

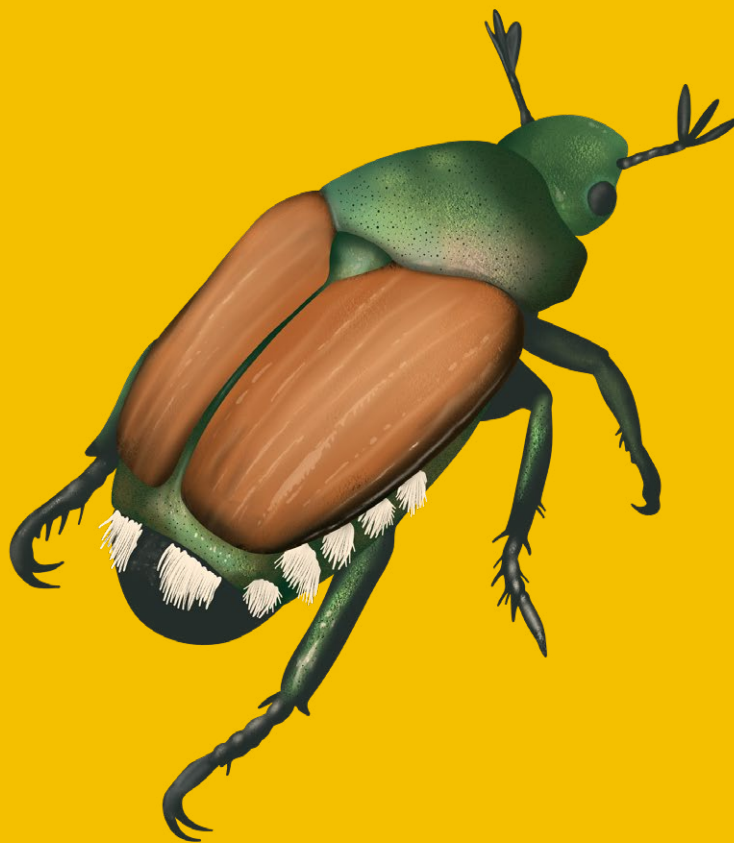
## Invasive Alien Species Alert

FOR ITALY, SWITZERLAND, FRANCE, AUSTRIA, GERMANY, PORTUGAL

# Japanese Beetle

POPILLIA JAPONICA

Europe is currently facing the **spread of the Japanese beetle**, an invasive species that can cause massive damage to **agriculture**.



**IPM Popillia**

Integrated Pest Management of Japanese Beetle



This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 861852.

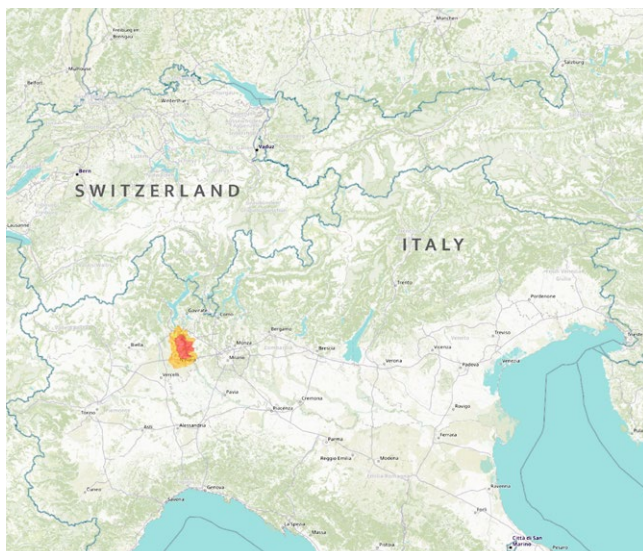
[www.popillia.eu](http://www.popillia.eu)



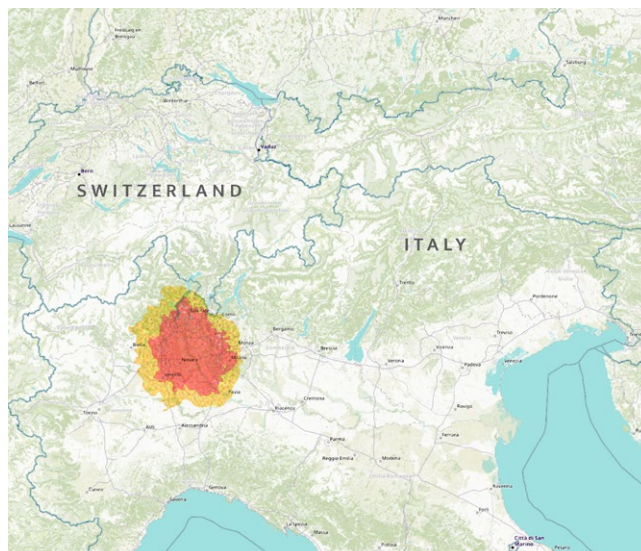
## The spread of the Japanese beetle in Europe

Since the Japanese beetle was first spotted in Northern Italy in 2014, it has progressively expanded its range, and population levels have increased. Three years later, it was detected for the first time at the southern border of Switzerland in 2017, and continued to spread northwards.

2015



2018



2022



Map Data from OpenStreetMap, Style: Humanitarian OpenStreetMap, License ODbL 1.0, [openstreetmap.org/copyright](https://openstreetmap.org/copyright)

2023

In 2023, the Japanese beetle was found for the first time **north of the Alps** (near Zurich). The infested zone is rather small, and the low numbers of beetles caught indicate that the outbreak was detected at its very beginning. Another new outbreak, made official in 2023, was detected in Italy in the **Friuli Venezia Giulia region**. Both outbreaks are separate from the main infested zone.

A third outbreak was detected in the **southernmost region of the canton Valais** in Switzerland. Unlike the other two newly infested areas, this outbreak is linked to the Italian infested zone in the Ossola Valley. In addition, more than 1,500 beetles have been detected in the 2023 survey, indicating that *Popillia japonica* was already established there in the year(s) before detection of the outbreak.



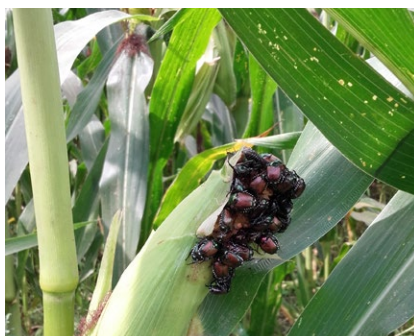
## Host plants of the Japanese beetle

The Japanese beetle has over 400 different host plants / crops, implying a wide variety of plants to feed on. Some of these host plants / crops, such as vines, small fruits, corn or soybean, are of major socio-economic importance. Other hosts are landscape trees, as linden and birch, or ornamental plants such as rose, wisteria, marshmallow.



### Soy

Soybean field with leaf erosions



### Corn

Feeding on corn cob



### Grapevine

Infested vineyard



### Stone fruit

Plums erosions



### Small fruit

Feeding on cultivated blueberries



### Turf / Grassland

Lawn damaged by wild boars looking for larvae

**and many others ...**

Photos: Giovanni Bosio, Phytosanitary Service – Piedmont Region (Italy), CC BY-ND 4.0

## List of all host plants of the Japanese beetle



For a full list of Japanese beetle host plants including classifications into main or secondary host, please follow this QR Code or use the URL to see Tayeh et al. 2023:

[www.popillia.eu/hostplants](http://www.popillia.eu/hostplants)





# How to recognize the Japanese beetle

POPILLIA JAPONICA

metallic green shimmering  
head and prothorax

2 copper colored  
front wings



5 white hairy  
tufts on each side

2 larger white hairy  
tufts on the back

Size of 8 - 12 mm  
(small beetle)





# Check the presence of the Japanese beetle

## Who should check and where?

### Everyone

- on the plants in your garden
- in the vegetable garden
- on walks and hikes
- public green
- swimming pool filter

### People involved in the production and distribution of fruit and vegetables, gardeners, and greenkeepers

- on plants in gardens and agriculture
- in the harvest
- in the soil
- on the tools or material used like clothing or machinery
- inspect food during quality control
- inspect food during the packaging
- inspect food during the export of goods to points of sale

### People travelling before leaving or returning

- in the car
- on clothes
- in the luggage



## What should you do in case you find a Japanese beetle?

### • Report your observation in the **IPM App**

Get the IPM App at your App Store for Android & IOS:

[www.popillia.eu/android](http://www.popillia.eu/android) [www.popillia.eu/ios](http://www.popillia.eu/ios)

### • Capture the insect, keep it in a closed jar, and take more photos

Ensuring that it no longer poses a risk of spreading. Freezing the jar is recommended!

### • Follow the instructions for the invasive species by your national Plant Health Service

Find the link for your country on [www.popillia.eu/planthealthservices](http://www.popillia.eu/planthealthservices)





# How to recognize the Japanese beetle larvae

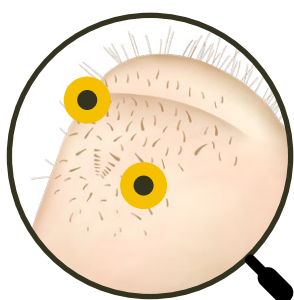
POPILLIA JAPONICA

Unfortunately, it is **difficult to distinguish between native grubs** and the **invasive ones** of the Japanese beetle. **Differentiation** is possible only with a **magnifying glass** to see the **spines in 2)**. The **straight, transversal anal slit in 1)** therefore could be an easier way to recognize the larvae of the Japanese beetle.

However, to the naked eye, adult beetles are much easier to monitor than larvae. We strongly suggest avoiding removing larvae without correct identification.



End of Abdomen



## 1) End of Abdomen Detail

Transversal anal slit and V-Raster



## 2) V-Raster Detail

Raster with 2 rows of 5-7 pairs of spines arranged in a V-shape (visible only with a magnifying glass)

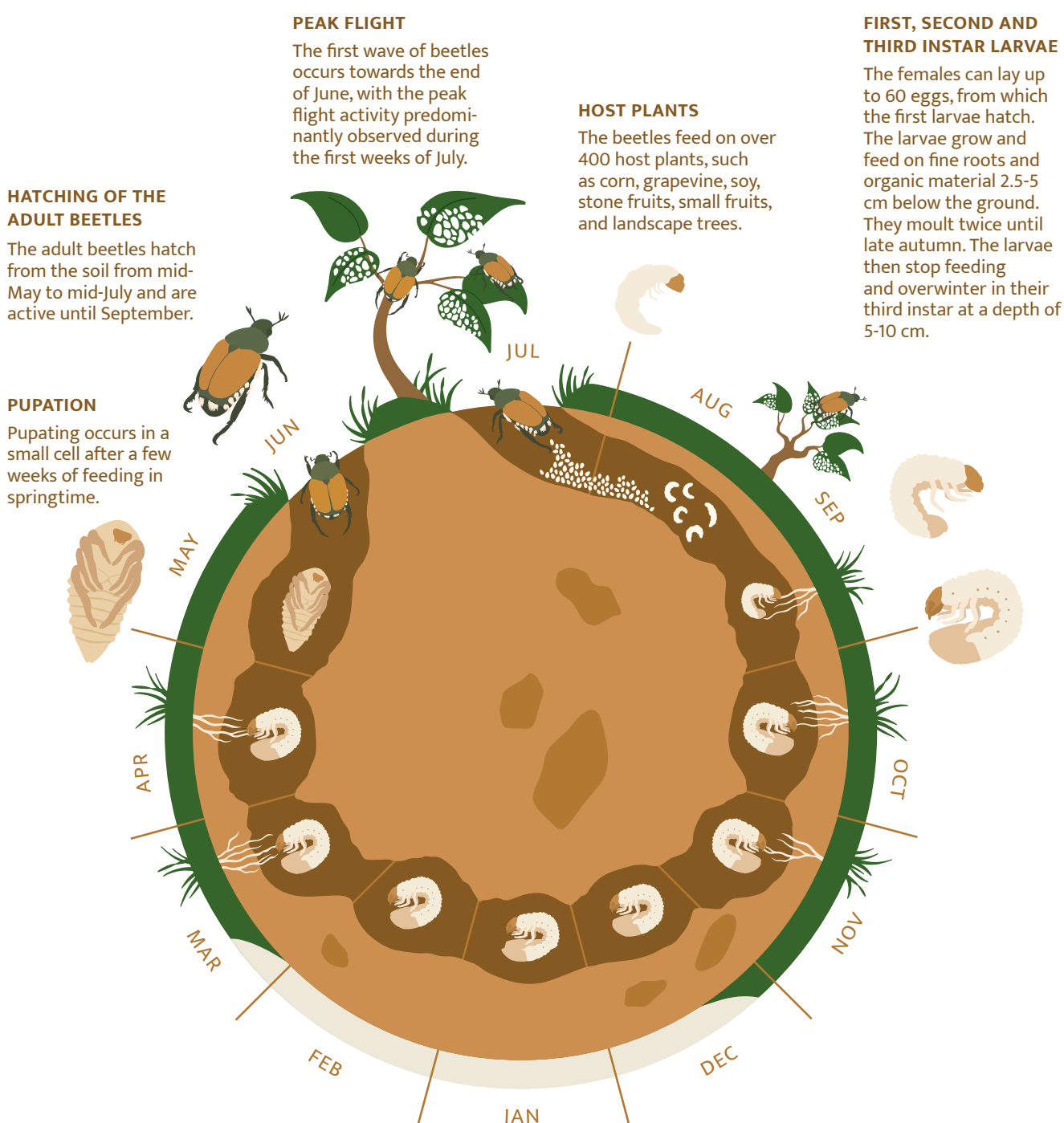
Size of 2 - 30 mm





## Life Cycle of the Japanese beetle

Usually, there is one generation of Japanese beetles per year. The larvae hibernate in the soil. As soil temperatures rise in early spring, they move closer to the surface and start feeding on roots. The adult beetles emerge from Mid-May to Mid-July and are active until September.





## About IPM-Popillia

### INTEGRATED PEST MANAGEMENT OF THE JAPANESE BEETLE

The IPM-Popillia initiative creates sustainable ways to control the spread of the Japanese beetle and prevent high population concentrations that harm crops in Continental Europe.

IPM-Popillia provides tools and advice on how to manage the pest on a larger, European continental scale, and on how to be better prepared for similar pest invasions in the future.

## How can you help to prevent the spread of the Japanese beetle in your region?

With the **IPM App**, you can report your invasive species sightings directly on your smartphone. Your photos of beetles and the provided information will help to understand how the Japanese beetle spreads and find new ways to stop or contain it.

**Download the App today, join the user community, and share your observations with the IPM-Popillia project!**



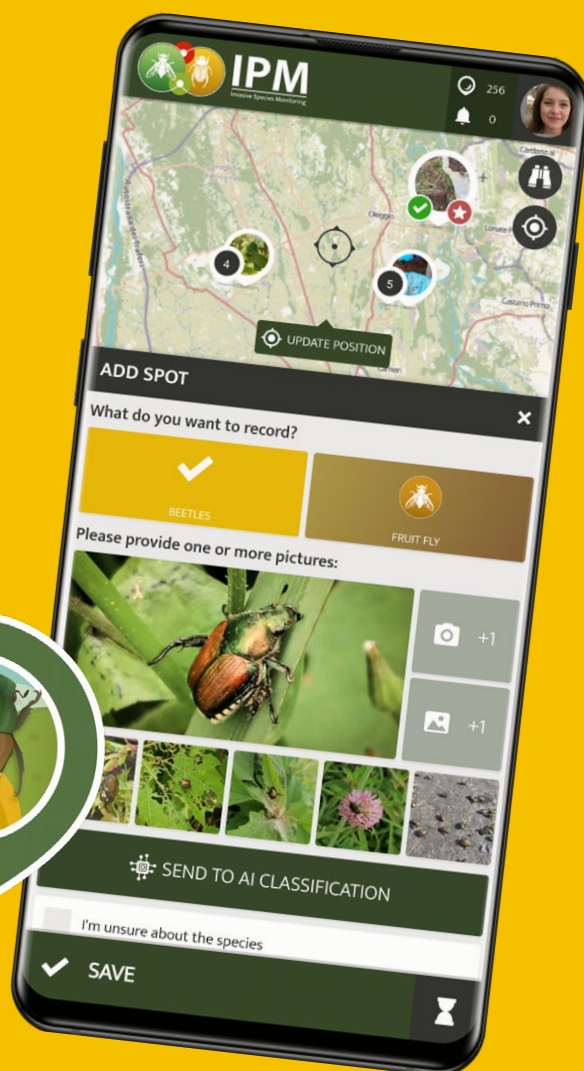
**Android**



**iPhone**

**Android:** [www.popillia.eu/android](http://www.popillia.eu/android)

**iPhone:** [www.popillia.eu/ios](http://www.popillia.eu/ios)



**SPOTTERON**

The IPM App is running on the  
SPOTTERON Citizen Science App Platform at  
[www.spotteron.net](http://www.spotteron.net)

Or upload your photos directly on our website at [www.popillia.eu/map](http://www.popillia.eu/map)





# IPM Popillia

Integrated Pest Management of Japanese Beetle

MORE INFORMATION ON OUR WEBSITE

**[www.popillia.eu](http://www.popillia.eu)**



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