

# Rangeland fragmentation and social impacts: a comparative approach

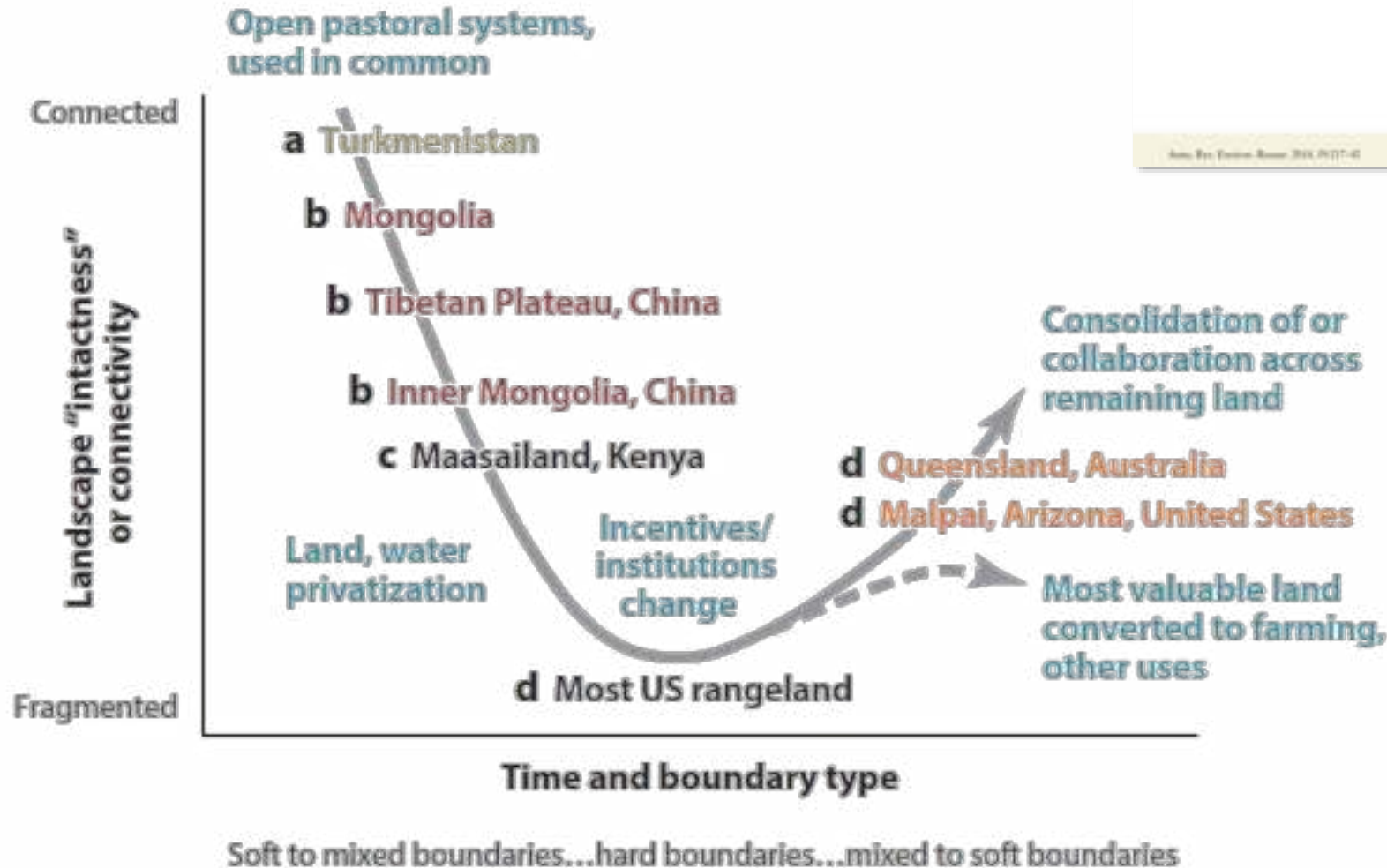
Technical Sessions Group-5: Transhumance; Pastoralism; Rangeland  
Governance

MOUNTAIN ECOSYSTEMS AND RESOURCE MANAGEMENT

19-28 September 2021

Marius Warg Næss

# Rangeland fragmentation



# Fragmentation of rangelands



- 3 sources of fragmentation

- **Dissection**

- Barriers restricting movement

- **Fundamentally caused by political processes**

- **Decoupling**

- Loss of key areas

- **E.g. changes in tenure systems**

- **Compression**

- Contracting activities into isolated parts

# Tenure changes

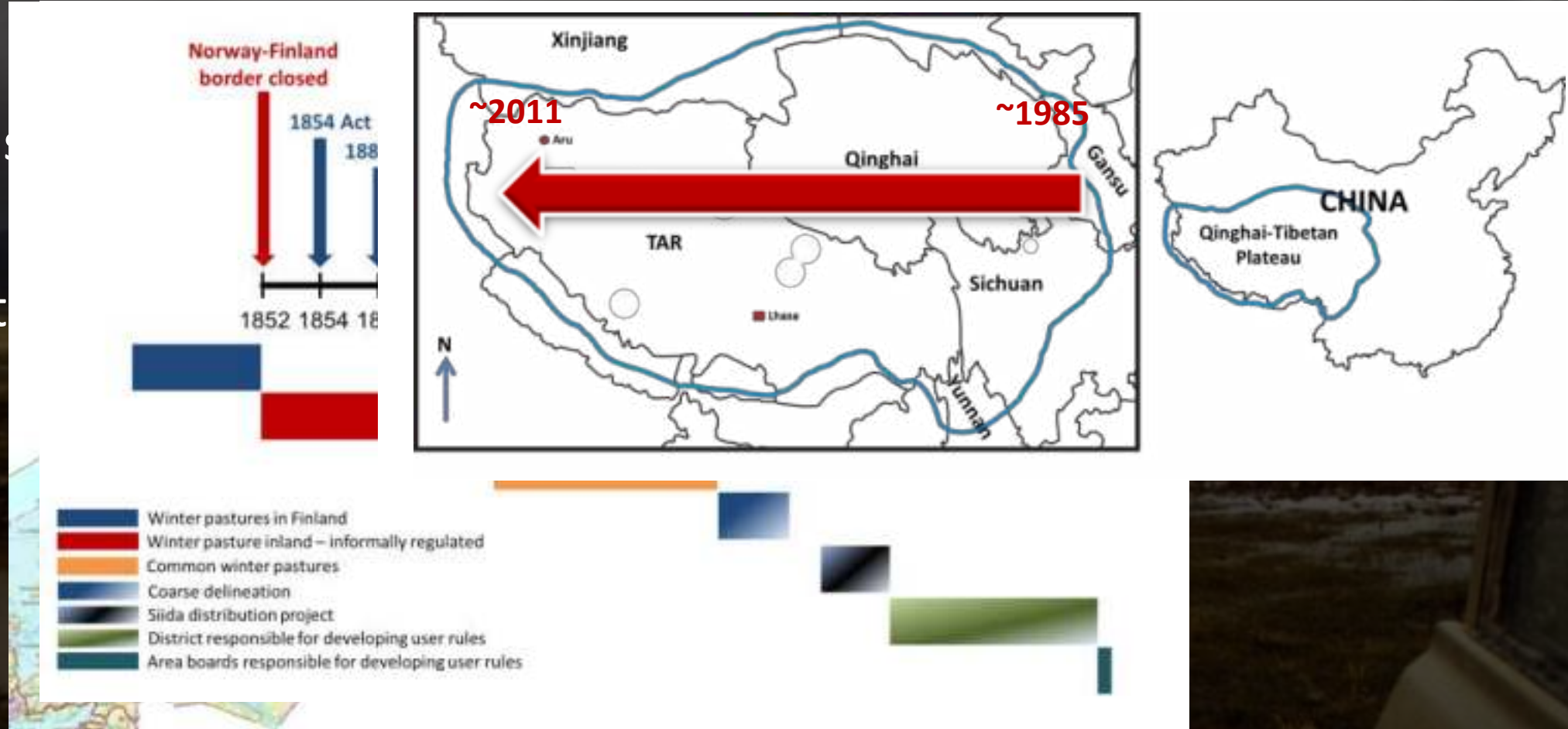
- Transforming communal pastures to private
  - **Perceived benefits**
    - Reduces overgrazing
    - Increases production
    - Ease development

# Comparative aspects of land tenure privatisation



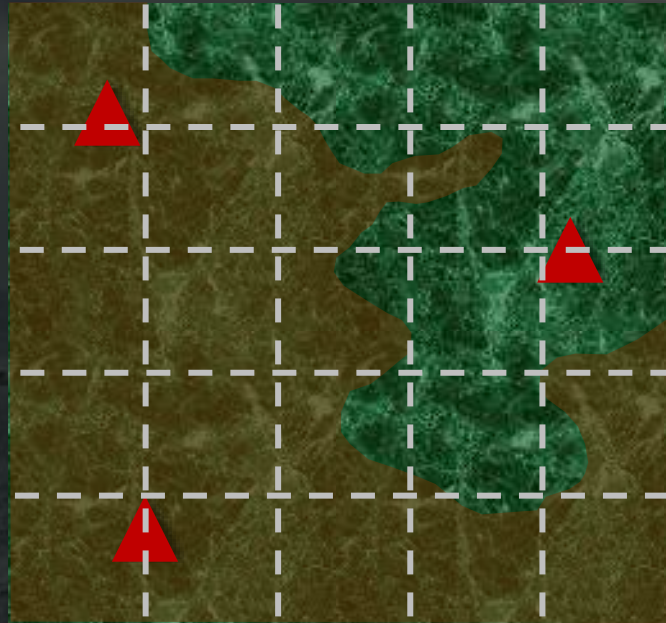
# Comparative aspects of land tenure privatisation

- Traditional
- Collectivisation
- Privatisation



# Fragmentation and resources distribution

Good quality/winter



Poor quality/summer

# Climate change

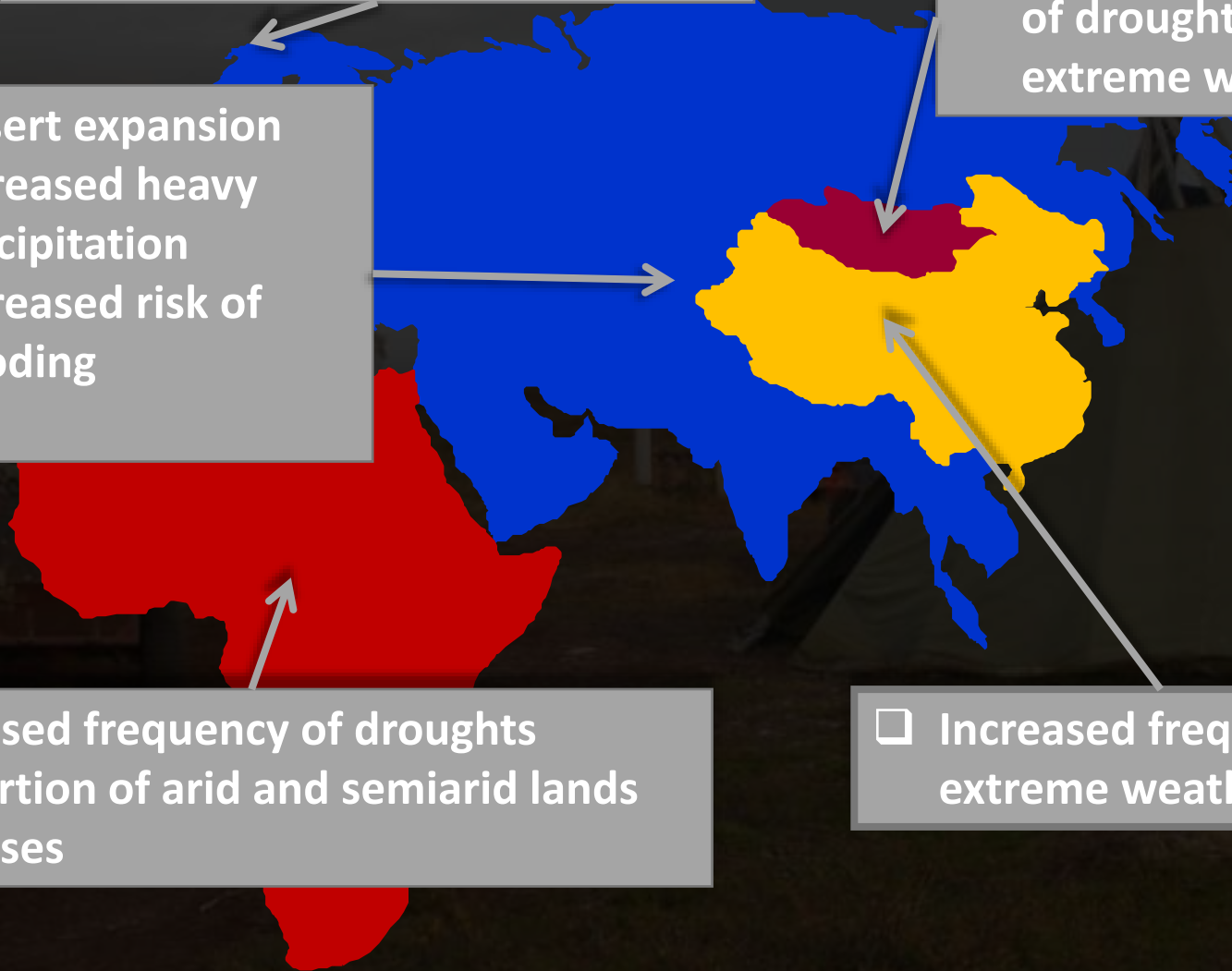
Increased frequency of extreme weather

Increased frequency of droughts and extreme weather

Desert expansion  
 Increased heavy precipitation  
 Increased risk of flooding

Increased frequency of droughts  
 Proportion of arid and semiarid lands increases

Increased frequency of extreme weather





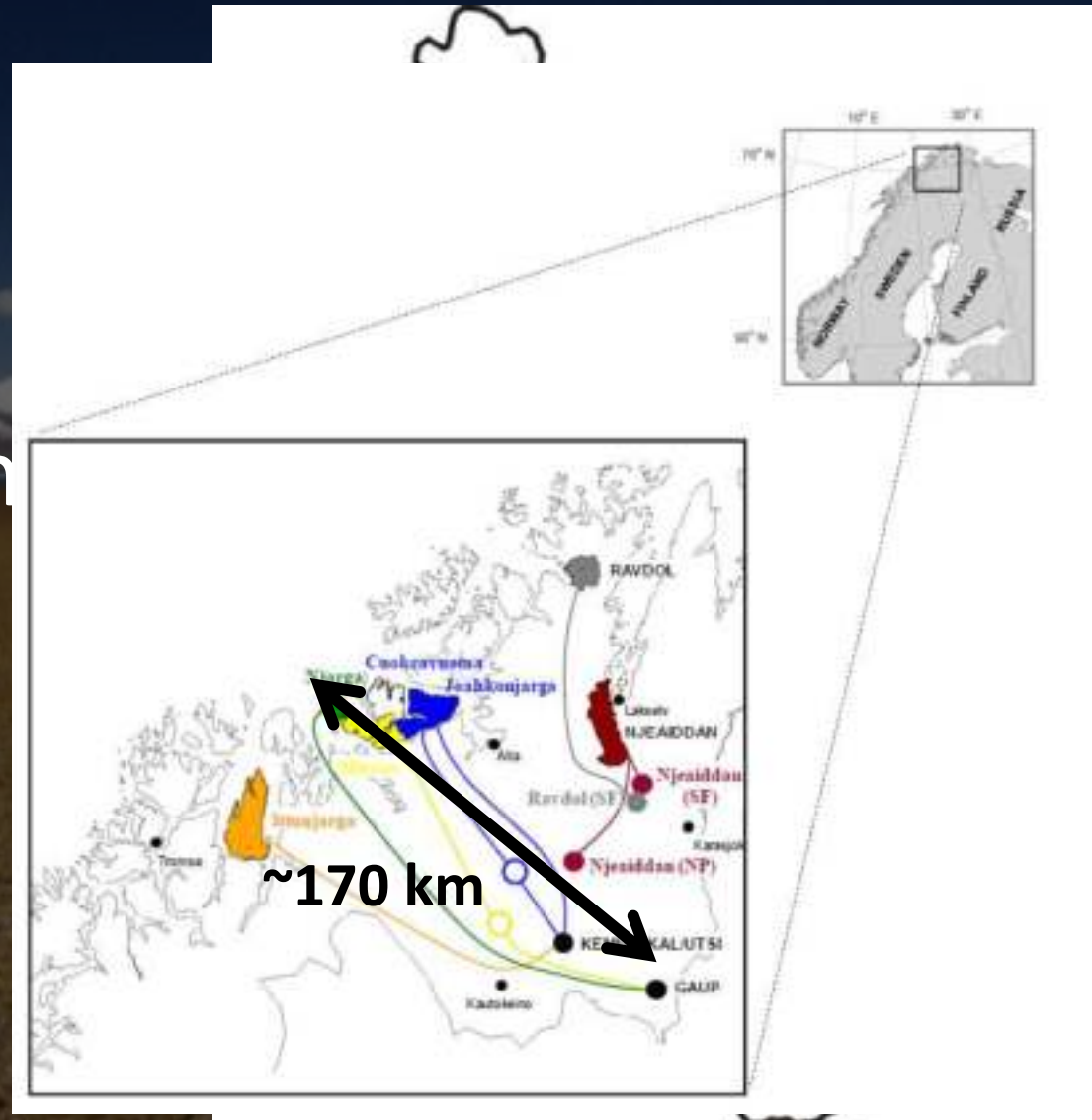
# The logic of pastoral mobility

- “Overuse” offset by moving and changing grazing areas at regular intervals



# Resource exploitation mobility

➤ Response to season



# Escape- or micro-mobility

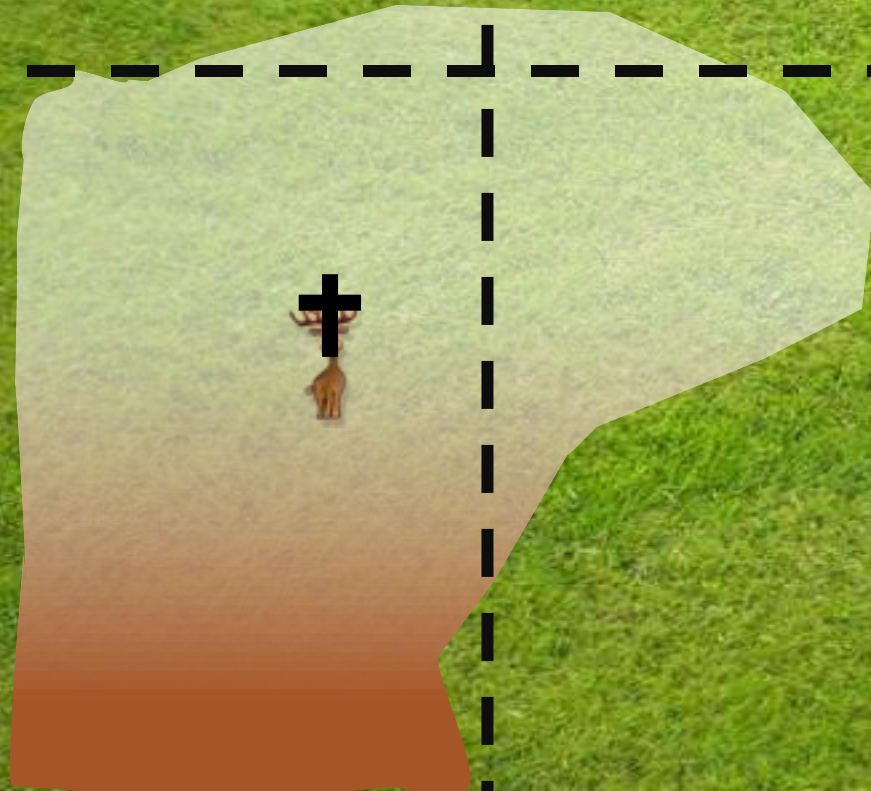
- Movement in order to escape environmental hazards



# The ecological consequence of privatisation

## □ Fragmentation

- Increase concentration of both people and livestock
- Increase rangeland degradation



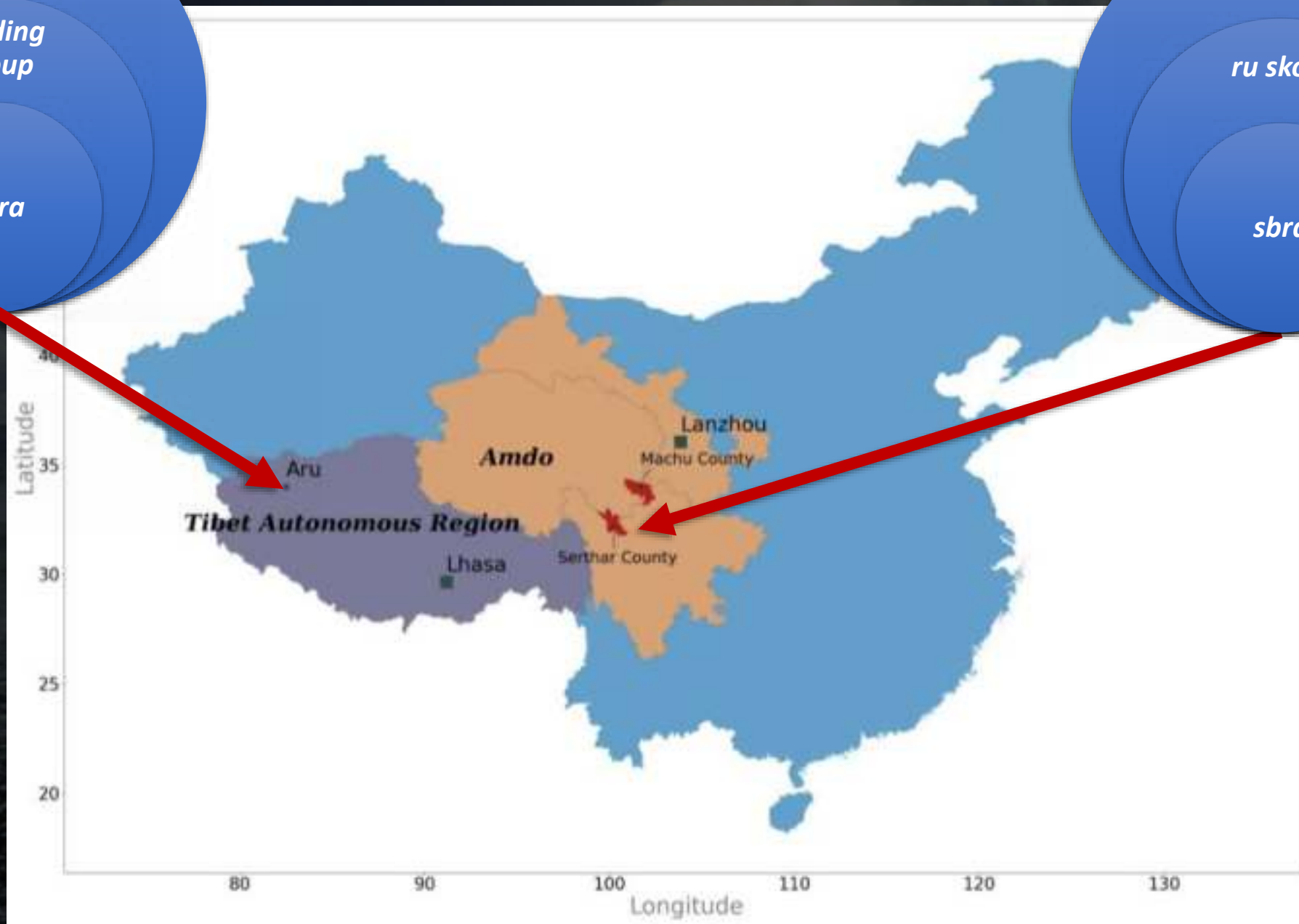
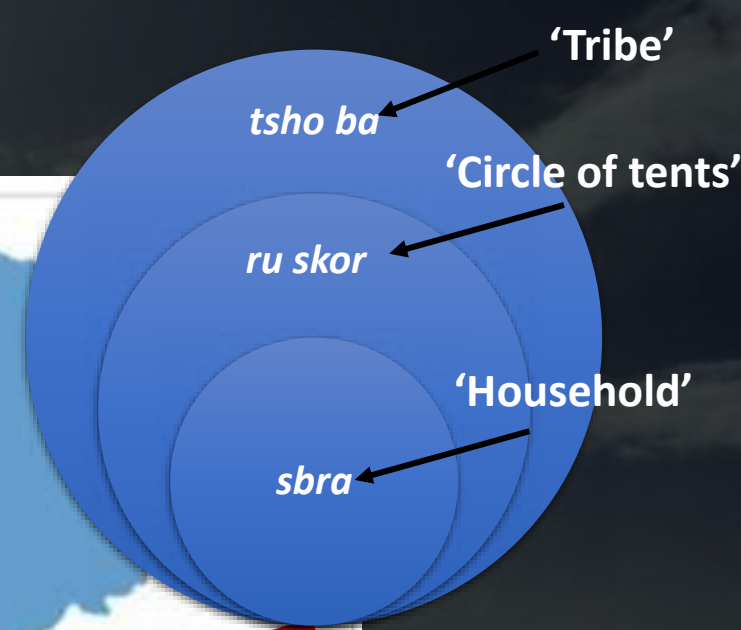
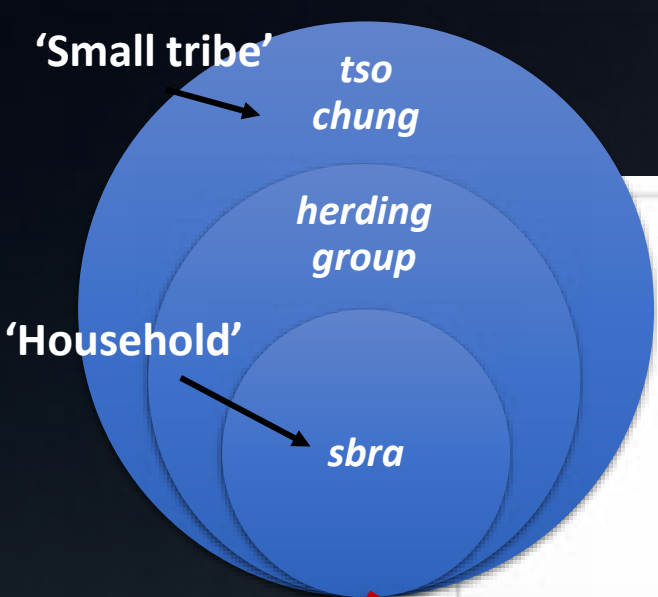
# Social consequences

A landscape photograph of snow-covered mountains under a dark, cloudy sky. The text "Social consequences" is overlaid in white, centered in the upper half of the image. The mountains are illuminated from the side, creating a contrast between the bright snow and the dark shadows and sky.

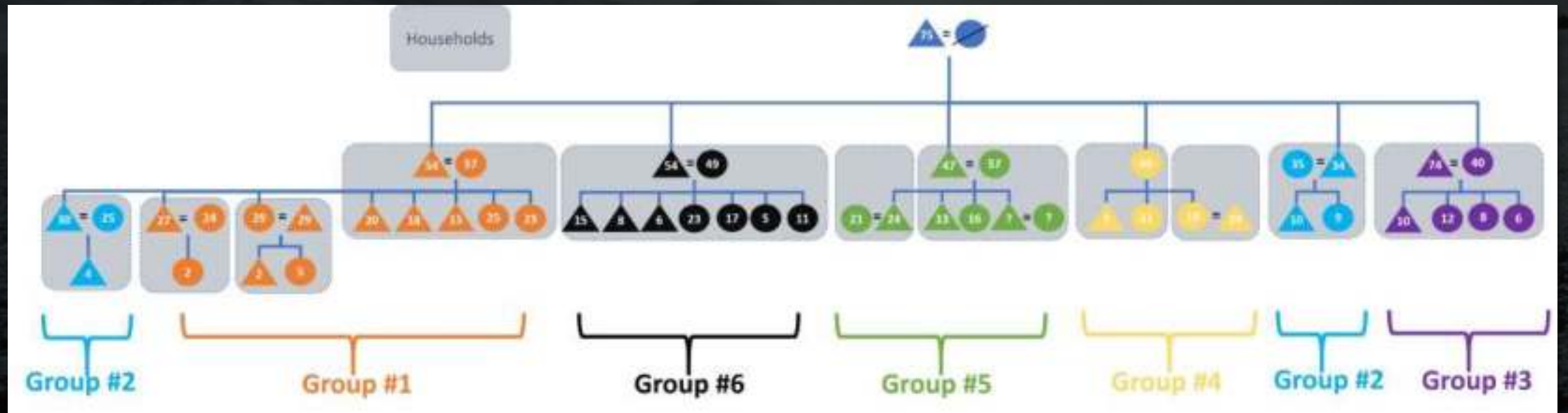


Herding is a collaborative activity





# The herding group



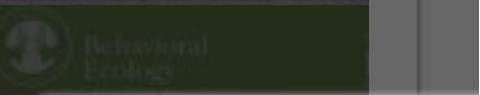


Smaller Saami Herding Groups Cooperate More in a Public Goods Experiment

Abstract: Evolutionary theories... "Market Size Matters?"... "Should Larger Markets Be Bigger?"

Introduction: Group living often entails a balance between individual and...

Evolutionary theories... "Market Size Matters?"... "Should Larger Markets Be Bigger?"

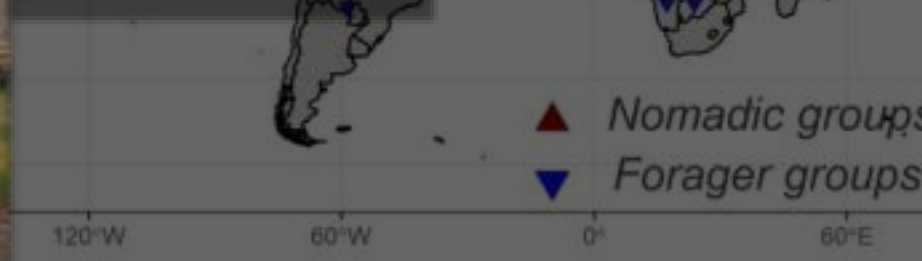


INTRODUCTION: Cooperation is pervasive in a wide range of social... "Market Size Matters?"... "Should Larger Markets Be Bigger?"



**Siida**

- 2-6 Households
- Siblinghood
- Informal leaders
- Flexible



▲ Nomadic groups  
▼ Forager groups



**Ru skor**

- 5-10 Households
- Siblinghood
- Informal leaders
- Flexible

# Why herd together?

<b>NAME</b>	<b>GROUP</b>	<b>SIZE</b>	<b>COUNTRY</b>	<b>KEY LIVESTOCK</b>
<b><i>SIIDA</i></b>	Saami	2-6	Norway, Sweden, Finland	Reindeer
<b><i>RU SKOR</i></b>	Tibetan	5-10	China	Yak
<b><i>KHOT AIL</i></b>	Mongolian	2-8	Mongolia	Horse
<b><i>HERDING UNIT</i></b>	Basseri	2-5	Iran	Sheep
<b><i>CAMP</i></b>	Yomut	2-10	Turkmenistan, Iran and Afghanistan	Sheep
<b><i>HOMESTEAD<sup>a</sup></i></b>	Gabra	>=1	Kenya; Ethiopia	Camel
<b><i>CAMP<sup>b</sup></i></b>	Borana	10-40	Kenya; Ethiopia	Cattle
<b><i>KRAAL</i></b>	Maasai	6-8	Kenya	Cattle
<b><i>KHALK</i></b>	Brahui	NA	Pakistan	Sheep
<b><i>REER</i></b>	Somali	1-6	Somalia	Camel

# The social consequences of privatization

Group #2



- The option to change group allows cooperation to persist for a long period of time

Group #1



# The future of collaborative herding

- Privatisation & fencing of rangelands
  - Reduces interactions between people
  - Reduces security
  - Increases workload
    - Women and children
  - Limits sharing of labour, food and pasture
  - Increased degradation



# Challenge of climate change

- 2 important sources of variation

- **Spatial**

- 1. Buffered by *mobility*

**Fragmentation** breaks  
*physical* connectivity

- **Temporal**

- 2. Buffered by *herd accumulation*

**Privatisation** breaks  
*social* connectivity

# In sum...

- Privatisation & fragmentation
  - Reduce mobility & increase degradation
  - Increase territorial behavior & social hierarchies
  - Negatively impact efficient cooperation
- ➔ Exacerbate the negative effects of climate change?

# Thank you for listening!

❖ Twitter

❖ @mwnass

❖ Web

❖ <https://pastoralism-climate-change-policy.com/>