



The Connecticut Agricultural Experiment Station

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Study Documents Increases in Mosquito Abundance and Species Diversity in Connecticut

New Haven, CT- Scientists from the Connecticut Agricultural Experiment Station (CAES) presented their findings documenting an overall increase in mosquito populations after two decades of continuous surveillance in Connecticut, in an article published in *Scientific Reports*.

In this study, the team analyzed annual changes to mosquito species diversity, abundance, and distribution at 87 trapping sites located throughout Connecticut. They found that overall mosquito abundance has increased by 60% and there have been numerous introductions of U.S. native and exotic mosquito species into the state during the previous 20 years. The scientists report that all the species experiencing population growth in the region displayed opportunistic egg-laying behaviors, a reliance on (semi) permanent bodies of water, and a preference for mammals as blood meal hosts. Overall, a south-to-north trend of increasing species richness was detected indicating that many species are moving northward, possibly in response to changes in land use and climate.

"Changes to land and climate create unique chances for opportunistic insects – such as mosquitoes – to take advantage of the many habitats we create for them," said Dr. Joseph McMillan, a lead coauthor and Post-Doctoral Scientist at CAES. "As humans continue to alter the environment, mosquitoes are poised to benefit from these changes."

The CAES maintains fixed mosquito trapping stations in 87 municipalities throughout Connecticut as a part of the statewide mosquito surveillance program. Mosquitoes are collected each year at these sites from June-October, identified to the species level, and tested for viral infection to assess the risk of

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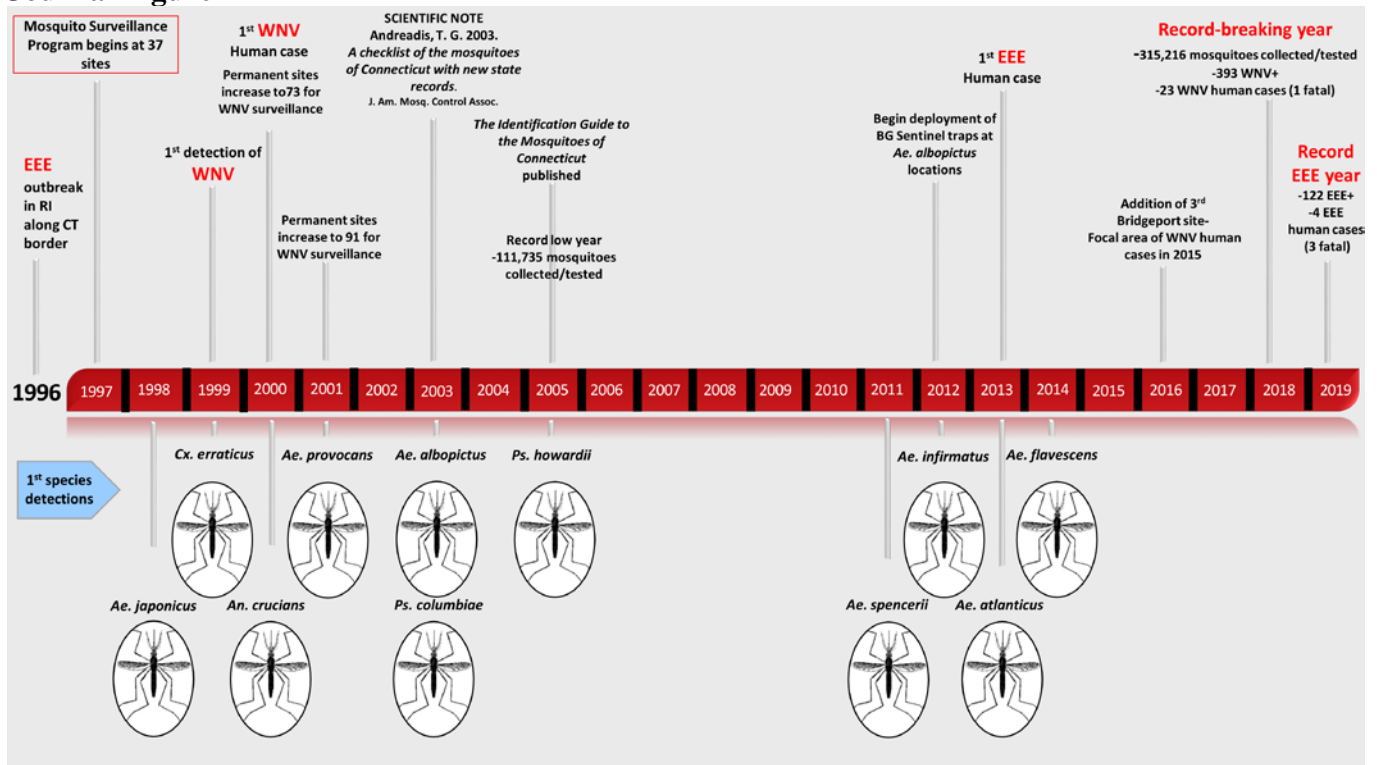
West Nile virus and other mosquito-borne viruses. The resulting data generated from this program was analyzed in the current study.

"This study shows the value of long-term surveillance data," said Dr. Philip Armstrong, coauthor and Medical Entomologist at CAES. "It clearly shows that mosquitoes are on the rise in Connecticut and provides a baseline for monitoring future population changes and range expansions that are anticipated under climate change."

Journal Reference

Petruff, T.A., McMillan, J.R., Shepard, J.J., Andreadis, T.G., Armstrong, P.M. Increased mosquito abundance and species richness in Connecticut, United States 2001–2019. *Sci Rep* **10**, 19287 (2020). <https://doi.org/10.1038/s41598-020-76231-x>

Journal Figure



Timeline of the Connecticut Agricultural Experiment Station's mosquito and arbovirus surveillance network, 1996 - 2019. The top portion of the timeline identifies significant events in the development of the network with special mention of published reports of mosquito communities in the state. The bottom portion identifies year of first detection for 11 invasive and range expansion mosquito species detected through the surveillance network. The figure was created in Microsoft PowerPoint 2016 with images created by the Connecticut Agricultural Experiment Station. WNV= West Nile virus and EEE=eastern equine encephalitis.

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