

FIGURE 59. Known US distribution of *G. veintinueve*.

***Gryllus assimilis* (Fabricius)**

Jamaican Field Cricket

Figs 54, 60–66, Table 1

1775 *Acheta assimilis*. Systema Entomologiae, p. 280. Type from Jamaica lost, according to Alexander (1957). Neotype male (Fig. 63) selected by Weissman *et al.* 2009: Jamaica, St. Catherine Parish, Worthy Park, 27-xi-1968. T.J. Walker. Type deposited in CAS, Entomology Type #18172.

‘Gryllus #1’, in part, of DBW notebooks.
 2009 *Gryllus assimilis* Weissman *et al.* 2009.
 See Cigliano *et al.* (2019) for complete list of synonyms.

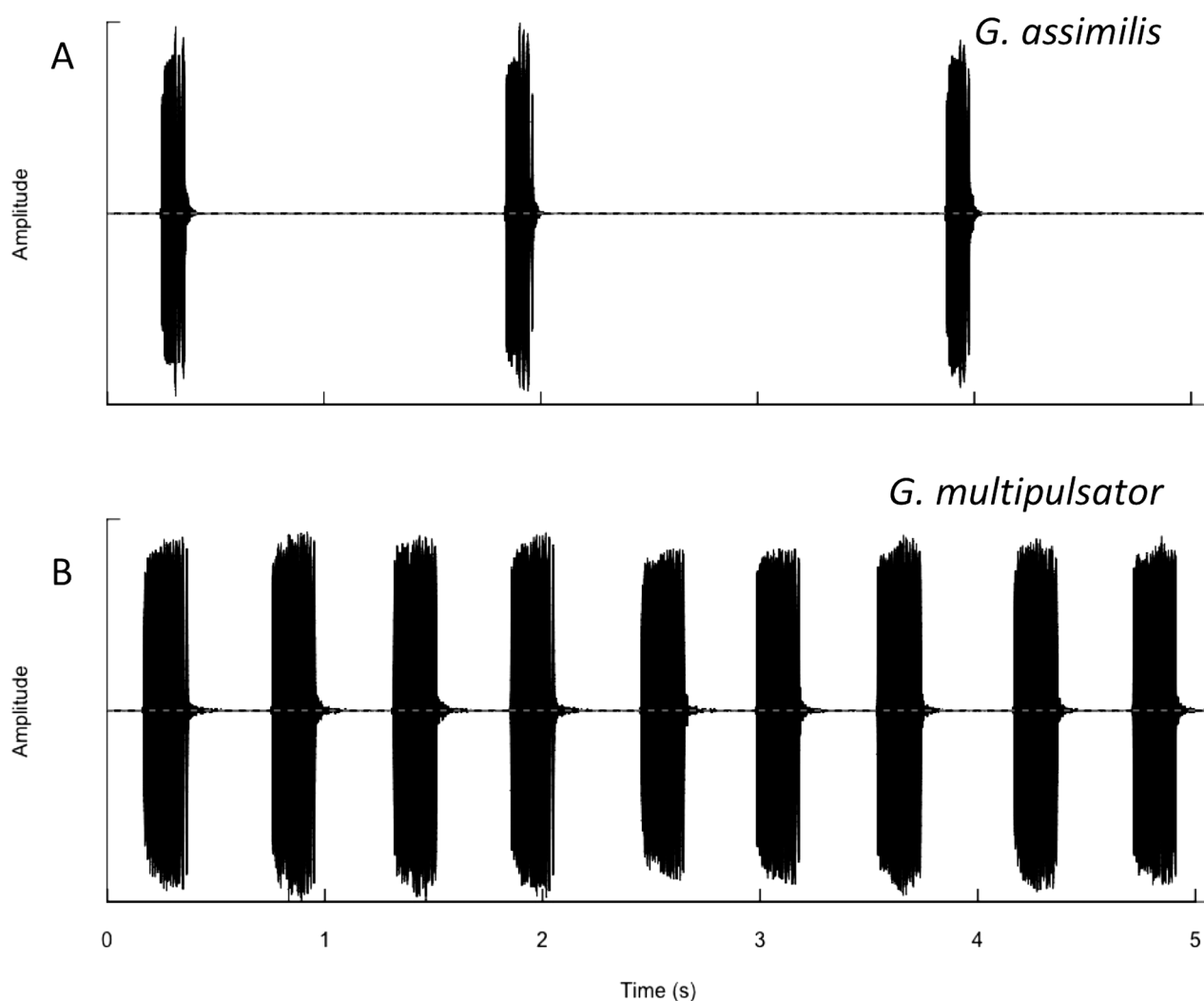


FIGURE 60. Five second waveforms of calling songs of (A) *G. assimilis* and (B) *G. multipulsator*. (A) *G. assimilis*: (R13-231) Rio Hondo, TX (S13-44), at 25°C; (B) *G. multipulsator*: (R15-325) Pima Co., AZ (S15-108), at 25.4°C.

Distribution. Texas and Florida only within the US.

Recognition characters and song. Always macropterous, although rare individuals apterous after shedding hind wings. Medium to large size (Table 1, p. 18), head frequently narrower than pronotum (Fig. 64), dorsal pronotal surface covered with short, fine hairs usually resulting in dull appearance. *Song* (Fig. 65, R13-231, S13-44) loud, 6–9 (rarely 10) p/c, PR for first pulse pair ranges from 50 to 111, PR of last pair ranges from 40 to 83 (Weissman *et al.* 2009). Chirps/second variable, but distinctive and usually <2.5 at 25°C. In the US, only native in southern Texas but introduced in southern Florida (Alexander & Walker 1962). Probably continuous generations. Only sympatric Texas species (and then only in Brackettville (S10-63) and Big Bend (S16-12), TX) with a similar, but distinctive song is *G. personatus*, the latter having a faster chirp rate, a shiny pronotum, different microhabitat requirements, and different head and pronotum color patterns.

Derivation of name. “as” = a copper coin; “similis” = like, resembling, perhaps with reference to an orange/red-dish specimen that reminded Fabricius of the color of a copper coin.

Geographic range. (Fig. 66). Native in southern Texas, introduced in Florida (Alexander & Walker 1962). Fieldwork in 2013 in southern coastal Texas uncovered a much wider distribution than seen in previous years (Weissman *et al.* 2009). Ranges through Mexico and Central America, usually east of the Continental Divide. On many Caribbean Islands (Otte & Perez-Gelabert 2009, Weissman *et al.* 2019), and possibly into South America

(Weissman *et al.* 2009). Widespread sale of this cricket species by US pet-feeder suppliers raises the possibility that feral populations could be established outside its normal US-North American distribution (Weissman *et al.* 2012). Barranco (2012) claims feral populations of *G. assimilis* in Spain but doesn't supply an oscillogram to confirm identification. We believe those crickets could be *G. locorojo* (Weissman *et al.* 2012).

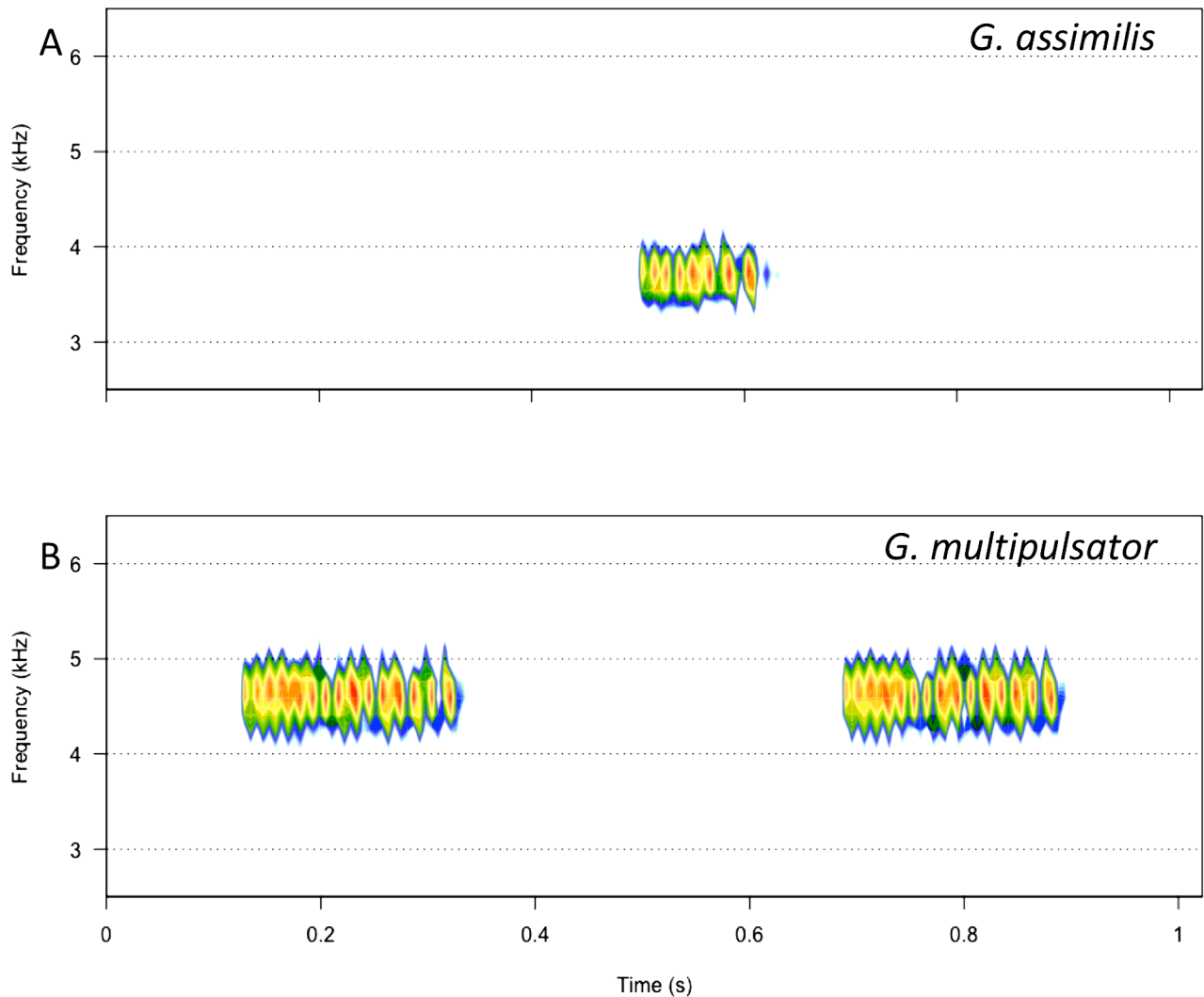


FIGURE 61. One second spectrograms of *G. assimilis* (A) and *G. multipulsator* (B), same males as in Fig. 60.

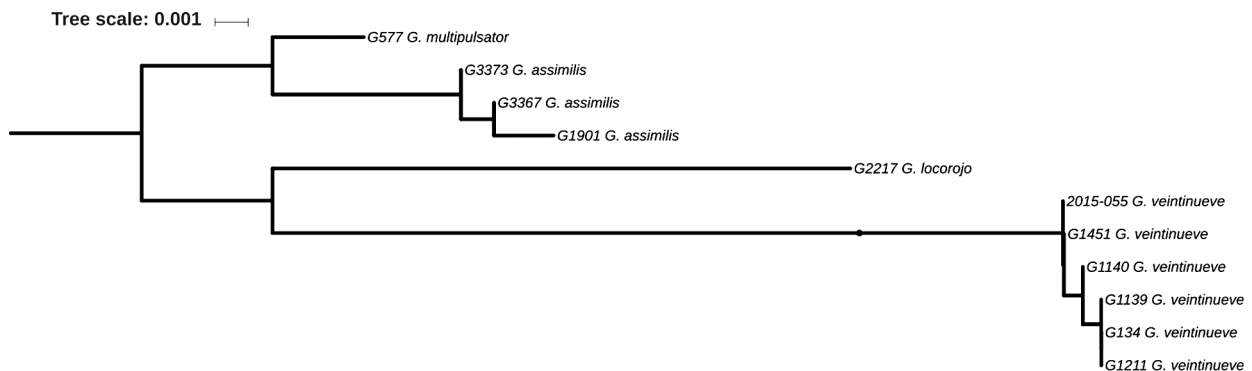


FIGURE 62. ITS2 gene tree. *G. assimilis* samples: S10-64 (G1901); S16-12 (G3367, G3373); *G. multipulsator* sample: S03-41 (G577); *G. locorojo* sample: type locality (Rainbow Mealworms); *G. veintinueve* samples: S02-39 (G134); S07-21 (G1139); S07-27 (G1140, G1211); S09-71 (G1451); OK, Love Co., Hwy 32 at Boggy Creek (2015-055).



FIGURE 63. Neotype male, *Gryllus assimilis*, photographs and labels.



FIGURE 64. Color variation in *G. assimilis* from reddish female (left, Brackettville, TX, S10-63) to dark male (right, Quintana Roo, Mexico, S02-12). Note head narrower than pronotum and hirsute and dull pronotum surface.

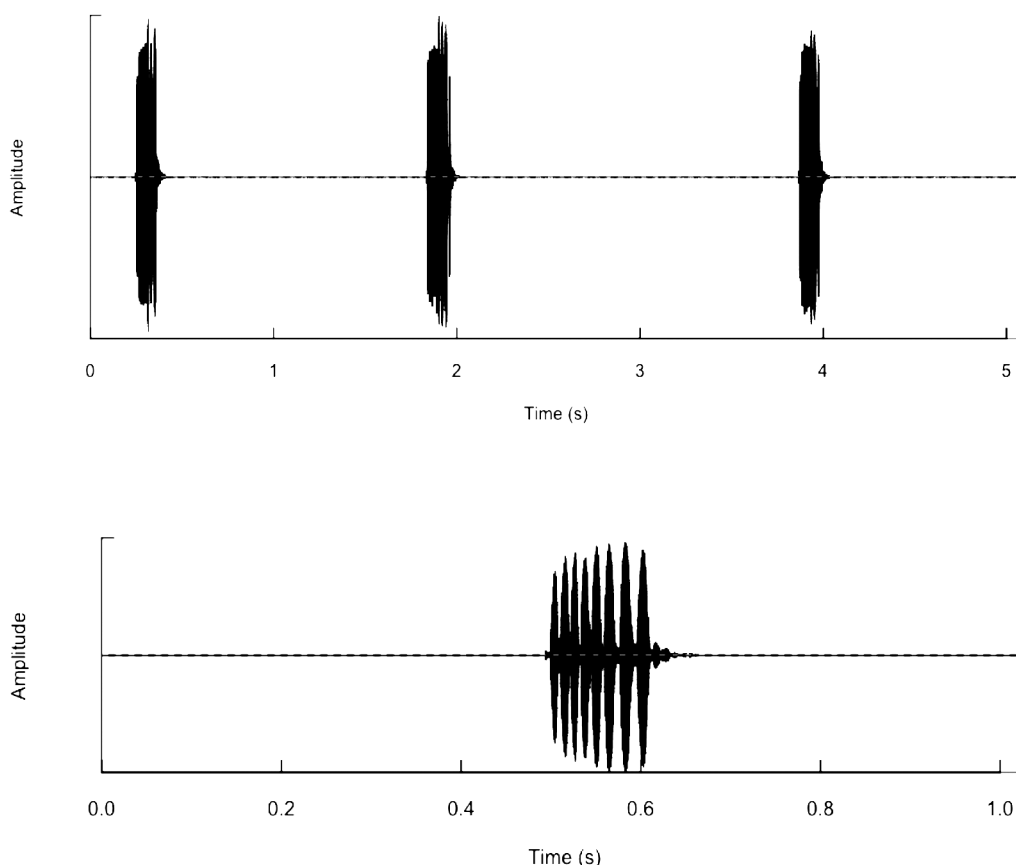


FIGURE 65. Top: Five second waveform of calling song of *G. assimilis* (R13-231) Rio Hondo, TX (S13-44), at 25°C; Bottom: One second waveform of same song showing individual pulses.

Habitat. Almost always associated with people and their watered environs such as lawns, golf courses, school grounds, and in towns. Usually in mowed grassy areas and sometimes in holes.

Life cycle and seasonal occurrence. Diapause unknown for any stage of development. Probably 2 or 3 generations/year with overlap of the continuous generations. Collected early June to mid-September, but obviously present at other times of the year.

Variation. **Color:** Head, pronotum, body, tegmina, and legs from black to tan (Fig. 64). As we have not seen winter/spring individuals, we may be missing darker colored individuals.

Specimens examined. **Texas:** *Bastrop Co.*, Smithville, 325', late September. S.M. Bertram. *Brazoria Co.*, Farm Road 521 5.5 m SE Brazoria, 38', 13-vii-2013 (S13-61). *Brewster Co.*, Big Bend National Park, Rio Grande Village, 1860', 28-v-2016, (S16-12). *Calhoun Co.*, Port Lavaca, 18', 12-vii-2013 (S13-57). *Cameron Co.*, Brownsville, sea level, 3-vi-1991 (S91-38). 3.1 m W Boca Chica State Park on Hwy 4, 10-vi-2007 (S07-26). Rio Hondo, 8m, 10-vii-2013 (S13-44). Intersection Farm Roads 510 and 2480. 2m, 10-vii-2013 (S13-43). *Fayette Co.*, 2 m S Schulenburg, 440', 9-ix-2010 (S10-65). Schulenburg, 460', 9-ix-2010 (S10-66); 14-vii-2013 (S13-66). *Hidalgo Co.*, Benson Rio Grande State Park, sea level, 3-viii-2002 (S02-34); 10-vi-2007 (S07-27). *Jim Wells Co.*, Alice, 171', 11-vii-2013 (S13-48, 49, 50). *Kinney Co.*, Brackettville, 1160', 7-ix, 2010 (S10-63). *Nueces Co.*, Corpus Christi, sea level, 11-vi-2011 (S11-36); 12-vii-2013 (S13-53). *Refugio Co.*, Tivoli, 12', 12-vii-2013 (S13-56). *Val Verde Co.*, Del Rio, 1140', 7-ix-2012 (S10-64). *Victoria Co.*, Victoria, 20', 4-viii-2007 (S02-37). *Willacy Co.*, Raymondville, 10-vii-2013 (S13-47). Farm Road 1420 near intersection FR 498, 15', 10-vii-2013 (S13-46).

DNA. G3373 (Big Bend, TX [S16-12]) in multilocus species tree (Gray *et al.* 2019); *G. multipulsator* is closest DNA relative, at least within our study area. DNA data from a more extensive series is presented in Weissman *et al.* 2009.

Discussion. In Texas, before 2013, we found this species generally uncommon and dispersed, which contrasts

with the situation along the east coast of Mexico where *G. assimilis* is more common. For unknown reasons, collecting in coastal Texas in 2013 uncovered several dense populations and much wider distributions than in previous years. This cricket is loud and singing males are not easily overlooked. Perhaps because of its adaptation to lowland, cool coastal habitats, *G. assimilis* males still sing well at 04:00 when most other *Gryllus* species have long ceased singing.

Bertram & Rook (2011a, b) have studied calling songs and biological aspects in this species from the Austin, Texas area, while Pollack & Kim (2013) and Vedenina & Pollack (2012) studied female phonotaxis and variable courtship song in long-term laboratory cultures. Sturm (2014) and Villarreal *et al.* (2018) examined aspects of mating strategies. Weissman *et al.* (2012) documented efforts by US and European cricket farms to utilize another *Gryllus* species, *G. locorojo*, misidentified as *G. assimilis*, to replace virus-infected *Acheta domesticus* as the preferred pet-feeder cricket.

S.M. Bertram notes (pers. comm. to T.J. Walker, March, 2015) that she and her group have encountered thousands of flying individuals at lights in the fall around Smithville, Bastrop Co., TX, in 2007, 2008 or 2009, and 2014. This situation seems similar to those outbreaks described by Alexander & Walker (1962) in Florida.

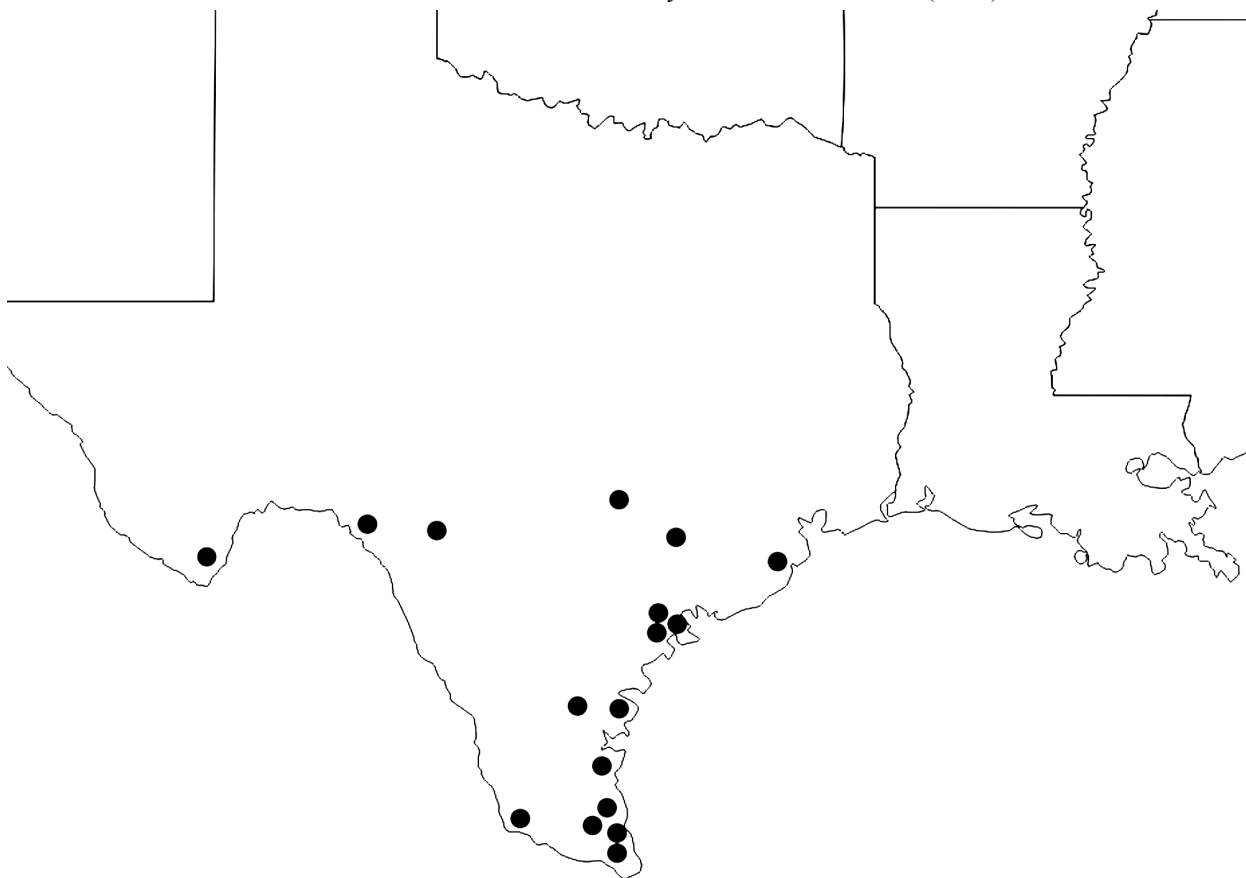


FIGURE 66. Known US distribution, *G. assimilis* within native range (also found introduced in south Florida, see SINA: <https://sina.orthsoc.org/>).

***Gryllus multipulsator* Weissman**

Long-Chirp Field Cricket

Figs 54, 60–62, 67–70, Table 1

2009 *Gryllus multipulsator* Weissman *et al.* 2009, p. 375. Holotype male (Fig. 67): Alpine, San Diego Co., California. Deposited in CAS, Entomology type #18174.

1980 *Gryllus assimilis* Weissman *et al.* 1980.

1981 ‘*Gryllus* I’ Rentz & Weissman 1981.

‘*Gryllus* #1’ in DBW notebooks.