

# ***UPLAND CATCHMENT CONSERVATION: LINKING BIOLOGICAL AND EARTH SCIENCES***

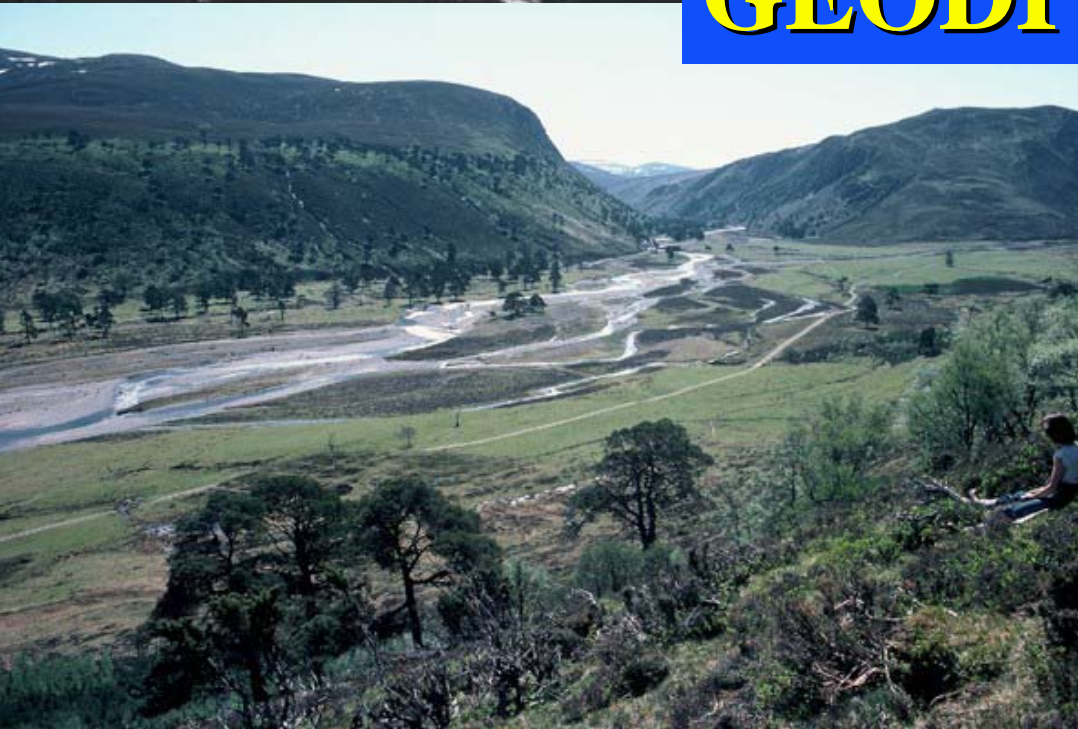
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Environmental Protection Agency**



# GEODIVERSITY



# **LINKS BETWEEN GEODIVERSITY AND BIODIVERSITY**

- 1. Spatial patterns and diversity of habitats at different scales**
- 2. Species distributions and past events**
- 3. Landform inheritance and current processes**
- 4. Role of extreme episodic events**
- 5. Geomorphological sensitivity and landscape stability**

**Abisko**



**Giant Mountains**



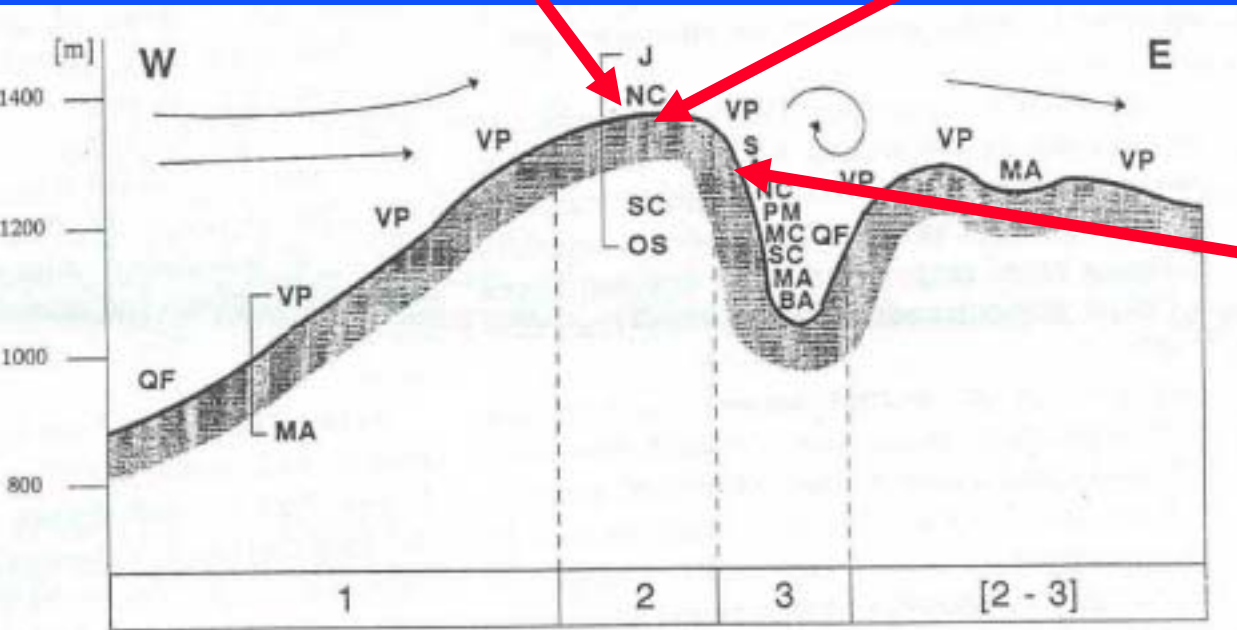
**Cairngorm Mountains**

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**Large-scale landform patterns**



# GIANT MOUNTAINS



# CAIRNGORM MOUNTAINS

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**Giant Mountains -  
'arctic island in the  
middle of Europe'**

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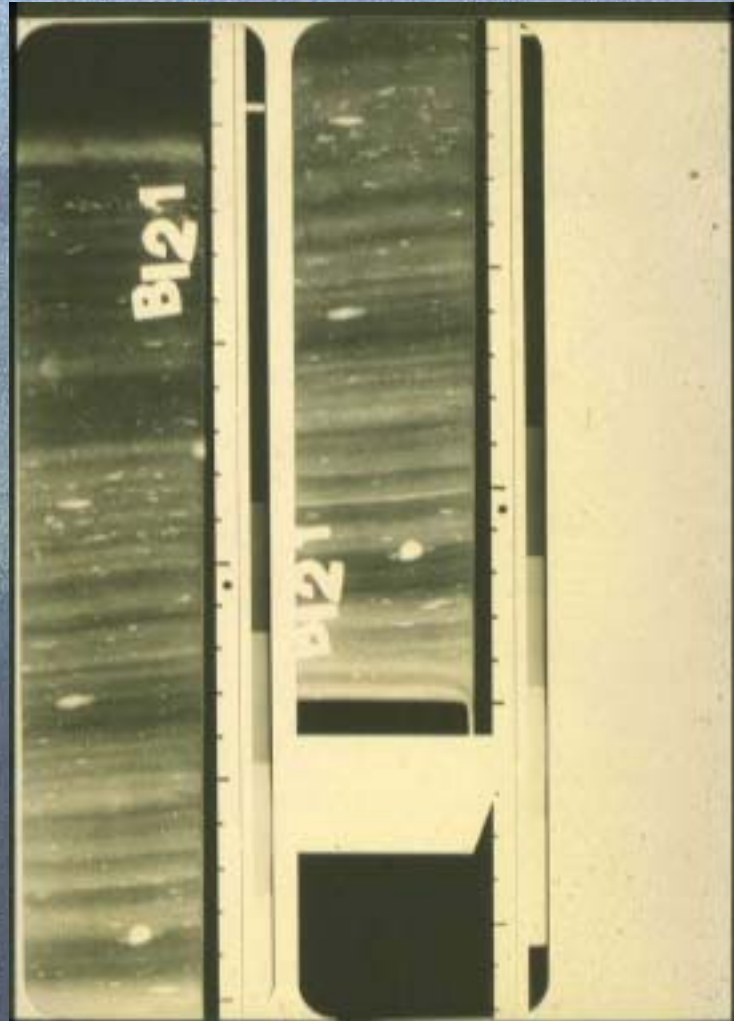
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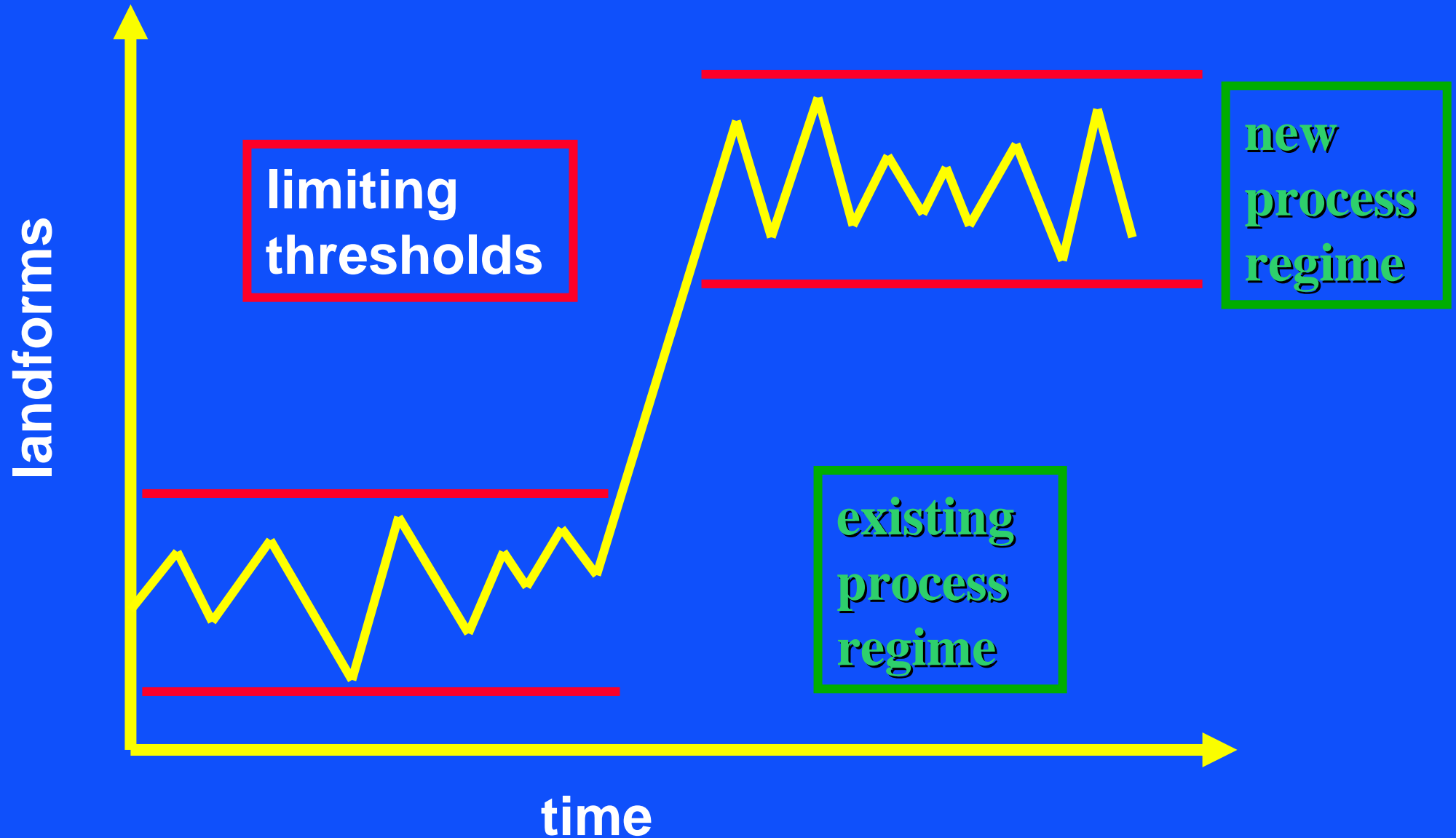
**Slush torrent: Kärkevagge**



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# ROBUST AND SENSITIVE BEHAVIOUR IN GEOMORPHOLOGICAL SYSTEMS



















# CONCLUSIONS

- 1. Spatial patterns of habitats and species are a function of geomorphological changes/events over different timescales in the past. This applies at a landscape as well as a local scale.**
- 2. Past events continue to influence present geo-bio process links.**
- 3. Mountain environments are episodically dynamic – in response to geomorphological processes of different magnitudes and frequencies.**
- 4. Geomorphological sensitivity - dynamic equilibrium can be disturbed by human stresses (trampling, pollution, overgrazing) and long-term climate change. Potential for irreversible changes on human timescales if geomorphological thresholds crossed.**
- 5. Integrated management needs to recognise and understand the links between process dynamics and terrain sensitivity.**