Conceptual Methodology for Subterranean Fauna Habitat Modelling
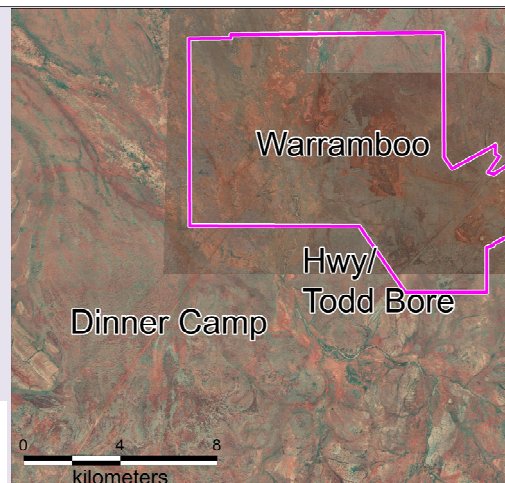
Warramboo/Highway/Tod Bore, Q1 2018
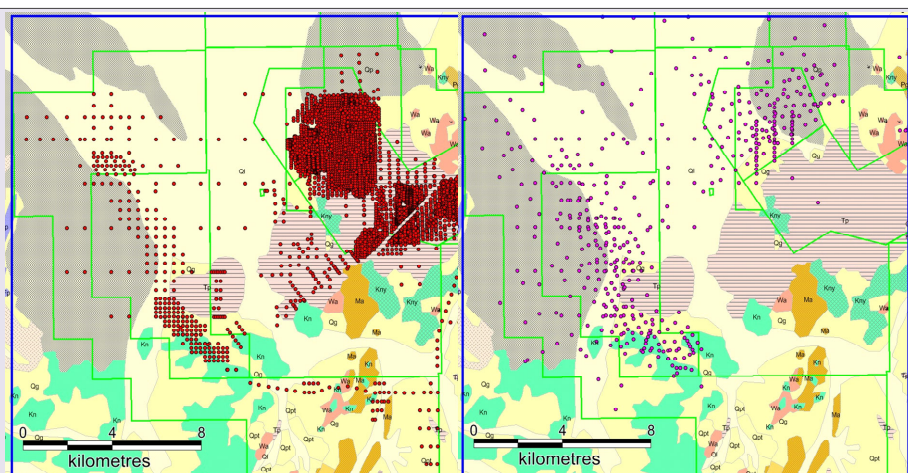
1. Define the location

Warramboo

Hwy/Todd Bore

Dinner Camp

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0   4   8
kilometers

2. Collate available data sources

- geological mapping
- geophysical mapping
- downhole drilling information
- geotechnical information
- core data (if available), including photos

0   4   8
kilometres

Red dots = geological drill logs available


0   4   8
kilometres

Historical publicly available data (DMIRS)

3. Calculate habitat thickness at each data point (drillhole)

In this case habitat was channel iron deposits (CID)

Location and direction of viewing

Plunge +18
Azimuth 358

0   500   1000   1500
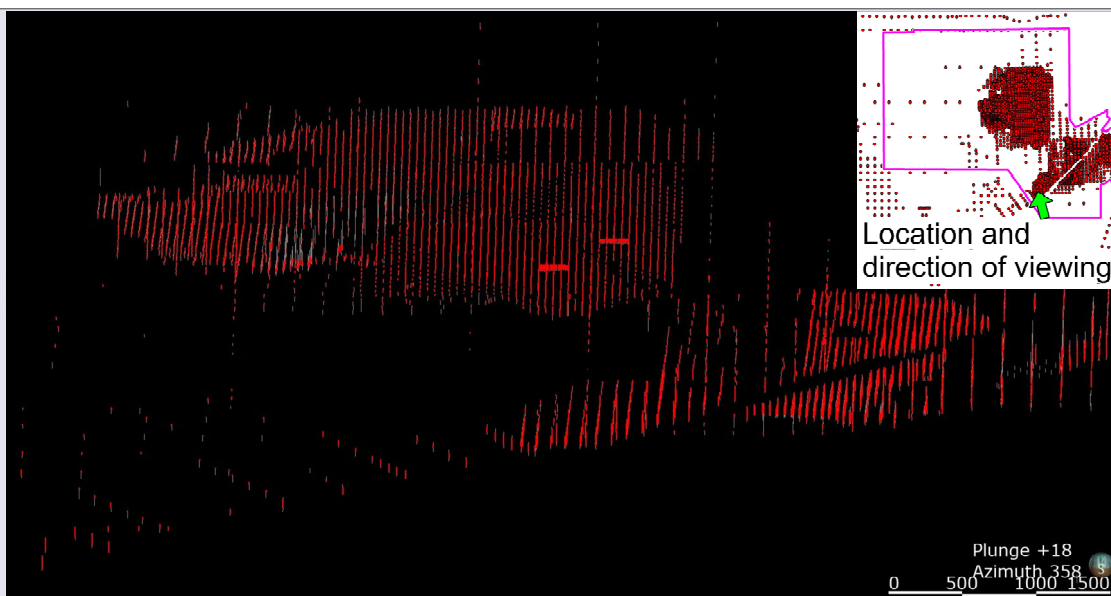
Cross section shows a 3D tilted image of CID thickness in each hole (red bars)

4. Establish water table levels using groundwater contour data

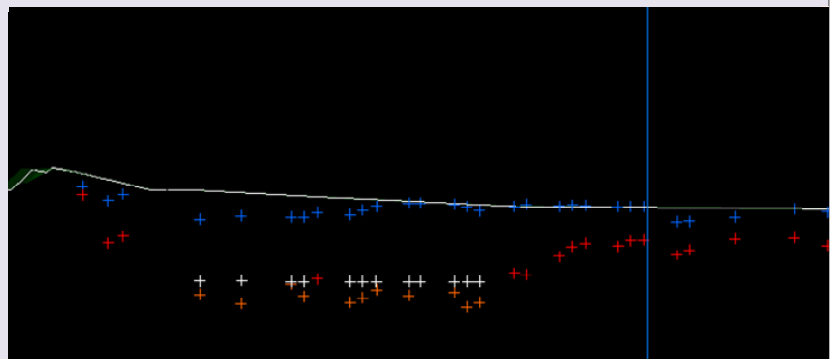Mesa A Hub proposed Part IV boundary

pre-mining water contours
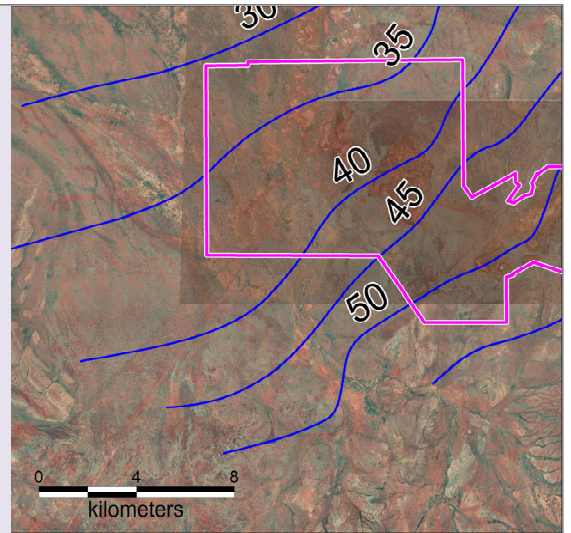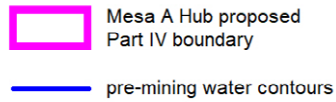
5. Calculate thickness of above water table CID

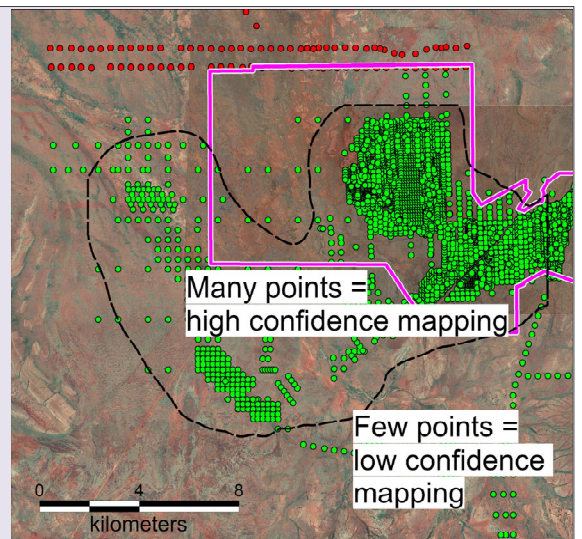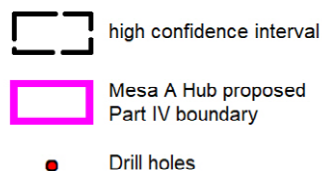Troglofauna don't reside below the water table
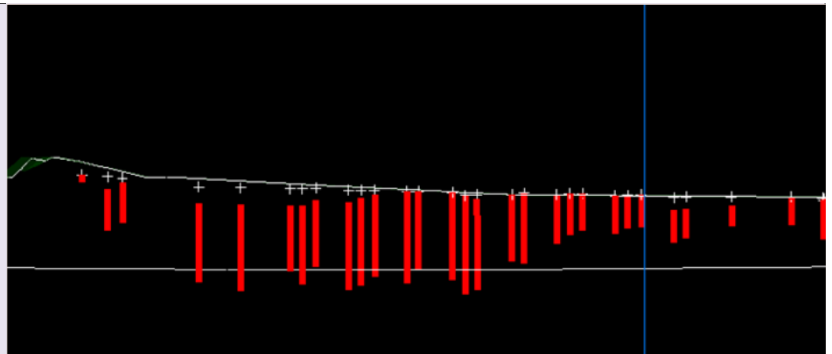
Cross section showing CID depth (red bars) in relation to the water table (lower white line)

Resulting above water table CID depth once below water table is removed. Top of CID interval (blue), bottom of CID interval (red) and water table (white).
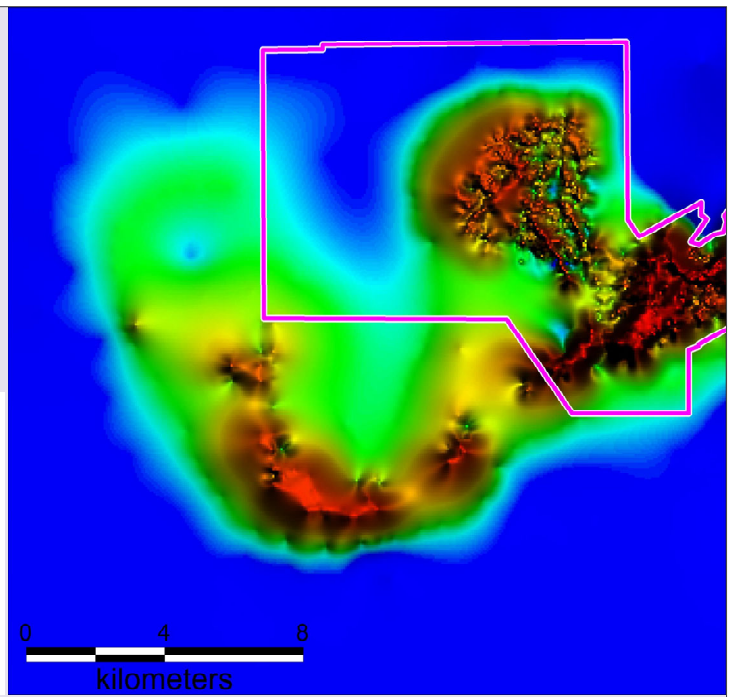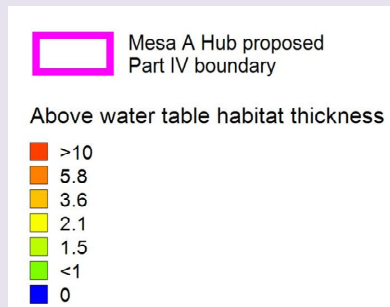
6. Determine high and low confidence areas
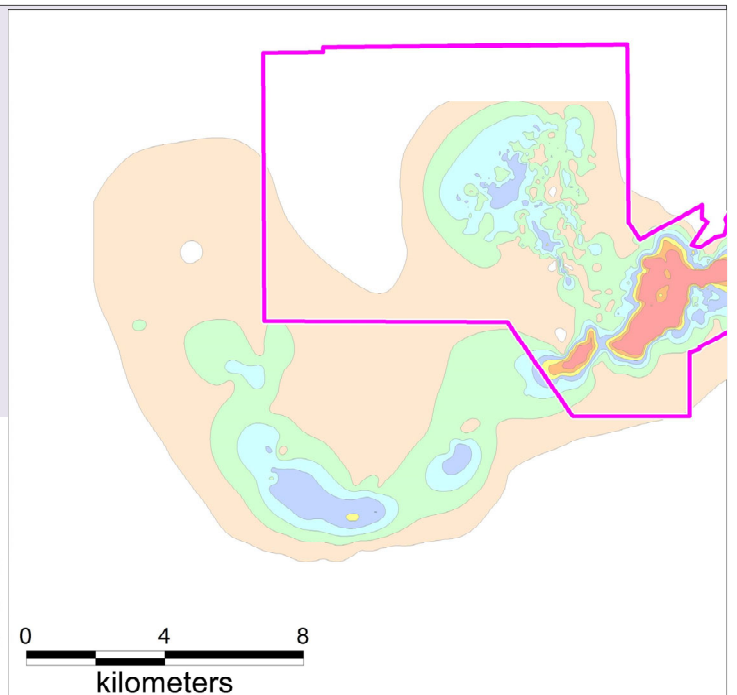
Based on drill hole density

high confidence interval

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Drill holes

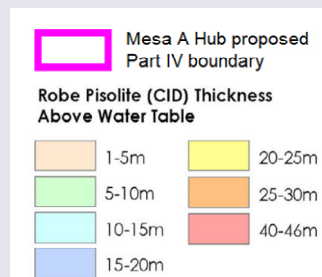Many points = high confidence mapping

Few points = low confidence mapping

7. Create 3D surface/ raster map of above water table CID thickness

Use spatial interpolation of point data combined with confidence information

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Above water table habitat thickness

- >10
- 5.8
- 3.6
- 2.1
- 1.5
- <1
- 0

0   4   8

kilometers

8. Produce CID contour map

Use pre-defined categories to split the 3D surface/ raster image into sections

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Robe Pisolite (CID) Thickness Above Water Table

|	
1-5m	20-25m
5-10m	25-30m
10-15m	40-46m
15-20m	

0   4   8

kilometers

10. Determine habitat prospectivity categories

Habitat prospectivity	Geological Unit
High	Robe Pisolite (TP; >5m thickness)
Medium	Robe Pisolite (TP; 1-5m thickness)
Low	Robe Pisolite (TP; <1m thickness)

11.Map habitat prospectivity

Amalgamate geological and 3D habitat thickness maps

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Habitat Prospectivity

- High
- Medium
- Low

0   2.5   5
kilometers
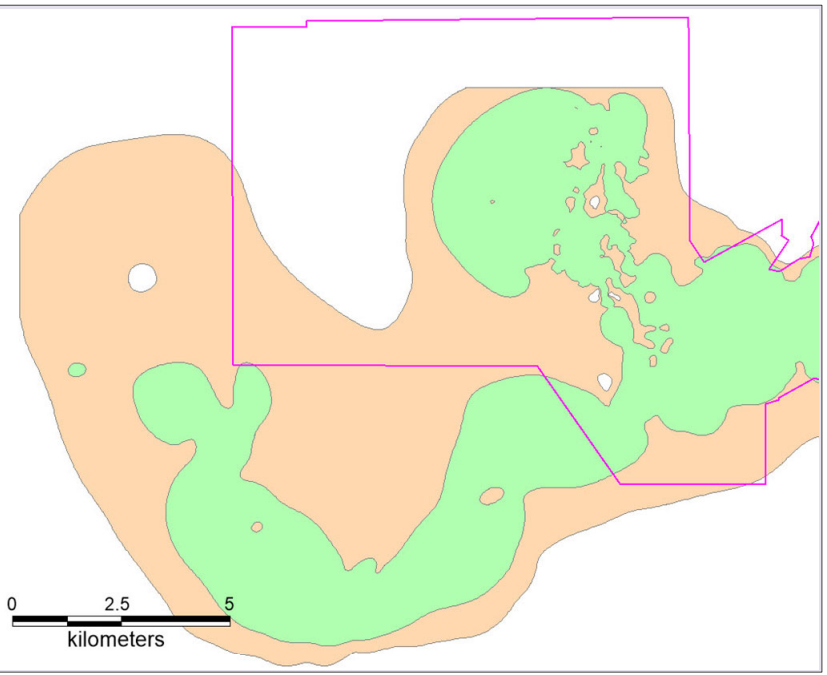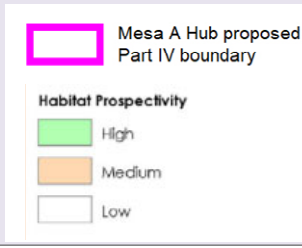
12. Overlay high and low confidence mapping limits on habitat prospectivity mapping

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Habitat Prospectivity

- High
- Medium
- Low

high confidence mapping

low confidence mapping

0   2.5   5
kilometers
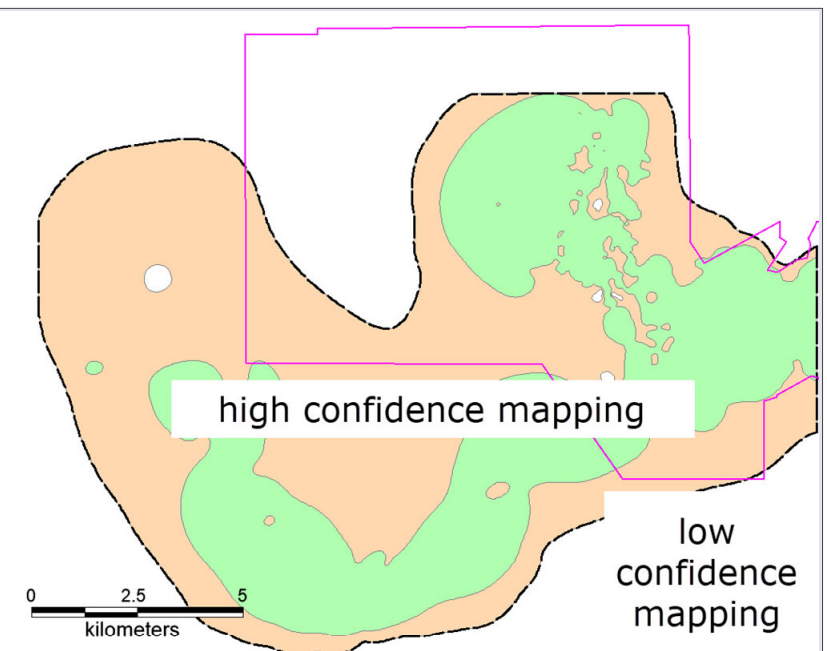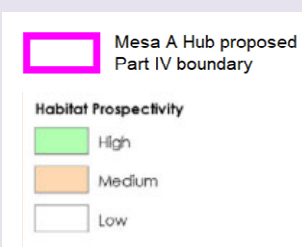
13. Overlay specimen results and null records

Validate that modelling is representative of actual results

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Habitat Prospectivity

- High
- Medium
- Low
- Trog specimen
- Trog sampling
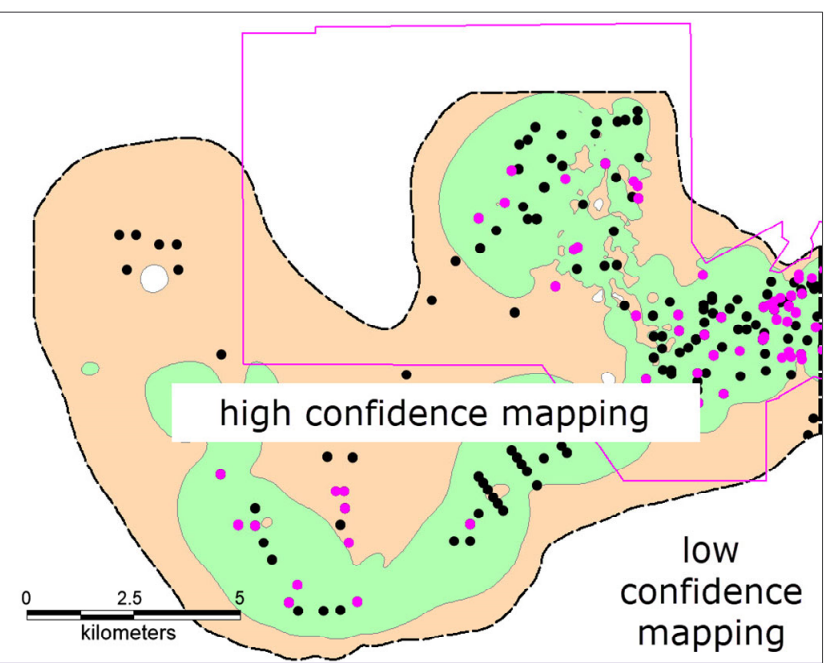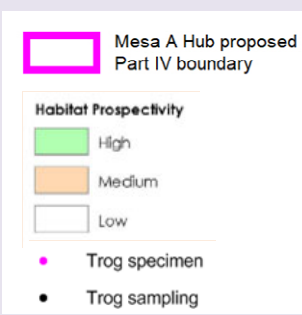
*Note that troglofauna records outside the high confidence interval are located in a different geological habitat which requires a separate modelling analysis.

high confidence mapping

low confidence mapping

0   2.5   5
kilometers