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MORPHOLOGICAL DISTINCTION BETWEEN SHEEP (OVIS ARIES) AND GOAT (CAPRA HIRCUS) USING THE PETROSAL BONE: APPLICATION ON FRENCH PROTOHISTORIC SITES

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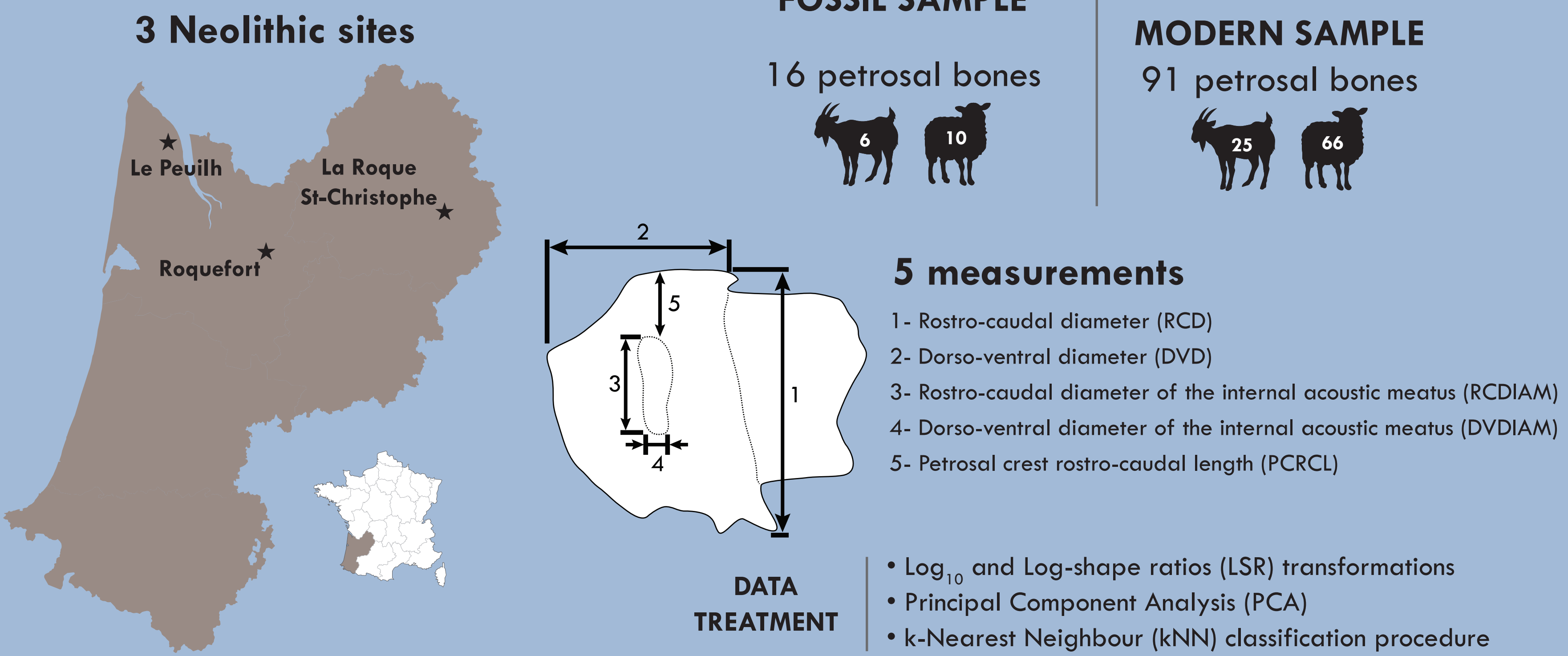
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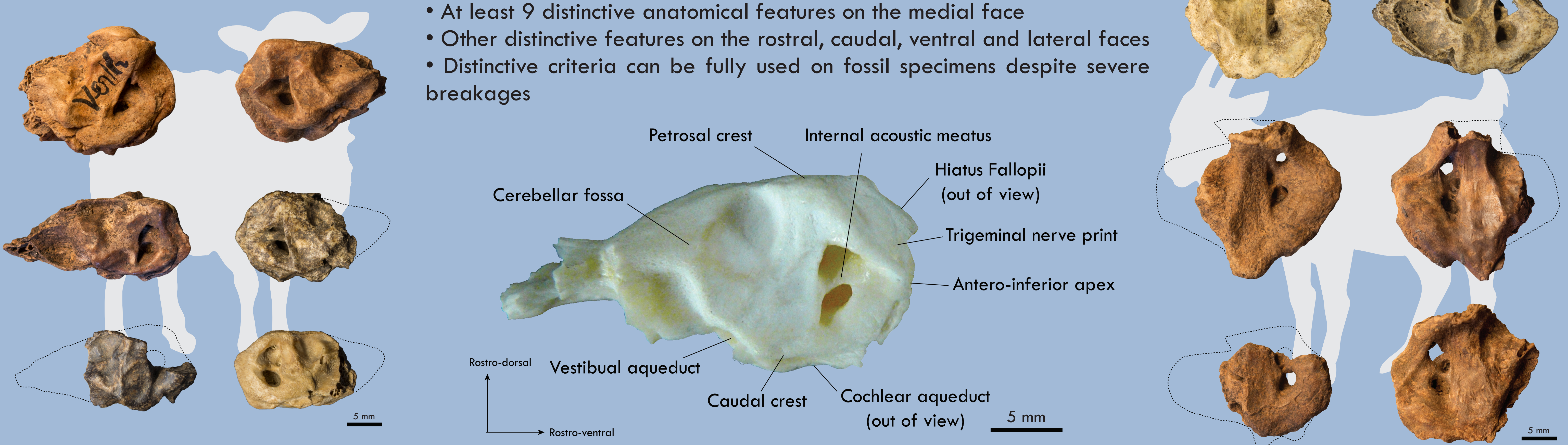
CONTEXT

- PETROSAL BONE?**
- one of the smallest and hardest bones of the skeleton
 - protection of the audition and equilibrium organs
 - unique anatomical features evolving deeply through lineages
 - has been extensively studied in evolution and palaeontology
- BUT...**
- study of the petrosal bone far less developed in archaeological sciences and archaeozoological studies
 - sheep and goat petrosal bone virtually unknown whereas these two species are common in the archaeological record from Neolithic
- SO...**
- Evaluation of the potential of the petrosal part to discriminate those caprines**

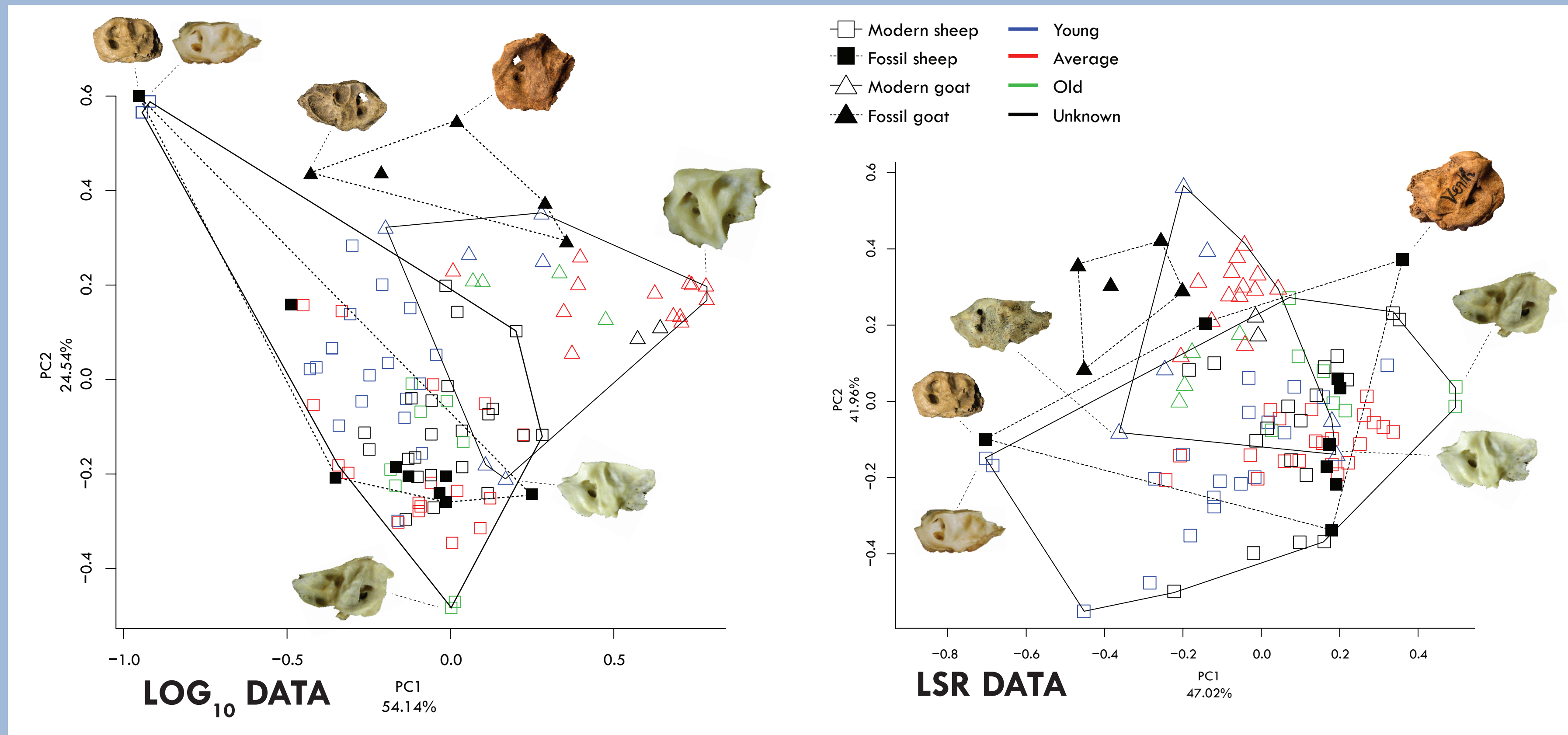
MATERIAL AND METHODS



RESULTS



- At least 9 distinctive anatomical features on the medial face
- Other distinctive features on the rostral, caudal, ventral and lateral faces
- Distinctive criteria can be fully used on fossil specimens despite severe breakages

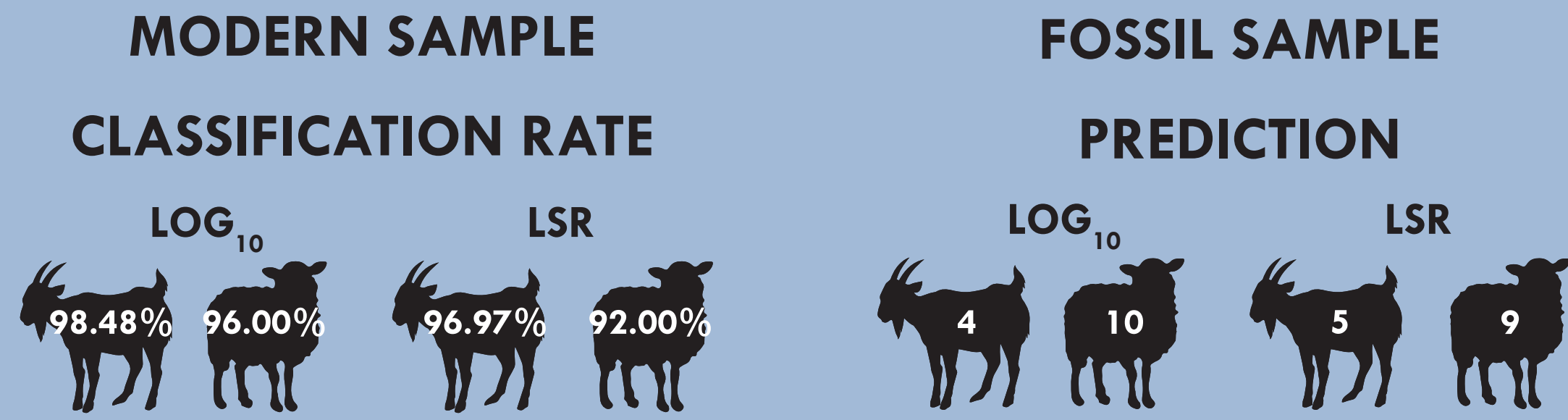


PCA

- Good distinction between sheep and goat for both log₁₀ and LSR transformed data
- Fossil samples close to the modern specimens
- No overlapping between fossil clusters
- Presence of some young goats within the sheep variability
- No clear age distinction except for some young specimens

kNN

- Excellent prediction rate for both modern and fossil samples



CONCLUSION

- Clear distinction between sheep and goat petrosals
- Efficiency of these measurements for sheep and goat distinction
- Several distinctive morphological features
- Developmental differences between some age categories
- Applicable on fossils despite breakages
- Results coherent with previous faunal studies on those sites

PERSPECTIVES

- Explore the age and breed determination
- Investigate the domestication process and compare with wild ancestors
- Extend this approach to other close taxa (e.g. pig and wild boar)

Acknowledgements

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