

Amphibian Search & Rescue: Monitoring the amphibians of McInnis Canyon National Conservation Area in Western Colorado

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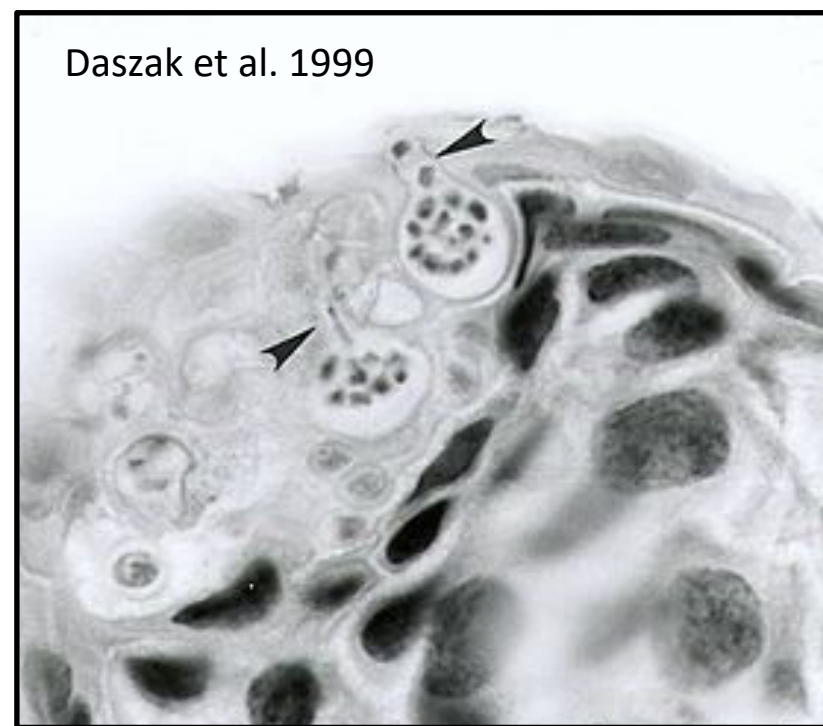
Background

- Little is know about the diversity of amphibians in the McInnis Canyon National Conservation Area (MCNCA) that borders a 24-mile stretch of the Colorado River in Western Colorado
- Two potential threats exist for these amphibians including the invasive American bullfrog (*Lithobates catesbeianus*) and the fungal pathogen *Batrachochytrium dendrobatidis* (Bd)
- Our study primarily aims to document the presence and diversity of native species. In addition, we have documented the presence of *L. catesbeianus* and *Bd* throughout the NCA

Potential Threats:



L. catesbeianus



Batrachochytrium dendrobatidis

Methods

- Water samples were collected from tributaries and filtered for *L. catesbeianus* eDNA analysis by USGS
- Visual encounter surveys (VES) and call surveys were conducted nocturnally
- All amphibians were swabbed to assess presence of Bd via later DNA extraction & qPCR analysis.

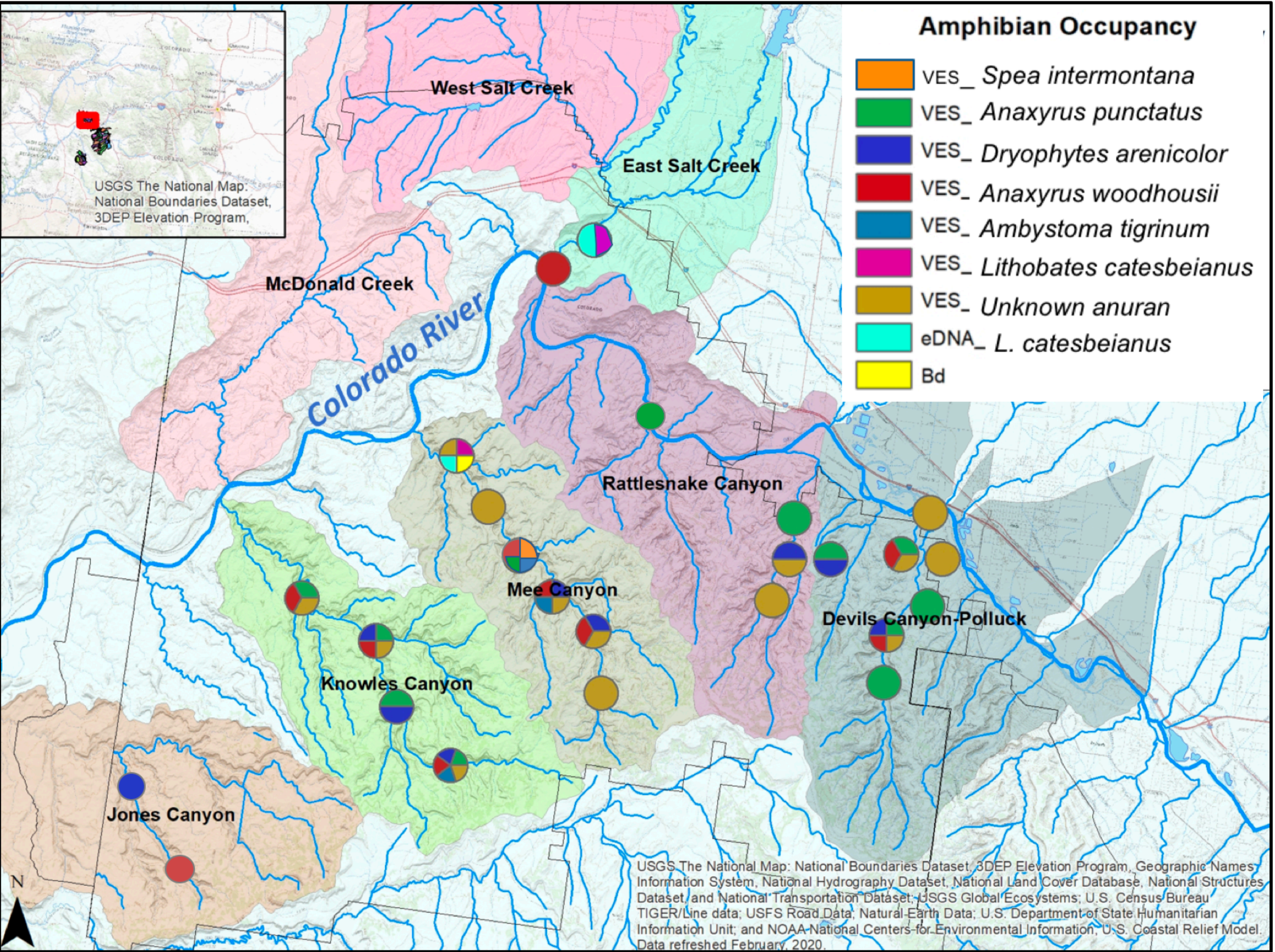


Figure 1: Map of the McInnis Canyon National Conservation Area with VES results for 2019-2021 and eDNA results for 2019.

Results

- L. catesbeianus* were found via VES and eDNA assays at the mouth of Mee Canyon and upstream into East Salt Creek in 2019 & 2020. No *L. catesbeianus* were found in 2021 via VES. 2021 eDNA results are still being processed
- Bd* was detected on one bullfrog at the mouth of Mee canyon in 2019. *Bd* was also detected on bullfrogs at state parks upstream of MCNCA.

Discussion

- Species of special interest (*Spea intermontana* & *Dryophytes arenicolor*) were found in MCNCA tributaries where there were previously no historical records
- Negative *Bd* tests in native species suggests the MCNCA amphibians have not been impacted by *Bd*. However, the presence of a *Bd*-positive *L. catesbeianus* individual near Mee Canyon warrants follow-up surveys and close monitoring in future years.
- L. catesbeianus* were not found far from the Colorado river in tributaries where water availability is scarce and rocky barriers (>4 ft) exist that may prevent migration of *L. catesbeianus* farther into the canyon.



Spea intermontana



Ambystoma tigrinum



Dryophytes arenicolor



Anaxyrus punctatus



Anaxyrus woodhousii

References

- Daszak P., Berger L., Cunningham A.A., Hyatt A.D., Green D.E., & Speare R. 1999. Emerging infectious diseases and amphibian population declines. *Emerging infectious diseases*, 5: 735.
- Weeks D.M, Pilliod D, Laramie M, Muths, E, Grant-Hoffman M, Neubaum D, Hampton P, Plank H. In preparation. *Amphibian Diversity of the Colorado Canyonlands and Potential Threats*.

Acknowledgements:

