Identifying the spotted lanternfly, *Lycorma delicatula*

The spotted lanternfly (*Lycorma delicatula*) is a planthopper that is currently not present in Australia; however, it is of biosecurity concern due to its recent spread and invasion in South Korea and Japan and more recently, parts of the USA. An extensive host range means that this species could have an impact on primary production industries, amenity areas, and the natural environment.

Scientific name: *Lycorma delicatula*

Synonymn: Spotted lanternfly

Order: Hemiptera

Family: Fulgoridae

Status: Not found in Australia

Damage to plants

The spotted lanternfly uses a tough piercing stylet to feed on the nutrient-rich phloem of its host plant. It often displays group feeding behaviour (Image 1). Constant feeding can result in:

- A less vigorous plant
- Fruit yield reduction
- Secondary impacts such as disease
- Sooty mould build-up (Image 2)

Image 1. Group feeding behaviour

Image 2. Sooty mould on leaves

Risk of entry

The spotted lanternfly is a known 'hitchhiker'. Eggs are laid on a variety of surfaces. Containers, vehicles, machinery, equipment, nursery stock, fresh produce, cut flowers and foliage, forest products and passenger luggage all have the potential to transport spotted lanternfly into Australia. Inspection of these products prior to shipment and upon receival is vital to detection and prevention of spread.

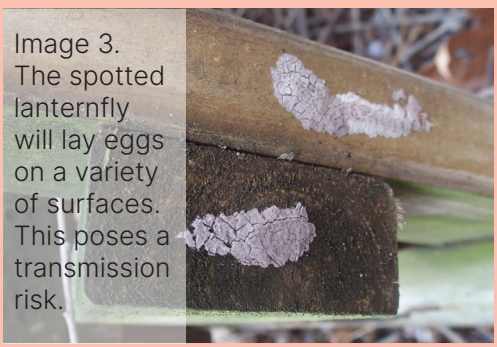

Image 3. The spotted lanternfly will lay eggs on a variety of surfaces. This poses a transmission risk.

Reporting a suspect detection

Early detection significantly improves the chances of eradication. If you recognise this pest or observe anything out of the ordinary in your home garden report your concern to the Exotic Plant Pest Hotline on 1800 675 888 or through the MyPestGuide Reporter App.

Home gardeners can play an important role in early detection of the spotted lanternfly by learning what it looks like, and keeping an eye out for anything out of the ordinary in the garden, such as evidence of feeding damage

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Recognising life stages

The spotted lanternfly develops through egg, nymph and adult stages.

Eggs are a grey colouring and ovoid in shape. Each egg mass typically contains 30-50 eggs. The egg mass is covered with a protective secretion from the female that, when dry, resembles clay.

First to third instar nymphs are black with white spots. The average size of each instar is: 1st instar 3.6-4.4 mm; 2nd instar 5.1-6.4mm and 3rd instar 6.9-9.4 mm.

When the final nymphal stage is reached, the spotted lanternfly turns predominantly red, although white spots are retained. Black lines also form part of the patterning. The average size of the 4th instar ranges from 10.9-14.8mm.

By the adult stage the spotted lanternfly has developed a pair of wings. When folded, the forewings show large black spots, which become many rows of delicate black lines about two thirds of the way down the wing.

The hind wings have a large bright red patch and black spots are present against the red backdrop. The rest of the hindwing is patterned black and white. The abdomen is yellow with black banding. Adult females range from 24-27mm in length. They are typically larger than adult males, which range from 21-22mm.

Image 4. Eggs, pre-hatch

Image 5. Early instar nymph

Image 6. Late instar nymph

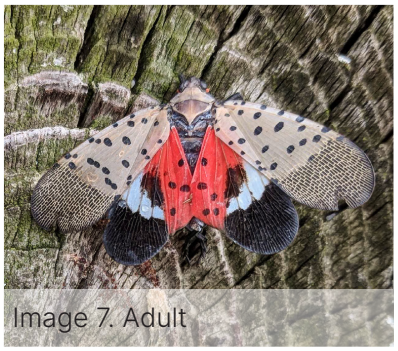
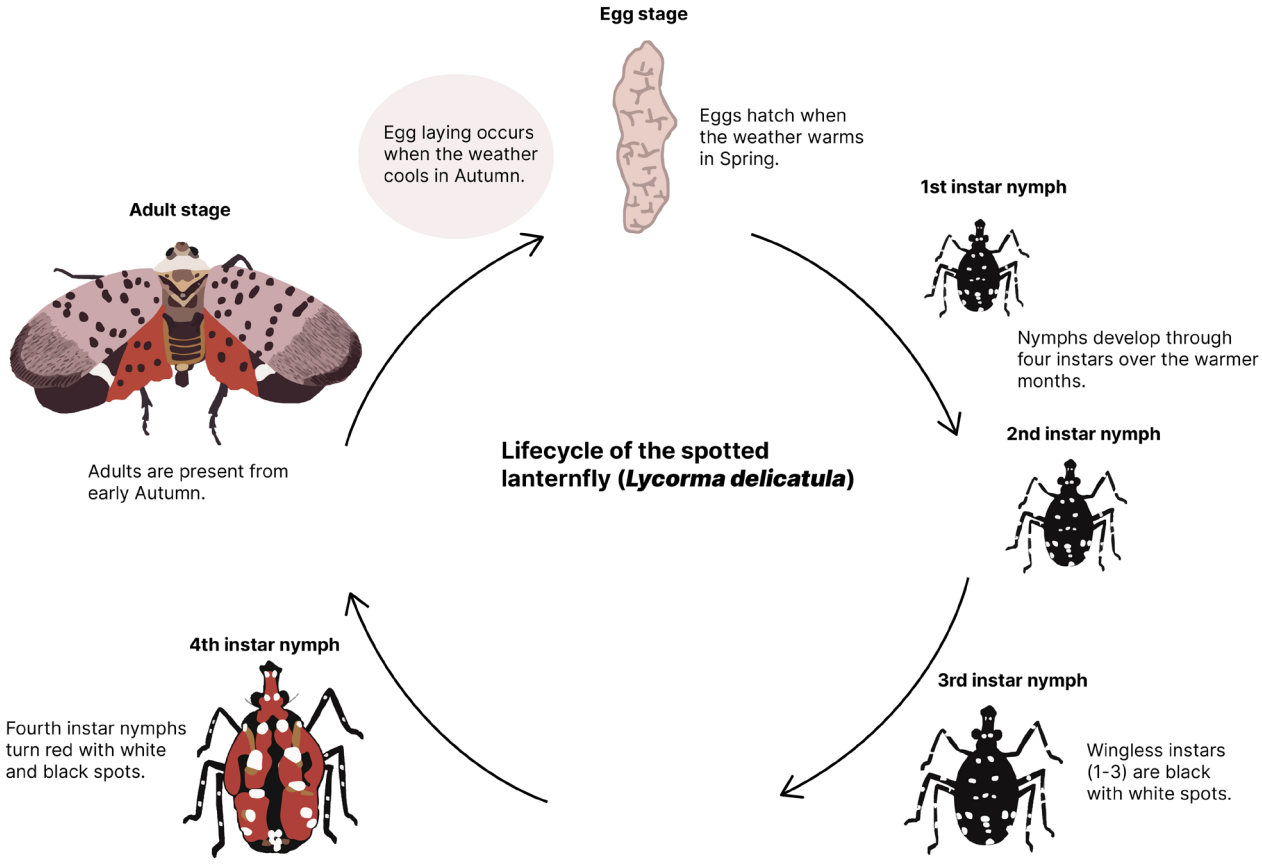


Image 7. Adult



Plants at risk

The spotted lanternfly attacks over 181 plant species, favouring 'woody' hosts. It has been shown to feed on a variety of tree species including apple, stone fruit, grapes, walnut, and a range of ornamental species.

Key plant families recorded as hosts of the spotted lanternfly that may be found in a home garden	
Actinidiaceae	Chinese gooseberry family (This family includes kiwifruit)
Betulaceae	Birch family (This family includes birches, alders, and hazels)
Cannabaceae	The hops family (This family includes hops, and hemp)
Ericaceae	Heather family (This family includes blueberries, rhododendron, and azaleas)
Fabaceae	Legume or pea family (This family includes acacias, wattles, and mimosa)
Fagaceae	The beech family (This family includes beeches, oaks, and chestnuts)
Juglandaceae	The walnut family (This family includes walnut, pecan, and hickory)
Magnoliaceae	Magnolias
Malvaceae	Mallow family (This family includes hibiscus and hollyhocks)
Moraceae	Mulberry family (This family includes banyan, breadfruit, and mulberry)
Rosaceae	The rose family (This family includes apples, cherries, apricots, peaches, apricots, quinces, almonds, plums, and roses)
Salicaceae	The willow family (This family includes poplars, willows, salvias, alders, and cottonwoods)
Sapindaceae	Soapberry family (This family includes maples, and lychee)
Ulmaceae	Elms
Vitaceae	The grape family (This family includes the common grapevine)

Note: The full host list is more extensive.

Image 8. The Tree of Heaven (*Alianthus altissima*) is a naturalised invasive species often found in temperate Australian urban areas that is a preferred host of the spotted lanternfly.

Australian Fulgoridae

Differentiating an exotic pest from a similar endemic species is important to improve reporting quality. Examples of similar species found in Australian temperate regions, where the spotted lanternfly has high establishment potential, are shown below.

Image 9. *Rentinus dilatatus* (ACT, WA, VIC, SA, NSW, QLD, TAS)

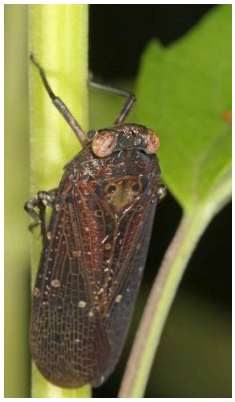


Image 10. *Desudaba aulica* (NSW, QLD)

Image 11. *Erilla turneri* (NSW, QLD)

Image 12. *Desudaba psittacus* (NSW, QLD, NT)

The project 'Spotted lanternfly (*Lycorma delicatula*) biology, ecology and awareness in the Australian environment' ran from October 2020 to April 2021. The project was funded by the Australian Plant Biosecurity Science Foundation and the Office of the Chief Environmental Biosecurity Officer, Department of Agriculture, Water and the Environment and was led by Cesar Australia. Project collaborators were Agriculture Victoria, NSW DPI, Plant Health Australia, and Greenlife Industry Australia.