universität innsbruck

Conserving intraspecific diversification in a warmer world
A case study on endemic high-mountain plants of the Pyrenees

The University of Innsbruck was founded in 1669 and is one of Austria's oldest universities. Today, with over 28.000 students and 4.500 staff, it is western Austria's largest institution of higher education and research. **For further information visit: www.uibk.ac.at.**

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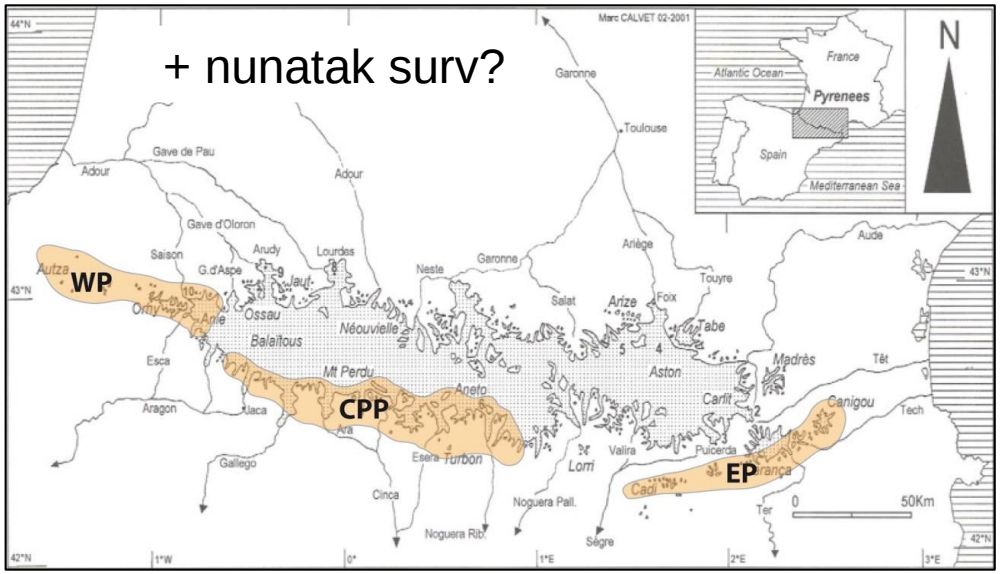
Major factor determining current biodiversity in mountains:

- **Refugia, bottlenecks, local extinction**
- Migration
- Landscape
- ...

**A lot known for other areas: Alps, Scandinavia, Carpathians, Balkans...*



Calvet (2004)

Aims

1) Identify **glacial refugia** and major **phylogeographic patterns** for alpine plants endemic to the Pyrenees,
2) Identify areas of **high PE** for alpine plants endemic to the Pyrenees and compare them with the geographic distribution of alpine species' richness, and
3) Model the **future distribution of alpine species** and identify areas with high stability of climatic suitability under different climate change scenarios

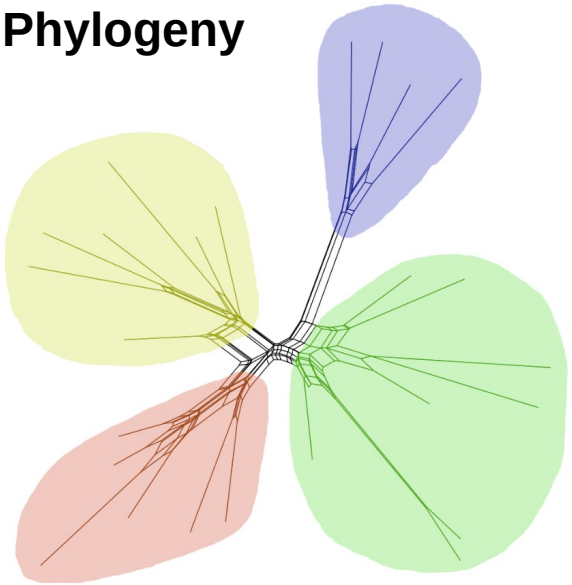
Techniques

Single-digest **RAD-seq**

Exploratory analyses: Phylogenetic trees, genetic clsutering

Viola diversifolia

1 Phylogeny



Viola diversifolia

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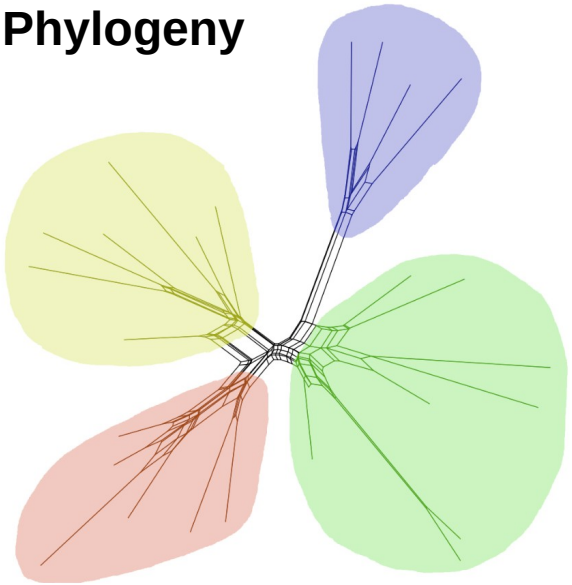
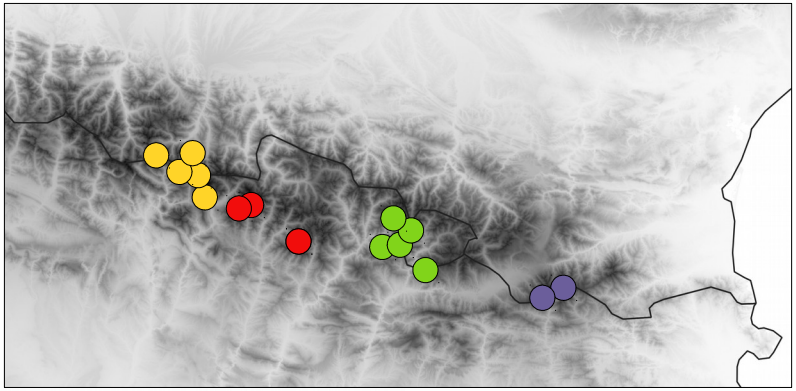


2 Genetic groups



Viola diversifolia

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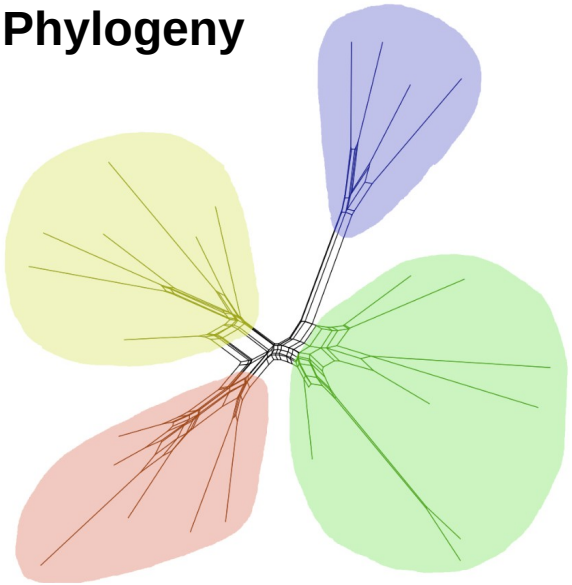
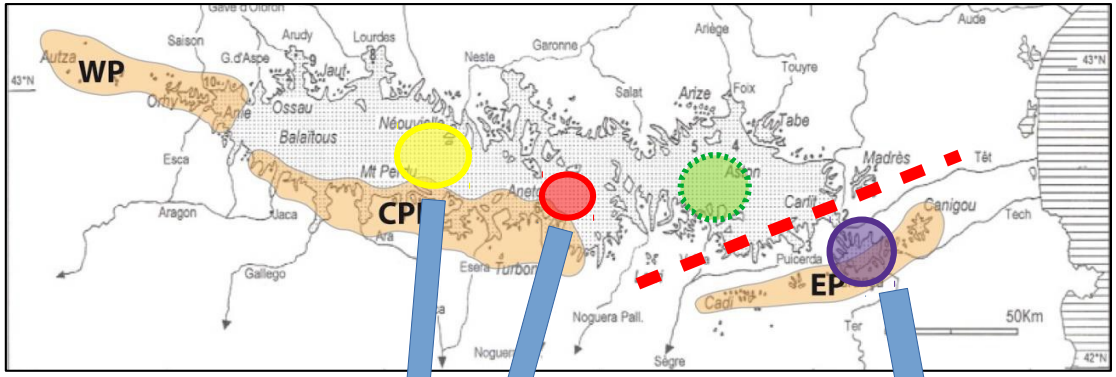


3 Refugial hypotheses



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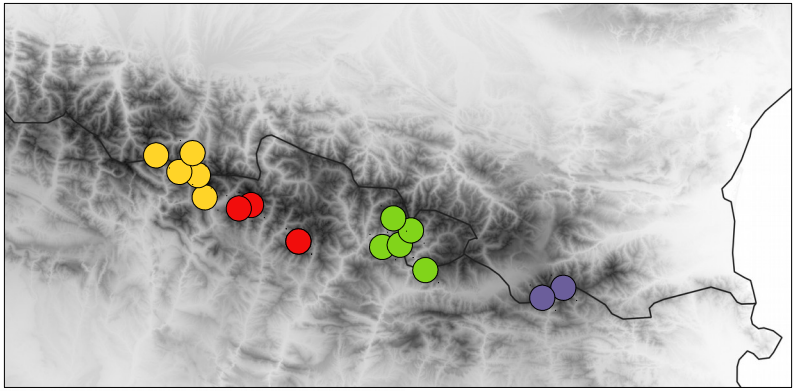
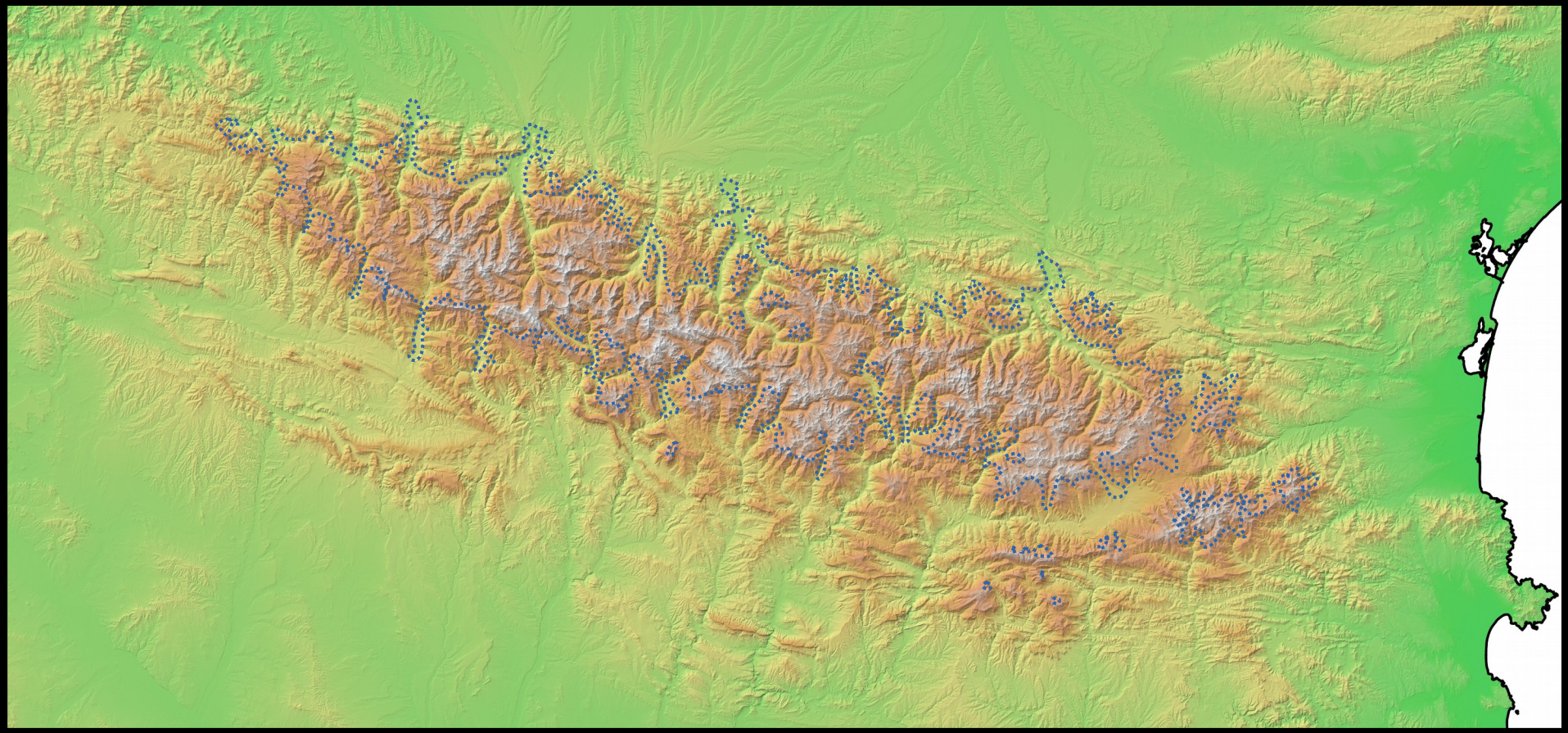


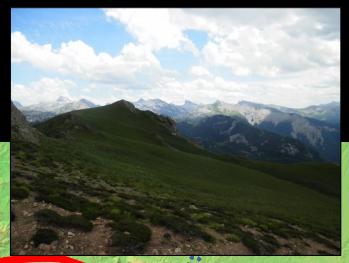
Nunatak survival

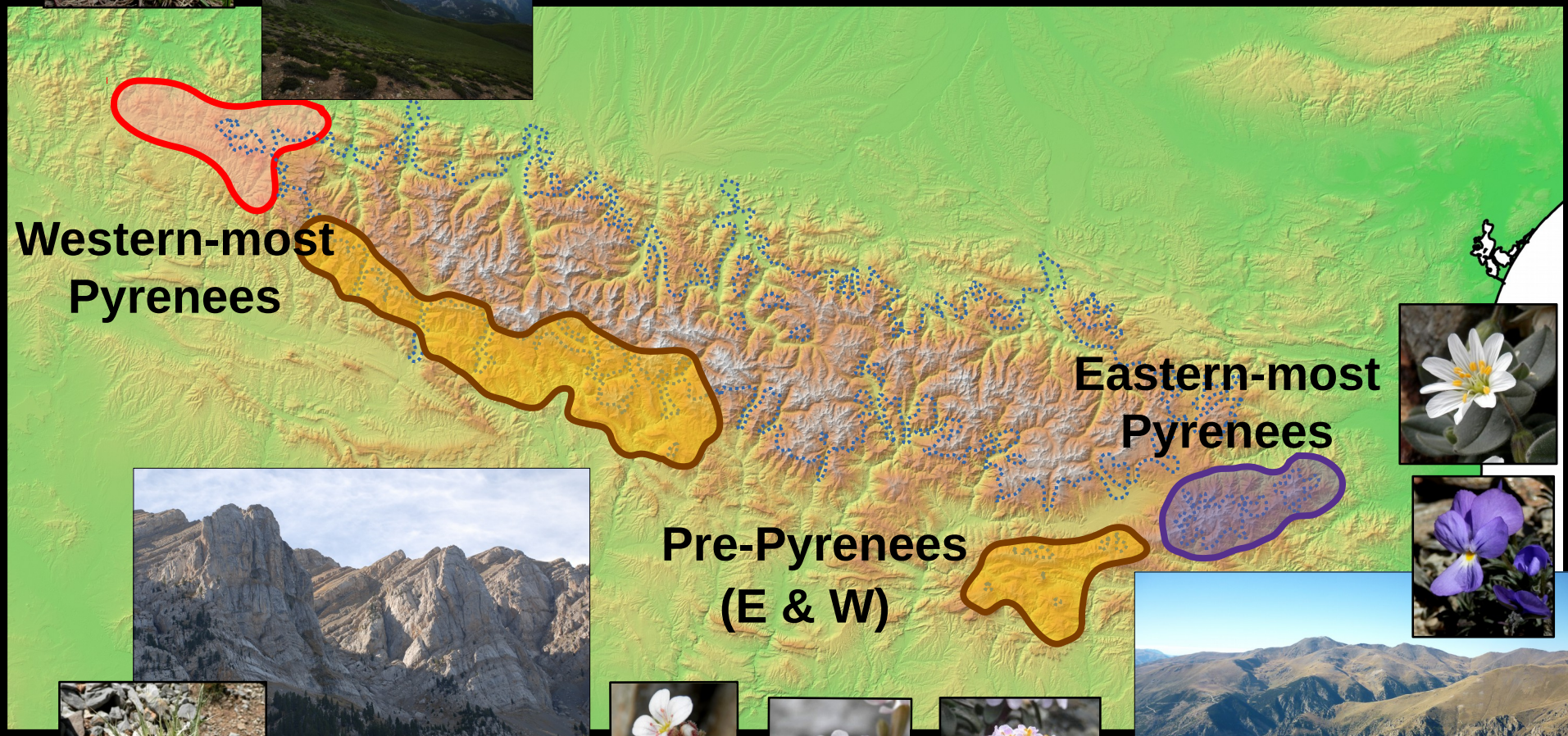
East Refugia

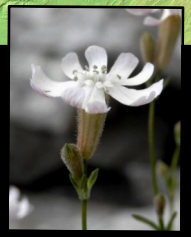
Comparative phylogeography



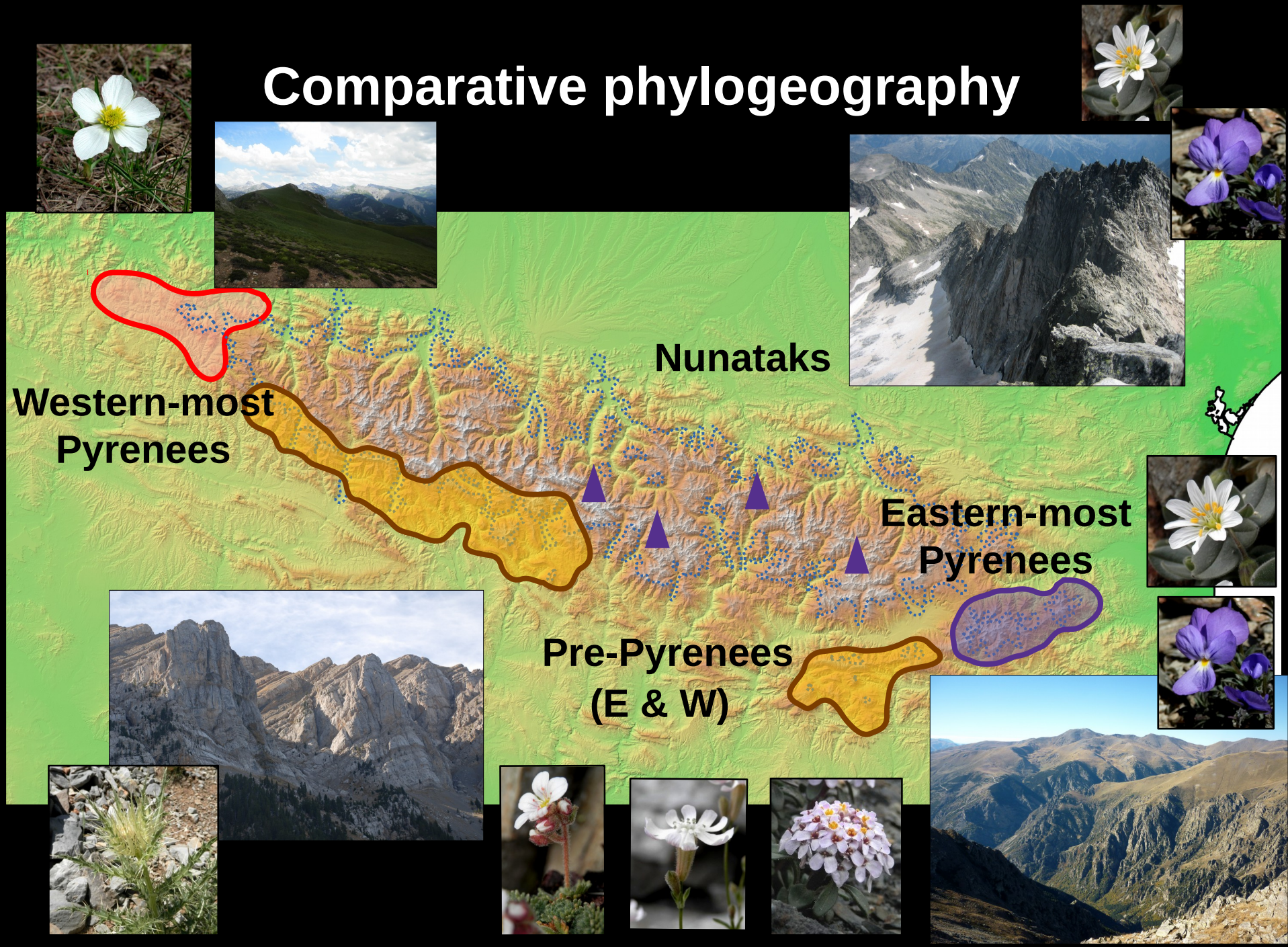
Comparative phylogeography







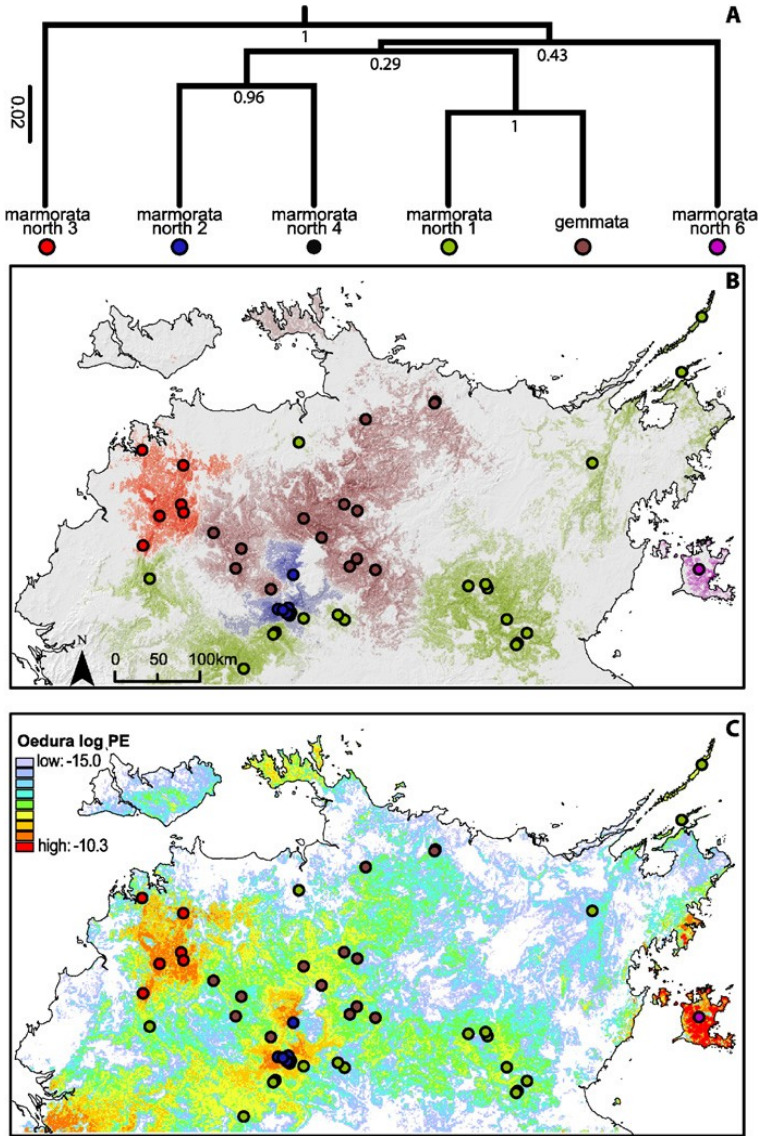
Comparative phylogeography



Further steps...

Phylogenetic endemism

- Species distribution models + Genomic data: centers of **intraspecific diversity endemism**
- Projection to **future conditions**
- Intraspecific diversity **conservation strategy**



Rosauer et al. 2016

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