Assessing the diet and habitat requirements of Gilbert's potoroo using eDNA for the selection of future translocation sites

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Introduction

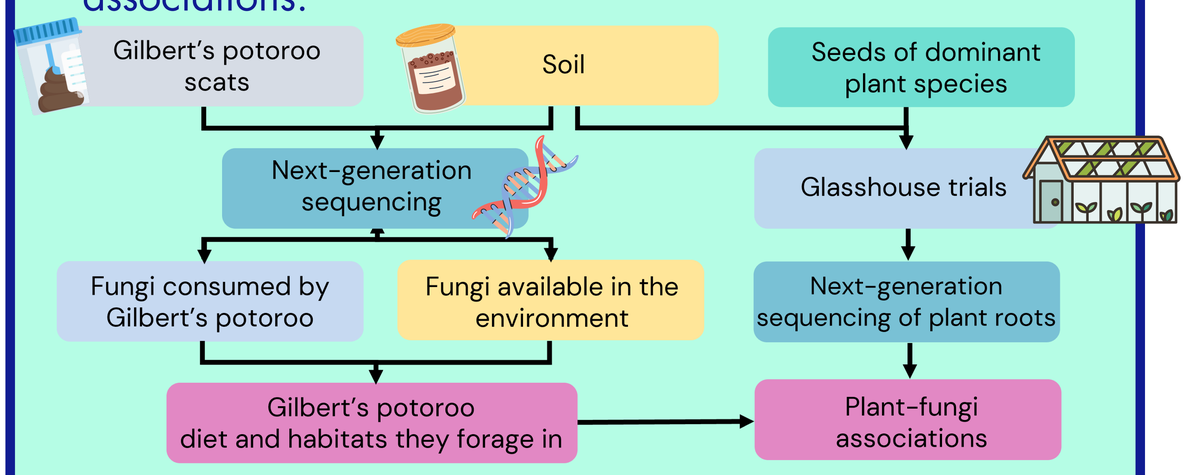
- Gilbert's potoroo (*Potorous gilbertii*) is the world's rarest marsupial and a specialist fungivore.
- Translocations to new mainland sites have been identified as a priority in the conservation of the species.
- Not enough is known about the dietary and habitat complexities of the potoroo to ensure resource availability in new host environments
- Traditional methods of surveying for fungi are labour-intensive, time-consuming and unreliable.

Aims

- Design a new and robust method using molecular tools to survey for fungi in present and potential Gilbert's potoroo habitats.
- Determine the diet of Gilbert's potoroo and habitats that support their food supply.
- Identify plant species that host fungi consumed by the potoroo.

Methods

- Environmental DNA (eDNA) techniques and next-generation sequencing of soil and scats from mainland Gilbert's potoroo localities will reveal the diet of the potoroo and habitats where these resources are found.
- Glasshouse trials will be undertaken with soil and seeds from dominant plants species in potoroo habitats; subsequently, sequencing of plant roots will reveal fungi associations.



Expected Outcomes

- A better understanding of the dietary requirements of Gilbert's potoroo and the habitats where suitable fungi are found.
- Knowledge of plant-fungi associations in order to identify potential translocation sites with available resources.
- An efficient and reliable method for practitioners to assess fungal availability in potential translocation sites, with the engagement of citizen scientists.

Acknowledgements

This project is supported by funding from the Western Australian Government's State NRM Program through a Community Stewardship Grant to the Gilbert's Potoroo Action Group and is undertaken in collaboration with Edith Cowan University and the Department of Biodiversity, Conservation and Attractions.

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