

**HETERAGRION PALMICHALE SPEC. NOV., A NEW DAMSELFLY  
FROM THE CORDILLERA DE LA COSTA, VENEZUELA  
(ZYGOPTERA: MEGAPODAGRIONIDAE)**

M. HARTUNG

Wehnertstr. 20a, D-12277 Berlin, Germany  
e-mail: AEH.Matthias.Hartung@t-online.de

*Received September 3, 2001 / Revised and Accepted November 6, 2001*

The new sp. is described from the Cordillera de la Costa in Venezuela. Holotype ♂: Venezuela, Edo. Carabobo, Bejuma, Cerro de Paja mountain, alt. ca 1200 m, 13-VI-1992; paratype ♂, same data; the holotype is to be deposited in MIZA, Maracay, Venezuela. No other specimens are known to date. This is one of the largest spp. within *Heteragrion*. The appendices are strongly arched in contrast to other members of the genus. Some similarities of appendices or size exist with *H. tricellulare* Calv., *simulatum* Wllmsn, *peregrinum* Wllmsn, and *icterops* Sel. The new sp. was found in an inhabited region of the Cordillera de la Costa, near Bejuma, Carabobo.

INTRODUCTION

A new species of the South and Central American genus *Heteragrion* is described. *H. palmichale* sp. nov. is a very large member of this genus which contains 38 species to date. DE MARMELS (1990) reported 8 species from Venezuela, PAULSON (2001) mentioned additionally *H. aequatoriale* Selys. The new species was found in an inhabited region, near Bejuma, Edo. Carabobo, at the Cerro de Paja mountain, at ca 1200 m, by Norbert Flauger. This mountain belongs to the Cordillera de la Costa, in the North of Venezuela.

METHODS

The penis preparation was carried out according to CALVERT (1948). A wad of raw cotton wool, soaked in 10% ammonia, was placed on the ventral surface of the second and third abdominal segments for at least two hours. Alternatively the insects were held in a wet chamber over night. After this, the penis was gently lifted under a binocular microscope. To fix the position, a small paper triangle was used and then the insect was laid aside to dry. The microphotographs (binocular microscope with 2× objective, 5× ocular

and a 10x enhancement by the camera) were produced using a video camera and a PC-television from the freshly prepared penis or after drying. The drawings were made on an electronic drawing tablet, using a microphotograph as model.

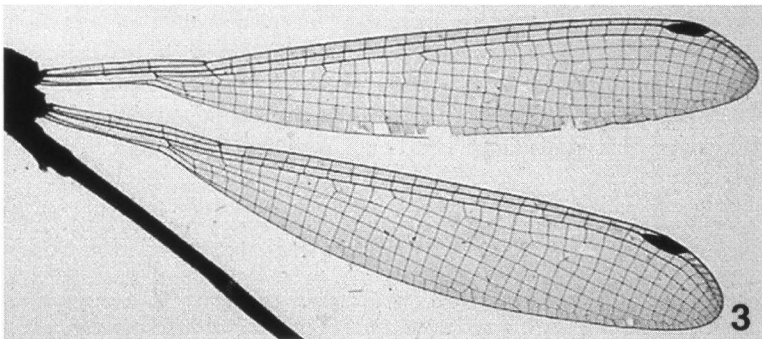
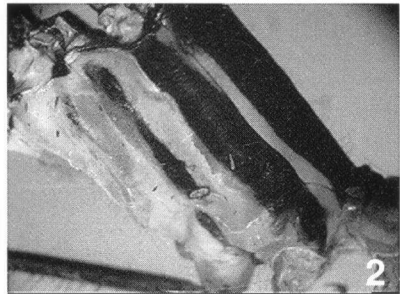
*HETERAGRION PALMICHALE* SP. NOV.

Figures 1-9

**Material.** — **Holotype** ♂ (No. 389/1994, coll. No. of the author): Venezuela, Edo. — Carabobo, Bejuma, Cerro de Paja mountain, 1200 m (10°17'22"N, 68°65'W), 13-VI-1992, Norbert Flauger leg.; **Paratype** ♂ (No. 388/1994): same data as holotype. The holotype is to be deposited in the Universidad Central de Venezuela, Facultad de Agronomía, Instituto de Zoología Agrícola (MIZA No.16716), the paratype is in the collection of the author. No other specimens are known hitherto.

**Etymology.** — The name, *palmichale*, refers to the road in the area from which the specimens were collected. The 'Via Palmichal' is the road where the collector Norbert Flauger lives. Additionally, the company 'Palmichal S.C.' has protected a large part of the Cerro de Paja.

**MALE (holotype).** — A large species within the genus *Heteragrion* with the appendices strongly arched. The body color is characterized by patterns of clear yellow and black.



Figs 1-3. *Heteragrion palmichale* sp. n., holotype ♂: (1) head, dorsal view; — (2) thorax, right view; — right wings.

**H e a d.** — Rear of the head pale; top of head is mostly black; base of the antennae yellow, first segment black with yellow rings at the distal end, the other segments are dark brown; the frontal border of the black area on the top of the head reaches to the base of the frontal crist, a black streak on each side borders the frontal crest (Fig. 1), frons, clypeus, labrum and labium yellow, a black streak at the frontal border of the genae, a black edge from this line along the maxillae up to the dorsal end of the clypeus and a black line from the clypeus to half way to the eyes on each side.

**T h o r a x.** — Prothorax and thorax yellow with black markings (Fig. 2): dorsum of prothorax including the posterior lobe black, the dorsum of the mesothorax black without a yellow middle line, a clear yellow humeral line, mesepimeron black, but with a yellow triangle near the wing base, and also a black line at the ventral border of the mesepisternum and a short greyish streak in the middle of the metepimeron.

**Wings.** — The hind margin of wings separate from the anal vein distad to the level of the arculus, two postquadrangular cells, 23/25 postnodals in forewings and 18/20 in hindwings (Fig. 3); 22, 19-21 in the **paratype**, respectively. IR3 arises in forewings at postnodals 6, R3 at postnodal 11, IR2a at postnodal 14 in forewings and at postnodals 5, 8, 10.5-11.5 in hindwings, respectively; **paratype**: in the forewings at postnodals 5, 9, 12 and in the hindwings at 4-5, 7-8, 10, respectively.

**A b d o m e n.** — Mainly black with yellow and orange markings as follows: a mid dorsal line on S2-3 and the basal half of S4, the sides of S1 and the ventral part of the lateral side of S2, diminishing to the apex, and continuing onto S3 tapering to the middle of segment, yellow basal rings on S3-6. S8-10 are orange with black markings: S8 with a diffuse dorsal basal black triangle, reaching the middle of the segment, S9 with a black spot forming an apical triangle on the dorsum from the basal quarter to the apex and on the lateral sides down to the level of the app. sup., dorsum of S 10; appendices superiores black, inferiores yellow with black apices, superiores strongly arched, inferiores (therefore) reaching  $\frac{3}{4}$  of the length of the superiores, but small and spine-like (Figs 4-5). The border of S8 is weakly foliated and sharply bordered; penis see Figs 6-9.

**M e a s u r e m e n t s** (in mm). — **Holotype**: hindwing 29.5, pterostigma of hindwing 1.10, of forewing 1.03, abdomen (excl. app.) 50.8, appendices superiores 1.05. — **Paratype**: hindwing 29.0, pterostigma of hindwing 0.93, of forewing 0.90, abdomen 52.5, appendices superiores 1.0.

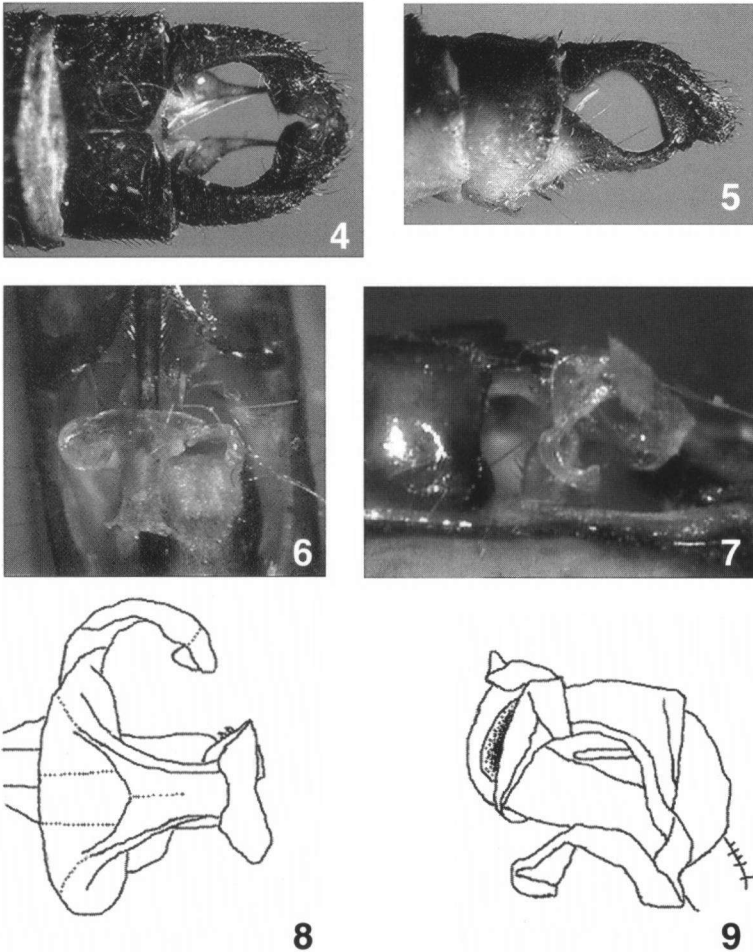
**FEMALE** unknown.

**HABITAT.** — The new species was observed by the collector Norbert Flauger, on a small rocky stream at 1200 m, at a crossing of a small path to the stream. The stream was shaded for most of its length, but at the path there was a sunny area, not more than four square meters. This area was flat, dammed by stones arranged as a 'bridge' over the stream in contrast to other parts of the running stream. One male was sitting at this stream on a leaf over the water, the other was observed sitting near the small path, at a distance of ca 50 m from the small stream, sitting on a leaf in a sunny spot surrounded by the shady rain forest. Both specimens were observed sitting with closed wings. The accompanying Megapodagrionidae were *Philogenia cassandra* Hagen in Selys, *Heteragrion chrysops* Hagen in Selys and *Allopodagrion venale* (Selys), all found at a lower height at ca 800-1000 m. At the Cerro de Paja the rain forest starts at ca 1000 m

up to 1600 m. These natural parts of the Venezuelan forest go down to ca 700 m along the rocky streams. All rain forest tops of the mountains of the Cordillera de la Costa are strongly endangered by burning during the dry season.

#### DISCUSSION

This new species is a typical member of the genus *Heteragrion* regarding the wing venation (RACENIS, 1959; FÖRSTER, 1999). The giant species belongs to group 3 of WILLIAMSON (1919), having two postquadrangular cells and small and spine-



Figs 4-9. *Heteragrion palmichale* sp. n., Figs 4-5, 8-9: holotype ♂; – Figs 6-7: paratype ♂: (4) appendices from above; – (5) same, left lateral view; – (6, 8) penis, ventral view; – (7, 9) same, lateral view.

-like inferior appendages, but the hind margin of wings separate from the anal vein distad to the level of the arculus. The size of this species is similar only to *H. tricellulare* Calvert, 1901 (abdomen 47-51.5 mm) known from Mexico and Guatemala, but the appendages of *tricellulare* are different and this species usually has three postquadrangular cells (WILLIAMSON, 1919). The appendages are similar to *H. simulatum* Williamson, 1919, *H. peregrinum* Williamson, 1919, and *H. icterops* Selys, 1862, in lateral view, but these three species are much smaller (abdomen < 40 mm; WILLIAMSON, 1919; DE MARMELS, 1989), and they have straighter appendices superiores and the appendices inferiores only reach to half of the length of the superiores. According to WILLIAMSON (1919), RACENIS (1959) and DE MARMELS (1987), there is no other *Heteragrion* species known with strongly arched superiors. The pattern of the head is similar to *H. tricellulare* (WILLIAMSON, 1919: fig. 34), *icterops* Selys, *H. silvarum* Sjöstedt, 1918 (DE MARMELS, 1987: figs 10, 22), and *H. breweri* (DE MARMELS, 1989: fig. 26). The prothoracic hind lobe is similar to *H. tricellulare*, *H. erythrogastrum*, Selys, 1886, and *H. flavidorsum* Calvert, 1909 (WILLIAMSON, 1919: figs 151, 146, 155). The penis (Figs 6-9) resembles that of *H. pemon* (DE MARMELS, 1987: fig. 27), but with enlarged sides at the apex. I have shown this species to Professor Dr Jürg De Marmels in Maracay and he has never seen such a specimen.

#### ACKNOWLEDGEMENTS

Many thanks to NORBERT FLAUGER for collecting the specimens, and to JÜRIG DE MARMELS who encouraged me to describe this species.

#### REFERENCES

- CALVERT, P.P., 1948. Odonata (dragonflies) of Kartabo, Bartica district, British Guiana. *Zoologica* 33(2): 47-87, pls 1-2 excl.
- DE MARMELS, J., 1987. On the type specimens of some neotropical Megapodagrionidae, with a description of *Heteragrion pemon* spec. nov. and *Oxyagrion caerulans* spec. nov. from Venezuela (Zygoptera). *Odonatologica* 16: 225-238.
- DE MARMELS, J., 1989. Odonata or dragonflies from Cerro De La Neblina and the adjacent lowland between the Rio Baria, the Casiquiare and the Rio Nagro, 1: Adults. *Boln Acad. Cien. fisic. matem. nat.* 25: 11-78, 89-91.
- DE MARMELS, J., 1990. An updated checklist of the Odonata of Venezuela. *Odonatologica* 19: 333-345.
- FORSTER, S., 1999. The dragonflies of Central America exclusive of Mexico and the West Indies. *Odonatol. Monogr.* 2: 1-141.
- PAULSON, D.R., 2001. *List of the Odonata of South America, by country* [updated January 2001]. Univ. Puget Sound: <http://www.ups.edu/biology/museum.html>.
- RACENIS, J., 1959. Notas taxonomicas sobre la familia Megapodagrionidae (Odonata: Zygoptera) con la sinopsis de las especies Venezolanas. *Acta biol. venez.* 2: 335-367.
- WILLIAMSON, E.B., 1919. Results of the University of Michigan-Williamson expedition to Colombia, 1916-1917. 4. Notes on the species of the genus *Heteragrion* Selys with descriptions of new species. *Occ. Pap. Mus. Zool. Univ. Mich.* 68: 1-89, 12 pls excl.

Please compare the colour versions of the pictures: <http://odonata.hartung.1xu.de>