

***PTINUS SEXPUNCTATUS* PANZER  
(COLEOPTERA: ANOBIIDAE, PTININAE)  
NEWLY RECORDED IN NORTH AMERICA<sup>1</sup>**

Christopher G. Majka,<sup>2</sup> T. Keith Philips,<sup>3</sup> and Cory Sheffield<sup>4</sup>

ABSTRACT: The Palearctic spider beetle, *Ptinus sexpunctatus* Panzer (Anobiidae: Ptininae), is newly recorded in North America from collections in Nova Scotia, Canada, and Pennsylvania and Utah in the United States. It is also newly recorded in association with the native blue orchard mason bee, *Osmia lignaria* Say (Hymenoptera: Megachilidae). Its presence on the continent is briefly discussed in the context of mechanisms of introduction of invertebrates to North America.

KEY WORDS: *Ptinus*, Anobiidae, Megachilidae, introduced species, new records

*Ptinus sexpunctatus* Panzer is a Palearctic spider beetle (Anobiidae: Ptininae) found from southern Europe north to England and southern Fennoscandia and Karelia; it is also known from the Caucasus (Burakowski et al., 1986) and east to Siberia (Borowski 1996). Within its native range it is an associate of cavity-nesting solitary bees in the genera *Osmia* and *Megachile* and also with *Hoplites adunca* (Panzer) and *Chelostoma nigricorne* (Nylander) (Linsley 1942). It is also found in oak (*Quercus*) forests, particularly in galleries of *Cerambyx cerdo* Linnaeus (Cerambycidae) (Burakowski et al., 1986).

Thirty-eight native and non-native species in the genus *Ptinus* Linnaeus (spider beetles) (Philips 2002) and three additional adventive species not yet reported in the literature (Philips, unpublished data) are found in North America. A large number of introduced species in the genera *Gibbium* Scopoli, *Mezium* Curtis, *Niptus* Boieldieu, *Pseudeurostus* Heyden, *Sphaericus* Wollaston, *Tipnus* Thompson, and *Trigonogenius* Solier have also been recorded from North America (Philips 2002). Many feed on a variety of dried stored products and are found in houses, warehouses, flour mills, grain elevators, museums and other places where such materials are kept. Others are associated with bird, mammal, and wasp nests (Hicks 1959, Bousquet 1990), and nests of several cavity nesting megachilid bees (Fabre 1914, Linsley and MacSwain 1942, Linsley 1958, Krombein 1979, Bosch and Kemp, 2001). Our study provides the first North American records of *P. sexpunctatus* and indicates that it has become established in association with a native species of mason bee.

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<sup>2</sup> Nova Scotia Museum of Natural History, 1747 Summer Street, Halifax, Nova Scotia, Canada B3H 3A6. E-mail: c.majka@ns.sympatico.ca. Corresponding author.

<sup>3</sup> Western Kentucky University, Department of Biology, Bowling Green, Kentucky 42101-3576 U.S.A. E-mail: Keith.Philips@wku.edu.

<sup>4</sup> Agriculture and Agri-food Canada, 32 Main Street, Kentville, Nova Scotia, B4H 1J5 Canada. E-mail: SheffieldC@agr.gc.ca.

## METHODS

The abbreviations of collections referred to in this study are, as follows: **ACNS**, Agriculture and Agri-food Canada, Kentville, Nova Scotia, Canada; **NSMC**, Nova Scotia Museum, Halifax, Nova Scotia, Canada; **TKPC**, T. K. Philips Collection, Bowling Green, Kentucky, U.S.A.

## RESULTS

In June 2003 a larval *Ptinus* specimen was collected from a nest of the blue orchard mason bee, *Osmia lignaria* Say (Hymenoptera: Megachilidae), in Upper Canard, Kings County, Nova Scotia, Canada, by C. Sheffield. It was reared to maturity and the adult proved to be *Ptinus sexpunctatus* Panzer (NSMC). Photographs of the specimen are available from Majka (2004). Subsequently, three specimens of *P. sexpunctatus* were discovered 28 April 2004 in Kentville, Kings County, Nova Scotia in nesting tubes of *O. lignaria* imported from Logan, Utah, U.S.A. (ACNS). Specimens of *Tricrania stansburyi* Haldeman (Coleoptera: Meloidae), a known parasite of bees (Linsley and MacSwain 1951), were also found in these nesting tubes. *Tricrania stansburyi* is a western species, found in Canada only in the Northwest Territories and British Columbia (Campbell 1991).

A much earlier North American collection of *P. sexpunctatus* was from Philadelphia, Pennsylvania, USA, a specimen taken on 26 January 1915 and "bred from an english walnut" (TKPC). The specimens from Nova Scotia, Pennsylvania, and Utah represent the first North American records of this Palearctic species.

## DISCUSSION

Many pathways have and continue to spread ptinines and other adventive beetles to North America. Lindroth (1957) discussed dry ballast-mediated introductions and Spence and Spence (1988) highlighted introductions associated with plant nursery stock. Dried product pests, many of which have become cosmopolitan, have been introduced with imported stored goods. The Philadelphia record likely is based on a larva inside a walnut imported from Europe, the adult later emerging in the New World.

The introduction of *P. sexpunctatus* with stocks of bees represents another mode of entry. Two species of the genus *Osmia* (subgenus *Osmia s. str.*) have been introduced into the United States for research and evaluation as pollinators of tree fruits; *Osmia cornuta* (Latreille) from Spain and *O. cornifrons* (Radoszkowski) from Japan (Cane 2003). *Ptinus sexpunctatus* might have accompanied such introductions. Once in North America it likely colonized nests of the native *O. lignaria*, a closely related species. *Osmia cornuta* has also been imported to and evaluated in the western United States, including California and Utah. *Osmia lignaria* has been subsequently imported from Utah into Nova Scotia (2000-

2005) for evaluation as an apple pollinator (Sheffield et al., 2003). These records indicate that *P. sexpunctatus* is now established in Utah in association with *O. lignaria* and also suggest its establishment in Nova Scotia. The detailed bionomics of this species in bee nests and its potential impact in bee colonies has been little investigated. Tscharrntke et al. (1998) listed it as a predator in the nests of *O. rufa* Linnaeus and *O. caerulescens* (Linnaeus) in Germany. Ingolf Steffan-Dewenter (pers. com.) has observed that *P. sexpunctatus* can be very destructive in *Osmia* nests in Germany and feels that the beetles might prey on larvae and pupae in addition to feeding on dead individuals.

Although there is no evidence that the meloid, *Tricrania stansburyi*, has become established in Nova Scotia, the collection of this western North American species in the province is another example of bee associates being introduced with the international trade and transport of bee stocks.

Even though dry ballast is no longer dumped on shorelines, and quarantine regulations now regulate the introduction of nursery stock, additional species of beetles continue to arrive on the continent. Some species may have little discernable effect on native species and ecosystems, while others may have a considerable economic impact on agriculture, horticulture, silviculture, or forestry. Large quantities of stored products are destroyed or contaminated annually by various arthropods, mainly beetles (Hinton 1945). Worldwide more than 600 species are associated with such products (Bousquet 1990). Although knowledge of the bionomics of *P. sexpunctatus* is meager, its destructive habits in *Osmia* nests in Germany suggest the potential for similar effects in North America.

The availability of baseline data on bionomics and distribution will be critical for detecting additional immigrant insects and assessing their potential impact on native species and ecosystems.

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