USING PALEODATA TO MAP PARASITE DIVERSITY THROUGHOUT HOLOCENE

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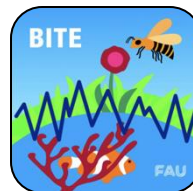
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BITE: Biotic Interactions in Deep Time

VolkswagenStiftung

- Evidence of interactions in the fossil record is rare / often not fully described

- Project aims to develop a standardized, specimen-level online database of interactions

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Aims:

- To map change in endoparasite occurrences **throughout Holocene** (from 11.7 Ka to present) using data primarily from **human** settlements and burials

- To establish whether **abiotic and biotic factors** have affected parasite distribution throughout time

- To account for potential sampling and preservation **biases** in the dataset

Significance:

Understanding shifts in parasite diversity in the past = could help us make predictions about the future

Roman latrines in Ephesus, ~1900 yBP

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Medieval latrine in Riga, Latvia, 594 yBP

Yeh *et al.* (2014)

Occupational layers

Sewers

Costa *et al.* 2009
Skull with leishmaniasis lesions, San Pedro de Atacama, Chile, 1000-500 yBP

Pathologies

Mummies

Burials

Shin *et al.* 2012
Unwrapping of mummified remains from a Joseon tomb, Korea, 265 yBP

Summary

🪱 Parasite finds are concentrated in late Holocene and are dominated by nematodes and flatworms. The proportion of commonly encountered genera increases towards the present day

🪱 **First glance:** parasite occurrences in Holocene are linked to global temperature and exhibit a slight upwards latitudinal shift in warmer climates

🪱 **Presence-absence analysis** identifies human population density as a significant correlate of nematode presence; temperature seasonality and precipitation also important for *Ascaris*

Thank you for your attention!

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