

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



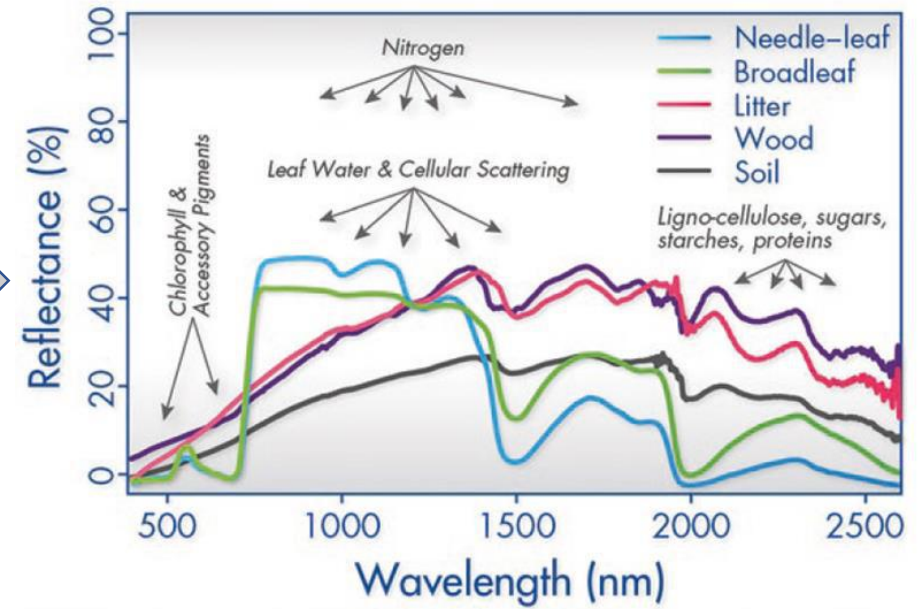
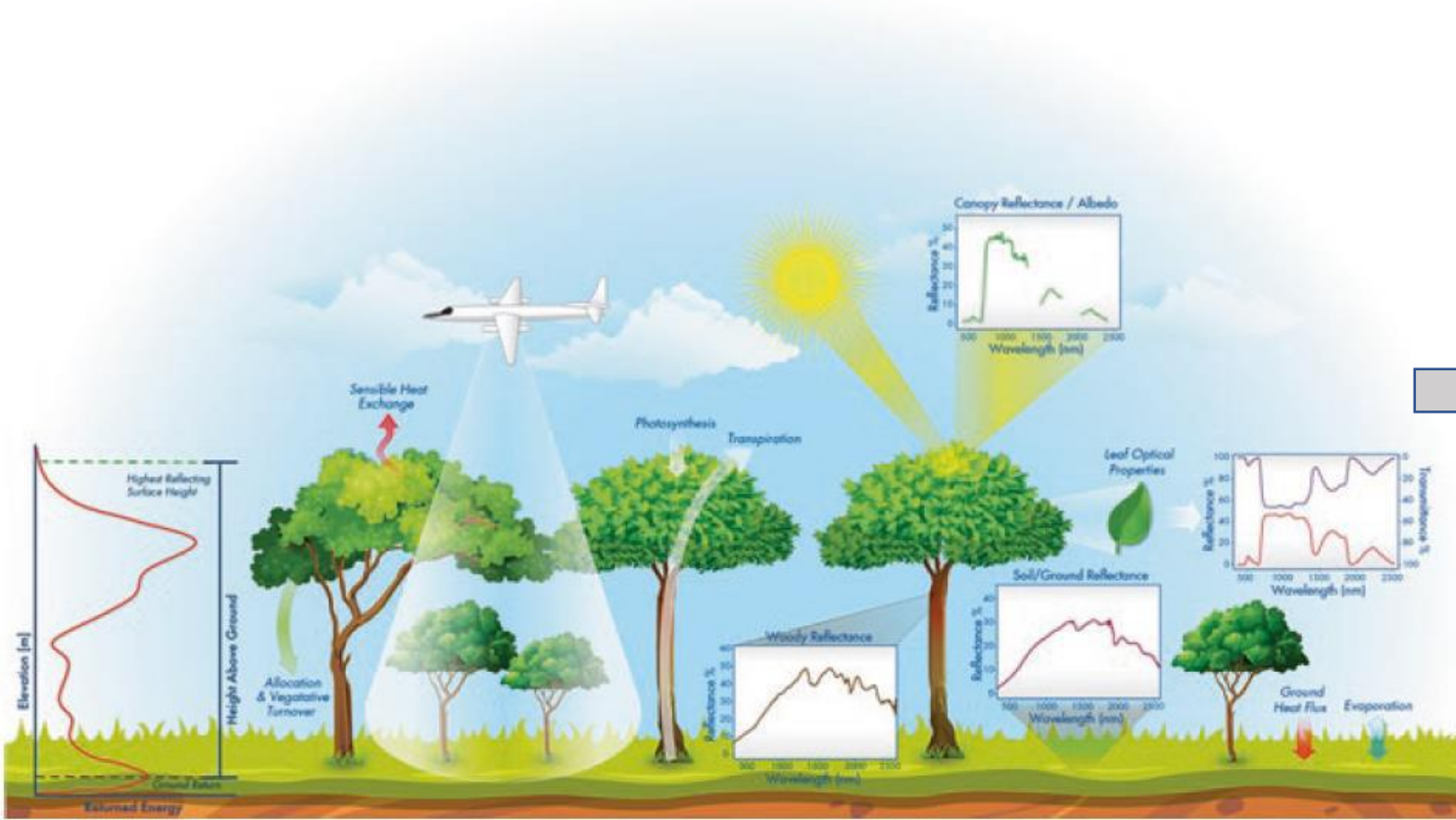
Scope of the MSc (study)

- 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



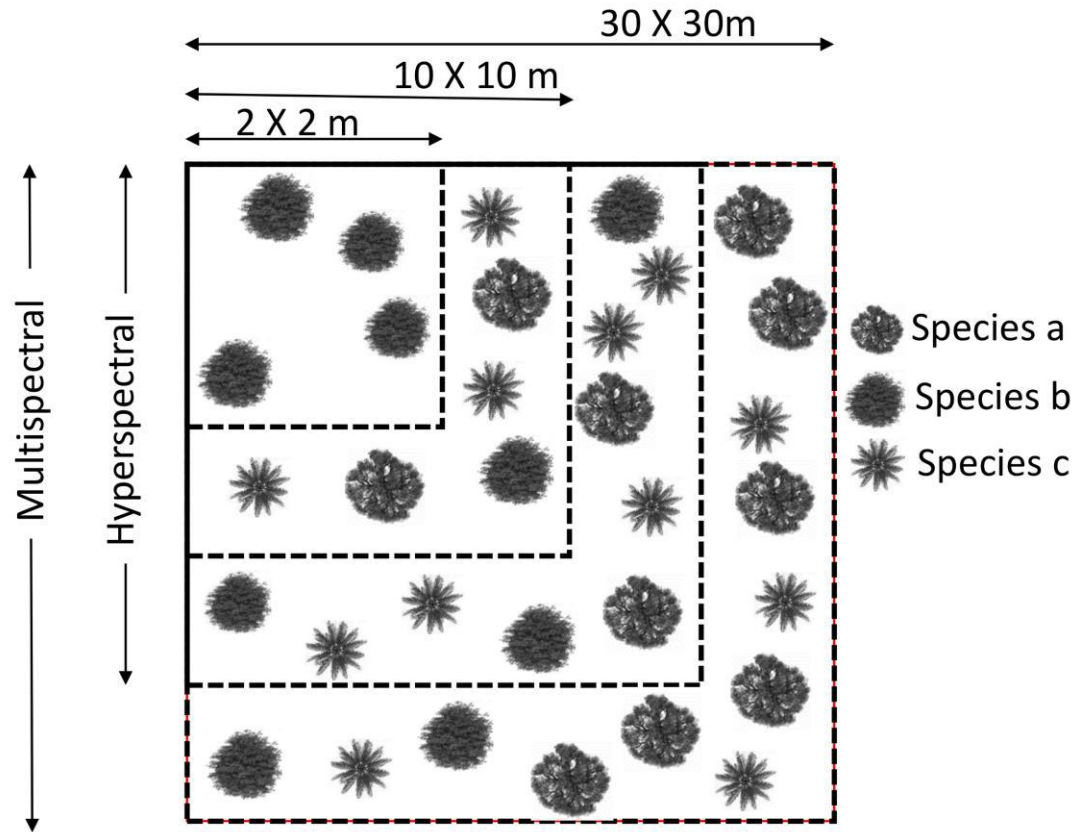
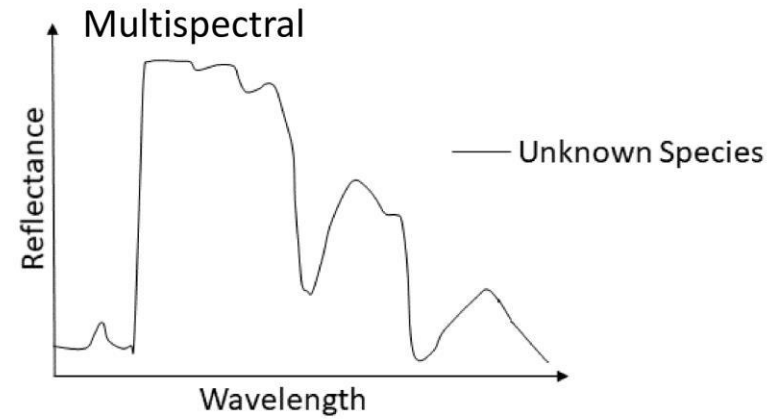
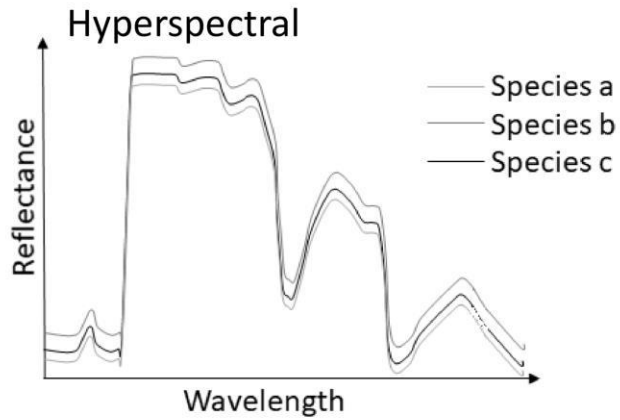
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Mapping plant diversity with Remote sensing



Adapted from Serbin *et al* 2020

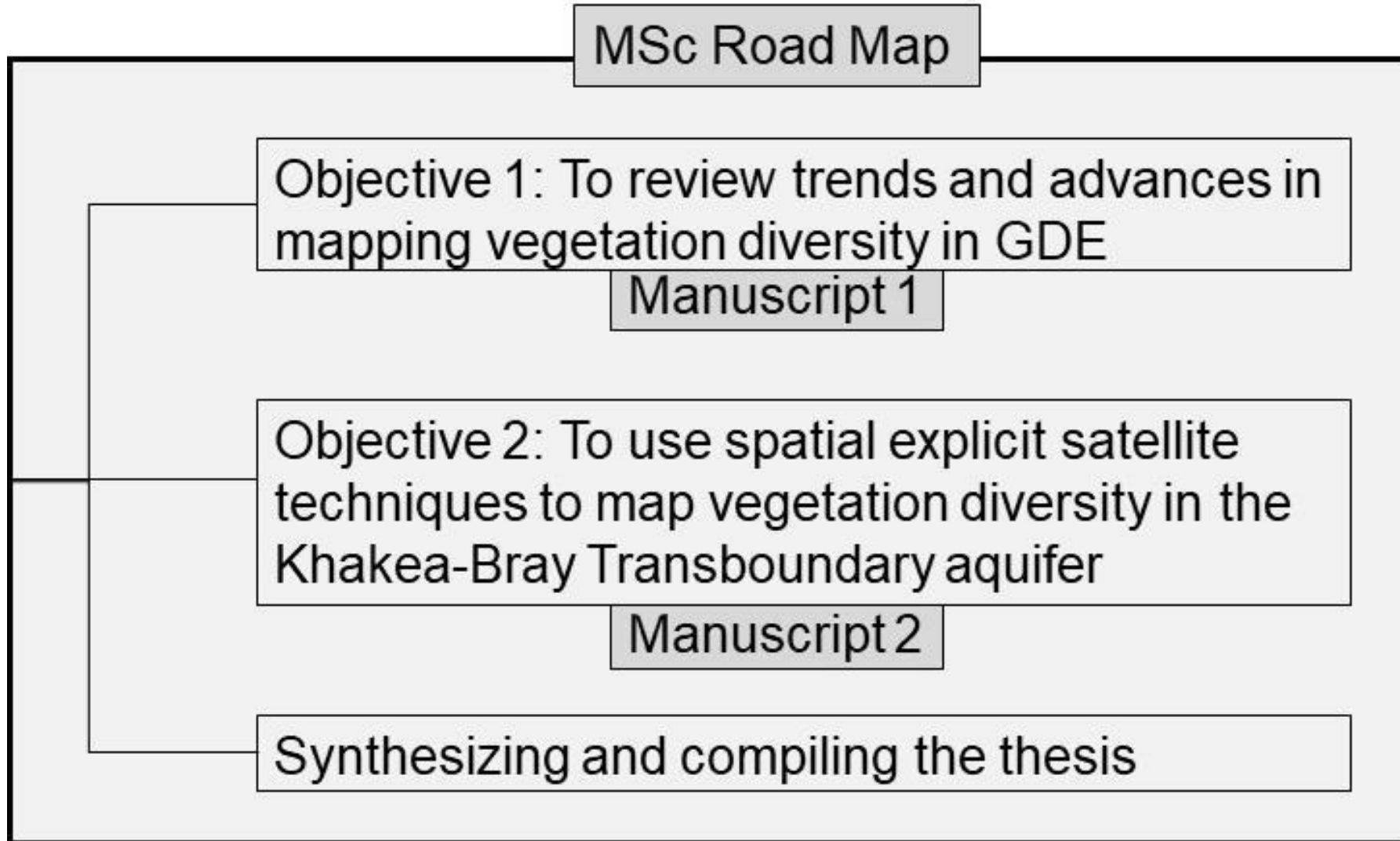
Critical issues with using Earth observation tech



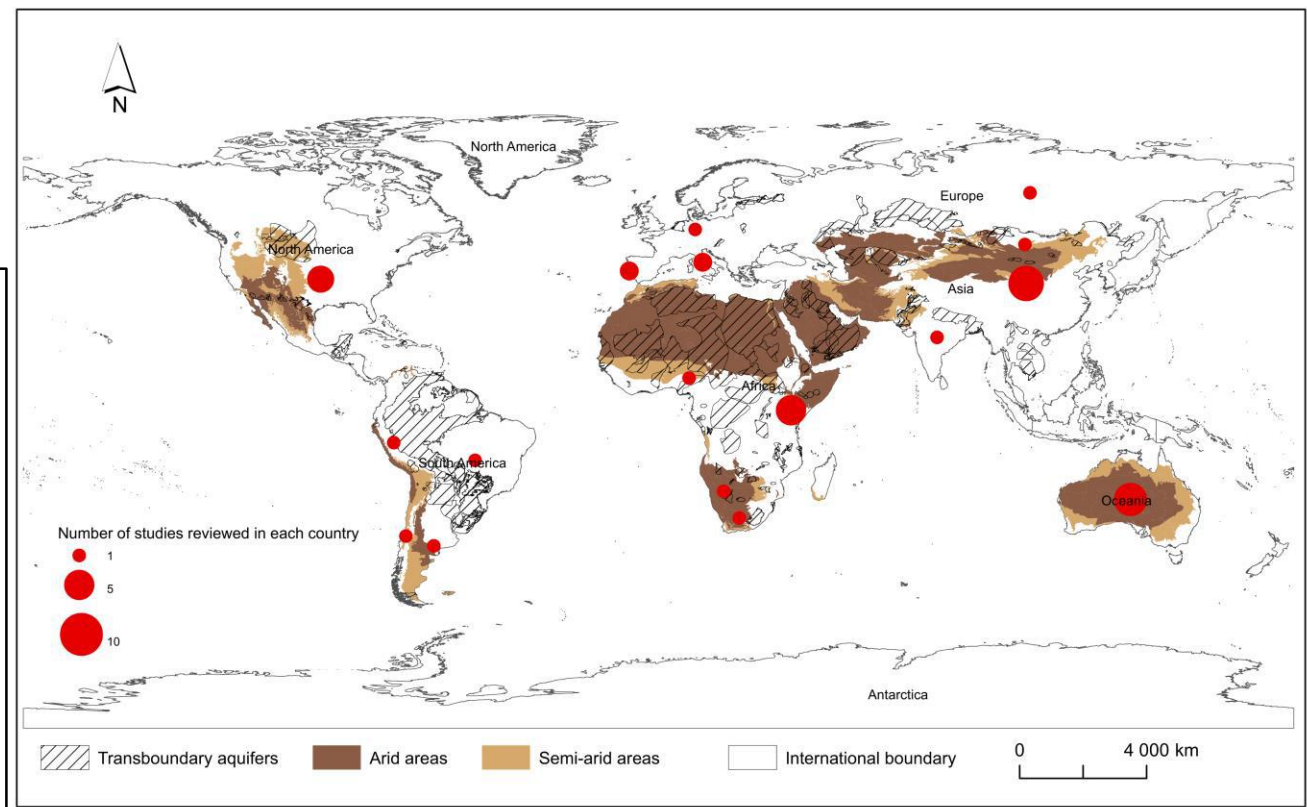
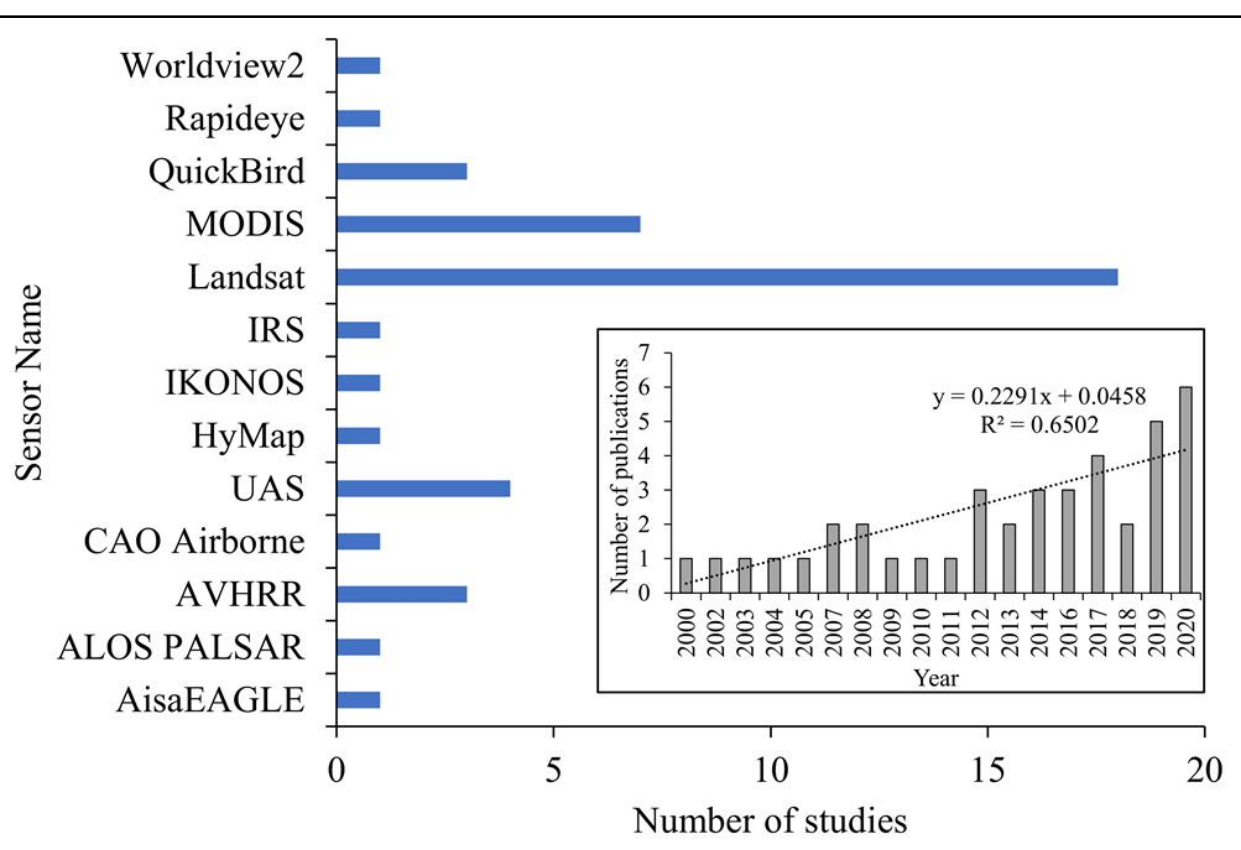
Objectives

- 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.

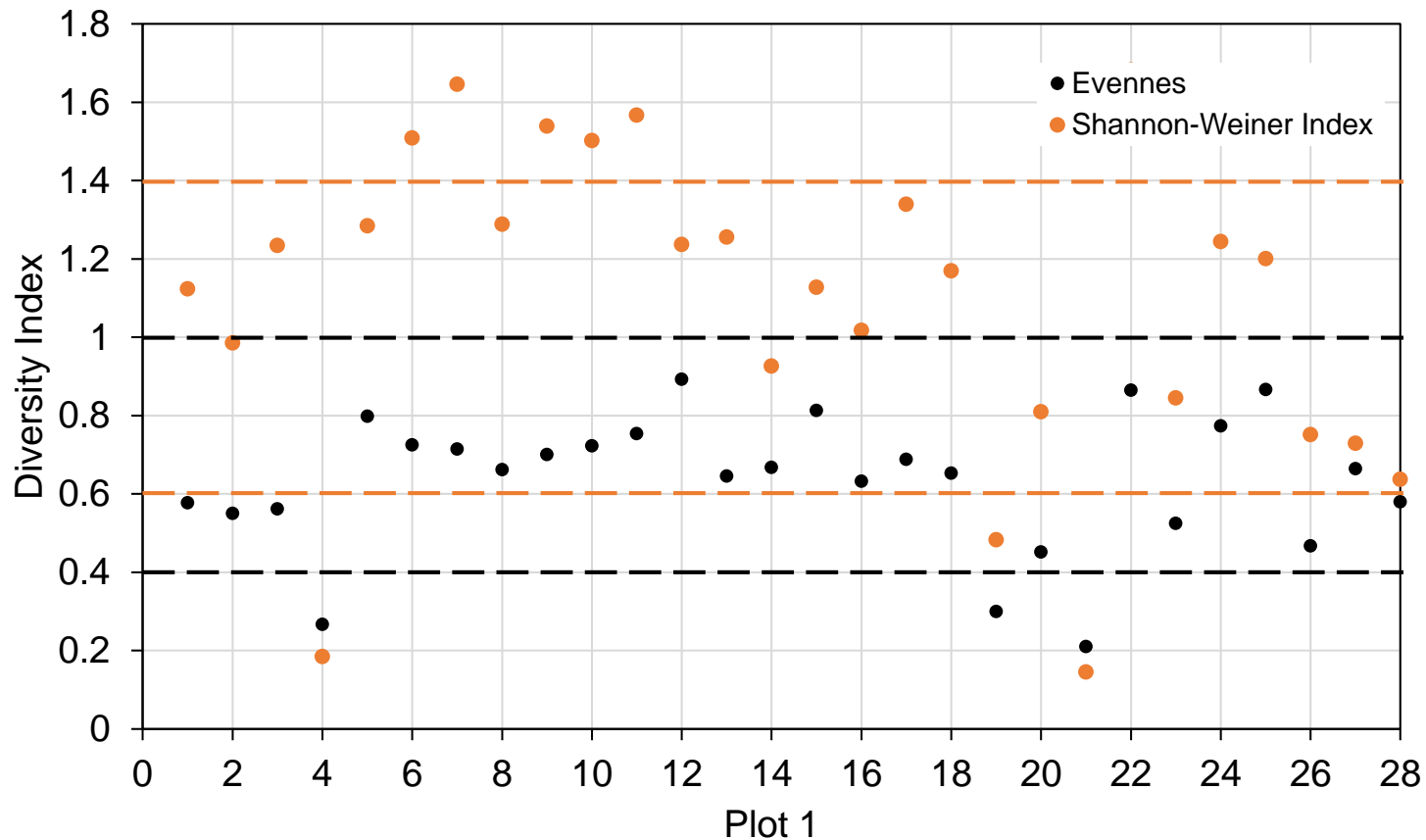
MSc Road map



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