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SOME ODONATA OF THE GENUS *DREPANOSTICTA* LAIDLAW, CHIEFLY FROM THE MALAY PENINSULA (PLATYSTICTIDAE)

by

M. A. LIEFTINCK

Rijksmuseum van Natuurlijke Historie, Leiden

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INTRODUCTION

While identifying an interesting collection of *Drepanosticta*, made by some friends and myself in the Malay Peninsula during the last few years, it soon became necessary to examine the types of previously described species lodged in various museums, most of which were insufficiently known. Through the kindness of the authorities of the British Museum (Natural History), the Institut Royal des Sciences Naturelles de Belgique at Brussels, and the Museum of Zoology, Ann Arbor, I have recently been permitted to compare and study all examples still in existence. Advantage has been taken of the present opportunity to prepare a key for the identification of the species thus far known from the Peninsula, and to re-characterize and figure the imper-

fectly described forms. Additional species are very likely to be discovered in the Malaysian Subregion, and if so, I may be able to deal with these later, in conjunction with a discussion of some members of *Protosticta* Sélys, a nearly related genus standing equally in need of revision. Unless stated otherwise, specimens are in the Rijksmuseum van Natuurlijke Historie, Leiden.

KEY TO THE MALES OF DREPANOSTICTA OF THE MALAY PENINSULA

1. Sup. app. armed with a strong dorsal spine at about half-way its length, but distal portion devoid of a brush- or beard-like tuft of hairs. Abd.-segment 2 without sharply defined yellow median longitudinal streaks or spots; dorsum of segm. 8 and 9 conspicuously marked with blue 2
- Sup. app. with a small dorsal spine or angular projection a little beyond half-way its length, the distal portion moreover provided with a short ventral process from which emerges a backwardly directed bunch of beard- or brush-like pale-coloured hairs, or with a similar tuft directed upward about mid-way its length. Abd.-segment 2 with one or more clear yellow median longitudinal streaks 4
2. Pterostigma quadrangular, rather squarish, followed by a single row of cells 3
- Pterostigma pentagonal, with its distal side more or less fractured and followed by two irregular rows of cells, several (or all) of the cross-veins being divided. Side-edges of posterior prothoracic lobe obtuse-angulate, rounded, hind margin straight. Anal app. shaped much as in *quadrata* but superior pair still more abruptly angulate in profile view with the curvature of the lower margin less wide at the bend, more oval, and with the apical part shorter, more twisted and rounded off than in *quadrata*; apical portion much shorter than in *fontinalis* also, and lacking the ventro-basal prominence of that species. Inferior pair with the basal, median and apical divisions of each about equally long, the middle third cylindrical and hardly swollen distad in profile view, the apical portion long and slender, gently upcurved, narrowly spoon-shaped, apex acuminate; inwardly directed process at base of distal third shorter than in both *quadrata* and *fontinalis*, the finger-shaped apex blunt (fig. Lieftinck, 1937, fig. 4; processes of inf. app. not shown). Pro- and mesopleurae of thorax predominantly yellow. Dark stripe along second lateral thoracic suture narrow, shaped similarly to *quadrata*; femora marked with brown as in that species. Dorsum of abd.-segments 9 entirely, of 8 for its distal two-fifths to one-half, blue; the spot on 8 broadly triangular with very oblique lateral border, its apex finely indented by black in the median line *sharpi*
3. Side-edges of posterior prothoracic lobe obtuse-angulate, hind margin straight or very shallowly emarginate medially (fig. 11). Anal app. more compactly built; basal portion of superior pair with the curvature of the lower margin almost semicircular in lateral aspect, and ante-apical portion of inferior pair more inflated towards the end in lateral aspect, its swollen apex triangularly pointed in ventral view (fig. 8-10). Pro- and mesopleurae of thorax predominantly yellow. Dark stripe along second lateral thoracic suture narrow, not invading metepimerum posteriorly, tapering to a point ventrally and ending at the spiracle. Femora with dark median ring and black knees. Dorsum of abd.-segments 8 and 9 blue, the mark on 8 broadly triangular in outline, widest posteriorly, occupying distal three-fifths of segment, its anterior border narrowly convex and tapering forward to a short point; lower portion of tergites 8-9 all black *quadrata*
- Side-edges of posterior prothoracic lobe angularly projecting laterad, but the protuberant apices rounded and/or slightly upturned. Anal app. slenderer and more drawn out; basal portion of superior pair less bent and more shallowly emarginate below

- in lateral aspect, the ante-apical portion of inferior pair subparallel-sided towards the end, its swollen apex more slenderly tapered in ventral view (fig. Lieftinck, 1937, fig. 6). Pro- and mesopleurae of thorax predominantly black. Dark stripe along second lateral thoracic suture broad, invading the metepimeral space posteriorly, at least equal in width to the pale metepisternal band at level of spiracle, often much broader. Legs as in *quadrata*, but femora in addition heavily striped with black exteriorly. Dorsum of abd.-segments 8 and 9 predominantly blue, the size of the mark on 8 variable, usually occupying less than half length of segment and subquadrangular in outline, though frequently enlarged and connected laterally with a yellow stripe along ventral border by a bluish anastomosis; occasionally the dorsal patch extends forward almost to the base of segment, but its anterior border is invariably emarginate *fontinalis*
4. Inf. app. often of complex structure, but not distinctly forked apically, or if so, then the branches are strongly twisted and of unequal length. Sup. app. distinctly noded when viewed laterally, with a dorsal spine-like process at the bend (the whole structure reminiscent of the head-and-neck of a horse) 5
- Inf. app. forked apically, forming slenderly tapering undulated branches of about equal length; inner branch directed mesad (barely visible in side view), the outer caudad. Sup. app. not distinctly elbowed in lateral view, the dorsal process blunt and the whole structure of more compact and intricate build: basal portion of each thick, hollowed out within, at first slightly outcurved, then twisted and gradually incurved, the upper surface of the middle portion sulcate between shiny blunt ridges, the distal portion more or less tapering, its apex incurved and rounded; from the inner surface of the middle portion emerges a dense brush of stiff yellow brown hairs which is directed basad and obliquely ventrad. Terminal segments of abdomen black dorsally *silenus*
5. Apical portion of inf. app. terminating in a somewhat twisted hook, curved at first ventrad and mesad and then turning upwards to form a lanceolate rounded apical knob which is strongly hollowed out within and clothed with curly white hairs (fig. 2). Beard-like brush of sup. app. well visible in side view, directed basad. Whole dorsum of prothorax pale-coloured, propleuron black; median mesothoracic carina yellow *pan*
- Apical portion of inf. app. slenderer, lacking a terminal knob. Beard-like brush of sup. app. variable. Median mesothoracic carina black 6
6. Sup. app. shaped similarly to *pan*, but more slender, the beard-like brush on the outside relatively longer and more distinctly stalked, but otherwise similar, directed ventrad and basad as in that species. Inf. app. also slenderer, the apical hook bent sharply upwards and more finger-like in lateral aspect. Dorsum of prothorax dark brown, with a transverse line of black on the posterior lobe, propleuron black. Terminal segments of abdomen black, but 9 pale blue dorsally *hamadryas*
- Sup. app. (fig. 4-6) more compactly built, shorter, more strongly twisted and incurved, than in the preceding species, apex blunt and incised; hair-brush whisker-like, arising from the inside of the bend and turning directly upwards and backwards. Inf. app. of complicated structure, its distal portion with a short, obtuse inner branch, the apical hook slender, twisted and terminating in a vermiform upturned spine (fig. 7). Whole dorsum of prothorax pale-coloured, propleuron black. Terminal segments of abdomen all black dorsally. Small, very slender species *marsyas*

Drepanosticta hamadryas Laidlaw, 1931

1931. Laidlaw, J. Fed. Mal. States Mus. 16: 187, fig. 2 (♂ app.). — ♂ Pahang.
 1954. Lieftinck, Handlist Mal. Odon., Treubia 22 (suppl.): 34 (cat.).

Material. — ♂ (holotype), Malay Peninsula, labelled: "Pahang, Kuala

Tahan, 500 ft., xi. 1921, H. M. Pendlebury", in the British Museum (Nat. Hist.).

Unfortunately, the unique type is an imperfect specimen that has lost the apex and appendages of its abdomen, the head and prothorax being mended.

Original description:

"Length of abdomen: 37 mm., of hind wing: 24.5 mm. Post-nodals on fore-wing, thirteen. Anal veins Y-shaped. Pterostigma rhomboidal, its inner margin more oblique than its outer, covering one cell, dark-brown, with a very fine lighter margin. M_3 and R_s distal to subnodus.

Head: glossy black, the upper lip and anteclypeus whitish-blue, the lip margined anteriorly with black.

Prothorax: dorsally dark brown, with a transverse line of black on the hinder lobe; black on the sides, whitish-yellow below.

Synthorax: entirely black on the dorsum, with a metallic reflex. Sides greenish-white, with a broad black band along the second lateral suture. Ventrally whitish.

Abdomen: very slender, segment eight half the length of seven. Segments one to seven brown, darker in the middle of each segment. The first and second segments are almost black dorsally, and each of the remaining segments three to seven has an apical ring of black. Segments eight, nine and ten are black, nine is pale blue dorsally.

Anal appendages: similar to those of *pan* described above: the upper pair are slenderer than in that species, and the beard-like process is relatively longer and more distinctly stalked. The lower pair are also similar to those of *pan*, but slenderer, the apical hook is more sharply bent upwards and has no terminal knob. (The legs, except for one of the anterior pair, are missing)."

I noted in the British Museum that the posterior lobe of the prothorax is rounded. There is only one marginal row of cells beyond the pterostigma. The characters used in the present key are taken from the original description. From Laidlaw's sketch of the anal appendages it would appear that *D. hamadryas* is most closely related to *D. pan* Laidlaw, discussed hereafter.

***Drepanosticta pan* Laidlaw, 1931 (fig. 1-2)**

1924. Laidlaw, J. Mal. Br. R. As. Soc. **2**: 305-306, pl. 5 fig. 8 (♂ app.) — ♂ (not ♀!) Perak (*Drepanosticta* spec.).
 1931. Laidlaw, J. Fed. Mal. States Mus. **16**: 185-186, fig. 1 (♂ app.) — ♂ (not ♀!) Perak.
 1954. Lieftinck, Handlist Mal. Odonata, Treubia **22** (suppl.): 35 (cat.).

Material. — ♂ (ad., lectotype), Malay Peninsula, labelled: "Perak, Batang

Padang, 1800 ft., v-vi.1923, F.N. Chasen", in the British Museum (Nat. Hist.). ♂ (ad.), Pahang, Sungai Tras on Fraser's Hill, 14.vii.1963, J. I. Furtado, with collector's field-note: "Lateral thoracic stripe citron-yellow; stripe bordering latero-ventral margin bluish below base of hind wing (dorsal to constriction); abd.-segm. 8-10 dilated laterally, 8 and 9 with yellow latero-ventral streaks". ♀ (juv.), Perak, Cameron's Highlands, Jor River, 600 m, 13.iii.1963, M. A. Lieftinck.

The lectotype is still in excellent condition and compares well with our second male. Labrum, mandible-bases and anteclypeus bright cream, anterior border of labrum deep black. Parorbital and transverse occipital carinae distinct, the latter acute with its side-edges rectangulate. Prothorax with all of the dorsal surface yellow, the pronotum more definitely green or blue; posterior lobe collar-shaped, evenly rounded posteriorly, its lateral angles downbent and each in the form of a short thumb-shaped lobe, a little longer and narrower than the same structure in *D. marsyas* (fig. 1); propleuron bronze-black. Synthorax, as far down as the first lateral suture, metallic bronze with coppery reflections, its lower boundary straight; median carina in both males and part of mesoprescutum in the type only, citron yellow (a distinct feature not mentioned in the original description). Yellow metepisternal band complete, parallel-sided and including the spiracle; this stripe followed by a heavy, rather irregular, black band over the second suture occupying most of the metepimerum, subequal in width to the yellow stripe at a level of the spiracle but broader upward and again somewhat constricted before reaching the dorsal carina of the metapleuron; posterior part of metepimerum, with the exception of a black upper streak, as well as the ventral surface of thorax, greenish yellow; metasternum black medially.

Coxae, trochanters and most of the rest of the legs, greenish yellow to ochreous; outer faces of all femora, roundabout the knees, and also the basal and apical parts of the tibiae and tarsal segments, deep black.

Wings clear. *Ac* midway between base and Ax_1 ; anal veins forming a complete shortly stalked Y in all wings. Position of M_3 and Rs variable, but both veins originate between Px_1 and Px_2 . M_2 arises at Px_6 in fore wing, at Px_5 in hind wing, M_{1a} two cells (rarely only one) further distad. Cu_1 entering the margin at level of Px_2 in all wings. Pterostigma distinctly longer than wide, proximal side oblique, distal and anal sides slightly outwardly convex but the angles rectangulate; colour brownish black. One row of cells distal to pterostigma.

Abdomen: apex of segm. 1 and intersegmental membrane strongly raised, upper surface of 1 glossy black, the sides with large subcircular blue-green spot, open below. Segm. 2 brownish black from base to apex, the sides con-

spicuously citron yellow, as is also a tiny triangular baso-dorsal spot tapering to a fine point posteriorly, which is followed beyond the middle of the segment by a second, less sharply defined, yellowish streak. Segm. 3-7 brown, this colour deepening to black toward the end of each segment; 3 with a narrow, greenish yellow basal ring prolonged caudad for a short distance along ventral margin; sides of 4-7 with ill-defined ochreous basal spots progressively larger from before backwards (occupying basal one-fifth on 7); 8-10 noticeably dilated with rather flattened surface; colour deep black, but 8 with conspicuous yellow stripe along latero-ventral margin.

Superior anal appendages black, the brush (Laidlaw's "goat's beard") ochreous; inferior pair dirty yellow, the basal and intermediate portions of each dark brown exteriorly, the upturned lanceolate apical portion (Laidlaw's "coat-hook of the ward-robe") orangish, including the backwardly curled hairs on the inside; recurved fine hairs covering inner surface of intermediate portion of inferior appendages, silvery white (fig. 2).

Female (juv.). — Agrees with the male in most respects, differs by having the lateral protuberances of the posterior prothoracic lobe a little shorter, the mid-dorsal carina of the thorax more broadly striped with yellow, and by showing an indication of dark postmedian rings on the femora of all legs. The wing venation, shape of pterostigma and abdominal pattern are all similar, but the yellow basal rings of segm. 3-7 are broader and uninterrupted dorsally. Colour of terminal segments of abdomen not fully developed, the sides of 9 with a subcircular (blue?) spot of large size.

Valves long, surpassing the apex of segm. 10 for about twice the length of the latter, colour ochreous.

Laidlaw's measurements of the type are incorrect; these are: abd. + app. 32.5, hind wing 20.5 mm; the ♂ from Pahang measures 32.0 and 19.5 mm, respectively; ♀ 31.2 and 20.5 mm.

***Drepanosticta silenus* Laidlaw**

1934. Laidlaw, J. Fed. Mal. States Mus. **17** (3): 557-568, fig. 2 (♂ app.). — ♂ ♀ Perak.
1954. Lieftinck, Handlist Mal. Odon., *Treubia* **22** (suppl.): 36 (cat.).

Material. — ♂ (lectotype), Malay Peninsula, labelled: "Larut Hills, Perak, 4500 ft., 20.2.32", in the British Museum (Nat. Hist.). The female allotype was not recovered.

The original description of this very distinct species runs as follows:

"Abdomen ♂ 33 mm. Hind-wing 21.5 mm.

" " ♀ 30 mm. " 21.5 mm.

Head: black with violet reflex; upper lip and ante-clypeus chalky white.

Prothorax: light brown above, with a black band on either side.

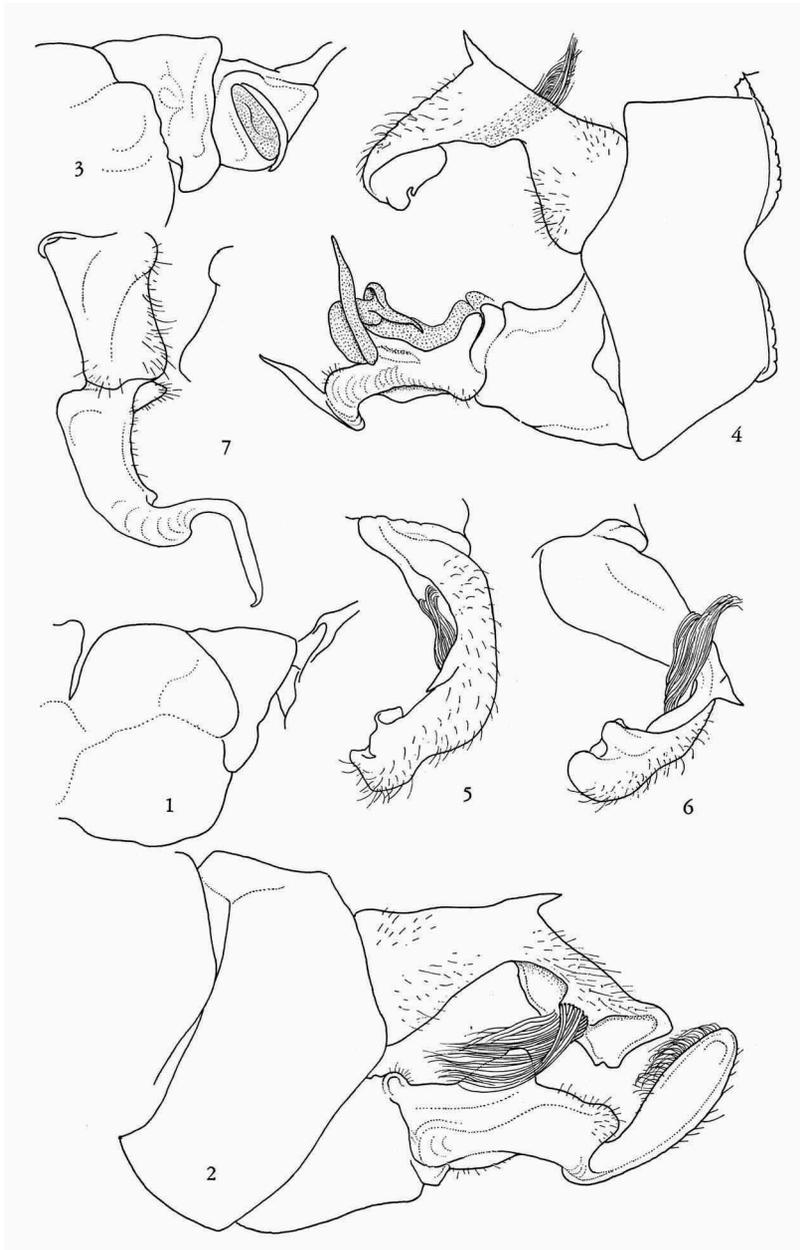


Fig. 1-2, *Drepanosticta pan* Laidlaw, ♂ from Pahang. 1, prothorax, left side (anterior lobe only partly shown); 2, apex of abdomen, left side.

Fig. 3-7, *Drepanosticta marsyas* sp. n., ♂ holotype from Cameron's Highlands. 3, prothorax, left side view of posterior portion; 4, apex of abdomen, right side (left inf. app. stippled); 5, right sup. app., dorsal view and 6, the same, intero-dorsal view; 7, right inf. app., ventral view.

Synthorax: dorsum and sides black with violet reflex, a broad white band on either side behind the first lateral suture. Ventral surface white.

Abdomen: brown passing to brown-black on the last four segments. The first two have some white on the sides, whilst 3-6 have a pale lateral mark on either side and a dark ring apically.

Legs: coxae white; femora light brown with a black line along the posterior surfaces; tibiae pale behind, dark brown in front.

Anal appendages: brown-black. Upper pair each shaped rather like a goat's head with a remarkable beard-like brush of stiff hairs on the ventral aspect. Lower pair each nearly equal in length to upper appendages, forked apically, the outer and inner branches of the fork about equal; the inner branch directed inwards, the outer backwards.

Wings: venation of the genus. A V-shaped vein in the anal space under the base of the quadrangle. Pterostigma black, with a very narrow pale margin. 13 postnodals on the fore wing. The colouring of the female is closely similar to that of the male.

The species is one of a small group which seems to be confined to the Peninsula.

It includes *pan*, *hamadryas*, and the present species, and is characterized by the extraordinary brush found on the upper anal appendages of the male.

Holotype ♂, in the British Museum."

Nearest *D. pan*, having approximately the same head and prothorax characters. Prothorax yellow dorsally, only the propleuron black. Femora broadly striped exteriorly, subapical dark rings indistinct, and knees more definitely obscured than in *pan*. Wing-venation similar to the last species; in right hind wing *Rs* arises at the subnodus. The superior anal appendages of the unique type are folded cross-wise and unfit for re-figuring; the depression between the shiny ridges of the subapical portion of each is pale in colour. The bright creamy spots on mid-dorsum of 2nd abdominal segment, not mentioned in the original diagnosis, were probably overlooked; the basal spot is broadly triangular and shorter than in *pan*, the median streak vestigial; there are also a pair of tiny cream spots, one on each side, on the intersegmental ring between segm. 2 and 3.

The type measures: abd. + app. 31.5 mm, hind wing 20.0 mm.

***Drepanosticta marsyas* sp. n. (fig. 3-7)**

Material. — ♂ (holotype), Malay Peninsula, labelled: "Pahang, Cameron's Highlands, 4-5000 ft., 15.vi.1935, H. M. Pendlebury 1937-473" (ex F.M.S. Museums), a circular red type-label and "*Drepanosticta marsyas* ♂ Type", in F. F. Laidlaw's writing; in the British Museum (Nat. Hist.).

Male (ad., holotype). — Labium dirty ochreous, the palpi black toward apices; maxillae and mandibles apically, black; genal area, base of mandibles, anteclypeus and basal two-thirds of labrum, bright creamy yellow, the labrum heavily bordered with black anteriorly. Postclypeus and all the rest of the head including the rear, metallic bronze-black. Parorbital and transverse occipital ridges distinct, the latter acute and semitransparent brown, with distinct though completely rounded side-edges. Antennae brown.

Prothorax, dorsum entirely orange-yellow (possibly bluish or light green in life?), only the propleuron deep black; posterior lobe collar-shaped with downbent lateral edges, which are in the form of short ear-like lobes (fig. 3); mesospiracle bordered with yellow.

Synthorax, as far down as the first lateral suture and including the mid-dorsal carina and ante-alar triangles, bronze-black, the lower boundary perfectly straight and parallel to the humeral suture; metepisternum for the greater part light ochreous, this area band-like and parallel-sided, behind which runs an equally straight band of metallic bronze covering the second suture and occupying most of the metepimerum and metinfraepisternum, at which point it is equal in width to the yellow metepisternal band crossing the spiracle; toward the wing-bases the dark metepimeral band widens a little, giving off a short posterior branch that runs toward the posterior edge close to the base of the abdomen, thus enclosing a blue-green spot filling up the postero-dorsal corner of the metepimerum. Ventral surface pale, but metasternum streaked with black in the median line.

Coxae, trochanters and most of the rest of the legs, pale ochreous; outer surfaces of all femora heavily striped with black, the knees likewise black; brown streaks also at bases, apices and along carinae of tibiae and tarsal segments; bristles brown, tarsal claws reddish.

Wings narrow, membrane hyaline, costa dark brown, the other main veins lighter. Anal veins Y-shaped, very shortly stalked, almost sessile, in all wings. Postnodals 13 in fore wing, 12 in hind wing, M_3 arises slightly distal to the subnodus, R_s mid-way between subnodus and Px_1 . M_2 originates at Px_7 in fore wing, at Px_6 in hind wing, M_{1a} one cell further distad. Cu_1 reaching the wing margin at level of Px_2 , or a little beyond, in all wings. Pterostigma about one and a half times longer than wide, slightly widened distad; proximal side oblique, the distal side straight, with rectangulate edges; colour blackish brown, finely margined with ochreous.

Abdomen slim and slender, the terminal segments rather expanded and dorsum of segm. 8 and 9 somewhat flattened. First three segments shaped, coloured and marked exactly as described for *D. pan*, except that the intersegmental membrane between 1 and 2 is yellow (or blue) instead of black,

the triangular baso-dorsal spot of 2 bright citron-yellow; succeeding segments also coloured similarly to *pan* and allies, 8-10 deepening to black dorsally and unmarked save for a distinct yellow streak which borders the lower margin of the tergites 8 and 9.

Anal appendages of complex structure (fig. 4-7). Superior pair black, the brush conspicuously yellow-brown; basal two-thirds of inferior appendages dark brown exteriorly, dirty ochreous on the inside, the slenderly curved hook-like apical portion orange-red in colour.

Measurements: abd. + app. 28.8 mm, hind wing 19.0 mm.

Female unknown.

Drepanosticta spec. indet.

1907. Laidlaw, Fasc. Malayenses, Zool. 4 (Odon. 2): 10, fig. 1 (♂ app.). — ♂ ♀ Bukit Besar, Jalor (*Platysticta quadrata* Sélys).

1924. Laidlaw, J. Mal. Br. R. As. Soc. 2: 305 (note). — Same specimens (*Drepanosticta* spec. indet.)

1931. Laidlaw, J. Fed. Mal. States Mus. 16: 187-188. — Same specimens (*Drepanosticta* spec. indet.)

In the type collection of the British Museum (Nat. Hist.) is a defective male taken by N. Annandale on the Bukit Besar (Jalor), 2500 ft., April 1902, and labelled "*annandalei*" (nom. nud.!) by Dr. Laidlaw. The specimen lacks its head and most of the abdomen, but judging from the description and sketch of the male appendages certainly represents a distinct species, allied to *D. hamadryas* Laidlaw. The dorsum of segments 8-9 (and perhaps also of 10) of the abdomen is marked with turquoise blue. To quote Laidlaw (1924: 305): "The specimens which I referred to *quadrata* in "Fasciculi Malayenses" (Zool. Pt. IV p. 11, fig. 1) do not belong to that species but are representatives of an unnamed form, whose colouring is probably not very unlike that of *quadrata*. The males have anal appendages similar in outline to those of *carmachaeli*, but their upper pair carry a curious brush-like tuft of hairs. Unfortunately the specimens, from Bukit Besar in Jalor, were in bad preservation and are unfit for description. It is to be hoped that fresh examples will be obtained". This species evidently has nothing to do with *D. quadrata* (Sélys) and allies, being yet another member of the group of *D. pan* Laidlaw. I have refrained from giving it a name.

Drepanosticta quadrata (Sélys, 1860) (fig. 8-11)

1860. Sélys, Bull. Acad. Belg. (2) 10: 441. — ♂ Singapore (*Platysticta*).

1954. Lieftinck, Handlist Mal. Odon., Treubia 22 (suppl.): 35 (cat., references).

Material. — ♂ (holotype), Malay Peninsula, labelled: "Singap./10" (white disc), "Mal.W." (white cadre), "Coll. Selys 86" (red), "Platysticta quad./86

bei Förster" (both in F. Förster's writing), in the Brussels Museum. ♂ (ad.), labelled: "Singapore 96-10" (print), unidentified in the British Museum (Nat. Hist.).

A much discussed species, hitherto known only from the type that has nevertheless remained unstudied since the time of its description. The main characters of the male will be better understood from the accompanying camera lucida tracings taken from the type. Additional features are:

Longitudinal parocular carina feebly developed, subacute; transverse occipital ridge with its lateral angles blunt. Veins M_3 and Rs originating on either side of the middle between subnodus and Px_1 . In fore wing Cu_1 reaches the margin slightly beyond level of Px_2 or Px_3 , in hind wing to Px_3 or Px_4 . Only one cell between the origin of M_2 and M_{1a} ; M_2 in fore wing at Px_5 or Px_6 , in hind wing at Px_4 or Px_5 . Fore wing with 12-13, hind wing with 11-12 Px of first series. The second specimen (topotypical) is almost exactly identical with the type save for the venational differences, of minor importance, noted above. The position of the anal veins also is variable: in the type they are separated in all wings, in the two hind wings of the topotype both veins meet at the margin to form a V-shaped vein. In the two males now before me the blue dorsal patch on abdominal segment 8 is widest at the posterior margin, reaching slightly further down than the corresponding mark on 9; it tapers rapidly toward the base of segment, terminating abruptly in a short point whose apex lies at about two-fifths of the length from base; the lower border of this mark runs diagonally across the segment and is rather undulated. In *D. sharpi*, on the contrary, the apex of the spot, which reaches half the segment's length, is excised and indented by black, as it is in *D. fontinalis*.

Measurements: abd. + app. 35.2 mm, hind wing 20.5 mm (type); 35.0 and 21.0 mm, respectively (topotype).

Female unknown.

Drepanosticta fontinalis Lieftinck, 1937

1937. Lieftinck, *Treubia* **16**: 64-67, fig. 5b & 6 (♂ pterost. & app.). — ♂ Kelantan.
 1942. Fraser, *Proc. R. Ent. Soc. London (B)* **11**: 96 (♂ Wellesley; ♂ Penang) (*D. fontinalis* race *wheeleri* nov.) Syn. nov.
 1954. Lieftinck, *Handlist Mal. Odon., Treubia* **22** (suppl.): 34 (cat.).

Material. — ♂ (holotype), Malay Peninsula, labelled: "Kelantan, Ost Malacca, Heine vdt. 1903" and "*Platysticta quadrata kelantana* n. rasse Förster", both in F. Förster's writing, in the Michigan Museum, Ann Arbor. ♂ (holotype *D. wheeleri* Fras.), Malay Peninsula, Prov. Wellesley, reservoir, Bukit Mertajam, 24.v.1936, R. Wheeler, in the British Museum. 3 ♂ (ad.),

Penang I., NE slope of Mt. Djerai (Kedah Peak), 900 m, forest brook, 19.ii.1963; 2 ♂ (ad.), Penang I., Batu Feringgi, 28.ii and 1.iii.1963, all M. A. Lieftinck; ♀ (juv.), same loc., 20.xi.1961, H. T. Pagden. 5 ♂ 3 ♀ (1 ♀ juv.), Selangor, Templer Park, 12 mi. from Kuala Lumpur, forest seepage nr. Sungai Chui Tinggi, 21 & 23.iii, and 11.iv.1963; 2 ♂ (1 juv.), Selangor, upper course of Sungai Langat (Ulu Langat Forest Reserve), 400 m, 22.iii.1963; ♂, Selangor, Ampang Reservoir near Kuala Lumpur, road-side trickle, 10.iv.1963, all M. A. Lieftinck; ♂, Selangor, Kanching Forest Reserve, Ulu Selangor, Sungai Terentang, 15.5 mi. Kuala Lumpur-Ipoh road, 12.i.1964, J. I. Furtado.

Both sexes in the fine series before me exhibit considerable variation in size as well as in their colour-design. There are from 12-14 postnodal cross-veins in the fore wing, 11-12 in the hinder pair. In the type the black band running over the second lateral suture of thorax is only little broader than the green metepisternal stripe crossing the spiracle, and slightly less than the distal half of abd.-segm. 8 is blue. With this specimen those we took in Selangor correspond very closely, except that in some of them the blue on segm. 8 is a little more extensive. The insular examples (from Penang) as well as those from the slopes of Kedah Peak on the mainland, are generally more contrastingly coloured, the dark band at the thoracic sides being broader, attaining at its widest point fully twice (or even three times) the width of the green stripe preceding it; in some the black even passes beyond the lower margin onto the ventral surface of the metepimera, leaving off at some distance from the median line. In others still (i.e. those taken at 900 m on Kedah Peak and at Batu Feringgi on Penang Island), there are even patches of brown on either side of the middle ventrally, these parts in typical individuals being uncoloured. The 8th abdominal segment in all of the former is predominantly blue, only the basal one-third or less of the base remaining black, and in one extreme a pair of blue dorso-lateral spots are placed on 10, in addition to the entirely blue upper surface of the 8th and 9th segments.

Female. — Resembles the male in almost all respects, but differs in the shape of the hind lobe of prothorax, the side-angles of which are more pronounced, projecting laterad as a pair of horn- or finger-like processes which are directed obliquely cephalad. The position of the converging anal veins is variable. Apical abdominal segments brown; 8 carries a bluish lateral spot more or less confluent with the yellow streak placed along lower margin, the sternites being also pale. The genital valves are striped with yellow and do not project beyond the tip of the appendages, which are subequal in length to segm. 10.

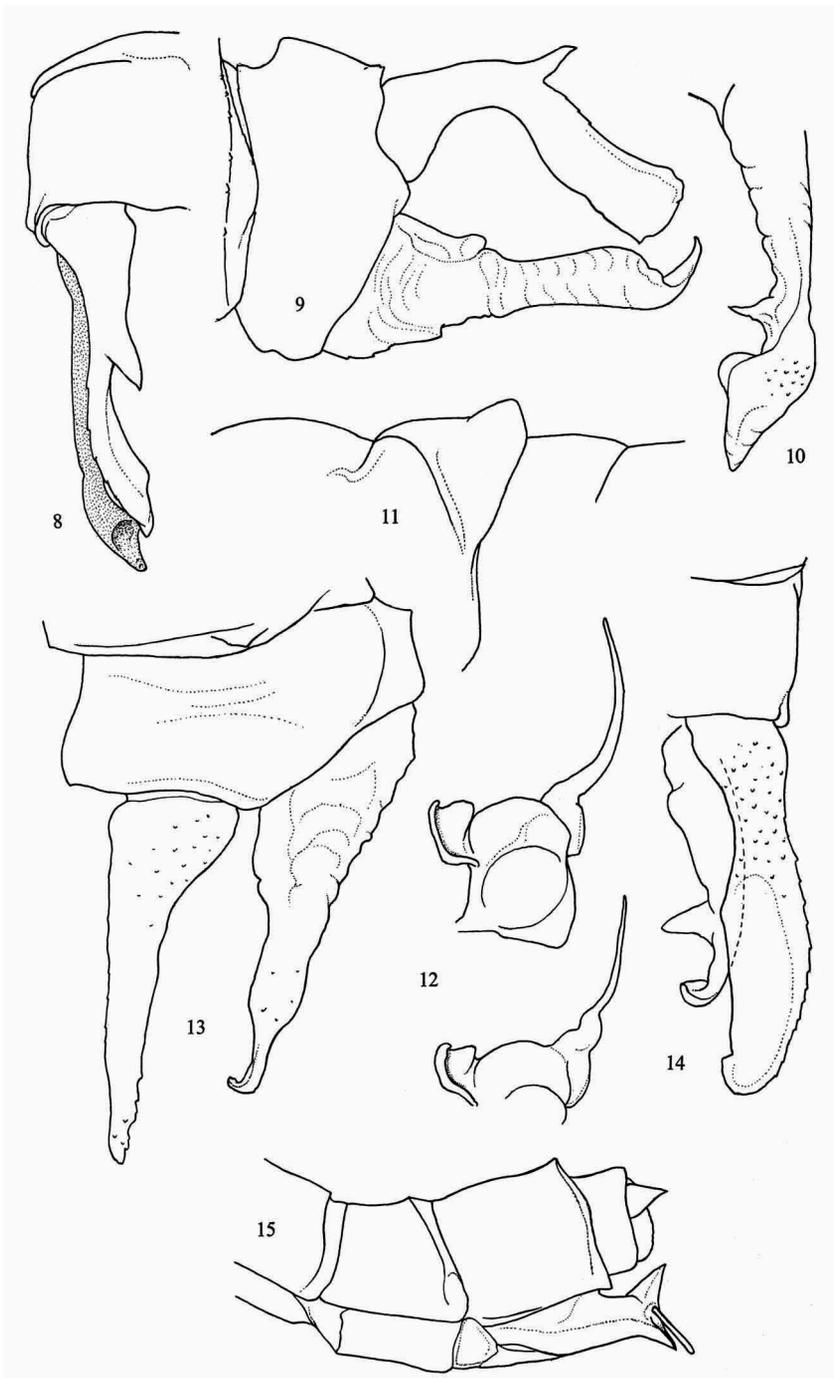


Fig. 8-11, *Drepanosticta quadrata* (Sélys), ♂ holotype from Singapore. 8, apex of abdomen showing left half of appendages (inf. app. stippled); 9, the same, left side; 10, left inf. app., ventral view; 11, posterior lobe of prothorax, left side.
 Fig. 12-15, *Drepanosticta monoceros* sp. n., ♂ and ♀ from SE Borneo. 12, prothorax ♂ and ♀, left side; 13, apex of ♂ abdomen, right side; 14, the same, partial dorsal view; 15, apex of ♀ abdomen, left side.

Measurements: ♂ abd. + app. 35.0-41.8 mm, hind wing 21.0-25.0 mm; ♀ 32.0-34.0 mm and 22.7-24.0 mm, respectively.

I am satisfied that the characters of the type of *D. fontinalis wheeleri* Fraser (loc. cit. supra) fall within the range of individual variation of this species.

***Drepanosticta sharpi* (Laidlaw, 1907)**

1907. Laidlaw, Fasc. Malayenses, Zool. 4 (Odon. 2): 10-11. — ♂ ♀ Jalor (*Platysticta sharpi* sp. n.).
 1907. Förster in Laidlaw, Ibid.: 10. — ♂ Kelantan (*Platysticta quadrata* Selys).
 1924. Laidlaw, J. Mal. Br. R. As. Soc. 2: 304-305, pl. 5 fig. 7 (♂ app., *sharpei*, Perak).
 1931. Laidlaw, J. Fed. Mal. States Mus. 16: 189. — ♂ Pahang.
 1937. Lieftinck, Treubia 16: 63-64, fig. 4 & 5a (♂ app., pterost., Kelantan).
 1954. Lieftinck, Handlist Mal. Odon., Ibid. 22 (suppl.): 35-36 (cat.).

Material. — ♂ (ad.), Malay Peninsula, labelled: "Prov. Kelantan, Ost Malacca, Rolle 1903, leg. Waterstradt", and "*Platysticta quadrata* De Selys", both in F. Förster's writing, in Michigan Museum, Ann Arbor. ♂ (ad.), Selangor, Ampang Intake near Kuala Lumpur, jungle verge by stream, 18.ix.1960, H. T. Pagden; ♂ ♀ (ad.), Selangor, Templer Park near Kuala Lumpur, Sungai Chui Tinggi, hill-side brook, 26.iii and 11.iv.1963, M. A. Lieftinck; ♂ (ad.), Pahang, Tasek Bera, 30.iii. 1963, J. I. Furtado. ♂ (juv., imperfect), Thailand, Nakhon Sithammarat Prov., Banna, 5-10.v.1958, T. C. Maa, in the Bishop Museum.

The types of this species are the teneral male (holotype) and adult female (allotype) from Bukit Besar (2500 ft., Nawnchik, in Jalor), designated as such by Laidlaw (1924: 304). The first full description of a male from Kuala Tahan in Pahang, accompanied by a sketch of its appendages, is contained in a subsequent paper (1931: 189). Next to this, I published myself a description with some illustrations of the male "*quadrata*" from Kelantan reported earlier by Förster (1907). The fresh material now at hand seems indistinguishable from the males discussed previously, one of which is still before me.

Female (ad., Templer Park). — Resembles the male, and apart from the specific differences mentioned in the key, can be distinguished from the female of *D. fontinalis* by the short, almost rectangulate side-angles of the prothoracic hind lobe, and by the narrow and less defined black lateral thoracic stripe. The dorso-lateral spots upon the distal half of the 8th tergite as well as the intersegmental ring are of a delicate blue tint in this specimen, whilst the sides of the same segment are bright chrome. Genitalia not differing from those of *fontinalis*.

Measurements: ♂ abd. + app. 36.5-38.5 mm, hind wing 21.7-22.0 mm; ♀ 34.0 and 23.5 mm, respectively.

I have not seen the male of the supposed *D. sharpi* reported by Fraser (1934, *Stylops* 3: 136-137, fig. 3, ♂ app.) from East Mergui in Tenasserim. Fraser's specimen is chiefly distinguished from all others by its superior size, the abdomen measuring 49 mm, the hind wing 26 mm.

***Drepanosticta monoceros* sp. n. (fig. 12-15)**

Material. — Central East Borneo: 1 ♂ 1 ♀ (both adult), Kutai, Bengen River, Tabang, 125 m, 28.ix.1956 (♂) and 6.x.1956, A. M. R. Wegner. Holotype ♂ and allotype ♀ in the Leiden Museum.

Male. — Labium light brown, base of mentum and median lobe with the exception of its free margin, blackish brown. Labrum, mandible-bases, the genae narrowly in front, and the anteclypeus, bright greenish yellow, the anterior border of the labrum broadly ochreous and fringed with golden brown hairs. Genae, postclypeus and all the rest of the head unicoloured bronze-black, the dorsal surface posterior to the antennae finely longitudinally striate. Parocular carina distinct, subacute; transverse postoccipital crest sharply acute but lacking pronounced lateral angles. Rear of the head polished, glossy black. Antennae, first two segments pale yellow, the second obscured apically, flagellum dark.

Prothorax with the whole dorsal surface, including the enormous posterior horn, yellowish brown intermingled with green anteriorly, the pleurae blackish brown; posterior lobe shaped as in fig. 12.

Synthorax with the mesepisternum and upper two-thirds of mesepimerum auburn to Buckthorn brown, sides gradually turning darker brown; surface dull, microscopically chagreened; sides and the entire ventral surface of thorax shiny brownish black, almost black, some parts finely transversely striate.

Legs palest ochreous, but procoxae exteriorly as well as mesocoxae at their bases, brown; all femora with poorly defined brownish postmedian rings, the knees and apices of tibiae also narrowly obscured; all bristles pale. Claws distinctly toothed.

Wings hyaline, neuration of the petiole brownish yellow, veins beyond nodus dark brown. Anal veins shortly stalked, distinctly Y-shaped. Two postquadrangular antenodal cells. M_3 arising at or slightly distal to the subnodus, R_s about one-third of a cell-length further distad. Arculus a little distal to Ax_2 . Fore wing with 11-12, hind wing with 10 postnodal crossveins of first series. Cu_1 reaching the hind margin at level of Px_3 in all wings. Pterostigma dark brown, finely margined with yellow; rhomboidal,

a little longer than wide and only slightly oblique, the distal side outwardly convex, costal and distal sides about equally long and shorter than proximal side, the anal side longest.

Abdomen, basal segments moderately widened, the posterior part of segm. 1 and intersegmental ring markedly swollen and raised, intermediate segments thin and slender, succeeding ones from the base of 7 to the end of 8 again expanded, the terminal segments parallel-sided and somewhat depressed; colour dark reddish brown, the apical rings narrowly obscured and bases of 3-8 each with ill-defined, latero-ventral yellowish spots at their bases, 3 and 4 in addition with a tiny light blue baso-dorsal spot; 8-10 dark brown, but dorsum of 9 and 10 conspicuously light blue.

Anal appendages yellowish, brownish at the base; superior pair somewhat longer than the inferior, shaped as shown in fig. 13-14.

Female. — Closely similar to the male, differing only as follows. Posterior prothoracic horn a little shorter (fig. 12). Pterostigma a trifle longer, light brown. Light blue dorsal markings on abdominal segments slightly enlarged and better defined, subtriangular in outline, separated from the rather more ochreous streaks bordering the base of segments latero-ventrally; dorsum of 2 likewise with tiny transverse basal spot of blue; segm. 8-10 brown, dorsal surface of 9 and 10 light blue, this colour less sharply delimited laterally than in the male.

Valves and anal appendages brown, the latter conical and pointed (fig. 15).

Measurements: ♂ abd. + app. 24.8 mm, hind wing 15.2 mm; ♀ 22.5, 15.6 mm, respectively.

This little species is most closely related to *D. crenitis* Lieftinck (1933, *Konowia* **11**: 289-292, fig. 3), from West Borneo, and it is the smallest species of *Drepanosticta* so far known. The male has inferior appendages shaped similarly to those of *D. crenitis*, but the latter species is abundantly distinguished from *D. monoceros* by the strongly expanded superior pair of appendages, the black unarmed prothorax, and in being of larger size. *D. monoceros* is the eleventh representative of the genus in Borneo. For references see Lieftinck (1954, *Handlist Mal. Odon.*, *Treubia* **22** (suppl.): 32-37).