Spatial characterization of plant species diversity in the Khakea-Bray Transboundary aquifer

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Outline of the presentation

• Scope of the MSc
• MSc roadmap
• Work being done
Scope of the MSc (study)

• Groundwater is an important water resource, critical for the existence of most ecosystems

• In arid environments, terrestrial vegetation (e.g. phreatophytes) requires groundwater

• Groundwater level should be accessible to roots through capillary action
Groundwater level variability and Biodiversity variation

- Near natural pans
- Further away from natural pans
Scope of the MSc (study)

- Major challenge in conserving groundwater;
  - Competing claims to groundwater use for ecosystem or livelihoods needs
  - No monitoring programs, strategies or policies
  - Limited spatial coverage from field techniques
Mapping plant diversity with Remote sensing

Adapted from Serbin et al 2020
Critical issues with using Earth observation tech
Objectives

- Map plant species diversity in the Khakea-Bray TBA using GIS and remote sensing techniques
- *Specific objectives*
  - To review trends and advances in mapping vegetation diversity in GDE
  - To use spatial explicit satellite techniques to map vegetation diversity in the Khakea-Bray Transboundary aquifer.
MSc Road map

Objective 1: To review trends and advances in mapping vegetation diversity in GDE

   Manuscript 1

Objective 2: To use spatial explicit satellite techniques to map vegetation diversity in the Khakea-Bray Transboundary aquifer

   Manuscript 2

Synthesizing and compiling the thesis
Trends and advances in mapping vegetation diversity in GDE (under review)
Preliminary status of plant species diversity in the Khakea-Bray

- Shannon-Weiner (0.15-1.68)
- Pielou’s evenness (0.21-0.89)
Work being done

• Downloading remote sensing data (Sentinel-2)
• Use remote sensing to measure species diversity in the Khakea-Bray TBA
• Compare field measurements and remote sensing techniques