

Impact of Climate Change on Vector Species Suitability in Arkansas

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Ticks are the most prevalent vector species in the United States (Beard, Eisen, and Eisen, 2021). They are a common parasitic insect, which bite humans to receive sustenance from our blood. When they bite a human, they leave behind bacteria, viruses, and parasites, which can cause secondary infections and illnesses (Parola and Raoult, 2001). Despite knowing the impact that ticks can have on human and animal health, there is little information regarding how the lifecycle and range of ticks has been impacted by a locally changing climate. The term “ecological niche shift” explains the renegotiated patterns that fauna integrates when impacted by new external stressors. Due to climate change, progressive warming has expanded the tick’s temporal range, allowing it to have more days per year to feed and to mate (Alkishe, Raghavan, and Peterson, 2021).

This study’s purpose is to evaluate the impact of vector borne disease in Arkansas across time. Understanding the changing temporal and spatial scale of ticks will be vital to future public health efforts, as their status as the United States’ primary vector species speaks to their prolific status in everyday life, and their potential detriment to the health and wellbeing of the nation.

To date, there is a wealth of information regarding vector borne diseases, but there is a lack of consolidated information regarding the changing ecological niche of disease vectors in Arkansas across temporal scale. While the climate changes globally, all species will need to adapt to prepare for ecological stress, including insects which can spread zoonotic diseases. Though this poster’s scope would be to address a knowledge gap in Arkansas, the tools and background information detailed will have more national or global applicability.

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