

INTRODUCTION

- The **island fox** (*Urocyon littoralis*) is an endemic canid one-third smaller than its mainland relative, the **gray fox** (*Urocyon cinereoargenteus*).
- Small-bodied island species have been associated with slower growth patterns than in related continental species (Hayashi et al., 2022).
- In long bones, different tissue types have known associated growth rates (de Margerie et al., 2002) (Fig 1-II).

OBJECTIVE

- Examine long bone tissues in the island and gray fox to identify variations in growth patterns driven by the different environments.

METHODS

- Thin-sectioning of the right femur of island and gray fox specimens.
- Classification of tissue types into specific categories with associated growth rates.
- Comparison of proportions of different tissues in each species.

KEY FINDINGS

- Island foxes have a much greater proportion of slow and medium-growth tissue than gray foxes (Fig 3) and lower levels of overall vascularity.
- Island foxes show slightly higher levels of secondary bone remodelling than gray foxes.

CONCLUSIONS/IMPLICATIONS

- Higher levels of laminar bone and lower vascularity indicates **the island fox grew more slowly than the mainland gray fox.**
- Supports the notion of “**slow life**” growth patterns in insular environments, potentially associated with more limited resources and diminished predation risk.



Variations in long bone development of ISLAND AND CONTINENTAL FOXES

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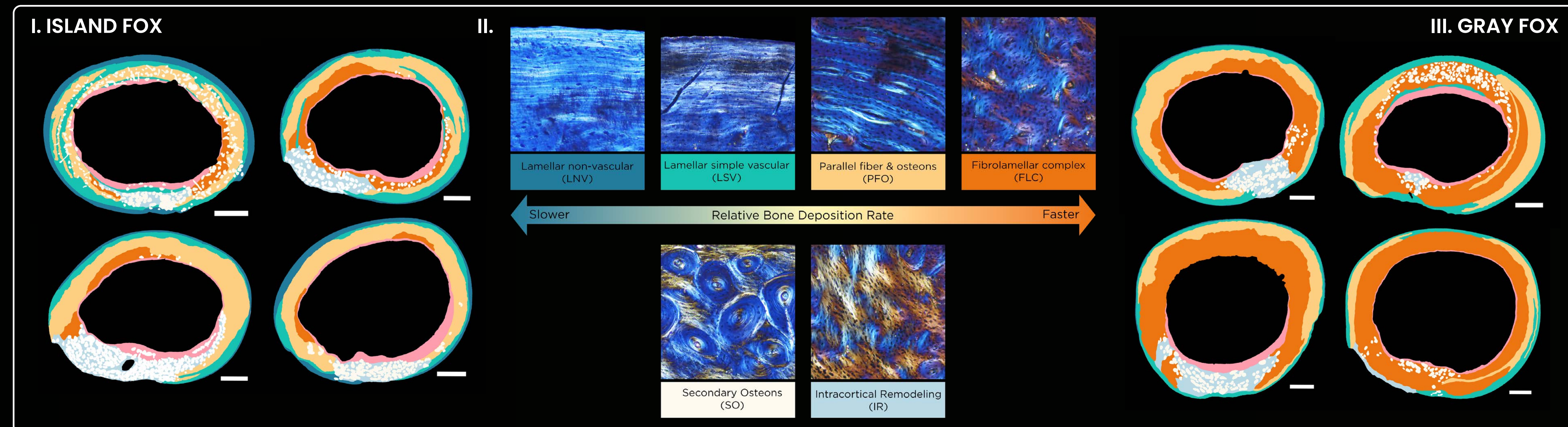


Fig 1. Color-mapped cross sections of island fox (left) and gray fox (right) femora. Scale bar indicates 1 mm. Color maps correspond to tissue types with associated growth rates (center panel).

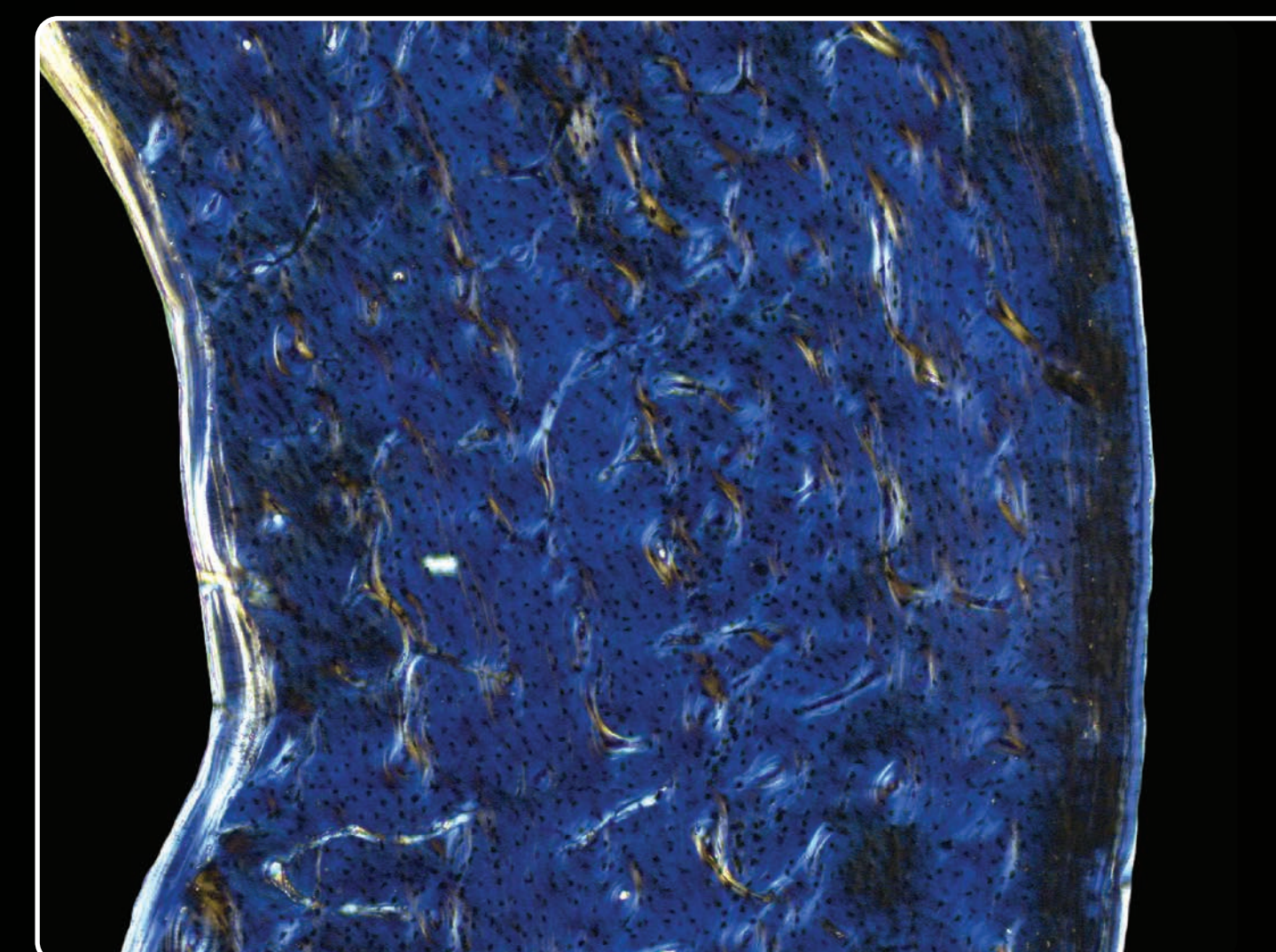


Fig 2. Mid-lateral cortex of an island fox femur with medium-growth PFO tissue type.

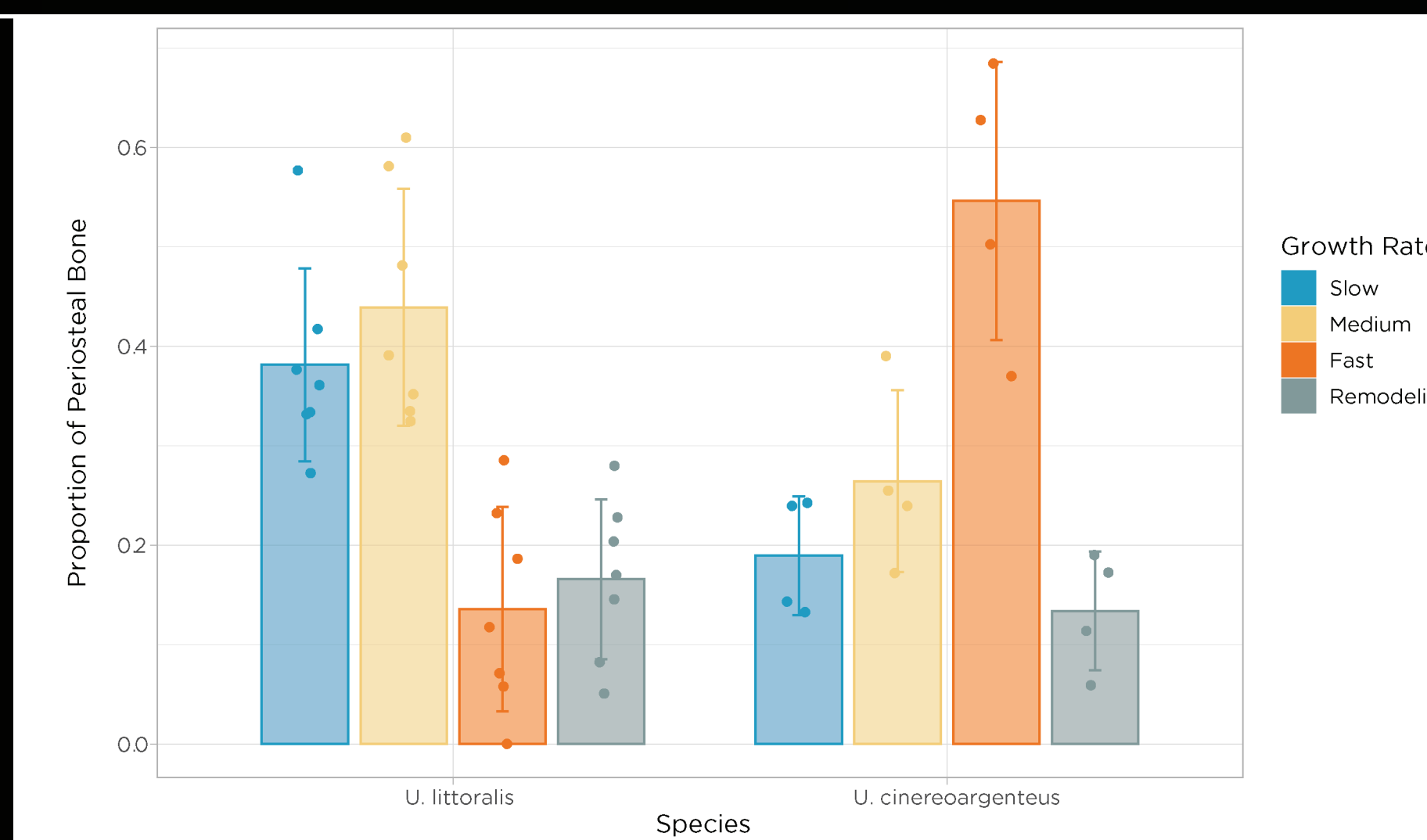


Fig 3. Box plot comparing proportions of tissue types in island fox and gray fox femoral cross sections.

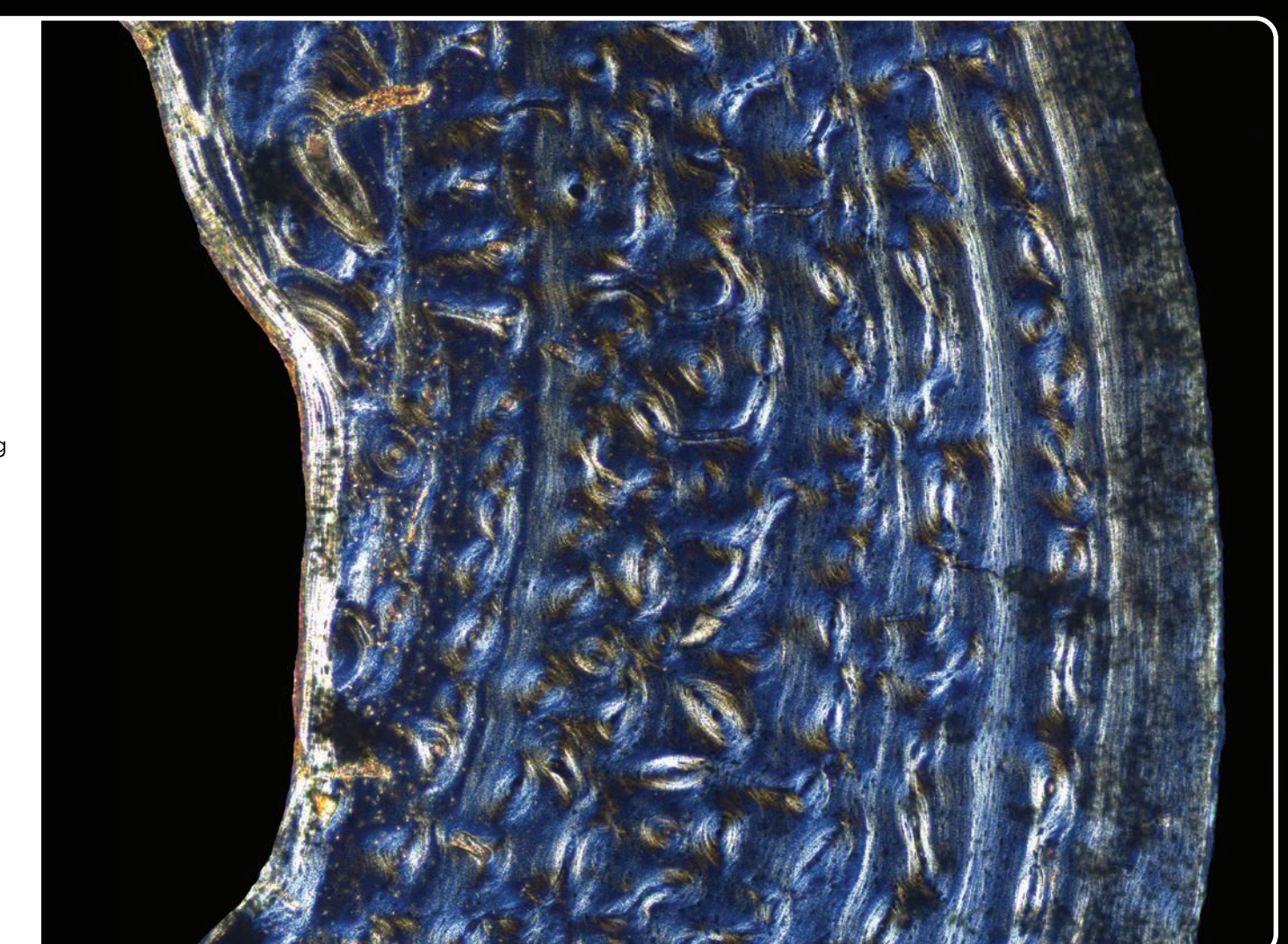


Fig 4. Mid-lateral cortex of a gray fox femur with fast-growth FLC tissue type.

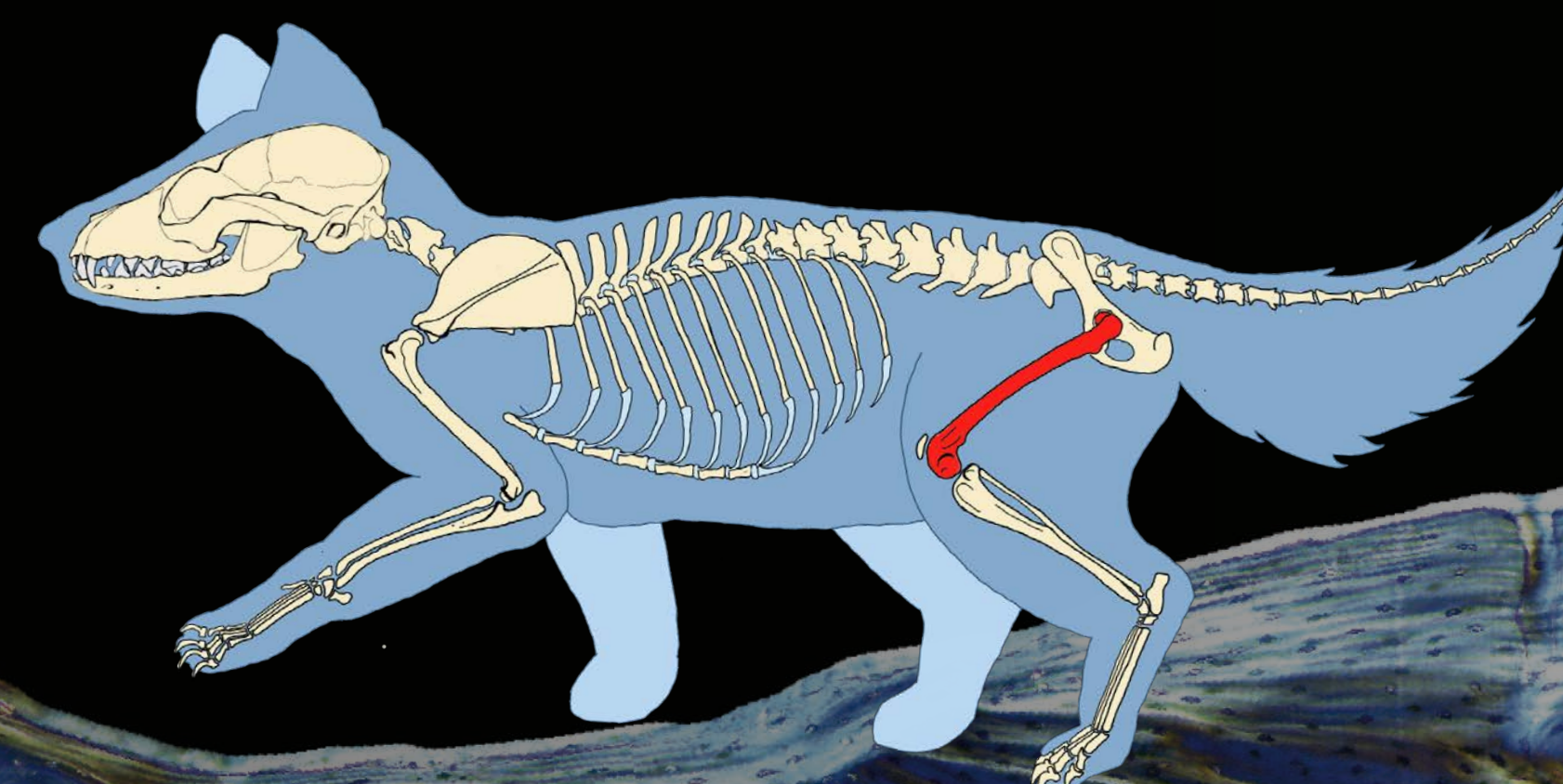


Fig 5. Island fox skeletal illustration. Femur highlighted in red.

REFERENCES

- Hayashi et al. (2022). Front Earth Sci (Lausanne). 2023;11. doi:10.3389/feart.2023.1095903
- de Margerie et al. (2002). C R Biol. 2002;325: 221–230. doi:10.1016/S1631-0691(02)01429-4