

FIGHTING THE YELLOW-LEGGED ASIAN HORNET IN SWITZERLAND

Locations Switzerland

Dates 31/01/2017 - 31/12/2021

Summary

The yellow-legged Asian hornet, *Vespa velutina nigrithorax,* was first detected in central Europe in 2004 and has since established in many countries on the continent. This hornet is a predator of honey bees and other insects, threatening honey production, pollination services and biodiversity. With Switzerland facing the imminent invasion by the hornet, CABI was commissioned by the Swiss government to help with the preparation for the threat and the control of the first arrivals. This project aims to establish a monitoring system for the early detection of the Asian hornet, determine control strategies and use climate modelling to predict where in Switzerland the insect might settle.

The problem

In Europe, the Asian hornet, *Vespa velutina nigrithorax,* was first found in southwestern France in 2004. Since then, it has dispersed in all directions and is now established in Spain, Portugal, Italy, Germany, Belgium, United Kingdom, the Netherlands, and since 2020, in Switzerland.

The problems caused by the Asian hornet are threefold. First, it is a large predator of honey bees, which it hunts by hovering in front of beehives. In heavily

infested areas, many beehives have been devastated, causing exasperation among beekeepers. Second, the Asian hornet is a voracious predator of many other insects (mainly bees, wasps, and flies) including many pollinators and other beneficial insects. Given its abundance in some regions, it is feared that it will have a significant impact on biodiversity. It could also compete with the European hornet and native wasps. Finally, although the Asian hornet is no more aggressive towards humans than the European hornet, it is much more abundant in invaded regions. Its bites are painful and can be dangerous for people with allergies.

The possibilities of control are limited. The most effective being nest destruction to slow the spread. Traps can be used to protect apiaries, but they are not selective and it is therefore not recommended to use them massively outside apiaries. Other control methods are under development but are not yet operational.

What we are doing

After observing Asian hornets attacking beehives in the French department Doubs, close to the Swiss border in 2016, and the detection of an individual in the Swiss canton Jura, CABI was commissioned by the Swiss Federal Office for the Environment to establish a surveillance program in threatened cantons, to conduct a risk assessment for an eventual invasion in Switzerland, to determine suitable control strategies, and to develop tools to predict and measure its dispersion and impact in Switzerland.

CABI has also offered to help find the first nests in Switzerland upon the hornet's first invasion. The project, therefore, aims to help the Swiss government prepare for the upcoming invasion, whilst helping to control the first establishments.

Results so far

To-date, CABI has established an information network among beekeepers which serves as a platform for the notification and identification of hornet observations in the Swiss Jura.

A monitoring system, with traps, has been established and has been in place along the French border since 2017, ready to intercept the first Asian hornets invading the country. Climate models were also developed to determine where in Switzerland the hornet might establish. Additionally, a long-term trapping study has been started to measure the effect of the arrival of the Asian hornet on the native biodiversity.

In September 2020, the first Asian hornets were observed attacking beehives in Geneva, Switzerland. CABI assisted using our scientific expertise to find these first two nests and then applied this experience in the canton of Jura to find the first nest in this canton using newly-developed radio-telemetry.

In 2021, a few nests have been reported from Geneva, and one individual has been reported from the Canton Jura.

Donors Swiss Federal Office for the Environment

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