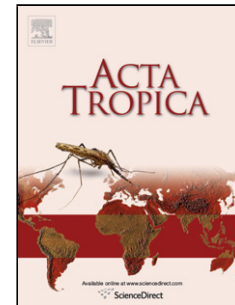


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Spatial analyzes of triatomine infestation indices and their association to the actions of a Chagas disease program and environmental variables during a 5-year intervention period

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Abstract

Vector control of Chagas disease in the past decades has been mainly based on chemical control. Fundación Mundo Sano is implementing an Integral Chagas Program in a rural area of the Argentinean Gran Chaco Region since 2002. The objective of this study was to analyze both, temporal and spatial variation of infestation indices and their relation to the actions of the Program and environmental variables as land and vegetation cover changes, during a 5 year intervention period (2010 to 2014).

Triatoma infestans infestation data from five rural localities from the Province of Santiago del Estero (Argentina) was analyzed in order to detect spatial aggregation. Differences in control effectiveness were observed between the peridomicile and intradomicile: infestation indices were higher in the peridomicile, recurrent infestation was present only in the peridomicile while low level infestation clusters were absent in the peridomicile. Cluster zones with low intradomestic infestation had larger proportions of bare soil and thin vegetation. In contrast, cluster zones with high intradomestic infestation had higher forest vegetation proportions and smaller cultivated area proportions.

Spatial statistics analysis detected differences in cluster patterns between intra and peridomestic infestation suggesting that control actions should be based on geographical areas and not on political units. This work brings together different approaches to analyze infestation levels at the fine spatial

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