

ON CONFUSION ABOUT THE IDENTITY OF *PSEUDAGRION ACACIAE*
FOERSTER, 1906, WITH THE DESCRIPTION OF *P. NILOTICUM* SPEC.
NOV., AND ON THE IDENTITY OF *P. HAMONI* FRASER, 1955
(ZYGOPTERA: COENAGRIONIDAE)*

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P. niloticum sp. n. (♂ holotype: Giohar, Somalia) is described and figured. It occurs in the Nile valley and in the Horn of Africa. *P. acaciae* has been confused with this sp. by Ris (partim), Andres and Carfi. Nielsen and Fraser confused *acaciae* with a widespread sp., now widely known as *P. whellani* Pinhey. However, this is by 1 yr a junior synonym of *P. hamoni* Fraser, 1955, as shown by a re-examination of the holotype. The latter occurs throughout the Ethiopian region, and has been found once in Libya, within limits of the Palearctic area. The distribution of *P. acaciae* is redefined as South and South-East Africa.

INTRODUCTION

In the course of a study of the aquatic biota of the Sahara, I found that FRASER's (1952) record of *Pseudagrion acaciae* Foerster from Molomhar, Adrar of Mauretania (cf. also DEKEYSER & VILLIERS, 1956), is wrong (DUMONT, 1976). Dr. E.C.G. PINHEY, Bulawayo, Rhodesia, confirmed (in litt.) that the species involved is really *P. whellani*, described by him in 1956 from Rhodesia, and subsequently found to be one of the most widespread *Pseudagrion* of Africa. FRASER never used the name *whellani* after 1956, so that he probably never sorted out the differences between *acaciae* and *whellani*, but in 1951 another erroneous use of the name *acaciae* for a male specimen from

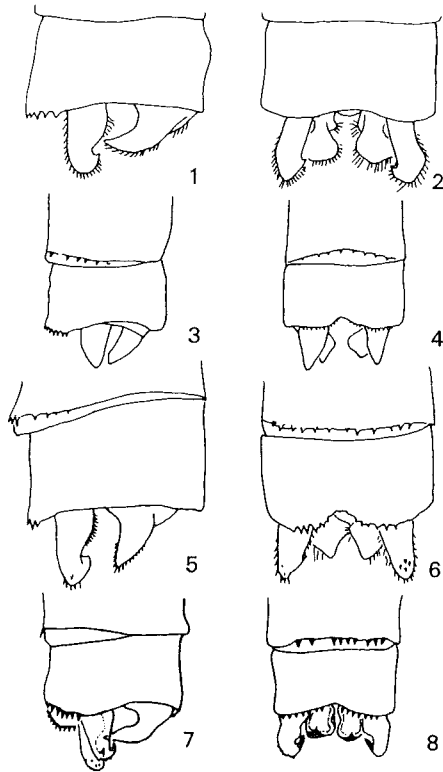
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Dahomey had occurred (FRASER, 1951, p. 1078: "a male which I had first thought was a new species. . . . I now feel sure is a melanotic variety of *acaciae*"). He was still hesitating when, in 1955, he described a male from Yabasso near Bobo-Dioulasso, Upper Volta (J. Hamon leg., 24.VI. 1953) as *P. hamoni* sp.n. (1955, p. 239: ". . . it may possibly be a melanotic variety of *acaciae*"). Paradoxical as it may seem, and as we shall see further, *hamoni* is a good species, and it is the correct name for the taxon now widely known as *P. whellani* PINHEY, 1956.

PINHEY (1964), trusting Fraser's judgement, did not re-examine the type of *hamoni* while preparing his detailed revision of African *Pseudagrion* (1964, p. 101: "in correspondence . . . Fraser says from memory: . . . I think you may be possible about *hamoni* being a melanotic form of *acaciae*") and considers it as a mere subspecies of *acaciae*.

However, Fraser was not the only author to have confused *acaciae* with other species. NIELSEN's (1935) citation of *acaciae* from Taghen oasis, Libya, is another example, and RIS (1909, 1912) listed an undescribed species under that name. In the first important revision of the genus (RIS, 1936), the name *acaciae* is applied to a mixture of possibly three different species. This is curious, since at least *P. hamoni* is relatively unrelated to *acaciae*. It is really a near ally of *P. massaicum* Sjöstedt and *P. sublacteum* (Karsch). The third species, which is hereafter described as new, is on the contrary, very closely related to *acaciae*.

The present paper deals exclusively with the males of the species concerned.



Figs. 1-8. Historical illustrations of *Pseudagrion*: (1-2) *P. acaciae*, male appendages in lateral and dorsal view, South African specimens. After RIS, 1921. This is the first genuine figure of this species; - (3-4) *P. "acaciae"* (= *niloticum* sp.n.), after RIS, 1909, specimens from Ethiopia; - (5-6) *P. "acaciae"* (= *niloticum* sp.n.), after RIS, 1936, specimens from Maadi, Egypt; - (7-8) *P. acaciae*, after DUMONT, 1974, specimens from Rhodesia.

PSEUDAGRION ACACIAE FOERSTER, 1906

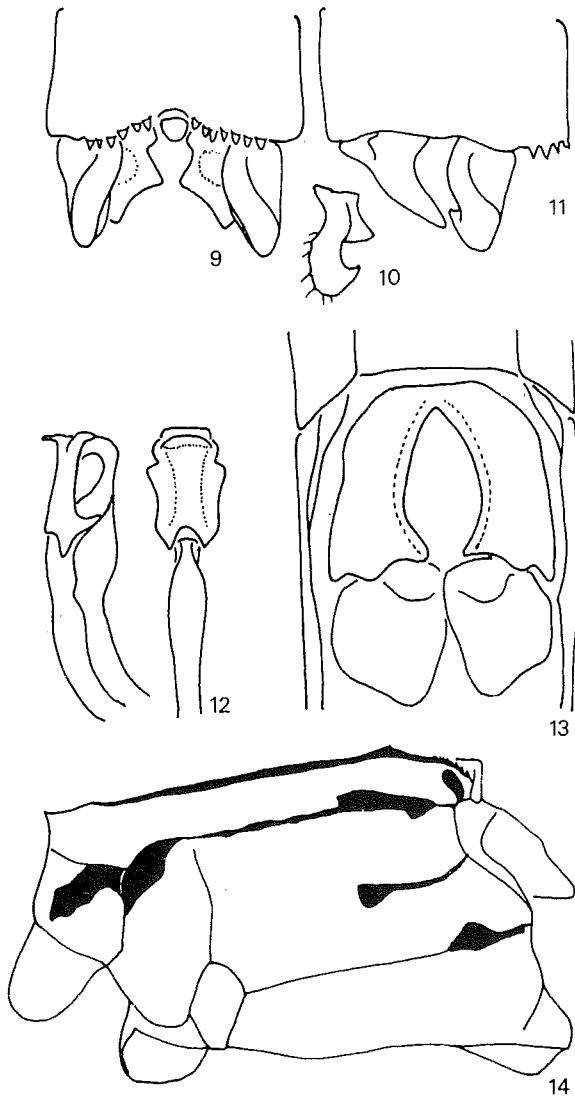
Figures 1, 2, 7, 8, 15, 21

Pseudagrion acaciae: RIS, 1921; PINHEY, 1951, 1964; DUMONT, 1974. — pars, *P. acaciae*: Schmidt in RIS, 1936; PINHEY, 1962. — non *P. acaciae*: RIS, 1909, 1912; ANDRES, 1928; NIELSEN, 1935; FRASER, 1951, 1952; CARFI, 1974.

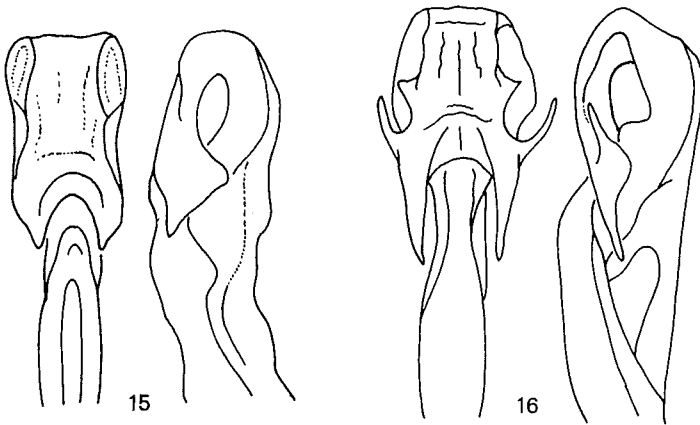
FOERSTER (1906) did not illustrate his species, but his description was clear. The male appendages are characterized as follows: "Von der Seite gesehen sind sie aus breiter Basis verschmälert, der Oberrand gerade, der Unterrand allein schräg nach oben, vor der Spitze mit einem scharfen Einschnitt versehen, wodurch die Spitze fast kopfförmig wird. Untere Appendice so dick wie die obern, fadenförmig, von der Seite gesehen scharf nach oben gebogen bis zu senkrechter Richtung, ihre ziemlich scharfen Spitzen gerade gegen die Einkerbung des Unterrandes der obern Appendices gerichtet. Von oben gesehen die obern Appendices etwas gespreizt, aus breiter Basis vom zweiten Drittel ab innen stark ausgebuchtet, so dass dort innen ein zahnartiger Vorsprung entsteht. Enden abgerundet. Die untern von oben gesehen zwei Drittel so lang als die obern, breit Schaufelförmig, das Ende fast gerade abgestutzt". The first more or less topotypical examples that were figured came from M'Fongosi, Zululand (RIS, 1921) (Figs. 1, 2). These figures are correct and permit to recognize the species adequately, although no details of the app. inf. can be seen on the dorsal view. Among later figures, those by PINHEY (1951) on South-African material, PINHEY (1964) on Rhodesian material, and DUMONT (1974) on Rhodesian material (Figs. 7, 8) may be cited.

However, the first figure ever published was by RIS (1909), based on a male from Ethiopia. RIS (1912, p. 158) later referred to it as "nicht besonders glücklich", since a subapical tooth on the app.sup. had not been drawn, but it is evident (Figs. 3, 4) that the whole figure is either very inadequate, or that another species is involved. In particular, the app.inf. is not sharply upturned, but only slightly bent dorsad. RIS (1912) says about specimens from Egypt that they are doubtlessly identical to those from Ethiopia, and these in turn are very probably the same as Foerster's species. ANDRES (1928) did not critically re-examine the Egyptian species. When Ris died before his revision of *Pseudagrion* was completed, it was published by E. Schmidt (RIS, 1936), and *P. acaciae* was characterized, not by topotypical material, but by material from Maadi, Egypt (Figs. 5, 6). The app.inf. is again inconsistent with RIS' own figure of 1921 and, in addition, a figure is offered which may represent *P. hamoni*, but certainly not *acaciae*.

An analysis of the literature, therefore, strongly suggests the existence of an undescribed species in North-East Africa. CARFI (1974) found a male of *P. "acaciae"* in Giohar, Somalia. His excellent figures show that it is a representa-



Figs. 9-14. *Pseudagrion niloticum* sp. n., type, Giohar, Somalia: (9) appendages, dorsal view; – (10) appendix superior, inner view; – (11) appendages, lateral view; – (12) copulatory organ, lateral and dorsal view; – (13) accessory genitalia; – (14) synthorax, lateral view.



Figs. 15-16. Male copulatory organ, lateral and dorsal view: (15) *Pseudagrion acaciae*, Rhodesia; – (16) *P. hamoni*, Rhodesia.

tive of the undescribed Nile species. I have been able to study the specimen involved. It is hereafter described as a new species.

***PSEUDAGRION NILOTICUM* SPEC. NOV.**

Figures 3-6, 9-14, 20

Pseudagrion acaciae: RIS, 1909, 1912; ANDRES, 1928; CARFI, 1974. – pars,
P. acaciae: Schmidt in RIS, 1936.

H o l o t y p e: a male, the head of which is lost, collected at Giohar, Somalia, 20.VII.1970, bearing the number 656, deposited at the Istituto di Zoologia dell'Università di Firenze, Firenze, Italy.

DESCRIPTION

Length (without head) 34 mm.

Pronotum reddish, with reduced black markings. Synthorax with reduced black mid-dorsal stripe, broad red antehumeral band, narrow black stripe on humeral suture, widened in front and behind. In general, black markings on synthorax rather reduced (Fig. 14), and sides of synthorax greenish, with reddish tinges near the sutures.

Legs: femora brown, tibiae and tarsi yellow with black spines.

Wings typical for the genus (excellently figured by CARFI, 1974). Venation light brownish, pterostigma brown.

Abdomen: ground colour green, with black markings of the usual *Pseudagrion* type, although somewhat more reduced than is usual and black markings on S_2

U-shaped (Fig. 20). — Accessory genitalia (Fig. 13): lamina anterior as in *acaciae*; hamuli block-shaped, with a frontal depression but no tooth-like outgrowth and no posterior invagination. — Copulatory organ simple (Fig. 12), penile lobes even more reduced than in *acaciae* (Fig. 15).

Appendages (Figs. 9-11): on top of S_{10} stand a row of blunt teeth. In dorsal view, app.sup. rather compact, triangular, hollowed out at their outward base. Inner structure not visible from dorsal position. An inner view shows a distinct apical hook. Inferior appendages about $\frac{3}{4}$ as long as the superior, pointed apically, roughly triangular in shape, proximally somewhat hollowed out. In lateral view, the appendix is curved apicad. However, its tip does not stick between the app. sup. and is situated above the level of the hook on the app. sup.

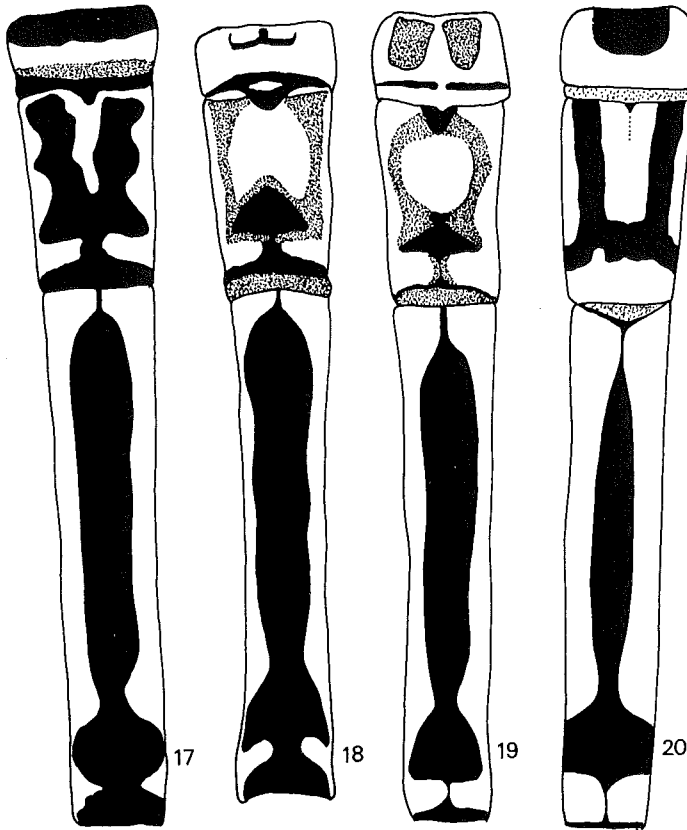


Fig. 17-20. Dorsal colour pattern on $S_1 - S_3$, males: (17) *Pseudagrion hamoni*, Matmata, Tagant, Mauretania; — (18) *P. hamoni*, Molomhar, Adrar, Mauretania; — (19) *P. hamoni*, Traghan, Libya; — (20) *P. niloticum*, holotype, Giohar, Somalia.

DIFFERENTIAL DIAGNOSIS

Confusion is possible with *P. acaciae*, but in the latter the hook on the app. sup. is well visible dorsally (Fig. 8), and the app. inf. are more deeply curved, their apical half standing at right angles with the app. sup., their tip usually sticking between the app. sup. (Fig. 7). In dorsal view, the app. inf. are not pointed like a triangle, but their apex is smoothly rounded, while the body of the appendix is deeply hollowed out, and an apical tooth is curved over the excavation. The tip of the app. inf. stands well below the level of the apical tooth on the app. sup. The hamuli in *acaciae* have a posterior invagination (Fig. 21) and the penile lobes are slightly longer (Fig. 15) than in *niloticum*.

Differentiation from *P. hamoni* is much easier: the app. sup. of *hamoni* shows a beginning of differentiation in an inner and an outer branch. The outer branch has a tooth which is bent inwardly over the inner branch (Fig. 26) and it is not hollowed-out at its base. The app. inf. is triangular like in *niloticum*, but longer (at least as long as the app. sup. and mostly slightly longer). It is not hollowed-out, has a swollen ridge at its base and stands parallel to the app. sup. (Figs. 26-29). In lateral view, the swollen basal ridge is visible as a tubercle. The accessory genitalia differ markedly (Figs. 22-25) and the penile lobes are strongly developed (Figs. 16, 23).

FEMALE

The female is unknown, except for a brief description by RIS (1909) of a specimen from Ethiopia. The prothoracic stylets were rather short, as in *acaciae*, but this may not be diagnostic. In view of the typical structures on the app. inf., I would risk the prediction that good diagnostic characters will be found on the female lamina mesostigmalis.

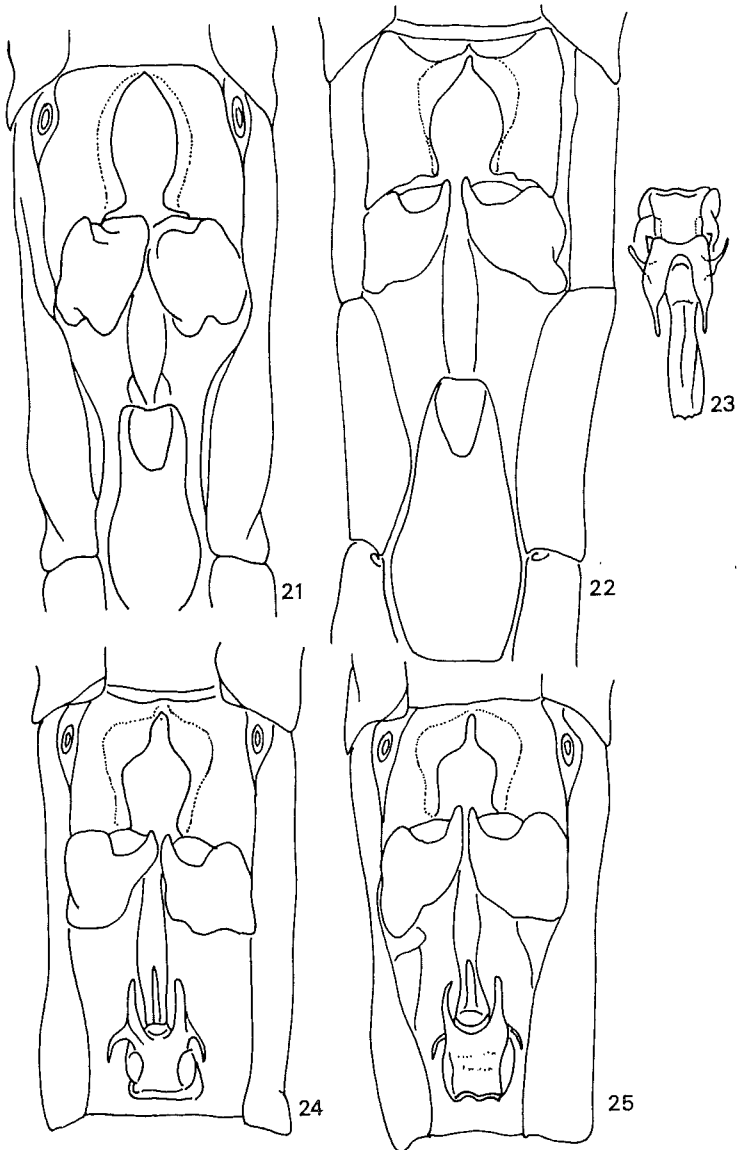
DISTRIBUTION

The area of distribution appears to be North-East Africa, including the Nile valley between its Delta, the White and the Blue Nile in Ethiopia, and the more arid parts of the Horn of Africa as well. It looks, therefore, as a northern vicariant of *P. acaciae*, the species it doubtlessly stands closest to.

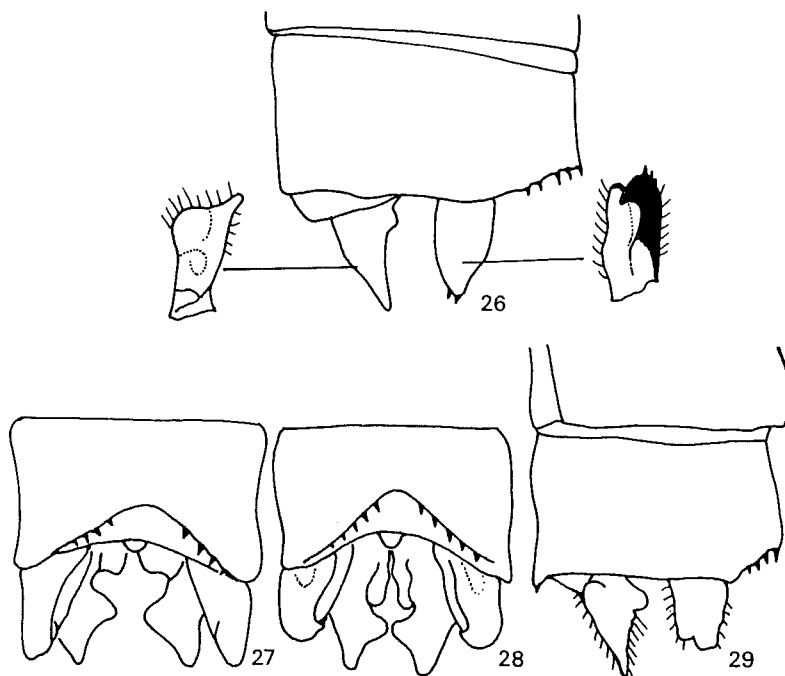
***PSEUDAGRION HAMONI* FRASER, 1955**

Figures 16-19, 22-23

Pseudagrion acaciae: NIELSEN, 1935; FRASER, 1951, 1952. — *P. whellani*: PINHEY, 1956, 1964 (synonymy).

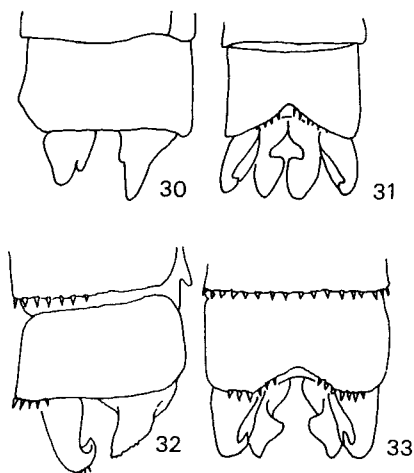


Figs. 21-25. Accessory genitalia of *Pseudagrion* males: (21) *P. acaciae*, Rhodesia; – (22) *P. hamoni*, Fraser's holotype from Yabasso, Upper Volta; – (23) Copulatory organ of the same; – (24) *P. hamoni*, Rhodesia; – (25) *P. hamoni*, Traghen, Libya.



Figs. 26-29. *Pseudagrion hamoni*: (26) appendages of holotype (Yabasso, Upper Volta) in lateral view and details of structure of app. inf. and app. sup. in dorsal view; (27) appendages, dorsal view, Molomhar, Mauretania; - (28-29) appendages, lateral and dorsal view, Rhodesia.

This dark and pruinose insect, with brick-red eyes and small, round blue-green postocular spots is widely distributed in Africa. I have re-examined the type, a male from Yabasso near Bobo-Dioulasso, Upper Volta, which is kept at the Centre de Faunistique de l'ORSTOM (not Museum de Paris, as Fraser states). The terminalia are compressed, to a degree which makes it difficult to give an overall dorsal figure. Fraser's description is adequate. His figures are of tolerably good quality, although his lateral representation of the app. inf. is complicated by the fact that the anal valves are glued to the appendix (Fig. 32) and the hook on the apex of the app. sup. is very distinctly exaggerated. Pinhey's original figures of *P. whellani* are more correct in this respect. I have already summed up most diagnostic characters for this species. In addition, I give extensive illustration of the type of *P. hamoni* (Figs. 9-14, 20, 26), of topotypical examples of *P. whellani* from Rhodesia (Figs. 16, 24, 28-29), of specimens from Mauretania erroneously identified as *acaciae* (Figs. 17-18, 27) and of a specimen found in Traghan Oasis, Fezzan, Libya (Figs. 19, 25). The latter locality is well within



Figs. 30-33. Historical illustrations of *Pseudagrion hamoni*: (30-31) male appendages in dorsal and lateral view, after Pinhey's original figures of *P. whellani*; - (32-33) appendages, lateral and dorsal view, after Fraser's original drawings of *P. hamoni*.

the limits of the Palaearctic region. The conspecificity of all these animals is evident. There is no structural variation. The only variation encountered is in the extent of some body markings and pruinosity, but this is a common phenomenon in *Pseudagrion* and largely due to age. *P. hamoni* is thus one of the most widespread Zygoptera of Africa, being found in South, Central and Western Africa. It has occurred at Jebel Marra, Sudan (HAPPOLD, 1966), but it remains to be seen whether it has established itself along the Nile. The existence of a relict population in the Fezzan, however, suggests that this is more than a mere possibility.

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