

New Records of Coccinellid Species for the Province of Manitoba

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Museum specimens and recent collections of Coccinellidae included 11 species not previously recorded as present in Manitoba. *Stethorus punctillum* Wiese, *Stethorus punctum punctum* (LeConte), *Scymnus (Pullus) postpictus* (Casey), *Scymnus rubricaudus* (Casey), *Scymnus tenebrosus* Mulsant, *Hyperaspidium hercules* (Belic k), *Hyperaspidiummimus* Casey, *Hyperaspidium vittigerus* (LeConte), *Hyperaspis quadrivittata* LeConte, *Coleomegilla maculata lengi* Timberlake, and *Harmonia axyridis* (Pallas) are new species records for the province. *Stethorus* Weise, *Hyperaspidium* Crotch, *Coleomegilla* Timberlake, and *Harmonia* Mulsant are genera recorded in Manitoba for the first time. The multi-coloured Asian lady beetle, *H. axyridis*, the only non-Nearctic species, was first collected in the autumn of 2000, and now seems well-established in south-

ern Manitoba. These new records increase the coccinellid fauna of Manitoba to 65 species in 27 genera. Five of the six subfamilies of Coccinellidae are represented: only the herbivorous Epilachinae have not been recorded.

INTRODUCTION

Fifty-four coccinellid species, plus two subspecies, in 24 genera have been reported for Manitoba (McNamara 1990). The list includes one Eurasian species, the 7-spotted lady beetle, *Coccinella septempunctata* L., which was introduced into the United States from 1956 to 1973 (Angalet *et al.* 1979) and had reached Manitoba by 1988 (Matheson 1989). Along with *Hippodamia tredecimpunctata tibialis* (Say), this species now dominates the coccinellid fauna of southern Manitoba (Turnock *et al.* accepted). The presence of species previously not reported as occurring in Manitoba is the subject of this report.

MATERIALS AND METHODS

A study of the impact of *C. septempunctata* on the abundance of native coccinellines in Manitoba from 1988 to 2001 (Turnock *et al.* accepted) was based on sampling aggregations of lady beetles on the beach of Lake Manitoba at the Delta Marsh Field Station (50°11'N, 98°23'W) and on sweep-net samples in agricultural areas. The beach samples included all lady beetles found in a transect, 0.5 m wide, extending at a right angle from the edge of the water to the beach ridge. The sweep-net collections of lady beetles were taken along the edges of fields (cereal crops, canola, flax, alfalfa) and from herbaceous and woody plants mostly located in the Red River Valley. The beetles from the beach and sweep-net collections were brought to the Cereal Research Centre, Winnipeg, counted, and identified to species.

We also examined specimens in the collections of the J.B. Wallis Museum in the Department of Entomology, University of Manitoba and the Cereal Research Centre, Agriculture and Agri-Food Canada, Winnipeg, for taxa that have not been reported as occurring in Manitoba. The identification of these species was confirmed by Dr. Robert Gordon, and voucher specimens are deposited in the J.B. Wallis Museum of Entomology.

RESULTS

Specimens of 11 species of Coccinellidae not previously been reported from Manitoba were found. *Stethorus punctillum* Weise, *Stethorus punctum punctum* (LeConte), *Scymnus* (Pullus) *postpictus* (Casey), *Scymnus rubricaudus* (Casey), *Scymnus tenebrosus* Mulsant, *Hyperaspidius hercules* (Belic k), *Hyperaspidius mimus* Casey, *Hyperaspidius vittigerus* (LeConte), *Hyperaspis quadrivittata* LeConte, *Coleomegilla*

maculata lengi Timberlake, and *Harmonia axyridis* (Pallas) are new provincial records. *Stethorus* Weise, *Hyperaspidius* Crotch, *Coleomegilla* Timberlake, and *Harmonia* Mulsant are new records of genera for the Province of Manitoba.

All specimens of species in which collection information is given below are located in the J. B. Wallis Museum of Entomology, University of Manitoba.

Stethorinae

Stethorus punctillum Weise. MB: Winnipeg, 5-13.v.1991, 21-28.v.1991, 27.v.-3.vi.1991,

R.E. Roughley, University of Manitoba Campus, honey house, suction trap (6 specimens)

Stethorus punctum punctum (LeConte). MB: Aweme, 9.ix.1918, N. Criddle (1 specimen); Brandon, 15.viii.1949, A.G. Robinson (1 specimen), 31.viii.1950, T.V. Cole (2 specimens), 31.viii.1950, A.G. Robinson, predatory on spider mites (18 specimens); Winnipeg, 1.ix.1951, A.V. Mitchener (1 specimen), 22.viii.1951, A.V. Mitchener, predatory on Pacific spider mite (3 specimens). This species is not recorded from Manitoba by McNamara (1990). However, Gordon (1985, Map 55) inferred its range to extend across southern Manitoba but had not seen specimens from this area.

Scymnus (Pullus) postpictus (Casey): MB: Aweme, 14-21.v.1992, R.E. Roughley, yellow pan traps (1 specimen); Delta, 16.v.1985, R.E. Roughley and D.A. Pollock, University of Manitoba Field Station, beach drift (1 specimen).

Scymnus (Pullus) rubricaudus (Casey). MB: Aweme, 14-21.v.1992, R.E. Roughley, yellow pan traps (2 specimens).

Scymnus (Pullus) tenebrosus Mulsant. MB: Aweme, 26.v.1913, N. Criddle (1 specimen).

Hyperaspidius hercules Belic k. MB: Sandilands Provincial Forest, 3.vii.1989, T.D. Galloway (1 specimen).

Hyperaspidius mimus Casey. MB: Aweme, 8 km N. Treesbank, 4-11.vi.1992, R.E. Roughley, yellow pans (1 specimen).

Hyperaspidius vittigerus (LeConte): MB: Aweme, 26.vi.1920, N. Criddle (1 specimen).

Hyperaspis quadrivittata Le Conte: MB: Aweme, 25.ix.1918, N. Criddle (1 specimen).

Coccinellinae

Coleomegilla maculata lengi Timberlake. (See also records in Batulla and Robinson 1983). MB: Glenlea, 23.v.1988, F.O. Matheson, sweep alfalfa (1 specimen); Delta, 16.v.1995, R.E. Roughley and D.A. Pollock, University of Manitoba Field Station, beach drift (1 specimen).

Harmonia axyridis (Pallas). MB: Winnipeg, ix.2000, 14.x.2000, W.J. Turnock (3 specimens), Delta Beach, 7.ix.2001, beach drift, W.J. Turnock (3 specimens), LaSalle, 5.xi.2001, F.O. Matheson (1 specimen).

The multi-coloured Asian lady beetle, *H. axyridis*, was first collected in August, 2000 by W. J. Turnock in a garden in Winnipeg. Three more specimens were collected from an aggregation of lady beetles on the beach of Lake Manitoba at the Delta Marsh Field Station on 14 October, 2000. In 2001, *H. axyridis* comprised only 1.5% (N=1110) of lady beetles collected from vegetation in the Red River Valley and <1% from beach collections on 11 May (N=1991) and on 11 September (N=1292) from Lake Manitoba, but it nevertheless was more abundant than most other coccinellid species. Larvae and adults of *H. axyridis* also were collected in Winnipeg from willow, *Salix* sp., and Manitoba maple, *Acer negundo* Linnaeus in late September, and adults were found in Winnipeg and LaSalle as late as 5 November.

All 31 specimens of *H. axyridis* collected in Manitoba in 2000 and 2001 were of the colour form *succinea* (Komai 1956). Most had dark orange elytra with prominent black spots but a few specimens (13%) had pale orange elytra with a few faint spots or none at all. No specimens of the black morphs (colour forms *conspicua*, *axyridis*, *spectabilis*), that predominate in Japan were found in our study. The absence of black morphs in Manitoba is not unexpected since they are rare (1.4%) in *H. axyridis* populations in Oregon (LaMana and Miller 1995) and are unknown in the southeastern United States (Teddars and Schaefer 1994).

DISCUSSION

These new records increase the number of coccinellids in Manitoba to 65 species among 27 genera. The Manitoba fauna is composed of five subfamilies (Sticholotidinae, Scymninae, Chilochorinae, Coccidulinae, and Coccinellinae) out of a potential six subfamilies (Gordon 1985); only the herbivorous Epilachninae have not been found. Our fauna has two species of Sticholotinae, characterized as small (< 1.5 mm long), dark adults which are primarily predators of scale insects. The Scymninae (27 species in Manitoba) are generally predators of tetranychid mites and scale insects but Batulla and Robinson (1983) found that some Scymninae were also aphid predators. Adults are < 3.0 mm long, principally dark in colour with many species bicoloured. The adults of Chilochorinae (2 species in Manitoba) are 2.75-5.0 mm in length and variously coloured, and include black beetles with a distinctive red spot on each elytron. Our one species of Coccidulinae (*Coccidula lepida* LeConte) is 2.75-3.45 mm in length, quite elongate and parallel-sided, with the dorsum yellow with median darker markings. Coccidulinae and Chilochorinae are suspected to be scale predators. The Coccinellinae has 30 species in Manitoba. Members of Coccinellini (29 species in Manitoba) are the well-known lady beetles, >3.0 mm long, usually brightly coloured (red, orange, or yellow and black) and prey on aphids and other small arthropods; our one member of the Psylloborini, *Psyllobora vigintimaculata* (Say), ranges in length from 1.75-3.0 mm and feeds on fungi. Therefore, our fauna is presently at 65 species or about 41% of the 163 species of

Coccinellidae recorded for Canada. The Manitoba fauna is slightly less rich than areas of similar latitudes in Europe, e.g., 78 species in 37 genera in Poland; 71 species in 28 genera in eastern Germany; 67 species in 33 genera in eastern Ukraine (Hodek and Honek 1996), but Manitoba has been less thoroughly collected than these areas.

The occurrence of *H. axyridis* in sweep samples in the Red River Valley and from collections on the shore of Lake Manitoba is evidence that this species is already widely distributed in southern Manitoba. This east-Asian species became established in Louisiana in 1988 (Chapin and Broux 1991), and spread very rapidly in the United States. It was first found in Canada at Frelighsburg, Quebec, in 1994 (Coderre *et al.* 1995) and in Ontario and British Columbia soon after. It appears to have arrived in Manitoba very recently for it was not found in field and beach collections from 1983-1999 or in beach collections in May, 2000. The occurrence of adults of *H. axyridis* in aggregations with native species of lady beetles on the shore of Lake Manitoba on 11 May, 2001, and its ability to overwinter in Siberia (Voronine 1965, in Iablokoff-Khnzorian 1982) are evidence that *H. axyridis* can successfully overwinter in Manitoba. The occurrence of larvae in late September may mean that a partial second generation occurred in 2001, although the common lady beetle species in Manitoba have only one generation per year. As happened with *C. septempunctata*, we expect *H. axyridis* will adversely affect the abundance of some native lady beetle species in southern Manitoba in the near future.

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