Pre-alpine and alpine grassland systems – a challenge for maintaining biodiversity in the UNESCO Biosphere Entlebuch, Switzerland

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Entlebuch’s grassland as an example for the Swiss mountains
The UNESCO Biosphere Entlebuch (UBE) is situated in the canton of Luzern. Its area is 395 square kilometres and includes the communities Doppelschwand, Entlebuch, Escholzmatt, Flühli-Sörenberg, Hasle-Heiligkreuz, Marbach, Romoos and Schüpfheim. Positioned on the northern border of the first alpine mountain row, annual precipitation is fairly high due to the orographic situation with 1600 mm – 2000 mm. The average annual temperature lies between 8 and 10°C and thus the general climate conditions can be classified as humid-sub-oceanic.

Intensively used grasslands in the low river valleys and the Napf region
The main valley of the Little Emme (including the Wiss Emme) runs from SW to NW, dividing the Napf Region (see below) from the first pre-alpine mountain row with the Beichlen (1769 m) and the Farneren (1572 m). The average elevation of the bottom of the valley is 750 m. The valley is dominated by intensively used permanent grassland. About 80-90% of this grassland are mainly meadows of the types Trifolio-Alopecuretum and Poa pratensis-Lolietum perennis. The yield of such meadows and pastures is about 80-100 dt/ha per year but the number of plant species per 25 m² is low and varies around 20. The Italian Ryegrass Lolium multiflorum has become more frequent.

Figure 1 Map of the UNESCO Biosphere Reserve Entlebuch (CH) and its zonation (red: core zone, yellow: care zone, grey: development zone)