

Recent Range Expansion into Connecticut by *Orocharis saltator* (Orthoptera: Gryllidae)¹

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J. Entomol. Sci. 52(3): 293–296 (July 2017)

Key Words distribution, first state record, sampling, seasonal activity

Orocharis saltator Uhler has expanded its distributional range northward during the last 5 decades. In an early account, Blatchley (1920, Pp. 742–743, Orthoptera of Northeastern America with Especial Reference to the Faunas of Indiana and Florida, The Nature Publishing Co., Indianapolis, IN) reported New Jersey as the northern range limit along the eastern seaboard. Walker (1969, Ann. Entomol. Soc. Am. 62: 752–762) published the first detailed range map, showing that *O. saltator* reached its northern limit in central New Jersey and central Ohio. Subsequently, Capinera et al. (2004, P. 204, Field Guide to Grasshoppers, Katydids, and Crickets of the United States, Cornell Univ. Press, Ithaca, NY) showed that its range had moved slightly more northward. Recently, Walker (2016, Jumping Bush Cricket, *Orocharis saltator*. Accessed 21 December 2016. <http://www.entnemdept.ufl.edu/walker/buzz/686m.htm>.) produced an updated range map, showing additional northward expansion in midwestern states and in eastern coastal states. The two northernmost records given by Walker (2016) were Ithaca, NY and Cambridge, MA; both locations are at about 42.4° north latitude. In this paper, specimen-based records will be used to document the presence of *O. saltator* in Connecticut. Apparently, Himmelman (2009, Pp. 112–113, Guide to Night-singing Insects of the Northeast, Stackpole Books, Mechanicsburg, PA) first mentioned that this cricket had reached Connecticut, but he did not provide any precise distributional information. There are no specimens of *O. saltator* from Connecticut or Massachusetts in major insect collections in Connecticut or in the Museum of Comparative Zoology, Harvard University, Cambridge, MA.

Various aspects of the biology of *O. saltator* were discussed by Riley (1873, Pp. 119–120, *In* Fifth Annual Report of the Noxious, Beneficial, and Other Insects, of the State of Missouri, Regan and Carter, Jefferson City, MO), Blatchley (1920),

¹Received 24 January 2017; accepted for publication 19 March 2017.

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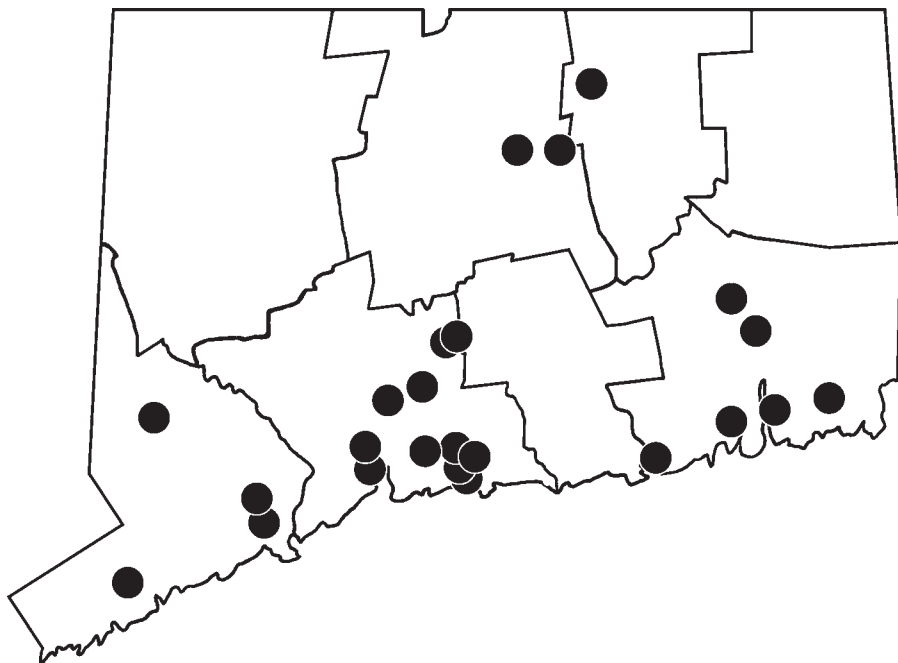


Fig. 1. Distribution of *Orocharis saltator* in Connecticut. Lines delimit counties which, in clockwise order from the lower left, are Fairfield, Litchfield, Hartford, Tolland, Windham, New London, Middlesex, and New Haven. If two localities with *O. saltator* were separated by <1 km, they are represented by one black circle midway between the two locations.

Walker (1969), and others. Apparently, in the Northeast this nocturnal cricket reaches the adult stage in summer. The brown adults may be well camouflaged on bark where they often rest and call. This cricket has one generation per year, overwintering in the egg stage.

My new distributional records were acquired between 2006 and 2016 while I was conducting surveys that targeted non-orthopteran species. Most specimens of *O. saltator* were obtained by using Lindgren funnels (Phero Tech, Incorporated, Delta, BC) and cross-vane panel traps (Alpha Scents, Incorporated, West Linn, OR) to capture cerambycids, by beating live bushes of southern arrowwood, *Viburnum dentatum* L., to dislodge adults of the viburnum leaf beetle, *Pyrrhalta viburni* (Paykull), and by sweeping the samaras of tree of heaven, *Ailanthus altissima* (Miller) Swingle, to collect the brown marmorated stink bug, *Halyomorpha halys* (Stål). Lindgren and panel traps were baited with ethanol, other host volatiles, various cerambycid pheromones, or some combination of these. Traps were hung from a tree branch with the collection cup about 1.5 m above the ground. These two types of black traps mimic tree trunks, which may be daytime resting sites for this nocturnal cricket.

Orocharis saltator was found mainly in the lower one-half of Connecticut and in the central lowlands (or Connecticut Valley) in the upper part of the state (Fig. 1).

The annual mean temperature is higher in the aforementioned areas of Connecticut than in the northeastern and northwestern regions of the state (Brumback 1965, St. Geol. Nat. Hist. Surv. Conn., Bull. 99). The cricket was collected in five of eight counties, with the northernmost locality in Ellington in Tolland County. The absence of records of *O. saltator* from the upper corners of the state was not due to lack of sampling. In late summer of 2015 and 2016, cross-vane panel traps were deployed at 26 different locations in Litchfield County and Windham County, the two counties in the upper corners of the state. In addition, in 2016 bushes of *V. dentatum* were beaten for *Pyrhhalta viburni* at 58 locations in these two counties.

Immatures of *O. saltator* were captured between 22 July and 4 September whereas adults were captured between 14 August and 14 October. Adult activity may have continued after sampling activities ended in mid-October.

Distributional records. The records which appear in the next paragraph are presented with data organized in the following order: county, municipality (town or borough, which are the principal local governing units in Connecticut), latitude, longitude, date(s) of collection, sex of specimen(s) with immatures indicated by [I], sampling method, and sometimes habitat. Coordinates were recorded with a hand-held Garmin GPS 72H (Olathe, KS) and are given without a negative sign for the longitude and a hemisphere designation (N or W). No locational information is duplicated (e.g., the town is given only for the first entry for a town with two or more records). To save space, abbreviations are given for phrases used more than once. Abbreviations for collecting methods are: BMa, beaten from branches of white mulberry, *Morus alba* L.; BVd, beaten from live *V. dentatum*; CVPT, cross-vane panel trap baited with ethanol and sometimes other attractants; LT8, 8-funnel Lindgren trap baited with ethanol; LT12, 12-funnel Lindgren trap baited with ethanol and sometimes other attractants; SAa, swept from samaras of *A. altissima*. Habitat abbreviations are: BLF, broad-leaved forest; and, PS, plantation or grove of white pine, *Pinus strobus* L. All specimens are deposited in the Department of Entomology, Connecticut Agricultural Experiment Station, New Haven.

FAIRFIELD CO., Bethel, 41.39594, 73.40573, 29 September 2010, 1♂, BVd; Bridgeport, 41.21156, 73.17963, 5–12 August 2015, 1♂[I], CVPT, BLF; 41.21311, 73.18118, 26 August–2 September 2015, 1♀, CVPT, BLF; 41.21730, 73.18108, 5 August 2008, 1♀[I]; 28 August 2008, 1♀[I], BMa; New Canaan, 41.12418, 73.47257, 14–20 August 2015, 3♂1♀, 21–27 August 2015, 1♀, CVPT, PS; Trumbull, 41.25687, 73.18851, 20–26 August 2015, 1♀[I]; 27 August–2 September 2015, 1♀, CVPT, BLF. **HARTFORD CO.**, Manchester, 41.80508, 72.53613, 4 September 2013, 1♀[I], SAa; South Windsor, 41.80592, 72.61469, 4 September 2013, 1♀[I], SAa. **NEW HAVEN CO.**, Branford, 41.27886, 72.74178, 14 September 2016, 1♀, BVd; 41.30178, 72.75983, 14 September 2016, 1♂, BVd; East Haven, 41.32503, 72.82308, 24–30 September 2015, 1♂, CVPT, grove of black locust, *Robinia pseudoacacia* L.; Guilford, 41.32650, 72.72738, 14 October 2012, 1♀; Hamden, 41.40508, 72.90899, 26–31 August 2008, 1♀[I], LT8, large pile of dead wood; 41.40788, 72.90730, 7–13 September 2011, 2♂, LT12, apple, *Malus pumila* Miller, orchard; Meriden, 41.50584, 72.79013, 22 September 2016, 2♂, BVd; 41.50597, 72.75803, 20 September 2012, 1♂; New Haven, 41.30983, 72.95525, 5 August 2008, 1♂[I], BMa; 41.33446, 72.96359, 28 August–3 September 2015, 3♀, CVPT, BLF; North Branford, 41.33328, 72.77454, 4–10 October 2013, 1♂, CVPT, BLF; Wallingford, 41.42550, 72.82925, 8–21 September 2006, 1♀, LT8, forest of

pitch pine, *Pinus rigida* Miller, and oaks, *Quercus* spp. [*First state record*]. **NEW LONDON CO.**, Bozrah, 41.56010, 72.16288, 2–8 September 2011, 1 ♀, LT12, PS; Groton, 41.37612, 72.07415, 19 August 2010, 1 ♂, BVd; 41.37619, 72.07414, 8 September 2016, 1 ♀, BVd; Norwich, 41.51229, 72.11266, 4–10 August 2016, 2 ♀ [I], 11–17 August 2016, 1 ♀ [I], CVPT, BLF; Old Lyme, 41.31134, 72.33609, 22–27 July 2016, 1 ♂ [I], 4–10 August 2016, 2 ♂ [I]; 11–17 August 2016, 1 ♀ [I], CVPT, BLF; Stonington, 41.40034, 71.95296, 4–10 August 2016, 1 ♂ 1 ♀ [I], 11–17 August 2016, 2 ♂ 4 ♀ [I], CVPT, BLF; Waterford, 41.36737, 72.16100, 28 July 2016, 1 ♂ [I], BVd. **TOLLAND CO.**, Ellington, 41.91920, 72.45260, 24 August 2016, 1 ♂, BVd.

Acknowledgments. I thank Thomas Walker for providing useful information and encouragement for this project. Jennifer Franzutti and Frank Ferrandino assisted in preparing the map; Morgan Lowry and Tracy Zarrillo assisted with servicing the traps for cerambycids. This study was supported, in part, by McIntire Stennis Cooperative Forestry (CONH00397).