



# Permafrost thaw in coastal Russian Arctic: Material and cultural dimensions at risk

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## Motivation

The IPCC estimated that human-induced warming reached approximately 1°C (±0.2°C likely range) above pre-industrial levels in 2017, increasing at 0.2°C (±0.1°C) per decade (high confidence)<sup>1</sup>. This trend is likely to be amplified in arctic regions, as melting sea ice and the loss of the snow cover increase the absorption of solar radiation in the seas and landmasses. In the Russian Arctic, the impacts of this warming are reflected in three main phenomena:

- increase of permafrost temperature
- increase of the Active Layer thickness
- coastal retreat



Map of the Russian Arctic: Elaborated by NORDREGIO

## Why is permafrost thaw a threat?

Changes on permafrost have severe and multidimensional consequences at a local scale:

- Risk for infrastructure but also for cultural sites; maritime transport, access to subsistence resources, food security, community identity and their vision of the world.
- Thawing permafrost makes shorelines and associated communities more vulnerable to these changes, releasing nutrients and contaminants into coastal ecosystems<sup>2</sup>.

Arctic communities have developed a particular understanding and sense of place which are closely related to an ecosystem characterized by frozen ground and cold weather<sup>3</sup>. This particular nature-culture relationship has to be at the core of the research regarding social impacts of permafrost thaw. Current climate change risk models may not be able to address these risk categories. An initial analysis of the risks and key stakeholders can be enriched by field observations and community participation.

## Methodology

Fieldwork Yakutsk (Sakha Republic, Russian Federation): June-July 2018

- Identify key stakeholders for mapping the actors involved in coastal permafrost thaw
- Better understanding of the Russian administrative reality
- Delineate regulatory and policy framework regarding the Arctic region in the Sakha Republic

Snowball sampling - we conducted semi-direct face to face interviews during the fieldwork expedition:

- Institutions/Authorities
- Individual respondents included: People who was born or lived in Tiksi and people who was born in other regions of the Sakha Republic (included Yakutsk)

|             | WOMEN | MEN |
|-------------|-------|-----|
| INTERVIEWED | 9     | 11  |
| TOTAL       | 20    |     |

Average age institutional respondents:  
➤ 45 years old

Average age individual respondents:  
➤ 28 years old

The aim is to share the results of the analysis of our interviews in order to identify the main themes that emerged and that can contribute to improve the understanding of the nature and extent of impacts on cultures triggered by changes on permafrost and climate in the Russian Arctic.



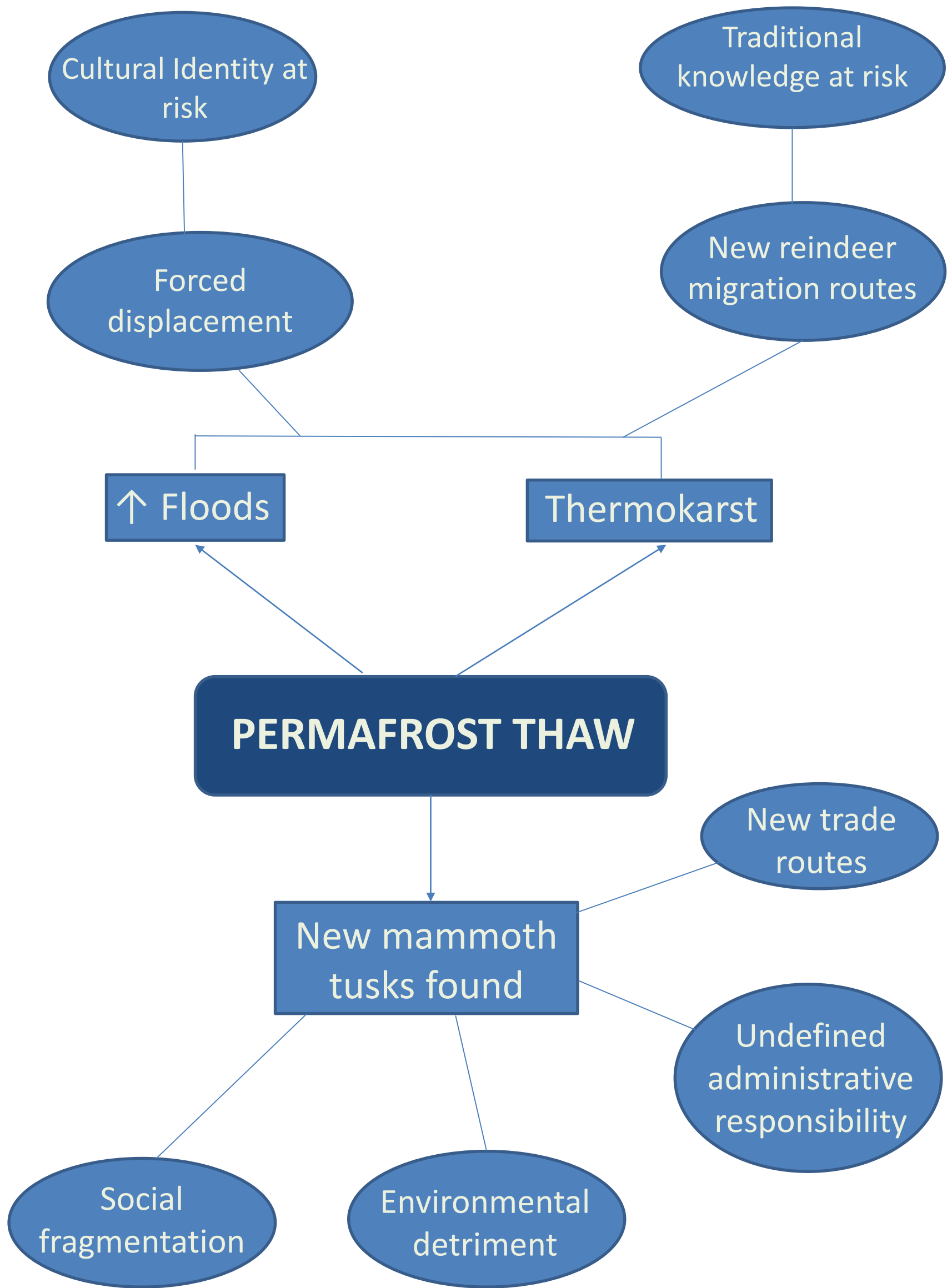
Mammoth hunter: Picture taken by Evgenia Arbugaeva



Tiksi: Picture taken by Evgenia Arbugaeva

## Results

- Northern People manifest a feeling of dependence on both permafrost and cold weather and often talk about them interchangeably.
- Extreme environmental conditions contributed to the development of an ecological consciousness that shaped their traditional lifestyle and helped them adapt.
- Respondents showed a deep understanding and concern about the complex and multidimensional impacts of both permafrost thaw and climate changes on their ecosystems and everyday lives:



- They alluded to the existing desynchronization between norms/laws and their “new reality”. E.g: this year, ducks arrived 15 days earlier than usual, but could not be hunted before the official date because this would be considered illegal.
- They show concern about that high costs that adapting to new changes might entail. E.g: for restoring destroyed coastal and river banks; for implementing efficient contention structures for oil/gas pipelines or implementing new methods and materials for building better adapted roads.
- People expressed that they do not feel they have agency to act and adapt by their own<sup>4</sup>.
- They consider that authorities are relevant actors because they elaborate/modify laws that condition their lives.
- People who lived in Tiksi agreed on the fact that they do not have opportunities over there and most people migrate to bigger cities (population drain).

## Contact

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