

FIRST RECORDS OF *PTOSIMA WALSHII* (COLEOPTERA: BUPRESTIDAE) IN CANADAD.B. LYONS¹*, K. L. RYALL¹, S.M. PAIERO², G.C. JONES¹ AND L. VAN SEGGELEN³*

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Ptosima Dejean, 1833 (Coleoptera: Buprestidae) (Fig. 1) contains 10 extant species worldwide (Bellamy 2008) with four species occurring in North America (Nelson 1978, Nelson et al. 2008). Nelson (1978) keyed and redescribed the North American species. Plant genera records for *Ptosima* spp. include *Crataegeus* (Rosaceae), *Cercis* (Fabaceae) and *Quercus* (Fagaceae) (Paiero et al. 2012). *Ptosima idolyinae* Frost, 1923 and *P. laeta* Waterhouse, 1882 are confined to south central North America, whereas *P. gibbicollis* (Say, 1823) and *P. walshii* LeConte, 1863 are widely distributed in eastern North America. Bright (1987) stated that *P. gibbicollis* “probably occurs in southern Ontario”, but makes no mention of *P. walshii*. Paiero et al. (2012) mapped the distribution of *P. gibbicollis* as occurring in Ontario. They also mapped the host range of *P. walshii*, as a potential distributional range for the beetle, encompassing Manitoba, Ontario and Quebec, but no records were known for these Provinces. *Ptosima walshii* is considered “rarely collected” (MacRae 2006) and “infrequently encountered” (Paiero et al. 2012). Nelson (1978) stated that *P. walshii* had been reported from Illinois, Texas, Kansas and California, suggested that the California record was doubtful, and added new State distribution records for Iowa, Michigan, Minnesota, Mississippi, Missouri, Ohio and Wisconsin. Westcott (1991) provided compelling evidence that the California record was erroneous. Records for four states that border Canada—Michigan, Ohio, Wisconsin and Minnesota—are represented by a total of eight collections (Nelson 1978). The Michigan record was a single collection labeled “Ag. Coll. 20.V.1889” (Nelson 1978). Westcott (1991) reported a specimen from Oklahoma. Thus, the literature records confirmed by specimens include 11 States but no Provinces.

As part of a trapping study for the recently discovered European oak borer, *Agrilus sulcicollis* Lacordaire (Coleoptera: Buprestidae) in North America (Jendek and Grebennikov 2009, Haack et al. 2009), we collected numerous *P. walshii* adults in southwestern Ontario. These collections represent the first verified records of the species

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in Canada. Here we describe the circumstances of these collections.

Three woodlots (Table 1) selected for trapping in 2011, produced *P. walshii* adults. In each woodlot, three trap/lure combinations were deployed on oak trees: 1) unbaited sticky-band trap; 2) green prism trap baited with the green leaf volatile, 3-(Z)-hexenol (Synergy Semiochemicals, Inc., Burnaby, BC); and 3) green prism trap baited with a manuka oil/phoebe oil lure (Synergy Semiochemicals, Inc.). Three replicates of each trap type were established per site, for a total of nine traps per location. Traps were set up 19 May 2011 and monitored approximately every 6 or 7 days throughout the season until 18 August 2011. The Bickford Line and Courtright Line sites were sampled again in 2012 using unbaited green prism traps and sticky-band traps. Four replicates of each trap type were established per site for a total of 8 traps per location. Traps were set up on 10 to 12 May 2012 and monitored weekly until 19 July 2012. Three additional woodlots (Table 2), each with three sticky-band traps, also produced *P. walshii* adults. These additional traps were set up on 10 to 14 May 2012 and sampling was conducted once in mid-season (26 to 28 June) and again later in the season (18 to 19 July). The numbers of specimens of each sex collected at each location in each year are tabulated (Tables 1 and 2).

Males and females were collected from all three trap/lure types. Significantly more beetles (Fig. 2) of both sexes were collected on the green prism traps baited with the



FIGURE 1. Dorsal view of female of *Ptosima walshii* from Bickford Line site, Lambton, Co., Ontario (photograph by G.C. Jones).

TABLE 1. Number of adults of *Ptosima walshii* captured with green prism traps and sticky-band traps in woodlots in southwestern Ontario in 2011 and 2012.

Site	Latitude	Longitude	2011		2012	
			Males	Females	Males	Females
Bickford Line	42.7635°N	82.3096°W	6	11	11	22
Courtright Line	42.7987°N	82.2388°W	2	11	0	3
Thames Road	42.8518°N	81.7256°W	1	2	-	-
Total			9	24	11	25

TABLE 2. Number of adults of *Ptosima walshii* captured with sticky-band traps in additional woodlots sampled in southwestern Ontario in 2012.

Site	Latitude	Longitude	Males	Females
Hillsboro Road	43.0051°N	82.0946°W	1	2
Coldstream C.A. ¹	43.0210°N	81.4981°W	0	1
Ladysmith Road	42.8164°N	82.3946°W	0	1
Waterworks Road	42.8954°N	82.2575°W	0	2
Total			1	6

¹C.A. = Conservation Authority

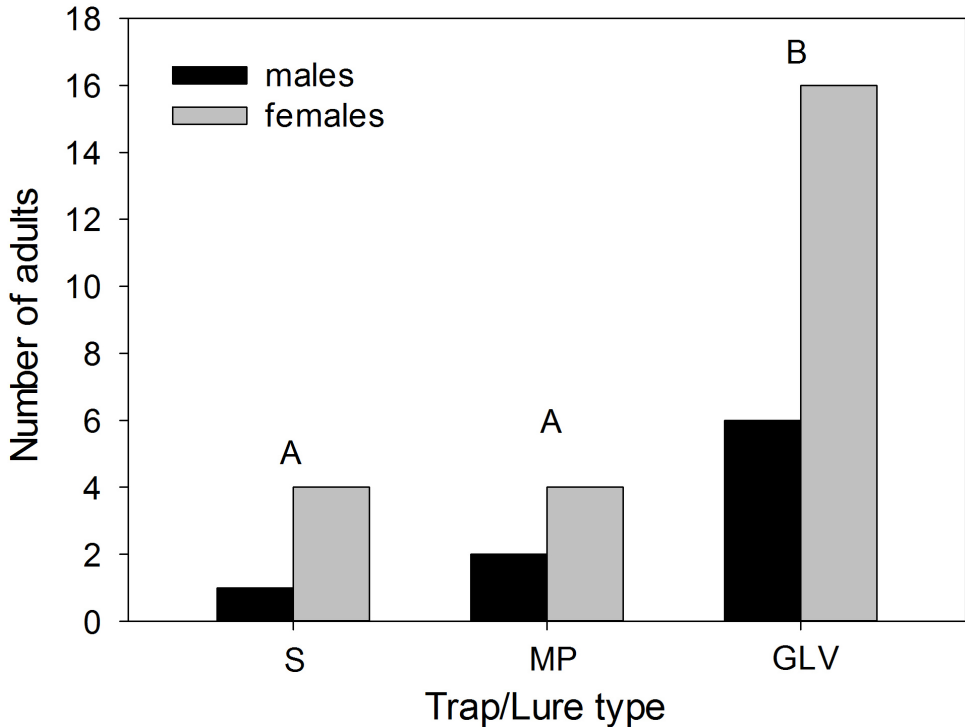


FIGURE 2. Number of males and females of *Ptosima walshii* captured in the three different trap/lure types (S= unbaited sticky-band traps, MP = green prism traps baited with manuka oil/phoebe oil; and GLV = green prism traps baited with 3-(Z)-hexenol) in four sites sampled in 2011 in southwestern Ontario. Different letters over the bars represent significant differences (G-test) between the total number of beetles (males + females) captured in each trap lure type.

3-(Z)-hexenol compared to the other trap/lure types (G -test; $\alpha = 0.05$, $G^2 = 24.247$) which suggests that this green leaf volatile is attractive to *P. walshii*. All adults of *P. walshii* were captured on either *Quercus macrocarpa* Michx. or *Q. alba* L. Nelson (1978) listed the host of *P. walshii* as unknown. In a subsequent paper Nelson et al. (1981) reported that two adults had been collected by beating *Q. macrocarpa*. MacRae (2006) reported the first rearing of adults from *Q. macrocarpa*. The extensive use of this host tree for our trap placement serendipitously resulted in the capture of large numbers of *P. walshii*. The flight periods of the collected adults are shown in Fig. 3 for 2011 and 2012 excluding the additional sites. The early flight period of *P. walshii* observed in our study, especially in 2012, supports the assumption that the members of *Ptosima* overwinter as adults within pupal cells in the host tree (Nelson 1978).

Voucher specimens of *P. walshii* are deposited in the Great Lakes Forestry Centre Insect Collection (GLFC), the University of Guelph Insect Collection (DEBU) and the Canadian National Collection of Insects and Arachnids (CNCI).

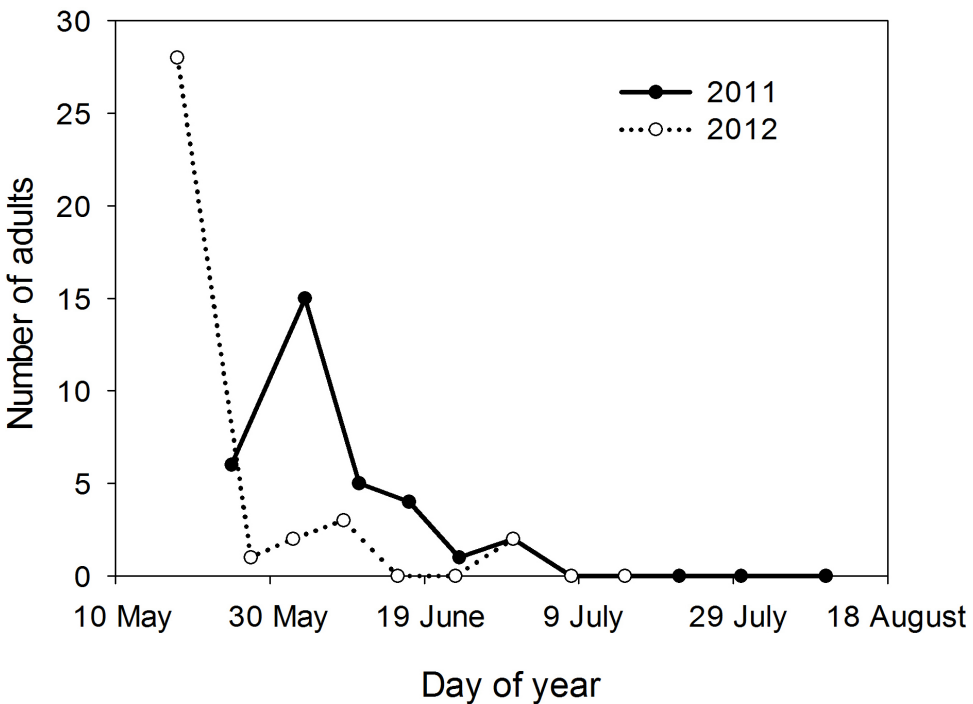


FIGURE 3. Total number of adults of *Ptosima walshii* (males + females) captured in each sample interval on all trap types (excluding additional woodlots in 2012), in 2011 and 2012 in southwestern Ontario, plotted in the middle of each sample interval.

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