

Mesic environments at Early Pleistocene ‘Ubeidiya

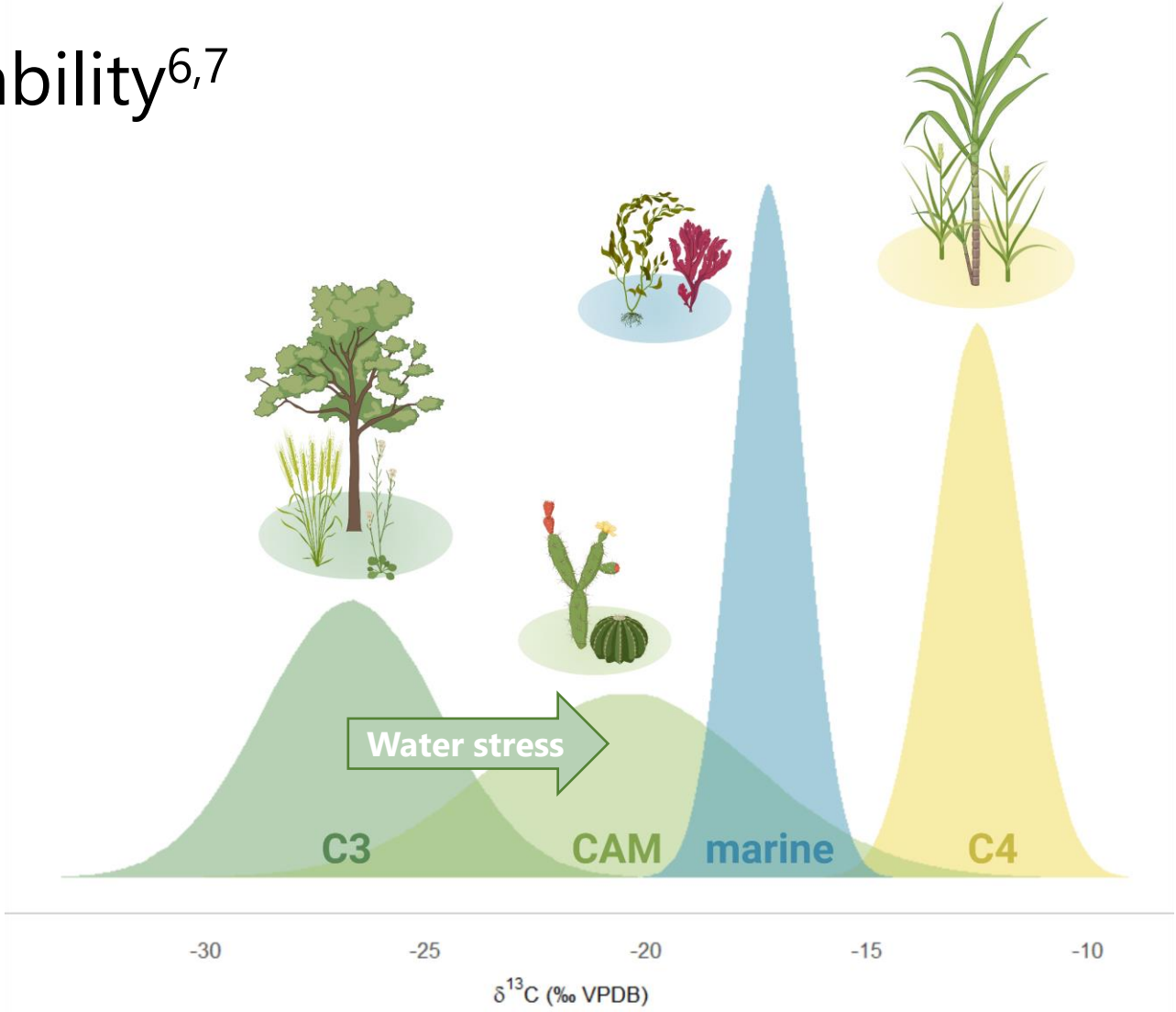
Macrofaunal stable isotopes from ‘Ubeidiya, Israel, shed light on environmental setting of an early presence of Homo in the Levant

Early Homo in the Levant: The Levant is an important ‘stepping stone’ region for hominins dispersing out of Africa¹. Climatic conditions can reveal how and when hominins adapted to new habitats across Eurasia².

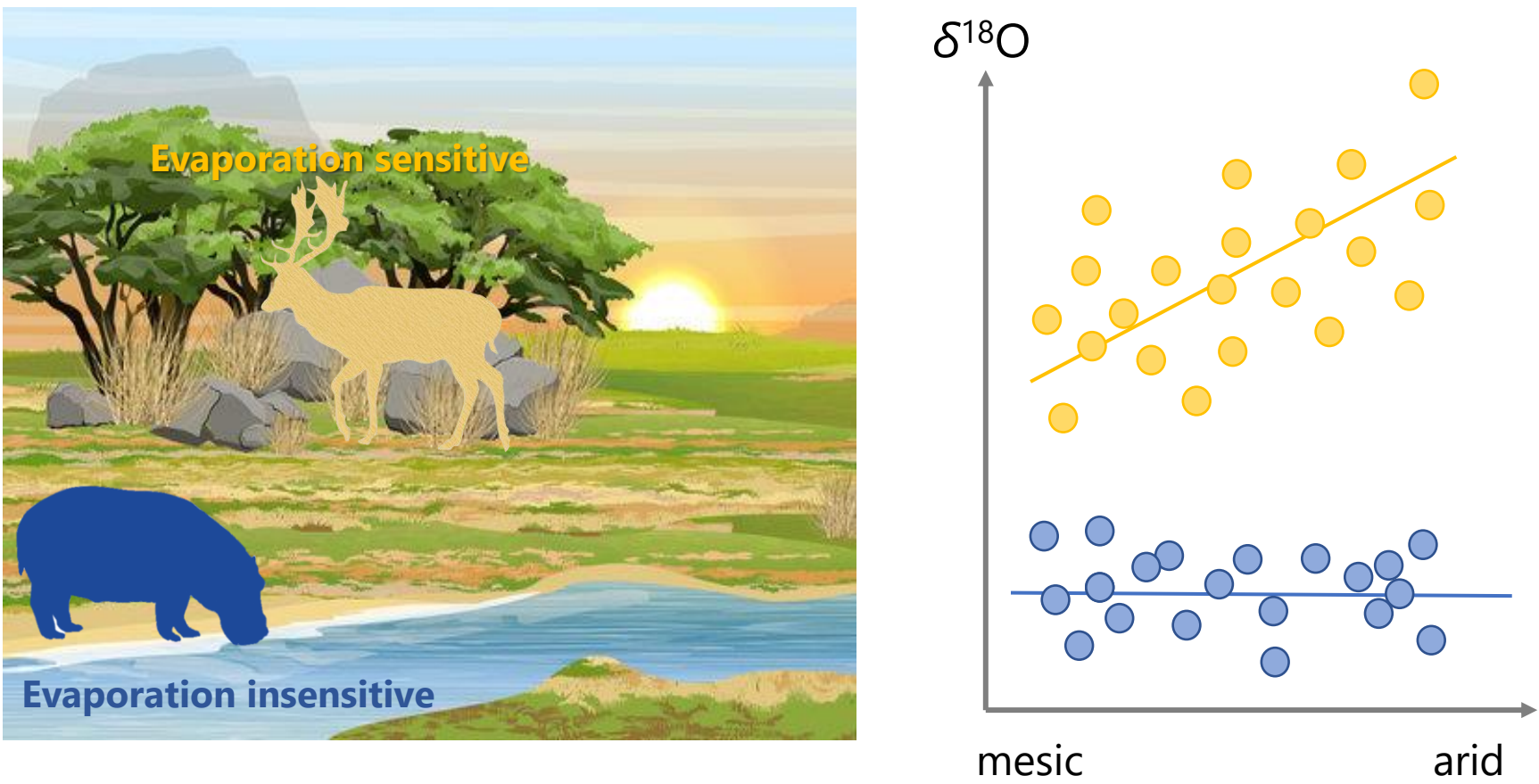
‘Ubeidiya is located in the Jordan valley, close to modern day Lake Tiberias. Fluvatile and lakeshore deposits from palaeolake ‘Ubeidiya preserve an important record of an out of Africa dispersal at 1.4 ± 0.2 Ma with a large palaeontological collection, *Homo* fossils and tools³⁻⁵.

Methods C & O isotopes of teeth

1 $\delta^{13}\text{C}$ reflects C4/C3 proportion and water availability^{6,7}



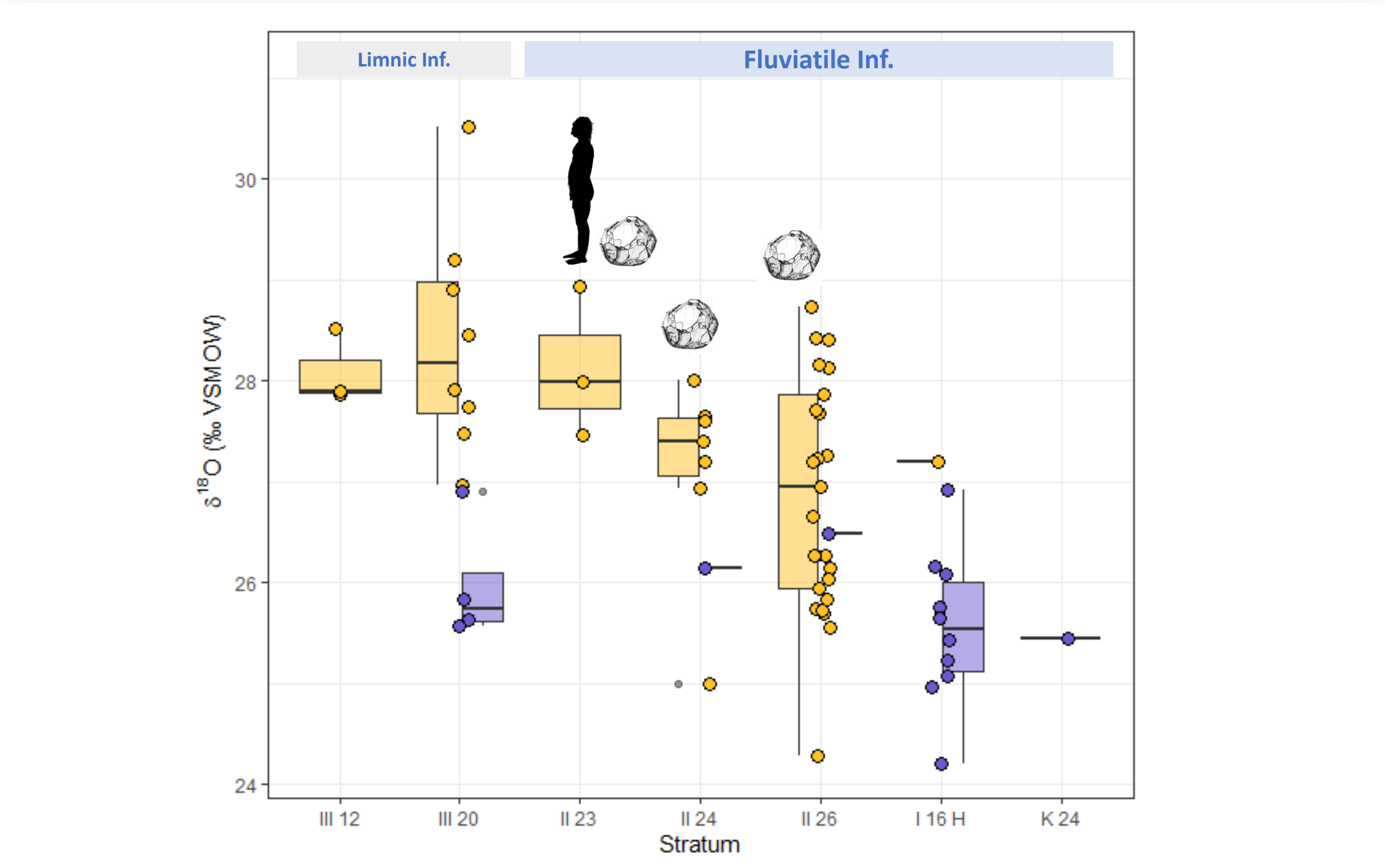
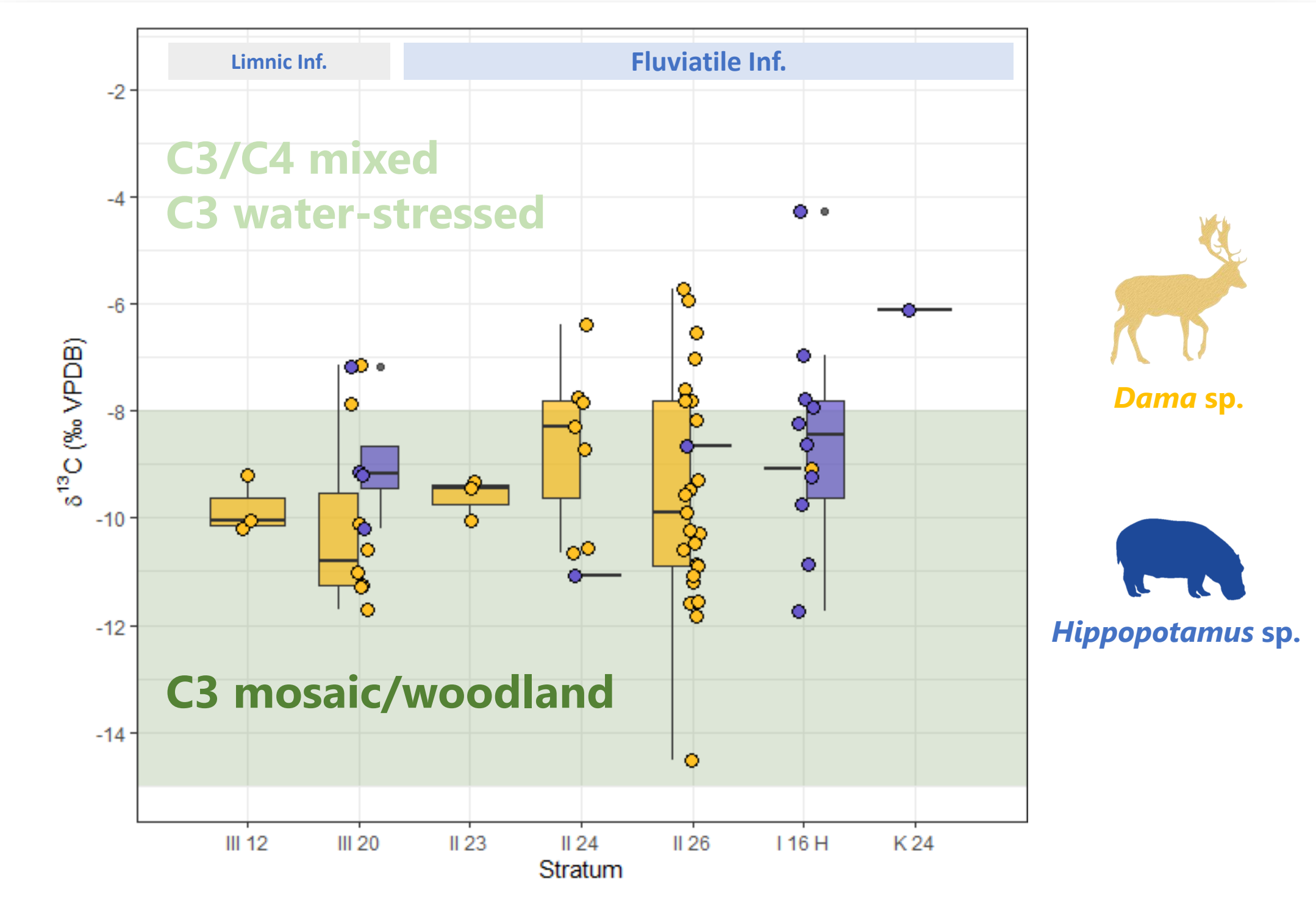
2 $\delta^{18}\text{O}$ reflects aridity, moisture source and drinking behaviour^{8,9}



Results Vegetation & Rainfall

Vegetation: Fauna fed in mosaic environments, rarely a small C4 input. Hippos show a herbaceous/aquatic diet.

Rainfall & Moisture: Small deer-hippo $\delta^{18}\text{O}$ differences suggest mesic environments and higher water availability.



Outlook: Future research using additional hippo samples and seasonally resolved data will further clarify past rainfall patterns. Modern studies are also underway to better characterise *Dama* sp. evaporation sensitivity.



References

Sarah Pederzani, Zuorui Liu, Amy Prendergast, Russel Drysdale, Miriam Belmaker



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