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SHORT COMMUNICATIONS

TWO NEW DAMSELFLIES: *CORA DORADA* SPEC. NOV. FROM ECUADOR AND *C. PARDA* SPEC. NOV. FROM PERU (ZYGOPTERA: POLYTHORIDAE)

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Characteristics of the genera *Cora* and *Euthore* are summarized and evidence is given for placing 2 new spp. in *Cora* regardless of a slightly thickened proximal primary antenodal in some specimens. *C. dorada* sp. n. (holotype ♂, allotype ♀: nr Yungilla, Tungurahua prov., Ecuador, alt. 1700-1900 m; deposited in UMMZ), a golden wing sp., is described and compared with *C. terminalis* McL. *C. parda* sp. n. (holotype ♂: Santo Domingo, Puno Dept., Peru, alt. 1828 m; deposited in UMMZ), a sp. with broad brown wing bands, is described and compared with *C. semiopaca* Sel.

INTRODUCTION

Some of the specimens of polythorids which the late Dr B.E. Montgomery had borrowed from the University of Michigan Museum of Zoology (UMMZ) and which were brought to the Florida State Collection of Arthropods (FSCA) after his death (BICK & BICK, 1985) only recently came to our attention, unfortunately too late for our (1990) A Revision of the Genus *Cora*. Included were 2 new species (*C. dorada, C. parda*) which at first gave concern as to their generic assignment: *Cora* or *Euthore*.

GENERIC PLACEMENT

There were slightly thickened proximal primary antenodals in both new species, at least in some wings of some specimens. This alone often (FRASER,

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Table I
Comparison of hind wing characteristics of *Euthore* and *Cora* males

Species	N	Wing width		Petiole length		Sectors 4 or more cells between CuP & A1		Cells between A3 & wing border		Maximum distance between wing border & A1	
		Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean
EUTHORE											
fasciata	5	8.4-9.8	9.0	1.6-1.9	1.7	4-5	4.2	14-21	18.4	2.1-2.4	2.3
fastigiata	5	8.2-8.6	8.4	1.5-1.7	1.6	4-4	4.0	13-21	17.2	2.3-2.8	2.6
meridana	5	8.4-9.3	8.8	1.5-1.9	1.8	4-6	4.6	17-20	18.6	2.6-2.8	2.7
hyalina	5	8.0-8.8	8.3	1.8-2.2	2.0	5-5	5.0	12-17	14.6	1.9-2.7	2.2
CORA											
terminalis	5	6.1-7-4	6.9	3.6-4.6	4.0	1-2	1.8	7-10	8.4	1.5-1.9	1.8
dorada	9	5.5-6.7	6.1	3.0-4.3	3.3	0-1	0.4	7-9	8.0	1.6-1.9	1.7
munda	4	5.5-6.0	5.6	2.6-2.9	2.7	0-0	0	4-5	4.7	1.1-1.2	1.1
semiopaca	5	5.5-6.6	6.1	2.4-2.8	2.6	0-1	0.4	5-9	7.4	1.5-1.7	1.6
parda	1		6.0		2.4		2		5		1.1
chirripa	5	5.6-6.2	5.9	2.7-2.9	2.8	0-0	0	7-8	7.8	1.2-1.7	1.4

1946, 1957, DAVIES & TOBIN, 1984) suggests the genus *Euthore*. BICK & BICK (1990), considering generic assignment of *C. terminalis* McL. pointed out that the proximal primary antenodals alone were inadequate to differentiate *Cora* from *Euthore* and added 4 other characteristics but did not quantify the data. We compared details of the hind wings (Tab. I) of the 2 new species with representative species of *Euthore: fasciata* (Hagen *in* Selys), *fastigiata* (Selys), *meridana* Selys, *hyalina* (Selys) and of *Cora* in the *modesta* group: *terminalis* McL., *munda* McL., *semiopaca* Selys, *chirripa* Calvert. Considering all of these species (*Euthore* vs. *Cora*), the hind wing of *Euthore* has: (1) a greater width (8.0-9.8, 5.5-7.4), — (2) a shorter petiole (1.5-2.2, 2.4-4.6), — (3) more long sectors between CuP and A1 (4-6, 0-2), — (4) more cells between A3 and wing border (12-21, 4-10), — (5) a greater distance between wing border and the greatest arch of A1 (1.9-2.8, 1.1-1.9). These 5 criteria can be readily determined and collectively are more reliable than the presence or absence of a thickened, proximal, primary antenodal, a judgment which for us was often difficult. Table I shows that the 2 new species herein described can be assigned better to *Cora* than to *Euthore* even though a somewhat thickened proximal primary antenodal may be detected occasionally. Also, pterothoracic color patterns of males offer good contrast: mostly dark with 5 parallel pale stripes in *Euthore*, species specific in *Cora* (BICK & BICK, 1990, figs 20-37) but never as in *Euthore*.

CORA DORADA SPEC. NOV.

Table I

Material examined — All ECUADOR, Tungurahua Province, W.C. Mac-Intyre, leg., near Yungilla where Rio Blanco enters Rio Pastaza, 1.24S, 78.20W (Brown, 1941), 1700-1900 m. All subadult and poorly preserved. — **Holotype** ♂, IX-19-1936; — **Allotype** ♀, IX-15-1937; both

deposited in UMMZ, Ann Arbor, Michigan. — **Paratypes** will be deposited in UMMZ and International Odonata Research Institute, Gainesville, Florida: IX-1936, 3 ♂; X-1936, 3 ♂, 1 ♀; IX-1937, 1 ♀; XI-1938, 1 ♂; XII-1938, 1 ♀; III-1939, 1 ♀; IX-1939, 1 ♂. — Larva unknown.

Etymoiogy. — The Spanish name *"dorada"* refers to the gold-colored wings and the red-gold pterostigma.

MALE (**holotype**). — Head — Dorsally black with 4 orange spots rectangularly arranged; labrum, postclypeus, genae pale.

Prothorax — Middle lobe mostly orange; hind lobe medially pale bordered with black.

Pterothorax — Similar to *C. terminalis* (BICK & BICK, 1990, fig. 29). Two parallel, unfused, dark stripes between dorsal carina and humeral suture; a wide, poorly defined dark band on mesepimeron, metepisternum, metepimeron.

Wings — Golden; pterostigma red-gold. Fore wing 35 mm; base to nodus 15, nodus to pterostigma 18; antenodals 30, the proximal primaries slightly thickened; postnodals 35; pterostigma 2.3 mm along posterior border, surmounting 4 cells. Hind wing 33 mm, maximum width 6.5; antenodals 24, proximal primaries only slightly thickened; postnodals 34; petiole 3.3 mm; 8 cells between A3 and wing border; maximum distance between A1 and wing border 1.7 mm; no sector 4 cells or longer between CuP and A.

Abdomen — Broken, length without appendages 39 mm; segment 1 pale, 2-7 bronze, 8-10 black, 3 and 4 each with a small basal pale spot on each side.

Appendages — Superior 1.8 mm, abnormally twisted, a blunt inferior projection at about mid-length.

Penis — See paratypes.

FEMALE (**allotype**). — Head — More conspicuously patterned than male. Dorsally black, a large orange area anteriorly on each side and an orange band at posterior border.

Prothorax — As in male.

Pterothorax — Two large orange spots within the fork of the mid-dorsal carina; both mesepisternal dark stripes ill-defined and incomplete. Remainder as in male.

Wings — Color as in male; fore wing 36 mm; base to nodus 16, nodus to pterostigma 18; antenodals 27, proximal primaries scarcely thickened; postnodals 35; pterostigma 2.7 mm surmounting 5 cells. Hind wing 35 mm, maximum width 7.2, antenodals 23, proximal primaries scarcely thickened; postnodals 31; petiole 3.1 mm; 8 cells between A3 and wing border; maximum distance between A1 and wing border 1.8 mm; no sector 4 cells or longer between CuP and A.

Abdomen — Length 37 mm. Segments 1, 2 dorsally pale, 3-6 each with a small lateral pale spot, 7-10 dark.

PARATYPES — Immaturity, poor preservation and compaction made normal and abnormal variation difficult to differentiate. Nevertheless, all wings, both male and female, were gold-colored with striking red-gold pterostigmas. Mese-

pisternal dark stripes on these immature males were sometimes obscure, and in females always incomplete and less obvious. Lateral, pale, basal abdominal spots were brighter and larger in females and always present on 3, 4, 5, 6; in most males only on 3 and 4, in one only on 3.

Table I shows variation in hind wing features of the 9 males. The data for the 5 females are: length 33-34 (mean 33.6), width 6.3-7.2 (6.6), petiole 3.0-3.4 (3.2), sectors between CuP and A1 0-1 (0.8), cells between A3 and wing border 7-9 (7.8), maximum distance between wing border and A1 1.5-1.9 (1.7). Among 34 wings of males (2 wings missing) and 20 of females, the distal primary antenodal was always thickened and obvious, the proximal one usually difficult to detect. Both primaries seemed clearly thickened in all wings of only 2 males and 1 female.

Penis — Examined in 2 paratypes, much as in *C. terminalis* (BICK & BICK, 1990, fig. 10); the horns 0.275 and 0.300 mm.

REMARKS — *C. dorada*, in the *modesta* group of *Cora*, is similar to *terminalis* in thoracic color pattern (BICK & BICK, 1990, fig. 29) as well as in penis horns. Specimens of *dorada*, *terminalis* and *munda* McL. key to couplet 7, since all have 2 parallel dark mesepisternal stripes. Thereafter, *dorada* stands apart:

8 Wings 34 mm, golden, without an apical dark spot, pterostigma golden-red; penis horns elongate, 0.27-0.30 mm ..... ***dorada*** sp. n.

8′ Wings 34 mm, not golden, usually with a small apical dark spot, dark pterostigma; penis horns elongate, 0.30 mm ..... ***terminalis***

8″ Wings only 27 mm, colorless, pterostigma dark, penis horns short, only 0.20 mm ..... ***munda***

All specimens of *C. dorada* are Andean from the headwaters of the Amazonian drainage, at 1700-1900 m. These elevations, recorded by W.C. Mac-Intyre leg., should not be relied upon strongly, but the locations probably are in humid temperate to sub-tropical forest (BROWN, 1941). *C. dorada* adds to the abundant array of Ecuadorean species of *Cora* which now numbers 8, perhaps 10 (BICK & BICK, 1990).

CORA PARDA SPEC. NOV.

Figure 1, Table I

Material examined — **Holotype** ♂: Peru, Puno Dept., Santo Domingo, 1828 m (13.49S, 69.38W), "coll. Rosenberg, Acq. 1903". Deposited in UMMZ. — Female and larva unknown.

Etymology. — The Spanish name, *"parda"*, refers to the dark brown band on each wing.

MALE (**holotype**). — Head — More conspicuously patterned dorsally than most species of *Cora*. Labrum, postclypeus, genae and most of frons yellow. Anteclypeus black. Remainder of head dorsally black with 3 pairs of yellow spots and a pair of large yellow areas connected laterally to the yellow of the frons.

Prothorax — Anterior lobe mostly pale; mid-lobe black with a large oval pale area on each side; posterior lobe black with a yellow medial spot and lateral pale ones.

Pterothorax (Fig. 1) — Mostly pale. Mesepisternum narrowly black along dorsal carina, with 2 small pale spots within its fork. Humeral suture unmarked except for the black sulcus. Mesepimeron anteriorly black with a black stripe extending posteriorly about 2/3 length of sclerite. Interpleural suture narrowly black; metepisternum with an almost full-length black stripe; metepimeron with large oval dark brown spot and a small posterior brown area.

Wings — Each with full-width transverse dark band; in front wing beginning at nodus, extending 6.5 mm (15 cells) along costa and ending 4.5 mm (11 cells) proximad of the pterostigma; in hind wing beginning 6 mm (2 cells) proximad of the nodus, extending about 8.5 mm and ending 3 mm (6 cells) proximad of the pterostigma.

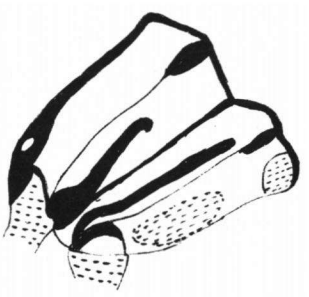

Fig. 1. Left lateral view of holotype male pterothorax of *Cora parda* sp. n.

Fore wing — 24 mm, base-nodus 9.9, nodus--pterostigma 10.7; antenodals 23, proximal primaries slightly thickened; postnodals 24; pterostigma dark brown, 2.0 mm, surmounting 4 cells.

Hind wing — 23 mm; maximum width 6.0; antenodals 17, proximal primary very slightly thickened; postnodals 24; pterostigma 1.6 mm, surmounting 3 cells; petiole 2.4 mm; 5 cells between A3 and wing border, branches of A unusually short; maximum distance between A1 and wing border 1.1 mm; 2 sectors 4 or more cells long between CuP and A1.

Abdomen — Broken and repaired, length without appendages 28 mm; dorsally black, segment 1 with a large pale spot on each side, 2 with a full-length lateral pale stripe, 3 with basal pale spot followed by a separated narrow pale stripe, 4 and 5 each with a small basal pale spot, remainder of abdomen black.

Appendages — Superior 1.3 mm, the usual ventral branch at about mid--length.

Penis — Similar to most of the *modesta* group with short horns (BICK & BICK, 1990, figs 1-7); horns 0.075 mm.

REMARKS — The thoracic color pattern of *parda* (Fig. 1) differs from other species of *Cora* (BICK & BICK, 1990, figs 20-37) but *parda* does superficially resemble *semiopaca* in that each species has a brown wing band on each wing. Both key to couplet 12 in BICK & BICK (1990). Thereafter they are readily distinguished:

12 Fore wing dark band begins proximally 4-5 mm beyond nodus and ends at proximal or distal end of pterostigma; mesepisternum broadly dark (BICK & BICK 1990, fig. 20) ..... ***semiopaca***

12′ Fore wing dark band begins proximally at nodus and ends 4.5 mm proximad of pterostigma; mesepisternum mostly pale (Fig. 1) ..... ***parda*** sp. n.

12″ Wings without dark wing bands 13

Nothing is known of the biology of *C. parda* which was collected near the southernmost limits of the genus.

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