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The Distribution Analysis of Mosquito Abundance in Peel Region with Weather Conditions

The changing climate can significantly affect the mosquito abundance in a region and cause emerging or reemerging of mosquito diseases, including West Nile virus and malaria etc. Using the mosquito data from the surveillance program managed by Ontario Ministry of Health and Long-Term Care, we study the distribution properties of *Culex.pipens/restuans* mosquito abundance in Peel Region, Ontario for the period from 2004 to 2010. The combination of two clustering methods (K-means and agglomerative hierarchical approaches) and multiple linear regression are used to explore the mosquito distribution properties under weather conditions. The traps in Peel Region are classified into two clusters. The results show that the *Culex.pipens/restuans* mosquito abundance in Peel Region follows a Gamma distribution; the mean temperature in summer has significant impact on the distribution properties and the impact of precipitation is not distinct.