

DESCRIPTION OF A NEW *ANOTYLUS* SPECIES FROM
MADAGASCAR AND THE FEMALE OF *ANOTYLUS FLAVIPENNIS*
FROM LAOS (COLEOPTERA: STAPHYLINIDAE: OXYTELINAE)

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A remarkable new species of *Anotylus* Thomson, 1859 is described from Madagascar (Fianarantsoa and Toamasina), not only the so far largest from there but with an interesting ventral colouration. *A. steineri* sp. n. is also notable for possessing in the male aedeagus an apicomedial hook, feature of the genus *Oxytelus*, till now undocumented in *Anotylus*. The new taxon is illustrated by colour dorsal and ventral habitus photographs and line drawings of genitalia of both sexes. The species *A. flavipennis* (Kraatz, 1859) is among the earliest named exotic staphylinids, yet not found since its description. It is now reported from Laos (Khammouan prov.) based on a female, habitus illustrated for the first time; this being its first exact locality and country record.

Key words: Coleoptera, Staphylinidae, Oxytelinae, *Anotylus flavipennis*, *A. steineri*, new species, Laos, Madagascar.

INTRODUCTION

The genus *Anotylus* Thomson, 1859 with more than 400 named species is one of the most speciose ones in the staphylinid subfamily Oxytelinae that had exactly 2000 species at the time of the last catalogue (HERMAN 2001). Members of this large group obviously need some subdivision, formal categories of infra-generic rank (HAMMOND 1976a) and Hammond was the first to give revisionary treatment to a species group, the *Anotylus crassicornis* group (HAMMOND 1976b). This assemblage included *A. flavipennis* (Kraatz, 1859) described on the basis of material from Victor Motschulsky (Russian coleopterist in the middle of the 19th century), with the very superficial locality “India orientalis”. It has long been suspected that specimens marked as such derive from Southeast Asia, not from present day India (HAMMOND 1976b). Hammond’s treatment was based on the male lectotype he designated and an additional male specimen that remained in Motschulsky’s collection, both in rather poor condition. Although there were figures in his revision of some (male) genital traits, the external features have remained without illustration. The present article reports its first finding since the description, a female specimen from Laos. This is the first exact locality record and confirms that the species is truly an inhabitant of Southeast Asia. The habitus is depicted for the first time.

Another *Anotylus* species from Madagascar is hereby given a description, with not only the largest known body size from the island, but also an interesting ventral colour pattern rarely observed in Oxytelinae. The species have some affinity to the *Anotylus crassicornis* species group, but not belonging to it, with a uniquely interesting aedeagal trait, an apicomedial hook that is characteristic of the genus *Oxytelus*, although also found outside of it, its occurrence is so far undocumented within the extremely speciose *Anotylus*. With phylogeny and group relationships very incompletely known, it is premature to base a new species group on *A. steineri* sp. nov., although it may eventually turn out to be a group endemic to Madagascar.

MATERIAL AND METHODS

During a sorting of the oriental Oxytelinae materials of the Staatliches Museum für Naturkunde, Stuttgart (SMNS) by the author in March 2013 an interesting specimen of *Anotylus* Thomson, 1859 was spotted and later confirmed to belong to *Anotylus flavipennis* (Kraatz, 1859), as even at first sight it appeared to belong to the *A. crassicornis* species group as defined by HAMMOND (1976b). This group of species is recognizable by the combination of antennae with a distinct basal ridge on the fourth antennomere, four major setae on both sides of the dorsal surface of the head, pre-apical constriction of protibia, absence of furrows or ridges at elytral suture. Of the eight species Hammond recognized in this group *A. flavipennis* is not only the smallest, but conspicuously coloured: the elytra are very light, yellowish, in contrast to the blackish, dark brown foreparts and abdomen.

The male lectotype of this species was examined by the present author in person during a week-long stay in Deutsche Entomologische Institut, Eberswalde (now SDEI, Müncheberg), in July 2002, courtesy of Lothar Zerche, and recently a good quality colour photograph was provided by Liang Lü (Beijing, China) who studies the Southeast Asian *Anotylus* fauna and has recently borrowed the specimen.

The here described new species was first recognized in a collection made in Madagascar by Jiří Janák (Rytně nad Bílinou, Czech Republic), who kindly lent me his Oxytelinae material in 2001, and the taxon has stood under "Anotylus 9" in this sample, unfortunately all female specimens. The single male was found in a collection made by USNM, National Museum of Natural History (Smithsonian Institution), Washington D.C., USA. This material was on long term loan to the Snow Entomological Collections of the University of Kansas (SEMC, Lawrence, Kansas, USA), while the present writer stayed there as PhD student between 1999–2005.

For descriptions and measurements a Leica MZ 12.5 stereoscopic microscope was used. For the line drawings permanent preparations were made in Euparal mounting medium on plastic cards pinned with the specimens. The genital preparation techniques are detailed in MAKRANCZY (2006). Drawing was done with a Jenalab (Carl Zeiss, Jena) compound microscope and attached drawing tube (camera lucida). For colour habitus photography a Nikon D4 camera with Mitutoyo Planapo 10× ELDW or Rodenstock Apo-Rodagon N 50/2.8 lens were used and layers montaged with ZereneStacker.

Measurements are defined as follows: HW = head width with eyes; TW = head width at temples; PW = maximum width of pronotum; SW = approximate width of shoulders; AW = maximum width of abdomen; HL = head length at the middle-line from front margin



Figs 1–3. *Anotylus flavipennis* (Kraatz, 1859): 1 = male lectotype, head and pronotum, 2 = female habitus, 3 = basal antennomeres. Scales: 0.15 mm for Fig. 3, 0.50 mm for Fig. 1, 0.55 mm for Fig. 2.

of clypeus to the beginning of neck; EL = eye length; TL = length of temple; PL = length of pronotum at the middle-line; SL = length of elytra from shoulder; SC = length of elytra from hind apex of scutellum; FB = forebody length (combined length of head, pronotum and elytra); BL = approximate body length. All measured from dorsal view. The label data when reproduced literally are between “ ”, the symbol “\” is a separator between each individual label, while “;” means line breaks. Text within brackets [] is explanatory and was not included in the original labels.

TAXONOMY

Anotylus flavipennis (Kraatz, 1859) (Figs 1–3)

Oxytelus flavipennis KRAATZ, 1859: 172.

Oxytelus (Oxytelus) flavipennis; CAMERON, 1930: 215.

Anotylus flavipennis; HAMMOND, 1976a: 158.

Anotylus flavipennis; HAMMOND, 1976b: 27.

Material examined – (lectotype of *Oxytelus flavipennis*) “Lecto-; typus [lilac framed paper disc, curator label] \ Typus \ flavipennis [n overlined] m. \ Coll. Kraatz \ Oxytelus; flavipennis; Kr.; P.M. Hammond; det. 1974; Lectotype ♂ \ Anotylus; flavipennis (Kr.); P.M. Hammond; det. 1974 \ DEI Müncheberg; Col-03333” (SDEI); LAOS: Khammouan prov., Ban Khoun Ngeun [vill. env.] [18°08'27"N, 104°27'03"E], 300 m, 17.V-6.VI.2007, leg. M. Štrba (1 ♀, SMNS).

Distribution – The hereby mentioned locality in Central Laos is the only exact record, the species is likely more widespread but very rare everywhere.

Remarks – *Anotylus flavipennis* is a rather distinct species that HAMMOND (1976b) places near *A. bakeri* (Bernhauer, 1915) and *A. flavipennis* is diagnosed by comparison with this species: the full frontal view and the side view of the apical part of the paramere plus the posterior margin of sternite VII are shown for both species. Also, *A. bakeri* is significantly larger and more or less unicolorous, distributed in the Philippines, more precisely, known from two localities on the island of Luzon (HAMMOND 1976b). The same work speculates on the possible distribution of *A. flavipennis*, citing KRAATZ (1859) who indicated that many species he described in the same work come from “Hinterindien” (in the contemporary German terminology), more or less the equivalent of Indo-China. Considering the extremely large Oriental *Anotylus* materials P. M. Hammond and also the present author have seen over decades it is a natural conclusion that *A. flavipennis* is a very rare species. It is not quite clear why Hammond does not illustrate the external features of *A. flavipennis* at all, but his work extensively uses scanning electron microscopy (which at the

time required obligatory coating and thereby irreversible modification of the specimen) and he could not afford sacrificing any specimens of this rarity; regular photography and reproduction of photographs in the publications in those days did not allow depicting fine details with good enough clarity and depth of field, especially for smaller specimens. *A. flavipennis* with less than 3.2 mm body length is by far the smallest species in the group. The here presented data fill in the most important gap in the knowledge of the *Anotylus crassicornis* group.

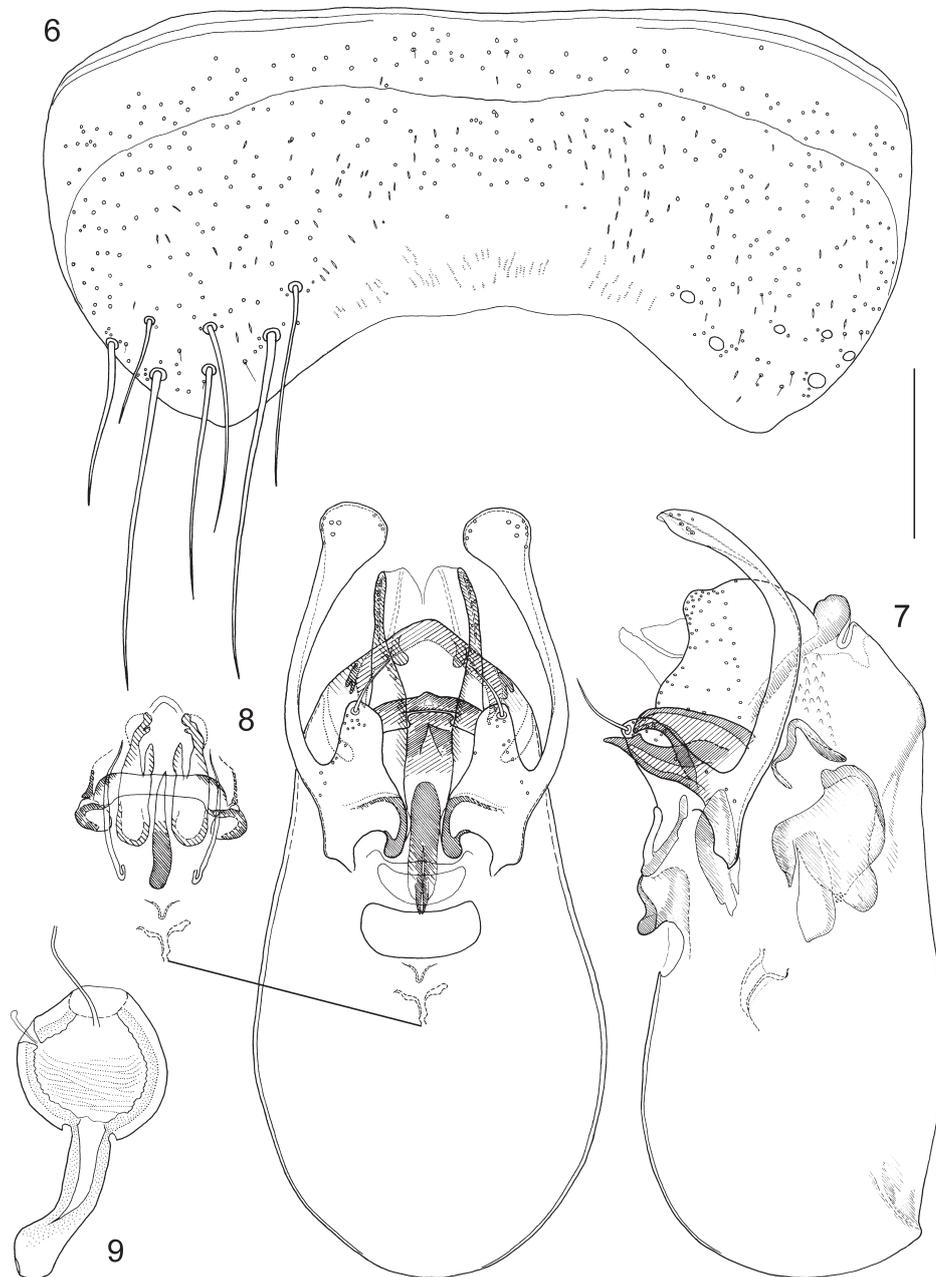
Anotylus steineri sp. n.
(Figs 4–9)

Type material – Holotype (major ♂): MADAGASCAR: Fianarantsoa, 7km W Ranomafana, 21°16'S, 47°25'E, 1100m, 22-31.X.1988, leg. W.E. Steiner (MAD1S90 046) ex: flight intercept trap / yellow pan trap with malaise (USNM, barcode: SM0104175); Paratypes: Madagascar Est [Fianarantsoa], Parc National de Ranomafana, Ambodiamontana [21°15'42"S, 47°25'23"E], 850-1000m, 26-27.I.1993, leg. J. Janák (2 ♀, coll Janák, 1 ♀, SEMC); Madagascar Est [Fianarantsoa], Massiv Ambondrombe, Ikoka env. [21°52'10"S, 47°12'30"E], 1100-1200m, 9-10.III.1996, leg. J. Janák & P. Moravec, forêt humide, tamisages crête Amboasa, camp 1 (1 ♀, coll Janák); Madagascar [Toamasina], Maromiza pr., Tamatave distr., Maromizaha [18°58'S, 48°27'E], 21-24.XI.1995, leg. J. Stolarczyk (1 ♀, coll Janák).

Description – Measurements (in mm, ♂, n = 1): HW = 1.29; TW = 1.40; PW = 1.44; SW = 1.46; AW = 1.65; HL = 0.96; EL = 0.31; TL = 0.51; PL = 0.99; SL = 1.23; SC = 1.05; FB = 3.31; BL = 6.06; (♀, n = 5): HW = 0.99 (0.96–1.04); TW = 0.95 (0.91–1.00); PW = 1.18 (1.12–1.27); SW = 1.23 (1.17–1.31); AW = 1.46 (1.38–1.60); HL = 0.63 (0.58–0.71); EL = 0.29 (0.28–0.31); TL = 0.17 (0.14–0.23); PL = 0.89 (0.82–0.95); SL = 1.04 (0.98–1.11); SC = 0.93 (0.88–1.00); FB = 2.73 (2.61–2.89); BL = 5.30 (4.61–6.04). Head blackish dark brown with reddish tint, frons from supraantennal ridges to the clypeus area a little lighter, more reddish. Mandibles blackish but other mouthparts contrastingly yellowish, maxillary palp reddish dark brown with last article usually lighter. Antennae with first article reddish, second with reddish base and dark apex, 3rd and 4th reddish dark brown, rest black except tip (apical 1/3) of terminal article yellow. Pronotum dark brown, with blackish edges, disc slightly more reddish. Elytra medium to dark brown, disc occasionally somewhat lighter in spots, punctures and longitudinal impressions more blackish. Scutellum blackish but anteriad and laterad with lighter orangeish areas apparent, when not covered by posterior pronotal edge. Abdomen dorsally reddish-orangeish medium brown, borders of basal ridges marked black, posteriad basal portions of tergites (along basolateral ridges) blackish as well as posterior edges somewhat darker. Ventral part of abdomen yellowish, as well as coxae and femora (except darker apical ring), tibiae and tarsi more medium brown. Ventral colouration otherwise as in Fig. 4. Body (Fig. 5) rather shining, although densely sculptured, interspaces smooth and give a lustrous appearance. Head finely and sparsely punctured, temples with stronger strigose microsculpture, disc more shallowly and densely striate. Two pairs of larger spurs appear near supraantennal ridges and posteriad eyes. Vertex with a pair of shallow impressions in middle of disc. Clypeus does not project forward from frons, it is embedded in the front line of head, marked by a slightly depressed outline. Neck shallowly coriaceous micro-



Figs 4–5. *Anotylus steineri* sp. n., male: 4 = habitus, ventral view, 5 = habitus, dorsal view.



Figs 6–9. *Anotylus steineri* sp. n.: 6 = male sternite VIII (setae shown only on left side), 7 = aedeagus, frontal view, 8 = aedeagus, lateral view, 9 = spermatheca. Scales: 0.20 mm for Figs 6–8, 0.10 mm for Fig. 9.

sculptured, delineated with deep, shiny groove. Antennae with 5–11 articles finely setose and fine papillate microsculpture making them appear dull. Pronotum 5-sulcate, median longitudinal line mostly appears as a fine impressed line, except posterior 1/3 where forming a median sulcus. Paramedial sulci moderately deep, paralateral depressions run whole length of disc, moderately deep and not too wide, at 2/5 length with a depressed area to the pronotal margin. Parallel to pronotal margin with a sharp ridge that closes out a gradually narrowing stripe running to posterior corner. Posterior corners obtuse-angled but narrowly rounded with almost insignificant concavity before angles. Lateral margin deflexed, narrow and smooth. Pronotum dominantly shiny with scattered punctures of varying sizes, only occasional striate microsculpture. Two pairs of stronger spurs inside lateral margin in anterior 1/3 and a pair near posterior corners, another at anterior edge dividing the width to equal spaces. Elytra with epipleural ridge continuing in a gently deflexed and shiny posterior marginal bead, lateral longitudinal ridge fully formed yet not too sharp. Sutural stria moderately marked, interval between stria and suture smooth. Scutellum bluntly pointed posteriorly, with lateral lobes very large and round, almost confluent at anterior borders, while median lobe very narrow and projecting much forward. Elytral sculpture consists of deeper and more equally dispersed and sized punctures (with shiny interspaces) that laterally and posteriorly tend to be more oblong, with substrigose appearance. Posterior elytral margins almost straight and almost at right angles to suture. Apices of protibiae very gently constricted, meso- and metatibiae with ctenidia of spinules in posterior 4/7, otherwise all tibiae with a darker spur before middle and rows of spines. Tarsal formula 3–3–3, apical tarsomere slightly curved and rather elongate. Abdomen with very fine coriaceous microsculpture and shallow, sparse punctures. Laterosternites very wide only on 2nd segment, 3rd and 4th more moderately, posteriad rather narrow to not apparent.

Primary and secondary sexual characters. Male temples rather enlarged and broadened, strongly developed specimen as on Fig. 5. Female temples much shorter, usually not exceeding the length of the eye, often barely longer than half of it, width less than head width at eye. Male sternite VII simple (unmodified) on apex. Male sternite VIII (Fig. 6) broadly emarginate in middle, tergite IX with ventral strut rather slender, shorter than breadth of that plate, in acute angle (almost right angle) to basal margin, sternite IX missing. Male tergite X with no apparent modification. Female sternite VIII almost straight on apical margin, slightly sinuate in middle. Aedeagus as in Figs 7–8, spermatheca as in Fig. 9.

Etymology – The species is named after the collector of the holotype, Warren E. Steiner (Smithsonian Institution, Washington DC, USA) who participated in the Ranomafana National Park Project (RNPP) that ran between 1988 and 1993.

Remarks – HAMMOND (1976b) notes that the sister to the *crassicornis* group is not likely to be found in Africa. Indeed, most of the Afrotropical *Anotylus* species have rather distant relationships to both the *A. crassicornis* group and the here described new species. For the latter it is premature to erect a new species group, but its unusual aedeagus certainly gives justification for it to be considered unique. The much brighter colour of the ventral part of the abdomen is a very rare feature in the staphylinid subfamily Oxytelinae. A living specimen moves around with abdomen turned upright and shaken vividly, so this colour pattern may also have some biological function.

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