

## Social-Ecological Transformations: HUMan-ANimal Relations Under **Climate Change in NORthern Eurasia (HUMANOR)** JPI Climate/Academy of Finland (decision #70766) Bruce C. Forbes, Arctic Centre, Univ. of Lapland, Rovaniemi (<u>bforbes@ulapland.fi</u>)

nomadic pastoralism is a nexus for feedbacks between humans, animals and environment. HUMANOR expects modern management will benefit from comparative analyses of complex social-ecological systems (SESs) experiencing multiple stresses. Even at low human population densities, large reindeer herds affect ecosystem structure and function, with potential feedbacks to climate. Projecting future transformations requires retrospective partitioning of: (1) socio-economic & political from climate drivers over decadal scales; and (2) human-animal agency from climate drivers over centennial scales. In HUMANOR robust analyses will: (1) be made in contrasting SESs across diverse geographic scales and (2) account for heterogeneous perceptions of risk concerning the future viability of semi-domestic reindeer herding in the European Research Area.



INTRODUCTION: An ancient livelihood across northern Eurasia, CONSORTIUM PARTNERS in HUMANOR: (1) Arctic Centre, University of Lapland, Finland (Lead PI); (2) Dept. of Anthropology, University of Aberdeen, Scotland; (3) Ájtte Mountain and Sámi Museum, Jokkmokk, Sweden; (4) Dept. of Cultural Anthropology, Uppsala University, Sweden; (5) Norwegian Institute for Cultural Heritage Research, Tromsø, Norway; (6) Norwegian University of Life Sciences, Ås, Norway; (7) Arctic Research Centre of Yamal, Salekhard, Russia.



**<u>OBJECTIVES</u>** include: (1) Understanding to what extent contemporary institutions

METHODS encompass several complementary aspects, including: (1) extensive participant observation in the field with active herders, semidirected interviews with sedentary or retired herders and phased content analysis of the resulting interviews and field notes; (2) PGIS mapping of cultural heritage sites as well as contemporary human-animal agency and landscape use; (3) reconstruction of past human-animal relationships and environmental histories on and in the vicinity of cultural heritage sites through various proxies, e.g. terrestrial and lacustrine pollen records, coprophilous fungi and other soil-based signatures, such as lipids and carbon and nitrogen isotopes; (4) visual anthropology, including audiovisual documentation of oral histories (myths, legends) among different age cohorts, both male and female. These methods cover different time scales, from decadal to centennial and various spatial scales from individual dwelling, households and corrals to landscapes and regional SESs (e.g. Sápmi).

Lake coring at Yarte-6, Yamal March 2014

Workshop, Kautokeino, Norway January 2015

governing indigenous land use facilitate or hinder long-term adaptation and resilience of indigenous reindeer management; (2) Placing past and ongoing SES transformations, including Medieval or earlier hunting/herding transitions, in the context of climate change; (3) Exploring how the use of an interdisciplinary approach based on Participatory GIS (PGIS) can reveal new knowledge concerning change, variability and continuity in land use among Sámi reindeer herders; (4) Weighing the question of land use and rights to limited space under a rapidly changing climate in the different study regions. For example, Nordic Sámi reindeer herders consider their inability to influence land use decisions as a greater challenge than adapting to anticipated rapid climate change; and (5) Contextualizing human/animal/climate relationships in Fennoscandia through Russian and Mongolian comparisons.





Sámi cultural heritage site, Finnmark, Norway, 2012 Photo: Stine Barlindhaug





ACADEMY OF FINLAND

Peat coring Suollagavallda, Sweden, July 2013. Photo: B Forbes



KEY PERSONNEL: Prof. Bruce C. Forbes (Lead PI, Rovaniemi); Prof. David G. Anderson (Aberdeen); Dr. Kjell-Åke Aronsson (Jokkmokk); Prof. Hugh Beach (Uppsala); Dr. Stine Barlindhaug (Tromsø); Dr. Natalia Fedorova (Salekhard); PhD student Kajsa Kuoljok (Jokkmokk); Dr. Ilse Kamerling (Aberdeen); Dr. Mari Kuoppamaa (Rovaniemi); PhD student Åsa Larsson Blind (Rovaniemi); Dr. Andrei Marin (Ås); Dr. Karin Milek (Aberdeen); Dr. Andrei Plekhanov (Salekhard); PhD student Zoia Vylka Ravna (Tromsø).

## **Key literature by the consortium partners**



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