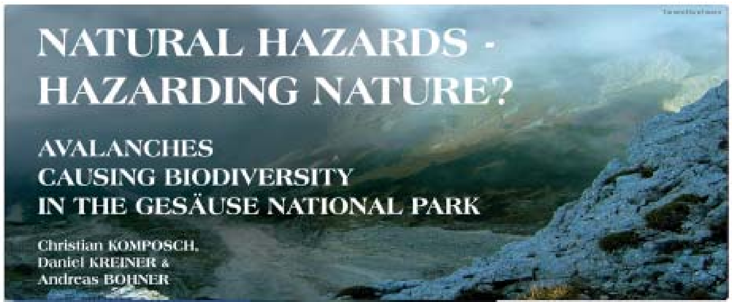

NATURAL HAZARDS - HAZARDING NATURE?

AVALANCHES CAUSING BIODIVERSITY IN THE GESÄUSE NATIONAL PARK

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STARTING POSITION AND OBJECTIVES

Avalanches are feared by humans and considered "catastrophic" due to their unpredictable and destructive force. But this anthropocentric perspective fails to capture the potential ecological value of these natural disturbances.

The Gesäuse National Park is a model-region for investigations of highly dynamic events because of its distinct relief and extreme weather conditions.

This project aims to record and Analyse the plant and animal assemblages in these highly dynamic habitats as well as document succession and population structure.

AREA AND METHODS

The investigation area is the Gesäuse National Park in the Northern Calcareous Alps, Styria, Austria. The vertical-extension reaches from 600 up to 1900 m a. s. l. The area is characterised by the frequently occurrence of dynamic natural processes.

Long-term monitoring locations have been situated in the following areas of avalanche-debris:
- „Scheibenbauernschütt, Hochkar and Kalktal" on the Tamischbachturm (2035 m) north of the Enns river
- Kammerlgraben and Lahngang below the Stadelfeld mountain (2091 m) south of the Enns river

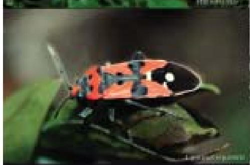
The vegetation of the avalanche-rifts was mapped following Braun-Blanquet; additional field-pedological methods were used. Soil chemistry-parameters associated with humus and contaminents were analysed in the lab. Animals were collected in 2006 by hand, with handnets, soil-sifters and a G-Vac suction sampler.

FIRST RESULTS - FLORA

Vegetation and soil analysis revealed a diverse flora on shallow layers of rendzina soil.

A mean of 70 different vascular plants were identified per 20 m². In comparison sites in Central Europe are considered florally diverse when bearing 50 vascular plant-, moss and lichen-species per 100 m² (HOBOHM 2005).

The avalanche-rifts on the south-eastern slope of Tamischbachturm-mountain are in a climatically favourable region. Thus, the area boasts the park's sole occurrence of thermophilic species such as *Primula veris* ssp. *veris*.



FIRST RESULTS-FAUNA

The invertebrate-fauna of the avalanche-rifts is high diverse. Initial studies revealed 131 arachnid- and insect species:
- spiders/Araneae (48 spp.),
- True bugs/Heteroptera (34 spp.),
- beetles/Coleoptera (26 spp.),
- leaf- and planthoppers/ Auchenorrhyncha (16 spp.) &
- harvestmen/Opiliones (7 spp.).

The salticid spider *Sitticus atricapillus* was recorded for the first time in Styria. Remarkably, high-alpine-species occur as low as 900 m a. s. l. The linyphiid spider *Mughiphantes pulcher*, a highly specialized inhabitant of rocks, is known in Styria exclusively from the Gesäuse. Usually the endangered wolf spider *Pardosa morosa* lives on natural riversides with shifting gravel banks. Its occurrence in avalance debris suggests that the early successional nature of these habitats may be the key factor supporting this species. The bug-fauna show some surprises such as the presence of the sub-mediterranean plant bug *Phytocoris austriacus*; this thermophilic taxon is new to Styria. Among the beetles the xylobiontic *Rosalia alpina*, protected within the European Union, has been recorded. The leaf- and planthopper-fauna reveals a third of the red-listed species. The distribution and ecology of *Wagneriala franzi* („Ennstaler Blattzikade"), subendemic to Austria, is still unclear. The high percentage of long-legged harvestmen (Phalangiidae s. l.) within the Opiliones-spectrum indicates a poor representation of soil- and debris-inhabiting species. This methodological bias will be compensated by future use of pitfall-traps.

NATURE-CONSERVATION-OUTLOOK

Avalanches rifts are characterised by a high biodiversity as well as occurrence of specialized and endangered animal and plant species. Typical is the mosaic-like composition of very different habitat-types, structures and states of succession.

Of high value from a conservation perspective are gravel-, rock-habitats and debris with little or no vegetation cover, rough meadows and deciduous forests. The natural-area management in the Gesäuse National Park combines both the protection of infrastructure and the assured survival of zoological and botanical protected properties in these extreme habitats. Investigations will be continued in 2008.

LITERATURE

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