

Day-biting invasive mosquito species spreading its range in Austria

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Until a few years ago the Asian bush mosquito, *Aedes japonicus*, was not yet present in Europe. Now it is spreading its range in several European countries, including Switzerland, Germany and Austria. *Ae. japonicus* no longer is an exotic guest – it is here to stay.

Day-biting and highly reproductive

The Asian bush mosquito has a high reproductive potential, which has been a factor in its uncontrolled spread. For people living in the colonized areas, this means having to deal with large swarms of multiple-biting mosquitoes.

There are two further qualities of the Asian bush mosquito that make it a nuisance species. Like the floodwater mosquito, the Asian bush mosquito is a day biter that is active even outside of the summer months. In the study, *Ae. japonicus* was found to be active from the beginning of March to the end of November. It therefore combines behavioural traits of both the floodwater mosquito and the common house mosquito.

On the advance in Austria, Hungary and northern Italy

The Asian bush mosquito was first documented in Austria in 2011 in the border region between southern Styria and Slovenia. The invasive species has since established itself in southern, southwestern and western

Austria, as documented by regular sampling from these areas. And it is constantly invading new areas. From Carinthia, the Asian bush mosquito recently reached northern Italy. Before that, it had already spread from eastern Styria and southern Burgenland to Hungary and has already reached Lake Balaton.

Mosquito monitoring also reveals isolated populations

The Asian bush mosquito presumably reached Europe in imported automobile tyres. "Puddles of water in the tyres offer excellent breeding conditions for this biting mosquito," explains Norbert Nowotny of Vetmeduni Vienna. This explains how the Asian bush mosquito has not only spread inland but can also be found in isolated populations. The mosquito reached Vorarlberg via Switzerland. In Tyrol, on the other hand, only a single isolated population has been found so far in Kufstein.

Climate tolerance benefits the mosquito

The spread of the Asian bush mosquito is partially being monitored by a national mosquito monitoring programme. Besides Nowotny, participants include first author Bernhard Seidel, director of the Technical Office of Ecology and Landscape Assessment, as well as the Austrian Agency for Health and Food Safety (AGES), headed by Franz Allerberger.

The Asian bush mosquito is able to spread so successfully because it is an extremely tolerant species unaffected by the different climates in the areas it colonizes. In the Far East, where it is native, it is adapted to cooler regions. This explains why it can also survive in more northern latitudes on other continents. The Asian bush mosquito can adapt to natural habitats such as mountain regions as well as to the infrastructure of human settlements.

A nuisance but rarely a carrier of disease

"This annoying insect is not usually considered to be a carrier of pathogens, although we cannot exclude the possibility as a vector for West Nile or Dengue," says Norbert Nowotny. The mosquitoes are also being investigated for viruses that could affect people or animals.

The spread of the Asian bush mosquito must be precisely documented. Of assistance is the effective cooperation of experts in several Central European countries. In May 2016, the Asian bush mosquito was first documented near Wiener Neustadt south of Vienna. Since the start of the study, the experts have called for a considered and sustained control of the unchecked spread of this species. Otherwise, the Asian bush mosquito will continue to spread in Austria and may soon reach Vienna.

More information: Bernhard Seidel et al. Spread of *Aedes japonicus japonicus* (Theobald, 1901) in Austria, 2011–2015, and first records of the subspecies for Hungary, 2012, and the principality of Liechtenstein, 2015, *Parasites & Vectors* (2016). [DOI: 10.1186/s13071-016-1645-8](https://doi.org/10.1186/s13071-016-1645-8)

First record of the Asian bush mosquito, *Aedes japonicus japonicus*, in Italy: invasion from an established Austrian population. *Parasites & Vectors*. www.ncbi.nlm.nih.gov/pmc/articles/PMC4869290/

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