# Sustainable livestock production in transhumant grazing systems in the Chinese Altai Mountains

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## Introduction and Objectives

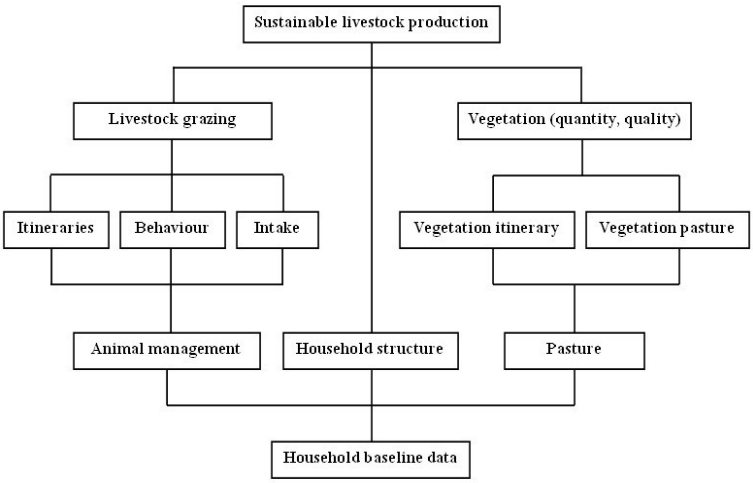
Study the traditional transhumant system where for centuries Kazakh herders have moved with their livestock from low desert areas (winter pastures) to high altitude pastures in the Altai Mountains for rich summer grazing.

- What is the structure of transhumant households and how do they operate their livestock?
- What is the forage availability on summer pastures and how does it affect the livestock grazing behaviour and feed intake?
- How will the future relationship between pasture and livestock develop?

**Figure 1.** Cow with GPS collar for determination of grazing itineraries

**Figure 2.** Collecting faeces from a goat for intake determination

## Materials and Methods




## Results achieved so far

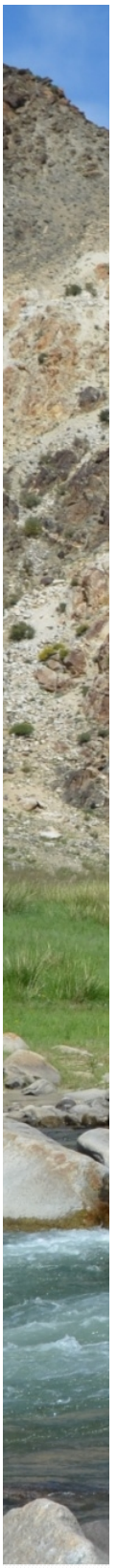
**May 2012 – Feb 2014:**

- **Baseline survey:** 258 HH were interviewed in 2012; statistical analysis of this data set currently under way
- **Animal grazing itinerary and behaviour:** Sheep, goat and cattle were tracked with combined GPS collars and motion sensors (Figure 1) on spring and summer pasture in 2012 and 2013, and grazing behaviour was observed
- **Vegetation along the itinerary:** Biomass was quantified and samples were collected along the grazing itinerary (spring and summer pasture) in 2013
- **Feed intake and digestibility**: 5 goats were equipped with faecal collection bags in summer 2013 (3 different periods; Figure 2) to determine faecal mass and faecal nitrogen concentration and from there calculate quantitative feed intake
- **Qualitative analysis** of vegetation and faecal samples currently under way in Witzenhausen

## Planning of further work

**May – Oct 2014:**

- **Animal grazing itinerary and behaviour:** Sheep, goats and cattle will again be tracked with GPS collars on spring and summer pasture and behaviour will be observed
- **Vegetation along the itinerary:** Biomass will again be collected along the grazing itinerary on spring and summer pasture
- **Feed intake and digestibility** will be determined using slow release $Cr_2O_3$ capsules in 5 animals per species; faeces will be collected (spot sampling) to determine marker and nitrogen concentration (winter 2014, Witzenhausen) and from there calculate feed intake
- **Reproduction management and livestock dynamics:** Progeny history interviews will be conducted on sheep and goats (150 females per species) to determine reproductive parameters and mortalities and from there model herd dynamics under changing pasture conditions (szenario analysis)



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