

Mini data sheet on *Lycorma delicatula*

Lycorma delicatula was added to the EPPO A1 List in 2016. A full datasheet will be prepared, in the meantime you can view here the data which was previously available from the EPPO Alert List (added to the EPPO Alert List in 2015-deleted in 2016).

Lycorma delicatula (Hemiptera: Fulgoridae) - Spotted lanternfly

Why: *Lycorma delicatula* is a polyphagous pest, probably originating from China, which has recently been found in Pennsylvania (US). In the 2000s, it was introduced into the Republic of Korea where it rapidly spread, showing invasive behaviour and causing damage to vineyards. Considering the fact that *L. delicatula* can attack many woody plants of economic importance in the EPPO region, and that it has clearly shown invasive behaviour in its introduced range, the EPPO Secretariat decided to add it to the EPPO Alert List.

Where: *L. delicatula* is thought to originate from China. Its geographical distribution would need to be further investigated in parts of Asia. For example, several publications mention its presence in India but the EPPO Secretariat could not find any supporting evidence.

EPPO region: Absent.

Asia: China (Anhui, Beijing, Guangdong, Hebei, Jiangsu, Shaanxi, Shandong, Shanghai, Sichuan, Tianjin, Zhejiang), Japan (at least in Honshu), Korea Republic (introduced in the 2000s and invasive), Taiwan, Vietnam.

North America: USA (Pennsylvania). The presence of *L. delicatula* was confirmed in September 2014 in the county of Berks. Eradication measures are being implemented.

On which plants: *L. delicatula* is a polyphagous pest which feeds mainly on woody plants, including grapevine (*Vitis* spp.), fruit trees (e.g. *Malus*, *Prunus*, *Pyrus*), ornamental and forest trees (e.g. *Acer*, *Betula*, *Cornus*, *Juglans*, *Hibiscus*, *Liriodendron*, *Pinus*, *Populus*, *Quercus*, *Robinia*, *Salix*, *Syringa*, *Tetradium*). According to the literature, it can feed on approximately 70 different species (principally woody plants but also a few herbaceous plants). Host preference studies carried out in Republic of Korea have shown that *Vitis vinifera* and the invasive tree species, *Ailanthus altissima* (EPPO List of Invasive Alien Plants), are preferred host plants for adults, and are particularly attractive during the egg-laying period. In the past, it had even been envisaged to use *L. delicatula* as a biocontrol agent to limit populations of *A. altissima*.

Damage: Adults and nymphs feed on phloem tissues, extracting sap with their piercing and sucking mouthparts. Nymphs are mostly found on branches and rachises, and adults are mostly observed on tree trunks. *L. delicatula* excretes large amounts of honeydew on which sooty moulds can develop. Feeding activity can cause withering of the foliage, and attacked trees may develop weeping wounds on their trunks. Signs of infestation can include the presence of ants, bees, hornets or wasps which are attracted by sap oozing from wounds, or the presence of honeydew secretions building up at the base of the tree and blackened by the development of sooty mould. In the Republic of Korea, *L. delicatula* is considered to be a serious pest of grapevine, and when infestations are severe, stunting and plant mortality may occur.

Egg masses (30-50 eggs) are laid on tree trunks and are covered in a yellowish brown waxy deposit (resembling mud). In autumn, *A. altissima* is the preferred host for adult feeding and egg-laying. Eggs can also be laid on non-host material, such as bricks, stones, vehicles, or dead plants. There are 4 larval instars (nymphs). The first three instars are black with white spots but the 4th instar develops red patches in addition to the white dots. Nymphs start climbing up the trees after they emerge. Adult males are 20.5-22 mm long (from head to end of folded wings) and females are 24-26.5 mm long. Forewings are greyish with black spots and their tips are reticulated. Part of the hind wing is red with black spots and the rest

is white and black. The abdomen is yellowish with black bands. *L. delicatula* has one generation per year and overwinters as eggs.

As *L. delicatula* is a beautiful insect, more pictures can be found on the Internet:

<http://www.pda.state.pa.us/spottedlanternfly>

<http://hojae.net/520>

<http://justsixlegs.blogspot.fr/2014/12/new-invasive-pest-in-us-spotted.html>

Dissemination: Adults are weak flyers but good hoppers. Over longer distances, infested plants and egg masses deposited on non-plant material can transport the pest.

Pathway: Plants for planting, cut branches, wood?, non-plant material carrying egg masses.

Possible risks: A large proportion of the known host plants of *L. delicatula* are grown in the EPPO region for fruit production, ornamental or forestry purposes. The fact that *L. delicatula* is considered as a serious pest of grapevine in the Republic of Korea is also of particular concern to the EPPO region. In the Republic of Korea, the presence of the pest in vineyards requires control measures. Sticky traps are placed at the base of the trees, as it has been observed that young nymphs easily fall from trees when disturbed by wind or encountering obstacles, and then climb up again. Insecticides are also used but the development of resistance might be an issue. Research is also carried out on the possible use of egg parasitoids (e.g. *Anastatus orientalis* (Hymenoptera: Eupelmidae)) to control *L. delicatula*. The fact that *L. delicatula* egg masses can be found on non-plant material adds to the risk of spread. Although data is generally lacking on the distribution of the pest in its native area, on its economic impact, and on its potential for establishment in the EPPO region, *L. delicatula* may present a risk to many woody plants which are grown in the EPPO region, including major fruit crops and forest trees.

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