

THE FIRST NORTH AMERICAN RECORDS OF
HIPPODAMIA VARIEGATA (GOEZE)
(COLEOPTERA: COCCINELLIDAE)

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Abstract.—*Hippodamia variegata* (Goeze), an Old World member of the tribe Coccinellini, is recorded as established in North America in the vicinity of Montreal, Quebec, Canada. Identification characteristics are given and its relationship to native North American species is discussed.

Specimens of *Hippodamia variegata* (Goeze) were collected in the vicinity of Montreal, Quebec in 1984 by 2 different collectors. This species, mainly Palaearctic in distribution, also occurs in Africa and India. This publication documents the establishment of *H. variegata* in Canada and presents pertinent information concerning its identification in the North American fauna.

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Hippodamia variegata (Goeze)

- Coccinella variegata* Goeze, 1777:247.
- Adonia variegata*: Mulsant 1846:39; Korschefsky, 1932:346.
- Hippodamia (Adonia) variegata*: Khnzorian, 1982: 326.
- Hippodamia variegata*: Gordon, 1985:706.

Diagnosis of the North American population. Length 4.40 to 5.0 mm, width 3.0 to 3.25 mm. Pronotum with fine, raised margin at base. Head yellow with vertex black (male) or yellow with vertex and large frontal spot black (female). Pronotum black, with anterior and lateral borders and small spot on each side of middle yellow (female) or with anterior border of black area deeply emarginate medially with yellow and spot on each side of middle broadly connected to yellow anterior border (male). Elytron orange with 5, 6, or 7 black spots; scutellar, posthumeral, 2 postdiscal, and apical spot constant, either or both humeral and postscutellar spots often absent. Ventral surface black except propleuron and meso- and metepimera yellow, tibia often yellow or partially so.

Remarks. *Hippodamia variegata* is not included in the key to the species of North American *Hippodamia* (Gordon, 1985). That key should be modified by inserting an additional couplet at the beginning of the key as follows:

- 1. Pronotum with fine raised margin at base *variegata* (Goeze)
- Pronotum without raised margin at base 2

Without this modification *H. variegata* keys to couplet 31 (p. 709) which includes *H. convergens* Guerin and *H. glacialis glacialis* (F.). The strongly convergent pale spots on the pronotum as well as the lack of a raised basal pronotal margin will distinguish *H. convergens*, the most similar appearing species in the North American fauna, from *H. variegata*. *Hippodamia glacialis* lacks a black scutellar spot, and the 2 postdiscal spots on the elytron are usually united to form an irregular, transverse band. *Hippodamia variegata* has a black scutellar spot, and the postdiscal spots are not united in any North American specimen examined. It should be noted that the sexual dimorphism noted above is not consistent in Old World populations of *H. variegata*. The males always have a tendency to have more extensive areas of yellow pigmentation, but it is often not as distinct a sexual difference as it apparently is in the North American population.

This species has been placed in the genus *Adonia* by authors beginning with Mulsant (1846). Khnzorian (1982) considered *Adonia* a subgenus of *Hippodamia* (this reference should be consulted for information on synonymy), and Gordon (1985) considered *Adonia* a synonym of *Hippodamia*.

The North American specimens are most similar to those occurring naturally in France. Specimens from northern and eastern Europe usually have the elytral ground color a darker orange with black spots more pronounced than in North American specimens; specimens from the Mediterranean Region are usually very pale with reduced markings; and the Indian and African populations tend to have the elytral spots large and often coalesced. Dobzhansky (1933) or Hodek (1973) should be consulted for further details on the geographical variation exhibited by this species. The larva was described and illustrated in Hodek (1973).

The first North American specimens of *H. variegata* were sent to me by Claude Chantal, St-Nicolas-est, Quebec, and additional specimens by Jean MacNamara, Biosystematics Research Institute, Ottawa, Ontario. Data taken from the specimens examined are: 6 specimens, Granby, Shefford (vicinity of Montreal), 4-V-1984, 4-VI-1984, 18-V-1984, 21-VI-1984, JF Roch; 2 specimens, Mont-Royal, Montreal, 27-VIII-1984, une clariene, L. Lesage; 1 specimen, St-Hilaire, Rouville (vicinity of Montreal), 10-VI-1984, JF Roch; 2 specimens, Dorval, 11-IX-1985, Lesage & Smetana, in abandoned field; 2 specimens, Dorval, 29-VIII-1985, Lesage & Smetana, abandoned field.

Hippodamia variegata may be truly adventive rather than the result of an intentional introduction. Hamilton (1894) reported a doubtful record of this species from Nova Scotia, but this has been considered erroneous (Brown and de Ruelle, 1962), and no confirming records have been found for 90 years despite relatively intense field surveys. A parallel exists with *Propylea quatuordecimguttata* (L.), which is also established in the vicinity of Montreal as first reported by Chantal (1972). The reasons for 2 species of Old World Coccinellini becoming established in the same area, apparently without intentional releases, are unknown. I suspect that they were, in fact, intentionally released but no report was filed. There were numerous intentional introductions of *H. variegata* into various portions of the United States from 1957 to 1983 which apparently did not result in establishment of the species (Gordon, 1985). However, no records of introductions into Canada have been found.

Members of *Hippodamia* are generally regarded as aphid predators, and Hodek

(1973) records 4 species of aphids as essential foods of *H. variegata*. If the present populations of this species spread and their population density increases, they could aid in the suppression of aphids in some areas.

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