

Bryophytes on cliffs and talus slopes of south-western Moravia (Czech Republic)

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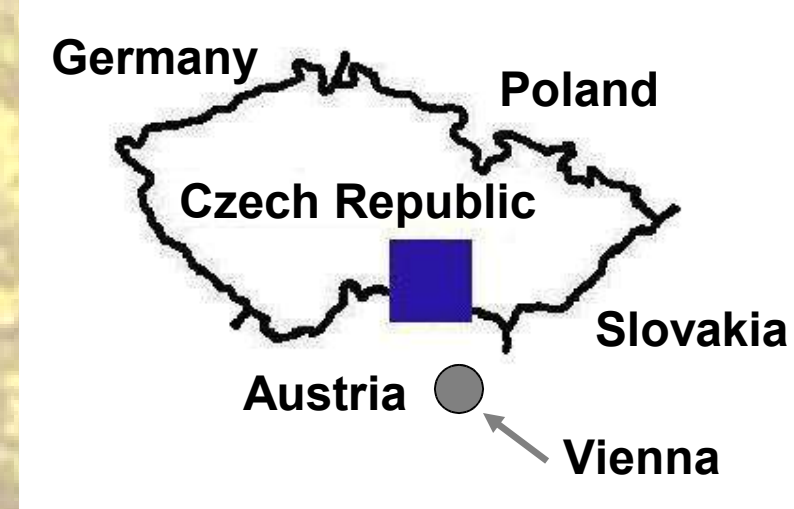
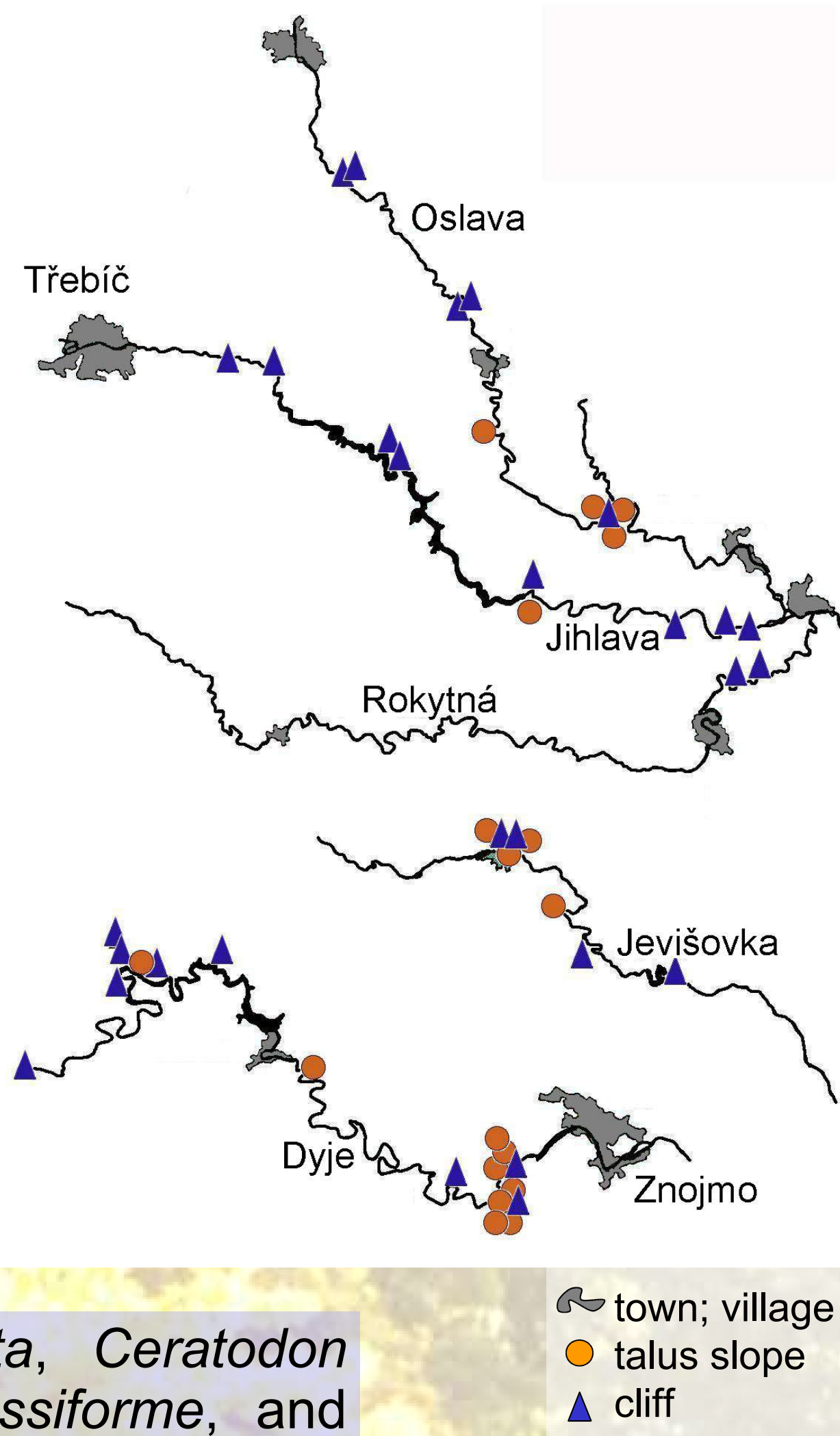
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AIMS

- to investigate bryoflora of treeless cliffs and talus slopes
- to analyse the species composition using life strategies, chorological types, growth forms

METHODS

Data were collected in 1997–1998. Cliffs (41 study sites) and talus slopes (26) were investigated in valleys of the Dyje, Jevišovka, Jihlava and Oslava rivers in south-western Moravia, Czech Republic.



STUDY SITES

Cliffs and talus slopes are treeless habitats in the forested river valleys. The forests are mostly natural oak-hornbeam forests (*Carpinion*), hornbeam-lime-maple ravine forests (*Tilio-Acerion*), and oak forests (*Genisto germanicae-Quercion*, *Quercion petraeae*). Altitudes range between 200 and 450 m. Mean temperature in January ranges between -2 and -4 °C, in July between 17 and 19 °C. Precipitation varies between 350 and 450 mm in the growing season (Apr–Sep) and between 200 and 300 mm in the winter season (Oct–Mar).

Cliffs are 4–5000 m² large, with slope inclination 14–90°, formed of acidic rocks (mica schists, gneiss, granulite, and biotite granodiorite or granite), ultramafic (serpentine) and calcareous (marble, Permo-Carboniferous calcareous conglomerates).

Talus slopes are 100–7000 m² large, with inclination 27–54°, formed of acidic rocks such as gneiss, granulite, and biotite granodiorite or granite.



The most frequent species of cliffs are *Cephaloziella divaricata*, *Ceratodon purpureus*, *Dicranum scoparium*, *Hedwigia ciliata*, *Hypnum cupressiforme*, and *Pohlia nutans*.

Ten threatened bryophytes were recorded on cliffs (KUČERA & VÁŇA 2003): the endangered (EN) moss *Didymodon sinuosus*, the vulnerable (VU) moss *Buxbaumia aphylla*, the lower risk – near threatened species (LR-nt) *Didymodon acutus*, *Eurhynchium striatulum*, *Reboulia hemisphaerica*, *Pleurochaete squarrosa*. The species *Frullania inflata*, *Brachythecium laetum*, *Eurhynchium pulchellum*, and *Gyroweisia tenuis* belong to category data deficient (DD).

Didymodon sinuosus

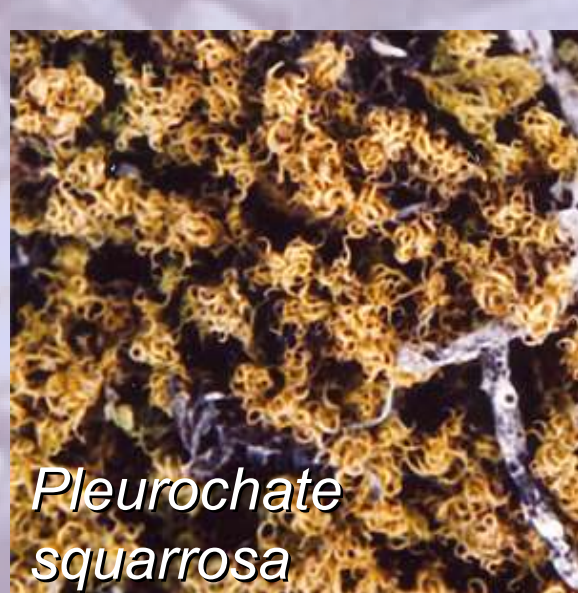
This moss was recorded on one cliff near the town of Ivančice. No occurrence was known in south-western Moravia and it was recorded only in other three regions in the Czech Republic.

Frullania inflata

It is a rare liverwort with very disjunct distribution. It is the second record in the Czech Republic situated near the first one (two close sites; found 1956, verified 1961 and 2005).

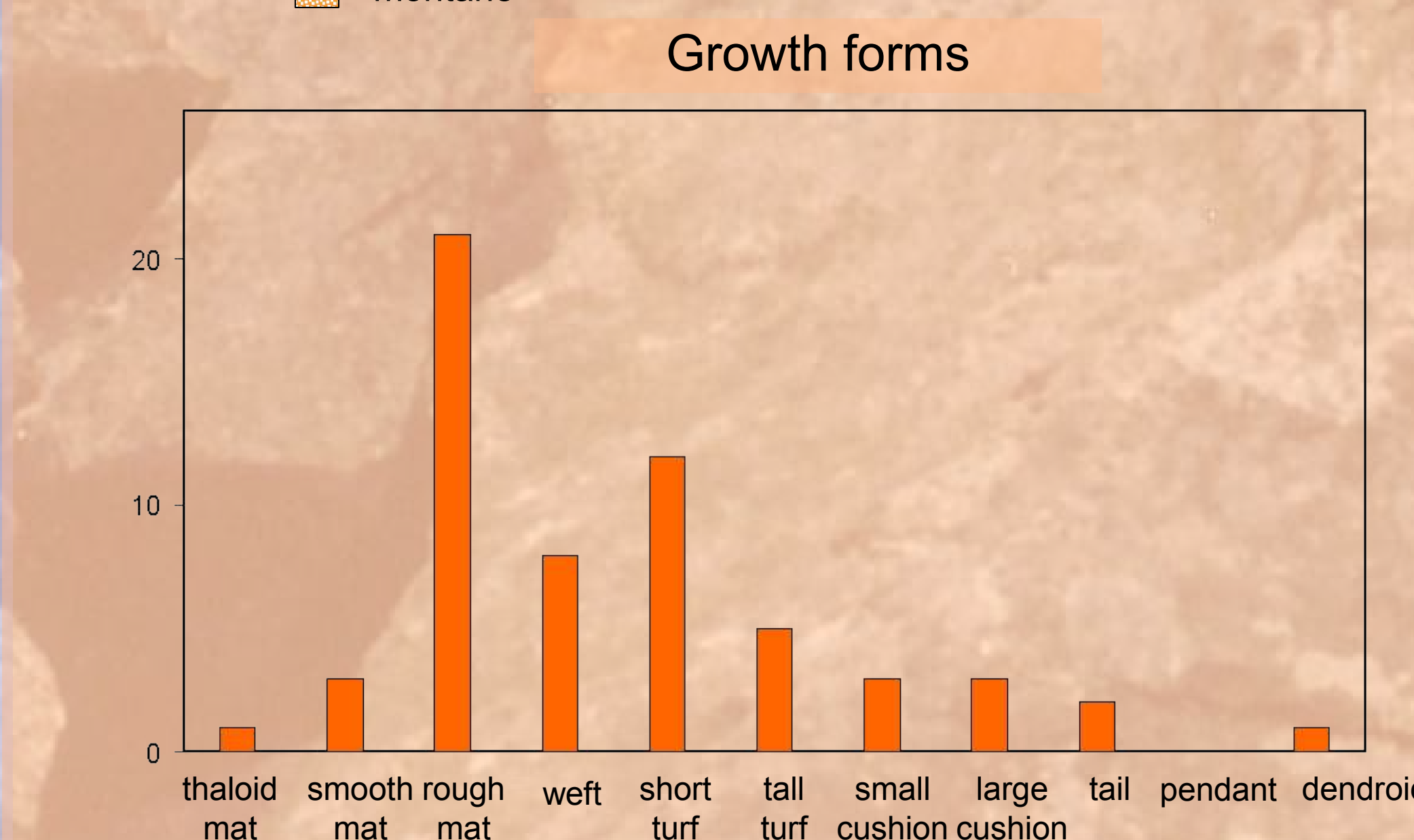
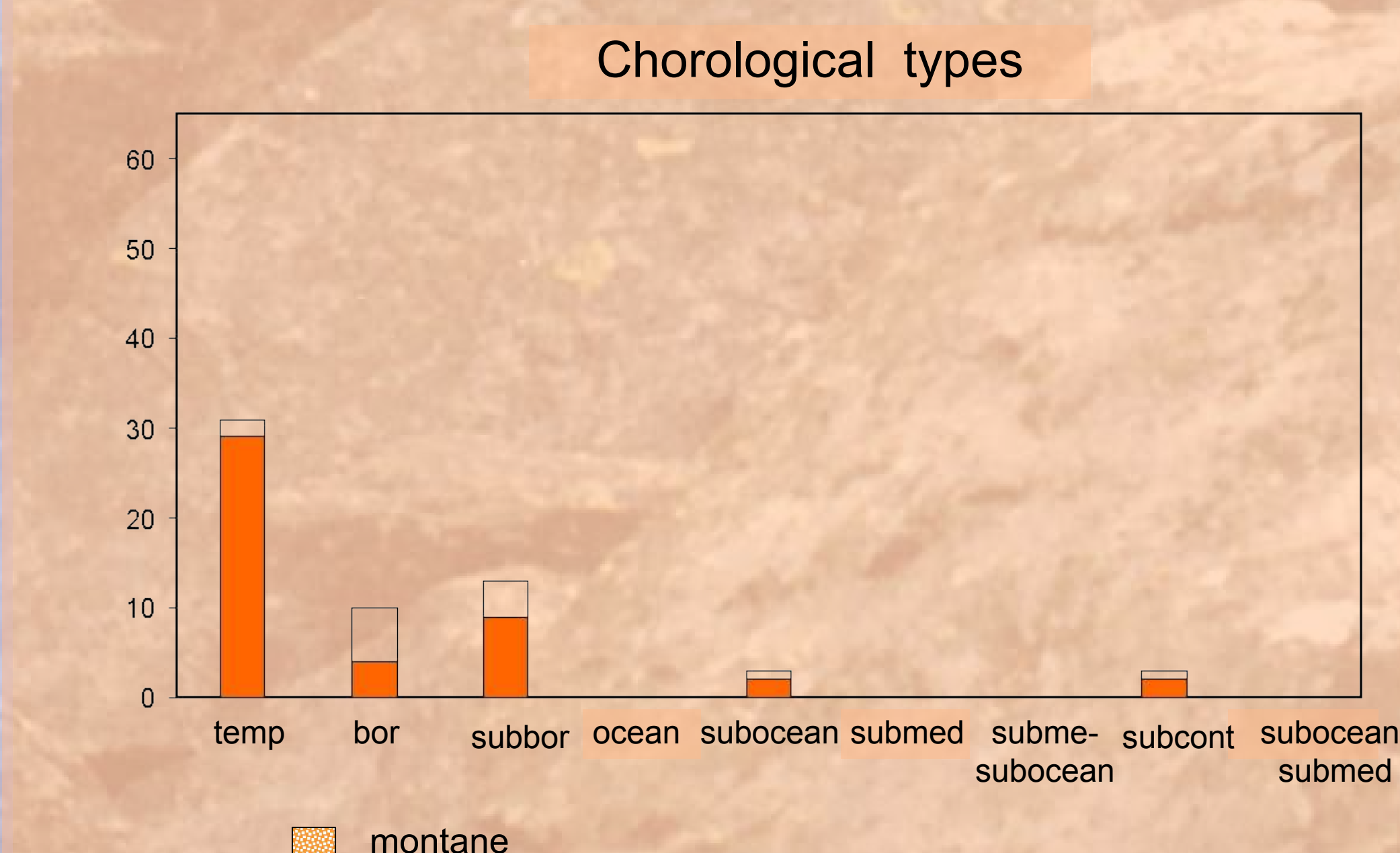
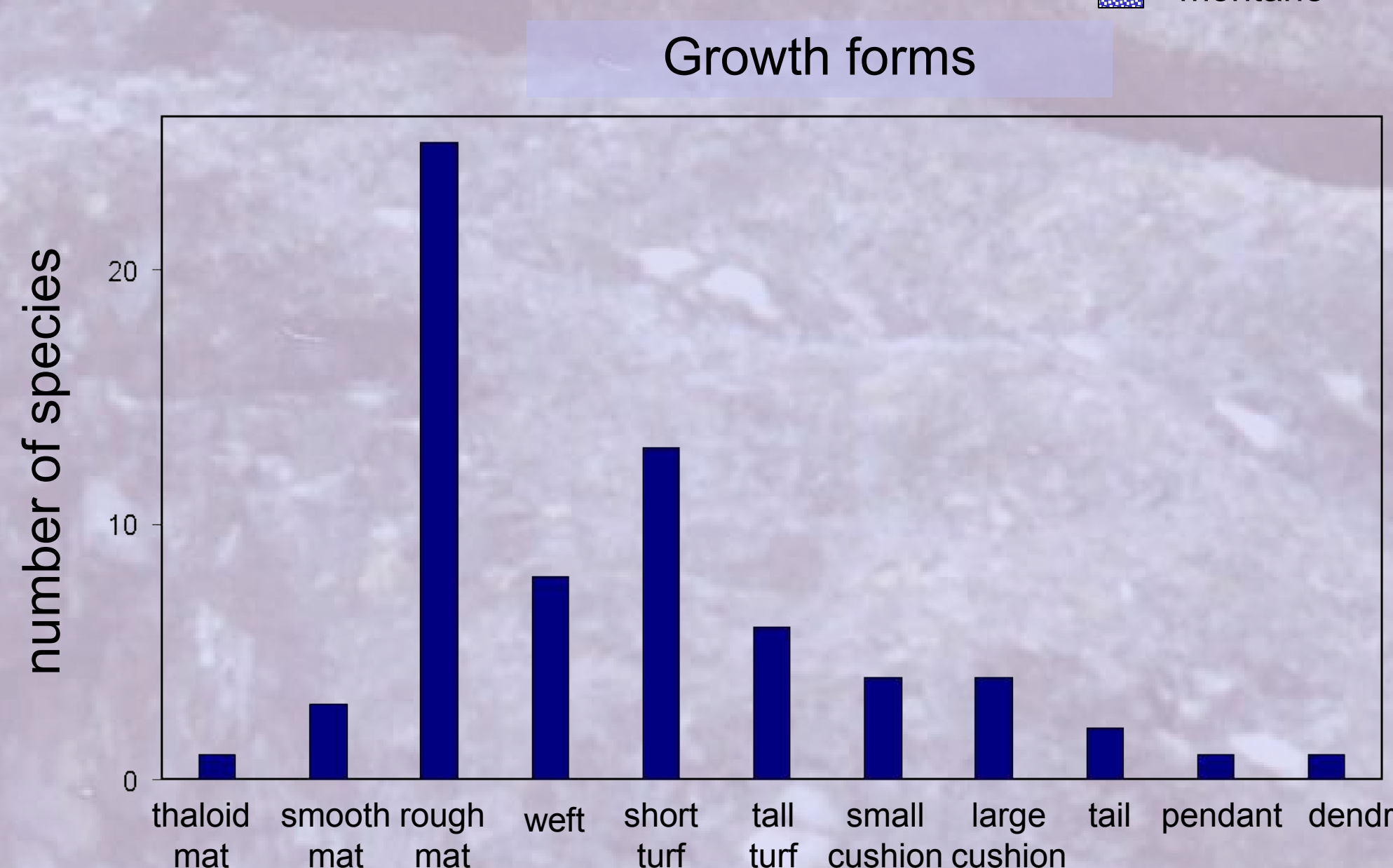
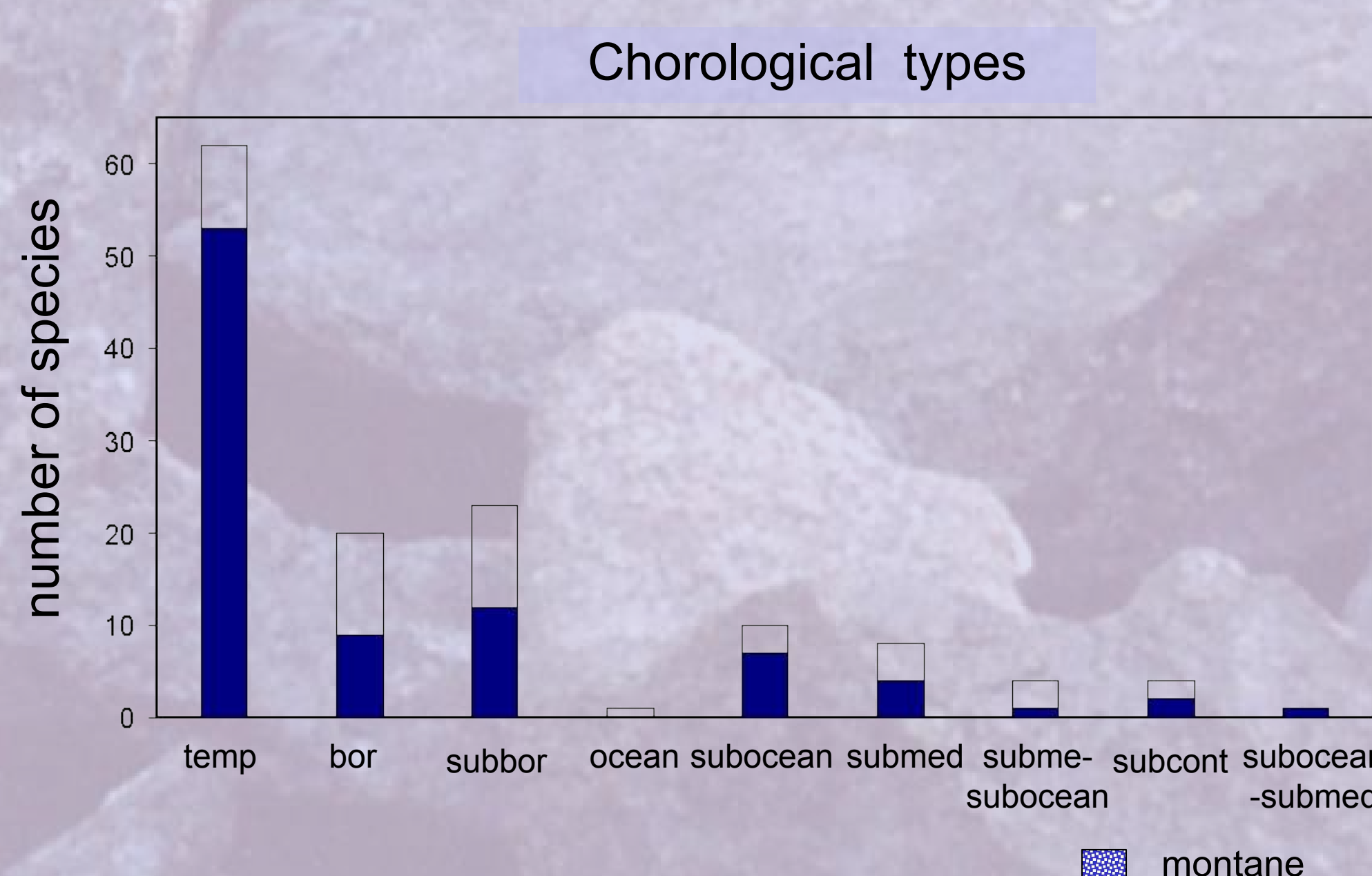
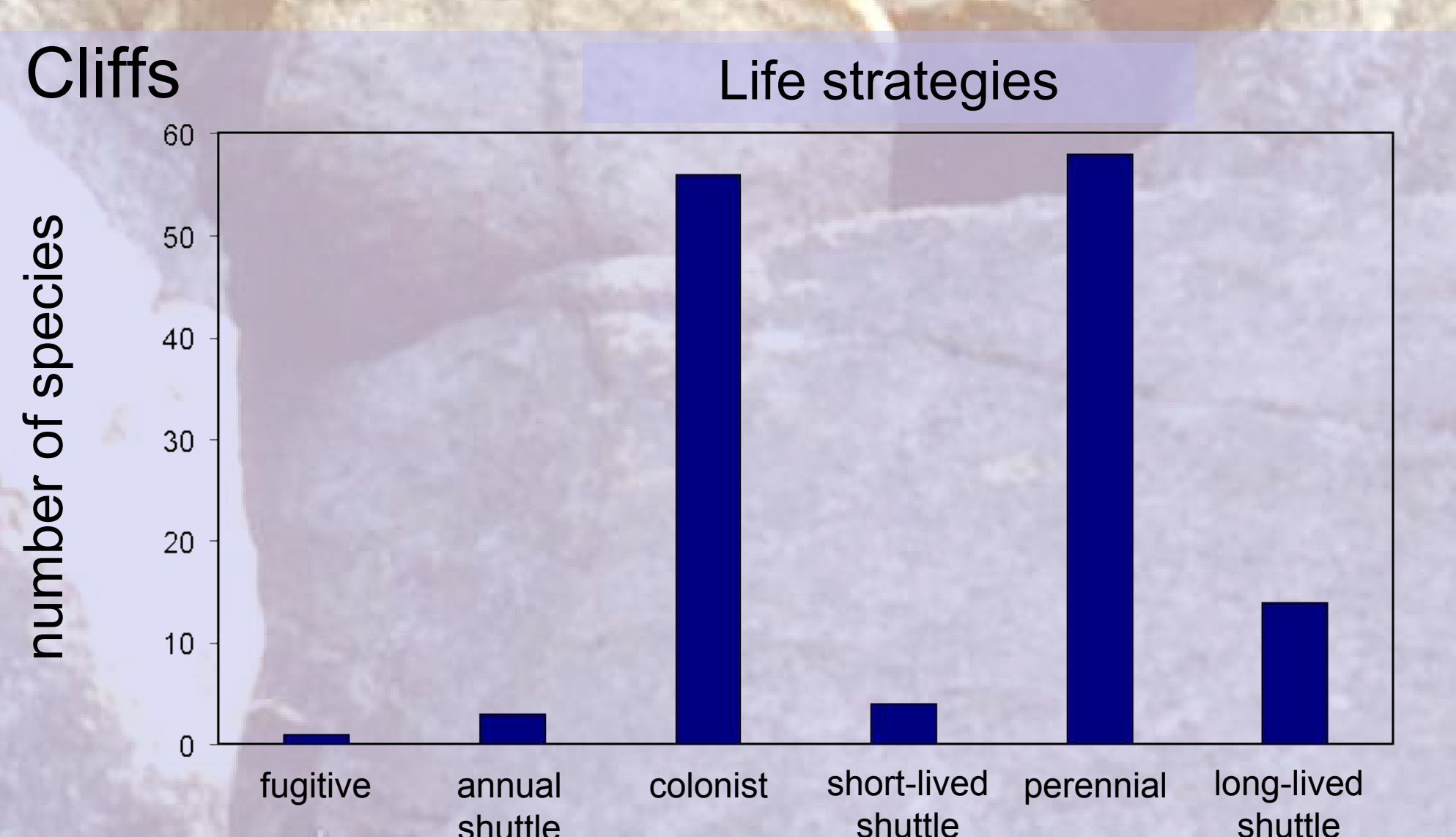
Pleurochaete squarrosa

This thermophilous moss was recorded on one cliff near the town of Moravský Krumlov. In area of south-western Moravia the species is known only in vicinity of this town.



SUMMARY

- the total number of species was 140 (23 liverworts and 117 mosses) for cliffs and 93 (20 liverworts, 73 mosses) for talus slopes
- 10 threatened bryophytes were recorded for cliffs and 4 for talus slopes
- the most frequent life strategies were perennials and colonists both on cliffs and talus slopes
- temperate, subboreal, and boreal chorological types were the most frequent for both cliffs and talus slopes
- the growth forms rough mat and short turf were the most frequent on both habitats



The most frequent species on talus slopes are *Dicranum scoparium*, *Grimmia ovalis*, *Hedwigia ciliata*, *Hypnum cupressiforme*, *Lophozia barbata*, *Pleurozium schreberi*, *Pohlia nutans*, and *Polytrichastrum formosum*.

Four threatened bryophytes were recorded on the talus slopes (KUČERA & VÁŇA 2003). The moss *Hylocomium brevirostre* is critically endangered (CR). It was collected on a boulder near talus margin (1994, 1996). The liverwort *Jamesoniella autumnalis* and the moss *Buxbaumia aphylla* belong to vulnerable (VU) and *Rhynchostegium confertum* to data deficient (DD) categories.

Buxbaumia aphylla

This species occurs on two talus slopes and on one cliff in the Oslava and the Dyje river valleys. Recently it was also recorded on forest ground and heathland in other four localities in this area.



Jamesoniella autumnalis

The liverwort was recorded only on a single talus slope. Its occurrence is remarkable due to its low-altitudinal location. It has its distributional centre at higher altitudes, and it is patchily distributed in the Czech Republic.