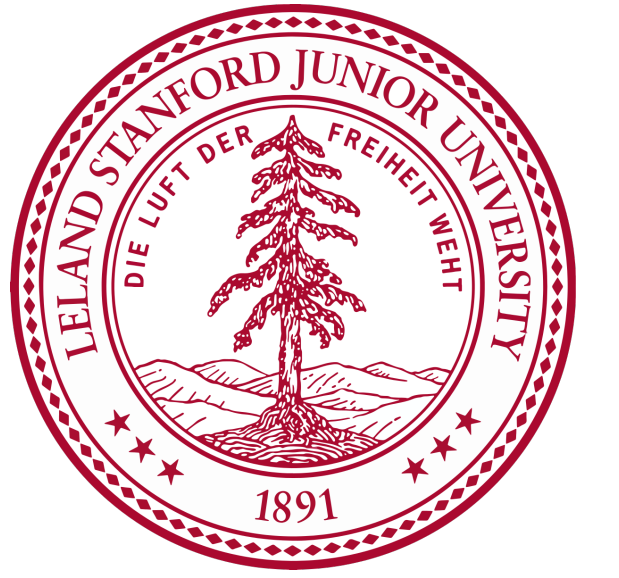


Exploring recent evolution of matrotrophy in swordtails (*Xiphophorus*)

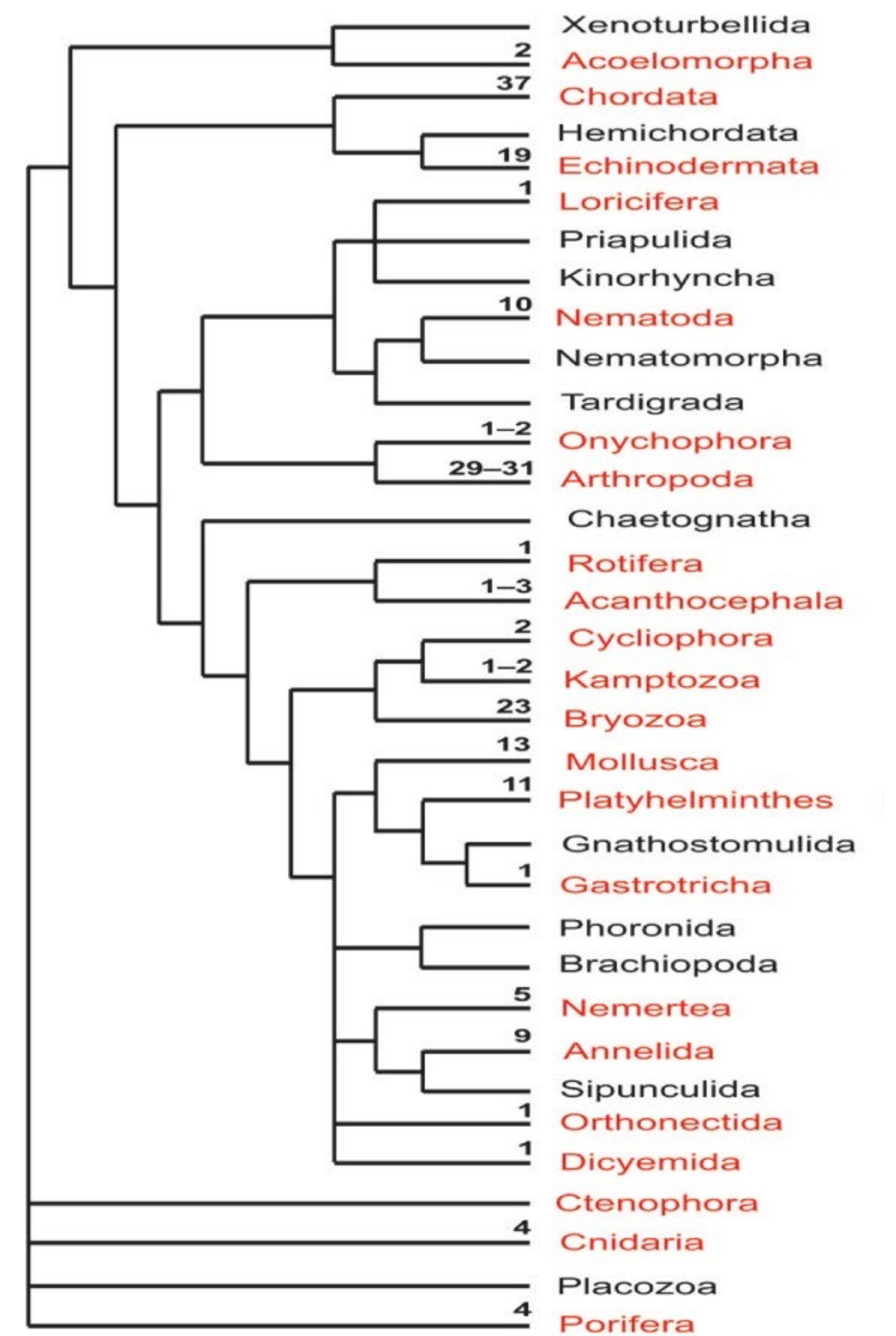
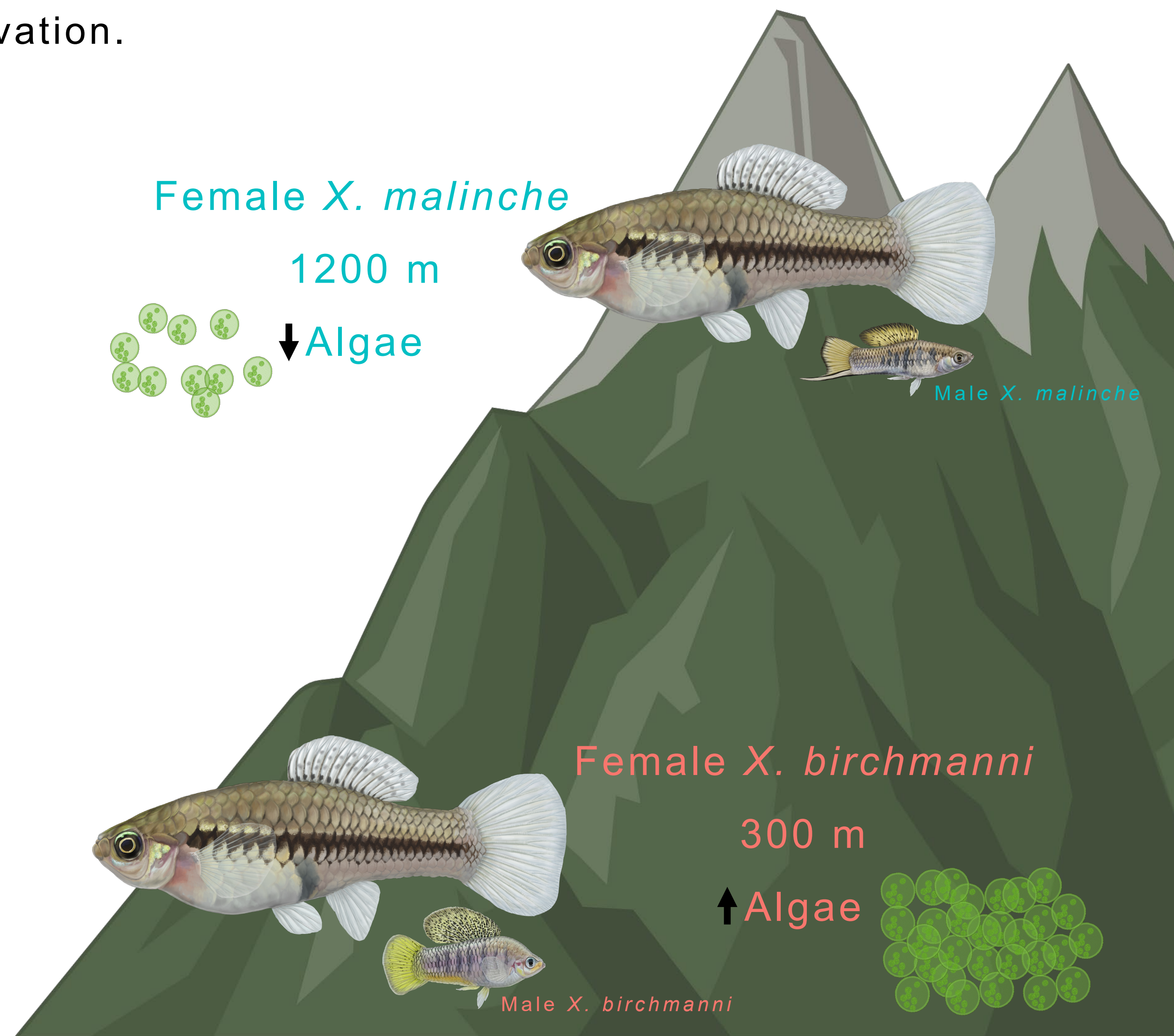


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Matrotrophy or post-fertilization maternal nutrient provisioning increases offspring survival¹. It has independently evolved at least 140 times across all major superclades². Ecological factors such as temperature, predation, and resource availability are known to influence matrotrophy and vary with elevation.

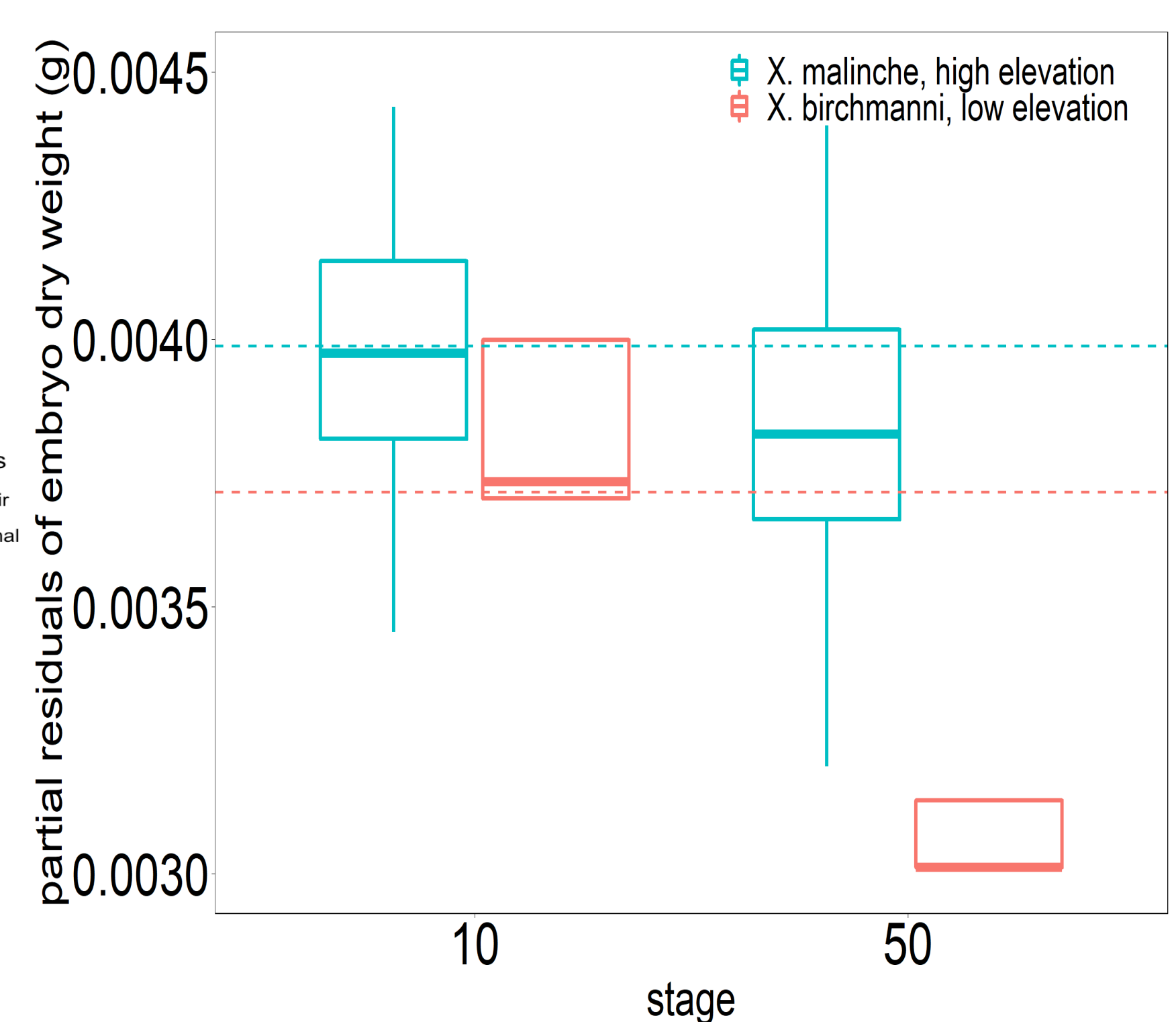
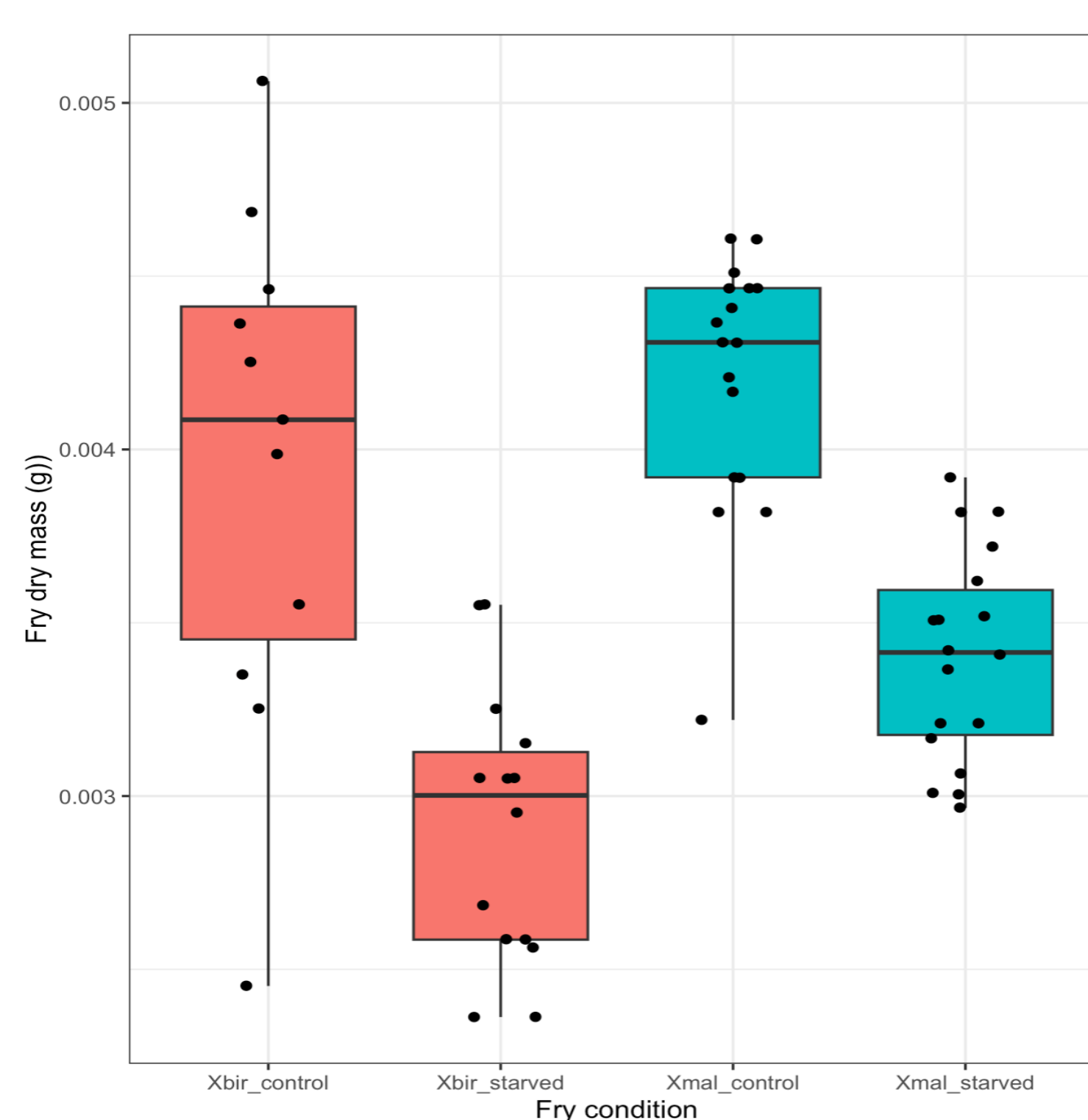
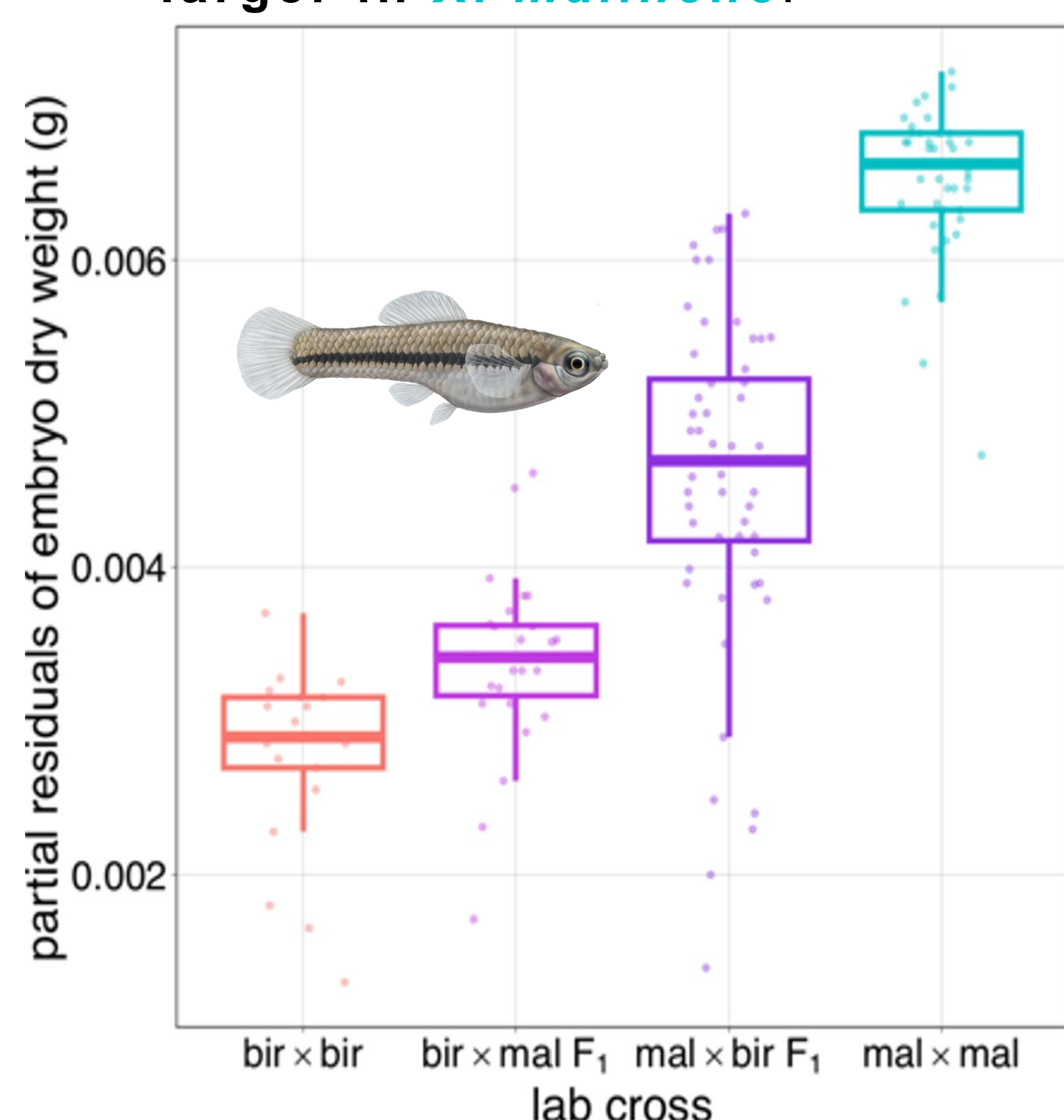


Red = Phyla with matrotrophic species
Numbers = instances of independent evolution

The sister species have similarly sized eggs; however, final embryo size is significantly larger in *X. malinche*.

X. malinche fry retain more dry mass after starvation.

X. malinche embryos maintain their weight over development.



X. malinche may have evolved matrotrophy as an adaptation to high elevation. *X. malinche* and *X. birchmanni* hybridize in the wild and in the lab³. How could the evolution of this new reproductive strategy reinforce species boundaries?

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¹Brockelman 1975 *Am. Nat.* ²Ostrovsky et. al. 2015. *Biol. Rev.* ³Payne et. al. 2023. *BioRxiv.*

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