

**NOTE****New and overlooked records of ladybird beetles (Coleoptera: Coccinellidae) from Newfoundland and Labrador, Canada**

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The Coccinellidae, commonly known as ladybird beetles, ladybirds, or ladybugs, are one of the most recognized groups of insects, and they are frequent targets for collectors and photographers (Acorn 2007). Consequently, compared to many other insect groups, they are well-documented in most North American jurisdictions, at least the larger and more conspicuously colored species are. However, the smaller and less-conspicuously colored species, e.g., those in the tribes Hyperaspini and Scymnini, remain much more poorly known in terms of faunal composition and distribution. Fortunately, the taxonomy of the family as a whole is in good shape and there are good published resources for identification of much of the North American fauna (e.g., Gordon 1975, 1976, 1985).

The earliest treatment of the coccinellid fauna of the province of Newfoundland and Labrador (NL) was that of Chapin (1955) who reported on material collected by the Fennoscandinavian entomological expeditions to Newfoundland in 1949 and 1951. This represents the earliest comprehensive inventory of Coccinellidae for any Canadian province and is remarkable for the large number of collection localities and records. In all, Chapin reported 13 species from the province, all from the island of Newfoundland (this number reflects subsequent synonymies). That paper appears to have been overlooked during the compilation of data for the subsequent Checklist of the Beetles of Canada and Alaska publications (McNamara 1991, Bousquet et al. 2013), as among the published records were three species from NL that were not included in the national checklist of Coccinellidae. For the current study, I borrowed the specimens of these three species from the University of Helsinki, and identities were subsequently checked by Robert D. Gordon.

All NL coccinellid material in the following collections was examined to confirm identifications and database specimen label data: Agriculture and Agri-Food Canada (AAFC/SJ), St. John's, NL; Canadian Forest Service Collection (CFSCB), Corner Brook, NL; Canadian National Collection of Insects, Arachnids and Nematodes (CNC), Ottawa, Ontario; and Memorial University of Newfoundland Collection (MUN), currently located at the Northern Forestry Centre, Edmonton, Alberta. As well, Barry Hicks sent me the records from his collection (BHC). The material collected by the Fennoscandinavia expeditions to NL was not examined other than the aforementioned three species borrowed from the Museum of Zoology, University of Helsinki (MZH). As part of a long-running project to document the terrestrial arthropod diversity of NL, I had occasion to sample ladybird beetles there on several occasions over the last 15 years, with most specimens obtained using insect sweep nets in a variety of habitats. All of this material was placed in the MUN collection.

Herein, I report three new species records for the island of Newfoundland, all of which constitute new provincial records, as well as five new records for Labrador, four of which were previously reported from the island of Newfoundland. One of the new records is reported for the first time from Canada. As well, two previously overlooked species records from NL have been confirmed. Species are listed below in alphabetical order.

***Anatis mali* (Say, 1825)**

**LABRADOR:** Elephant Head Lake nr. Wabush, 15-17 July 1981, Colbo & Larson [1, MUN]; ca. 35 km W. Goose Bay, 53.2687N, 60.8626W, MV light in mixed forest, 2 July 2009, Langor & Macaulay [1, MUN].

This Nearctic species was previously recorded from all Canadian jurisdictions except Nunavut. Although widely

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distributed on the island of Newfoundland, the species is, herein, recorded for the first time from Labrador. Its occurrence there is unsurprising.

***Coccinella septempunctata* Linnaeus, 1758**

**LABRADOR:** Labrador City, June 1981, S. Willis [1, AAFCSJ].

This non-native species is of Palearctic origin. It has spread throughout much of North America including all provinces and the Northwest Territories. The earliest record for the island of Newfoundland is from Marystown in 1981 (AAFCSJ) but now the species is distributed over much of the island. Interestingly, the newly reported record from Labrador is also from 1981 but no additional specimens have been collected despite extensive collecting throughout southern Labrador over the last ca. 15 years.

***Coccinella undecimpunctata undecimpunctata* Linnaeus, 1758**

**LABRADOR:** L'Anse-au-Loup, 51.526N, 56.823W, 24 June 2009, sand blow-out and small slough, D. Langor [1, MUN].

This species is of Palearctic origin but is now widespread in North America. In Canada, it is found in British Columbia and from Ontario eastward. By 1949, this species was already widespread in western Newfoundland from Stephenville Crossing to Cow Head and, in 1951, it was found in Grand Bank and Notre Dame Bay as well as on the island of Miquelon, a territory of France near the south coast of Newfoundland (Chapin 1955). It seems that this species was introduced well before 1949. Herein, we report this species for the first time from Labrador.

***Hippodamia quinquesignata quinquesignata* (Kirby, 1837)**

**NEWFOUNDLAND:** Burnt Cape, Site 1-6, 7-24 July 2003, *Dryas* rock garden on limestone barrens, pitfall trap, A.M. Hynes [1, MUN]; Ibid Site 2-6 [1, MUN]; **LABRADOR:** Goose Bay, 8 July 1979, B. Rogers [1, MUN]; Goose Bay, vicinity of Mud Lake, 53.3057N, 60.26812W, 29 July 2008, weedy margin of Churchill River, Pohl & Langor [8, MUN]; vicinity of Goose Bay, 53.2889N, 60.3810W, 5 August 2008, sweep of roadside flowers, Pohl & Langor [15, MUN].

Herein, we report this Nearctic species for the first time from NL, with records from southern

Labrador and the northern tip of Newfoundland.

***Hyperaspis moerens* (LeConte, 1850)**

**NEWFOUNDLAND:** Cooks Harbour, N:o 97, 16.VII.49, C. Lindroth [1, MZH].

This Nearctic species was reported from only Quebec and Ontario by Bousquet et al. (2013); however, Chapin (1955) had reported *Hyperaspis moerens* from Newfoundland. Thus, this does not constitute a new record but rather a rediscovery of an old record. No specimens have subsequently been collected from NL.

***Nephus (Scymnobius) flavifrons* (Melsheimer, 1847)**

**NEWFOUNDLAND:** Gaff Topsail, N:o 149, 19-20.VIII.49, C. Lindroth [1, MZH].

Bousquet et al. (2013) reported this Nearctic species from only Quebec and Ontario in Canada. Chapin (1955) reported *Nephus flavifrons* from NL, but the record was overlooked. This is the only known record of the species from the province.

***Propylaea quatuordecimpunctata* (Linnaeus, 1758)**

**NEWFOUNDLAND:** St. John's, July 1994, P. Dixon [1, AAFCSJ]; St. John's, August 1997 [1, MUN]; St. John's, 27 August 2000, on lettuce, J. Lambe [1, MUN].

This Palearctic species is widespread in eastern North America. In Canada, it is found from Ontario eastward. It is now reported for the first time from NL. To date, populations have been located only in St. John's.

***Psyllobora vigintimaculata* (Say, 1824)**

**LABRADOR:** ca, 35km west Goose Bay, 53.2687N, 60.8626W, 2 July 2009, attracted to mercury vapour light in mixed forest, Langor & Macaulay [1, MUN]; Goose Bay, air base, 53.301N, 60.423W, 30 June 2009, sweep of vegetation, D. Langor [1, MUN]; Muskrat Falls, 53.254N, 60.777W, 30 June 2009, attracted to mercury vapour light in sandy area surrounded by open mixed forest, Langor and Macaulay [1, MUN].

This Nearctic species is widespread throughout the United States and Canada (Gordon 1985, Bousquet et

al. 2013). Although it was previously recorded from Newfoundland, there were no published records from Labrador; however, its presence there is unsurprising.

### ***Scymnus (Pullus) loewii* Mulsant, 1850**

**NEWFOUNDLAND:** Twillingate, 4-8.VII.51, N:o 277, C. Lindroth [1, MZH].

This Nearctic species is distributed across the southern half of the United States. The record from NL represents a new provincial and Canadian record. This material (two specimens) was collected by the Fennoscandinavian expeditions to Newfoundland and was reported by Chapin (1955) as *Scymnus haemorrhous* LeConte, which is now a junior synonym of *Scymnus (Pullus) fraternus* LeConte. One specimen (a male) was borrowed from the University of Helsinki (there is uncertainty about the location of the second specimen). Upon examination of this specimen and its dissected genitalia, Robert D. Gordon determined it as *Scymnus loewii*.

Currently, 23 coccinellid species are known from the province, including 21 from Newfoundland and 14 from Labrador (Table 1). Using the Canadian coccinellid species list published by Bousquet et al. (2013), which totalled 151 species, plus the one new country record published herein, the depauperate NL fauna amounts to only 15.1 % of the Canadian fauna. It is likely that additional native species occur in NL, especially on the island. In particular, the tribes Hyperaspini and Scymnini seem under-represented in the known NL fauna.

Four of the species in NL are non-native (Table 1), amounting to 17.4 % of the fauna. There is one other non-native species that is widespread in the Maritime Provinces, *Hippodamia variegata* (Goeze), but which is not yet recorded from NL. It seems likely, based on how rapidly this species has spread, that it either already occurs on the island of Newfoundland or will soon become established there. Based on collecting efforts in NL to date, it is difficult to say whether non-native species are supplanting native species, as has been reported elsewhere (e.g., Harmon et al. 2007). Most of the coccinellid sampling in the province has been *ad hoc* which is not conducive to discerning population and community trends. A systematic survey of ladybugs in NL would be helpful to determine the relative abundance of non-native species, especially *Coccinella septempunctata*, and their proportional abundance in comparison to native species.

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**Table 1.** Coccinellidae known from the province of Newfoundland and Labrador, and distribution in Canada. Jurisdictional abbreviations: AB – Alberta, BC – British Columbia, LB – Labrador, MB – Manitoba, NB – New Brunswick, NF – Newfoundland, NS – Nova Scotia, NT – Northwest Territories, ON – Ontario, PE – Prince Edward Island, QC – Quebec, SK – Saskatchewan, YT – Yukon. New jurisdictional records are in boldface.

| Species list                                                      | Distribution in Canada                                         |
|-------------------------------------------------------------------|----------------------------------------------------------------|
| <b>Subfamily Microweiseinae</b>                                   |                                                                |
| <b>Tribe Microweiseini</b>                                        |                                                                |
| <i>Microweisea misella</i> (LeConte)                              | AB, BC, MB, NB, NF, NS, ON, QC, SK                             |
| <b>Subfamily Coccinellinae</b>                                    |                                                                |
| <b>Tribe Coccinellini</b>                                         |                                                                |
| <i>Adalia bipunctata</i> (L.) <sup>H</sup>                        | AB, BC, LB, MB, NB, NF, NS, NT, ON, PE, QC, SK, YT             |
| <i>Anatis mali</i> (Say)                                          | AB, BC, <b>LB</b> , MB, NB, NF, NS, NT, ON, PE, QC, SK, YT     |
| <i>Anisosticta bitriangularis</i> (Say)                           | AB, BC, LB, MB, NB, NF, NS, NT, ON, PE, QC, SK, YT             |
| <i>Calvia quatuordecimguttata</i> (L.) <sup>H</sup>               | AB, BC, LB, MB, NB, NF, NS, NT, ON, PE, QC, SK, YT             |
| <i>Coccinella septempunctata</i> L. <sup>1</sup>                  | AB, BC, <b>LB</b> , MB, NB, NF, NS, NT, ON, PE, QC, SK         |
| <i>Coccinella transversoguttata richardsoni</i> Brown             | AB, BC, LB, MB, NB, NF, NS, NT, ON, PE, QC, SK, YT             |
| <i>Coccinella trifasciata perplexa</i> Mulsant                    | AB, BC, LB, MB, NB, NF, NS, NT, ON, PE, QC, SK, YT             |
| <i>Coccinella undecimpunctata undecimpunctata</i> L. <sup>1</sup> | BC, <b>LB</b> , NB, NF, NS, ON, PE, QC                         |
| <i>Harmonia axyridis</i> (Pallas) <sup>1</sup>                    | BC, MB, NB, NF, NS, ON, PE, QC, SK                             |
| <i>Hippodamia arctica</i> (Schneider) <sup>H</sup>                | BC, LB, NT, QC, YT                                             |
| <i>Hippodamia quinquesignata quinquesignata</i> (Kirby)           | AB, BC, <b>LB</b> , MB, NB, <b>NF</b> , NT, ON, PE, QC, SK, YT |
| <i>Hippodamia tredecimpunctata tibialis</i> (Say)                 | AB, BC, LB, MB, NB, NF, NS, NT, ON, PE, QC, SK, YT             |
| <i>Mulsantina hudsonica</i> (Casey)                               | AB, BC, LB, MB, NB, NF, NS, NT, ON, PE, QC, SK, YT             |
| <i>Myzia pullata</i> (Say)                                        | AB, LB, MB, NB, NS, ON, PE, QC, SK, YT                         |
| <i>Propylaea quatuordecimpunctata</i> (L.) <sup>1</sup>           | NB, <b>NF</b> , NS, ON, PE, QC                                 |
| <i>Psyllobora vigintimaculata</i> (Say)                           | AB, BC, <b>LB</b> , MB, NB, NF, NS, NT, ON, PE, QC, SK, YT     |
| <b>Tribe Hyperaspidini</b>                                        |                                                                |
| <i>Hyperaspis moerens</i> (LeConte)                               | NF, ON, QC                                                     |
| <b>Tribe Scymnini</b>                                             |                                                                |
| <i>Didion punctatum</i> (Melsheimer)                              | AB, BC, MB, NB, NF, NT, ON, QC, SK                             |
| <i>Nephus (Nephus) ornatus naviculatus</i> (Casey)                | AB, BC, MB, NF, ON, QC, SK                                     |
| <i>Nephus (Scymnobius) flavifrons</i> (Melsheimer)                | NF, ON, QC                                                     |
| <i>Scymnus (Pullus) loewii</i> Mulsant                            | <b>NF</b>                                                      |
| <i>Nephus (Turboscymnus) georgei</i> (Weise)                      | AB, BC, NF, NT, ON, QC, YT                                     |

<sup>1</sup> denotes non-native species; <sup>H</sup> denotes Holarctic species.