

NEW CHRYSOPIDÆ FROM AUSTRALIA

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In Psyche vol. XVII, pp. 99 to 104, 1910, I described twelve new species of Australian Chrysopidæ, nine belonging to the genus *Chrysopa* as it has been used (though wrongly) for many years. I now add five new species, and give a new synoptic table for them.

Of those I have not seen are two that I consider distinct, *extranea* E. Petersen which I can place in the key from his figure of the wings, and *personata* Navas which, according to his figure, has quite different facial marks from any seen by me.

Three of the Navasian species, *deutera*, *reaumeri*, and *notosticta* have been placed by E. Petersen as synonyms of *Ch. ramburi*, and I believe correctly.

Ch. assimilata does not appear, from description, to differ from *Ch. innotata*.

The species described by Tillyard from Norfolk Island cannot be placed from his figures and descriptions until one has fresh material from that island; *C. leai* goes in the section of *edwardsi* and *extranea*, possibly also *C. arancariæ*. It would not be unusual if some of them occur in Australia, but I cannot fit any of the five new species described below to any of them. *Ch. olatatis* Bks. is possibly a male of *Ch. latotalis*, but of the many males of *latotalis* I have seen none that have the pale, slightly yellowish stripe from back of head along middle of thorax; the outward appearance of the genitalia is the same, but in *olatatis* (seen from behind) there is a plate above the edge of the last ventral segment with a straight upper margin, I do not see this in *latotalis*; *olatatis* is from Port Darwin, all the *latotalis* I have seen are from middle and north Queensland. *Ch. latotalis* is very similar to *Ch. basalis*, but without the dark mark on basal antennal joint; the external genitalia and the stigma appear the same.

SYNOPSIS OF SPECIES

1. More than seven cubital cross-veins beyond end of the divisory veinlet; palpi and pronotum marked with black.2.
Normally but six or seven cubital cross-veins beyond the end of the divisory veinlet.3.
2. Divisory cell twice as long as broad; a dark spot at inner base of basal joint of antennæ.*edwardsi*
Divisory cell about as broad as long; no such spot; a dark line between antennæ.*extranea*
3. Hind tibia but little more than three times as long as the tarsus, not swollen; usually two dark marks below antennæ, a dark line across pronotum, and two short marks each side, basal joint of antennæ usually with an upper and an outer dark mark and two lines on vertex.*ramburi*.
Hind tibia more or less plainly swollen, and four times as long as tarsus, or longer, rarely the above marks on face and pronotum.4.
4. Basal antennal joint with dark mark on outer or inner side; antennæ always pale.5
No dark marks on basal joint of antennæ, unless the antennæ are black, beyond second joint.7.
5. Gradates bordered with dark or yellowish.6.
Gradates not bordered; a black mark between the antennæ at base; dark stripe on basal joint on both outer and inner sides.*signata*.
6. Veins bordered with yellowish; radial sector very sinuous; basal antennal joint with but one dark line; gradates pale.*irregularis*.
Gradates dark and bordered with dark, also some other veins; basal joint of antennæ with two dark lines.*regularis*.
7. The divisory veinlet ends plainly before the cross-vein above; veins nearly all greenish; head, antennæ, and palpi pale, unmarked; gradates mostly remote from each other.*otalatis*.
The divisory veinlet ends at or beyond the cross-vein above, at least normally.8.
8. A dark spot at base of the stigma; gradates bordered, pronotum and mesonotum with a dark spot each side.*jocaste*.
No distinct dark spot at base of the stigma.9.
9. A distinct dark spot on radial sector more than half way to tip, and extending back on two veins; gradates faintly bordered; a dark spot under each eye; palpi marked with dark; a faint reddish stripe each side on pronotum.*signatipennis*
Not as above10.
10. Many cross-veins as well as gradates bordered with dark; antennæ pale, a reddish mark under each eye.*traviata*.
Cross-veins not plainly bordered.11.
11. Antennæ plainly dark beyond the second or third joints; head usually with red on vertex or face.12
Antennæ not plainly dark; head without red marks on vertex.14.
12. Stigmal area between costa and subcosta practically without cross-veins, or only one near tip.13.

Stigmal area between costa and subcosta with several cross-veins and others broken in middle; base of divisory cell not thickened and but little oblique; the branches of radial sector but little bent at inner gradates; a large red spot just above base of each antennæ; antennæ dark from second joint out; seven cubital cross-veins beyond divisory. *darwini*.

13. The branches of radial sector at the inner gradates are scarcely bent; pronotum long; the antennæ are dark from beyond third joint; the base of divisory cell very oblique and very plainly thickened. *atalotis*.

The branches of radial sector at the inner gradates are strongly bent, so the continuation of each branch appears to come from the middle of the end of preceding cell; antennæ black beyond second joint; pronotum not so long; hairs on veins longer; base of divisory cell only slightly oblique and not thickened. *satilota*.

14. Cubitus dark; veinlets behind base of radial sector partly dark; outer gradates dark; seven cubital cross-veins beyond divisory cell; dark spots above base of wings. *alcines*.

Cubitus not darkened, gradates and various other cross-veins plainly dark; often a dot under each eye. *innotata*.

Neither cubitus nor gradates plainly dark. 15.

15. Costal stigmal area with a few cross-veins and beyond are four cross-veins before end of subcosta (not clearly marked). *ramburi*.

Costal stigmal area tapering to tip and without cross-veins, except possibly one near tip. 16.

16. Base of divisory cell very oblique and thickened; pronotum as long or longer than broad; face not marked with reddish. *italotis*.

Base of divisory cell scarcely oblique and not thickened; divisory veinlet often ending at cross-vein above or just beyond; pronotum broader than long; in female sometimes two reddish spots above clypeus; in male the stigma is solid yellowish, much like *basalis*. *latotalis*.

***Chrysopa edwardsi*, sp. nov.**

Face pale, a dark streak under each eye, and the lateral margins of clypeus dark; palpi pale, slightly marked with dark; antennæ pale, basal joint with an oblong brown spot on the upper inner side near base; pronotum green, with a median yellowish stripe, each side is a sinuous dark line, part way from middle to side, sometimes it is broken into two or three spots; near the posterior corner of pronotum is a dark brown spot; on each side of the anterior lobe of mesonotum is a dark spot; sometimes a dark line on each lateral lobe of the mesonotum; abdomen brownish, with a more or less plain dark streak each side. The fore wing has one or two dark dots at extreme base; nearly all cross-veins partly dark,

usually at ends; the gradates, anals, and sometimes other veins near base wholly dark.

In hind wings the costals and many radial cross-veins dark, stigma not very distinct. The wings are fairly broad, almost acute at tips; the hairs on veins quite long; the gradates are in parallel series, the outer about seven, the inner usually ten, extending much basally; there are eight or nine cubital cross-veins beyond the divisory cell, the latter ends much beyond the cross-vein above, the cell being fully twice as long as broad; the post-cubital area is much wider than the costal, the second cubital cell scarcely longer than the third. In the costal stigmal area there are no cross-veins, but beyond are two or three, the branches of radial sector scarcely bent at inner gradates. In the hind wings the inner gradate series also extends basally; the triangular cell is quite long, and basal part of medius bends down in a gradual curve.

The pronotum is about as broad behind as long in middle, the sides sloping forward; the hind tibia not swollen.

Length of fore wing 16.5 mm., width 6 mm.

Two from "Australia, Edwards" (in M.C.Z.) and two from "Victoria, Australia, Edwards coll.", probably H. Edwards, in the Amer. Mus. Nat. Hist. Type M.C.Z. no. 25452.

***Chrysopa edwardsi puncticollis* n. var.**

In general similar to the typical form, but the palpi are more heavily dark; on the pronotum besides the sinuous line each side, and the spot near posterior angle, there are three other spots on each side: one toward the front, one below it on the lower margin, and one behind the latter, visible only from below; the spot on basal joint of antennæ is rather reddish, and there are two short parallel reddish lines on middle of vertex.

Size as the type.

One from Tasmania. Type M.C.Z. no. 25453.

***Chrysopa traviata* sp. nov.**

Pale yellowish green; a reddish spot under each eye, and usually a red line inward of it; last joint of palpi partly black; antennæ pale, unmarked, not very long. In fore wings the gradates are dark, and many cross-veins at ends;

the gradates, veins along hind margin, and most of the cross-veins, except costals and radials, bordered with pale brown; in hind wing the costals mostly dark. The wings are rather slender, almost acute at tip; the hairs on veins moderately long. In fore wing the gradates are in parallel series, but the inner further from outer than from the radial sector, about five gradates in each series, the branches of radial sector but little bent at inner gradates; six cubital cross-veins beyond the divisory cell, latter small, over twice as long as broad, ending at or beyond the cross-vein above, its base faintly thickened; second cubital cell but little if any shorter than the third; costal area no broader than post-cubital area, the latter but little broader than the cubital area; the costal stigmal area without cross-veins, but two or three beyond.

In hind wings the gradates, about four in each row, rather far apart; the triangular cell small, the union of radial sector and medius long, the basal part of medius quite suddenly bent down. Pronotum broader than long, sides nearly parallel, narrowed near front; hind tibia plainly swollen.

Length of fore wing 11 mm., width 4 mm.

Several specimens from Redlynch, North Queensland, 20 August to 14 October (Wind. coll.). Type M.C.Z. no. 25454.

***Chrysopa jocaste* sp. nov.**

Head and thorax nearly white, abdomen yellowish, a small brown spot under each eye, palpi pale, unmarked, antennæ pale, becoming darker toward tip, pronotum with a large brown spot near each anterior corner, and a similar spot over base of fore wings. Wings with pale greenish venation, gradates and some other cross-veins more or less dark, the gradates and many other cross-veins and the marginal forks bordered or clouded with dark, the triangle below third cubital cell wholly clouded, a larger darker cloud over the radial sector just before stigma and extending back over the bases of two branches behind, these branches are nearer to each other at base than the others; at base of stigma is another brown spot over three brown cross-veins.

In hind wings the veins are pale, unclouded, but a dark dot at base of stigma. Wings moderately broad, acute at tips, hairs on veins rather short toward wing-base, plainly longer near tip.

In fore wing the gradates are parallel and nearer to each other than the outer row to the hind margin, about six in each row, those near base widely separated; six (or seven) cross-veins beyond the divisory, the latter ends at or just beyond the cross-vein above, the divisory cell twice as long as broad; branches of radial sector little bent at inner gradates; the costal space about as broad as the post-cubital, the latter much broader than the cubital area; costal stigma area without cross-veins, but one or two beyond.

In hind wing but two inner and five outer gradates, the triangular cell is slender and the free part of medius slopes down gradually.

Pronotum short, much broader than long, the sides slightly convex; hind tibia much swollen.

Length of fore wing 13.5 mm., width 5 mm.

One from Lankelly Creek, McIlwraith Range, Cape York, North Queensland, 8 June (Darlington). Type M.C.Z. no. 25455.

***Chrysopa alcines* sp. nov.**

Body pale; the clypeus is plainly reddish; palpi and antennæ pale, unmarked, pronotum also; a dark spot above base of each wing; venation largely green, but in fore wings the cubitus from second cubital cell out is plainly brown; the outer gradates also brown, and the radials and some costals dark in middle; stigma indistinct.

The wings are moderately slender, tips rounded, the hairs on veins rather long; in fore wings the costal and post-cubital areas about equal in width, the post-cubital about a third broader than the cubital area; seven cross-veins beyond end of divisory cell, latter twice as long as broad, ending beyond the cross-vein above, second cubital plainly shorter than third; the gradates in nearly parallel series, about five or six in each row, inner row extending somewhat basally and is generally nearer to radial sector than to outer row; the branches of radial sector scarcely bent at inner gradates; costal stigmal area without cross-veins. In hind wing three inner gradates, one quite far basad, and five outer; the triangular cell is small, and the free base of medius curves strongly down.

Pronotum nearly as long as broad, sides parallel; hind tibia plainly swollen.

Length of fore wing 13.5 mm., width 4.5 mm.

From Middle Queensland (Perkins). Type M.C.Z. no. 25456.

***Chrysopa darwini*, sp. nov.**

Body pale yellowish, tip of abdomen darker; palpi pale, unmarked, antennæ from second joint out dark, but fading before middle, above each antenna is a large deep red spot in the depression, the basal joint of antennæ also slightly reddish above; the pronotum shows faintly some reddish on each side-margin; veins and cross-veins green in both front and hind wings, stigma not conspicuous. The wings are moderately slender, not acute at tips, hairs on veins fairly long. In fore wings the gradates are parallel, the outer as near inner as to hind margin, the outer of seven, the inner of six veinlets, but the basal one is far before the others, the branches of radial sector only a little bent at inner gradates; seven cubital cross-veins beyond the divisory, the latter ending only a little beyond the cross-vein above, the cell more than twice as long as broad, the base of cell only a little oblique and not plainly thickened, the second cubital cell is much shorter than the third; the costal area hardly broader than the post-cubital area, latter only a little wider than the cubital area; the costal stigmal area has no cross-veins, but two or three beyond. In the hind wings the triangular cell is fairly long and the free base of medius curved gently; there are four inner and five outer gradates, about parallel and the outer row about as near inner row as to outer margin.

The pronotum is about as long in middle as broad behind, narrowed near front; the hind tibiæ are plainly swollen.

Length of fore wing 14 mm., width 5 mm.

One from Port Darwin (Dodd coll.). Type M.C.Z. no. 25457.

