

**Vector-Borne Diseases: Impact of Climate Change on Vectors and Rodent Reservoirs**  
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**RatMap: a digital geodata supported monitoring project of urban rat populations in Hamburg, Germany**

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**Background:**

Hamburg is a large seaport with ideal living conditions for *rattus norvegicus* as are mild climate and abundant waterways. On public properties rodent control is performed by governmental pest controllers. Lack of information on the outcome of control measures and on rodenticide resistance as well as short public funds asked for a modernised concept of urban rat control.

**Methods:**

A digital rat monitoring system using a MySQL data-base linked to a geographical information programme was implemented. Data on notification of urban rats and governmental control procedures are regularly entered into the database and linked to different types of maps.

**Results:**

Hot spots for rats, changes in rat densities and control actions can be analysed over space and time. Areas with rat populations and their neighbouring streets, buildings and sites can be inseen at the same time to follow up previous finds and control actions as well as rodenticide resistance areas. Close cooperation with the City Water Company makes a three dimensional analysis possible, for maps used for pipes and manholes are based on the same digital city maps. The investigation of correlations of rodent findings to several ecological and geological as well as technical data will allow descriptive and analytical analysis of conditions relating to the frequency, distribution and dynamics of rat populations.

**Conclusions:**

A systematic and continued monitoring of populations and rat control measures is a useful tool to accomplish a scientific approach to urban rat control. Modern rodent control should follow methods of integrated pest control. This makes a controlled and moderate use of pesticides mandatory, which is strongly ameliorated through our data supported systems.

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