

Some insights into the local habitat use of the semi-aquatic Pyrenean desman in the French Pyrenees



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Background

- The Pyrenean desman (*Galemys pyrenaicus*) is a semi-aquatic mammal endemic to the Pyrenees and the Iberian Peninsula
- Given the limited knowledge on its biology, ecology and its recent range contraction, this species is of high conservation concern
- Its northern current distribution, located in France, is partially known and studies about its local habitat preferences are very scarce
- These lacks hinder the implementation of efficient conservation measures for this threatened species

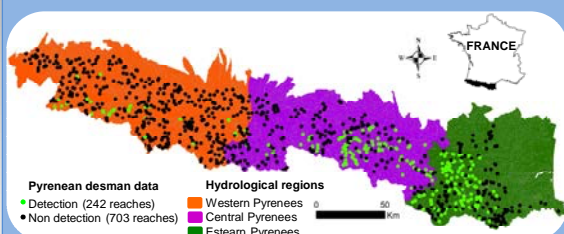


Objectives

- To assess the local stream habitat preferences of the Pyrenean desman in its French range
- To investigate the influence of geographic barriers by comparing habitat preferences between the three large hydrological regions of the French Pyrenees

Material & methods

Pyrenean desman distribution:



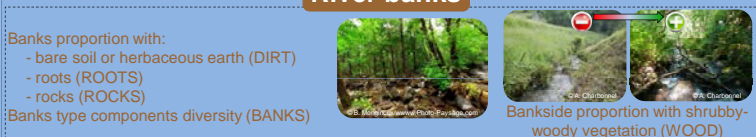
- Faeces detection along 500-m river reaches
- Presence of Pyrenean desman genetically validated

Environmental variables:

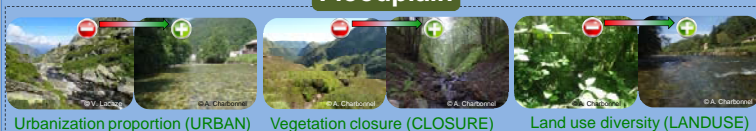
River beds



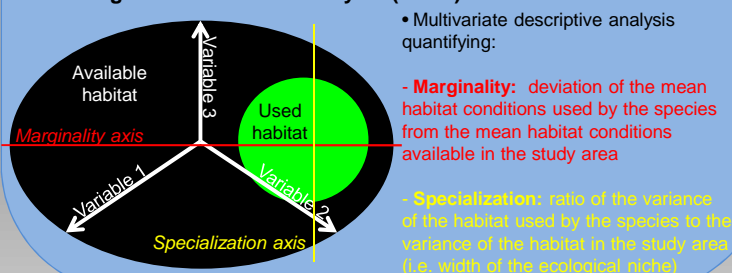
River banks



Floodplain

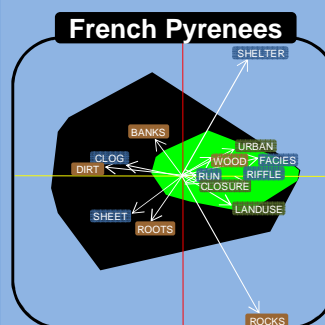


Ecological Niche Factor Analysis (ENFA)

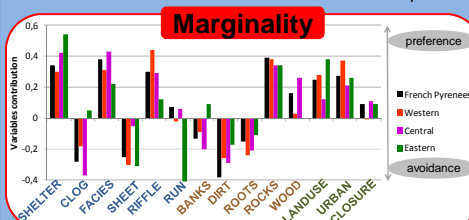


Results

	French Pyrenees	Western	Central	Eastern
Marginality	1.9	3.0	1.7	0.5
Specialization	3.9	ns	7.4	4.7



- Significant habitat selection (marginal and specialist species) but diminution of its intensity along a west-east gradient
- The presence of the Pyrenean desman is influenced similarly by the most contributing variables in the French Pyrenees and the three hydrological regions
- The order of variable importance differs between hydrological regions
- The species presence is associated with:



- river beds with high diversity of shelters, substrate and flow types, fast flow types and low proportion of fine sediment
- river banks with high proportion of rocks but low proportion of bare soils



- Anthropogenic activities in the floodplain (i.e. urbanization, land use) have negligible impacts
- The Pyrenean desman prefers a narrow range of substrate and shelters heterogeneity as well as rocks proportion in the river banks (specialist)

Conclusions

- The selection of local habitat confirms the importance of aquatic environments (both rivers beds and banks) for the Pyrenean desman
- Floodplains alterations seem to have a minor influence as long as riverbed and riverbank habitat conditions are suitable
- The spatially contrasted habitat use across the French Pyrenees should be further explored to identify the main drivers (e.g. abundance, biotic factors, genetic differentiation)