

A NEW SPECIES OF *ARCHILESTES* FROM MEXICO  
AND CENTRAL AMERICA, WITH FURTHER NOTES  
ON THE STATUS OF *CYPTOLESTES* WILLIAMSON  
(ODONATA: LESTIDAE)

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ABSTRACT

*Archilestes latialatus*, new species, occurs from Chiapas, Mexico, to Nicaragua. It is closely related to *A. tuberalatus* (Williamson), from which it is distinguished by the anal appendages. The 2 species are put in the subgenus *Cyptolestes* (new status), distinguished by the widened cell marginal to the quadrangle in the hind wing and by the vestigial inferior appendage in the male.

RESUMEN

*Archilestes latialatus*, especie nueva, se encuentra de Chiapas, México hasta Nicaragua. Está relacionada con *A. tuberalatus* (Williamson), pero difiere por los apéndices anales. Las dos especies pertenecen al subgenero *Cyptolestes* (estado nuevo) que está caracterizada por la célula exterior del cuadrángulo anchada, y también los apéndices inferiores rudimentarios en el macho.

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The discovery of a new species of *Archilestes* in Chiapas, Mexico, and in western Honduras, eastern Guatemala, and northern Nicaragua, brings to a total of 6 the species attributed to that genus. The new species is very closely related to *Cyptolestes* Williamson, which has recently been designated a synonym of *Archilestes* (Gloyd, 1980). The characteristics of the new species *latialatus* strongly suggest that it and *tuberalatus* (Williamson) (not *tuberculatus*, of Gloyd) be referred to the subgenus *Cyptolestes* (new status).

*Archilestes latialatus*<sup>2</sup> Donnelly, NEW SPECIES  
(Fig. 4, 5, 6, 8, 9)

The new species *Archilestes latialatus* is closely related to *A. tuberalatus* (Williamson, 1921), from which it is distinguished by the form of the male superior appendage, which in the new species is sharply deflected and ends in a protuberant ventral point, while in *tuberalatus* the termination is blunt.

HOLOTYPE MALE: *Head*: labrum, sides of mandibles, genae, anteclypeus pale bluish green, the labrum with a thin dark marginal line; frons and remainder of top of head and antennae, dark. *Prothorax*: partially pruinose,

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<sup>2</sup>*latialatus* (Latin): wide winged.

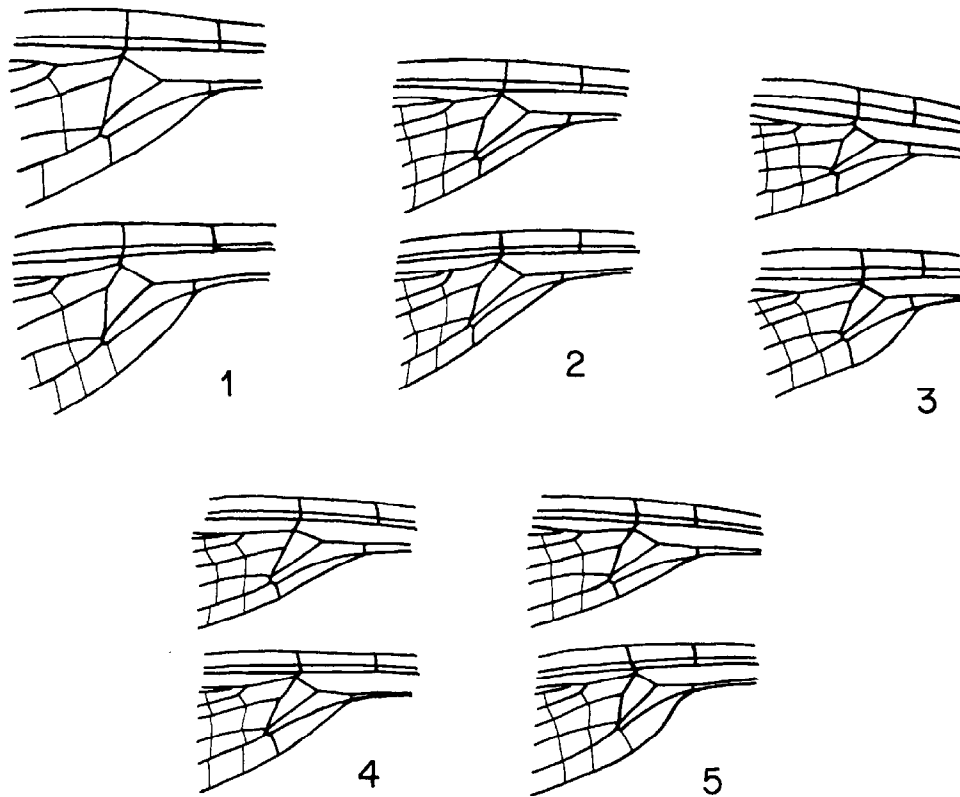


Fig. 1-5: Hind wing bases of *Archilestes*: 1. *A. regalis*, male; 2. *A. grandis*, male; 3. *A. tuberalatus*, female; 4. *A. latialatus*, females; 5. *A. latialatus*, male.

obscurely dark with metallic green sheen; lateral swellings of tergal mid-lobe edged behind and laterally with yellow; hind lobe with low, raised, rounded margin. *Pterothorax*: dominantly metallic green above (mesepisternum and mesepimeron) and partially pruinose pale yellow below (mes- and metinfrapisternum, metepisternum, and metepimeron), with a thin yellow line along dorsal carina and yellow line along dorsal carina and yellow band along humeral suture, continuing around margins of mesepimeron and isolating the metallic color. Metathorax and pectus pale, with color grading from bright on inferior marking of metepimeron to obscure on the remainder of these areas. *Venation*: veins black, stigma dark reddish brown; the marginal cell bordering the subquadrangle swollen in the hind wing, and the distal cross vein of this cell 1.64 times as long as the corresponding vein in the fore wing. *Legs*: dark, pale yellow as follows: inferior margins of middle and hind coxae (which, however, are partially pruinose), fore parts of middle and hind trochanters, and lines on proximal 3/4 of dorsal surface of femora. *Abdomen*: dark, grading to metallic green on dorsum of segments 2 and 3; pale yellow on lateral portions of 1 and small lateral-basal and lateral-apical spots on 2; thin yellow line along ventral margin of terga of 3 to 8. *Appendages*: black, superior appendages forcipate with tips deflecting downward, terminating in an outwardly recurved, flattened point; in dorsal view with an internal rounded prominence of 3/4 the length

and with a small basal internal rounded swelling; small teeth along external-apical margin. Inferior appendages wanting, represented only by slightly raised swellings.

**ALLOTYPE FEMALE:** generally similar to male, differing as follows: pale color of front of head differentiated into a dominantly bluish labrum and dominantly greenish anteclypeus, sides of mandibles, and genae. Top of head with a pale yellow line extending laterally from the hind corners of the vertex. Prothorax more pale than in male; pterothorax with yellow color of mid-dorsal carina wider, causing restriction of metallic green of mesepisternum to the center of that pleuron. Fore tibiae with a thin dorsal yellow line. Abdomen dark with green dorsally from segment 2 to 7; lateral pale yellow prominent on 1 and 2 and wider than in male on 3 to 8. Obscure lateral pale spot on 9. Ovipositor with ventral margin armed with a row of small teeth.

**DIMENSIONS (in mm):** *Holotype male:* abdomen 54, hind wing 35.5, nodus of hind wing 12 from base. *Paratype males:* abdomens range from 52 to 56.5 (54.2, 1.3<sup>3</sup>); hind wings range from 34 to 37 (35.4, 0.9) and the nodus ranges from 11 to 12.25 (11.7, 0.4; 33 per cent of the wing length). *Allotype female:* abdomen 49.5, hind wing 38, nodus of hind wing 12.75 from base. *Paratype female:* abdomen 47.5, hind wing 35.5, nodus of hind wing 12 from base.

**VARIATIONS AMONG THE PARATYPE SERIES:** The type series of 16 males and 2 females shows relatively little variation. The broadening ratio, defined here as the relative length of the distal vein in the cell marginal to the subquadrangle in the hind wing to that in the fore wing, ranges from 1.32 to 1.64 (1.48, 0.10). The elongation ratio of the first post-quadrangular cell, defined as the relative lengths of the anterior to the distal vein of that cell, ranges from 1.45 to 2.00 (1.69, 0.17). The length of the stigma ranges from 2.4 to 2.8 mm (2.6, 0.1; which is 7 per cent of the wing length). Vein R4 (M3 of Williamson) originates 1.2 to 1.5 mm from the quadrangle (1.04, 0.1; which is 4 per cent of the wing length). Vein R3 (M2) originates 2.4 to 3.5 (2.9, 0.3) and vein IR2 (M1a) 5 to 7.8 cells (6.5, 0.8) from the nodus. The 2 females are similarly close, having broadening ratios of 1.50 and 1.71, and elongation ratios of the first post-quadrangular cell 1.57 and 1.73. The stigmata are 2.7 and 2.8 mm long; the origin of R4 is 1.3 and 1.5 mm from the quadrangle. R3 originates 2.5 and 2.8 and IR3 6.6 and 6.0 cells from the nodus.

**SPECIMENS EXAMINED:** *Holotype male:* HONDURAS: Cortez Province, Río Piedras at San Pedro Sula, 16-VII-1971, coll. T. Donnelly. *Allotype female:* same locality, 9-15-VIII-1976, coll. T. and A. Donnelly. *Paratypes:* same locality: 16-VII-1971, coll. T. Donnelly, 2 ♂; same locality, 9-15-VII-1976, coll. T. and A. Donnelly, 1 ♂; GUATEMALA: Alta Verapaz Dept., Minas de Oxec, 10 km ESE of Cahabón, 200 m, 12-14-VI-1977, coll. T. Donnelly, 2 ♂ 1 ♀; NICARAGUA: Matagalpa Prov., 10 km SE of San Ramón, 700 m, 18-20-VI-1974, coll. T. and A. Donnelly, 1 ♂; MEXICO: Chiapas; 21.4 km N of Ocozocoautla, 600 m, 20-21-VII-1965, coll. D. R. Paulson, 5 ♂; MEXICO: Chiapas; 20.1 km N of Ocozocoautla, 600 m, 25-VIII-1967, coll. D. R. and M. L. Paulson, 4 ♂. The holotype and allotype specimens are deposited in

<sup>3</sup>mean, standard deviation.

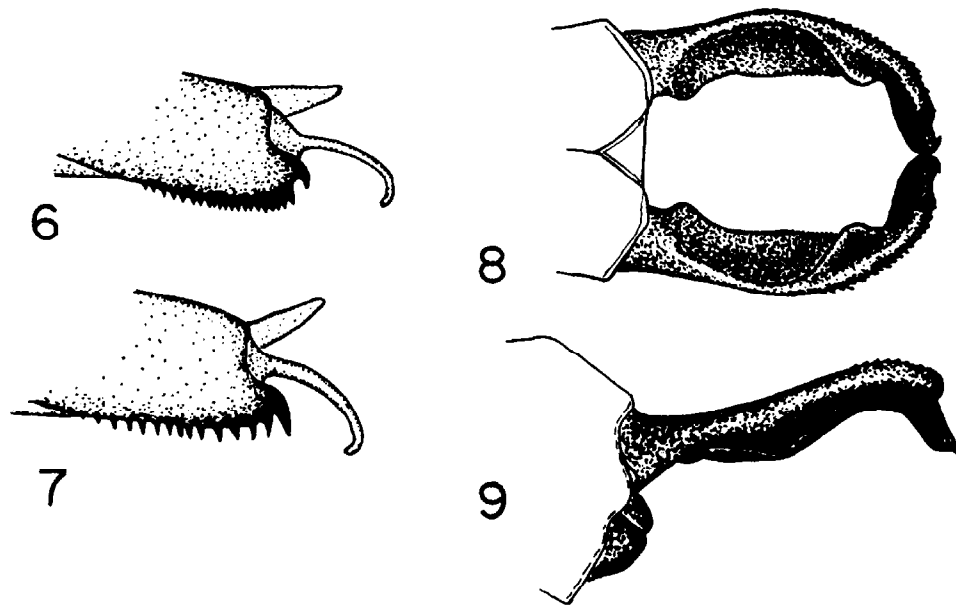


Fig. 6-9, structural details: 6. Ovipositor of *A. latialatus*; 7. Ovipositor of *A. regalis*; 8. and 9. dorsal and lateral views of male appendages of *A. latialatus*.

the Florida State Collection of Arthropods, Gainesville, Florida. Paratypes are deposited in the Museum of Zoology, University of Michigan, and the National Museum of Natural History, as well as in various private collections.

#### VARIATIONS AMONG SPECIES OF *Archilestes* AND *Cyptolestes*

Williamson (1921) described the species *Cyptolestes tuberalatus* and genus *Superlestes* for *Lestes exoletus* Selys. I have seen neither species and know *tuberalatus* only from his excellent description and illustrations. At the time of his paper the 2 species then known of *Archilestes* (*grandis* (Rambur) and *californica* MacLachlan) seemed abundantly distinct from *Superlestes* and *Cyptolestes*. The subsequent description of *Archilestes regalis* (Gloyd, 1944) raised doubts that the 2 Williamson genera could still be considered distinct. Gloyd (1980) relegated the 2 generic names to synonymy, without, however, providing a strong descriptive defense for her proposal. A study of the species (other than *exoletus*) suggests that some of Williamson's criteria for the definition of *Cyptolestes* should be abandoned because of the character of *regalis*, but that others should be retained and that the taxon *Cyptolestes* should not be abandoned entirely.

The swollen marginal cell of the hind wing subquadrangle remains a striking character, and the broadening ratio, as defined above, shows a clear separation between the 2 species, *tuberalatus* and *latialatus*, and the species *grandis*, *californica*, and *regalis*. The lowest value for the ratio in a specimen of *Cyptolestes* is 1.32, and the highest for a specimen of the remaining 3 species is 1.16; the means and standard deviations are 1.05, 0.03 for *grandis*; 1.05, 0.03 for *regalis*; and 1.06, 0.07 for *californica*; compared

with 1.48, 0.10 for *latialatus* (Williamson's figure for *tuberalatus* suggests about 1.5 but is not entirely clear).

Other characters suggested by Williamson were the retraction of the nodus; the more distal forking of R2+R3 and R4 (M1+M2 and M3); the distance from the quadrangle of the origin of R4 (M3); the greater relative length of the first postquadrangular cell; the termination of R4 (M3); and the shortened stigma. The termination of R4 was considered briefly in this investigation and not found to be useful; the remaining characters were tabulated for 10 males of *grandis*, 6 of *californica*, and 5 of *regalis*.

The retraction of the nodus, expressed as the per cent length of the hind wing of the nodal distance, is 33 per cent for *latialatus*, 35 per cent for *regalis*, 36 per cent for *grandis*, and 38 per cent for *californica*. The origins of R2+R3 were 2.9 cells from the nodus for *latialatus*, 2.6 for *regalis*, 1.1 for *grandis*, and 1.1 for *californica*, and the origin of IR2 was 6.5 cells from the nodus for *latialatus*, 5.6 for *regalis*, 5.9 for *grandis*, and 5.0 for *californica*. The distance to the origin of R4 averages 4 per cent of the wing length in all 4 species (Williamson considered this distance compared to the space between the 2 antenodals; this was also tabulated here and was found to be little different among the 4 species.). The relative elongation of the first postquadrangular cell is 1.69 for *latialatus*, 1.58 for *regalis*, 1.54 for *grandis*, and 1.64 for *californica*; there is also considerable variation within series of these species. The stigma averaged 7 per cent of the hind wing length in *latialatus* (the same for the illustration of *tuberalatus*), compared with 7 per cent for *regalis*, 10 per cent for *grandis*, and 11 per cent for *californica*. Thus each of these supplementary criteria suggested by Williamson is considered to have been seriously weakened by the discovery of *regalis*.

The lower margins of the ovipositor of the species *grandis*, *regalis*, *californica*, and *tuberalatus* (the latter not seen by me), as well as *exoletus* (also not seen by me and not considered in this study), were said by Gloyd (1980) to be similarly armed with teeth. As Fig. 6 shows, the teeth of *latialatus* are much smaller than those of *regalis* (Fig. 7), which are themselves of the approximate size of those of *grandis* and *californica* (not shown).

OTHER *Archilestes* EXAMINED: *A. regalis*, MEXICO: San Luis Potosí; various localities ranging from 11 km S to 7 km N of Tamazunchale, collected 4-5-IX-1963 by T. and A. Donnelly, 4 ♂, 1 ♀, and 5-VIII-1966 by O. S. Flint, Jr., 1 ♂. *A. grandis*: various localities in Panama, Guatemala, Mexico, Arizona, and Maryland, 10 ♂. *A. californica*, various localities in southern California and Baja California, Mexico, 6 ♂.

#### *Cyptolestes*—A SUBGENUS OF *Archilestes*

The existence of a monotypic genus is somewhat of a taxonomic embarrassment, but the subsequent discovery of a second, closely related species strengthens the rationale for separation of the 2 species into a named taxon. I propose that Williamson's genus *Cyptolestes* be retained as a subgenus of *Archilestes*, based on the following 2 criteria: 1) widening of the base of the hind wing, expressed by the ratio of the length of the distal cross veins of the cell marginal to the subquadrangle in the hind and fore wings, and 2)

the seemingly vestigial male inferior appendage. The principal reason for not suggesting retention of the generic level is that the females are less obviously separated for the 2 species taken together. Williamson's other venational criteria all fail, largely because of the intermediate nature of *regalis* for several characters. However, *Cyptolestes* remains extreme for shortness of stigma, retraction of the nodus, and distal origin of R3. The subgenus is further extreme by the relative length of the abdomen to the hind wings.

The subgenus *Cyptolestes* contains the species *tuberalatus* (Williamson) and *latialatus*.

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### SMINTHURUS CAROLINENSIS, NEW SPECIES FROM SOUTH CAROLINA (COLLEMBOLA: SMINTHURIDAE)

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#### ABSTRACT

A new species, *Sminthurus* (*Sminthurus*) *carolinensis* Snider, is described from South Carolina. This species is most closely allied to *Sminthurus* (*Sminthurus*) *argenteornatus* Banks, but can be separated on the basis of color pattern, absence of outer tooth on unguis, tibial setal pattern, outer edge of mucro toothed, and female subanal appendage morphology. The type locality is the Savannah River Plant, U. S. Department of Energy, Aiken, South Carolina. Specimens were taken from grass and *Allium vineale* L.

#### RESUMEN

Se describe una nueva especie, *Sminthurus* (*Sminthurus*) *caroliniensis* Snider, de Carolina del Norte. Esta especie es la más parecida a *Sminthurus*

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