral border evenly curved, extremely finely serrrate and pilose. Sutural stria very faintly crenulate. All striae distinct and marked by rows of punctures, two inner striae in basal half even slightly impressed. Four to five inner intervals at least basally slightly convex. 8th stria deeply impressed, punctate-crenulate, barely attaining posterior marginal pore. Recurrent striole rather evenly curved, anteriorly meeting 3rd stria. Anterior discal pore in anterior third, posterior pore slightly in front of posterior third. Microreticulation present though highly superficial, best seen from laterally, composed of transverse
FIG. 2. Habitus. A, *Philipis unistriata* sp. nov. B, *Philipis striatoides* sp. nov. C, *Philipis inexspectata* sp. nov. Lengths: 2.15mm; 2.15mm; 2.55mm.

meshes. Surface glossy. Wings slightly shortened.

Lower surface. Metepisternum slightly longer than wide.

Male genitalia. Unknown.

Female genitalia. Similar to other species of the *striata*-group.

DISTRIBUTION. Mt. Murray Prior near Cairns, north Queensland. Known only from type locality.

HABITAT. Sampled by pyrethrum knockdown on mossy tree trunks or rocks in rainforest at 770m. Collected end of October.

RELATIONSHIP. This species belongs to the *striata* group of species and is nearest related to *P. striata* Baehr.

**Philipis inexspectata** sp. nov.

(Fig. 2C)

ETYMOLOGY. The name refers to the unexpected occurrence of this species in New South Wales.


DIAGNOSIS. Rather large, elongate, convex, rufo-piceous species without any elytral pattern. Easily distinguished from all other unicolourous species by complete absence of all elytral striae except for the sutural stria. Further distinguished from most similar *P. unicolor* Baehr and *P. atra* Baehr by straight lateral margin of pronotum in basal half.

DESCRIPTION. Measurements. Length: 2.55mm; width: 1.20mm. Ratios: width pronotum/head: 1.53; width/length of pronotum: 1.45; width base/apex of pronotum: 1.39; width widest diameter/base of pronotum: 1.09; length/width of elytra: 1.35.

Colour. Reddish piceous, head and pronotum slightly darker than elytra. Elytra without any distinct pattern. Mouth parts, three basal antennomeres, and legs yellow.

Head. Median antennomeres c. 1.3 x as long as wide. Microreticulation distinct on labrum, superficial on anterior border of clypeus, absent on frons and vertex, about isodiametric. Surface highly glossy.

Pronotum. Transverse, convex, widest about in middle, base much wider than apex. Lateral margin posteriorly straight, even very faintly concave, oblique. Posterior angles rectangular, very feebly produced over lateral part of base. Carina at posterior angle elongate, almost straight, only anteriorly slightly incurved. Anterior transverse sulcus deep, barely interrupted. Posterior transverse sulcus very
deep, interrupted by a large, deep fovea. Anterior lateral setae situated slightly behind anterior third of margin. Microreticulation completely absent, surface highly glossy.

_Elytra._ Rather elongate, highly convex, egg-shaped, widest about in middle. Lateral border evenly curved, not serrate nor pilose. Striae completely absent except for sutural stria that is deeply impressed and in anterior half also punctate-crenulate. 8th stria deeply impressed, punctate-crenulate, just attaining the posterior pore of the anterior series of marginal pores. Recurrent striole rather evenly curved. Anterior discal pore in anterior third, posterior pore slightly in front of posterior third, both deep and punctiform. Microreticulation completely absent. Surface highly glossy. Wings slightly shortened.

_Lower surface._ Metepisternum slightly longer than wide.

_Male genitalia._ Unknown.

_Female genitalia._ Similar to other species of _Philipis_.

_Variation._ Unknown.

_DISTRIBUTION._ Gibraltar Range in northern New South Wales. Known only from type locality.

_HABITAT._ Sampled by pyrethrum knockdown on _Xanthorrhoea_, according to label. Altitude not recorded, though probably on or near top of range. Collected end of March.

_RELATIONSHIP._ The species belongs to the laevis-group of species and is probably nearest related to _P. subtropica_ Baehr.

_RECOGNITION._ For recognition of the new species the key in my revision (Baehr, 1995) can be used. _P. inexspectata_ will key out at couplet 2, for identification of _P. striatoides_ sp. nov. follow on to couplet 17, and for _P. unistriata_ follow on to couplet 19. These couplets then must be altered as follows:

2. Rather short, dorsally convex species. Aedeagus as in fig. 4D-E (Baehr 1995) or unknown. ........................................... 3

3. Lateral borders of pronotum convex throughout, though sometimes irregularly convex. At least traces of additional striae (apart from sutural stria) present. Aedeagus as in fig. 4D-E (Baehr 1995). Mountains of Queensland north of Eungella Range. ........................................... 4a

4a. 4 in Baehr (1995)................................. _inexspectata_

17. Microreticulation of elytra weak, surface glossy. Aedeagus, fig. 5B (Baehr 1995), or unknown................................. 17a

17a. Elytra longer and less convex, ratio length/width >1.32. Striae not impressed, intervals not convex. Base of pronotum wider, ratio base/apex >1.50. Aedeagus, fig. 5B (Baehr 1995). Cape Tribulation area below 150 m................................. _striatoides_

_Elytra_ shorter and more convex, length/width 1.27. Inner striae slightly impressed, intervals slightly convex. Base of pronotum narrower, ratio base/apex 1.41. Aedeagus unknown. Mt. Murray Prior near Cairns at 770 m................................. _unistriata_

19. Smaller species, body length <2.15mm, and base of pronotum rather narrow, ratio base/apex <1.42. Aedeagus, fig. 5E (Baehr 1995) or Fig. 1................................. 19a

19a. Pronotum narrower, ratio width/length <1.53. Elytra slightly longer, ratio length/width >1.31. Transverse macula less oblique and sinuate, fig. 13E (Baehr 1995). Both parameres 5-setose, see fig 5E (Baehr 1995). Mountains west of Cape Tribulation and Windsor Tableland above 700 m................................. _tribulationis_

Pronotum wider, ratio width/length 1.67. Elytra slightly shorter, ratio length/width 1.29. Transverse macula more oblique and sinuate, fig. 2A. Both parameres 4-setose, fig. 1, Mt. Elliot near Townsville, at 1000 m. ........................................... _unistriata_

_REMARKS._ The additional records mentioned in this paper reveal: 1) ranges of known species probably are well known, because ample additional collecting efforts have not much altered the recorded ranges. 2) When sampling still unworked mountain tops the chance to detect additional species is substantial, and further work will probably yield additional new species, probably even in quite large numbers. This may apply in particular to the many yet unworked mountain tops in the southern tropical and the subtropical parts of eastern Queensland, between Mt Elliot and the Lamington Plateau. The detection of an additional new species in northern New South Wales supports this opinion.

_Hence,_ the findings corroborate the idea that most species of _Philipis_ in a way have been trapped on mountain tops where they occupy mostly very restricted ranges. The two new species, _P. unistriata_ and _P. striatoides_, demonstrate that species widely separated geographically may be closely related. This,
again, demonstrates the very recent taxonomic diversification of this old stock.

An uncommon occurrence would be the observation of *P. inexspectata* living on grass-trees, *Xanthorrhoea*, if the label record is reliable and the single recorded specimen is not a straggler. This would mean that not all species of *Philipis* occur in rain forest.

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**LITERATURE CITED**