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The Status of *Lestes apollinaris* Navás and *L. henshawi* Calvert
Thomas W. Donnelly p. 69-74

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¹The Status of *Lestes apollinaris* Navás and *L. henschawi* Calvert

Thomas W. Donnelly
2091 Partridge Lane
Binghamton NY 13903 USA
tdonnel@binghamton.edu

ABSTRACT

Lestes apollinaris, which has been considered a junior synonym of *L. henschawi*, is distinct from that species and is here considered valid. It is distinguished from *henschawi* in the shape of the epiproct and paraprocts, and by the hind lobe of the prothorax, which is of unusual shape for the family. *L. apollinaris* occurs from Ecuador to Venezuela at high elevations and *henschawi* is evidently confined to Costa Rica. *L. tenuatus*, a widespread lowland species of Central and South America, is closely related.

INTRODUCTION

The odonate species described by the Spanish Jesuit priest R. P. Longinos Navás (1858 - 1938) have not enjoyed wide acceptance. In the New World he described 65 species-level taxa, of which 22 have been accepted as valid. Part of the problem has been that he illustrated very few species, and these only rather clumsily. Another problem has been his usage of Latin for the language of description. Perhaps the most importance obstacle has been his frequent assignment of new species to quite unrelated genera.

The species *Lestes apollinaris* was described in 1934 based on a single specimen from Pandí, an Andean village about 150 km southwest of Bogotá, naming it in honor of its collector H. Apolinar María, located at a Catholic school in that village. Much of Navás's collection at Zaragoza was destroyed or dispersed during the Spanish Civil War, and the location of the type specimen is unknown.

Calvert (1907) named *Lestes henschawi* from a suburb of San Juan, Costa Rica. In this description Calvert listed a second specimen (catalogued in the M.C.Z. as type no. 12139) collected in Santa Fe de Bogotá [Colombia] by Lindig in 1863. Hagen had studied this specimen

prior to Calvert's examination and labeled it "*L. inversa* Hagen", which name was apparently never used, even in a manuscript.

Kennedy (1942) described a new *Lestes* from South America, *L. urubamba*, taking the opportunity to redescribe *L. henschawi* from Ecuador, synonymizing *L. apollinaris* with it. Subsequent to Kennedy's paper, Rácenis (1958) and DeMarmels (1988) reported *L. henschawi* in the Venezuelan Andes.

My interest in this species came during a trip to the Venezuelan Andes in 1989 during which I found the species flying in a small pond (With *Aeshna marchali*, *Erythrodiplax abjecta*, *Hetaerina cruentata*, *Enallagma civile*, and *Cyanallagma laterale*) at about 2100 meters elevation, on the road between Mérida and La Azulita. The species initially resembled a dark-striped *L. tenuatus*.

In 1992 I received a few Andean Odonata from Rodrigo Torres N. in Bogotá. He thought that he had collected *L. apollinaris*, and I undertook a study of this taxon at that time. I first confirmed that Torres' specimen was conspecific with my own from the Mérida Andes. I then compared the specimen with *Lestes henschawi* specimens collected by Dennis Paulson and Oliver Flint, Jr., from Costa Rica, not very far from the type locality of *L. henschawi*. The identity of these *henschawi* are in little doubt, because Calvert carefully figured the male terminalia and prepared a thorough description of the species. There was no doubt that the Costa Rican specimens were different from the Andean specimens.

In a brief trip to Venezuela in January of 1995 I had the opportunity of studying the Rácenis (1958) and DeMarmels (1988) specimens in the collection at Maracay attributed to *henschawi*, including additional specimens collected by DeMarmels a few kilometers from my own

¹ Bulletin of American Odonatology 4(3): 69-74

locality near Mérida. More recently I borrowed one of the Clarke-MacIntyre "*henshawii*" from Ecuador and studied the second Calvert male of "*henshawii*" from Bogotá. All of these Andean specimens are conspecific.

I have compared the original description of *apollinaris* with the Andean specimens and have concluded that it refers to this species. Navás's figure is crude but shows the diagnostic character of the male terminalia adequately. In the description the two main points of agreement are the epiproct: ". . . *desuper visi in tertio basali dente interno acuto retrorsum, mox margine interno recto. . .*" (. . . *seen from above, in the basal third with a sharp, internal, posteriorly directed tooth, following this the internal edge straight . . .*) and the paraproct: ". . . *breves, tertiam partem superiorum et dentem eorum internum haud excedentes, introrsum arcuati et decussati, apice obtusi.*" (. . . short, one third the length of the superiors, with its curved, internally directed tooth scarcely protruding; crossed, with apices obtuse.) The only inconsistency is the adjective "*decussatus*", which evidently refers to the post-mortem condition of the specimen's paraprocts, which have apparently been squeezed so that the rami are crossed.

Lestes apollinaris Navás (Figs. 1,4,5,8,11,14,16)

MALE: Dark colors black with red reflections anteriorly grading to greenish reflections posteriorly. The pale color is pale blue dorsally, grading to yellow-cream

HEAD: Rear of head dark, pale color restricted to portion of head close to articulation with thorax; labium white; vertex, frons, and postclypeus dark; anteclypeus and labrum blue.

PROTHORAX: fore lobe brown, lateral margins bluish; middle lobe with medial pale stripe which is narrowed anteriorly and is flanked by dark bands continuing the dark dorsal stripe of mesepisternum, laterally blue; proepimeron and proepisternum dark dorsally, obscure brown ventrally, continuing dark stripes of mesepimeron; hind lobe low laterally, produced centrally into rounded, recumbent lobe which has a central rounded emargination (Fig. 11).

PTEROTHORAX (Fig. 1): Mesepisternum dark, tapered antehumeral pale stripe occupying 40% of segment width anteriorly and 25% posteriorly, sharply narrowed in apical 4/5; dark stripe on

mesepimeron well defined and occupying central 3/5 of sclerite, anterior end ventrally excavated and bordered there by diffuse brown, this stripe continuing to prothorax. Remainder of sides of thorax pale, grading from pale blue dorsally to creamy yellow ventrally; poststernum pale, with a pair of elongate, oval lateral dark spots in anterior half. The thorax viewed ventrally is pale with two staggered rows of rounded dark spots: two on the metepimeron (anterior and posterior, immediately below the lateral carina) and one, more elongate, on the poststernum.

LEGS: Coxae and trochanters pale, femora and tibiae pale with vivid dark longitudinal external stripes, tarsi and claws dark.

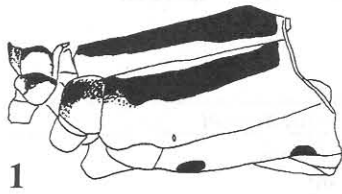
WINGS: Venation black, pterostigma dark red, quadrate, width about 1/3 the length. 14-15 postnodal crossveins in fore wing, 12-13 in hind wing.

ABDOMEN: Segment 1 pale, dorsally dark in anterior half, this color extended rearward on lateral margins to produce a pattern of paired "horns", enclosing blue posterior dorsal color, lateral margins of segment brown, the dark color extended dorsally on apical margin to form rounded "L" marks; 2 dark dorsally, broadly pale blue ventrally; dorsal thin pale line on anterior 3/4; 3 to 8 dark dorsally, greenish reflections grading to red posteriorly; pale blue apical rings on 3 to 7, dorsally interrupted, and diminishing in size posteriorly; pale laterally, narrowed in posterior 1/5 (segment 3) to 1/3 (8); 9 and 10 dark with pale lateral margins; 9 heavily pruinose.

APPENDAGES (Figs 4, 5, 8): Cerci dark, elongate, parallel sided, bent apically with prominent dorsal carina; medial margin with an acute tooth in basal third, the margin beyond this tooth nearly straight and very lightly denticulate. Paraprocts brown, a third of the length of the cerci, with rounded, blunt apices, medially deflected apically, the ends enclosing a small but well defined rounded medial sinus.

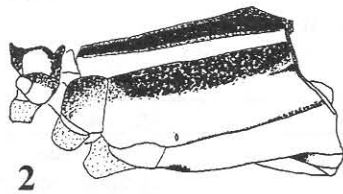
FEMALE: Dark colors more reddish than male, with the pale colors yellow in various shades but not bluish. The color pattern similar to that of male, differing mainly in the postclypeus, which

apollinaris



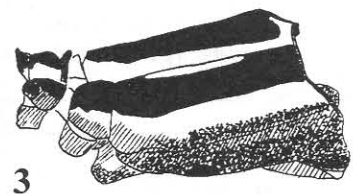
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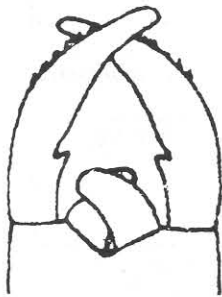


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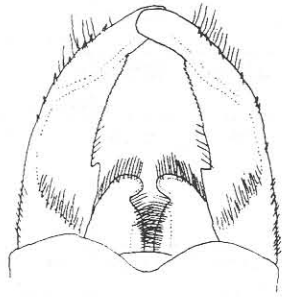
henshawi



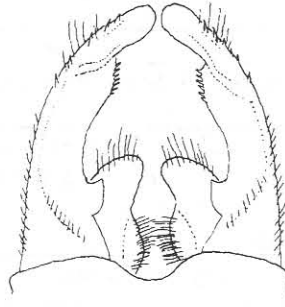
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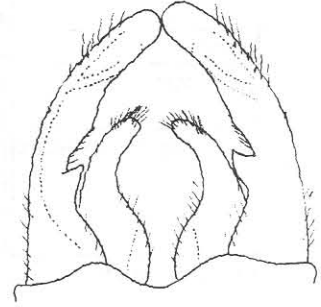
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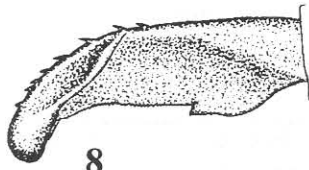
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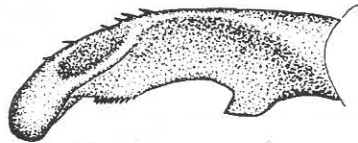
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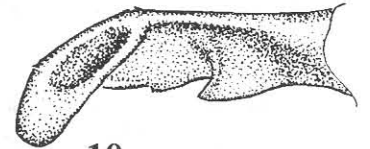
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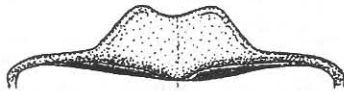
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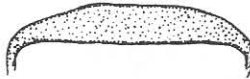
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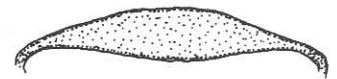
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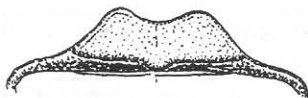
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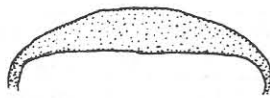
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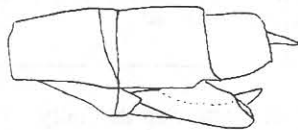
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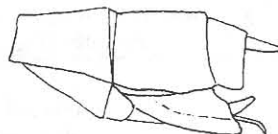
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17

Figs. 1 - 17: morphological details. Figs. 1, 4, 5, 8, 11, 14, 16: *Lestes apollinaris*. Figs. 2, 6, 9, 12, 15, 17: *L. tenuatus*. Figs. 3, 7, 10, 13: *L. henshawi*. Figs. 1 - 3: color pattern of pterothorax; Figs. 4 - 7: male terminalia, dorsal view, Fig. 4 is Navás's original. Figs. 8 - 10: left cercus, dorsal view. Figs. 11 - 13: hind lobe of male prothorax, dorsal view. Figs. 14 - 15: same, female. Figs. 16 - 17: female abdomen tip, lateral view

has pale lateral spots. The ovipositor extends to about the middle of the 10th segment.

The species is closest to *tenuatus*, rather than *henshawi* as Navás stated. However, there are

similarities among the three species, which are compared in the following table (the female of *henshawi* was not available for comparison).

	<i>apollinaris</i>	<i>tenuatus</i>	<i>henshawi</i>
dorsum of head	dark	pale postocular spots vivid in young males; obscure in adults	dark
rear of head	dark, pale around thoracic articulation	pale	dark
labrum	blue	blue	blue-green
pronotum	with vivid dark sub-lateral bands	dark color much more diffuse	with vivid dark sub-lateral bands
hind lobe of prothorax	produced centrally into prominent rounded recumbent lobe (Figs. 11, male; 14, female)	low, erect (Figs. 12, male; 15, female)	low, erect (Fig. 13, male)
mesepisternum	dark stripe nearly black, uniform (Fig. 1)	dark stripe centrally bright green flanked by dark red (Fig. 2)	dark stripe nearly black, uniform, greenish reflections (Fig. 3)
antehumeral stripe	continuing to mesepimeron	confined to mesepisternum	continuing to mesepimeron
mesepimeron	well defined dark stripe with sharp margin	Variable: nearly absent to generally present but poorly defined, in some cases well defined but with diffuse margin	well defined dark stripe with sharp margin
metepimeron	pale	pale	dark, pale centrally; heavily pruinose, with pruinosity extending anteriorly to coxae and trochanters
poststernum	with prominent lateral elongate oval dark spots	pale	with prominent lateral elongate oval dark spots
1 st segment of abdomen	pale, dark dorsally in basal half	pale, dark dorsally in apical half	dark, heavily pruinosed
Cercus, medial margin	straight, lightly denticulate (Fig. 8)	convex apically, heavily denticulate (Fig. 9)	convex just apical of internal tooth (Fig. 10)
Paraproct	short, rounded blunt apices bent medially to enclose a well-defined, rounded sinus (Figs. 4, 5)	short, rounded blunt apices, bent less medially and not enclosing a well-defined sinus (Fig. 6)	longer, tips narrowed and extending apically, slightly bent medially (Fig. 7)
female ovipositor valve	narrowing apically less abruptly (Fig. 16)	narrowing apically more abruptly (Fig. 17)	not inspected

DIAGNOSIS

L. apollinaris is similar to the more pale (but variable) *tenuatus*, and to *henshawi*. It can be recognized immediately by the following characters: (1) Internal margin of epiproct posterior to the apical tooth is straight, (2) the paraprocts in dorsal view are short with rounded tips bent medially, (3) the hind lobe of the prothorax of both sexes is narrow laterally but

produced into a broad recumbent flap medially, with a central rounded emargination. This last character is noteworthy in a family few of whose species have any development of this lobe.

The Neotropical *Lestes* are in serious need of revision. Species which bear some resemblance to the three listed above are *L. secula* May, *L. spatula* Fraser, and *L. jurzitzai* Muzón, all of which may be distinguished by the male terminalia.

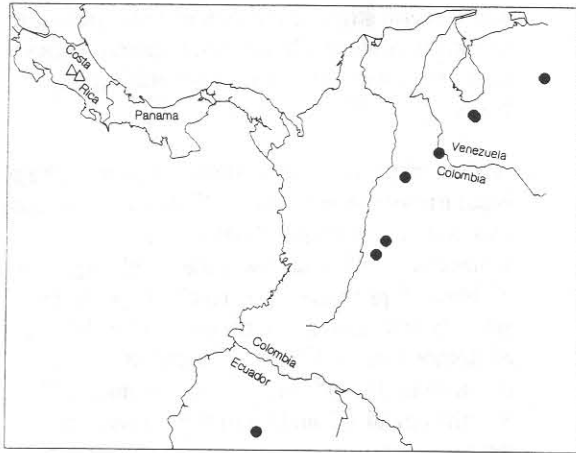


Fig. 18 Map showing locality of *Lestes apollinaris* (black circles) and *L. henschawi* (open triangles). The type locality (Pandí) of *L. apollinaris* is the second dot from the bottom.

LOCALITIES OF SPECIMENS STUDIED

- Ecuador: Oriente; Mt. Abitagua, Playa de Río Pastaza, 1000 m; Mar. 1 1941; Coll. W. Clarke-MacIntyre 1 ♂
- Colombia: Sta. Fe de Bogotá; Coll. Lindig, 1863 [type 12139 of the M.C.Z., with a hand written label "*L. inversa* Hag."]; 1 ♂
- Colombia: Boyaca: Santuario de Fauna y Flora de Igaque; nr Arcabuco (6° 33-44'N 73° 30' W; 2400 - 3600 m; 31 Aug. 1991, 1 ♂; 14 Oct 1991, 1 ♂ 1 ♀; Coll. M. Roa
- Venezuela: Táchira; Betania, nr. El Tama, 22 Mar. 1983; Coll. R. Mattei 1 ♂
- Venezuela: Mérida; 17 km E of La Azulita, 2100 m; 26 July 1989; Coll. Donnelly(89x027); 2 ♂
- Venezuela: Mérida; Carbonera, 31 Dec. 1960, Coll. Rácenis [This locality may be the same as the preceding.]
- Venezuela: Mérida; Hac. Las Mesas, 2 km antes de Las Cruces via Jají; 15 Feb. 1983; Coll. DeMarmels
- Venezuela: Lara; Sarare, 1700 m; 20 Feb 1955, Coll. Fernandes Yepes

ACKNOWLEDGMENTS

I am grateful to Prof. Rodrigo Torres N. for the specimens from Boyaca, and for calling my attention to the possibility that these specimens were *apollinaris*. Mark O'Brien loaned me a male from the Ecuador material studied by

Kennedy, and Phil Perkins loaned the male of "*henschawi*" from Bogotá. Jurg DeMarmels gave me access to the collection of the Universidad Central in Maracay, Venezuela. I am also grateful to Mike May for discussions concerning this and other tropical *Lestes* and for a review of this paper.

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APPENDIX

Original description by Navás:

Lestes apollinaris sp. Nov.

Similis *henschawi* Calv. Minor obscuriorque.

Caput inferne fulvum, superne nigrum; labro olivaceo; oculis fuscis; ocellis ferruginea; antennis nigris.

Pronotum nigrum, macula grandi olivacea.

Thorax fascia lata longitudinali dorsali nigra, carina paulo pallidiore; fascia antehumerali viridi-olivacea, striola superiore nigra; pleuris viridi-olivaceis, fascia humerali lata, alia angusta ad secundam suturam, nigris.

Abdomen superne primo segmento viridi-caeruleo, macula grandi basali transversa nigra;

secundo nigro-violaceo, linea tenui longitudinali pallida; 3 - 5 nigro-violaceis, annulo basali angusto pallido; 7 - 8 nigris, 9 caeruleo pruinoso, 10 nigro, postice fortiter et angulate emarginato (fig. 112); inferne 1 et 2 olivaceis, 3 - 4 striola longitudinali pallida; 8 in 2/3 apicalibus et 9 toto pruinosis, 10 ferruginea.

Cerci superiores (fig. 112) fusco-nigri, longi ut 9 segmento, angusti, introrsum arcuati; desuper visi in tertio basali dente interno acuto retrorsum, mox margine interno recto, margine externo 6 dentibus acutis sive spinulis; apice obtusis; a latere visi in tertio basali subrecti, leviter convexi, in tertio apicali concavi.

Cerci inferiores concolores, breves, tertiam partem superiorum et dentem eorum internum haud excedentes, introrsum arcuati et decussati, apice obtusi.

Pedes nigri nigroque spinosi; tibiis superne olivaceis.

Alae membrana hyalina, reticulatione et stigmate fusco-nigris; stigmate quadruplo longiore latitudine, externe leviter angustato, margine costali 1.7 mm, posteriore paulo longiore; arculo ad 2 venulum antenodalem vel paulo ceterius (in ala posteriore) sito; fere 15 venulis postnodalibus in ala anteriore, 12 in posteriore; quadrangilo sensim angustato, longo, margine anteriore brevior medietate posterioris.

Long. Corp. Male 39 mm
Long. Abdom. 31.5 mm
Long al. Post. 23.5 mm

Patria. Colombia; Pandí, Agosto de 1911, Dedicado a su inventor el H. Apolinar María, de las Escuelas Cristianas.

Translation:

Lestes apollinnaris n.sp.

Similar to *henshawi* Calvert; smaller and darker

Head below yellow-brown, above black; labrum olivaceous; eyes dark; ocellis ferruginous; antenna black.

Pronotum black, with large olivaceous spot. Thorax with wide, black, longitudinal dorsal stripes, carina slightly more pale;

antehumeral stripe green-olivaceous, upper line black; sides green-olivaceous, humeral stripes wide, narrowing towards the second suture, black.

Abdomen above: first segment green-blue, large basal transverse spot black; 2nd black-violaceous, with a thin pale longitudinal line; 3rd - 5th black-violaceous, with a narrow, pale basal ring; 7th - 8th black, 9 pruinose blue, 10 black, posteriorly strongly and angularly emarginate (fig. 112)

Abdomen below, 1st and 2nd segments olivaceous, 3rd - 4th with a pale longitudinal line; 8 in the apical 2/3 and all of 9 pruinose, 10 ferruginous.

Superior appendages (fig. 112) dark, as long as the 9th segment, narrow, curved medially; seen from above, in the basal third with a sharp, internal, posteriorly directed tooth, following this the internal edge straight, the external margin with 6 acute small teeth or small spines; apex obtuse; in lateral view in the basal third nearly straight, lightly convex, in the apical third concave.

Inferior appendages similar in color, short, one third the length of the superiors, with its curved, internally directed tooth scarcely protruding; crossed, with apices obtuse.

Legs black with black spines; tibia olivaceous dorsally.

Wings transparent with venation and stigma dark; stigmata quadrangular, longer than wide, apically narrowed, costal margin 1.7 mm, posteriorly slightly wider; arculus at the 2nd antenodal or slightly anterior (in hind wing); with 15 postnodal crossveins in the fore wing and 12 in the hind wing; quadrangle perceptibly narrowed, elongate, anterior margin half the length of the posterior.

Body length male 39 mm, abdomen 31.5 mm, hind wing 23.5 mm

Colombia, Pandí, dedicated to its discoverer H. Apolinar María of the Escuelas Cristianas.

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