

Microcentrum latifrons, A New
Species of Angular-Winged Katydid from
Southwestern United States (Orthoptera,
Tettigoniidae, Phaneropterinae)

JOHN D. SPOONER

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Department of Biology

University of South Carolina at Aiken, South Carolina 29801

ABSTRACT

A new species of the genus *Microcentrum* is described from southwestern United States. Important contrasts are made with the partially sympatric species *M. rhombifolium* and *M. californicum*.

The location of the source of a loud, unfamiliar sound from scrub vegetation in the Chisos Mountains of southern Texas during June, 1966, revealed a large, angular-winged katydid. The collected specimen resembled *Microcentrum rhombifolium* (Saussure) which occurs over much of the United States. A few days later the characteristic stridulation was heard in trees near Portal, Arizona, but no specimens were taken. The distinctiveness of the species was later verified by Ashley B. Gurney at the United States National Museum. Examination of specimens from southwestern United States shows that the new species, herein named *Microcentrum latifrons*, may be confused with *M. rhombifolium* and *M. californicum* Hebard where the three species are sympatric in southern Arizona. This study describes *M. latifrons* from all available specimens (11 females, 11 males), and provides important diagnostic contrasts with *M. rhombifolium* and *M. californicum*.

***Microcentrum latifrons* Spooner, new species**

Diagnosis. — *M. latifrons* is completely separable from *M. rhombifolium* by the width of the apex of the frontal fastigium being greater than the fastigial height (Fig. 1C). In *M. rhombifolium* this width is less than, or subequal to, the height (Fig. 1B). *M. latifrons* is distinguished from *M. californicum* by the medioventral angle of the antennal sclerite (Fig. 1C) being recessed below the plane of the frontal field. In *M. californicum* the antennal sclerite is level with or slightly raised above the plane of the frons.

Description. — General coloration green, typical for genus, older specimens faded to buff over much of body. Eyes yellowish-brown, dark brown, or reddish brown except for green ring between basal ommatidial facets and antennal sclerite. Ocelli flat, yellow. Pronotal disc with setal pits dark brown, appearing as dark, microscopic dots typically along anterior border and posterior one-fourth of pronotal disc, but also varying from very few to covering most of disc. Distinct narrow, yellow bar extending from eyes posteriad across head and along lateral carinae of pronotal disc and becoming light brown near humeral notch of disc. Yellowish to light brown along vannal fold and margins of tegmina. Apical cercal tooth of male dark brown. Ovipositor green with shiny, dark brown distad.

M. latifrons is large for the genus. Basic body measurements are given in Table 1.

Vertexal fastigium as shown in Fig. 1C with field flat or varying from having wide, shallow, horizontal depression or small, median, shallow fovea or sulcus, and sometimes with small tubercles. Fastigial suture straight to slightly decurved. Apical width of frontal fastigium greater than frontal fastigial height. Medioventral angle of antennal sclerite (Fig. 1C) typical of this genus, being recessed below plane of adjacent frontal field.

Pronotum smooth except for shallow apodemal sulci or pits, rounded sharply into lateral lobes forming distinct lateral carinae; broad shallow transverse depression near cephalic margin of pronotum of most specimens; cephalic margin concave with median projection varying from toothlike to broad and rounded; posterior margin convex with small median indentation. Metasternal lobes variable, being ovoid-rectangular, rectangular, or parallelogram-like with caudal aspect usually rounded. Tegmina fully developed, **widest just caudal to angle; anal border distal to angle straight or very slightly concave and declivent; apex broadly rounded.** Hindwings fully developed and extending beyond tegmina 4.8 - 5.5mm.

Supra-anal plate triangular with margins straight, apex sharply rounded, and with mediolongitudinal sulcus. Cerci of males distinctly incurved and slightly upcurved (Fig. 1E, F), basal one-third of each swollen in lateral view with long setae borne on warty tubercles; cercal apex strongly incurved and tapering to rounded lobe below and bearing elongate triangular tooth (0.3mm) above, tooth smooth and slightly concave dorsally and bicarinate anteriorly. Cerci

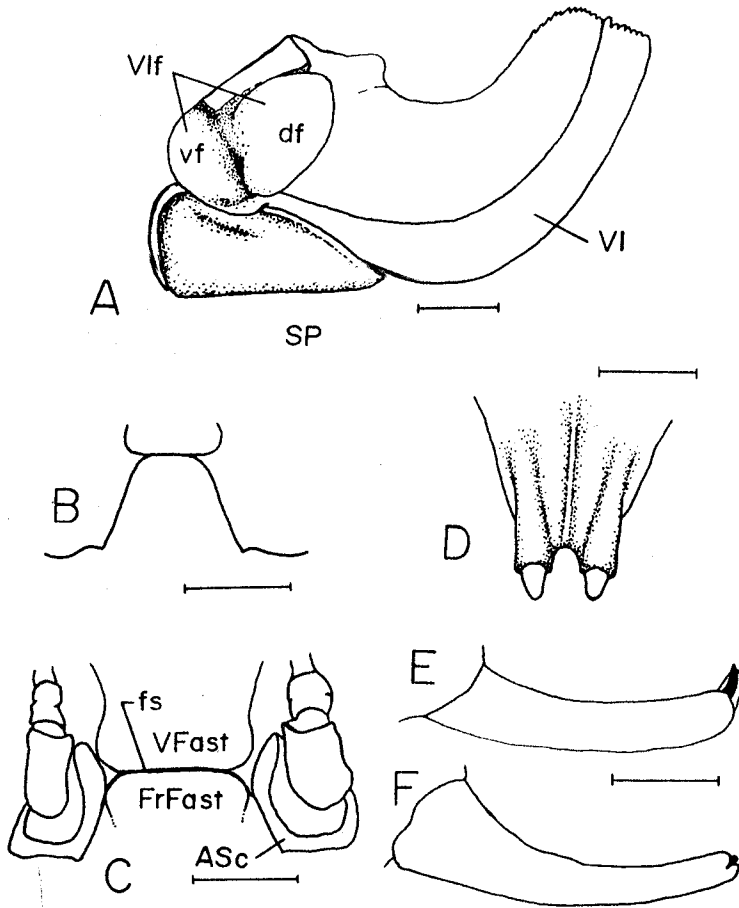


FIG. 1. Details of diagnostic structures of *Microcentrum latifrons* Spooner. ACDEF — *M. latifrons*, B — *M. rhombifolium*. A — ovipositor, valvifer, and subgenital plate; B,C — fastigium; D — male subgenital plate; E,F — male cercus, E — dorsal view, F — lateral view; ASc — antennal sclerite, fs — fastigial suture; FrFast — frontal fastigium; VFast — vertexal fastigium; V1 — first valvula; V1f — first valvifer; SP — subgenital plate. Scale lines each = 1.0 mm.

MICROCENTRUM LATIFRONS

TABLE 1. Individual data of *Microcentrum latifrons* type series. Measurements in mm.†

Specimen Status and Collection Data ³	Museum ⁶	Sex	Body Length ²	Pronotum W/L	Tegmen W/L	Caudal Femur	Number of Stridulatory Teeth ³	Ovipositor W/L ⁴
HOLOTYPE								
1. Cochise Co., AZ 1 mi. so. Portal, 4800' at light 23 July 1965	ANSP	M	24.7	$\frac{5.2}{5.4}$	$\frac{11.8}{41.5}$	19.0	105	—
PARATYPES								
2. ditto data								
3. ditto	ASU	F	26.0	$\frac{5.3}{5.7}$	$\frac{12.8}{41.4}$	18.9	—	$\frac{2.1}{4.8}$
4. ditto	ASU	M	24.8	$\frac{5.2}{5.7}$	$\frac{11.1}{40.4}$	18.7	90	—
5. ditto	ASU	M	25.7	$\frac{5.2}{5.6}$	$\frac{12.5}{43.9}$	18.9	99	—
6. ditto except 12 July 1965	ANSP	F	22.1	$\frac{4.8}{5.1}$	$\frac{11.8}{38.0}$	17.9	—	$\frac{1.9}{4.5}$
7. ditto except 12 July 1965	ASU	F	25.4	$\frac{5.0}{5.5}$	$\frac{11.2}{41.3}$	17.7	103	—
8. ditto except 24 July 1965	ASU	F	25.8	$\frac{5.2}{5.8}$	$\frac{12.9}{39.5}$	18.0	—	$\frac{2.1}{4.8}$
9. ditto except 17 July 1974	ANSP	F	24.9	$\frac{5.3}{5.8}$	$\frac{13.0}{42.3}$	19.4	—	$\frac{2.2}{4.9}$
10. ditto except 14 July 1963	USNM	F	23.4 (bent) 27.0	$\frac{5.1}{5.5}$	$\frac{12.1}{40.0}$	18.8	—	$\frac{1.9}{4.8}$
11. Cochise Co., AZ Chiricahua Mts., Cave Creek Ranch, 5000' at light 5 August 1965	UCB	F	27.0	$\frac{5.1}{5.5}$	$\frac{12.0}{40.6}$	20.2	—	$\frac{2.0}{4.6}$
	UCR	F	26.3	$\frac{5.8}{6.2}$	$\frac{12.9}{43.3}$	19.8	—	$\frac{2.2}{5.0}$

12. ditto	UCR	F	23.6 (bent)	5.1	12.5	—	—	2.0
				5.1	39.6			4.7
13. ditto	UCR	F	25.7	5.2	13.0	—	—	2.0
				5.3	43.5			4.9
14. ditto except 3 August 1965	ANSP	F	26.2	5.3	12.9	18.8	—	2.2
				5.9	42.3			4.8
15. Nogales, AZ 13 August 1906	ANSP	F	26.6	5.4	13.0	19.3	—	2.1
				5.8	42.8			4.8
16. ditto except 22 July 1903	USNM	M	25.8	5.2	11.8	19.7	93	—
				5.8	41.0			—
17. ditto	USNM	M	24.9	5.0	11.8	20.0	91	—
				5.7	42.4			—
18. ditto	USNM	M	24.1	5.2	11.2	18.6	98	—
				5.5	39.5			—
19. ditto	USNM	M	26.0	5.0	11.0	18.6	91	—
				5.2	40.0			—
20. ditto	USNM	M	24.0	5.2	11.7	19.9	100	—
				5.6	42.1			—
21. Ft. Grant, AZ 1888	USNM	M	26.8	5.3	12.9	20.8	108	—
				6.1	45.6			—
22. Brewster Co., TX	JDS	M	23.9	5.1	11.2	18.3	101	—
				5.2	41.9			—

Chisos Basin in Chisos Mts., 5400' 26 June 1966

¹ Measurements made with engineering dividers or ocular micrometer.

² Body measured from frons to supra-anal plate.

³ Sridulatory file studied by method described by Spooner, 1986.

⁴ Ovipositor length measured in straight line from base of intervalvular suture to most distal point.

⁵ Collectors: 1 - 8, J.H. & J.M. Davidson and M.A. Cazier; 9, J.M. & S.N. Burns; 10, A. Raske; 11 - 13, G.R. Ballmer; 14, G.W. Forster; 15 P.P. Calvert; 16 - 20, Oslar; 21, C.V. Riley; 22, J.D. Spooner

⁶ Housing Museums: ANSP - Academy of Natural Sciences of Philadelphia; USNM - United States National Museum of Natural History; ASU - Arizona State University, Dept. of Zoology; UCR - University of California at Riverside, Dept. of Entomology; UCB - University of California at Berkeley, Dept. of Entomology; JDS - John Spooner personal collection.

of females conical, slightly incurved, setaceous, each with setal warts throughout. Subgenital plate of male (Fig. 1D) tricarinate with median carina sharp and lateral carinae rounded into lateral fields; lateral carinae extended caudad into brief, round, caudal processes; each process bearing short style 1.5 - 2.0X as long as basal width, tapering distally to rounded apex. Subgenital plate of female (Fig. 1A) scoop-shaped with two lateral fields meeting broadly and roundly midventrally, midanterior margin of plate entire or with shallow incision, anterodorsal margins of lateral fields folded outward forming submarginal sulcation. Ovipositor (Fig. 1A) typically falcate and finely crenate dorsodistally, caudal border of first valvula nearly straight (slightly convex), apex of first valvula straight or very slightly concave and forming approximate 90° relationship with caudal border. Valvifer (Fig. 1A) with dorsocaudal field swollen and ventrocephalic field slightly depressed, flat, or slightly swollen, the two fields forming a shallow, rounded cephallic depression which becomes a V-shaped sulcus or fovea caudally.

Calling Song. — Series of loud, slowly-delivered ticks (1.3 per sec. at 25 C).

Etymology. — The species epithet, *latifrons*, has been selected to emphasize the distinctive character that separates *M. latifrons* from *M. rhombifolium*.

DISCUSSION

All the specimens of *latifrons* from the herein noted museums had been included in *M. rhombifolium* collections. The fact that Morgan Hebard in 1934 determined specimens 16 - 20 (TABLE 1) as *M. rhombifolium* attests to the similarity of the two species. *M. californicum* also has a wide frontal fastigium but is easily separated by differences in the antennal sclerite. The only characters of *M. latifrons*, *M. rhombifolium*, and *M. californicum* that completely separate all specimens at hand are those stated in the diagnosis. Although *rhombifolium* typically is the larger species, the ranges of size variation overlap for all three species in the sympatric zone in southeastern Arizona. The time of collection may aid diagnosis. Each of the three species apparently has a single generation per year in southwestern United States, *M. latifrons* maturing earlier than *M. rhombifolium* and *M. californicum*. I heard no calls from *M. rhombifolium* or *M. californicum* while collecting in the southwest

during the last week of June. The number of teeth in the stridulatory file separates males of *M. latifrons* (90 - 108 teeth) from those of *M. rhombifolium* (48 - 70) but not from those of *M. californicum* (96 - 118) (Spooner, in preparation). The number of spines on the caudolateral border of the hind tibiae supports diagnosis: *M. latifrons*, 11 - 18; *M. rhombifolium*, 18 - 24; *californicum*, 16 - 23. The calling song of the male is also distinctive. Other differences between the species involve average values of body measurements (Spooner, in preparation).

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