# West Nile virus found in UK wetlands signals climate change threat to health



The recent discovery of the West Nile virus in the UK has raised concerns about the implications of climate change on mosquito-borne diseases. For the first time, fragments of this virus were detected in wetland areas of Retford, Nottinghamshire. The UK Health Security Agency (UKHSA) confirmed that viral genetic material was found in samples during mosquito inspections, underscoring the potential for such diseases to establish themselves further north due to changing environmental conditions.

Prof Jonathan Ball, a virologist at the University of Nottingham and director of the Centre for Global Virus Research, points out that the emergence of the West Nile virus is indicative of a broader trend linked to climate change. He explained that as temperatures rise, many tropical diseases are becoming more prevalent in regions previously thought to be safe. Currently, the risk to human health remains minimal, with no locally-acquired human cases reported, but the situation underscores the necessity for increased surveillance and readiness as habitats for disease-carrying mosquitoes expand.

The UKHSA has initiated enhanced mosquito monitoring efforts in various locations, including Gamston, as part of a national project designed to understand mosquito behaviours and the possible introduction of pathogens. This initiative aims to gather data on outbreaks and manage future risks effectively. The agency insists that while the risk is low right now, the changing climate could lead to a rise in mosquito activity and, consequently, the diseases they carry.

Historical context reveals that the West Nile virus, originally identified in Uganda in 1937, spread to the United States in 1999 and has since been linked to thousands of cases, with severe outcomes, including fatalities. The role of climate in shaping the epidemiology of such diseases is significant; research shows that rising temperatures and altered rainfall patterns enhance the environments in which pathogens thrive. An analysis published in a leading climate journal highlighted that approximately 58% of infectious diseases have worsened due to climate-related factors, facilitating the migration of vectors like mosquitoes into new territories.

Additionally, heightened global temperatures have prompted an increase in the incidence of various mosquito-borne illnesses, with experts noting a notable rise in diseases such as malaria, dengue, and Zika in regions across Europe and the United States. For instance, the U.S. recorded locally transmitted malaria cases for the first time in two decades in 2023. This amalgamation of factors, from warmer weather to increased vector activity, forms a complex web that poses significant challenges to public health authorities worldwide.

The health community’s response involves active monitoring and public education on preventive measures. Prof Ball advises that the best defence against the West Nile virus remains in personal practices, such as using insect repellent and clothing strategies to avoid mosquito bites. In light of these developments, it is clear that addressing the health implications of climate change requires a concerted effort at both community and governmental levels, incorporating long-term strategies to mitigate the effects of a warming planet on human health and safety.

As the evidence mounts regarding the relationship between climate dynamics and disease spread, it is imperative that public health initiatives adapt accordingly, fostering resilience against the potential upsurge of invasive diseases in the wake of a rapidly changing climate.

## Reference Map:

* Paragraph 1 – [[1]](https://www.bbc.com/news/articles/c75341zkgd9o), [[2]](https://www.ft.com/content/9d2319b1-ce8f-4466-895c-a5e26495a023)
* Paragraph 2 – [[1]](https://www.bbc.com/news/articles/c75341zkgd9o), [[4]](https://time.com/6204356/infectious-disease-outbreaks-climate-change/)
* Paragraph 3 – [[5]](https://time.com/11683/west-nile-virus-climate-change/), [[6]](https://www.axios.com/2022/09/17/climate-change-infectious-diseases-public-health)

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

## Bibliography

1. <https://www.bbc.com/news/articles/c75341zkgd9o> - 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, and 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://time.com/6204356/infectious-disease-outbreaks-climate-change/> - Time magazine reports that as global temperatures and greenhouse gas emissions rise, there is a corresponding increase in infectious disease outbreaks such as SARS, MERS, Zika, West Nile, COVID-19, monkeypox, and polio. A study in Nature Climate Change found that 58% of 375 human infectious diseases were exacerbated by climate change. Scientists indicate that climate change affects host animals, expanding the geographic range of pathogens and enabling more opportunities for viruses to jump from animals to humans. Examples include the spread of tick-borne Lyme disease to new regions, the increase of flesh-eating bacteria in warmer ocean waters, and the wider range of mosquitoes carrying diseases like dengue and Zika. The Lancet reported an increase in mosquito activity by 39% in some low-income countries. Understanding these dynamics requires interdisciplinary cooperation to better study pathogen behaviors and impacts on human health. ([time.com](https://time.com/6204356/infectious-disease-outbreaks-climate-change/?utm_source=openai))
5. <https://time.com/11683/west-nile-virus-climate-change/> - Time magazine discusses how West Nile virus, a mosquito-borne pathogen first identified in Uganda in 1937, began spreading beyond Africa in 1999. This virus causes severe illness and can be fatal, leading to 286 deaths in the U.S. in 2012 from over 5,500 cases reported. As climates warm, studies indicate the virus will spread more widely, moving into northern territories currently unaffected. Research from UCLA, using climate and species-distribution data, shows higher temperatures and lower precipitation will increase West Nile virus cases. By 2080, the virus could reach southern Canada and northern British Columbia. While climate change increases the risk of such tropical diseases, efforts to control mosquito populations and manage affected environments can mitigate some dangers. ([time.com](https://time.com/11683/west-nile-virus-climate-change/?utm_source=openai))
6. <https://www.axios.com/2022/09/17/climate-change-infectious-diseases-public-health> - Axios reports that climate change is significantly impacting the fight against infectious diseases by exacerbating conditions favorable for outbreaks. According to a study in Nature Climate Change, 58% of 375 infectious diseases have been worsened by climatic hazards. Extreme weather and changes in land cover are altering habitats, causing the redistribution of disease-carrying organisms like mosquitoes and ticks, leading to diseases such as dengue, chikungunya, Lyme disease, and West Nile virus. Factors like population growth and international travel further complicate disease management. In response, some states, such as Colorado, are proactively tracking health conditions linked to climate change and regulating greenhouse gas emissions. Health officials are urged to both adapt to current risks and work on mitigation strategies. There is also concern that the relaxation of COVID-19 precautions could lead to a resurgence of other infectious diseases. ([axios.com](https://www.axios.com/2022/09/17/climate-change-infectious-diseases-public-health?utm_source=openai))