1971

*J. ent. Soc. sth. Afr. 1971*
*Vol. 34, No. 1, pp. 11–15*

# A new species of *Pseudagrion* Sélys (Odonata) from Eastern Transvaal

by

B. I. BALINSKY

Department of Zoology, University of the Witwatersrand, Johannesburg

The mature male, teneral male, and female of *Pseudagrion inopinatum* spec. nov. are described and figured.

During a collecting trip to Badplaas in Eastern Transvaal I have collected a short series of specimens (8 males and 2 females) which to my considerable surprise, seeing that the area is fairly well known, turned out to be a new species. In view of these circumstances I propose to call the new species *Pseudagrion inopinatum*. The specimens were collected in a sector of the river populated also by *Pseudagrion salisburyense* Ris. and *Pseudagrion gigas* Ris. The only other species of *Pseudagrion* Sélys on the same river was *P. natalense* Ris., but that species was found several miles higher up the river.

The males of the new species are somewhat similar to *P. salisburyense*, though considerably larger and with more powerful superior anal appendages, which in general shape are very much like those of the above-named species. The females are presumed to be conspecific with the males, in view of their size, which is above average for the genus, and because they are different from the known females of the other species found in the vicinity. The females lack both the epaulettes (Balinsky, 1957) typical for the species of the "*caffrum*" group (Pinhey, 1964) and the sculpturing on the mesostigmal lamina (Balinsky, *l.c.*) found in the species of the "*punctum-glaucescens*" group (Pinhey, *l.c.*). There is present, however, a bristle pad on the pre-episternum, found in some species of the "*caffrum*" group (Pinhey, *l.c.*).

## ***Pseudagrion inopinatum*** spec. nov., fig. 1

MATURE MALE. Labrum greenish blue to brown, lighter towards anterior edge. Anteclypeus and genae brown to black. Clypeus black. Frons, vertex and occiput black with bluish to white pruinosity anteriorly (fig. 1a). Postocular spots subtriangular, bluish to rusty in preserved specimens. Compound eyes bluish green on underside, black above, or completely black in preserved specimens. Labium brown. Prothorax and synthorax dorsally pruinose blue, also most of the abdomen, except posterior half of 7th segment and 8th and 9th segments dorsally. Underside of thorax and abdomen brown. On sides of thorax pruinosity does not quite conceal the black and light pattern (fig. 1b), which is better seen in teneral males. Femora black pruinose dorsally, light brown ventrally, tibiae brown with black stripe on lateral surface, tarsi brown. Wings hyaline, with dark brown to black venation and a rusty brown pterostigma.

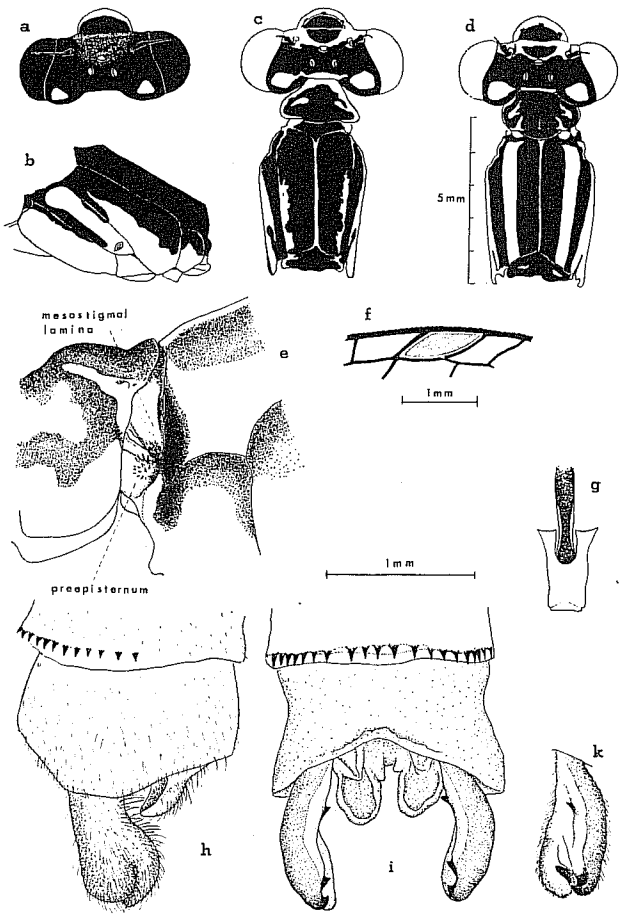
TENERAL MALE. Labrum light brown with a slightly greenish sheen and with three dark spots proximally, one median and two laterally. Anteclypeus, genae and large parts of the frons light brown, but clypeus and a broad semilunar spot on the frons black as well as the vertex and occiput; the black in these parts as well as on the thorax and abdomen with a very distinct green metallic sheen. Postocular spots much larger than in mature males and may almost be connected by a light brown bar across the occiput (fig. 1c). Pronotum black with light brown markings laterally. Synthorax black with narrow light brown median stripe and antehumeral stripes, which vary in breadth depending on degree of maturity but in the most teneral available specimen do not exceed half of the black field between the antehumeral stripe and the medial stripe. Side of thorax brown with incomplete dark stripes along the first and second lateral sutures, neither reaching the metastigma. Abdomen dorsally black, except the posterior half on 7th tergite and 8th and 9th tergites which are brown in preserved specimens, presumably blue or bluish in life. On the 9th tergite there are two vertical black spots laterally.

FEMALE. The markings on the head (fig. 1d) are similar to those of the teneral male, but the light colours are even more developed. In the more teneral specimen the postocular spots are connected across the occiput by the light brown bar on the edge of the occiput, in the more mature female the bar is present but the postocular spots do not quite reach it. Prothoracic dorsum black with yellow spots. Prothoracic stylets yellow. Synthorax dorsally black with narrow yellow median stripe and very broad yellow antehumeral stripes: these are about as broad as the black stripes above and below them (fig.1d). Sides of thorax ochre yellow with black stripes in same position on first and second lateral sutures as in males, but much narrower. Abdomen black with green metallic sheen dorsally except for parts of 9th and 10th segments which are brown in preserved specimens, presumably blue in life. Underside of thorax and abdomen ochre yellow. Legs ochre yellow with black stripes along the lateral aspects. Pterostigmata similar to those in males.

WING VENATION. The origin of the anal vein ($A^1$) is always proximal to the anal cross vein (Ac). The ratio of the length of the anal vein (from origin to the cross vein) to the length of the cross vein varies very considerably from $\frac{1}{4}$ to 1; in both sexes it is greater in the fore wing (mostly $\frac{3}{4}$ in males) than in the hind wing (mostly $\frac{1}{4}$–$\frac{1}{2}$ in males), and the ratio is also greater in females than in males (up to 1 in the fore wings of females). There are 13–15 postnodal cross veins between the costa and subcosta in the fore wing. The outer bordering vein of the pterostigma is much more oblique than the inner bordering vein, with the result that the anterior edge of the pterostigma (fig. 1f) is considerably longer than the posterior margin (in a ratio of about 1·25 but this varies from 1·06 to 1·75). The ratio of the posterior to anterior edge of the discoidal cell (quadrangle) varies from 2·13 to 3·57 with an average of 2·86.

Fig. 1. *Pseudagrion inopinatum* spec. nov. a—head of mature male; b—synthorax of mature male, side view; c—head and thorax of teneral male; d—same of female; e—thoracic structures of female, side view; f—pterostigma; g—penis; h—anal appendages of male, side view; i—same, dorsal view; k—superior anal appendage of male, oblique view to show inner surface. Upper scale refers to a–d, central scale to f, lower scale to e and h–k.





SEXUAL CHARACTERS

*Females.* The prothoracic stylets are well developed. The mesostigmal lamina is mostly yellow and flat. Its lateral angle is black, not swollen, but carries a few fine spines. The pre-episternum possesses at its dorsal angle a conspicuous swelling covered with strong spines. There is no epaulette at the anterodorsal angle of the mesinfra-episternum, but the posterior edge of the mesostigmal lamina is strongly sclerotized and black, and this black sclerotization is continued along the anterior edge of the mesinfra-episternum, forming here a distinct groove or even a faintly indicated facet (fig. 1e). This is the most tangible distinction between females of the new species and those of *P. gigas*: in the latter the black line along the posterior edge of the mesostigmal lamina, and the black line on the anterior edge of the mesinfraepisternum, are not continuous but form together a zigzag.

*Males.* There are no spines on the posterior edge of the 10th abdominal segment. The superior appendages are rather long, slightly curved inwards in dorsal view, bifurcated at the end (fig. 1h, i). The upper lobe is slightly shorter and about 3 times as broad as the lower lobe in lateral view. The lower lobe is narrow and projects slightly beyond the upper lobe. There are three strong recurved hooks on the inner surface of the appendages (fig 1k): a short and powerful hook at the upper tip of the upper lobe, an even more massive hook at the lower edge of the upper lobe, and a smaller and more slender hook on the inner surface of the common shaft of the upper appendage. The inferior anal appendages with a very short and narrow inner lobe, and an elongated spoonshaped outer lobe. The head of the penis is roughly quadrangular with the anterior corners extended in long lobes broadening towards the tip and truncated at the end (fig. 1g).

MEASUREMENTS (mm)

| | *Males* | *Females* |
|---|---|---|
| Length of hind wing . | 23–24 | 24–25 |
| Total length. . . . | 31–34 | 32–33 |

MATERIAL EXAMINED. ♂ Holotype, Badplaas, Eastern Transvaal, 12.xii.1968. ♀ Allotype, Badplaas, 10.xii.1968. Paratypes: 7 ♂ and 1 ♀, same locality. All collected by the author. Holotype and allotype are being deposited in the Transvaal Museum. Paratypes are in the author's collection.

## Remarks

*P. inopinatum* spec. nov. belongs to the "*caffrum*" group (Pinhey, 1964), and appears to be nearest to *P. gigas* Ris. The males can be distinguished by the structure of the superior anal appendages characterized by a narrow incision between the upper and lower lobe and the presence and position of three sclerotized hooks on the inner surface, as well as by the comparatively large size. From males of *P. gigas* they can be at once distinguished in the field by their smaller size and by the absence of the yellow colour on the labrum. The females are easily separated from females of the "*punctum-glaucescens*" group (Pinhey, 1964) by the simple structure of the mesostigmal lamina, and from most of the females in the "*caffrum*" group by the absence of the epaulettes. From other species of the "*caffrum*" group which lack epaulettes *P. inopinatum* differs by the presence of the strongly sclerotized black groove along the posterior edge of the mesostigmal lamina which is extended down along the anterior edge of the mesinfraepisternum, and by the absence of ridges on the mesostigmal lamina which are present in *P. angolense* Sélys, *P. coeruliceps* Longfield and *P. greeni* Pinhey (according to Pinhey, *l.c.*). Also, females of *P. angolense* Sélys and *P. greeni* do not have prothoracic stylets, which are well developed in the present species.



In the group of species dealt with above males of all species except *P. gigas* have widely separated upper and lower lobes of the superior anal appendages, whereas *P. inopinatum* differs in having only a narrow incision between the upper and lower lobe. The shape of the penis in the new species is not distinctive, being of a type found in a number of species of the "*caffrum*" group.

From the above it would appear that the species of the "*caffrum*" section of the genus *Pseudagrion* which lack epaulettes do not constitute a particularly closely related group of species.

## REFERENCES

BALINSKY, B. I. 1957. Classification of the females in the genus *Pseudagrion* (Odonata) based on thoracic structure. *J. ent. Soc. sth. Afr.* **20:** 280–294.

PINHEY, E. 1964. A revision of the African members of the genus *Pseudagrion* Sélys (Odonata). *Revta Ent. Moçamb.* **7:** 5–196.

Manuscript received 14 July 1970.