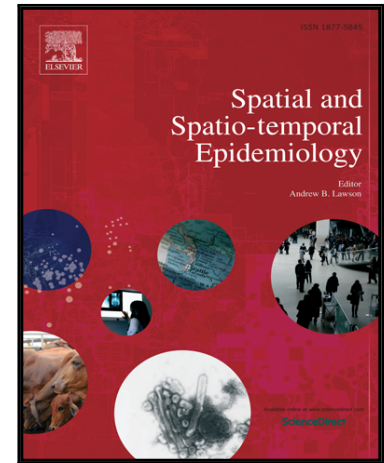


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Potential effects of climate change on the risk of accidents with poisonous species of the genus *Tityus* (Scorpiones, Buthidae) in Argentina

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ABSTRACT

Knowing the factors that affect the geographic distribution of species allows inferring their potential localization. Human beings, through the expansion of their own distribution area and their contribution to climate alteration have modified the geographic distribution of other biological species. Consequently, the temporal pattern of co-occurrence of human beings and venomous species (scorpions, spiders, snakes) is changing. Thus, the temporal pattern of areas with risk of accidents with such species tends to become dynamic in time. The aim of this work was to analyze the areas of occurrence of species of *Tityus* in Argentina and assess the impact of global climate change on their area of distribution by the construction of risk maps. Using data of occurrence of the species and climatic variables, we constructed models of species distribution (SMDs) under current and future climatic conditions. We also created maps that allow the detection of temporal shifts in the distribution patterns of each *Tityus* species. Finally, we developed risk maps for the analyzed species. Our results predict that climate change will have an impact on the distribution of *Tityus* species which will clearly expand to more southern latitudes, with the exception of *T. argentinus*. *T. bahiensis*, widely distributed in Brazil, showed a considerable increase of its potential area (ca. 37%) with future climate change. The species *T. confluens* and *T. trivittatus* that cause the highest number of accidents in Argentina are expected to show significant changes of their distributions in future scenarios. The former fact is worrying because Buenos Aires province is the more densely populated district in Argentina thus liable to become the most affected by *T. trivittatus*. These alterations of distributional patterns can lead to amplify the accident risk zones of venomous species, becoming an important subject of concern for public health policies.

Key words: Anthropic impact; Public health; Scorpions; South America; Species distribution models; Venomous.

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