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**The DeerPal project: humans and deer during the Palaeolithic, integrating the variability of prey ecology and ethology in the investigation of past human – environment interactions**

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## Context and general objectives

- Climate change is a large threat for arctic ecosystems, and more particularly for reindeer/caribou populations
- Natural dynamic response of cervid ecosystems to climate change can be hard to discern (e.g. most habitats have already been affected by human activities)
- Extant ecological niches currently observable for endangered wild species do not correspond to the full extent of their adaptive capacities
- In the past, environmental changes & marked shifts in Palaeolithic societies (e.g. toolkits, subsistence, territorial organisation) have been observed
- Late Pleistocene records = opportunity to investigate the response of wild animals and human populations to environmental change in the long-term

**DeerPal** > acquire new knowledge on the (palaeo)ecology of animal communities facing climate changes  
> increase our understanding of how human societies coped with these changes in the past

## Two target species



Reindeer (*Rangifer tarandus*)



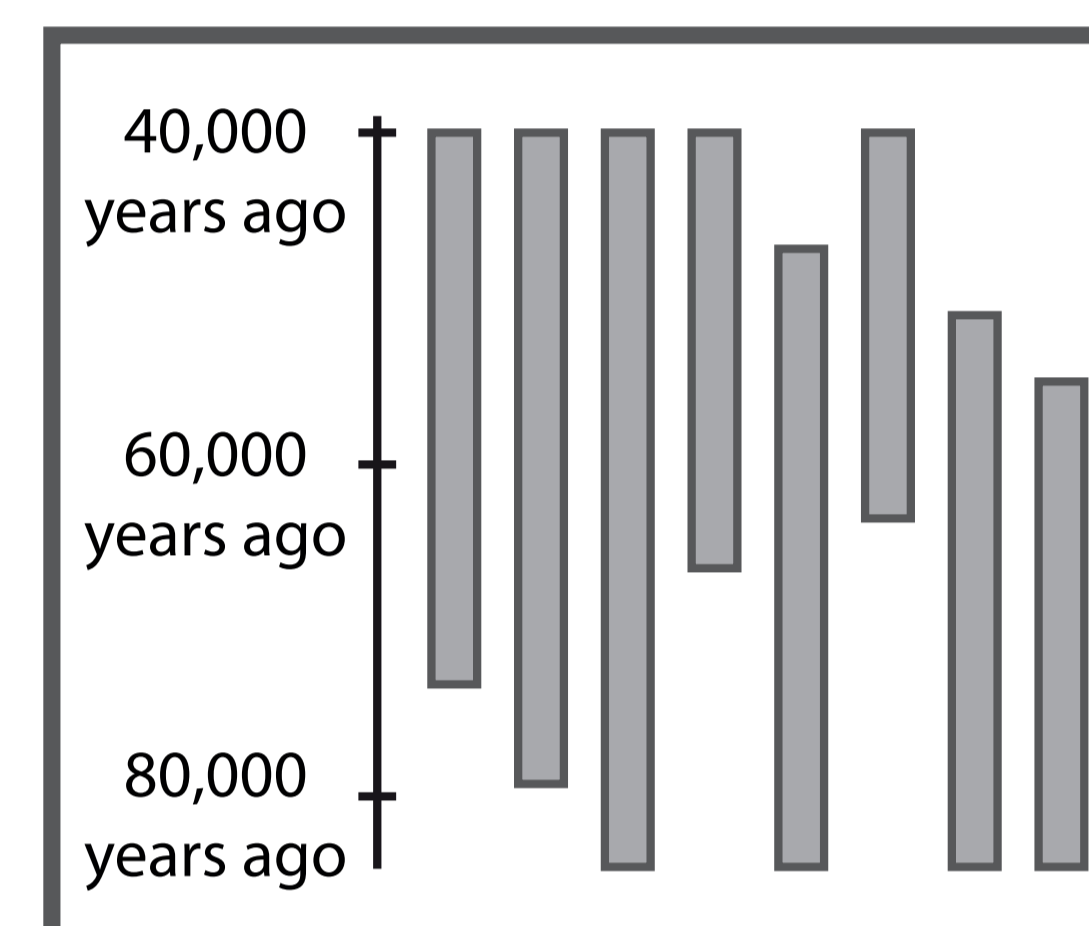
Red deer (*Cervus elaphus*)

> Past variability in cervid niches and behaviours?

- Key resources for past hunter-gatherers
- Behaviourally and ecologically plastic
- Often complementary (one thrives when the other crashes)

## Two time periods

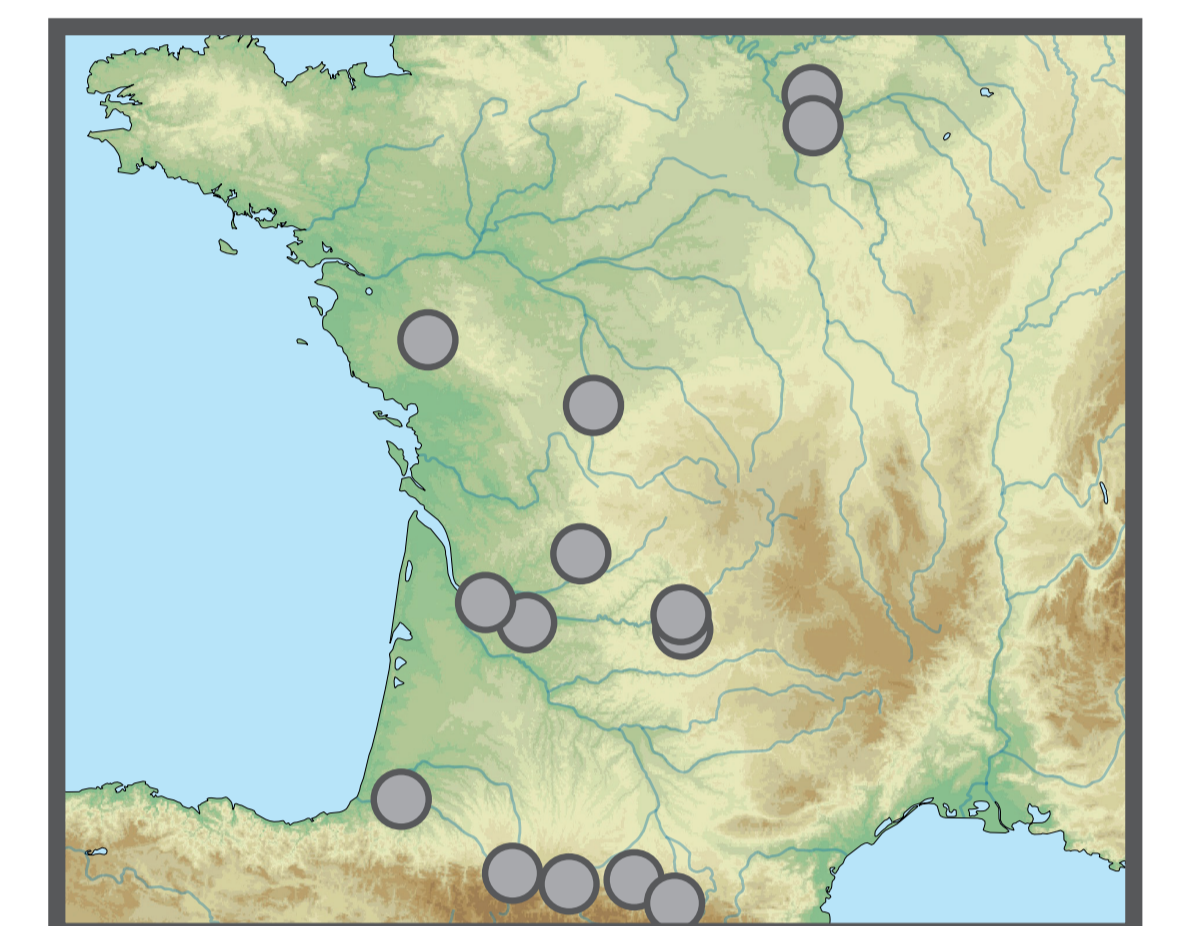
**Middle Palaeolithic**  
MIS 5-3, 100 to 40 ka cal. BP  
SW France



> Long stratigraphies  
A deep-time perspective

- Multiple climatic changes
- Key innovations (e.g. Quina)

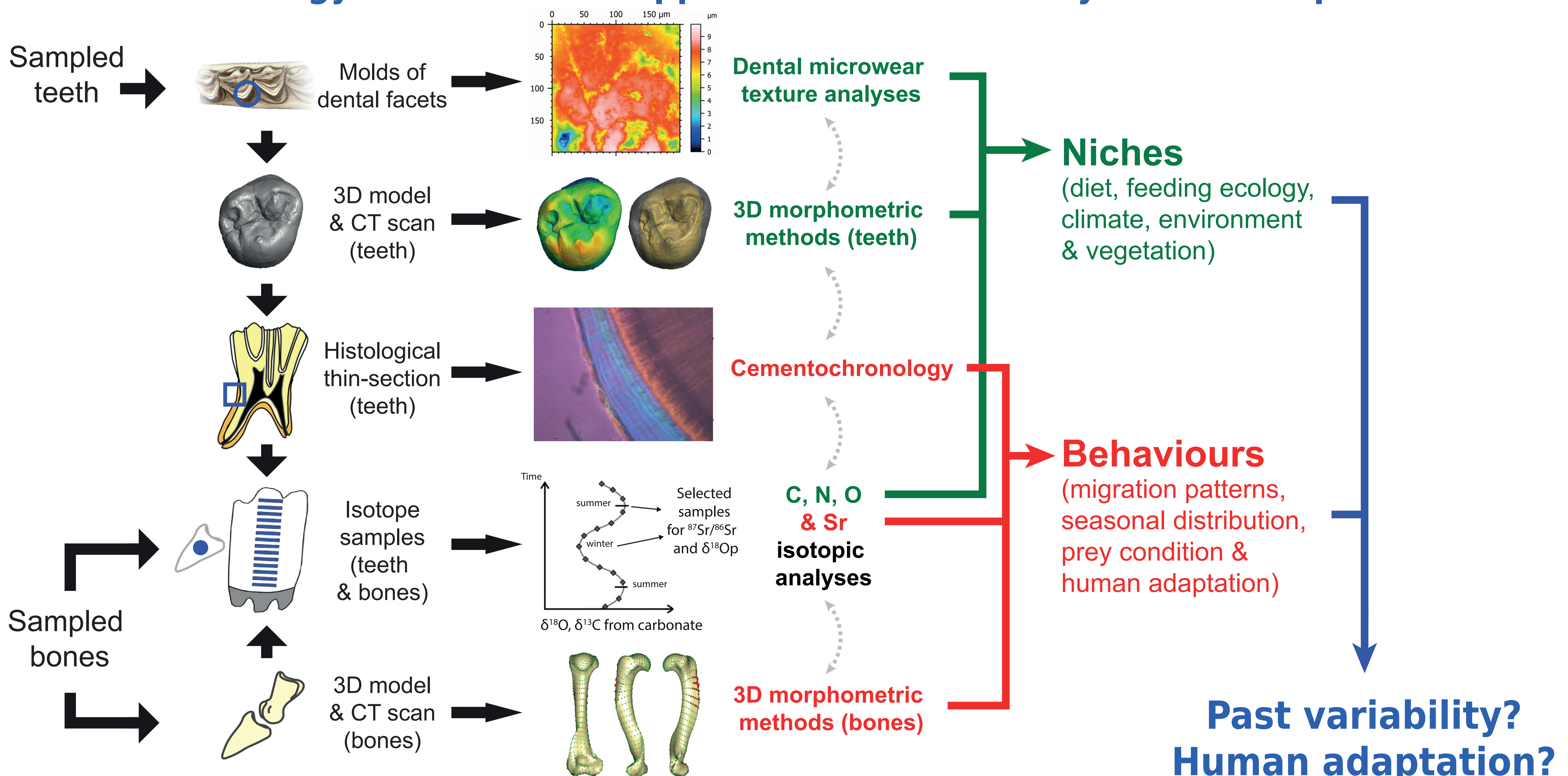
**Late Glacial**  
MIS 2, 16 to 12 ka cal. BP  
Paris Basin to Pyrenees



> Large geographical scale  
The last reindeer hunters

- Climate warming & reindeer extirpation
- altitudinal migration in the Pyrenees?

## Methodology: simultaneous applications of four analytical techniques



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