NEW RECORDS OF ORTHOPTERA FROM CANADA AND ONTARIO

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The following ten Orthoptera species are recorded from Canada for the first time, in some cases also representing new records at the generic level: *Melanoplus scudderi scudderi* (Uhler), *M. walshii* Scudder, *Dichromorpha viridis* (Scudder), *Ellipes gurneyi* Günther, *Neoxabea bipunctata* (DeGeer), *Oecanthus latipennis* Riley, *O. laricis* T.J. Walker, *O. exclamationis* Davis, *Meconema thalassinum* (DeGeer), and *Neoconocephalus triops* (Linnaeus). *Oecanthus argentinus* Saussure, previously known from western Canada, is recorded from Ontario for the first time. Some additional records are given for rare species previously known only from one or two Canadian records, and the significance of these new records is discussed. Although these new records were generated by observation and collecting efforts throughout southern Ontario, most are from a few small and significant Carolinian sites.

Introduction

Vickery and Kevan's (1986) monographic treatment of the orthopteroid insects of Canada is the only species-level treatment of an entire major order for the country, providing an essential identification guide and a benchmark against which later distributional records can be assessed. We summarize the significant new Canadian orthopteroid records that have accumulated in the University of Guelph Insect Collection during the almost two decades since the publication of Vickery and Kevan (1986). We also provide further records for species previously unknown in Ontario but recorded elsewhere in Canada, and for species previously known only from one or two locations in Canada. Most of our new records are from ongoing arthropod surveys at several important Carolinian sites throughout southwestern Ontario. All the specimens examined are deposited at the University of Guelph Insect Collection, but some records are from the Royal Ontario Museum as indicated (ROM).

Part one: Orthoptera not previously recorded from Canada:

Acrididae

Melanoplus scudderi scudderi (Uhler) is known from throughout the eastern U.S., but had not been previously recorded from Canada. We found this to be a common species late in the season on low shrubbery in Ojibway Prairie Nature Reserve (Essex County). It also occurs in oak-savannah habitat in Lambton County.

Label data: Ontario: Essex Co.: Windsor, Ojibway Prairie, 42°15'51"N 83°4'30"W, sweeps, 22 September 2001, S.A. Marshall; Windsor, Ojibway Prairie, 12 May 1999, S.A. Marshall; Windsor, Ojibway Prairie, 42°15'51"N 83°4'30"W, 16 October 2003, S.A. Marshall; Windsor, Ojibway Prairie, sweeps, 13 August 2001, S.M. Paiero; Windsor, Ojibway Prairie, 42°15'46"N 83°4'2"W, unburnt prairie, yellow pans, 11-14 September 2001, S.M. Paiero; Windsor, Ojibway Prairie, unburnt prairie, yellow pans, 2-5 October 2001, S.M. Paiero; Windsor, Ojibway Prairie, 42°15'42"N 83°4'9"W, burnt savannah, yellow pans, 14-18 September 2001, S.M. Paiero; Windsor, Ojibway Prairie, 42°15'46"N 83°4'17"W, burnt prairie, yellow pans, 9-12 October 2001, S.M. Paiero; Windsor, Ojibway Prairie, 42°15'46"N 83°4'17"W, burnt prairie, yellow pans, 28 September-2 October 2001, S.M. Paiero; **Lambton Co.:** Port Franks, Richmond subdivision, 30 August 1996, K.H. Stead; Port Franks, Karner Blue Sanctuary, 43°13'N 81°54'W, pan traps, 18-25 July 1996, J. Skevington; Port Franks, Watson Property nr. L-Lake, 43°13'N 81°54'W, malaise trap, 7-14 August 1996, J. Skevington.

Melanoplus walshii (Scudder) was previously known from Minnesota, South Dakota and Michigan south to Georgia, but not from Ontario, Michigan's Upper Peninsula, New York or other areas bordering eastern Canada.
Label data: Ontario: Essex Co.: Windsor, Ojibway Prairie, 42°15'46"N 83°4'17"W, burnt prairie, yellow pans, 10-14 August 2001, S.M. Paiero; **Hald.-Norfolk Co.:** St. Williams Nursery, 26 August 2000, M. Gartshore; **Lambton Co.:** Port Franks, Karner Blue Sanctuary, 43°13'N 81°54'W, 22 September 2002, S.A. Marshall; Port Franks, Karner Blue Sanctuary, pan traps, 8-10 July 1996, J. Skevington; Port Franks, Karner Blue Sanctuary, 29 August-3 September 1996, J. Skevington; Port Franks, Karner Blue Sanctuary, pan traps, 8-15 August 1996, J. Skevington; Port Franks, Karner Blue Sanctuary, pan traps, 8-10 July 1996, J. Skevington.

Dichromorpha viridis (Scudder) occurs from South Dakota to southern New England and south to Mexico, but had not been recorded in Canada or close to the Canadian border.
Label data: Ontario: Essex Co.: Windsor, Ojibway Prairie, 42°15'51"N 83°4'30"W, 20 September 1997, S.A. Marshall; Windsor, Ojibway Prairie, 42°15'51"N 83°4'30"W, 22 September 2001, S.A. Marshall; Pelee I., Stone Rd. Alvar, 41°47'N 82°40'W, 1 October 2000, S.A. Marshall; Pelee I., old farm, 1 October 2000, S.A. Marshall.

Ellipes gurneyi Günther is a western species known from a few eastern localities in Pennsylvania and Michigan (Bland 2003). We here record it from Port Rowan and Long Point.
Label Data: Ontario: Hald.-Norfolk Reg.: Port Rowan, 2 Jun 1940, F.A. Urquhart (ROM); Long Point, 5 Sep 1987, J. Troubridge.

Gryllidae
Neoxabea bipunctata (DeGeer), the Two-spotted Tree Cricket, is a distinctively coloured species that occurs throughout most of the eastern USA south to Mexico. We here record it from the Ojibway Prairie Nature Reserve, where we have observed this species annually since 1999, and from specimens collected in the 1970s in the Harrow area. The latter specimens were apparently overlooked by Vickery and Kevan (1986).

Label data: Ontario: Essex Co.: Windsor, Ojibway Prairie, 42°15'51"N 83°4'30"W, 12 September 1999, S.A. Marshall; Windsor, Ojibway Prairie, 13 August 2002, S.A. Marshall; Harrow, 42°2'N 82°55'W, 20 August 1976, C.D. Neilsen; Harrow, 26 August 1974, W.M. Elliot; Harrow, 6 August 1976, C.D. Neilsen.

Oecanthus latipennis Riley occurs from Illinois and Connecticut south to Florida and Arizona, so it is not surprising to find it in Ontario. It has probably been overlooked because of its predominantly arboreal habits.
Label data: Ontario: Essex Co.: Pelee I., Stone Rd. Alvar, 41°47'N 82°40'W, 1 October 2000, S.A. Marshall; **Kent Co.:** Clear Creek, 10 August 2000, S.A. Marshall (photographs only).

Oecanthus laricis T.J. Walker is a rarely collected species previously known only from Ohio and Michigan. We here record it from larch (*Larix laricina*) trees in a small Carolinian fen in Ontario.
Label data: Ontario: Halton Reg.: Milton, Derry Rd. & 4th Line, 43°31'31"N 79°50'25"W, at light, 23 August 2002, S.M. Paiero; **Wellington Co.:** Creiff, 2km SE on 7th Concession, 43°24'57"N 80°7'18"W, fen, on larch, 30 August 2002, S.A. Marshall.

Oecanthus exclamationis Davis occurs from Illinois and Connecticut south to Arizona and Florida, and was previously known from Michigan near the Ontario border. It was not surprising to find this species in Ontario.
Label data: Ontario: Essex Co.: Point Pelee Natl. Pk., Tilden's Woods Trail, 21 September 2000, O. Lonsdale; Pelee I., 30 September 2000, M. Cripps.

Tettigoniidae
Meconema thalassinum (DeGeer) is an introduced species initially recorded in North America from New York (Gurney 1960) and now known from Rhode Island (Hoebeke 1981) and Michigan (Bland 2003). This species, and the subfamily Meconematinae, are newly recorded from Canada. We record it here from Harrow.
Label Data: Ontario: Essex Co.: Harrow, hand collected, 11 Aug 1997, M. Beaudoin.

Neoconocephalus triops (Linnaeus) occurs in the southern United States and the Caribbean, and undoubtedly represent adventitious specimens. Vickery and Kevan (1986) record this species as adventitious but do not indicate where in Canada, if at all, it was recorded.
Label data: Ontario: Wellington Co.: Galt, 20 February 1956, D.H. Pengelly. Toronto, University Ave., 29 March 1933, S.L. Thompson (ROM); Ottawa, 15 February 1923, in bananas, L.E. Johnson (ROM)

Part two: Orthoptera not previously recorded from Ontario:

Gryllidae
Oecanthus argentinus Saussure occurs across the continent from British Columbia to Connecticut, but it has not been recorded from eastern Canada. Vickery and Kevan (1986) suggest that this species "will be able to move northward only to a limited extent" and state that the "prevalence of frosty periods in late September in Ontario would not allow late-maturing individuals to reproduce". They do, however, note that some northwestern populations cope

with the relatively short seasons by producing only a single annual generation. Ontario populations are probably also univoltine.
Label data: Ontario: Middlesex Co.: Komoka Feed Mill Prairie, yellow pans, 42°58'N 81°25'W, 13-30 August 2001, S.M. Paiero.

Part three: Orthoptera previously known only from one or two Canadian records:

Acrididae
Melanoplus differentialis differentialis (Thomas) (the Differential Grasshopper), unlike the other species discussed here, is a pest species that has probably been moving its range northward for several years (Cantrall 1968). Vickery and Kevan (1986) record it from "extreme southwestern Ontario" where it has long been established at Point Pelee. We find this large, distinctively marked species to be very common at a number of sites in Essex and Kent Counties, and record it as far north as Wellington County.
Label data: Ontario: Essex Co.: Harrow, 42°2'N 82°55'W, 12 August 1962, R.S.; Harrow, 42°2'N 82°55'W, August 1961, R.S. Dickhout; Harrow, 42°2'N 82°55'W, July 1961, R.S. Dickhout; Harrow, SE of, 42°2'N 82°55'W, Oxley Poison Sumac swamp, 4 September 1993, B. Larson; Kingsville, 42°2'15"N 82°44'20"W, hand collection, 18 September 1997, J. Sabara; Kingsville, 42°2'15"N 82°44'20"W, in tall grass, 6 September 1987, K. Petrik; Point Pelee Natl. Pk., 12 October 1997, S.A. Marshall; Point Pelee Natl. Pk., SW shore, 2 September 1998, S.A. Marshall; Staples, 42°10'N 82°36'W, 19 August 1983, Logan & Grigsby; Windsor, 42°18'N 83°1'W, 23 August 1983, Logan & Grigsby; Windsor, 42°18'N 83°1'W, 20 August 1981, E. Zaborski; Windsor, Ojibway Prairie, 42°15'51"N 83°4'30"W, sweeps, 20 August 2001, S.A. Marshall; Woodsley, hand collection, 28 August 1997, Y. Hoang; **Kent Co.:** Clear Creek Reserve, 42°27'58"N 81°43'5"W, 10 October 2003, S.A. Marshall; Rondeau Prov. Pk., South Point Trail, nr. east parking lot, oak savannah, 42°15'42"N 81°50'49"W, malaise, 7 September-7 October 2003, Marshall *et al.*; Rondeau Prov. Pk., South Point Trail, nr. east parking lot, oak savannah, 42°15'42"N 81°50'49"W, 10 October 2003, S.A. Marshall; Rondeau Prov. Pk., South Point Trail, nr. east parking lot, oak savannah, 42°15'42"N 81°50'49"W, malaise, 14 August-7 September 2003, Buck & Marshall; Wheatley, Wheatley campground, 42°6'N 82°27'W, veg. sweep, 19 September 1993, W. Bennett; Wheatley, 42°6'N 82°27'W, 18 August 1959, R.J. Pilfrey; **Waterloo Reg.:** Hespeler, 43°26'N 80°19'W, 13 September 1959, D.H. Pengelly.

Tettigoniidae
Microcentrum rhombifolium (Saussure) was previously known from only one site in Canada (Point Pelee), although it has also been recorded as an adventive species in British Columbia. We here record it from Harrow and Windsor.
Label data: Ontario: Essex Co.: Windsor, 42°18'N 83°1'W, hand collection, 21 September 1997, B. Sabara; NE of Harrow, 42°2'N 82°55'W, 5 September 1992, W B. Larson; Windsor, Ojibway Prairie, 42°15'51"N 83°4'30"W, 20 August 2001, S.A. Marshall.

Atlanticus monticola Davis was previously known in Canada only from Turkey Point, Ontario. We here report it only from nearby sites in Haldimand-Norfolk County. Ontario's other *Atlanticus* species, *A. testaceus* (Scudder) remains known only from one record at Arner, Ontario (Walker 1905).

Label data: Ontario: Hald.-Norfolk Co.: Manestar Tract, 1 October 1994, D. Sutherland; St. Williams, 15 July 2001, A. & D. Timpf; Manestar Tract, road along north boundary, 29 August 2000, S.A. Marshall (photographs only, males and females).

Gryllidae

Anaxipha exigua (Say) (Say's Bush Cricket) is an uncommon species described by Vickery and Kevan (1986) as occurring in wet areas and near water. The only previous Canadian record of this species was Point Pelee, but we find it to be abundant on the foliage of small shrubs at a number of tallgrass prairie and oak savannah sites.

Label data: Ontario: Essex Co: Windsor, Ojibway Prairie, 42°15'51"N 83°4'30"W, 12 September 1999, S.A. Marshall; Windsor, Ojibway Prairie, sweeps, 22 September 2001, S.A. Marshall; Windsor, Ojibway Prairie, 26-27 August 2002, S.M. Paiero; Windsor, Ojibway Prairie, 13 August 2002, S.A. Marshall; Windsor, Ojibway Prairie, nr. Sprucewood Ave. obs. point, yellow pans, 26-27 August 2002, Buck & Paiero; Windsor, Ojibway Prairie, nr. Sprucewood Ave. obs. point, yellow pans, 12-13 September 2002, Buck & Paiero; Windsor, ~1.5km S Ojibway Prairie, forest-prairie edge, Malaise, 42°13'34"N 83°4'27"W, 19-31 August 2001, S.M. Paiero; Windsor, 42°18'N 83°1'W, 11 August 1976, S.A. Marshall; Woodsley, 22 August 1976, J.M. Heraty; Point Pelee Natl. Pk., SW shore, 41°47'N 82°40'W, 2 September 1998, S.A. Marshall; **Hald.-Norfolk Co.:** St. Williams Nursery, 13 September 2001, L. Rodger.

Oecanthus niveus (DeGeer) occurs throughout the eastern United States, but it was previously known only from a single Ontario site (Niagara region). We here record it throughout southern Ontario.

Label data: Ontario: Essex Co.: Pelee I., Porchuk property, Malaise, 10-27 September 2002, Porchuk & Marshall; Pelee I., Porchuk property, Malaise, 28 August-10 September 2002, Porchuk & Marshall; Windsor, Ojibway Prairie, 42°15'51"N 83°4'30"W, 12 September 1999, S.A. Marshall; Windsor ~1.5km S Ojibway Prairie, 42°13'34"N 83°4'27"W, forest-prairie edge, Malaise, 22 September-13 October 2001, S.M. Paiero; Pelee I., old farm, 1 October 2000, S.A. Marshall; "Essex Co.", 26 August 1937, W.R. Code; **Kent Co.:** Wheatley, Wheatley Prov. Park, 42°6'N 82°27'W, deciduous forest, 19 September 1993, C.S. Blainey; Kent Co. Forest at Hwy 401, 12 October 1997, S.A. Marshall; **Hald.-Norfolk Reg.:** Hagersville, 52°58'N 80°3'W, 2 October 1983, W A. Harris; **Halton Reg.:** Speyside, on Pine trunk, 4 October 2002, S.A. Marshall; **Lincoln Co.:** Vineland Station, 43°9'N 79°24'W, 26 August 1936; Jordan , 14 September 1915, W.A. Ross; Jordan, 24 August 1922, W.A. Ross; **Welland Co.:** St. Davids, 3 August 1931, W.L. Putman; Fonthill, 43°2'N 79°17'W, 8 September 1984, M.D. Forward; **Wellington Co.:** Guelph, 43°33'N 80°15'W, forest edge, 19 August 1987, T.A. Wheeler; Guelph, 43°33'N 80°15'W, 14 October 1914, (collector not indicated); Guelph, 24 August 1983, N.R. Ennis; Guelph, 7 October 1963, J.D. Van Loon; Guelph, 24 July 1974, G.J. Umphrey; Creiff, 2km SE on 7th Concession 43°24'57"N 80°7'18"W, fen, 3 September 2002, S.A. Marshall; Fergus, on *Pinus* with aphids, 7 Oct 2003, S.A. Marshall.

Oecanthus pini Beutenmüller is a rarely collected species in Ontario, previously recorded only from Essex and Kent Counties. We here record it from Haldimand-Norfolk and Halton Regions.

Label data: Ontario: Hald.-Norfolk Reg.: Manester Tract, 6km NNW St. Williams, 42°42'17"N 80°27'38"W, 24 August 2001, S.A. Marshall; **Halton Reg.:** Speyside, on Pine trunk, 4 October 2003, S.A. Marshall.

Discussion

Most of the new records included here have resulted from new arthropod survey and inventory projects along Ontario's southern fringe, almost entirely in the same protected sites that have recently yielded numerous new records in other taxa (Sugar *et al.* 1998; Bouchard *et al.* 2001; McCorquodale 2001; Skevington *et al.* 2001; Buck 2004; Paiero *et al.* 2004). Some of the newly recorded species are relatively common in southern Ontario and have simply been overlooked, while others are widespread just south of Canadian border and were expected to occur in extreme southern Ontario. *Neoxabea bipunctata*, *Dichromorpha viridis*, and *Microcentrum rhombifolium*, for example, are colourful, easily identified species that occur in a variety of habitats in the United States but appear to be restricted to one or two sites in Canada. More importantly, a significant proportion of the newly recorded species are relatively rare in Ontario and have been overlooked in the past due to their limited ranges and narrow habitat requirements. *Melanoplus scudderi* and *M. walshii*, for example, are brachypterous grasshoppers that occur in highly localized populations in two or three tallgrass prairie or oak savannah reserves. These species, like *Neoxabea bipunctata*, *Dichromorpha viridis* and *Anaxipha exigua*, are provincially or nationally rare species with easily recognizable and easily monitored populations. Other newly recorded species, such as *Oecanthus laricis*, might be genuinely rare, or might only appear rare because they are difficult to collect. Both *Oecanthus laricis* and the similar *O. pini* have been recognized as species of special conservation concern in other jurisdictions (Dunn 2002).

The species treated above represent a large proportion of Ontario's rare Orthoptera, and include many distinctive and relatively easily identified grasshoppers and crickets of potential conservation concern. We hope that the data presented here will encourage further consideration of putatively rare Orthoptera both as indicators of threatened habitat and as threatened species in their own right.

Acknowledgements

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Category:Orthoptera of Ontario. From Wikimedia Commons, the free media repository. Jump to navigation Jump to search. Subcategories. This category has the following 3 subcategories, out of 3 total. G. â–º Orthoptera of Guelphâ€Ž (78 F). L. â–º Orthoptera of London, Ontarioâ€Ž (3 F). T. â–º Orthoptera of Thunder Bay, Ontarioâ€Ž (12 F). Media in category "Orthoptera of Ontario". The following 9 files are in this category, out of 9 total. The name Orthoptera is derived from "orthos" meaning "straight" and "pteron" = "wing." Shared-derived characters: in addition to the saltatory hind legs, most orthopterans have small and well separated hind coxae, a pronotum with large descending lateral lobes, nymphal wing rudiments reversing their orientation in later instars and hind tibiae with two dorsal teeth rows (Kevan 1982; Kukalova-Peck 1991; Rentz 1991).Â Although numerical analyses of orthopteroid character distributions (mainly phenetic) by Blackith (1968) show the Blattodea-Mantodea clade and not Caelifera as the sister group of Ensifera, Kamp's (1973) analysis of a more expanded morphological character matrix supports monophyly. Kristensen's (1991) discussion also supports monophyly. Ontario reports just over 1,000 new COVID-19 cases, 15 deaths. Cautious Premier - Doug Ford sticking to June 14 timeline for 'We know they didn't go home': B.C. residential school survivor mourns Work underway for forensics experts to identify and repatriate B.C. Vietnam finds new COVID-19 virus variant, hybrid of India, UK strains. Latest News. Gavin MacLeod, 'Love Boat' captain, dies at 90 May 29, 2021, 4:13 PM. Why Canada must pay attention to quickly evolving B.1.617 variant May 28, 2021, 12:06 PM.Â Toronto & GTA gas prices. Coronavirus: What you need to know today. LIVE MAP: COVID-19 vaccination trackers in Canada and the world. Small + Mighty: Bounty Hunter Toys, surviving the pandemic in near mint condition. CORONAVIRUS: Ask Me Anything. Herein we record it as new from Canada (Ontario) based on eight specimens, all collected in the Carolinian region of southern Ontario (Map 23). Erichsonius parcus has previously been collected by â€˜siftingâ€™, in â€˜driftâ€™ (Frank 1975) and at lights (Frank 1981a); all Canadian specimens were collected in wet habitats with abundant moss (bog, slough forest).Â Buck M, Paiero SM, Marshall SA (2005) New records of native and introduced aculeate Hymenoptera from Ontario, with keys to eastern Canadian species of Cerceris (Crabronidae) and eastern Nearctic species of Chelostoma (Megachilidae). Journal of the Entomological Society of Ontario 136:37-52. The Ontario Land Records Index is available on microfiche at many libraries and archives, including in the genealogy room at Library and Archives Canada. The Township Papers are digitized on FamilySearch: A to H and H to Z (sign up for a free account to view the images). Canada Company fonds.Â The Archives of Ontario holds a small number of records of the first Heir and Devisee Commission (1797 to 1804) and all of the records for the Second Heir and Devisee Commission (1805 to 1911). For more information, see First and Second Heir and Devisee Commission Records . See also Second Heir and Devisee Commission Case Files Database .