



Canadian Food  
Inspection Agency

Agence canadienne  
d'inspection des aliments

# Pest categorization

*Pyrrhalta vaccinii* (Fall) and *Neochlamisus cribripennis*  
(LeConte) (Coleoptera: Chrysomelidae)

Blueberry beetles



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## Background

The purpose of this categorization is to determine whether *Pyrrhalta vaccinii* (blueberry leaf beetle) and *Neochlamisus cribripennis* (blueberry case beetle) have the potential to satisfy the criteria in the definition for a quarantine pest. The method used by the CFIA to initiate and conduct this categorization is consistent with international guidelines set by the International Plant Protection Convention (IPPC). Definitions follow those listed in the IPPC's *Glossary of phytosanitary terms*.

**Initiation point:** This categorization was identified via a Commodity Risk Assessment on blueberry plants from Canada to the UK for the Jens-Georg Unger Plant Health Fellowship project, funded by the European and Mediterranean Plant Protection Organisation (EPPO). This project was led by a visiting scientist from the UK Department for the Environment, Food and Rural Affairs, utilising the tools and templates of the Canadian Food Inspection Agency and coordinating with experienced Canadian risk assessors.

**Identification of the PRA area:** The PRA area is all of the UK.

**Current regulatory status:** *Pyrrhalta vaccinii* is not currently regulated as a pest in the UK or in other EPPO member countries. *Neochlamisus cribripennis* is also not regulated in the UK, however it is regulated as a quarantine pest in Chile (EPPO 2022).

## Identity of organism

**Name:** *Pyrrhalta vaccinii* (Fall) (Coleoptera: Chrysomelidae)

**Synonyms:** *Galerucella vaccinii* Fall, *Tricholochmaea vaccinii* (Fall)

**English common names:** Blueberry leaf beetle

**French common names:** Galéruque de l'airelle

**Name:** *Neochlamisus cribripennis* (LeConte) (Coleoptera: Chrysomelidae)

**Synonyms:** *Chlamisus cribripennis* (LeConte), *Chlamys cribripennis* LeConte, *Arthrochlamys cribripennis* (Lec.)

**English common names:** Blueberry case beetle

**French common names:** N/A

**Note:** *Pyrrhalta vaccinii* and *Neochlamisus cribripennis* are both members of the Chrysomelidae family of beetles (Coleoptera), and both species can cause feeding damage to blueberry foliage. Additionally, the Categorisation conclusions for both insects are the same, therefore the information for both beetles is presented in this joint Categorization document.

### 1. Is the organism clearly a single taxonomic entity and can it be adequately distinguished from other entities of the same rank?

**Yes**

If no

**Go to 2**

Go to 11

*Pyrrhalta vaccinii* adults can be identified from other *Pyrrhalta* species by being pale brown or brown-yellow throughout with elytra (modified, hardened forewings) marked with minute depressions (Brown 1969) as demonstrated in Figure 1, A. In addition, the antennae and legs of this beetle are pale and its body is short and stout (Fall 1924).

Certain anatomical features are useful for the identification of *Neochlamisus cribripennis* adults. Adults have a cylindrical body shape, approximately 3mm in length and coloured coppery-red (Brown 1943; Ellis and LeRoux 1964). The notched margin of each eye can have an obscure yellow spot and the antennae are usually entirely yellow, sometimes a little darker at the tip (Brown 1943), as shown in Figure 1, B.

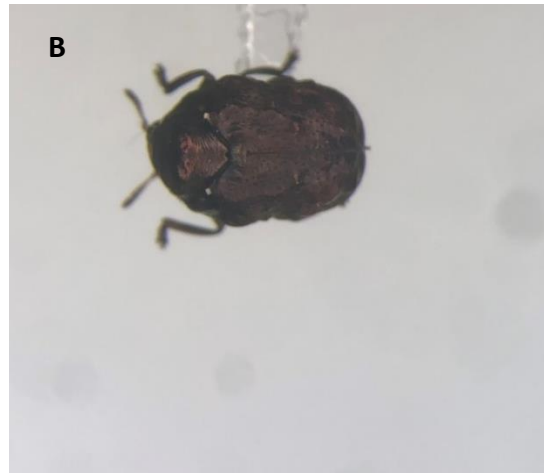


Figure 1: Sightings of the adult blueberry beetles **A)** *Pyrrhalta vaccinii* and **B)** *Neochlamissus cribrippennis* (Murray, 2014; Bédard, 2022).

## Presence in the PRA area

### 2. Does the organism occur in the PRA area?

If yes

Go to 3

**No**

**Go to 5**

### 3. Is the organism widely distributed in the PRA area?

If yes

Go to 11

If no

Go to 4

## Regulatory status

### 4. Is the organism under official control in the PRA area or is it a potential candidate for official control?

If yes

Go to 5

If no

Go to 11

## Potential for establishment and spread in the PRA area

### 5. Does the PRA area have climatic conditions suitable for establishment and spread of the organism?

**Yes**

If no

**Go to 6**

Go to 11

Both beetles have similar distributions and are found in eastern Canada (both present in New Brunswick, Nova Scotia, Ontario, Prince Edward Island and Quebec) and the US (both present in Maine, Massachusetts, Michigan, New York, Rhode Island, in addition to Minnesota, Ohio and Wisconsin concerning *Neochlamisus cribripennis* and Maryland, New Hampshire, New Jersey and West Virginia concerning *Pyrrhalta vaccinii*) (CABI 2022; Cavey 1994; Collins *et al.* 1995; Orr 1996; Riley *et al.* 2003). They do not appear to have spread to other countries.

The activity of *Neochlamisus cribripennis* adults appears to be sensitive to changes in weather (Wood and Small 1970). *Neochlamisus cribripennis* requires high humidity to complete its lifecycle (Ellis and LeRoux 1964), yet the geographical range of both beetles suggests that they could tolerate the UK climate. A dense canopy of blueberry leaves should enable higher humidity, especially after rainfall (Abbasi *et al.* 2022).

*Pyrrhalta vaccinii* is capable of short distance dispersal as it usually overwinters at the forest edge before moving into the fields in springtime in search of blueberry foliage (Drummond *et al.* 2009; Pickett 1943). Long distance movement of either beetle has not been reported.

### 6. Does the PRA area have ecological conditions suitable for establishment and spread of the organism?

**Yes**

If no

**Go to 7**

Go to 11

Both beetles attack lowbush blueberry (*Vaccinium angustifolium*) though *Pyrrhalta vaccinii* also feeds on the leaves of several other *Vaccinium* species, namely velvet-leaved blueberry (*V. myrtilloides*), pale blueberry (*V. pallidum*), and highbush blueberry (*V. corymbosum*) (Wilcox 1979; Wood 1966; Woods 1924). These *Vaccinium* species are present in urban areas (e.g. gardens) in the UK and/or in cultivated areas such as fields, nurseries, and garden centres, that could enable the establishment and spread of

these beetles (GBIF 2022; RHS 2022a; RHS 2022b). Given the aforementioned dispersal behaviour, the establishment of *P. vaccinii* on UK blueberry plantations would most likely benefit from the presence of adjacent forest habitats (Drummond *et al.* 2009). No predators or parasitoids have been reported for either beetle.

## Potential for economic and environmental consequences in the PRA area

### 7. Is the organism a known pest in its area of current distribution?

**Yes**

**Go to 9**

If no

Go to 8

Both beetle species have been reported as pests that, at high population levels, causing the defoliation of large patches of blueberry plants (Drummond *et al.* 2009; Wood 1966). Severe feeding attacks in successive years can kill the plants (Neilson and Crozier 1972; Wood 1966).

### 8. Does the organism have intrinsic attributes that indicate that it could cause significant harm to plants?

If yes

Go to 9

If no

Go to 11

### 9. With specific reference to the plants or habitats which occur in the PRA area, could the organism by itself, or acting as a vector, cause significant damage or loss to plants leading to negative economic, environmental, societal or export market impacts?

If yes

Go to 10

**No**

**Go to 11**

Blueberry species, such as *Vaccinium angustifolium*, are cultivated in the UK. The value of the GB blueberry-growing economy is currently valued at £32 million ex-farm (Jack Evans, British Summer Fruits, pers. comm., Jun. 10, 2022). Blueberry plants are also grown as ornamental plants in gardens (RHS 2022a). Finally, native *Vaccinium* species, such as *V. vitis-idaea* and *V. myrtillus* exist in the wild, though their host status is unknown. These wild *Vaccinium* species also exist in Canada, however, and do not appear to be affected by these beetles (Brouillet *et al.* 2022).

*Pyrrhalta vaccinii* has been noted to only occasionally cause damage, especially in newly developed or poorly managed fields, and mainly affecting field edges (Drummond *et al.* 2009; Loeber 1950; Neilson and Crozier 1972). Similarly, *Neochlamisus cribripennis* appears to be a variable pest of blueberries. Very low numbers of this beetle have been found in nearly every blueberry field sampled without causing noticeable impacts, yet in a small number of fields *N. cribripennis* has caused considerable damage (Wood 1966). For example, in addition to defoliation, larvae may also injure the stems and fruit, and adult beetles feed on the stem bark. The latter behaviour is the most significant as it causes drying and then death over winter (Crozier 1993; Ellis and LeRoux 1964). However, damage is not serious if incurred in a crop year of a two year rotation as pruning of the plants will occur anyway (Crozier 1993).

No yield impacts have been formally estimated for either beetle. They have not been attributed as causing environmental or social impacts (PMC 2020; Polashock *et al.* 2017). Therefore, the potential impact caused by these beetles in the UK is not deemed significant.

## Conclusion

**10. This organism has the potential to satisfy the definition of a quarantine pest.**

**11. This organism does not fulfill all of the criteria for a quarantine pest.**

Neither *Pyrrhalta vaccinii* nor *Neochlamisus cribripennis* has the potential to satisfy the definition of a quarantine pest for the UK. These beetles are absent in the UK and do not appear to have a significant economic, environmental, or social impact in their native range, with any damage being restricted to small agricultural areas. There is also no record of these beetles expanding beyond their native ranges. Nevertheless, this categorization may need to be re-evaluated if these beetles became more common in North America, or if one is found to attack the native species *Vaccinium vitis-idaea* and *V. myrtillus*.

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