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Department of Climate Change, Energy, the Environment and Water

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NORTHERN TERRITORY GOVERNMENT

CHARLES DARWIN UNIVERSITY AUSTRALIA

RIEL
Research Institute for the Environment and Livelihoods

DNA Barcodes for Australia's Top End

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2nd Southern eDNA Society Conference

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Context

- A group of eDNA/omics practitioners in Darwin formed a **Community of Practice** in 2022
  - A result of discussions from the 2022 eDNA conference
- Informal discussions identified **shared issues and needs** for DNA barcode libraries
- A few business units were **developing their own barcode** libraries for their specific projects
  - Often with support from Museum and Art Gallery of the Northern Territory (MAGNT)

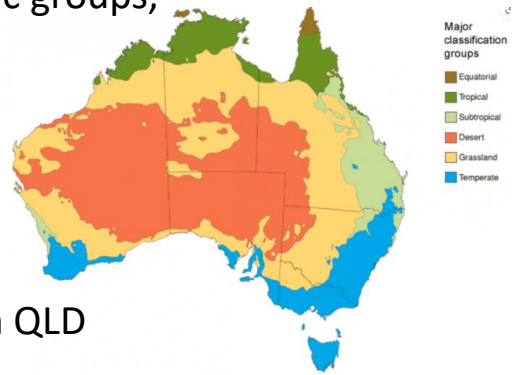
- Many other business units had **invested in DNA-based surveys** or were interested in applying it to their contexts
  - Mining, Agriculture/Water Security, Biosecurity, Parks Management
- The **MAGNT could not support** the broad needs for DNA barcodes library development.
  - Many collections remain without curation

Objectives, Scope and Approach

Participants agreed on a shared vision of “reliable and cost-effective DNA-based research and monitoring tools”

OBJECTIVES

- Describe **use-cases** and collate the **status of barcode libraries** for native fauna in northern Australia,
- Investigate the perceived **effort** remaining in **taxonomy** and DNA **barcode sequencing** for different taxonomic groups,
- Collectively **prioritise** the remaining DNA barcode collection effort, and
- Provide **recommendations** to complete barcode libraries.



SCOPE

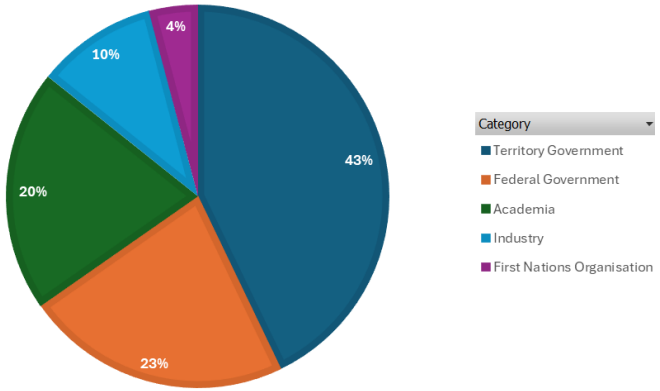
- Focus on Australia’s “**Top End**”, i.e. **tropical regions** such as Darwin, Arnhem Land, Kimberly, Gulf and Far Nth QLD
- **Native Fauna**. Exotics have biosecurity processes. Plants need another workshop

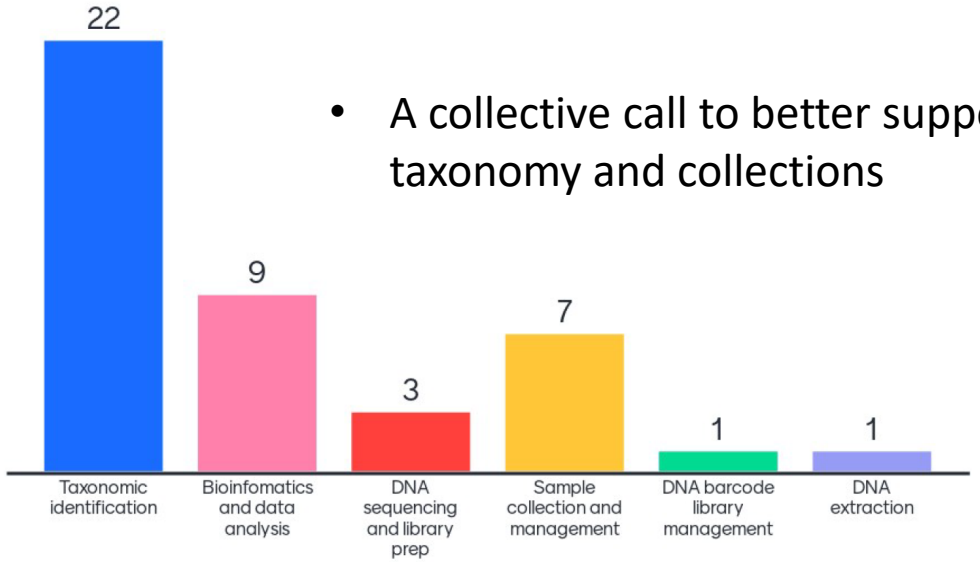
APPROACH

- Online pre-workshop survey and live online surveying during the workshop
- Gathered Strengths, Weakness, Opportunities and Threats for a SWOT analysis
    - Formed the basis of Recommendations

Results – Collective perspective of 57 professional

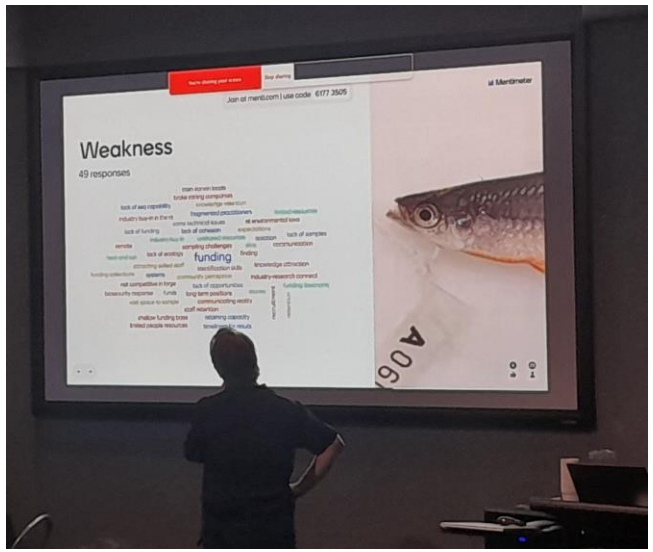
- 66% Government Reps
- Multisectoral needs identified



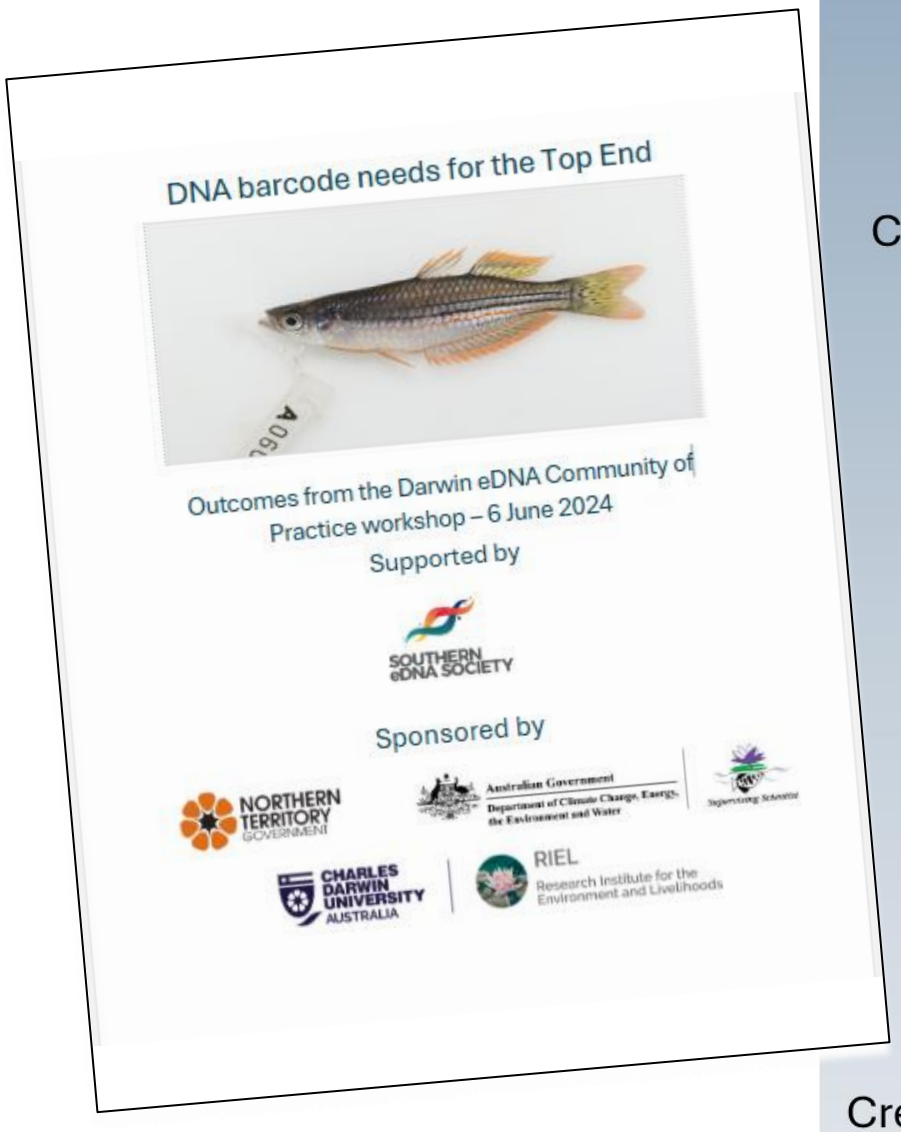


- A collective call to better support taxonomy and collections

- Overall high interest in invertebrate groups but much more effort needed



- Mitigations identified to maximise funding opportunities and retain skills in the NT



Recommendation 1

Create strategic partnerships and collaborations between academia, industry, government and community groups to maximise funding opportunities.

Recommendation 2

Create professional opportunities and on-going training in taxonomy, bioinformatics and molecular biology to build the capacity and capability dedicated to the Top End's barcode needs.

Recommendation 3

Create forums and find communication opportunities to highlight successes and increase awareness of DNA metabarcoding

Thanks to the contributors!!

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