

Harmonia axyridis



Taxon	Family / Order / Class / Phylum
<i>Harmonia axyridis</i> Pallas	Coccinellidae / Coleoptera / Insecta / Arthropoda

COMMON NAMES (English only)

Harlequin ladybird
Multicoloured Asian ladybird
Multicoloured ladybird

SYNONYMS

Coccinella axyridis Pallas
Coccinella bisex-notata Herbst
Coccinella 19-sinata Faldermann
Coccinella conspua Faldermann
Coccinella aulica Faldermann
Harmonia spectabilis Faldermann
Coccinella succinea Hop
Anatis circe Mulsant
Ptychanatis yedoensis Takizawa

SHORT DESCRIPTION

Polyphagous predatory ladybird, 5–8 mm long, very variable in colour pattern (yellow to orange to black) with a very variable number of spots (0-21).



Adult of *Harmonia axyridis*, showing two of the colour forms found in Western Europe: *succinea* (orange) and *conspicua* (melanic)

Photo: Helen Roy

BIOLOGY/ECOLOGY

Dispersal mechanisms

Highly dispersive, flying readily between host plants during breeding periods, migrates over long distances in Asia and America.

Reproduction

Undergo a complete metamorphosis life cycle (egg, four larval instars, pre-pupa, pupa and adult); 20-50 eggs produced per adult and per day, 1000-4000 in their lifetime; adults typically live for a year, being reproductively active for about three months; generally bivoltine but can produce four generations per year in favourable conditions.

Known predators/herbivores

It is predated by a few species of birds and some beetles. A phorid, two tachinids and a braconid, *Dinocampus coccinellae*, are known to be parasitoids. It is also parasitised by: a soil -borne fungal pathogen *Beauveria bassiana*, an ectoparasitic fungus, *Hesperomyces virescens*, a male-killing bacterium, *Spiroplasma* and an ectoparasitic mite, *Coccipolipus hippodamiae*.

Resistant stages (seeds, spores etc.)

HABITAT

Native (EUNIS code)

G: Woodland and forest habitats and other wooded land.

Habitat occupied in invaded range (EUNIS code)

G: Woodland and forest habitats and other wooded land, G3: Coniferous woodland, G5: Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice, I: Regularly or recently cultivated agricultural, horticultural and domestic habitats, I1: Arable land and market gardens, I2: Cultivated areas of gardens and parks, J1: Buildings of cities, towns and villages.

Habitat requirements

The wide native latitudinal and longitudinal range in Asia shows that it can develop and reproduce in both warm and cool climates and it is well adapted to winter temperatures below freezing and to summer temperatures up to 30°C.

DISTRIBUTION

Native Range

Central and Eastern Asia, Eurasia (China, Taiwan, Japan, Mongolia, Russia – North, Central and East).

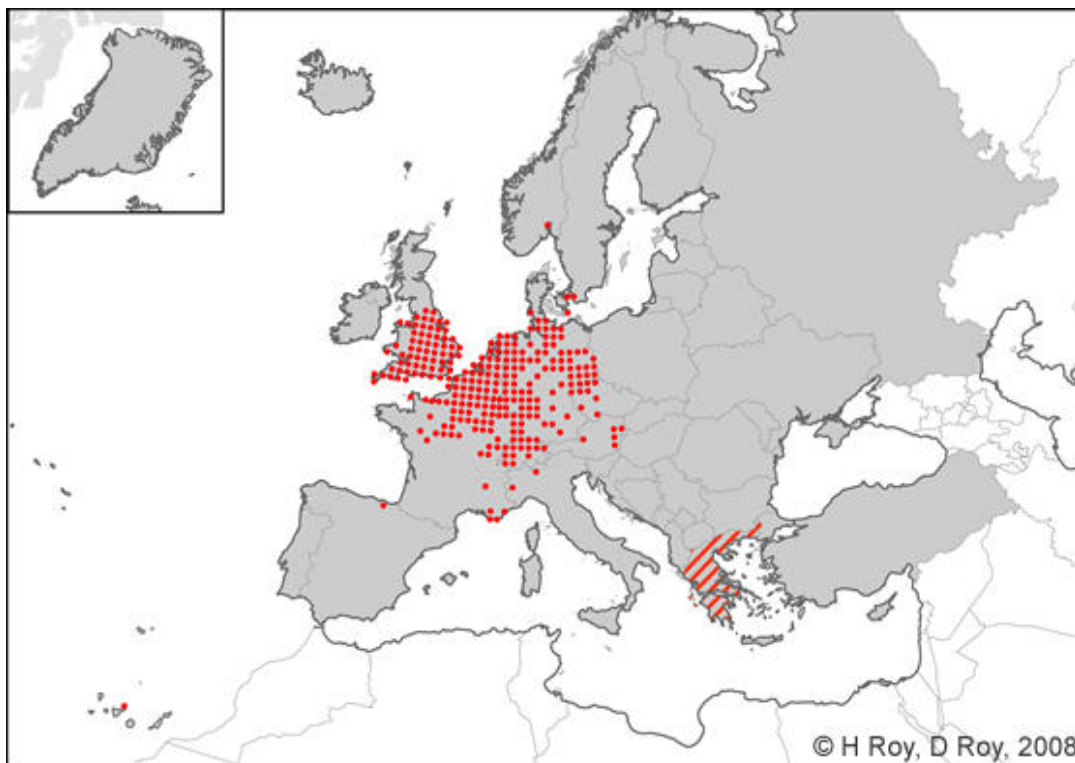
Known Introduced Range

USA, Canada, S. America (Argentina, Brazil), South Africa, Egypt, Europe (Austria, Belgium, Northern France, Netherlands, Germany, Greece, Italy, Luxemburg, Switzerland, England, Wales).

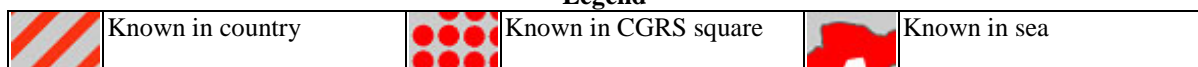
Trend

Increasing.

MAP (European distribution)



Legend



INTRODUCTION PATHWAY

Introduced intentionally as a biocontrol agent for aphids and unintentionally in horticultural/ornamental material.

IMPACT

Ecosystem Impact

Reduction in biodiversity of other aphidophages and non-pest insects. It is likely to have a negative effect on other aphidophages in three ways: resource competition, intraguild predation and direct intra-specific competition.

Health and Social Impact

They are a pest of orchard crops (apples and pears) because as aphids become scarce in late summer and autumn the beetles feed on soft fruit causing blemishing and an associated reduction in the market value. Their tendency to aggregate in clusters of grapes prior to harvest make them difficult to separate from the grapes and so they are sometimes processed with the grapes to make wine. The alkaloids contained within these beetles adversely affect the taste and bouquet of the vintage. The large aggregations formed during autumn and winter in buildings are regarded as a nuisance, because of this beetle's propensity to swarm.

Economic Impact

Those derived from the wine industry and reduction in fruit quality and also management measures required in domestic dwellings.

MANAGEMENT

Prevention

Stopping its use as a biocontrol agent and ensuring that fruit and cut flower imports are free from the ladybird will reduce introduction events.

Mechanical

Invasion into households can be limited by preventing entrance; holes can be sealed or covered with fine mesh. Adults and late instar larvae are large and relatively easily identified and can be removed from unwanted locations manually, e.g. using a vacuum cleaner. Light traps can attract adults but the efficiency of these is not yet quantified.

Chemical

Chemical control in field situations such as orchards and vineyards is not applicable because of the impact of insecticides on other aphidophages and beneficial insects.

Biological

It has a range of natural enemies which could be used to control populations. However this requires further consideration and investigation. The use of novel control methods will undoubtedly be required.

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