

**PALTOHEMIS NICOLAE, SPEC. NOV.,  
A NEW DRAGONFLY FROM EL SALVADOR  
(ODONATA : LIBELLULIDAE)**

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ABSTRACT

*Paltothemis nicolae* spec. nov. is described from El Salvador, illustrated and compared with *P. cyanosoma* Garrison, from México.

RESUMEN

*Paltothemis nicolae* n. sp. es descrita de El Salvador, ilustrada y comparada con *P. cyanosoma* Garrison, de México.

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*Paltothemis* is represented by only two species, *P. lineatipes* Karsh, a widespread species occurring from the Southwestern United States south through Central and northern South America and *P. cyanosoma* Garrison, a blue and grey species thus far known from Central West Mexico. While collecting dragonflies in the mountains of El Salvador, I collected a third species which did not fit the above two species.

**PALTOHEMIS NICOLAE SPEC. NOV.**

(Figures 1, 4, 7, 8, 9, 12, 14, 16)

**Holotype male.** Head: Labium pale with large median black spot extending to ventrolateral margins; mandibles red brown becoming black toward base with a basal orange spot, tips black; labrum black; anteclypeus and postclypeus olive brown, becoming yellow grey on sides of postclypeus and frontoclypeal sulcus; frons rugose, iridescent blue becoming red brown laterally, with lateroventral sides yellow grey, a transverse yellow line immediately below its crest; vertex acutely bifid, iridescent blue becoming red brown above and on sides; occiput red brown with a longitudinal shallow groove, fringed with a crest of white hairs; antenna black, post gena pale red brown. Face covered with small black hairs, rear of head and post gena with a fringe of white long hairs.

Thorax: prothorax with anterior lobe pale brown, rounded, a small dark lateroventral spot on each side, anterior margin pale; middle lobe brown with a lateral elongated dark brown spot on each side, its anterior margin notched medially and covered with small white hairs dorsally and a fringe of small white hairs along anterior and posterior margins; posterior lobe brown, rounded, posteriorly decumbent, sparsely covered with small white hairs. Pterothorax mostly dull orange with dark brown markings as follow (Fig. 7): middorsal thoracic carina and a posteriorly directed line connecting with wide humeral stripe, lower two thirds of obsolete lateral suture, around metathoracic spiracle and with a posteriorly directed arm meeting third lateral suture, posterior margin of metepimeron. Entire thorax covered with a dusting of pale pruinosity. Coxa pale brown, olive brown on dorsal 0.30 of femora, remainder of legs dark brown to black; armature black.

Wings.- (Fig.1) Venation black, pterostigma dark red-brown, 4 mm long; distal half of wings infumated; anal margin of hind wing posterior of membranule with white pruinosity extending distally three to four cell rows parallel to basal A2; hind wings with a dark orange brown spot covering cubital spaces, triangle, supratriangle, arculus, upper part of arculus (M), two basal cells between M4-M3, six radial cells, proximal sides of five subcostal cells and proximal sides of two anal cells. Arculus fenestrated. Membranule grey brown.

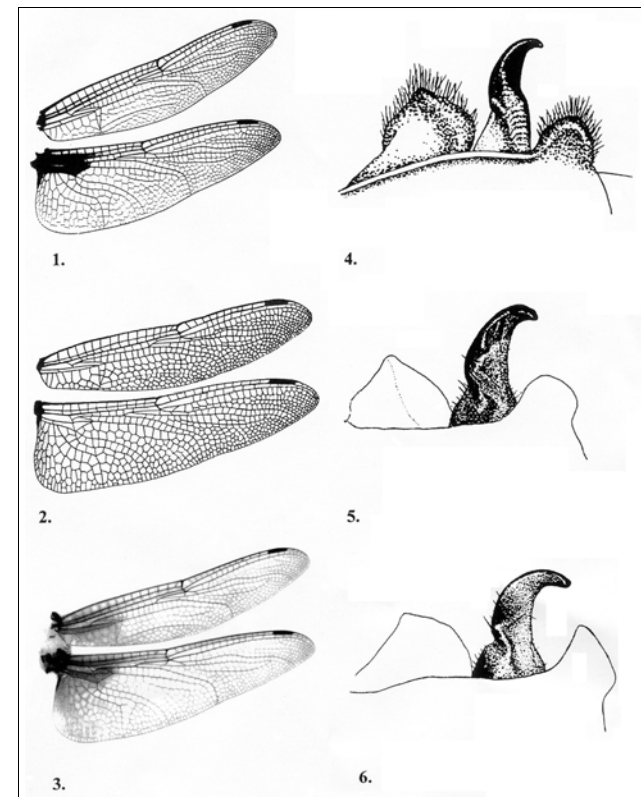
Anx: FW 12/15, HW 10/10; pnx: FW 13/13; HW 13/13.

Abdomen.- (Fig. 7) Slightly swollen at base, narrowing at middle before expanding slightly at tip, dull pale yellow, with discernible dark brown markings as follow: middorsal, midlateral and ventrolateral stripes; middorsal stripe gradually expanding laterally and connecting with midlateral on posterior of segments 3-9; midlateral and ventrolateral stripes absent from segments 1-2. Segment 10 with a dorsal rounded spot. Carina black.

Cerci.- (Fig. 12) Viewed from above convergent posteriorly, black, as long as segments 9 and 10 with a ventral prominence surmounted with 5 denticles; epiproct (Fig.14) black, pear shaped, concave ventrally, with two inwardly pointed hooks at apex.

Accessory genitalia (Fig. 4). Similar to *P. cyanosoma* (fig. 5). Hamules black, base olive grey; genital lobe rounded; penis (Fig. 9) similar to *P. cyanosoma* (Fig. 10) but with apical lobe more slender and acuminate; lower process visible.

Abdomen: 39 mm, HW 44 mm.

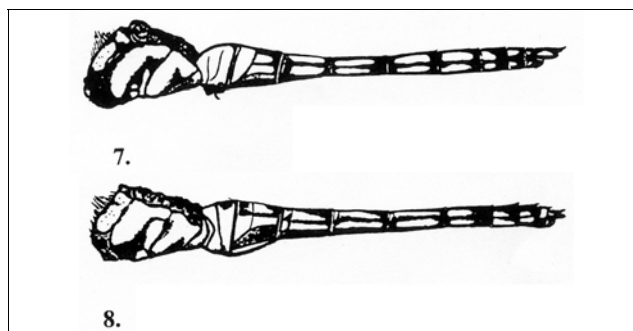


Figs. 1-6. Wings and hamules of male *Paltothemis* spp.:(1-4); *Paltothemis nicolae* spec. nov. holotype (2-5) *P. cyanosoma*, (from Garrison 1982); (3-6): (3) *P. lineatipes*, (Depto. Ahuachapan, El Salvador), (6) *P. lineatipes* (from Garrison,1982).

**Allotype female.**- (Fig.8) Similar to male with the following differences: labium with a less prominent dark basal spot; labrum with posterior margin pale; entire clypeus pale grey, frons mostly pale with iridescent blue restricted to base of antefrons; vesicle with its anterior half red brown, posterior half pale grey. Pterothorax paler and without pruinosity, wings less infumated. Legs with paler coxa and femora. Cerci black, about 2mm long, conical, pointed at tips.

Vulvar lamina (Fig. 16) deeply notched, V shaped.

Anx: FW 16/16, HW 10/11; pnx: FW 13/12, HW 12/13. Pterostigma 4 mm. Abdomen 35 mm, hind wing 45 mm.



Figs. 7-8. *Paltothermis nicolae* spec. nov. lateral views of thorax and abdomen: (7) holotype, male (8) allotype, female.

**Type data.**- Holotype male: EL SALVADOR: Quebrada Piedra de Afilar, 5.5 km S of Tacuba, Bosque El Imposible, Municipio de San Francisco Menendez, Departamento de Ahuachapan, 19 April, 1986 (A. Campos, V. Hellebuyck). Allotype female: Rio Mashtapula, Bosque El Imposible, Municipio de San Francisco Menendez, Depto. Ahuachapan. 10 May, 1986 (A. Campos).

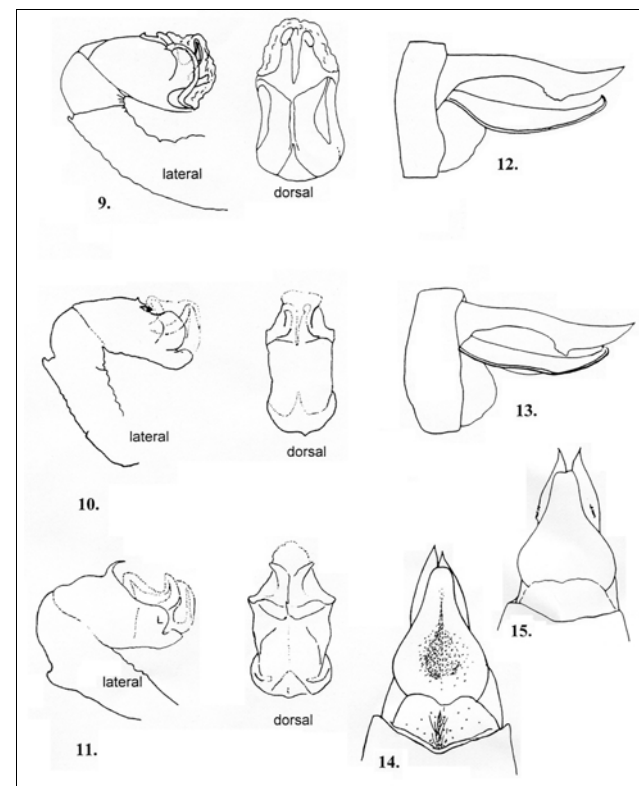
Paratypes (42 males, 2 females).- EL SALVADOR: Departamento de Ahuachapan, Municipio de San Francisco Menendez, Bosque El Imposible, Rio Mashtapula, 10 September, 1986, 1 female, 24-28 February, 1987, 11 males, 21 March, 1987, 1 male, 14 May, 1987, 3 males, September, 1987, 1 male, 6 males, November, 1987, 1 male, 10 December, 1986, 1 male; Quebrada Piedra de Afilar, 19 April, 1986, 2 male, 19 March, 1987, 2 male, 4-13 July, 1987, 2 male, 10 December, 1987, 1 male; Cumbre de Tacuba, 21 March, 1987, 4 males; Rio El Corozo, 25 April, 1988, 7 males, 1 female. (A. Campos, V. Hellebuyck).

**Deposition of the type specimens.**- Holotype male and Allotype female are deposited in the Florida State Collection of Arthropods, Gainesville, Florida; 1 paratype male in R. Garrison collection; 1 paratype male in the collection of Bishop's University, Lennoxville, Quebec, Canada; 1 paratype male in the collection of Museo de Historia Natural de El Salvador. Additional paratype material in the author collection.

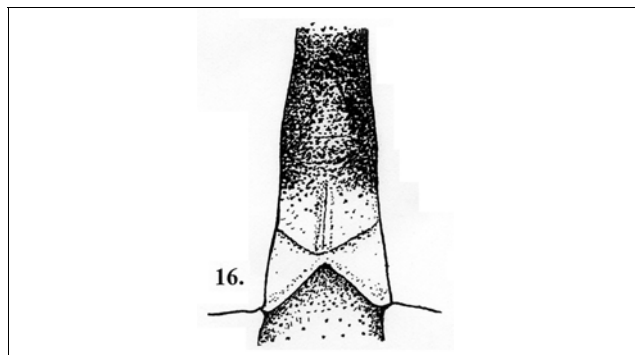
**Diagnosis.** Males of *Paltothermis lineatipes* (Figs.3,6,11) are primarily orange and differ from the grey or brown coloration of *P. cyanosoma* and *P. nicolae*. Males of the latter two species become pruinose whereas *P. lineatipes* lacks any pruinosity. Finally, the basal part of the wings in *P. lineatipes* becomes suffused with various degrees of orange (Fig.3); the wings of the other two species lack basal orange.(Fig.1,2).

Differences between males of *Paltothermis nicolae* and *P. cyanosoma* (the female of *P. cyanosoma* is undescribed) are enumerated in the following table:

<i>P. nicolae</i>	<i>P. cyanosoma</i>
- Hind wing with a large basal orange-brown spot.	- Hind wing without a basal spot (Fig. 2).
- Fore and hind wings of old males strongly infumated at their distal half.	- Wings less infumated.
- Frons iridescent blue.	- Frons dark metallic purple.
- Coloration of thorax and abdomen yellow orange.	- Coloration obscure, covered by pale blue pruinosity in mature males.
- Hamules olive grey at base (Fig. 4).	- Hamules mostly black (Fig.5).
- Cercus with a less prominent ventral ridge, with 3-5 denticles (Fig. 12).	- Cercus with a prominent ventral ridge, with 4 denticles (Fig. 13).
- Paraproct large and cocave ventrally (Fig.12,14).	- Paraproct smaller and convex ventrally (Figs.13,15).
- Penis with ventral lobe pointed, ventral process well developed (Fig. 9).	- Penis with ventral lobe rounded, prominent, ventral process not visible (Fig. 10).



**Remarks.** Little variations were observed among the 42 male and 2 female paratypes. Older mature males have more strongly infumated wings. Females have less infumation on wings compared to males.



Figs. 9-16. Structures of *Paltothermis* spp., dorsal, lateral, and ventral views. 9-15: male: penis, caudal appendages and epiproct. Fig. 16: allotype female: vulvar lamina ventral view. (9-12) *P. nicolae*, spec. nov., holotype; (10) *P. cyanosoma* (from Garrison 1982), (13) *P. cyanosoma* (paratype); (11) *P. lineatipes* (from Garrison 1982); (14) *P. nicolae*, spec. nov., holotype; (15) *P. cyanosoma* (paratype); (16) *P. nicolae* spec. nov.

The coloration of a collected male ultimate instar larva which successfully emerged early in the morning at about 09:30 am, on December 10, 1987, is pale dull yellow with dark red brown marks on the thorax and abdomen, the lower part of the eyes is grey with a brown red spot on top. Adults of *P. nicolae* have been collected in February, March, April, May, September, November, and December, with peak flights occurring during the dry months of February-April. A. Campos (pers. comm.) has observed *P. nicolae* year round. Other Odonata seen with *P. nicolae* were: *Hetaerina occisa* Hagen, *Hetaerina* spp., *Telebasis* sp., *Paltothermis lineatipes* Karsch, *Macrothemis pseudimitans* Calvert, *Dythemis maya* Calvert, and *Brechmorhoga* sp.

Wing variation among paratypes, dimensions (in mm): (measurements in parentheses are for holotype) Males: Anx FW 13-17/ 13-16 (13-15), HW 9-11/9-12 (10-10); pnx FW 10-15/ 10-15 (11-12), HW 10-15/11-15 (11-11).

Abdomen: 34 -39, ( 39 ), hind wing 42-45 (44 ), pterostigma 4-4.5, (4-4).

Females: dimensions (in mm.), (measurements in parentheses are for allotype) Anx FW 15-15/14-15 (16-16), HW 9-10/9-11 (16-11); pnx FW 9-13/10-13 (13-12), HW 11-15/11-13 (12-13). Abdomen: 34-36 (34 ), hind wing: 44-46 mm (45 ), pterostigma 4 -4 (4 -4 ).

Distribution: Only known from the type locality.

**Biology.** *Paltothermis nicolae* is a forest species that prefers shaded clear cold water creeks with rocky bottoms intermixed with fine sand and pebbles. I saw adults flying in open glades along with *P. lineatipes*. Garrison (1978) described *P. cyanosoma* as perching on large, exposed rocks in a stream. Dunkle (1978) recorded *P. lineatipes* as occurring most commonly at water in the morning, less frequently in the afternoon, an observation consistent for *Paltothermis nicolae*. Finally, Alcock (1990), in a study on territoriality and oviposition resources, reports that male *P. lineatipes* have been observed to defend territories "that contain one or more patches of barely submerged fine gravel over which water is flowing moderately rapidly" (p.252). I often saw four to five males on territory along the same small clear areas patrolling for females. When disturbed, they flew away rapidly in an erratic flight. On December 10, 1987, I collected one male ultimate instar larva which successfully emerged early in the morning, at about 9:30 a.m.

**Ethymology.** The new species is named in honour of my wife, Nicole.

### **Acknowledgements**

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### **References**

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