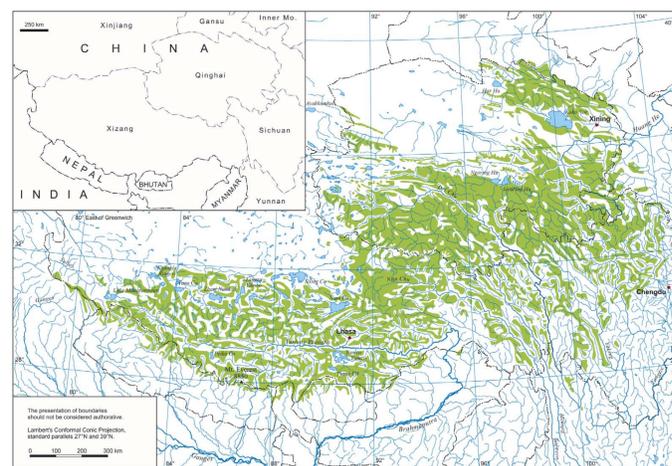
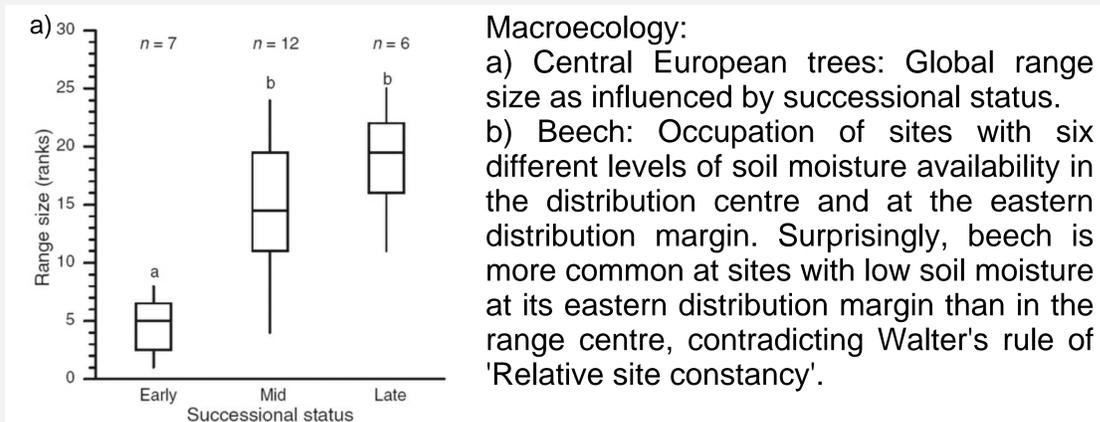




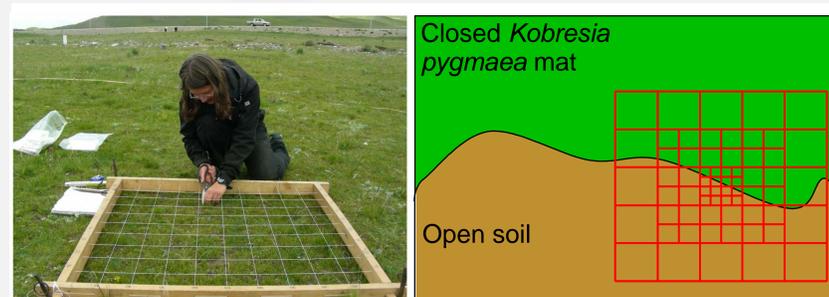
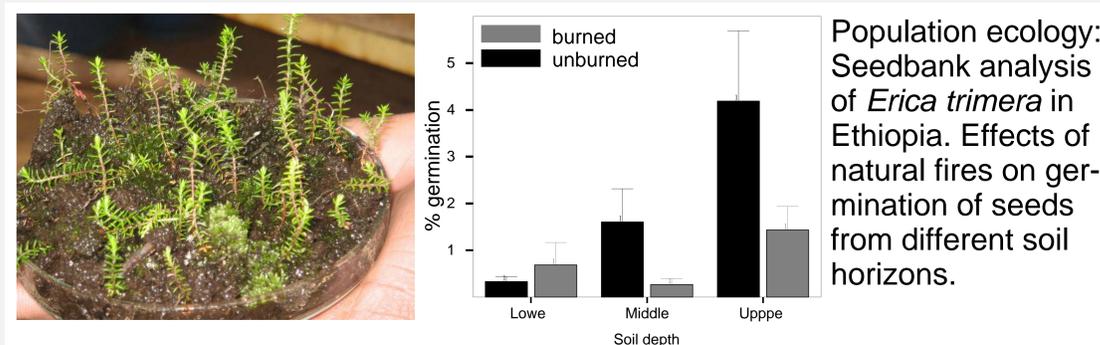
Background

Population ecology and macroecology offer rapidly developing tool boxes that allow us to supplement our research in ecophysiology and ecosystems science. Work on plant reproduction and genetic structure gives information on plant performance in responses to harsh climates and human land use. Studies on biogeographical scales cover large climatic gradients and help to assess the consequences of global change. Examples for these approaches are macroecological studies on European trees, research on reproduction of treeline stands in the Andes and East Africa, and analysis of growth patterns in the world's highest alpine mats located in Tibet.

Research



Macroecology: Distribution of *Kobresia pygmaea* mats in Tibet, where they cover >400 000 km² forming the world's largest alpine plant community.



Population ecology: Grid-based mapping of flowering activity and fine-scale clonal structures in *Kobresia pygmaea*. Clone size is analysed with microsatellite DNA markers.

Major projects: "The making of a Tibetan Landscape - studies on *Kobresia pygmaea* mats" funded by DFG
Virtual Institute for Macroecology - Halle

Key results

- Macroecology: Range size and niche breadth are positively correlated for European trees, but - in contrast to expectation – relationships between local abundance and range size are only weak
- Population ecology: Sexual recruitment is a major constraint in woody and herbaceous species of cold and dry environments (alpine treelines, arid Central Asia)
- Population ecology: Clonal persistence is common in harsh climates, but the extent of clonality varies tremendously among different taxa