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Gryllus texensis n. sp.: A Widely Studied Field Cricket (Orthoptera; Gryllidae) from the Southern United States

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The purpose of this note is to validate a name for a field cricket that occurs from western Texas to western Florida that has been incorrectly referred to as *Gryllus integer.* The type locality of a species first termed *G. integer* is California, but the range of this species was described to include several locations in Texas (Scudder1901, 1902). Alexander and Otte (1967) also used *G. integer* to refer to field crickets with a trilling calling song collected in eastern Texas. The calling song of *G. integer* from California consists of a series of very brief trills conposed of 2 or 3 pulses of sound, a so-called "stutter triller" (Weissman et al. 1980). This song is very different from the calling song of the trilling Texas species. Weissman et al. pointed out that the Texas species is not *G. integer* and that the name was used incorrectly. Also, these two species readily mated in the laboratory, but these matings produced no offspring (Smith and Cade 1987). The Texas species has been widely studied and we propose that it be called *G. texensis* Cade and Otte because much of the research has been performed on Texas populations.

G. texensis occurs in old fields, lawns, and any grassy habitat from western Texas to western Florida, north to Oklahoma and south into Mexico (Loftus-Hills, J., unpublished data; Walker 1974). A representative sonagraph of the calling song of *G. texensis* is in Figure 1. The song consists of a series of pulses grouped together into trills of varying lengths and produced at an average wing stroke or pulse rate of approximately 80 per second at 25 C (Soroukis et al. 1992). Drawings of the morphology and genitalia of *G. texensis* are in Figure 2. The type specimens for male and female *G. texensis* were collected from the grounds of the State Capital in Austin, Texas in August, 1998 and are deposited in The Academy of Natural Sciences, Philadelphia.

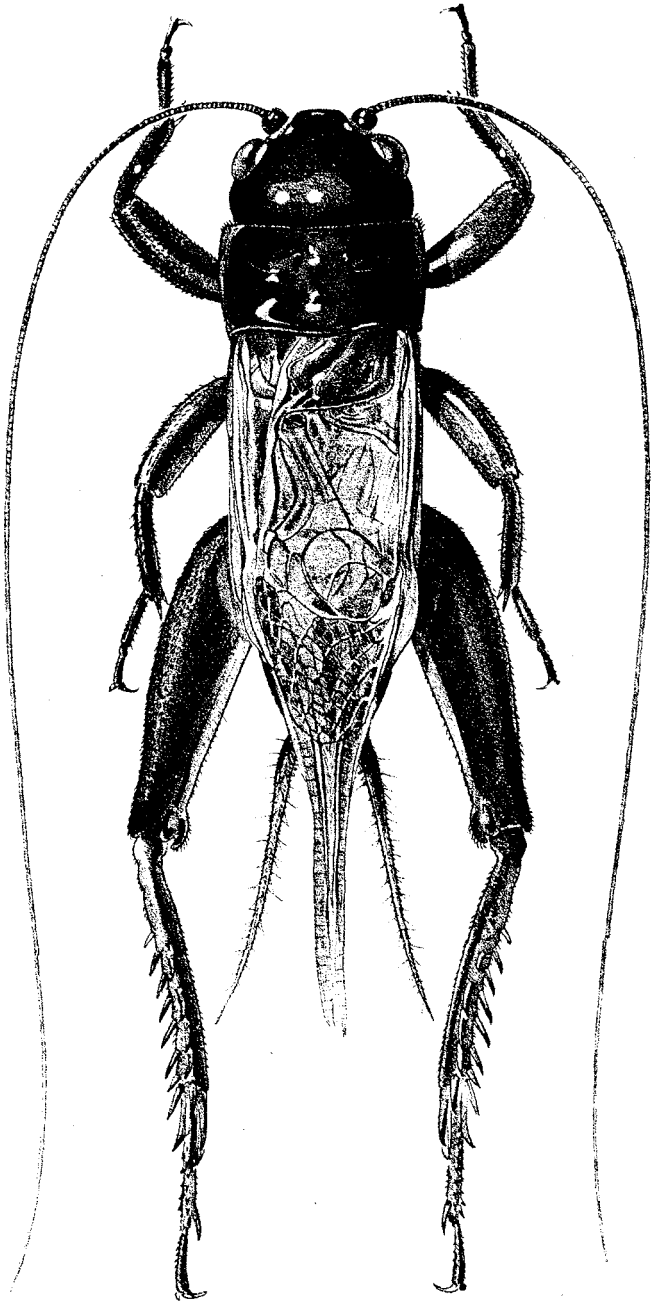

FIG. 1. *Gryllus texensis* male holotype from Austin, Texas. Body length from front of head to end of forewings 33 mm.

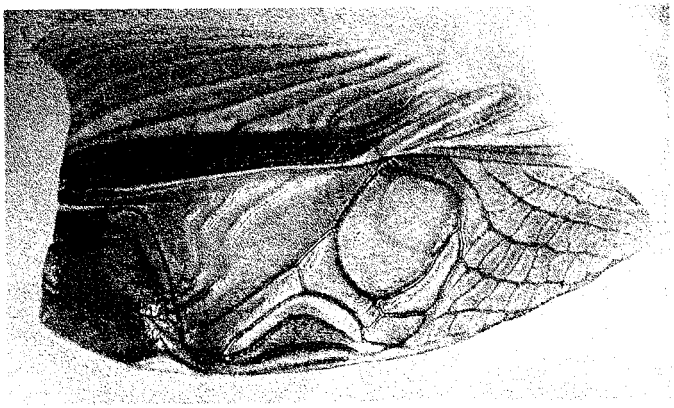

FIG. 2. Right forewing of male.

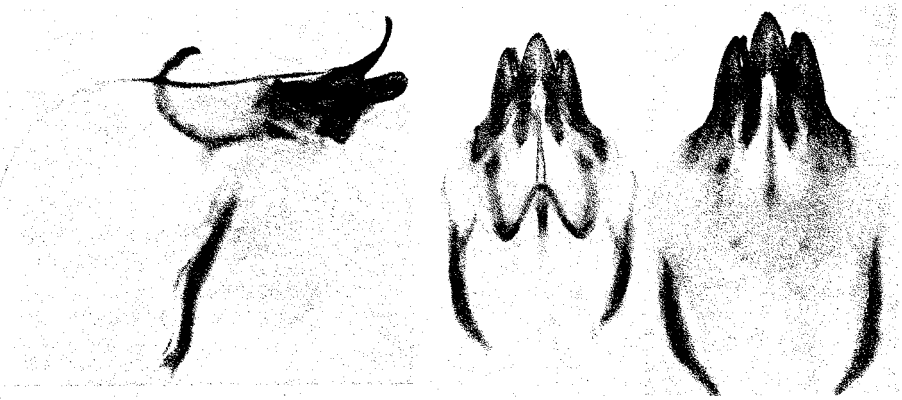

FIG. 3. Male genitalia: lateral, dorsal and ventral views.

FIG. 4. Leg-1 showing outer tympanum.

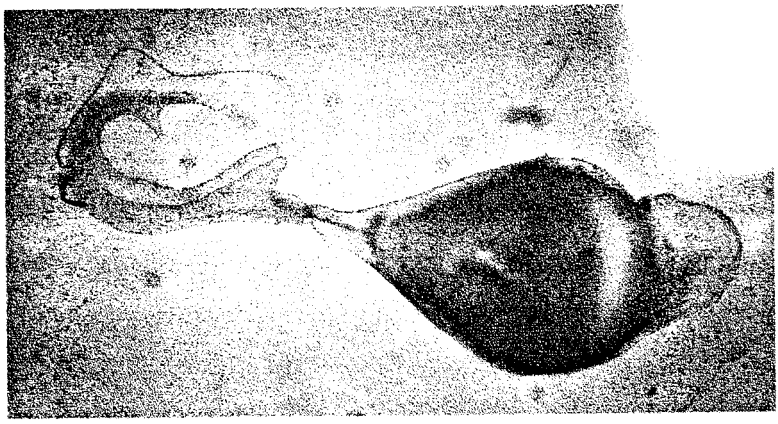

FIG. 5. Spermatophore.

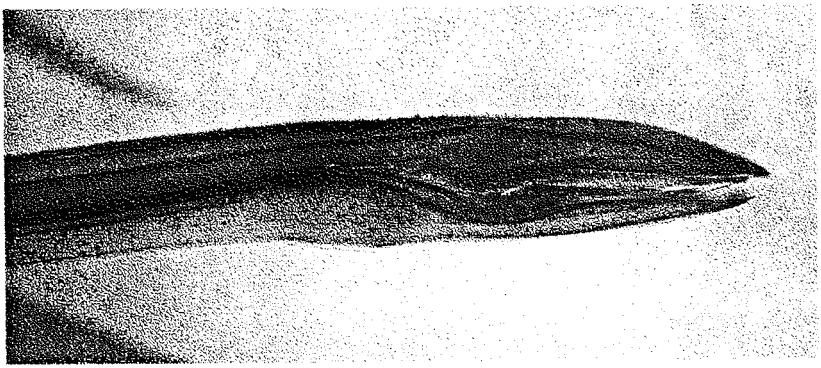

FIG. 6. End of ovipositor.

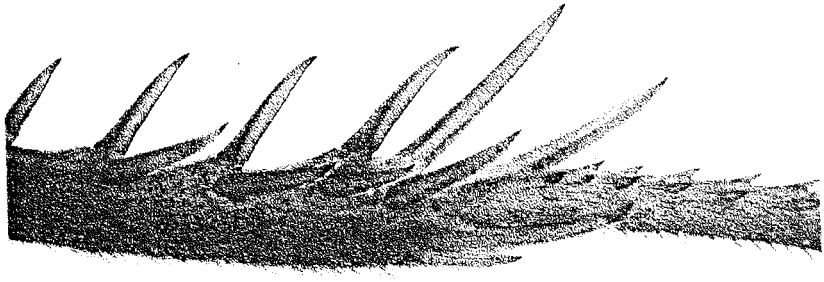

FIG. 7. Tibia-3, outer face.

Description.-Holotype and allotype: Both sexes most black, but forewings brownish and femur-3 rusty brown on lower outer face and orange on inner face. Pronotum and legs pubescent. Head smooth. Body length to end of forewings 33 mm in male, 32 mm in female; forewing length: 15 and 15.5; body width at base of forewings: 7 and 7; femur-3 length 13 and 13; tibia-3 length: 10.5 and 10; cercus length: 12.5 and 10.5; ovipositor length 14. Male tibia-3 with 10 outer and 9 inner spurs on left and 10 outer and 8 inner spurs on right. Female tibia-3 with 9 outer and 9 inner spurs on left and 10 outer and 9 inner spurs on right. Tibia-1 with a small inner and a large oval outer auditory tympanum. Male stridulatory file with 110 teeth.

Types.-Holotype male and allotype female, Texas: Austin, grounds of the state capitol building, May 5, 1998, W. Cade collector. Deposited at the Academy of Natural Sciences, Philadelphia, Pennsylvania.

Diagnosis.-Another field cricket species, *G. rubens*, occurs in the southeast United States (Alexander 1957) and overlaps with *G. texensis* extensively from Texas to western Florida (Walker 1974). There are no known morphological differences between *G. rubens* and *G. texensis*. The calling songs of the two species are different, however, and *G. rubens* calls at an average pulse rate of 56 per second at 25 C (Walker 1962, 1974). (See Walker 1998 for an extensive comparison of the songs of *G. rubens* and *G. texensis* where they co-occur in western Florida.)

G. rubens and *G. texensis* hybridized readily in the laboratory (Smith and Cade 1987, Cade and Tyshenko 1990) and the F1 hybrids were also fertile. Walker (1998) found no evidence, however, that *G. rubens* and *G. texensis* hybridize in the field. Alexander (1968) proposed that G. rubens and *G. texensis* (referred to as *G. integer*) are siblings and Walker's extensive study supports the view that the two species are close relatives.

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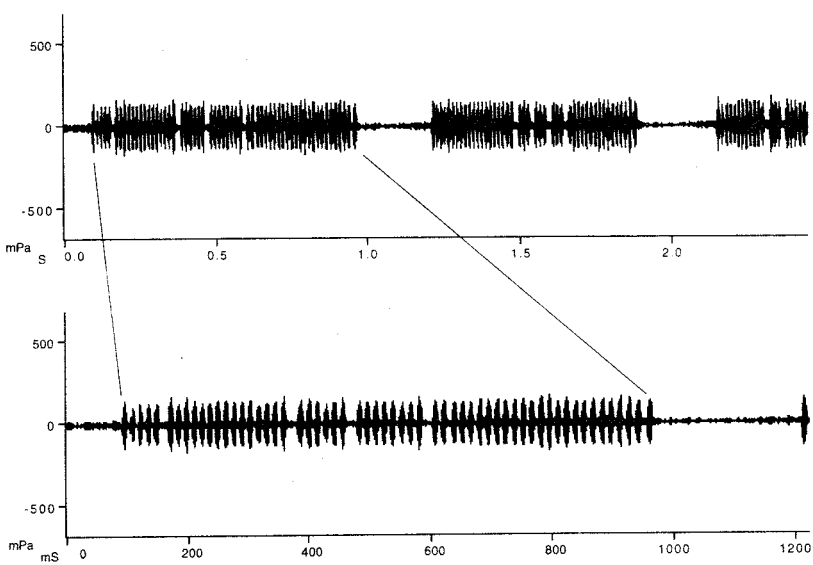

FIG. 8. Song of male from Austin, Texas at 24C. Horizontal axis is seconds (above) and milliseconds (below).

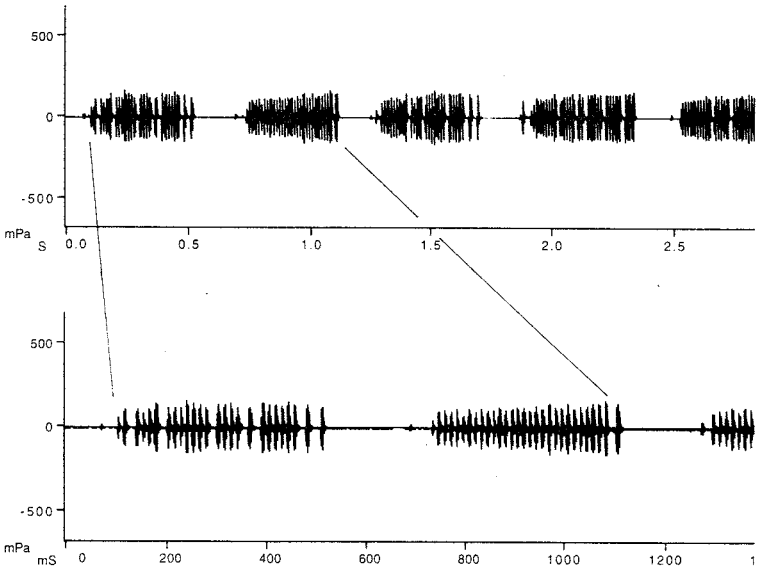

FIG. 9. Song of male from Austin, Texas at 25.4C. Horizontal axis is seconds (above) and milliseconds (below).

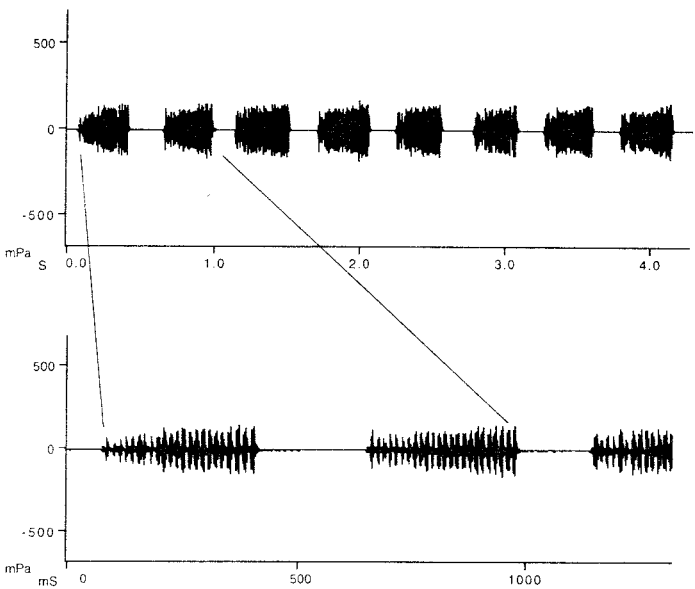

FIG. 10. Song of male from Austin, Texas at 23.1C. Horizontal axis is seconds (above) and milliseconds (below).