# Climate change drives emergence of tropical diseases in UK with West Nile virus detected for first time



Scientists have raised alarms about the potential for climate change to usher tropical diseases into the UK, diseases that were once confined to warmer climates. As the planet heats, regions traditionally insulated from such threats may become increasingly vulnerable. This warning comes on the heels of the UK Health Security Agency's announcement regarding the detection of West Nile virus in British mosquitoes for the first time, highlighting an urgent need for enhanced monitoring and preventive measures.

While authorities maintain that the public risk remains low, the emergence of West Nile virus serves as a troubling indicator of shifting ecological dynamics caused by climate change. In the past year, the number of locally acquired West Nile virus cases has surged in parts of Europe. Countries like France and Italy are grappling with substantial outbreaks of similar mosquito-borne diseases, including dengue and chikungunya, reflecting a broader trend across the continent as climate warming alters habitats and extends the active seasons of disease carriers.

Dr Robert Jones from the London School of Hygiene and Tropical Medicine suggests that under extreme climate scenarios—where temperatures may rise by 4 to 5 degrees Celsius by the century's end—the UK could see a fivefold increase in dengue and chikungunya cases by the 2060s. Even though there is currently no evidence of significant risk of endemic transmission in the UK, the encroachment of warmer conditions is necessitating a re-evaluation of public health strategies, particularly regarding vector control.

Prof Tom Solomon, who leads research into emerging tropical diseases, emphasises that while current mosquito populations are not substantial enough for large outbreaks of diseases like dengue, the long-term implications of rising temperatures could favour the establishment of these vectors in southern England. Aedes mosquitoes, responsible for transmitting dengue and Zika, have already been detected in the UK, albeit in insufficient numbers to precipitate public health crises.

In light of these developments, experts are advocating for a proactive rather than reactive approach. Heather Ferguson, leading the Mosquito Scotland project at the University of Glasgow, contends that the most effective way to protect the UK population is to invest in combating these diseases in endemic countries. The harsh reality is underscored by grim statistics: approximately 600,000 people lost their lives to malaria in 2023 alone, with many more suffering from debilitating illnesses caused by mosquito-borne pathogens.

The pressing need for international collaboration on vector control is further accentuated by recent developments across Europe. In France, record numbers of imported dengue fever cases have been reported, largely driven by outbreaks in Caribbean territories. Without heightened global efforts to tackle these diseases, including increased funding for surveillance and treatment in tropical regions, the likelihood of outbreaks in non-endemic areas increases substantially.

As incidents of diseases like malaria and dengue flare up globally, powerful adaptations are being tested, including genetic engineering technologies aimed at curtailing mosquito populations. Efforts involving the release of genetically modified mosquitoes and new vaccines are among the innovative approaches being trialled. Although these initiatives hold promise, they also come with challenges surrounding effectiveness, sustainable implementation, and environmental impact.

Prof James Wood from Cambridge University asserts that addressing climate change robustly is paramount. He argues that long-term strategies aimed at mitigating global warming are ultimately our best line of defence against the proliferation of mosquito-borne diseases. The interconnected nature of health and environmental policies becomes increasingly clear; the fight against infectious diseases will be won or lost on a global scale.

In summary, as the UK faces the dual challenges of rising temperatures and shifting disease vectors, experts urge a reinvigorated commitment to international health initiatives. Climate change knows no borders, and as mosquitoes thrive in increasingly hospitable habitats, the call for collective action has never been more urgent.

## Reference Map:

* Paragraph 1 – [[1]](https://www.theguardian.com/science/2025/may/23/climate-change-could-bring-insect-borne-tropical-diseases-to-uk-scientists-warn), [[2]](https://www.ft.com/content/9d2319b1-ce8f-4466-895c-a5e26495a023)
* Paragraph 2 – [[1]](https://www.theguardian.com/science/2025/may/23/climate-change-could-bring-insect-borne-tropical-diseases-to-uk-scientists-warn), [[3]](https://time.com/7287025/climate-change-summer-bugs-insects/), [[5]](https://www.lemonde.fr/en/environment/article/2024/06/16/france-sees-record-number-of-imported-cases-of-dengue-fever_6674934_114.html)
* Paragraph 3 – [[1]](https://www.theguardian.com/science/2025/may/23/climate-change-could-bring-insect-borne-tropical-diseases-to-uk-scientists-warn), [[4]](https://www.ft.com/content/816c4a17-b938-49c2-b2c0-28b1497084de), [[6]](https://apnews.com/article/81fb0fb5071b9a025a431594594fbe6a)
* Paragraph 4 – [[2]](https://www.ft.com/content/9d2319b1-ce8f-4466-895c-a5e26495a023), [[4]](https://www.ft.com/content/816c4a17-b938-49c2-b2c0-28b1497084de)
* Paragraph 5 – [[3]](https://time.com/7287025/climate-change-summer-bugs-insects/), [[5]](https://www.lemonde.fr/en/environment/article/2024/06/16/france-sees-record-number-of-imported-cases-of-dengue-fever_6674934_114.html)
* Paragraph 6 – [[1]](https://www.theguardian.com/science/2025/may/23/climate-change-could-bring-insect-borne-tropical-diseases-to-uk-scientists-warn), [[6]](https://apnews.com/article/81fb0fb5071b9a025a431594594fbe6a)
* Paragraph 7 – [[2]](https://www.ft.com/content/9d2319b1-ce8f-4466-895c-a5e26495a023), [[3]](https://time.com/7287025/climate-change-summer-bugs-insects/)

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## Bibliography

1. <https://www.theguardian.com/science/2025/may/23/climate-change-could-bring-insect-borne-tropical-diseases-to-uk-scientists-warn> - Please view link - unable to able to access data
2. <https://www.ft.com/content/9d2319b1-ce8f-4466-895c-a5e26495a023> - 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.
3. <https://time.com/7287025/climate-change-summer-bugs-insects/> - Climate change is significantly altering insect behavior, populations, and ecological impacts, particularly during warmer months when bugs are more active. Though 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. Insects emerging too early or late may miss key interactions with plants or other species they rely on, such as pollinators and the plants they service. This mismatch can disrupt ecosystems and food production, since over 80% of flowering plants and more than 35% of global crop production depend on pollinators. Declines in species like wasps, due to excessive rainfall, further underscore these threats. 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.
4. <https://www.ft.com/content/816c4a17-b938-49c2-b2c0-28b1497084de> - Researchers at Imperial College London are using genetic engineering to combat the deadly Anopheles mosquito, which transmits malaria. Genetic engineering, though controversial, is part of broader global efforts to tackle mosquito-borne diseases, including the rollout of malaria vaccines and other innovative techniques. The urgency is heightened by increasing mosquito resistance to traditional prevention methods and the expanded habitat range due to climate change. Mosquitoes, long a significant threat to human health, carry diseases like dengue, chikungunya, and Zika, affecting more people worldwide. Efforts to curb these diseases include developing better vaccines, introducing Wolbachia bacteria, and releasing genetically modified mosquitoes. However, these efforts face challenges such as uneven vaccine distribution, limited vaccine efficacy, and potential environmental impacts of genetic changes. Scientists argue that a multi-faceted approach involving vaccines, new insecticides, and transgenic technology is required to effectively combat these diseases.
5. <https://www.lemonde.fr/en/environment/article/2024/06/16/france-sees-record-number-of-imported-cases-of-dengue-fever_6674934_114.html> - 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.
6. <https://apnews.com/article/81fb0fb5071b9a025a431594594fbe6a> - In Honduras, a new strategy to combat dengue fever involves releasing millions of mosquitoes that carry the Wolbachia bacteria, which interrupts the transmission of the disease. This method, developed by the World Mosquito Program, is being tested globally and has shown promising results, such as a 76% drop in dengue cases in Indonesia. Despite ongoing questions about its long-term effectiveness and cost, the strategy is being implemented in various countries. In Honduras, Doctors Without Borders is partnering with the program to release close to 9 million mosquitoes over the next six months. This innovative approach marks a significant shift from traditional methods of disease prevention, like insecticides and bed nets, and is closely monitored by the World Health Organization.