Madagascan Polystome diversity

Five new *Metapolystoma* (Monogenea) species from *Boophis* treefrogs in Madagascar.

Introduction

- Madagascar is one of the top three biodiversity hotspots [1].
- Of the 400+ frog species, only two are non endemic.
- These frogs serve as host for a vast diversity of equally endemic parasites.
- This high biodiversity and endemicity can be ascribed to the islands long geographic isolation [1-3].
- Very little is known about Madagascar's anuran polystome diversity [4].
- Anuran polystomes from Madagascar: *Kankana* and *Madapolystoma* (endemic) and *Metapolystoma* also known from Africa.

Methods

- Several *Boophis* species were collected in Madagascar and screened (Fig. 1).
- Frogs that screened positive were dissected for parasites.
- Specimens were fixed, stained and whole mounts prepared.
- Representatives fixed for molecular studies.
- Morphological measurements (Fig. 2) were taken and compared.
- A Bayesian tree (Fig. 3) was inferred (For three of the described species) from the analysis of 18S, 28S and COI gene sequences.

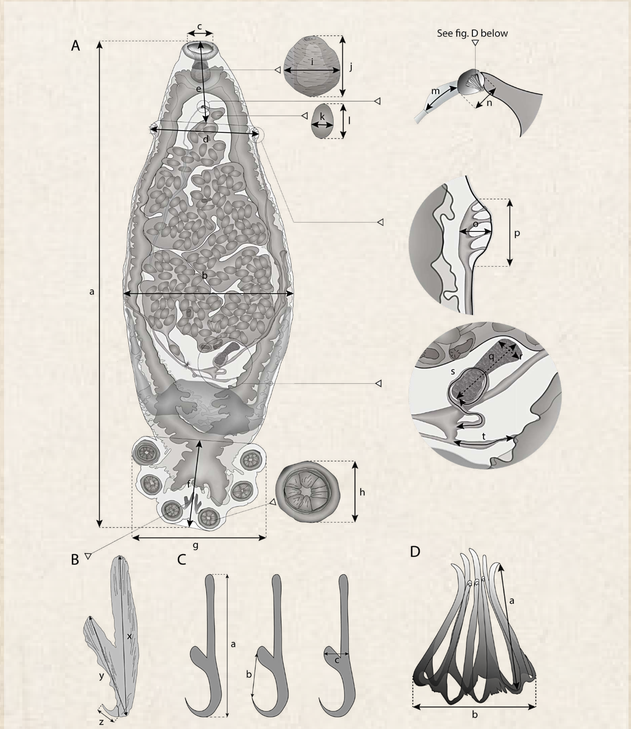
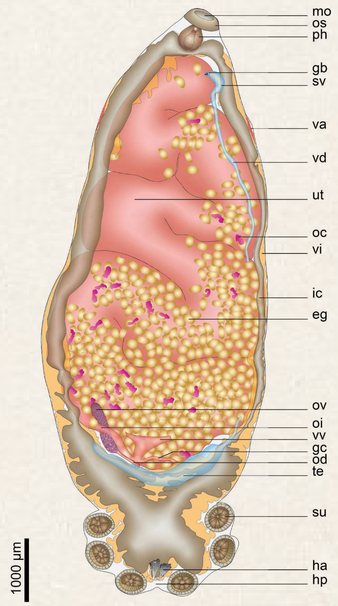
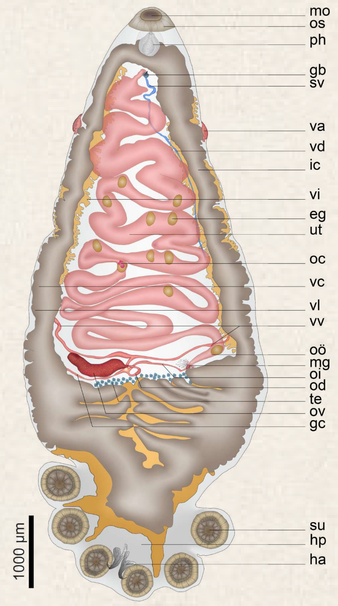


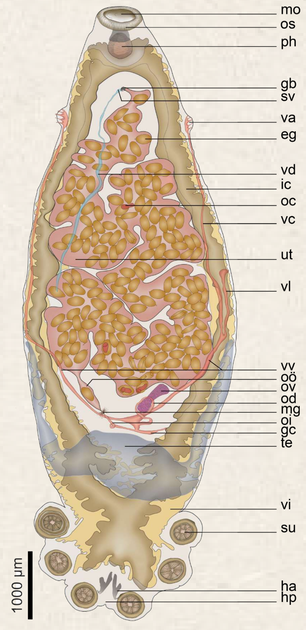
Fig. 2 Taxonomically important morphometrics of polystomes. (A) a: total length, b: greatest width, c: mouth width, d: width at vagina, e: distance of vagina from anterior end, f: haptor length, g: haptor width, h: haptoral sucker diameter, i: pharynx width, j: pharynx length, k: egg width, l: egg length, m: semen vesicle length, n: genital bulb diameter, o: vagina width, p: vagina length, q: ovary length, r: ovary greatest width, s: oviduct length, and t: genito-intestinal canal; (B) x: hamulus handle length, y: hamulus guard length, and z: hamulus hook length; (C) Marginal hooklet measurements as stipulated in the protocol of du Preez and Maritz [5]; and (D) a: genital spine length, and b: genital crown diameter.



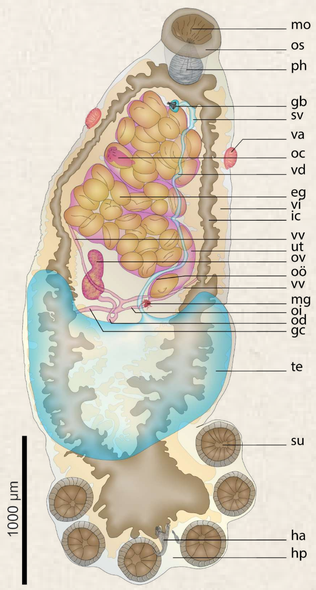
M. vencesi
ex. *B. albilabris*



M. falcatum
ex. *B. doulioti*



M. theroni
ex. *B. madagascariensis*



M. ansuanum
ex. *B. luteus*

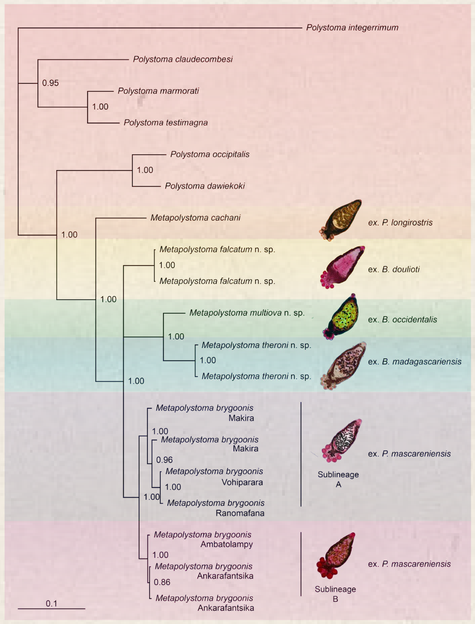


Fig.3 Bayesian tree inferred from the analysis of concatenated 18S, 28S and COI gene sequences. Node values indicate Bayesian posterior probabilities.

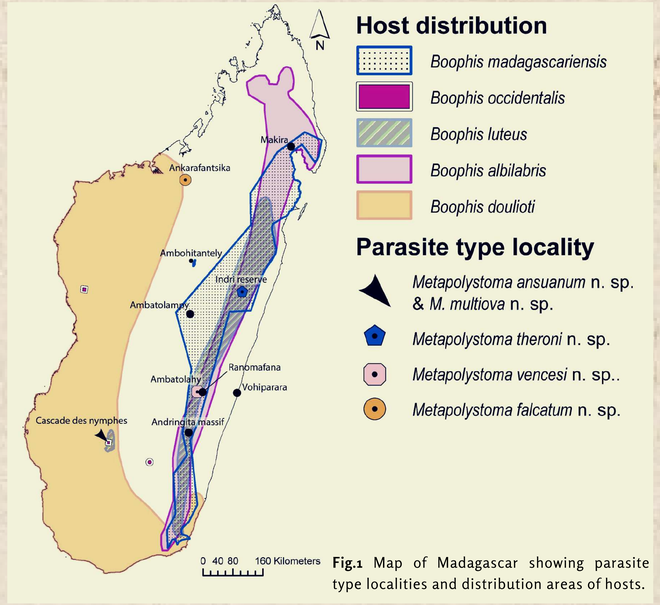


Fig.1 Map of Madagascar showing parasite type localities and distribution areas of hosts.

Results & Discussion

- Five different tree frog species were found to be infected with polystomes (Central figure plate).
- Morphometrics indicated five morphotypes.
- Morphological characters and phylogenetic analysis places these parasites in the *Metapolystoma*.
- Five new Metapolystome species were described.
- We hypothesize that many more polystomes await discovery in Madagascar.

References

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