

**DESCRIPTION OF THE FEMALE OF *LEPTAGRION ACULEATUM*
SANTOS, 1965 WITH KEYS TO THE KNOWN SPECIES
(ZYGOPTERA: COENAGRIONIDAE)**

J.M. COSTA¹ and R.W. GARRISON²

¹ Departamento de Entomologia, Museu Nacional, Universidade Federal do Rio de Janeiro,
Quinta da Boa Vista, BR-20942-040, Rio de Janeiro, RJ, Brazil
e-mail: jcosta@unisys.com.br

² Research Associate, Natural History Museum of Los Angeles County,
900 Exposition Blvd, Los Angeles, CA 90007, United States
e-mail: rgarrison@southwest.net

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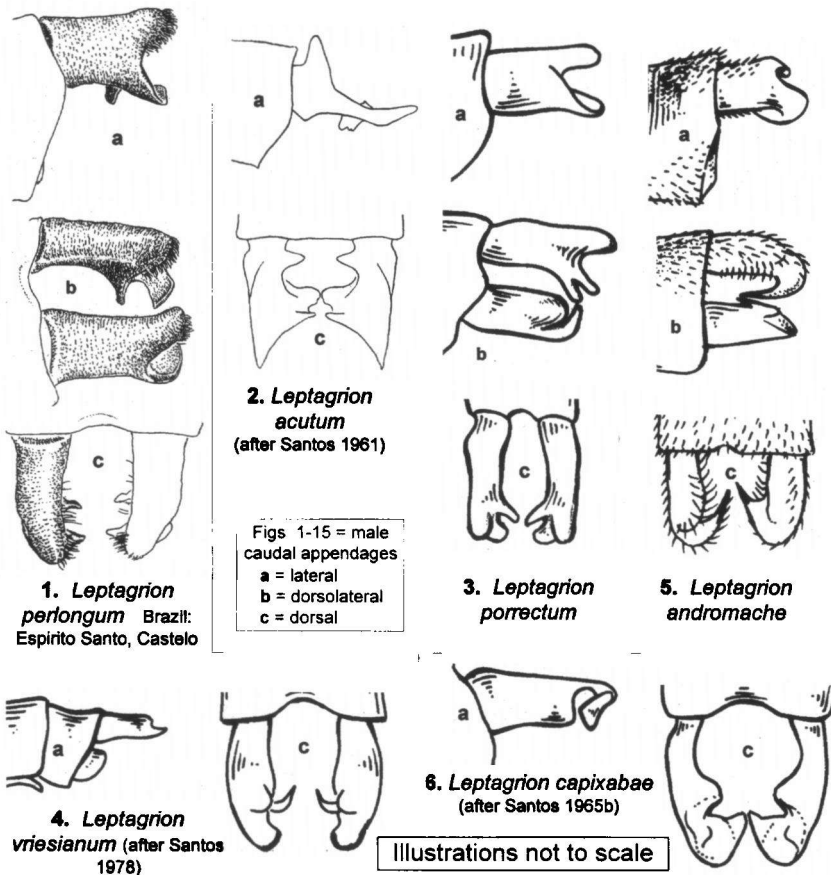
The ♀ is described and illustrated, and illustrated keys to the known ♂♂ and ♀♀ of
Leptagrion from Brazil are presented.

INTRODUCTION

SANTOS (1965) described *Leptagrion aculeatum* from one male from Belém, Pará, Brazil, deposited in the collection of the Museu Nacional, Rio de Janeiro and from a second male from Surinam, deposited in the Musée de Histoire Naturelle de Paris. He considered this species closely related to *L. andromache* Hagen in Selys. In the same year Santos described *L. capixabae* and considered this species closely related to *L. andromache* and *L. aculeatum*. SANTOS (1968) described *L. siqueirae* and considered this species in the *andromache* group because of the presence of a medially directed tooth at the distal end of the cercus.

After describing the male of *L. aculeatum*, Santos received a male and female *Leptagrion*, from Amapá State, Brazil. One of us (JMC) compared this male with the holotype of *L. aculeatum* and believes them conspecific. Unfortunately Santos died before he could describe the female of this species.

The keys are based on characters cited by SANTOS (1961, 1962, 1965a, 1965b, 1968, 1978, 1979), WILLIAMSON (1917) and specimens from Museu Nacional and R.W. Garrison collections.



DESCRIPTION OF FEMALE OF *LEPTAGRION ACULEATUM*

Figures 40 (prothorax), 48 (pterostigmata), 55 (tarsal claw), 56 (abdominal segments 8-10)

Material - 1 ♂, 2 ♀, BRAZIL: Amapá, Serra do Navio, Rio Amapari, 26-IX-1965, H. Berla leg.

FEMALE. - **H e a d.** - Eye coloration and top of head same as holotype, black ventrally, with a gray pruinescence.

T h o r a x. - Coloration and pattern similar to holotype. Posterior medial border of mesostigmal plates planar and depressed against thorax; dorsal surface of mesostigmal plates uneven, distinctly costate. Viewed dorsally, middle margin of posterior lobe of pronotum evenly convex (Fig 40a).

Legs. - Similar to holotype. Outer margin of left metafemur with 5 spines and

right with 6; inner margin of metafemur with 4 spines, the first half the length of second; metatibiae with 6 spines, the distal one small; tarsal claws with inferior apical tooth developed (Fig. 55).

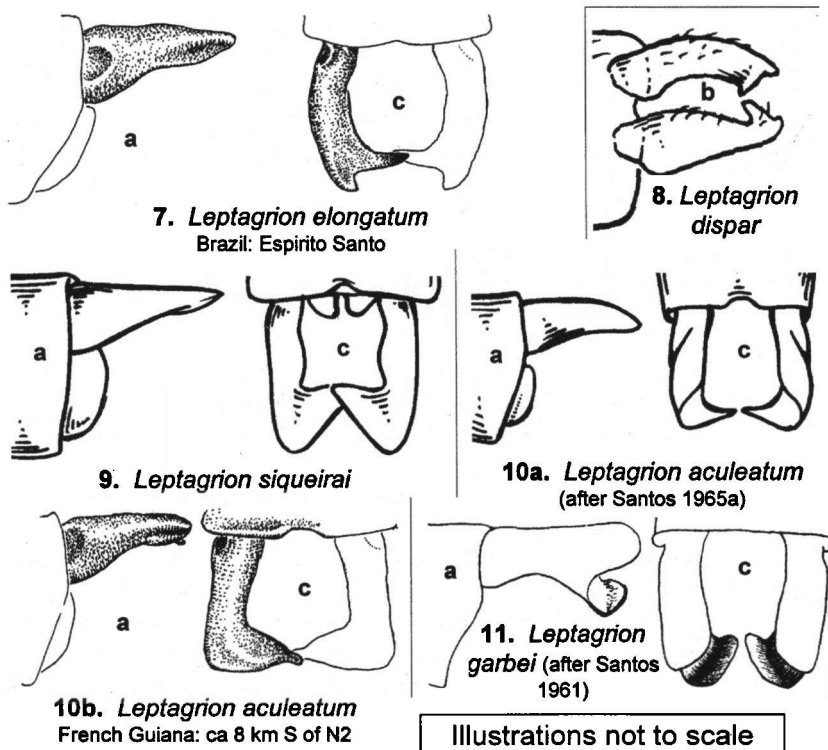
Wings. — Hyaline with venation black; pterostigma (Figs 48a, 48b) rhomboid, dark brown, surmounting less than one cell in all wings; 10 postnodal crossveins in forewings, 9 in hind wings; R_2 originating at 6/6 in forewings, 5/6 in hind wings; IR_2 distal to 9th postnodal crossvein in forewings, distal to 10th postnodal in hind wings; AC (cac) between 1st and 2nd antenodals; wing petioled slightly before AC; forewing quadrangle with the costal and proximal side subequal, in hind wings with costal side longer than proximal side; arculus distal to 2nd antenodal in all wings.

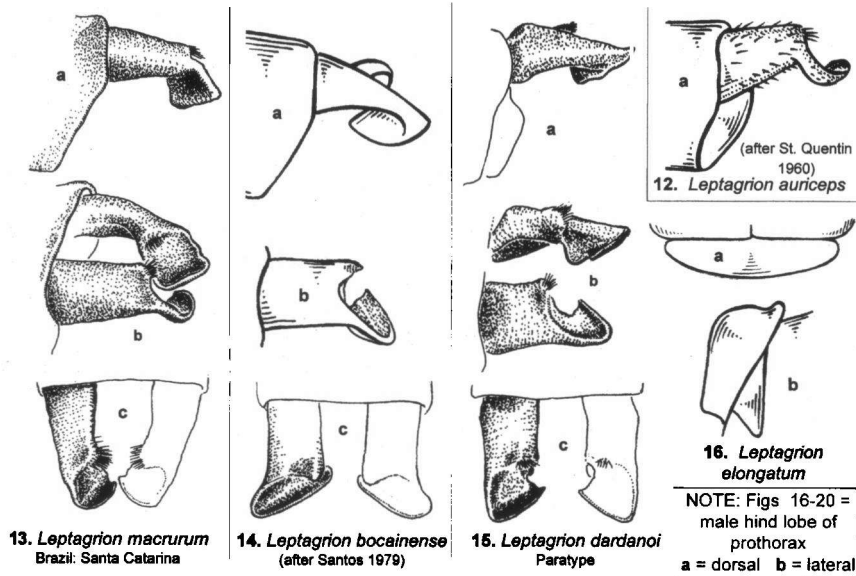
A b d o m e n. — Genital valve surpassing 10th segment; ventral margin of the genital valve with short, flavescent bristles (Fig. 56).

M e a s u r e m e n t s (mm). — Total length 48; abdomen 40; fore- and hindwings 24.

DISCUSSION

The genus *Leptagrion* currently includes 22 species of which only four, *L. beebeanum* Calvert, *L. croceum* (Burmeister), *L. fernandezianum* Rácenis and *L.*





prothoracicum (Kimmins) are not known from Brazil. *Leptagrion?* *rufum* was described by Selys in 1876 from an incomplete male whose country of origin was "unknown, but very probably tropical meridional America".

Leptagrion was diagnosed from the newly proposed genus *Aeolagrion* (WILLIAMSON 1917) by the following couplet:

- a¹ Descending crossvein from the subnodus not continued directly to the wing margin, the marginal cell, against which it ends, high and pentagonal, the adjoining marginal cells high and the hind margin of the wing full and rounded, nearly paralleling the front margin; M_2 in front wing arising at the sixth postnodal or more distad, in the hind wing at the fifth or more distad; R_5 and M_3 widely separated at the proximal crossvein between them; tooth on tarsal claw large, almost equaling the claw; male inferior appendages rudimentary *Leptagrion*
- a² Descending crossvein from the subnodus continuous to the wing margin, the marginal cells on either side of it low and quadrangular, the wing spatulate, and the hind margin not paralleling the front margin; M_2 in front wing arising at the sixth postnodal or more distad, in the hind wing at the fifth or more distad; R_5 and M_3 narrowly separated at the proximal crossvein between them; tooth on tarsal claw well developed but distinctly shorter than claw; male inferior appendages well developed *Aeolagrion* gen. n.

MUNZ (1919) included *Leptagrion* in his key to the Coenagrioninae and included essentially the same couplet by WILLIAMSON (1917). GARRISON (1986) in his key to the neotropical Coenagrionidae lacking postocular spots included *Leptagrion*. He characterized species of this genus as relatively large (abdomen 34 mm or greater), with or without an angulate frons, paraprocts rudimentary and with wings stalked to Ac. According to this definition, Garrison commented that the "male of *Leptagrion beebeanum* Calvert, *L. fernandezium* Rácenis, and *L. obsoletum* Selys have visible inferior appendages and may belong to *Telagrion*".

Four poorly known species, *L. auriceps* St. Quentin, *L. autazensis* Sjöstedt, *L.*

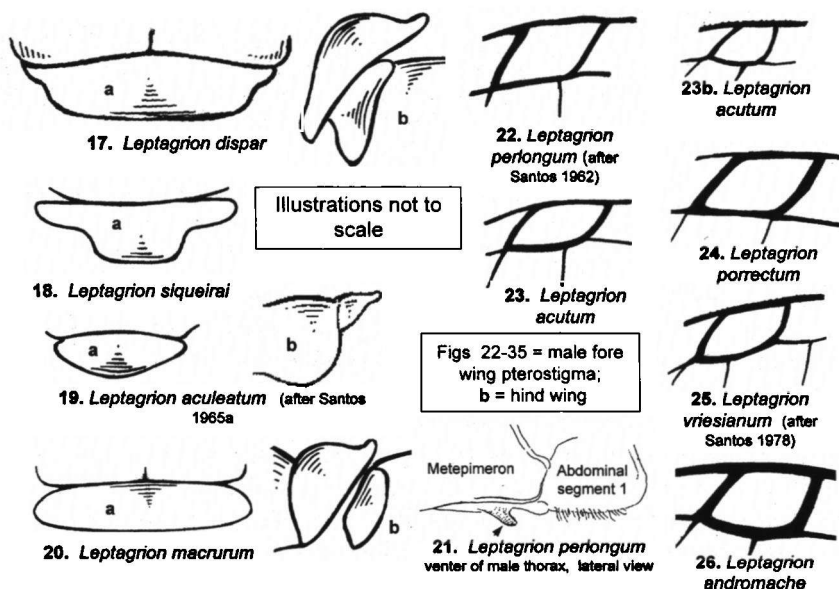
croceum (Burmeister), *L. obsoletum* Selys, and *L. rufum* Selys are currently placed in *Leptagrion*. The status of each is discussed below.

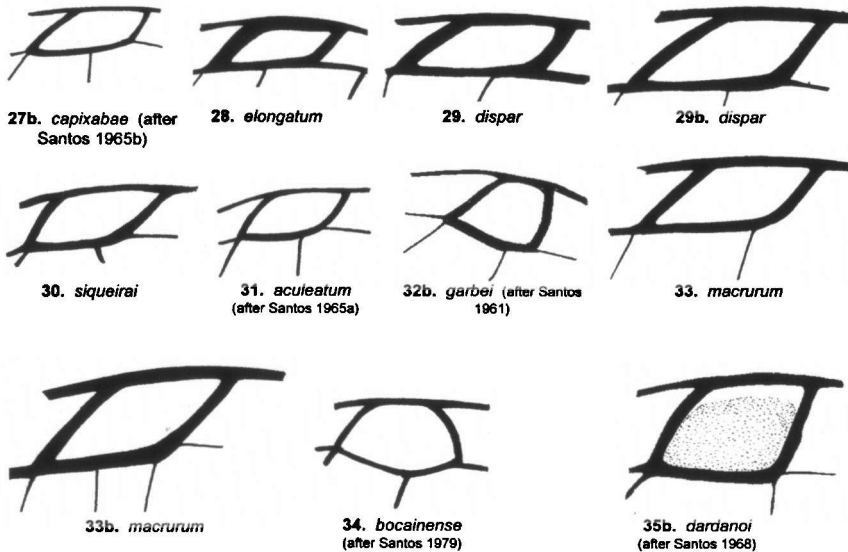
***Leptagrion auriceps* St. Quentin, 1960.** — This species unquestionably belongs to *Leptagrion*. The original description, based on 2 males and 2 females from Espirito Santo, Brazil (Hans Frühstorfer leg.), is similar to *L. macrurum* as follows (loosely translated from the German):

"The species is closest to *L. macrurum* (Burm.), distinguished by the absence of the dark marking on the head, pro- and synthorax, by the unmarked legs and the longer valvulae of the ♀. Wing venation typical for the genus: Cu₂ near first An₁; M₂ in fore wing at 8th, in hind wing at 7th Pnq; in fore wing 13-14 Pnq; pterostigma yellow brown, covering somewhat more than one cell, costal side the shortest, head, pro- and synthorax in ♂ golden yellow without markings, in ♀ with wide green cross bands on postclypeus and ocellar region, with broad green antehumeral stripe and greenish fading on sides of thorax; legs horn yellow, without markings, with brown spines; abdomen greenish blue with brown markings; segment 2 in ♂ with a U-marking, narrowly interrupted in middle, in ♀ with paired apical spots; segments 3-6 with apical spots that get bigger each segment from 3 to 6; segment 7 entirely (♂) or (♀) 2/3 dark; segments 8-10 pale (♂) or (♀) 8 pale and 9 and 10 dark; appendages (Fig. 1) similar to *macrurum*; only the styli of valvae surpassing segment 10 (in *macrurum* surpassing only the styli of the valvae of segment 10)."

Measurements: ♂ abd. 32, HW 25; ♀ abd 38, HW 26.

From the description, we wonder if *L. auriceps* might represent juvenile examples of, or a pale species similar to *L. macrurum*. The appendages of the male of both species are the same (Figs 12, 13) and St. Quentin must have compared his new species with the types of Burmeister's *Agrion macrurum* since they are housed in the Naturhistorisches Museum (ST. QUENTIN, 1970). The specific status of *L. auriceps* will have to wait pending reexamination of the types.





***Leptagrion autazensis* Sjöstedt, 1918.** — This species was described from 1 male from the Rio Autaz (Amazonas). Sjöstedt describes the caudal appendages (loosely translated from the German):

"Superior appendages somewhat longer than abdominal segment 10, dark brown, the medial areas lighter; in dorsal view the base straight, parallel, at the basal 0.33 somewhat curved medially; in lateral view weakly bent ventrally strongly widened at the tips emarginated before their middle, forming two points, the dorsal one wider and more rounded, slightly longer; the inferior appendage yellowish with black tip, wide at its base, dorsally cylindrical, narrowly extended, with fine mediodorsally curved point, reaching the tip of the ventral tooth of the dorsal appendage"

and:

"It is strongly related to *flammeum*, the superior appendages are but entirely dark above and somewhat differently formed, [abdominal] segment 10 is posteriorly not so deeply emarginate and the segments of the abdomen are dorsally without fine pale line, the last three segments (the 7th is almost entirely dark brown, ventrally narrowly yellowish) are, like the preceding, dorsally almost brown black, only weakly reddish brown, but by far not as strongly rusty yellow as in *flammeum*."

The holotype dimensions are: Abdomen male (without appendages) 31; hind wing 20; total length 37 [mm]. This species according to the description and illustrations should probably be placed in another genus. Examination of the type will be necessary to determine its correct placement although Sjöstedt comments that it is strongly similar to *Aeolagrion flammeum* suggesting that *L. autazensis* might belong to *Aeolagrion*.

***Leptagrion croceum* (Burmeister, 1839).** — This species, known only from the holotype male from Surinam, is in bad condition. In RWG's unpublished notes on a list of the Odonata types of the Museum of Comparative Zoology in Cambridge,

Mass., RWG commented that "Only the thorax, and two right wing bases remain, the same condition of which CALVERT (1898: 38) found it". SELYS (1876: 988) who had access to the holotype when complete gave the following description (translated from the French):

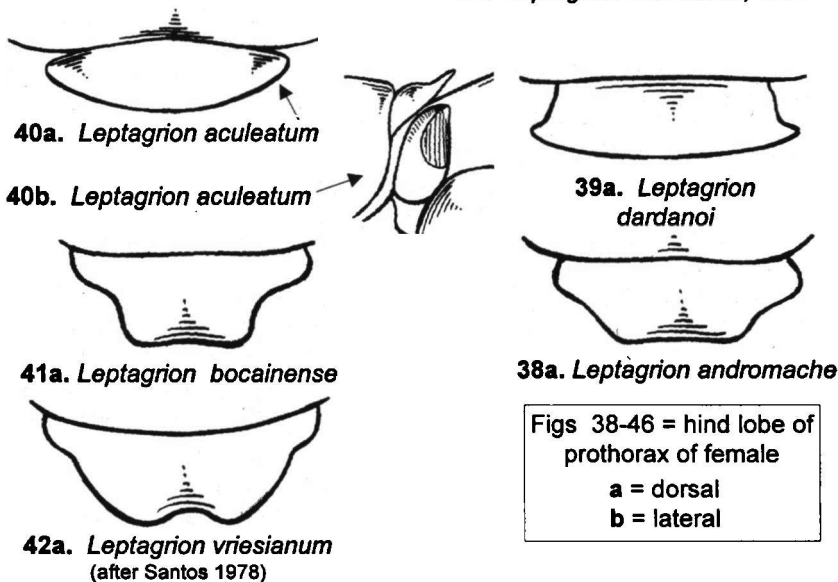
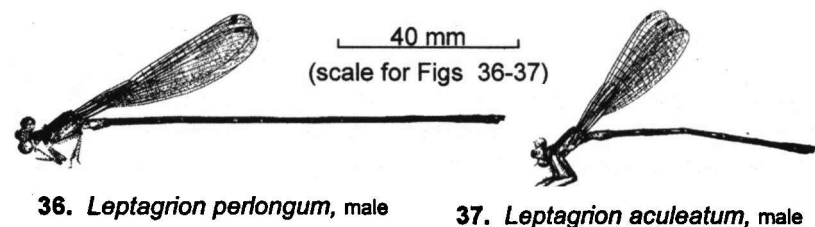
"Male: Abdomen 26 mm, HW 16.

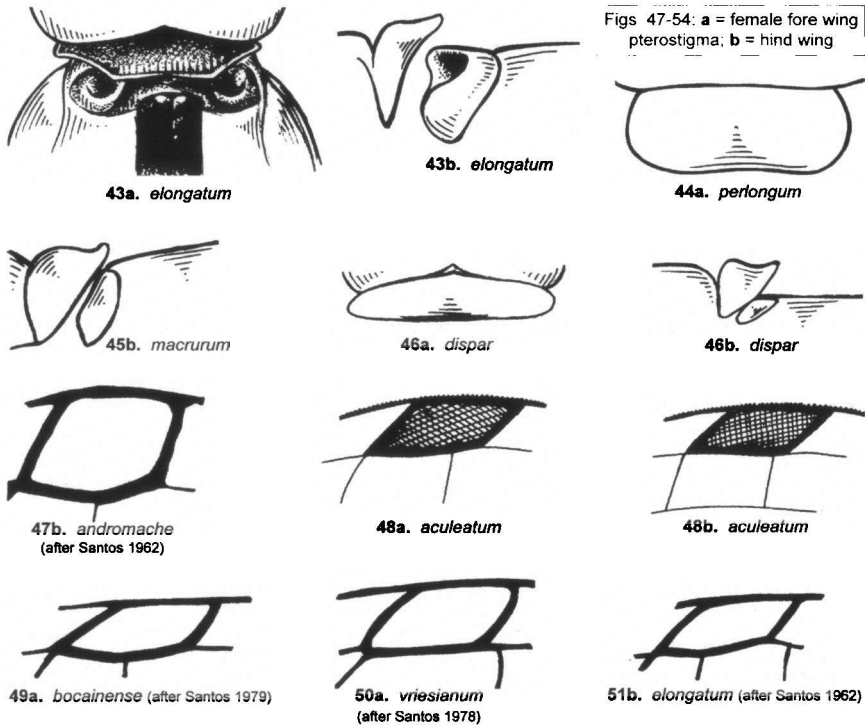
Pterostigma gray brown, paler along margin, much shorter than the cell that it surmounts, almost square, the proximal side a little oblique, the distal slightly more so, slightly convex. Quadrilateral in FW having one third of length of posterior side, in HW the half of the posterior side; venation brown. Rounded wings slightly infumated at tips, petiolated a little farther than the basal postcostal vein, which is placed nearly between the first and second antecubital; 3 antenodal cells, 11 postcubitals.

Red orange, yellowish ventrally; abdomen ringed in black.

Head small (width of 3 mm), pointed anteriorly, russet, paler ventrally and posteriorly. Antennae with segment 2 a little longer than segment 1; segment 3 yet a little longer. Prothorax narrow, orange dorsally, the posterior lobe slightly rounded on each side, slightly projecting centrally in a small uncurved [not straightened again] projection. Thorax orange, yellowish ventrally and laterally, where can be seen the vestige of a darker line on the medial suture.

Abdomen excessively long and slender, having almost twice [the length] of the HW, orange slightly darker apically, terminal articulation of segments 1 and 2 finely black, segments 3-5 with a blackish ring occupying





about the posterior one sixth. Segment 10 having about half segment 9, slightly sinuous, not straightened again.

Caudal appendages russet, having barely half [the length of] segment 10; the superiors in form of thick tubercles, truncated at the tip, the inferiors thick, slightly dark at tip, which appears recurved upwardly, slightly pointed.

Legs very short, yellowish; spines fairly long, diverging, black (6 on posterior femora). Tarsal claws black at tip, with inferior tooth well developed, but remarkably shorter. 5

Female unknown. †

Origin: Surinam. Unique type of Burmeister, currently in coll. Hagen.

NB. Dr Hagen having the goodness to send me this precious type, which is in very bad shape, I have been able to describe it with care and to make an exact drawing [the drawings are probably those illustrated in WILLIAMSON 1917, figs 16, 17].

It is a species quite difficult to classify accurately.

In its stature and coloration, it is related at the same time to *flammeum* Bates, *T. porrectum* Hag. and *fulvellum* Bates.

Above all, it recalls *Telagrion porrectum*, but it only has one quarter its length, the pterostigma is less oblique on inner side, shorter; the inferior tarsal tooth is shorter, the abdomen a little less long, the appendages very different; finally the uniformly red orange or cinnamon colored body.

In this coloration, it more resembles *flammeum*, but the latter is even much larger, has a longer pterostigma, longer wings in relation to the abdomen, the spines longer [and] more numerous.

As for *fulvellum*, it is more strongly mixed with black and has a yellow postocular line on a black background."

The small size, development of the paraprocts and illustrations of the appendages (WILLIAMSON, 1917) suggest that this species is not a *Leptagrion*.

Leptagrion? obsoletum Selys, 1876. — This species, described from a male and female from Obidos was questionably assigned to *Leptagrion*. SELYS (1876: 985) gave the following description (translated from the French):

"Abdomen male 29; female 27; hind wing male 17; female 18 [mm]

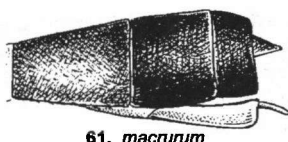
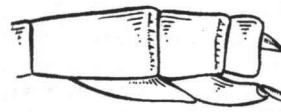
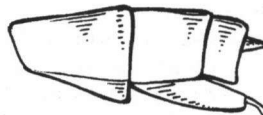
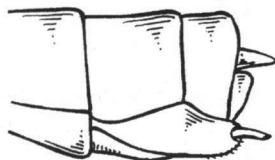
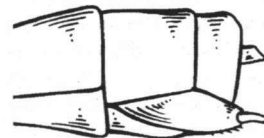
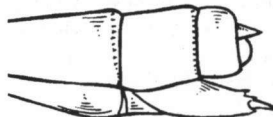
Pterostigma black (male) a little lighter against the costal, oblique, covering one cell; quadrilateral short, that of the fore wings with basal and anterior sides equal, shorter than half the posterior side; the anterior side in the hind wings a bit longer than half the posterior side. Wings barely smokey petiolated up to the basal postcostal vein, which is placed slightly closer to the first than to the second antecubital; 10-11 postcubitals.

Greenish blue varied with blackish brown; patterns poorly defined.

Male: Labium bluish green; labrum and face bluish, slightly darkened on the epistome. Underneath the head olive[ish] rear of eyes pale bluish.

Prothorax olive[ish] and little light bluish basally, on the sides and on the posterior lobe, which is slightly pronounced as a rounded festoon. Thorax olive brown anteriorly up to humeral suture, with a lighter antehumeral band. Dorsal carina black; the sides pale bluish becoming dark olive[ish] toward humeral suture, venter lighter.

Abdomen rather slender, light olive[ish] blue, slightly yellowish ventrally, with blackish articulations of the segments and brown, poorly developed patterns, as follows: a square basal spot on segment 1; a dorsal transverse arrow [dart/dash/stroke] on two thirds of segment 2; a terminal spot, tapered anteriorly occupying the final 0.2 of segments 3-6; and more than 0.5 on segment 7; segments 8-10 olive[ish] appearing without spots, the last [10] short dorsally where it is broadly excised, with a sharper/more acute median indentation.



Figs 56-61 = female abdominal segments 8 - 10

Terminal appendages (in bad condition); superiors appearing half as short as the segment, thick, widened below up to a little before the end where the widening ends in an indentation/V shape. The inferiors as long, widened at their internal base, each straightened into a cylindrical dull branch.

Legs yellowish; exterior of femora, interior of tibiae and spines dark, spines rather long (7 on posterior tibiae); tarsal claws dark, the inferior a little shorter.

Female: The bluish of the surface of the prothorax and thorax replaced by the olive[ish] or very light brown. Ground color of abdomen rather olive[ish] than bluish, pattern darkened by a brighter brown (last 3 segments lacking).

Origin: Obidos on the Amazon, one pair. Coll. (MacLachlan)

NB. The stature of this species is identical with that of *L. inca* and *dorsale*. It differs from them in the longer pterostigma, the poorly developed patterns, and especially the pattern on the abdomen where the square spot on segment 1 is short and where the bluish or olive[ish] pruinosity occupies the entire segment 2 and $\frac{3}{4}$ of the anterior parts of segments 3-6. Male inferior appendages are besides at least as long as the superiors."

Based on its small size, development of the paraprocts and comparisons with *L. inca* and *L. dorsale* (both currently placed in *Aeolagrion*) we suggest that this species is most likely an *Aeolagrion*.

***Leptagrion? rufum* Selys, 1876.** — This is another species, described from a male without data that was questionably assigned to *Leptagrion*. SELYS (1876: 987) provides the following description (translated from the French):

"Male abdomen about 29, HW 18.

Pterostigma auburn brown, encircled with pale yellow, surrounded by a black vein, one fourth shorter than the cell that it surmounts, irregularly squared, the proximal side only being oblique, so that the costal side is shorter than the others; the distal side slightly convex. Quadrilateral in FW with the anterior side (having) one third, in HW one half [the length of] the posterior side. Venation black, wings fairly rounded, petiolated up the postcostal vein placed between the first and second antecubital; 3 antenodal cells; 10-11 postcubitals.

Bright [or light] red becoming yellowish ventrally; segments ringed with black.

Head average (4 mm wide) orangish russet dorsally, lighter on labium/labrum and ventrally. First two antennal segments russet, remaining segments blackish. Lower lip with shallow oval notch, as in *croceum*.

Prothorax russet, sub-rounded, posterior lobe forming centrally a slightly protruding scallop (festoon), the edges near this lobe each appearing to have one or two very small black tubercles.

Thorax russet, a little darker dorsally, paler ventrally.

Abdomen long and slender, orangish russet dorsally, yellow ventrally as well as a basal band interrupted by the joints of segments 3-6; segments 2-6 ringed posteriorly by black[ish] (remaining segments lacking).

Legs short, pale yellowish; spines quite long, dark (5 on posterior tibiae outwardly). Tarsi black at joints as well as the claws, of which the inferior tooth is strong, but shorter than the primary.

Female unknown.

Origin: Unknown, but very probably tropical meridional America. One incomplete specimen sent by the Museum of Dresden.

NB. Notable in the tiny size and shape of the pterostigma (see above). The species resembles *croceum* in color, but the latter is smaller and more slender; its pterostigma is otherwise shaped, segments 3-5 are posteriorly circled more broadly with black and the head is very much smaller.

The coloration also resembles that of *Leptobasis vacillans*, which by its tarsal claws with no inferior tooth belongs to the large genus *Telebasis*."

As with *Leptagrion? obsoletum*, we doubt that this species because of its size, belongs to *Leptagrion*. The problem of its generic placement can only be resolved by examination of the unique type, if it still exists.

KEY TO MALES OF *LEPTAGRION* FROM BRAZIL

adapted from SANTOS (1962)

The following key excludes *Leptagrion autazensis*, *Leptagrion? obsoletum*, and *Leptagrion? rufum* for reasons indicated above. *Leptagrion auriceps* is included but we have separated it from the closely allied *L. macrurum* based on characters extracted from St. Quentin's original description. The key should be used with caution. Several species are known from unique specimens and further material may necessitate modifications in the key.

CERCUS ARMED WITH ONE OR MORE APICAL TEETH
ONE OF WHICH IS GENERALLY LONG AND NARROW (Figs 1c-10c)

- 1 Abdomen 58 mm or more (Fig. 36); head pale blue with orange around postocular area, area between antennae brown; anterior 0.50 of mesepimeron ochraceous; venter of thorax elevated distally (Fig. 21) in lateral view; pterostigma rhomboid or quadrangular (Fig. 22); abdominal segments brown with anterior 0.10 dark brown followed by pale yellow ring, an ill-defined pale yellow ring at posterior 0.80 and at distal end; Bahia, Minas Gerais, Espírito Santo, Rio de Janeiro, Guanabara, São Paulo, Paraná, Santa Catarina States *perlongum*
- Abdomen 54 mm or less (Fig. 37) 2
- 2 Cercus with 2 teeth (Figs 2c, 3c) 3
- Cercus with 1 tooth (Figs 4c-10c) 4
- 3 In lateral view cercus thick at base, distal 0.70 laminar (Fig. 2a), in dorsal view medial margin with tooth near base and distally (Fig. 2c); head black, except for 2 parallel ochre lines on each side extending between lateral ocellus to before eye; 0.50 of mesepimeron black; pterostigma rhomboid (Fig. 23); abdominal segments 8-10 black; segments 3-6 with dark ring in the distal third; abdominal segment 7 yellowish at proximal 0.30; tarsal claws bifid with inferior tooth smaller than the superior; abdomen 47 mm; Espírito Santo State *acutum*
- In lateral view cercus uniformly thick (Fig. 3a), in dorsal view medial margin with no tooth but with two distal teeth (Figs 3b, c); pterostigma quadrangular (Fig. 24); abdomen 54 mm; Espírito Santo State *porrectum*
- 4 Cercus with subterminal tooth bent, curving cephalad (Fig. 4c); head black with yellowish green spots in the groove between the lateral ocellus and antenna; antehumeral face blackened; pterostigma rhomboid (Fig. 25); abdominal segments 8-10 blue, with dark spot dorsolaterally on segments 8-9; tarsal claws bifid with robust inferior tooth but smaller than the superior; abdomen 36 mm; Rio de Janeiro State *vriesianum*
- Cercus with terminal tooth (Figs 5c-6c); if tooth subterminal (Fig. 7c), then variously shaped but not curving cephalad, (except *L. dispar*, [Fig. 8]) 5
- 5 Pterostigma quadrangular (Fig. 26); distal tooth acute, directed anteromedially (Fig. 5b, c), head black with bluish spot between the lateral ocellus and antenna; antehumeral face bronze-metallic, iridescent; abdominal segments 8-10 black; abdomen 38-40 mm; Guanabara, São Paulo States *andromache*
- Pterostigma rhomboid (e.g. Figs 27-31) 6
- 6 Cercus with nodule at distal 0.30 (Fig. 6c); head black with metallic reflections and with two yellowish grooves between the lateral ocellus and eye; abdominal segments 8-10 blue; abdomen 37 mm; Espírito Santo State *capixabae*
- Cercus in dorsal view without subdistal tubercle (e.g. Figs 7c-10c) 7
- 7 Cercus convexly curved in dorsal view (Figs 7c, 8b) 8
- Cercus linear (Figs 9c-10c) 9

- 8 Cercus strongly curved with medially directed, subterminal acute tooth perpendicular to cercus (Fig. 7c); posterior lobe of prothorax low and narrow at middle region in lateral view (Fig. 16b); pterostigma rhomboid (Fig. 28); abdominal segments 8-10 blue; 3-7 each with basal yellow ring; abdomen 40-42 mm; Rio de Janeiro, Guanabara, Espírito Santo, São Paulo States *elongatum*
- Cercus only slightly curved with medially directed subterminal acute tooth as in *L. elongatum*, but slightly curving cephalad (Fig. 8b; Williamson, 1917 Fig. 12); posterior lobe of prothorax elevated and wide at middle region in lateral view (Fig. 17b); abdominal segment 8 smaller than in *L. elongatum*; abdominal segments 8-10 dark brown, remainder black; abdomen 41 mm; Bahia State *dispar*
- 9 Posterior lobe of prothorax with rectangular lobe occupying medial 0.30 (Fig. 18a); head black with blue elliptical spot between the ocellus and antennal base and a small comma-shaped spot adjacent to eyes; front of thorax black with slight green metallic reflections; abdominal segment 8 with blue spot at basal half, distal half black; abdominal segment 9 with blue basal spot; abdominal segment 10 black dorsolaterally, becoming bluish ventrally; base of tooth wider than in *L. aculeatum*; abdomen 38 mm; Pernambuco State *siqueirai*
- Posterior lobe of prothorax in dorsal view evenly convex (Figs. 19a); head black with 2 greenish spots between ocellus and antenna, greenish grooves adjacent to eye margin; abdominal segments 8-10 each ochraceous to brown; base of the tooth narrower than in *L. siqueirai*; abdomen 38-39 mm; Surinam, French Guiana, Amapá, Pará States, Brazil *aculeatum*

CERCUS WITHOUT TOOTH (Figs 11c-15c)

- 1 Cercus in lateral view with distal end bifurcate (Fig. 11a), abdomen 53 mm; Bahia State *garbei*
- Cercus in lateral view with distal end not bifurcate (Figs 12-15a) 2
- 2 Viewed dorsally, foliate tip of cercus rounded distally (Fig. 13c) 3
- Viewed dorsally, foliate tip of cercus transversely linear or nearly so (Figs 14c-15c) 4
- 3 Head, pro-, synthorax and legs without dark markings; Espírito Santo State *auriceps*
- Head, pro-, synthorax and legs with dark markings; Rio de Janeiro, Espírito Santo, Santa Catarina States *macrurum*
- 4 Foliate tip of cercus about three times as wide as long, outer margin of cercus straight (Fig. 14c), pterostigma with costal side shorter than radial side (Fig. 34), as in *L. garbei* (Fig. 32); segments 3-6 with dark ring at distal third; abdomen 33.5 mm; São Paulo State *bocainense*
- Foliate tip of cercus approximately as wide as long, outer margin of cercus with distal 0.30 extending posterolaterally (Fig. 15c); abdominal segment 1 pale green, becoming ochraceous on 2, segments 3-5 ochraceous, 6 ochraceous becoming darker distally, 7 with anterior 0.20 dark ochraceous becoming dark brown distally; segment 8, 9 and dorsal half of 10 blue; pterostigma dark ochraceous (Fig. 35b), not reaching the costal margin; abdomen 34-37 mm; Pernambuco State *dardanoi*

KEY TO FEMALES OF *LEPTAGRION* FROM BRAZIL adapted of SANTOS, 1962

- 1 Pterostigma in hind wing rectangular (Fig. 47b) 2
- Pterostigma in fore and hind wing rhomboid or nearly so (Figs 48-54) 3
- 2 Posterior lobe of prothorax in dorsal view with posterior margin forming an obtuse quadrate lobe (Fig. 38a); abdomen 40-41 mm *andromache*
- Posterior lobe of the prothorax with posterior margin wider than base (Fig. 39a) *dardanoi*
- 3 Valves of ovipositor surpassing distal margin of segment 10 (Figs 56-58) 4
- Valves of ovipositor not surpassing distal margin of segment 10 (Figs 59-61) 6
- 4 Tarsal claw with robust inferior tooth smaller than the superior 5
- Tarsal claw bifid with inferior tooth subequal to superior (Fig. 55) *aculeatum*

- 5 Postclypeus with rounded spots, greenish; posterior lobe of prothorax and valves of ovipositor as in Figs 41a, 57 *bocainense*
 – Postclypeus without spots, posterior lobe of prothorax and valves of ovipositor as in Figs 42a, 58
 *vriesianum*
- 6 Epicranium black; pterostigma, posterior lobe of prothorax and valves of ovipositor as in Figs 43a, 59; abdomen 42-44 mm *elongatum*
 – Epicranium ochraceous or blue and ochraceous 7
- 7 Pterostigma with proximal side oblique but with distal side almost perpendicular so that costal margin is shorter than posterior margin (Fig. 52b); abdomen ochraceous, 46-48 mm; posterior lobe of prothorax and valves of ovipositor as in Figs 44a and 60 *perlongum*
 – Pterostigma rhomboid (Figs 53b, 54b) 8
- 8 Abdominal segment 8 blue; segments 9-10 black (Fig. 61); segments 3-6 with distal black annuli preceded by blue ring; wing petiolated to Ac; posterior lobe of prothorax and pterostigma as in Figs 45b and 53b; abdomen 41-43 mm *macrurum*
 – Abdominal segments 8-9 blue; segment 10 black; segments 3-6 as in *L. macrurum*; wing petiolated before Ac; posterior lobe of prothorax (Fig. 46b) and pterostigma (Fig. 54b) as in male; posterior prothoracic lobe in dorsal view ellipsoid (Fig. 46a); abdomen 39 mm *dispar*

Material. – *Leptagrion aculeatum* – BRAZIL, AMAPA, Serra do Navio, Rio Amapari, 1 ♂ and 2 ♀, 26-IX-1963, H. Berla leg.; FRENCH GUIANA, at mercury vapor light, about 8 km S of N2 at PK82, 1 ♂, 19-II-1988, R.W. Garrison leg.; *L. acutum* – BRAZIL, ESPIRITO SANTO, Conceição da Barra, 1 ♂, 15/20-IX-1969, P. Elias leg.; Estrada Conceição da Barra, km. 22, 1 ♂, 1/6-IX-1971, P. Elias leg.; *L. andromache* – BRAZIL, SAO PAULO, São Sebastião, 1 ♂, XII-1980, J.M. Costa & I.M. Brasil leg.; *L. bocainense* – BRAZIL, SAO PAULO, Parque Nacional da Serra da Bocaina, 1 ♂ (holotype), 30-X-1977, N.D. Santos; *L. dardanoi* – BRAZIL, PERNAMBUCO, Recife, Parque Zoobotânico, 3 ♂ and 2 ♀, 18-XI-1965, N.D. Santos leg.; *L. dispar* – BRAZIL, BAHIA, (on bromeliad, resting), 1 ♂, 26-VII-1978, N.D. Santos leg.; BAHIA?, 2 ♂, 1 ♀, 10-X-1970, ? leg.; *L. elongatum* – BRAZIL, ESPIRITO SANTO, Conceição da Barra, 12 ♂, 1 ♀, 27-III-1968, P. Elias leg.; 10 ♂, 2 ♀, 18/23-III-1968, P. Elias leg.; 1 ♂, 23-III-1968, P. Elias leg.; 1 ♂, 17-II-1968, P. Elias leg.; 1 ♂, 3-V-1968, P. Elias leg.; 2 ♂, 16/21-IX-1968, P. Elias leg.; 1 ♂, 10/15-1969, P. Elias leg.; 2 ♂, 15-IV-1968, P. Elias leg.; 1 ♂, 3-V-1968, P. Elias leg.; Conceição da Barra, Fazenda José Campeste (mata), 1 ♂, 1 ♀, 3/8-XI-1969, P. Elias leg.; Mata do Maurício, 1 ♂, 1 ♀, 16/21-VI-1969, P. Elias leg.; Conceição da Barra (capoeira), 1 ♂, 5-I-1970, P. Elias.; RIO DE JANEIRO, Ilha da Marambaia, riacho acima da Gruta da Santa, 1 ♂, 25-VIII-1993, J.M. Costa, T.C. Santos & Sônia V. Carneiro leg.; Cachoeira de Macacu, 2 ♂, 5-VIII-1994, T.C. Santos leg.; SÃO PAULO, Juquiá, Fazenda Poço Grande, 1 ♀, 26-II-1941, J.R. Bailey leg.; *L. garbei* – BRAZIL, BAHIA, Vila Nova, 1 ♂ (holotype); Alagoas, Município de Junqueiro, 1 ♂, 19-VII-1963, D.A. Lima leg.; *L. macrurum* – BRAZIL, ESPIRITO SANTO, Parque Sooretama, Cupido, 1 ♂, II/III-1948, L. Travassos & H. Travassos leg.; Estrada Conceição da Barra – São Mateus, km 10 (mata), 1 ♂, 29/31-II-1969, P. Elias leg.; Jacareipe, 1 ♂, 11/28-II-1967, P. Elias leg.; Linhares, 1 ♂, V-1973, P. Elias leg.; Santa Teresa, 1 ♂, 16-I-1968, P. Elias leg.; Santa Teresa, 1 ♂, 12-I-1991, N. Tangerine leg.; RIO DE JANEIRO, Parati, Pedra Branca, 1 ♂, XI/XII-1941, H. Berla & J.C.M. Carvalho leg.; Tinguá, 2 ♂, 1 ♀, 26-VIII-1965, H. Berla leg.; Tijuca, Bom Retiro, 1 ♀, 4-XII-1966, N.D. Santos; Floresta da Tijuca, Paineiras, 1 ♀, 5-IV-1948, O. Filho leg.; Floresta da Tijuca, Açude da Solidão, 1 ♂, 1-X-1952, N.D. Santos & J.P. Machado; SANTA CATARINA, Joinville, 1 ♂, 28-I-1979, Miers leg.; 28-II-1979, 1 ♂, ? leg.; *L. perlongum* – BRAZIL, BAHIA, Conceição do Almeida, 1 ♂, 15-III-1981, O. Roppa leg.; ESPIRITO SANTO, Castelo, 3 ♂, 1 ♀, X-1979, Inácio leg.; Jacareipe, 8 ♂, 11/28-II-1967, P. Elias leg.; Santa Teresa, Alto de Santo Antonio (mata), 3 ♂, 3-II-1967, P. Elias leg.; Itaguassu (mata), Fazenda Afonso Mattecli, Estrada Baixo Guandu – Itaguassu, km. 32, 1 ♂, 15-IX-1971, P. Elias leg.; Jacareipe (brejo e mata), 12 ♀, 11/28-II-1967, N.D. Santos leg.; 2 ♂, 19-I-1973, N.D. Santos leg.; RIO DE JANEIRO, Cachoeira de Macacu, Rio São Joaquim, 1 ♂, X-1994, T.C. Santos leg.; SÃO PAULO, Reserva Biológica da Boracéia, 1 ♂, 14-XII-1980, N.D. Santos, J.M. Costa & L.F. Netto leg.; Ubatuba (on *Neoregelia cruenta*), 6 ♂, 9-X-1981, N.D. Santos & L.F. Netto; MINAS GERAIS, Rio Matiposo, 1 ♂, IX-1992, Fonseca leg.; Paraná, Alexandra, 1

♂, 23-III-1971, N.D. Santos leg.; SANTA CATARINA, Joinville, 1 ♂, 31-I-1971, O. Mielke leg.; *L. porrectum* – BRAZIL, ESPÍRITO SANTO, Estrada Velha, km 8, 1 ♂, 21-I-1973, N.D. Santos leg.; *L. siqueirai* – BRAZIL, PERNAMBUCO, Recife, Parque Zoobotânico Dois Irmãos, 1 ♂ (holotype), 18-I-1965, N.D. Santos leg.; *L. vriesianum* – BRAZIL, RIO DE JANEIRO, 1 ♂ (holotype), 31-X-1977, N.D. Santos leg.; 1 ♀ (allotype), 27-IX-1977, N.D. Santos leg.; Nova Friburgo, Morro São João (\pm 1600 m), 2 ♂, 7-III-2000, J.Ouverney leg.

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