



The bank vole *Myodes glareolus* is a common rodent in north European forests and represents a model of wildlife health.

## WILD HEALTH – How does environmental biodiversity affect wildlife health?

### Context

We are experiencing a biodiversity crisis through the effects of human actions, such as habitat destruction, land conversion for agriculture and development, climate change, pollution and the spread of invasive species. This is a cause for concern as biodiversity has an essential role in maintaining a healthy ecosystem. Biodiversity is hypothesised to positively impact human health, for example via a co-association with the host's microbiota - the associated community of microscopic organisms. However, it is unknown whether biodiversity confers a comparable benefit to wildlife.

### Main objectives

**WILD HEALTH will test the hypothesis that environmental biodiversity has positive effect on wildlife health.** Through the consideration of different environmental scenarios in Alaska (US) and Scandinavia (Finland and Sweden), it examines whether:

- greater environmental biodiversity provides a more diverse microbial pool from which wildlife microbiota can develop,
- environmental biodiversity affects the diversity of diet and thus the composition of the host gut microbiota,
- microbiota diversity positively associates with improved health and fitness of wild mammals.

### Main activities

WILD HEALTH will measure the health of mammals (bank voles, moose) inhabiting forests that experience contrasting human impacts. Using a combination of genomics methods, molecular biology, and community ecology, empirical data and field experiments, it aims to examine the relationships between environmental biodiversity, microbiota composition and wildlife health (e.g. parasite burden). The emphasis is on quantifying how forest management strategies impact these interactions. As the microbiota potentially forms part of an adaptive response by the host to a specific environment, the project will experimentally examine whether or not microbiota community composition affects mammal fitness and health in different forest environments.

WILD HEALTH will engage stakeholders in three steps:

- Co-design. The project will begin with a workshop for stakeholders where their expectations and potential conflict issues will be examined, setting the mutual objectives of the project and plan sampling.
- Co-doing. Samples will be collected as decided in the 1st step in collaboration with relevant stakeholders.
- Co-discussion and dissemination of results. The project culminates in a workshop that has two major themes. First, what do the results of the project mean from the point of view of each stakeholder? Second, how can the results be disseminated in public and how can possible management suggestions be implemented in forest management policy? A final report aimed for policy makers, addressing wildlife health issues as a function of biodiversity and use of natural resources, will be composed.

### Partners of the project:

#### University of Oulu, FINLAND

University of Jyväskylä, FINLAND

Natural Resources Institute, Tampere, FINLAND

Swedish University of Agricultural Sciences, Umeå, SWEDEN

University of Alaska, Anchorage, USA

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€ 746,013

### Further information:

#### Phillip Watts

pcwatts@jyu.fi

