# West Nile virus detected in UK mosquitoes for first time amid climate change concerns



West Nile virus has emerged in Britain, marking the first detection of the pathogen in mosquitoes within the country. This significant finding, reported by the UK's Health Security Agency, was based on genetic material discovered in samples collected from Nottinghamshire in July 2023. While the UKHSA has assessed the public risk as very low, the finding underscores a broader phenomenon: climate change is facilitating the spread of tropical diseases into previously unaffected regions.

The genetic analysis revealed that of 200 mosquito samples collected from wetlands along the River Idle, two tested positive for the West Nile virus. This pathogen primarily circulates among birds, with rare instances of transmission to humans and horses via mosquito bites. Infections generally remain asymptomatic, but fever arises in about 20% of cases, and severe outcomes can occur in approximately one in every 150 infections. Although there is no current evidence indicating the virus is circulating among local mosquitoes or birds, experts suggest that the infected mosquitoes may have arrived from abroad or fed on birds that had contracted the virus elsewhere.

“Climate change impacts on the numbers and types of mosquitoes and allows emerging viruses to become established,” articulated Tom Solomon, director of The Pandemic Institute in Liverpool. This pronouncement resonates with growing concerns that global warming is altering ecosystems and enabling diseases like West Nile to find footholds in new territories. The extended active seasons and expanded habitats for mosquito species, such as Aedes albopictus, underline the urgency of enhanced surveillance and control mechanisms, as authorities in the UK are now undertaking.

The situation echoes a broader trend across Europe, where cases of mosquito-borne diseases like dengue and Zika have been rising. Recent statistics show that over 4.2 million dengue cases were reported globally in 2022, attesting to an urgent public health challenge. In July this year, the United States also reported its first locally transmitted malaria cases in two decades, further highlighting that the re-emergence of diseases long considered controlled is now a concerning reality.

More alarmingly, the spread of the Asian tiger mosquito, responsible for transmitting dengue fever, has been linked to increasing temperatures and shifting climatic conditions in Europe. In strength to this point, a laboratory in Spain has initiated a pioneering project aimed at sterilising these mosquitoes to combat diseases like dengue among others, illustrating the proactive measures being taken in response to these emerging threats.

As the UK grapples with the wake of this discovery, the implications of changing climate conditions for public health continue to unfold. Mosquito populations, while generally perceived as nuisances, play crucial roles in the ecosystem, serving as prey for various species. However, their increasing prevalence carries heightened risks for human health. With insects like mosquitoes thriving in warmer conditions, the public health system faces significant challenges in management and prevention.

Health authorities across Europe are increasingly recognising these shifts, reinforcing surveillance measures to anticipate potential outbreaks. As EU Health Commissioner Stella Kyriakides pointed out, the health risks associated with climate change, including tropical diseases, compel a reevaluation of health security strategies. Future initiatives will focus on bolstering preparedness, ensuring health systems are equipped to contend with the rise of diseases that could reshape public health narratives.

While the UK's current situation remains contained, the emergence of West Nile virus serves as a cautionary tale about the dynamic relationship between climate change and disease. Continued vigilance and a coordinated response will be critical in managing presenting risks and preventing potential outbreaks associated with this newly detected threat.

### Reference Map

1. Paragraphs 1, 2, 4, 5, 6, 7
2. Paragraphs 1, 2, 4, 5, 6, 7
3. Paragraphs 4, 5, 6
4. Paragraphs 3, 4, 5
5. Paragraphs 3, 5
6. Paragraph 6
7. Paragraph 5

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.ft.com/content/9d2319b1-ce8f-4466-895c-a5e26495a023> - Please view link - unable to able to access data
2. <https://www.ft.com/content/9d2319b1-ce8f-4466-895c-a5e26495a023> - The Financial Times reports that West Nile virus has been detected in mosquitoes in the UK for the first time, specifically in samples collected in Nottinghamshire in July 2023. The UK Health Security Agency (UKHSA) found viral genetic material in two of 200 mosquito samples and is increasing surveillance and control measures, while maintaining that the public risk remains very low. There is no current evidence of viral circulation among local birds or mosquitoes, and researchers note that infected mosquitoes may have migrated from other regions or fed on infected birds arriving from abroad. The virus, primarily transmitted between birds by mosquitoes, can occasionally infect humans and horses, leading to fever in around 20% of cases and severe illness in about 1 in 150. Experts attribute this emergence to climate change, which is expanding the habitats and active seasons of disease-carrying mosquitoes like Aedes albopictus. Similar increases in mosquito-borne illnesses like dengue and Zika have occurred across Europe, and the U.S. reported its first locally transmitted malaria cases in two decades in 2023. Scientists warn that global warming will likely facilitate further spread of such diseases in previously unaffected regions. ([ft.com](https://www.ft.com/content/9d2319b1-ce8f-4466-895c-a5e26495a023?utm_source=openai))
3. <https://time.com/7287025/climate-change-summer-bugs-insects/> - Time magazine discusses how climate change is significantly altering insect behavior, populations, and ecological impacts, particularly during warmer months when bugs are more active. While overall global insect numbers may decline and some may face extinction, certain pests like mosquitoes and ticks are thriving as warmer temperatures extend their active seasons and broaden their habitats. This poses increasing health risks, such as the wider spread of mosquito-borne illnesses including malaria and West Nile virus, and potentially more Lyme disease from expanding tick populations. Additionally, shifting seasonal patterns are affecting the timing of insect life cycles, which can disrupt ecosystems and food production. Experts warn that while insects may be bothersome, they are vital to food chains and ecological stability. The consequences of insect loss and behavioral shifts due to climate change could have profound implications for human health, agriculture, and biodiversity. ([time.com](https://time.com/7287025/climate-change-summer-bugs-insects/?utm_source=openai))
4. <https://www.reuters.com/business/healthcare-pharmaceuticals/spanish-lab-sterilises-mosquitoes-climate-change-fuels-spread-dengue-fever-2024-08-01/> - Reuters reports on a Spanish laboratory that is breeding and sterilizing thousands of tiger mosquitoes to combat dengue and other diseases, as climate change favors the spread of this invasive species in Europe. The Pest Biological Control Center in Valencia, funded by the regional government, sterilizes and releases about 45,000 male mosquitoes each week using an electron accelerator. These males mate with females, whose bites transmit diseases, thereby reducing the mosquito population. This initiative, applying sterilization techniques used elsewhere and based on experience with fruit flies, is pioneering in Europe for tiger mosquitoes. The spread of these mosquitoes is linked to the increased incidence of diseases like dengue, Zika, and chikungunya, exacerbated by climate change. According to the World Health Organization, dengue cases have increased globally, with over 4.2 million cases reported in 2022. ([reuters.com](https://www.reuters.com/business/healthcare-pharmaceuticals/spanish-lab-sterilises-mosquitoes-climate-change-fuels-spread-dengue-fever-2024-08-01/?utm_source=openai))
5. <https://www.ft.com/content/b973c8b9-2d5c-48e2-9576-d5dbb55b178b> - The Financial Times highlights that Europe is facing increasing health threats from climate change, such as heatwaves, floods, and tropical diseases, as warned by EU Health Commissioner Stella Kyriakides. Diseases like dengue, Zika, and yellow fever are spreading as warmer winters allow mosquito populations to survive and multiply. In 2022, heatwaves resulted in over 60,000 deaths, and air pollution caused premature deaths of up to 300,000 people annually. The EU has taken significant steps to strengthen health policies and preparedness, including the formation of the European Health Emergency Preparedness and Response Authority and procuring vaccines during the Covid pandemic. Future priorities include addressing medicine shortages and improving mental health services. ([ft.com](https://www.ft.com/content/b973c8b9-2d5c-48e2-9576-d5dbb55b178b?utm_source=openai))
6. <https://www.lemonde.fr/en/environment/article/2024/06/16/france-sees-record-number-of-imported-cases-of-dengue-fever_6674934_114.html> - Le Monde reports that mainland France has recorded its highest number of imported dengue fever cases for the first half of 2024, with at least 2,666 individuals contracting the disease abroad, particularly from Martinique and Guadeloupe. A major epidemic hit these Caribbean islands in 2023, with 35,000 symptomatic cases and 19 deaths reported. While no local transmissions have yet been detected in mainland France, the presence of the tiger mosquito, Aedes albopictus, continues to expand, making the risk of a local outbreak significant, especially as summer temperatures rise. The situation is echoed across Europe and exacerbated by climate change, resulting in increasingly favorable conditions for mosquito-borne diseases. Globally, significant outbreaks have been reported in South America, particularly Brazil, with over 6.3 million cases and more than 2,800 deaths. The economic impact of mosquito-borne diseases, including dengue, Zika, and chikungunya, has been substantial, with a study identifying costs amounting to $94.7 billion between 1975 and 2020. French authorities are implementing preventive measures as the country prepares for the upcoming Olympic Games. ([lemonde.fr](https://www.lemonde.fr/en/environment/article/2024/06/16/france-sees-record-number-of-imported-cases-of-dengue-fever_6674934_114.html?utm_source=openai))
7. <https://time.com/6429963/dengue-fever-cases-symptoms-prevention-explainer/> - Time magazine explains that dengue fever has seen an unprecedented rise globally, with over five million infections and 5,500 deaths reported in 2023 alone. Traditionally confined to warm climates, the mosquito-borne virus is now appearing in regions like Europe and the U.S., fueled by factors like increased global travel and climate change. Symptoms range from mild flu-like conditions to severe cases involving internal bleeding, with up to 80% of cases being asymptomatic. Efforts to combat dengue include mosquito fumigation and innovative programs like releasing Wolbachia-infected mosquitoes to block virus transmission. Vaccines such as Qdenga and Dengvaxia are available, though their use is regulated. Preventive measures recommended include using insect repellent, wearing protective clothing, and eliminating stagnant water. Public health systems are struggling to keep up with the surge, and experts stress the need for robust dengue management systems and community involvement. ([time.com](https://time.com/6429963/dengue-fever-cases-symptoms-prevention-explainer/?utm_source=openai))