

Vector-borne Diseases and Climate Change in Finland: Mapping, Modelling, Mitigation - VECLIMIT



Vector-borne diseases that are transmitted via blood feeding arthropods are posing an increasing health threat to humans in Europe, including Finland. Their incidence and spread are strongly influenced by changes in the environment, in particular climate. The recent emergence of tick-borne encephalitis (TBE) in new areas, increase of reported borreliosis cases, and the threat of introduction of new vectors and pathogens warrants targeted research in Finland.

This consortium (partners from Universities of Helsinki, Jyväskylä and Turku, Luke, NIHW, FFA and FMI) aims to estimate and predict these risks in relation to climate change in Finland.

The ultimate goal is to better understand and quantify factors that drive vector-borne diseases and to provide essential information for intervention strategies. These goals will be achieved by integrating existing, unique long-term data on human disease incidence, dynamics of host communities, vectors and environmental variables, including climate, using modern analysis tools, empirical field studies and predictive spatiotemporal modelling. The methods include unbiased metagenomic screening to observe introductions and spread of vectors and pathogens. Such novel approaches will be used in pilot surveillance projects, together with investigations of wildlife disease outbreaks and serological surveys of humans and other vertebrate species. Additionally, we plan to assess knowledge, attitudes and practice of at-risk population towards vector-borne- diseases, in order to better tailor prevention measures in Finland. Intervention efforts will target tick-borne disease risk areas and include experimental controlling of tick populations by controlling the availability of the large animals they feed on, such as roe deer and white-tailed deer.

This consortium will bring together a unique combination of ecological, microbiological, medical, modelling and climatological expertise and build a network that can be utilized in disseminating scientific results and information, including visual representations of risk areas, to a wide audience.

The generated new knowledge will strengthen preparedness and guide decision making in battling and preventing climate-sensitive emerging vector-borne infectious diseases in Finland.

More information:

Olli Vapalahti, University of Helsinki (olli.vapalahti@helsinki.fi)

Jussi Sane, Finnish Institute for Health and Welfare (Jussi.sane@thl.fi)

Otso Huitu, Natural Resources Institute Finland (otso.huitu@luke.fi)

Eva Kallio, University of Jyväskylä (eva.kallio@jyu.fi)

Hilppa Gregow, Finnish Meteorological Institute (hilppa.gregow@fmi.fi)

Jukka Hytönen, University of Turku (jukka.hytonen@utu.fi)

Antti Oksanen, Finnish Food Authority (antti.oksanen@ruokavirasto.fi)