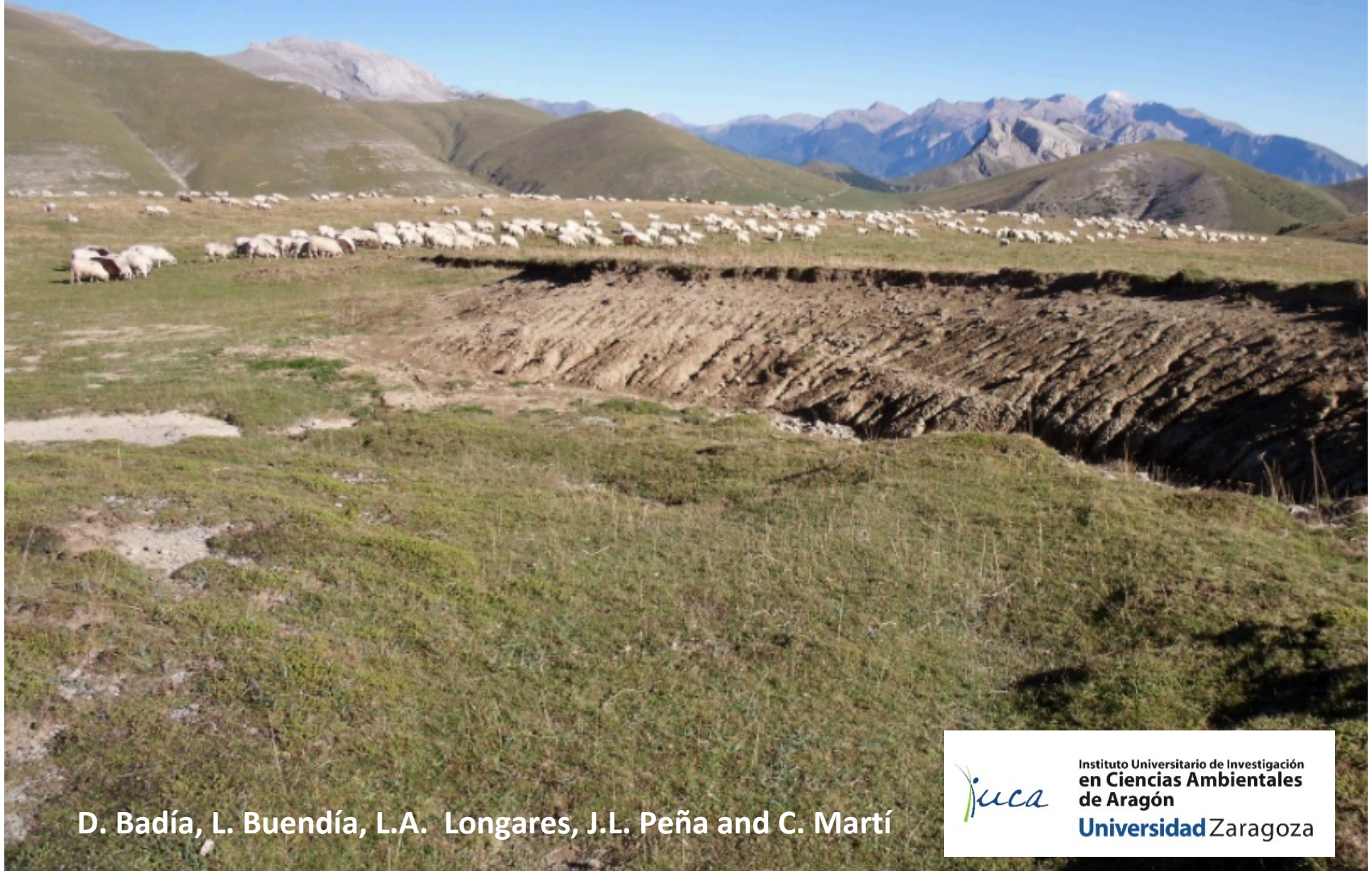


Soils and relief relationships in subalpine grasslands in the Central Pyrenees (NE, Spain)



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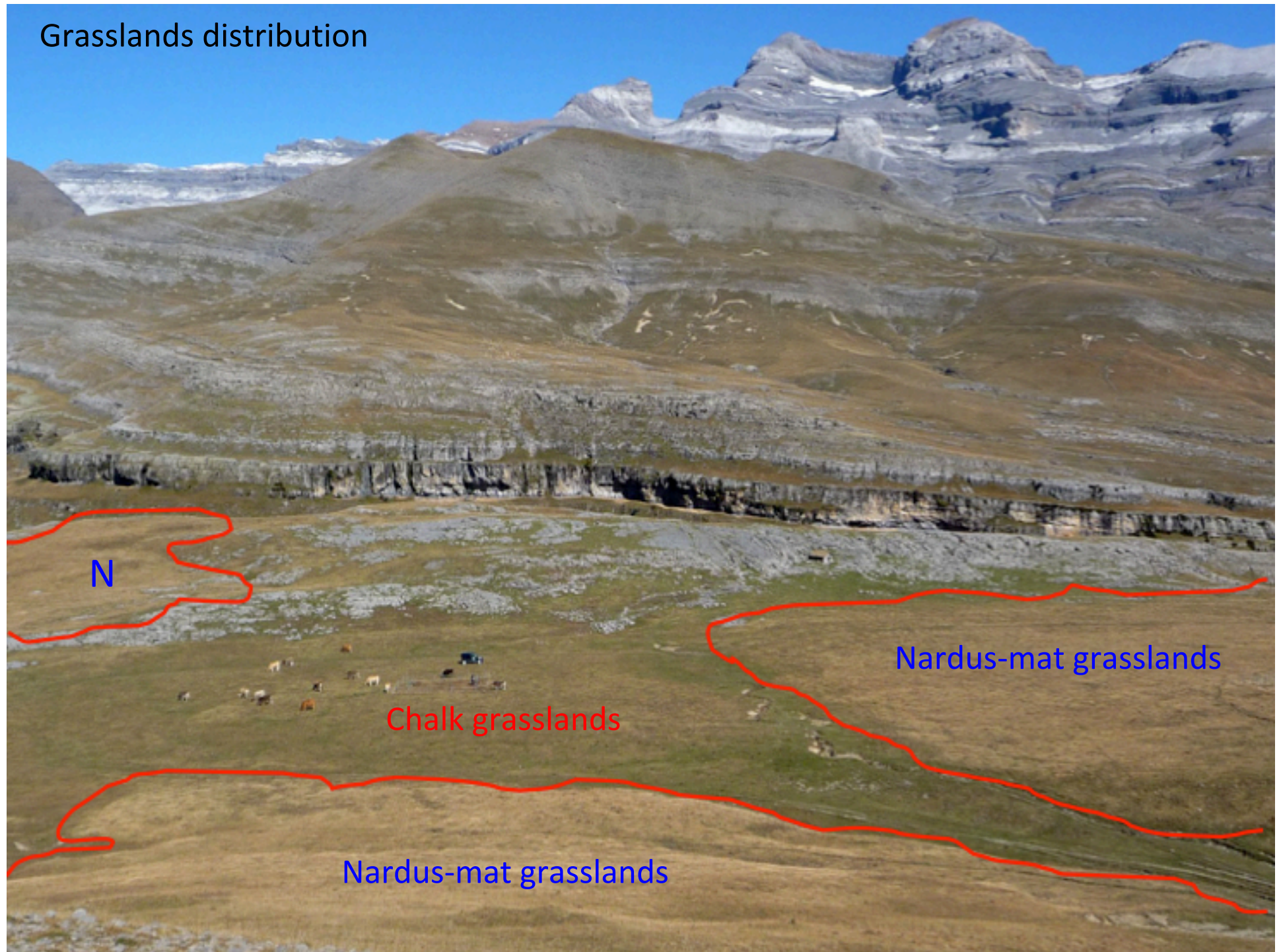
Introduction

The two most widely extended mountain grasslands in Europe (*Nardus*-mat grasslands and chalk grasslands) are distributed forming complex patterns. In the Central Pyrenees, they grow as secondary pastures within the treeline ecotone at the subalpine belt.

This work **aims** to show the influence of soil properties on the spatial distribution of these pastures, under a dynamic geomorphology.

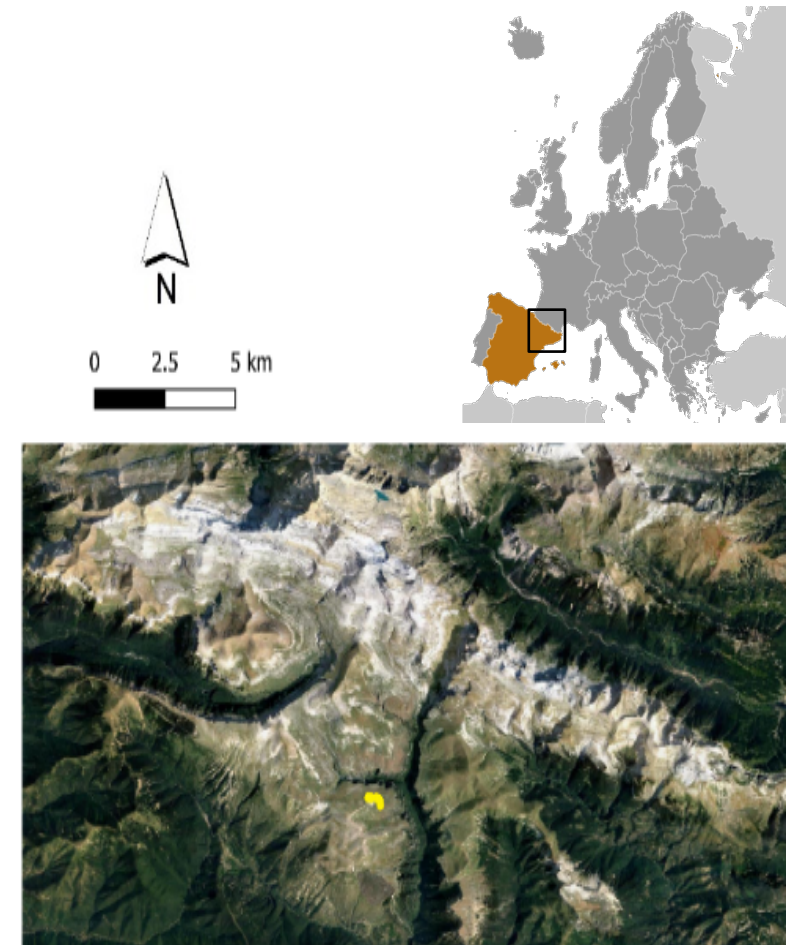
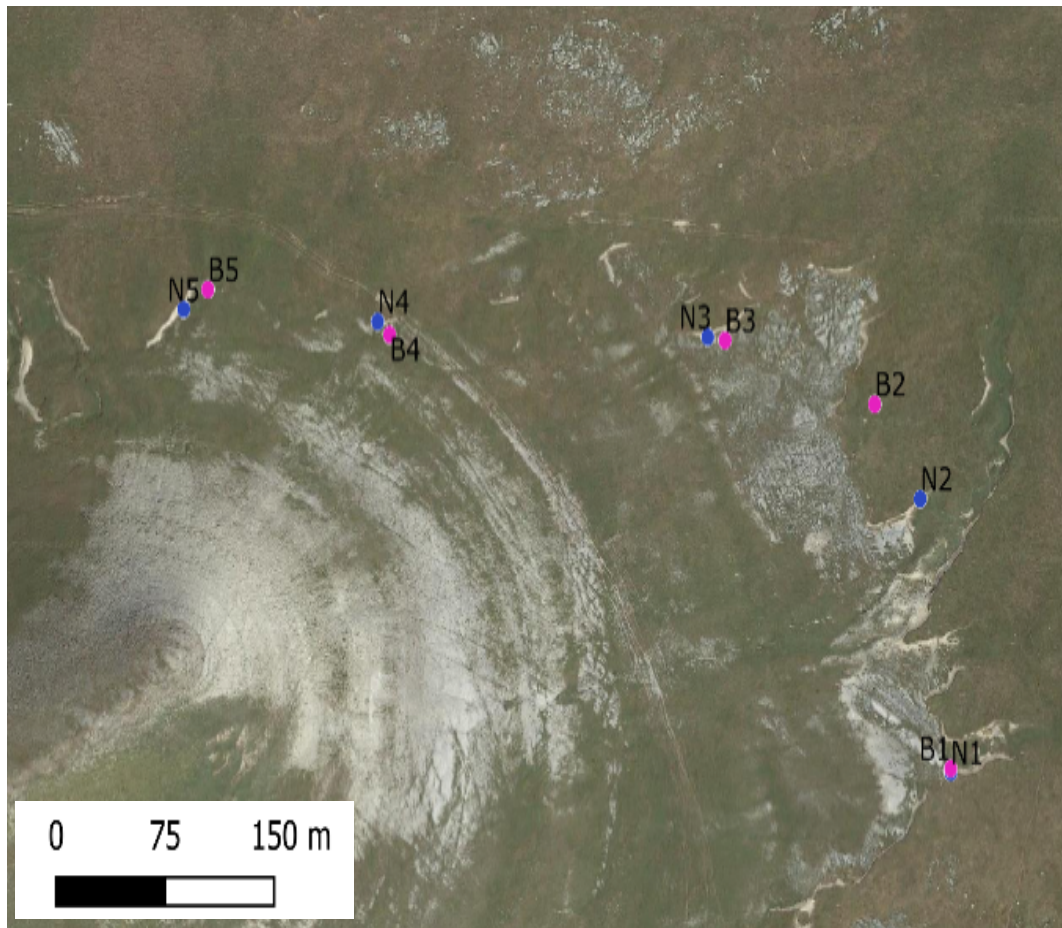


Grasslands distribution



Area of study

The zone of study is located in the Ordesa and Monte Perdido National Park, Central Pyrenees, north-eastern Spain, where soil profiles are sampled in each type of grassland: Nardus (N) and chalk (B) grasslands, in a paired way.



Results:

Both types of grasslands grow on different cumulative levels (L1 and L2):

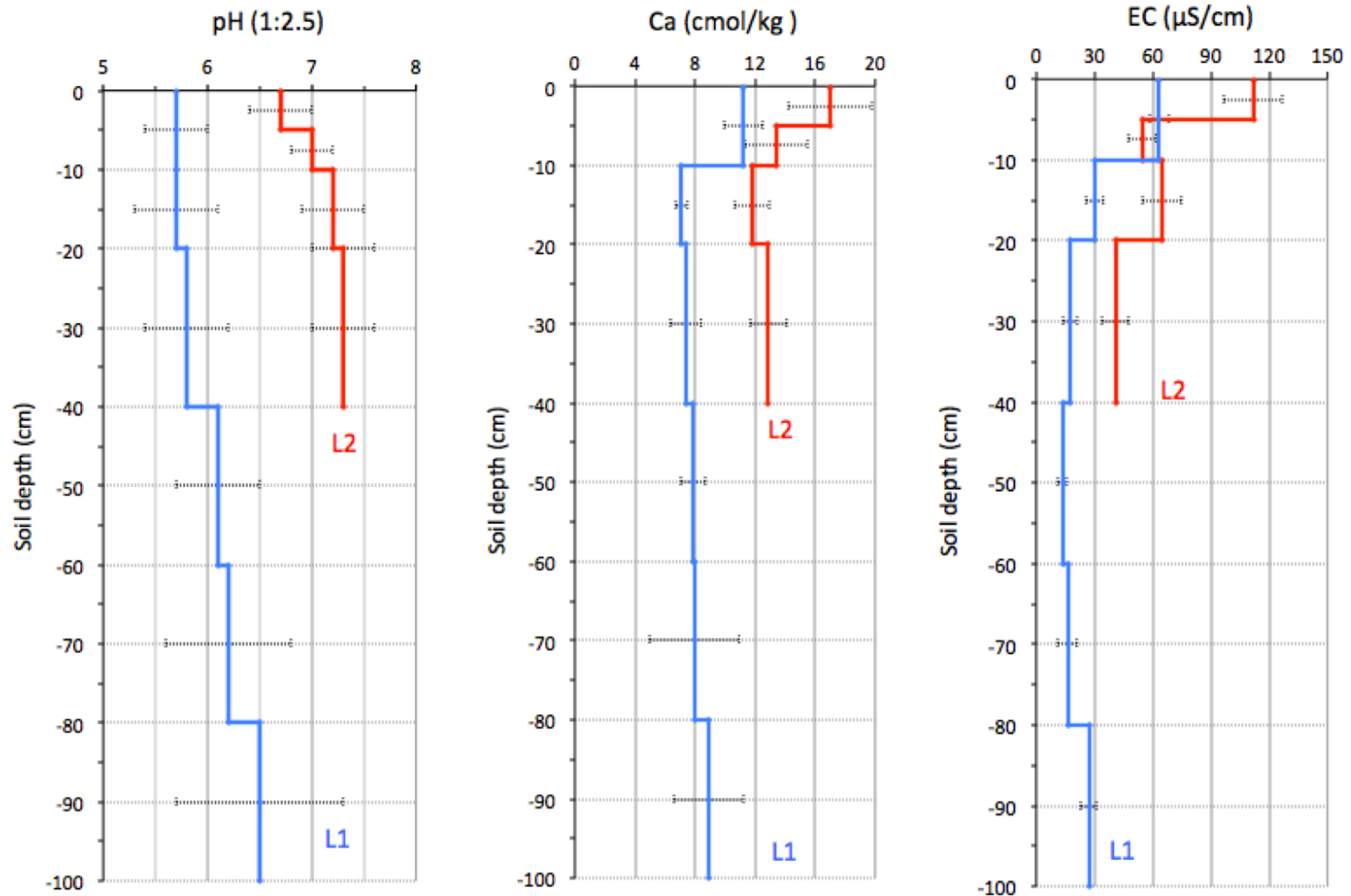


Chalk grassland in L2

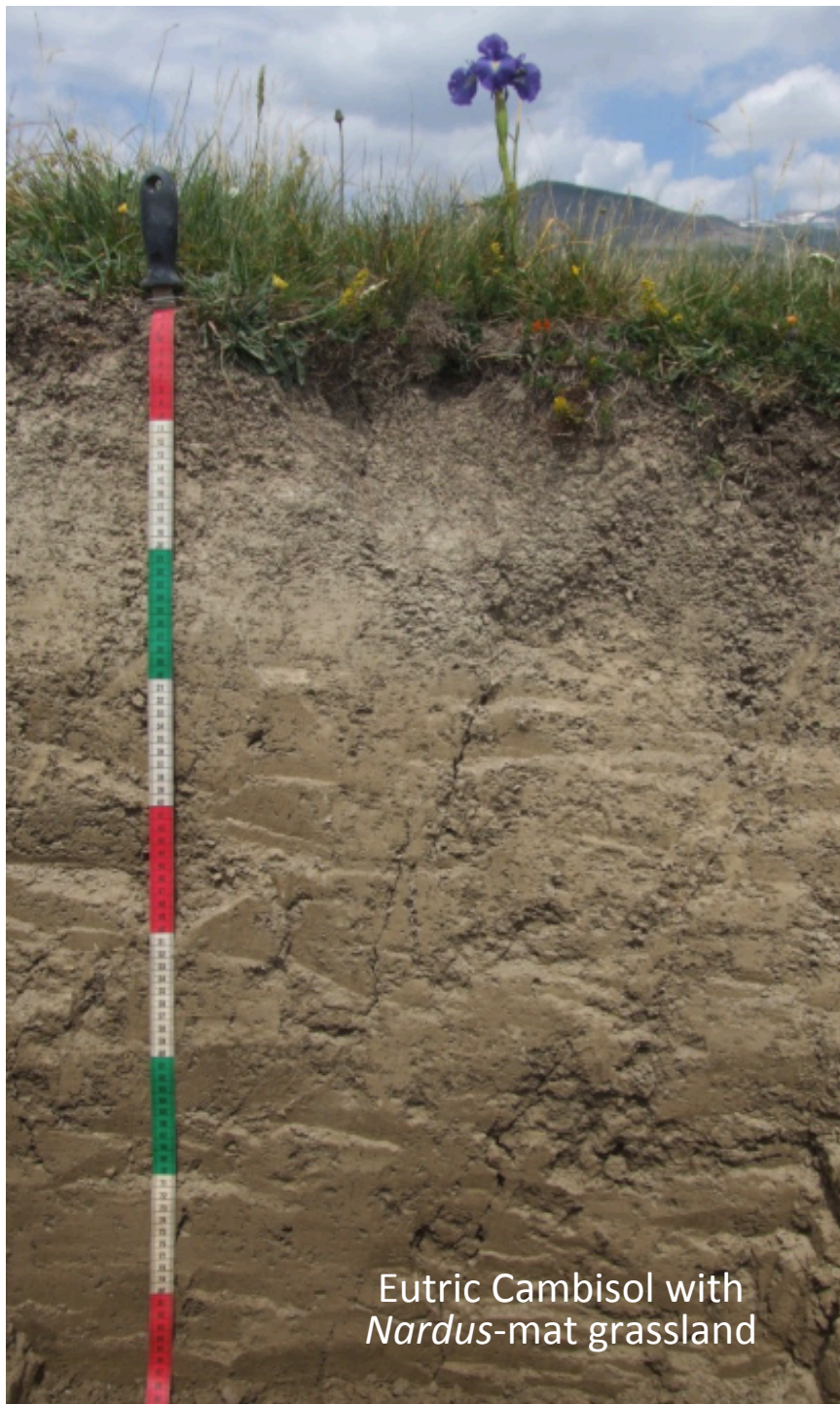
Nardus mat-grassland in L1



Results:



Variation in depth of pH (1:2.5), Ca^{2+} (cmol/kg) and soluble ions (EC 1:5 in $\mu\text{S}/\text{cm}$) in soil profiles of L1 (with *Nardus*-mat grasslands) and L2 (with chalk grasslands) cumulative levels



Eutric Cambisol with
Nardus-mat grassland



Results:

Hypereutric Leptosol
with chalk grasslands

Conclusions:

1. *Nardus*-mat grasslands grow in the upper cumulative level (L1), with a significantly higher acidity, lower soluble ions and Ca^{2+} content in the soils than those in the lower level (L2), with chalk grasslands, reflecting a more intense leaching process, consistent with a longer period of slope stability.
2. Soils in L1 and L2 shared many physical properties (as texture, structure..), except for the water-holding capacity, due to its different thickness.
3. The soil is classified as Orthoeutric Cambisol (Clayic, Humic) in L1 but its rejuvenation, by gully erosion, transforms it into an Hypereutric Leptosol (Loamic, Ochric) in L2.

