environmental management

saunders havill group

Property Map of Assessable Vegetation

Carmichael Coal Rail Project
Separable Proportion 2 (SP2)

6396 E
August 2012
Adani Mining Pty Ltd

Document Control

Title	Property Map of Assessable Vegetation
Job Number	**6396**
Client	Adani Mining Pty Ltd

Document Issue

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Draft	14/08/2012	Dave Havill/ Andrew Craig	Ross Marshall
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Reports and/or Plans by Others

Reports and/or plans by others may be included within this Environmental Management report to support the document.

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I. Introduction

The Saunders Havill Group (SHG) was engaged by Adani Mining Pty Ltd (Adani) to prepare Complex Property Maps of Assessable Vegetation (PMAV) to support requested Regional Ecosystem (RE) mapping amendments for the Carmichael Coal Rail Project investigation corridor. The Carmichael Coal Rail Project has been granted a Rail Feasibility Investigators Authority (RFI Authority) by the Chief Executive of the Department of Transport and Main Roads who administers the *Transport Infrastructure Act 1994*.

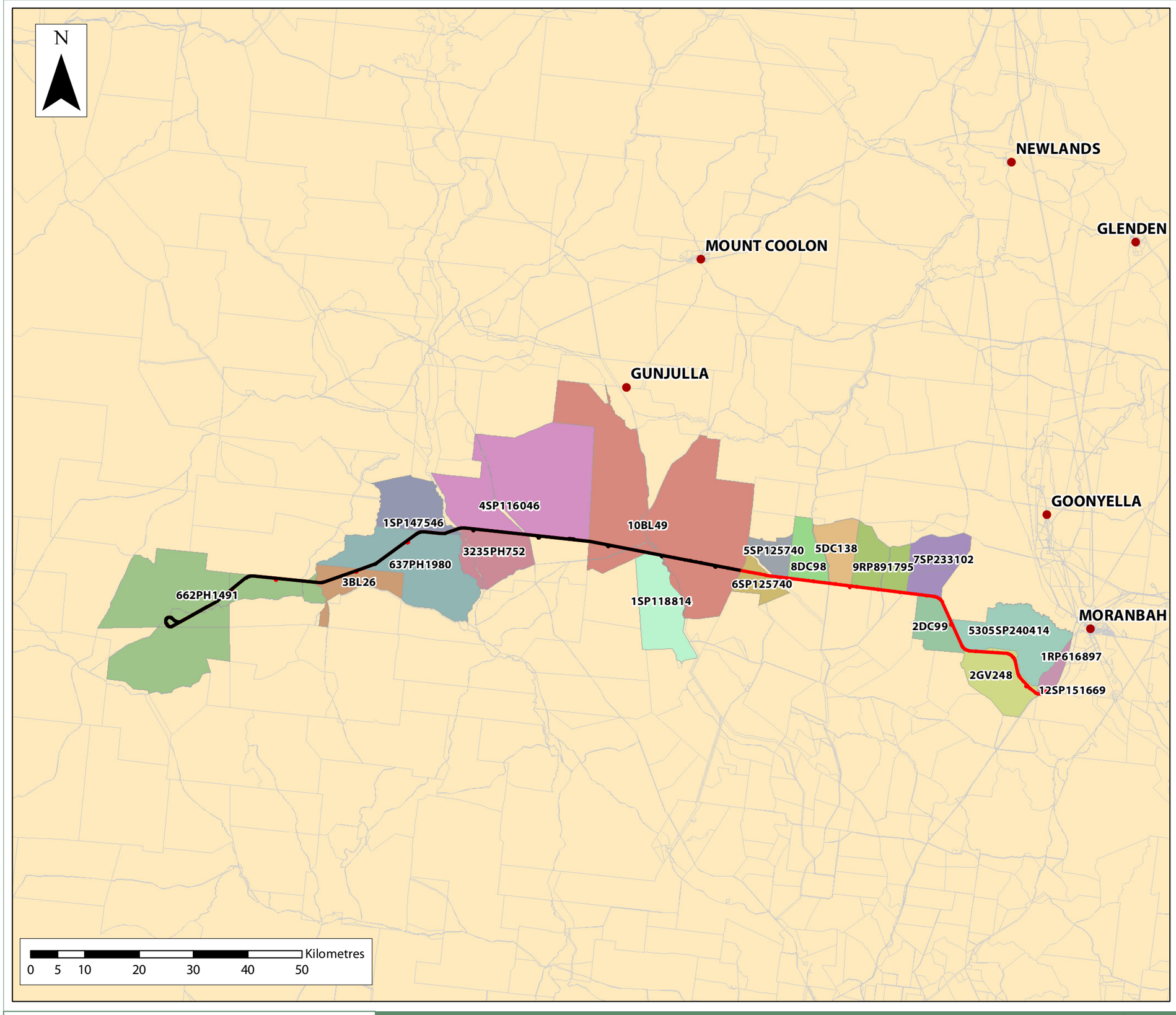
The RFIA Authority covers a 500m wide corridor extending from the proposed mine (EPC 1690) to the existing or national rail infrastructure at Moranbah. The investigation area was refined to an area of 95 metres for the mapping amendment investigation with access obtained via mutual agreement.

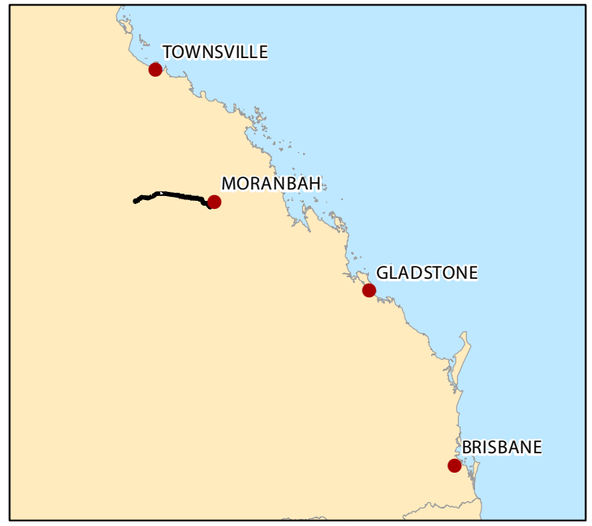
This report has been prepared for Separable Proportion 2 (SP – 2) of the Adani rail corridor and describes field survey effort and site based observations supporting proposed changes to RE mapping. It is noted that no mapped remnant or regrowth vegetation communities occur within either the Fordyce or Mount Dillingen Holding properties. These areas are not included as part of this report.

Reporting is per the requirements outlined within the Application Kit for a Property Map of Assessable Vegetation (2004) and the *Vegetation Management Act 1999* and has been separated on a property basis. The following properties make up SP – 2:

1. H & S Dahl (Lot 6 on SP125740);
2. H & T Jones (Lot 5 on SP125740);
3. T Jones (Lot 8 on DC98);
4. L & O Scott (Lot 5 on DC138);
5. H & S Philip (Lot 9 on RP891795);
6. A Fordyce (Lot 7 on SP233102) – *No PMAV required*;
7. K, S & R Hughes (Lot 2 on DC99);
8. M & R Flohr (Mount Dillingen Holding) (Lot 5305 on SP240414) – *No PMAV required*;
9. E & R Acton (Rugby Run) (Lot 2 on GV248); &
10. BHP Coal (Lot 12 on SP151669 and Lot 1 on RP616897).

Refer Plan1: SP-2 Overview.





Legend

- Rail Alignment (SP2)
- Rail Alignment (SP1)
- PMAV Properties (SP1 & SP2)
- DCBD

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Adani Rail Project

Property Overview (SP1 & SP2)

SHG File | 5950
Date | 5/09/2012
Scale | 1:700,000@ A3
Data Information:
Universal Transverse Mercator
GDA 1994 MGA Zone 55

Client | Adani Mining Pty Ltd
Project | EIS
Address/RPD | Isaac Regional Council
Source | DCBD (Derm 2012), Aerial (Vetka 2011)

Plan 1

2. Overview

The SP – 2 component of the proposed Adani Rail Corridor is largely situated within a disturbed agricultural setting which retains few vegetation values. Remaining mapped remnants are generally associated with watercourses that have been retained as part of historical clearing practices associated with agricultural activities.

Vegetation remaining outside of watercourses is generally present in small clumps and forming linear patches retained along property boundaries. In these locations RE mapping requires minor alterations to accurately reflect the extent or presence of remnant vegetation at the property scale. This rectification process has been undertaken using a combination or aerial photo analysis or field confirmation.

The eastern end of the rail corridor extends through a broader patch of Least Concern and Endangered vegetation associated with Mount Dillingen which forms part of a north south vegetated corridor.

Few RE mapping amendments are proposed along the SP – 2 corridor. This is expected due to the dominance of Least Concern and Of Concern vegetation communities that are relatively common within the local landscape and generally accurately mapped by current Regional Ecosystem mapping.

3. Methodology

A detailed site assessment was conducted to accurately map and define vegetation into categories as defined by the Queensland Herbarium. The methodology is designed to ensure an accurate delineation of the separate polygons and ensure all supporting information responds to the requirements of a properly made Property Map of Assessable Vegetation submission. The following stages were undertaken:

1. Desktop Research;
2. Review of Aerial Imagery;
3. Detailed Vegetation Survey; and
4. GIS Mapping of Vegetation Communities.

3.1. Desktop Research

Prior to the site survey, the following vegetation based information sources were assessed to assist in the final determination of the on-site survey methodology:

- Existing vegetation mapping released under the provisions of the *Vegetation Management Act 1999* and Regional Ecosystem descriptions;
- Queensland Herbarium mapping methodology and procedures outlined in Neldner, V.J, Wilson, B.A., Thompson, E.J. and Dillewaard, H.A. (Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland);
- Environmental Database Searches for the *Environmental Protection and Biodiversity Conservation Act 1999*.
- Applicable Schedules of the *Nature Conservation (Wildlife) Regulation 1994*;
- Geology (250K), soils and Topographical Maps (as required); and
- Specific Queensland Herbarium searches for records of unknown or specific vegetation species listed to occur in the region.

3.2. Aerial Imagery Analysis

Adani Mining Pty Ltd provided contemporary aerial imagery for the Carmichael Rail Corridor flown in March 2011. Where the alignment varied from the flown corridor, Google Earth imagery was utilised to supplement information.

Aerial imagery was reviewed prior to field survey analysis to identify potential variations in vegetation community type and structure. Imagery was used to create draft vegetation polygons requiring analysis in the field. Survey effort was targeted to these locations to confirm Regional Ecosystems present.

3.3. Detailed Vegetation Survey

Following the broad delineation of vegetation communities using aerial photography and information obtained in the desktop review, a detailed vegetation survey was conducted to locate, describe and map the regional ecosystem polygons. Methodologies followed the Queensland Herbarium mapping methodology and procedures outlined in Neldner, V.J, Wilson, B.A., Thompson, E.J. and Dillewaard, H.A. (Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland – version 3.1).

Mapped Remnant Vegetation

A transect methodology was adopted to gain an accurate representation of the canopy species within each vegetation polygon where the regional ecosystem (RE) code is disputed.

The assessment of remnant mapped areas involved a random transect 100m long and 50m wide within the mapped remnant polygon. Detailed data sheets and GPS markings were recorded within each site using standard Queensland Herbarium Map Assessment Request forms.

Information on the height and composition of vegetation was recorded at each GPS location with information later analysed to assess the extent of disturbance and accuracy of species canopy mix. All data was collected using a Trimble GEO-XT with sub 1m accuracy.

Mapped Grassland Communities

Locations containing mapped grassland communities were assessed using a Secondary Transect methodology as detailed within Queensland Herbarium mapping methodology and procedures outlined in Neldner, V.J, Wilson, B.A., Thompson, E.J. and Dillewaard, H.A. (Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland – version 3.1).

3.4. GIS Mapping of Vegetation Communities

Filed survey data was reviewed in combination with aerial imagery to refine mapped vegetation polygons and assign RE codes. Where possible, reference data was obtained either in the field or through discussions with the Qld Herbarium. Where reference data was not available SHG ecologists drew on internal data sources collected during historical surveys within the region. Information was used to compare transect results and final remnant polygons assigned.

4. H&S DAHL Lot 6 on SP125740

The *Vegetation Management Act Regional Ecosystem and Remnant Map Version 6.1* identifies two RE communities and three High Value Regrowth communities across two Landzones within the H & S Dahl property. Preclear data was used to determine the REs of the high value regrowth.

This property is one of the more vegetated properties within SP – 2 with two areas of remnant vegetation mapped. The first community is an Of Concern polygon situated on a Cainazoic Plains with the other an Of Concern community associated with Diamond Creek. RE mapping within these areas is generally consistent with current RE mapping.

Based on the detailed field assessment, the application area was divided into four (4) assessment areas based on the location of the mapped remnant & high value regrowth polygons and status of the regional ecosystem community.

Table 1: Dahl Summary

Site	Current RE Mapping Version 6.1	Current RE Mapping Version 6.1 (Area)	RE Observed	RE Observed (Area)
H & S Dahl Area A – Polygon 1	Of Concern RE 11.4.11/11.4.6	4.9 ha	Of Concern RE 11.4.11	4.9 ha
H & S Dahl Area B – Polygon 1	Of Concern High Value Regrowth	2.7 ha	Of Concern High Value Regrowth	2.7 ha
H & S Dahl Area B – Polygon 2	Endangered High Value Regrowth	< 0.5ha	Of Concern High Value Regrowth	*Included in above RE area*
H & S Dahl Area C – Polygon 1	Endangered High Value Regrowth	0.5 ha	Of Concern High Value Regrowth	2.0 ha
H & S Dahl Area C – Polygon 2	Of Concern High Value Regrowth	1.5 ha	Of Concern High Value Regrowth	*Included in above RE area*
H & S Dahl Area C – Polygon 3	Of Concern RE 11.3.3 / 11.4.1	14.3 ha	Of Concern RE 11.3.3 / 11.4.1	14.3 ha

4.1. H & S Dahl Area A – Polygon 1

Table 2: Dahl Area A - Polygon 1 Summary

Site Description		
Location:	H & S Dahl; Lot 6 on SP125740	
Site Description:	The site is located within a mapped vegetation community comprised of Of Concern RE 11.4.11/11.4.6. Refer to Figure 1. Field surveys within this location describe the presence of a canopy dominated by *Acacia cambagei* and *Acacia harpphylla* representing RE 11.4.6, with a ground layer consistent with native grassland RE 11.4.11. Both of these RE communities have an Of Concern Status and therefore no changes to RE mapping are proposed within this location. Refer to Transect 1 within Appendix A and Figure 2.	
Datum:	GDA94 (MGA55)	
Eastings/Northings	Eastings	Northings
	543,617 m E	7,577,401 m S

Regional Ecosystem Profile	
Current RE Mapping (Version 6.1)	Of Concern RE 11.4.11/11.4.6
Regional Ecosystem Observed:	Of Concern RE 11.4.11 / 11.4.6
Width of RE	-

Photo: Area A - Polygon 1

Transect 1 situated within Of Concern RE 11.4.11/11.4.6.

Figure 1: Regional Ecosystem Mapping and Survey Effort (Lot 6 on SP125740 Area A)

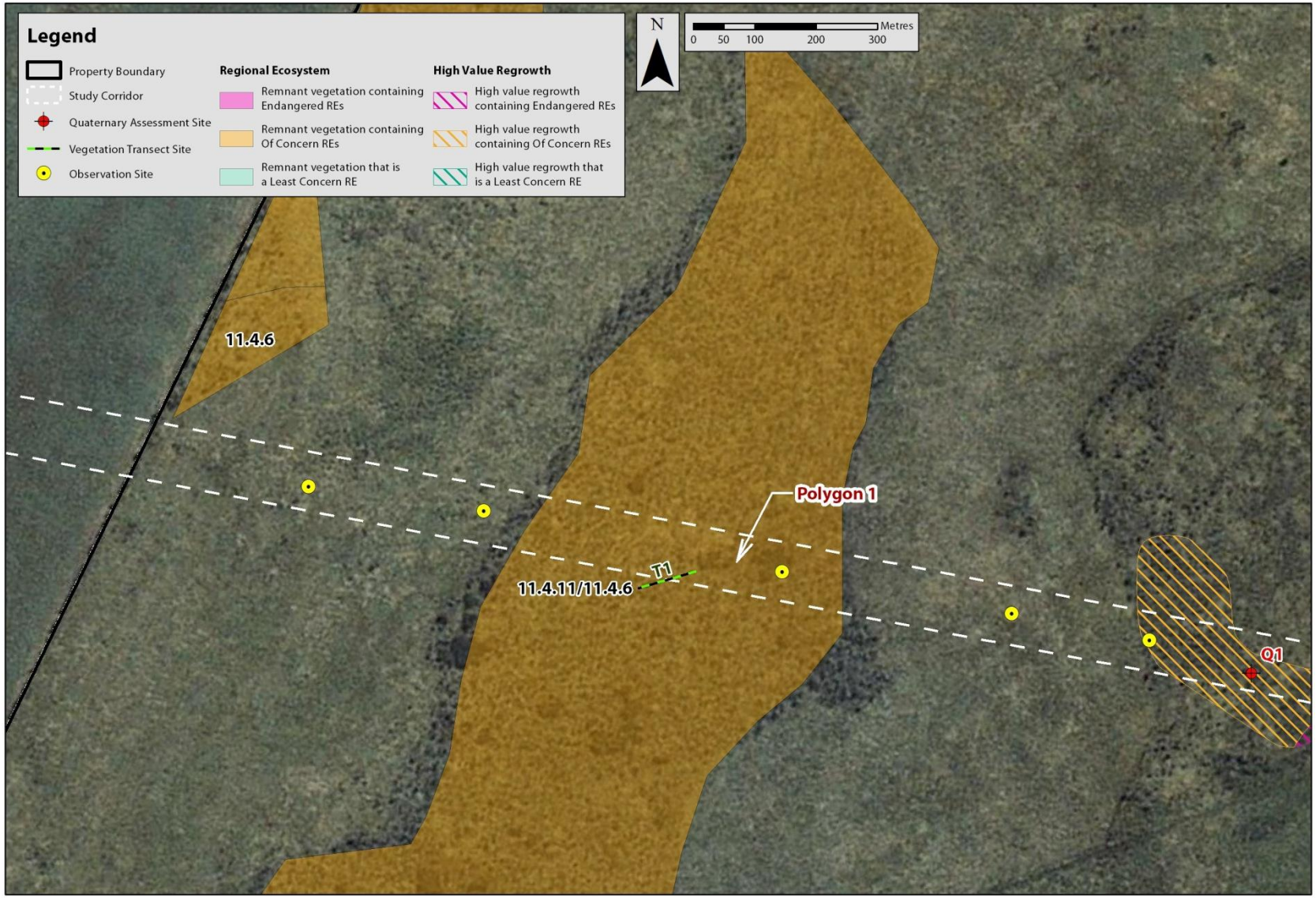
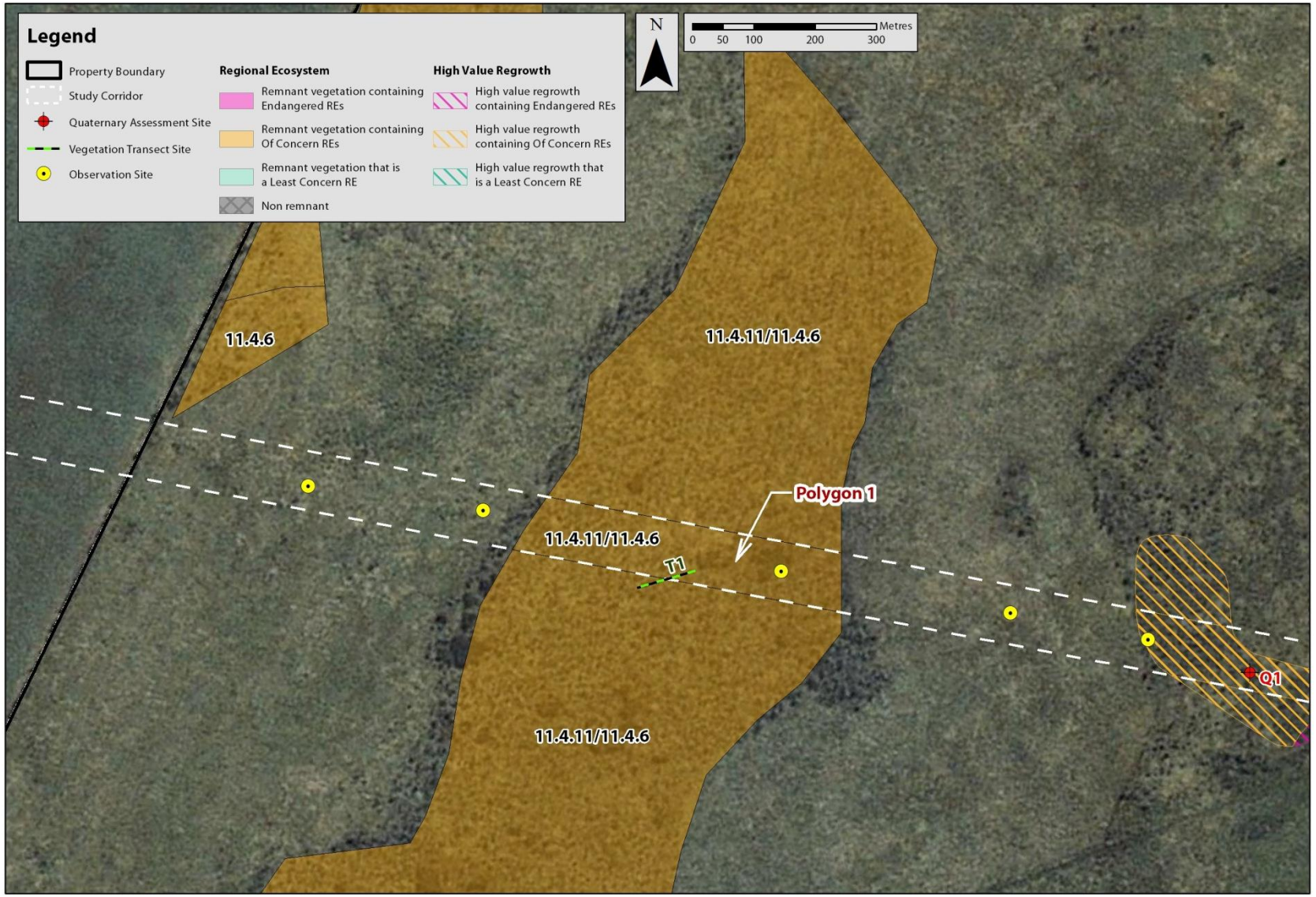


Figure 2: Regional Ecosystem Changes (Lot 6 on SP125740 Area A)



4.2. H & S Dahl Area B – Polygon I

Table 3: H & S Dahl Area B - Polygon 1 Summary

Site Description		
Location:	H & S Dahl; Lot 6 on SP125740	
Site Description:	The site is located within a mapped vegetation community comprised of Of Concern High Value Regrowth. Refer to Figure 3. No changes are proposed to this regrowth polygon. Species observed during the field survey include *Terminalia oblongata* and *Eremophila mitchellii* as detailed in Quaternary Site 1 No Mapping amendments are proposed within Area B –Polygon 1. Refer to Quaternary Site 1 within Appendix A and Figure 4 .	
Datum:	GDA94 (MGA55)	
Eastings/Northings	Eastings	Northings
	544,466 m E	7,577,291 m S

Regional Ecosystem Profile	
Current RE Mapping (Version 6.1)	Of Concern High Value Regrowth
Regional Ecosystem Observed:	Of Concern High Value Regrowth
Width of RE:	-

4.3. H & S Dahl Area B – Polygon 2

Table 4: H & S Dahl Area B - Polygon 2 Summary

Site Description		
Location:	H & S Dahl; Lot 6 on SP125740	
Site Description:	The site is located within a mapped vegetation community described as High Value Regrowth containing Endangered Regional Ecosystems. Refer to Figure 3. Species observed during the field survey include *Terminalia oblongata* and *Eremophila mitchellii* as detailed in Area B – Polygon 1. In addition a number of *Geijera parviflora* specimens were observed within this area further indicating High Value Regrowth containing Of Concern RE 11.4.6 Refer to Figure 4	
Datum:	GDA94 (MGA55)	
Eastings/Northings	Eastings	Northings
	544,466 m E	7,577,291 m S
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Endangered High Value Regrowth	
Regional Ecosystem Observed:	Of Concern High Value Regrowth	
Width of RE:	-	

Photo: Area B - Polygon 2
Example of High Value Regrowth containing RE 11.4.6

Figure 3: Regional Ecosystem Mapping and Survey Effort (Lot 6 on SP125740 Area B)

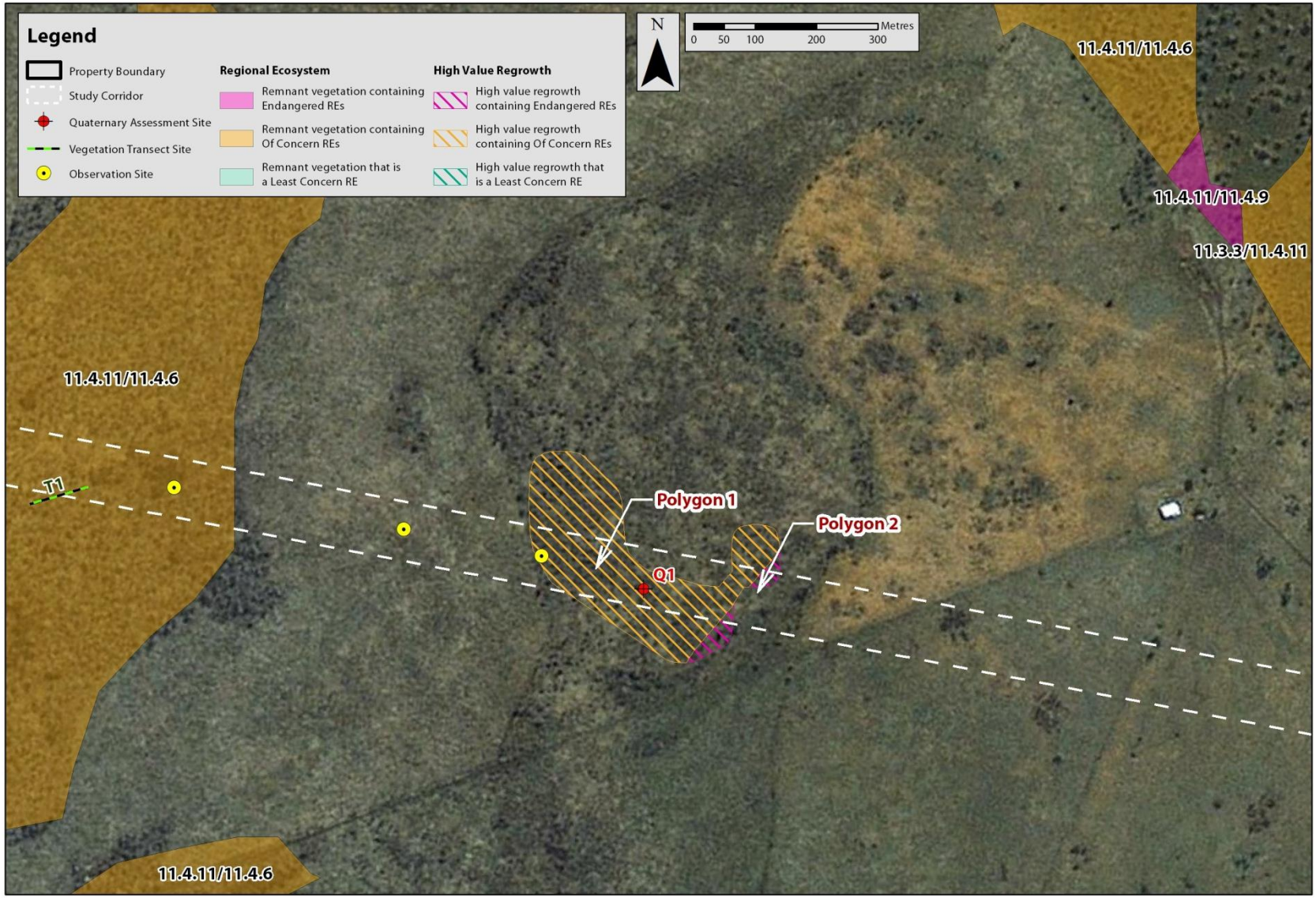
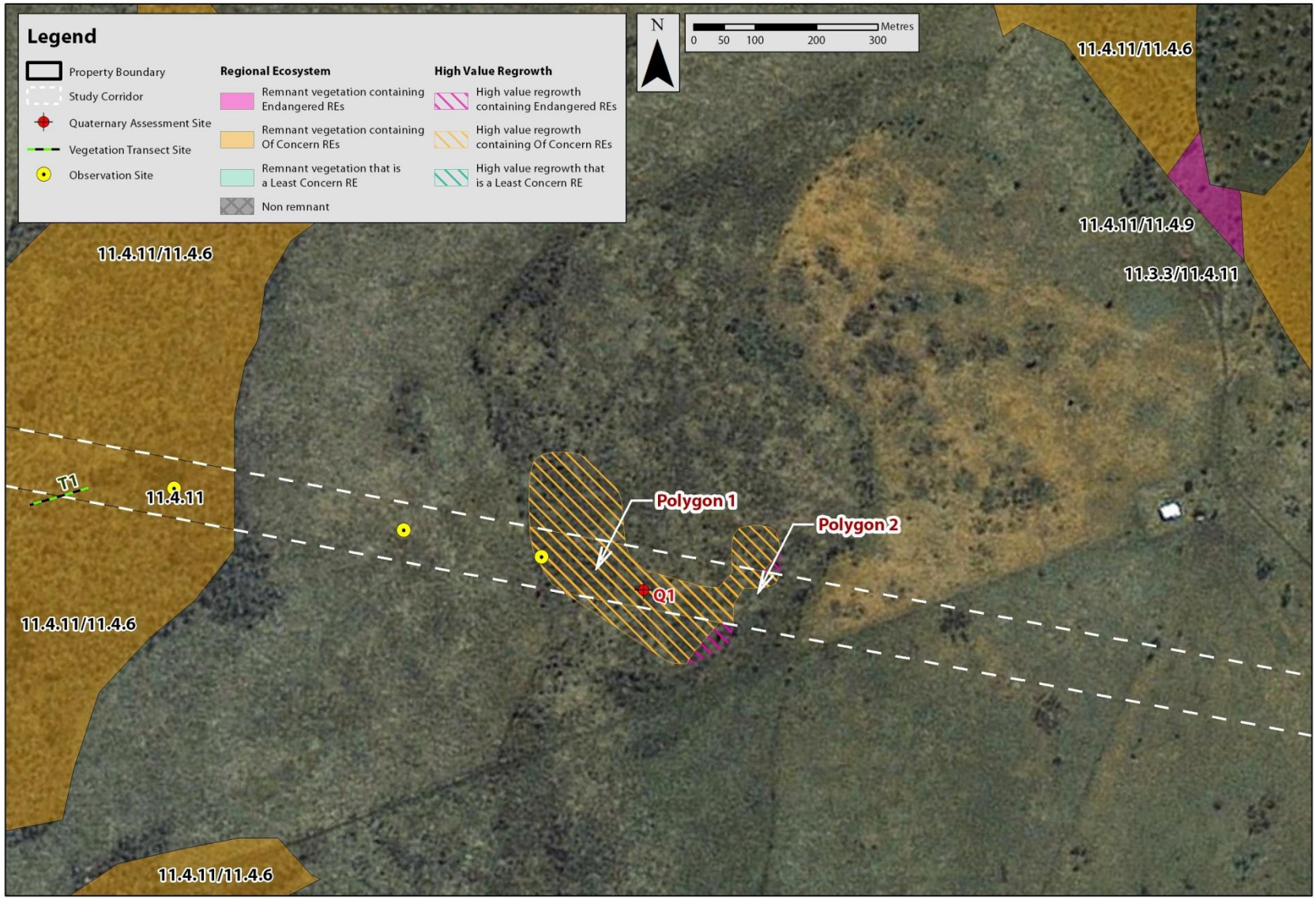


Figure 4: Regional Ecosystem Changes (Lot 6 on SP125740 Area B)



4.4. H & S Dahl Area C – Polygon I

Table 5: H & S Dahl Area C - Polygon 1 Summary

Site Description		
Location:	H & S Dahl ; Lot 6 on SP125740	
Site Description:	The site is located within a mapped vegetation community comprised of Endangered High Value Regrowth. Refer to Figure 5. Vegetation within this location is consistent with the mapped adjacent Remanat Vegetation and includes species consistent with Of Concern RE 11.3.3. Species are dominated by Ecalyptus coolabah and the presence of *Acacia Harpophylla* and *Terminalia oblongata*. The mapped High Value Reegowth is proposed as Of Concern Regrowth. Refer to Quaternary Site 2 within Appendix A and Figure 6.	
Datum:	GDA94 (MGA55)	
Eastings/Northings	Eastings	Northings
	544,466 m E	7,577,291 m S
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Endangered High Value Regrowth	
Regional Ecosystem Observed:	Of Concern High Value Regrowth	
Width of RE:	-	

Photo: Area C - Polygon 1

Photo demonstrating presence of Regrowth Of Concern RE 11.3.3.

4.5. H & S Dahl Area C – Polygon 2

Table 6: H & S Dahl Area C - Polygon 2 Summary

Site Description		
Location:	H & S Dahl; Lot 6 on SP125740	
Site Description:	The site is located within a mapped vegetation community comprised of High Value Regrowth described as Of Concern. Refer to Figure 5. Vegetation within this location is consistent with the mapped adjacent Remnant Vegetation and includes species consistent with Of Concern RE 11.3.3. Species are dominated by *Eucalyptus coolabah* with *Acacia Harpophylla* and *Terminalia oblongata* also observed No map amendments are proposed. Refer to Quaternary Site 2 within Appendix A and Figure 6.	
Datum:	GDA94 (MGA55)	
Eastings/Northings	Eastings	Northings
	544,466 m E	7,577,291 m S
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Of Concern High Value Regrowth	
Regional Ecosystem Observed:	Of Concern High Value Regrowth	
Width of RE:	-	

4.6. H & S Dahl Area C – Polygon 3

Table 7: H & S Dahl Area C - Polygon 3 Summary

Site Description		
Location:	H & S Dahl; Lot 6 on SP125740	
Site Description:	The site is located within a mapped vegetation community comprised of Of Concern RE 11.3.3/11.4.11. Refer to Figure 5. Canopy species in this location are dominated by a monoculture of *Eucalyptus coolabah* with an understorey of native grasses as detailed in Transect 2. Landzone investigations would be required to separate these communities. However it is noted that bot RE 11.3.3 and 11.4.11 are Of Concern communities. No Mapping amendments are proposed within Area C –Polygon 3. Refer to Transect 2 within Appendix A and Figure 6.	
Datum:	GDA94 (MGA55)	
Eastings/Northings	Eastings	Northings
	544,466 m E	7,577,291 m S

Regional Ecosystem Profile	
Current RE Mapping (Version 6.1)	Of Concern RE 11.3.3/11.4.11
Regional Ecosystem Observed:	Of Concern RE 11.3.3/11.4.11
Width of RE	-

Photo: Area C - Polygon 3

Eucalyptus coolabah dominated canopy within RE 11.3.3/11.4.11

Figure 5: Regional Ecosystem Mapping v6.1 (Lot 6 on SP125740 Area C)

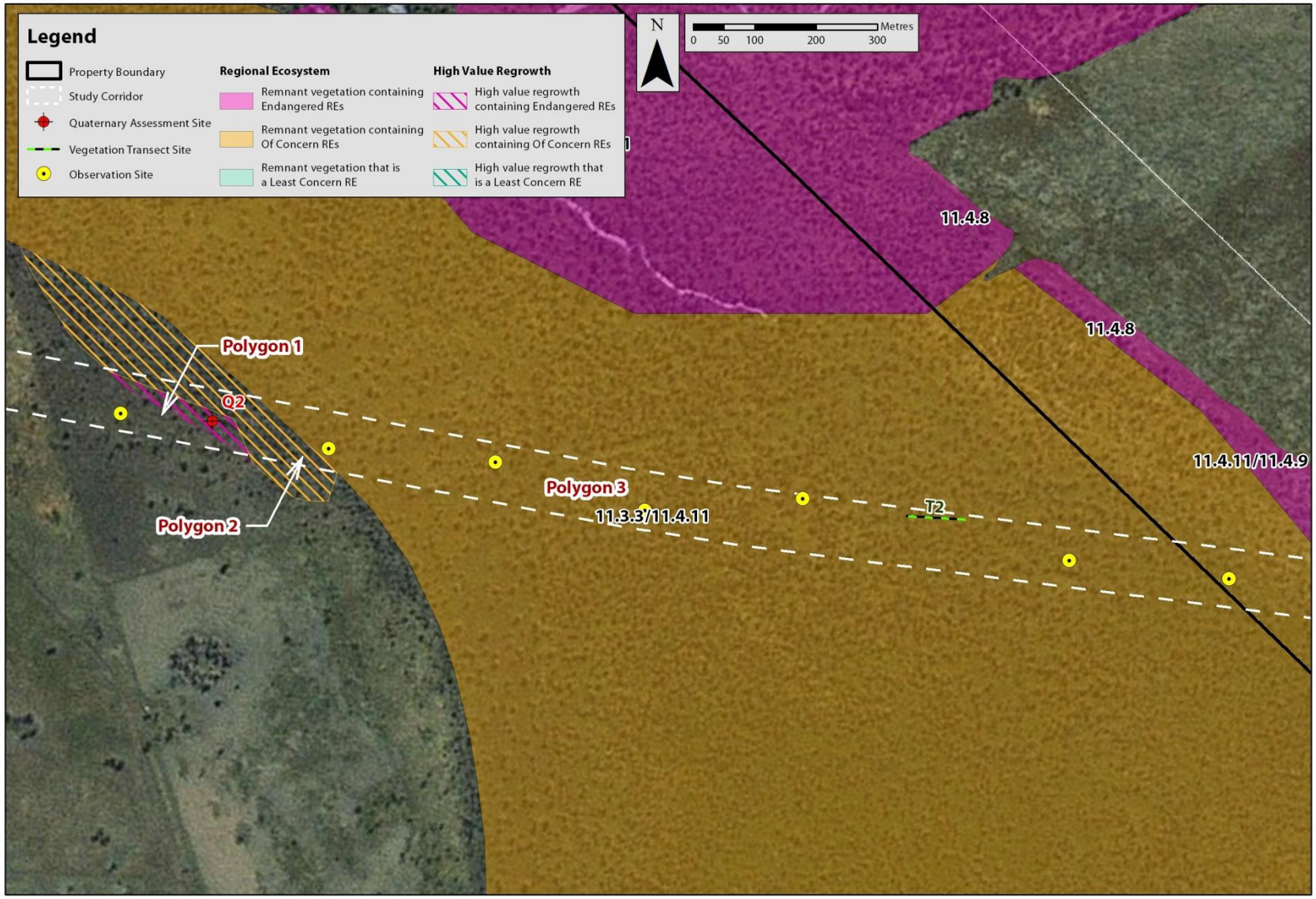
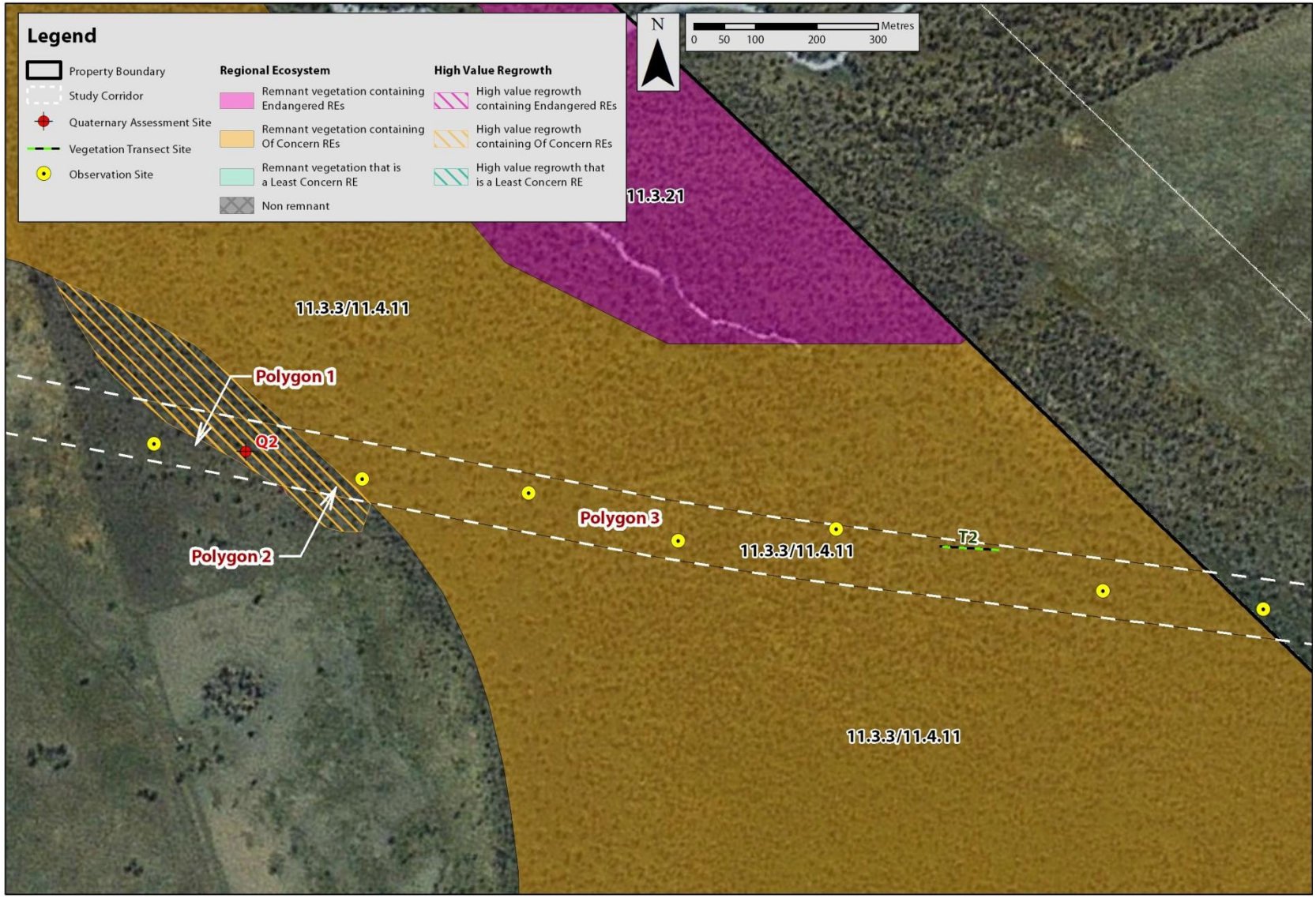


Figure 6: Regional Ecosystem Changes (Lot 6 on SP125740 Area C)



5. H & T Jones

The *Vegetation Management Act Regional Ecosystem and Remnant Map Version 6.1* shows three RE communities within the single Landzone within the H & T Jones property.

The main area of vegetation within this location is associated with a broader polygon which extends into the adjoining H & S Dahl property. The only other mapped area includes a thin patch of remnant Endangered RE which has been retained along the property boundary.

Based on the detailed field assessment, the application area within the H & T Jones Property was divided into two assessment areas based on the location of the mapped remnant polygons and status of the regional ecosystem community.

Table 8: H&T Jones

Site	Current RE Mapping Version 6.1	Current RE Mapping Version 6.1 (Area)	RE Observed	RE Observed (Area)
H & T Jones Area A – Polygon 1	Endangered RE 11.4.11/11.4.9	0.6 ha	Of Concern 11.4.11	0.6 ha
H & T Jones Area B – Polygon 1	Endangered RE 11.4.9	< 0.5 ha	Non-remnant	-

5.1. H&T Jones Area A – Polygon 1

Table 9: H & T Jones Area A Polygon 1 Summary

Site Description		
Location:	H & T Jones; Lot 5 on SP125740	
Site Description:	The site is located within mapped composite vegetation community described as Endangered RE 11.4.11 / 11.4.9 described as containing approximately 50% Endangered RE 11.4.9 and 50% Of Concern RE 11.4.11 (Figure 7) Field investigations confirmed the absence of RE 11.4.9 within this location with no *Acacia harpophylla* (Brigalow) specimens observed and the majority of the area devoid of canopy vegetation. Native grass species including *Dichanthium sericeum, Leptoschloa digitata, Bothrichloa* spp., *Heteropogon contortus* and *Themeda triandra* are consistent with those identified in RE11.4.11. *Eucalyptus coolabah* was identified within the survey area at low densities also supporting the presence of Of Concern RE 11.4.1. Area shows signs of historical clearing and grazing however disturbance levels appear low. Refer to Quaternary Site 1 and Figures 8 for the proposed mapping changes.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	548682.69	7576608.52
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Endangered RE 11.4.11/11.4.9	
Regional Ecosystem Observed:	Of Concern RE 11.4.11	
Width of RE:	70m	

Photo: Area A Polygon 1 –
The area mapped as remnant RE 11.4.11/11.4.9. RE 11.4.9 was not identified during survey with Acacia harpophylla absent from survey area.

Figure 7: Regional Ecosystem and Survey Effort (Area A)

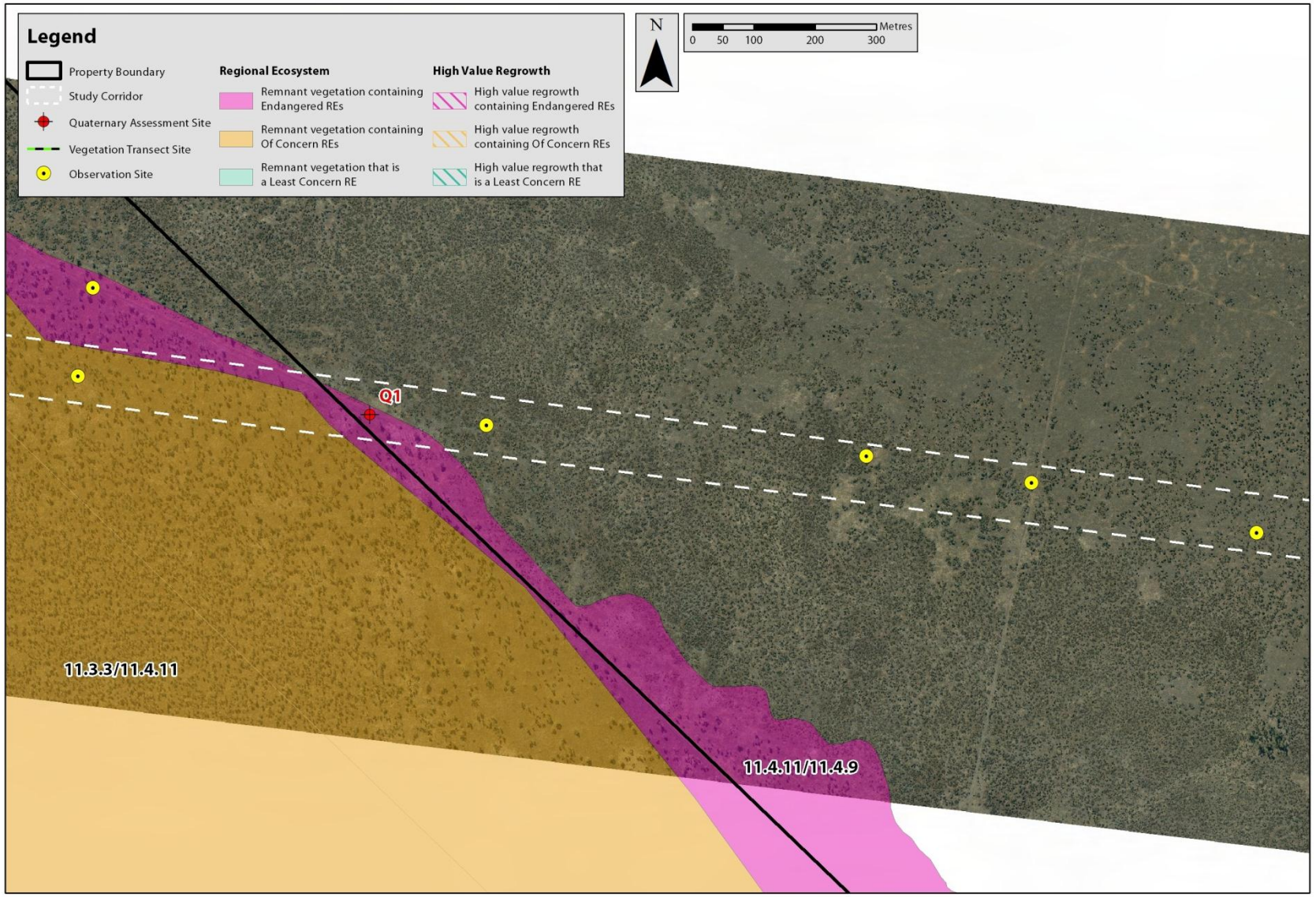
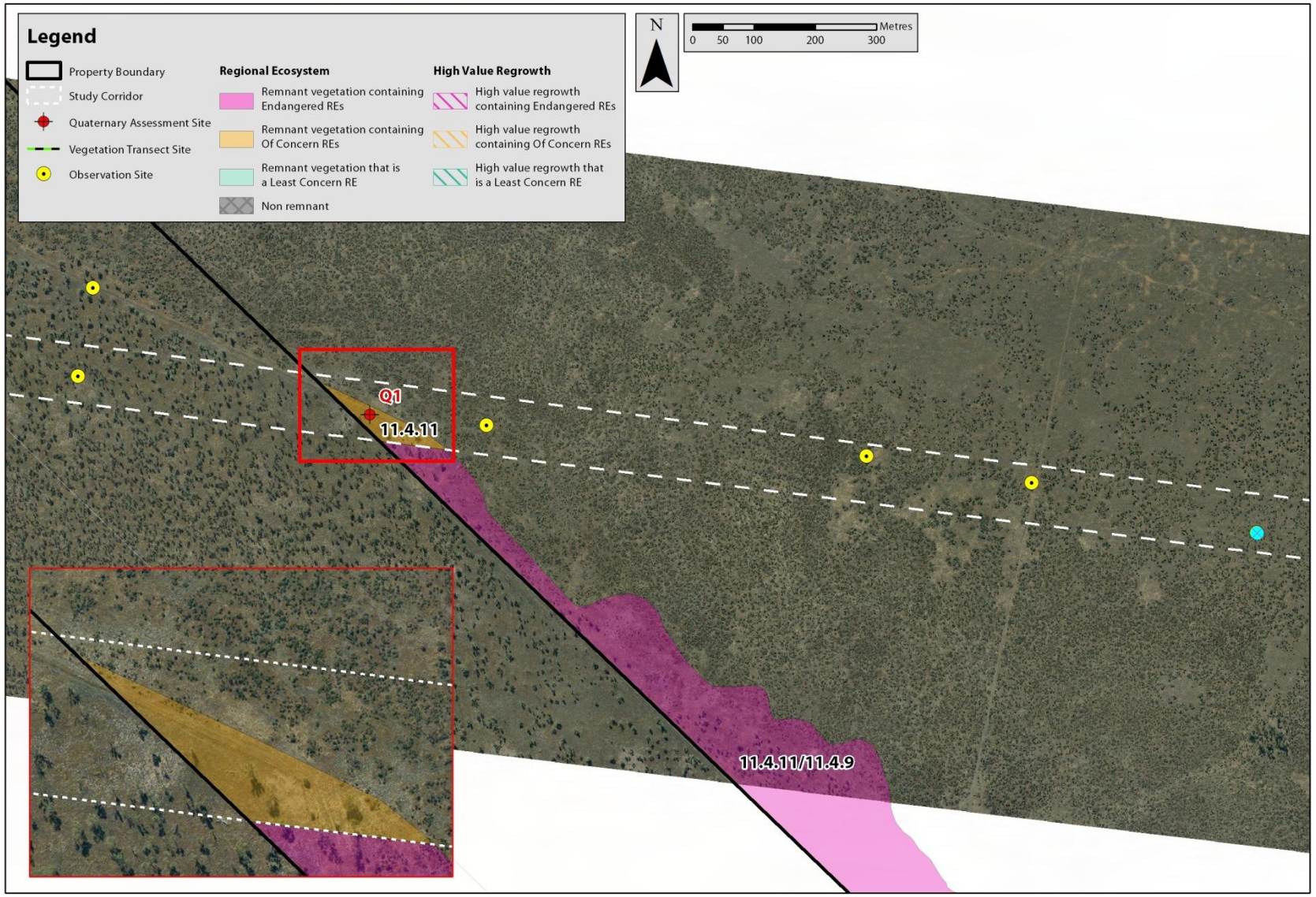


Figure 8: Proposed Regional Ecosystem Changes (H & T Jones - Area A)



5.2. H & T Jones – Area B

Table 10: H & T Jones - Area B Summary

Site Description		
Location:	H & T Jones; Lot 5 on SP125740	
Site Description:	The site is located within mapped vegetation community described as Endangered RE 11.4.8 – Figure 9. Field investigations confirmed scattered *Acacia harpophylla* (Brigalow) and *Acacia cambagei* (Gidgee) within the local surrounds, however clearing associated with the establishment of fence lines and historical agricultural practices has removed much of the areas vegetation values. The area is highly disturbed with cattle damage and weed invasion obvious throughout the thin vegetation corridor. Weeds observed within corridor include *Pennisetum ciliare* (Buffel Grass), *Parthenium hysterophorus* (Parthenium) and *Eriocerius martinii* (Harissa Cactus). Within the proposed rail corridor vegetation present is less than 10m in width and therefore this polygon has been remapped as non-remnant. Refer to Quaternary Site 2 and Figures 10 for the proposed mapping changes.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	551197.77 m E	7576222.70 m S
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Endangered RE 11.4.8	
Regional Ecosystem Observed:	Non Remnant	
Width of RE:	>10m	

Photo: Area B - Polygon 1

The area mapped as remnant RE 11.4.8. Acacia harpophylla was identified within a very narrow, highly disturbed strip of vegetation. Weed infestation, cattle damage and erosion were evident in the survey area.

Figure 9: Regional Ecosystem and Survey Effort (H & T Jones - Area B)

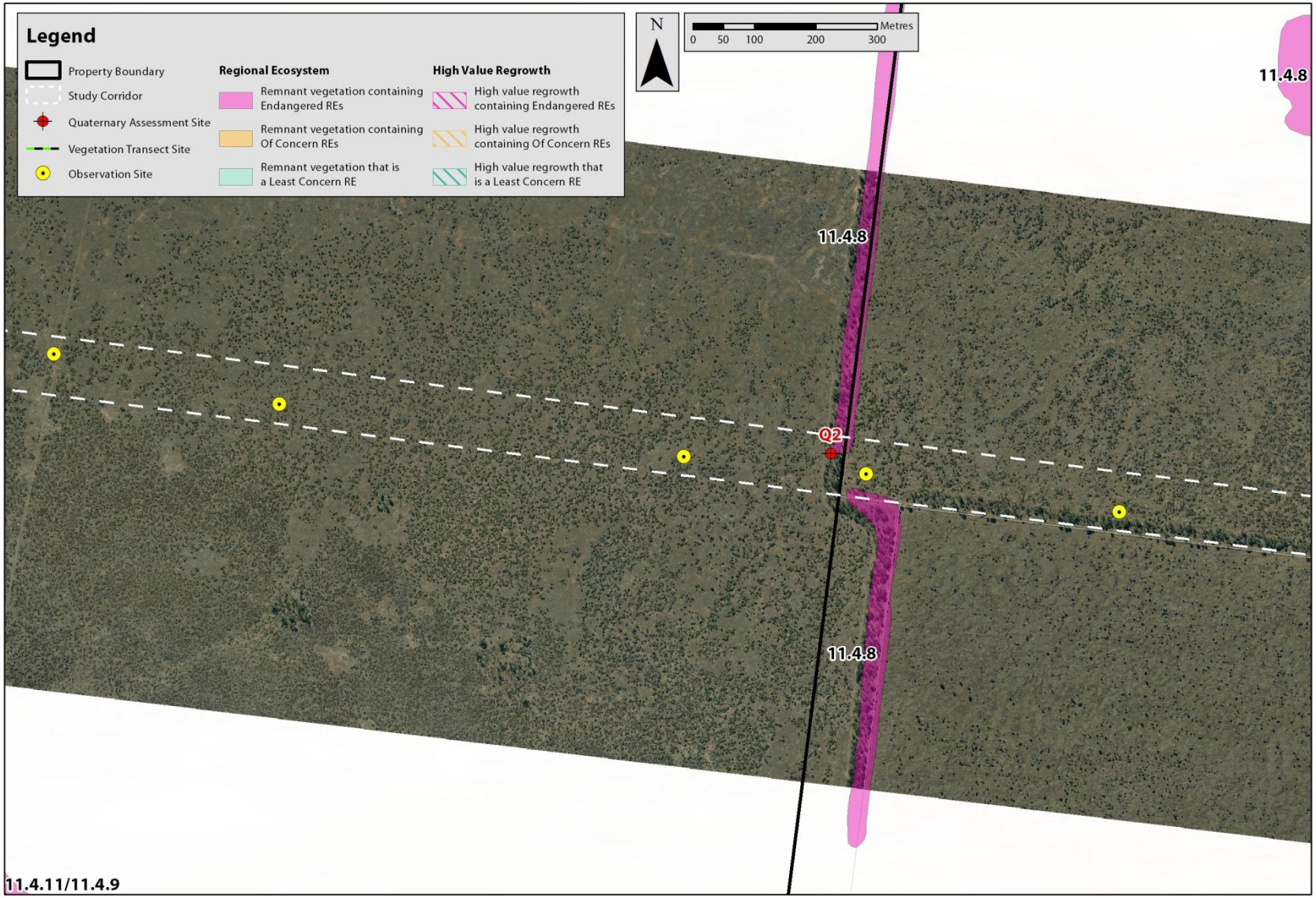
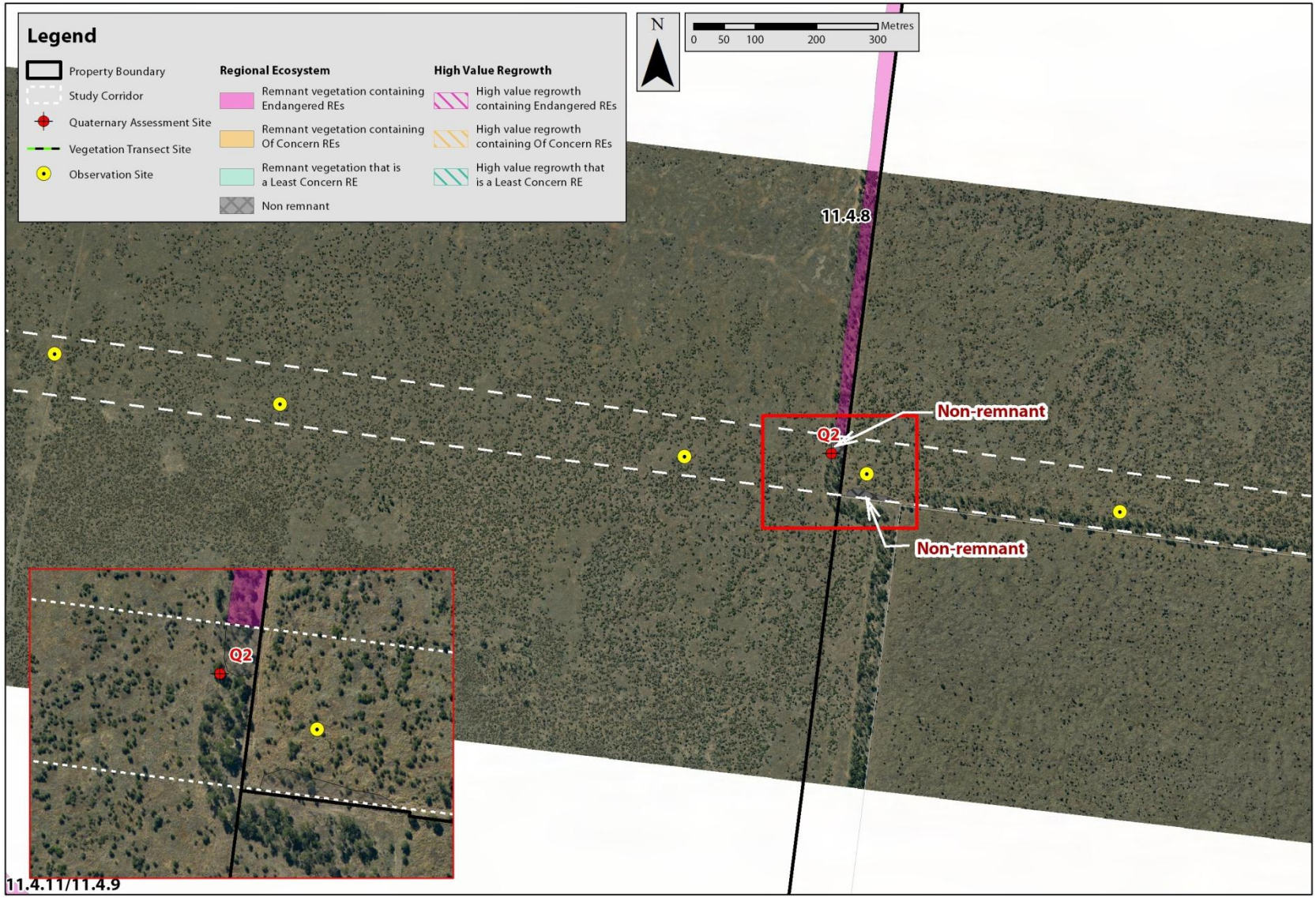


Figure 10: Regional Ecosystem Changes (H & T Jones - Area B)



6. T Jones Results

The T Jones property is largely devoid of vegetation values due to the areas historical agricultural use. Areas of remnant vegetation and high value regrowth are mapped on the property, however limited vegetation values are present within these locations. As such mapping amendments propose that these areas are changed to non remnant.

The T Jones Property was divided into four (4) assessment areas based on the location of the mapped remnant polygons and status of the regional ecosystem community.

Table 11: T Jones Summary

Site	Current RE Mapping Version 6.1	Current RE Mapping Version 6.1 (Area)	RE Observed	RE Observed (Area)
T Jones Area A – Polygon 1	Endangered RE 11.4.8	< 0.5 ha	Non-remnant	-
T Jones Area B – Polygon 1	Regrowth of Endangered RE 11.4.8	1.0 ha	Non-remnant	-
T Jones Area C – Polygon 1	Regrowth of Endangered RE 11.4.8	0.8 ha	Non-remnant	-
T Jones Area C – Polygon 2	Regrowth of Endangered RE 11.4.8	1.7 ha	Non-remnant	-

6.1. T Jones – Area A

Table 12: T Jones - Area A Summary

Site Description		
Location:	T Jones; Lot 8 on DC98	
Site Description:	The site is located within mapped vegetation community described as Endangered RE 11.4.8 – Figure 11 Field investigations confirmed the absence of vegetation due to clearing associated with the establishment of fence lines and historical agricultural practices has removed much of the areas vegetation values. The area is highly disturbed with cattle damage and weed invasion obvious within the corridor. Weeds observed within corridor include *Pennisetum ciliare* (Buffel Grass), *Parthenium hysterophorus* (Parthenium) and *Eriocerius martinii* (Harissa Cactus). Within the proposed rail corridor vegetation present is less than 10m in width and therefore this polygon has been remapped as non-remnant. Imagery clearly identifies inaccuracies with existing RE mapping. The proposed rail corridor is non-remnant. Refer to Quaternary Site 1 and Figure 12 for the proposed mapping changes.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	551254.34 m E	7576177.08 m S
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Endangered RE 11.4.8	
Regional Ecosystem Observed:	Non Remnant	
Width of RE:	30m	

Photo: Area A

The area mapped as remnant RE 11.4.8. No remnant Acacia harpophylla was identified on the northern side of east – west fenceline.

Figure 11: Regional Ecosystem and Survey Effort (Area A)

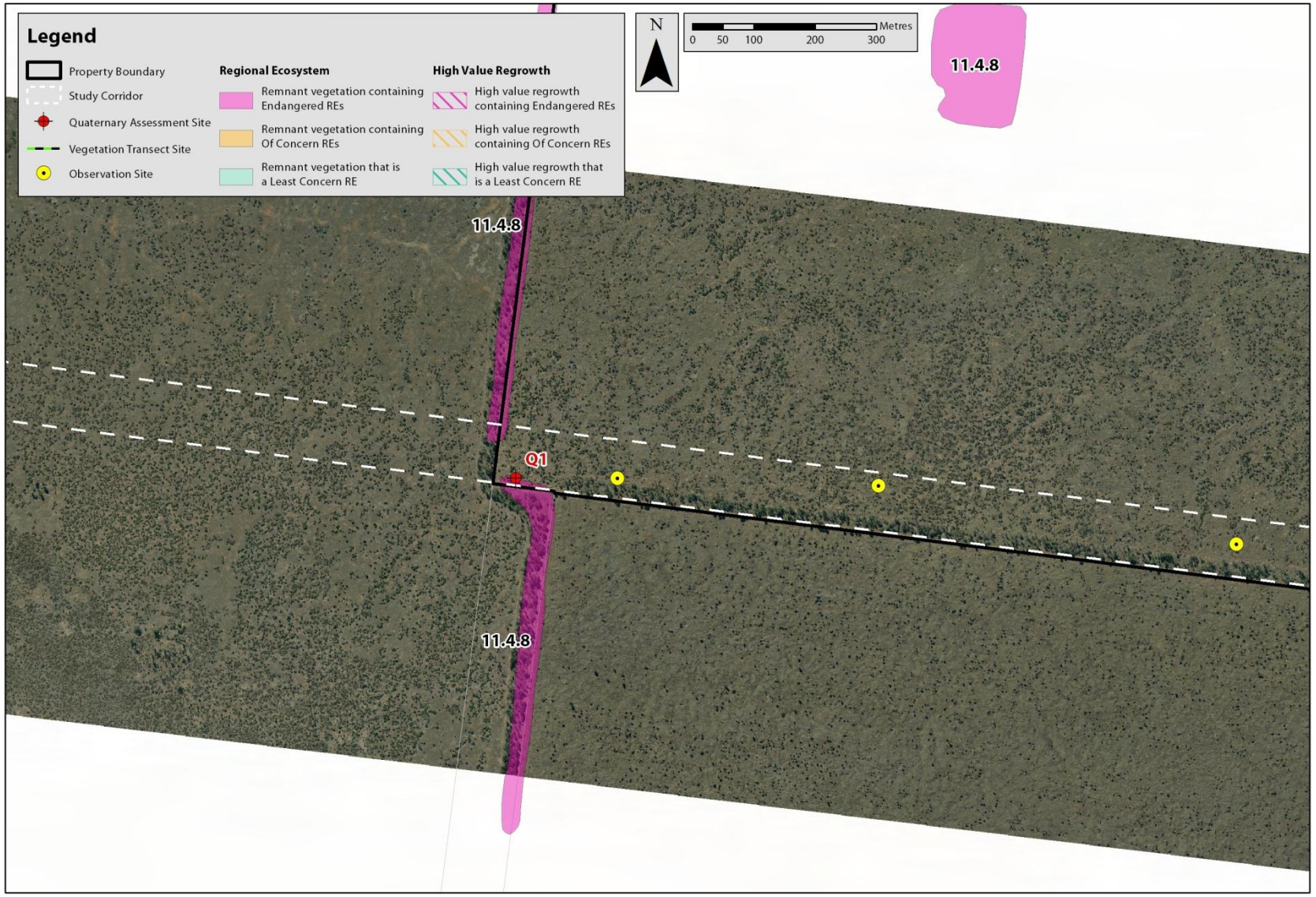
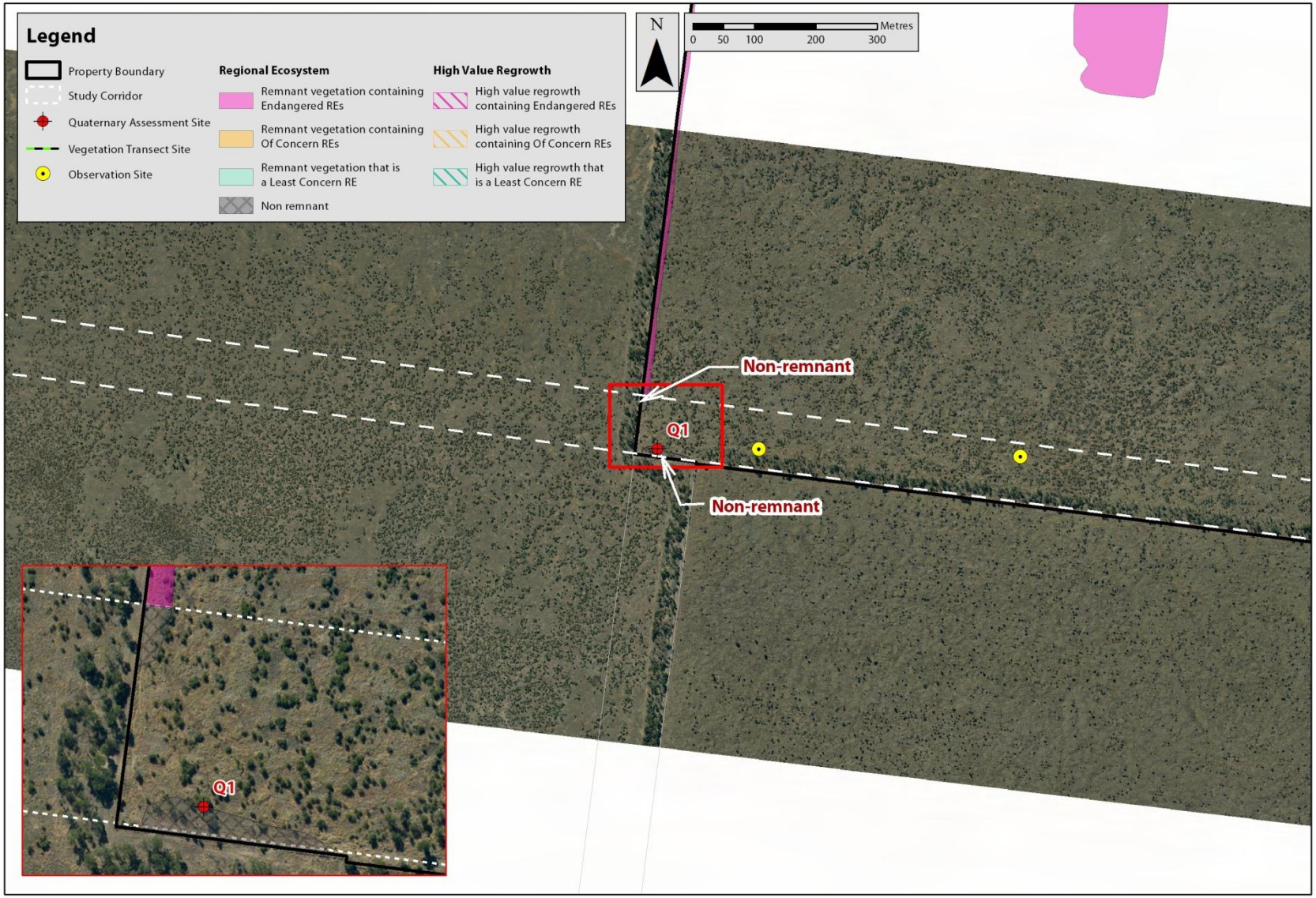


Figure 12: Regional Ecosystem Changes (Area A)



6.2. T Jones - Area B

Table 13: T Jones - Area B Summary

Site Description		
Location:	T Jones; Lot 8 on DC98	
Site Description:	The site is located within mapped polygon described as Endangered High Value Regrowth – Figure 13 The location is within an existing agricultural land holding and observed to contain only occasional very scattered small *Acacia harpophylla* (Brigalow) specimens (<1m) in height. These scattered individual do not form part of a regrowth vegetation community. The area appears to have been cleared and seeded with sorghum in the past and cattle grazing is apparent within this highly disturbed area. Exotic/introduced weed species including *Pennisetum ciliare* (Buffel Grass), *Parthenium hysterophorus* (Parthenium) and *Sorghum halepense* (Johnsons Grass) are dominant within the survey area Refer to Quaternary Site 2 and Figures 14 for the proposed mapping changes.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	555138.86 m E	7575962.42 m S
Regional Ecosystem Profile		
Current High Value Regrowth v2.1 mapping	Regrowth of Endangered 11.4.8	
Regional Ecosystem Observed:	Non Remnant	
Width of RE:	500m	

Photo: Area B

The area mapped as Endangered High Value Regrowth. Area contains very scattered Acacia harpophylla and no other other vegetation within the T1, T2 or shrub layer.

Figure 13: Regional Ecosystem and Survey Effort (Area B)

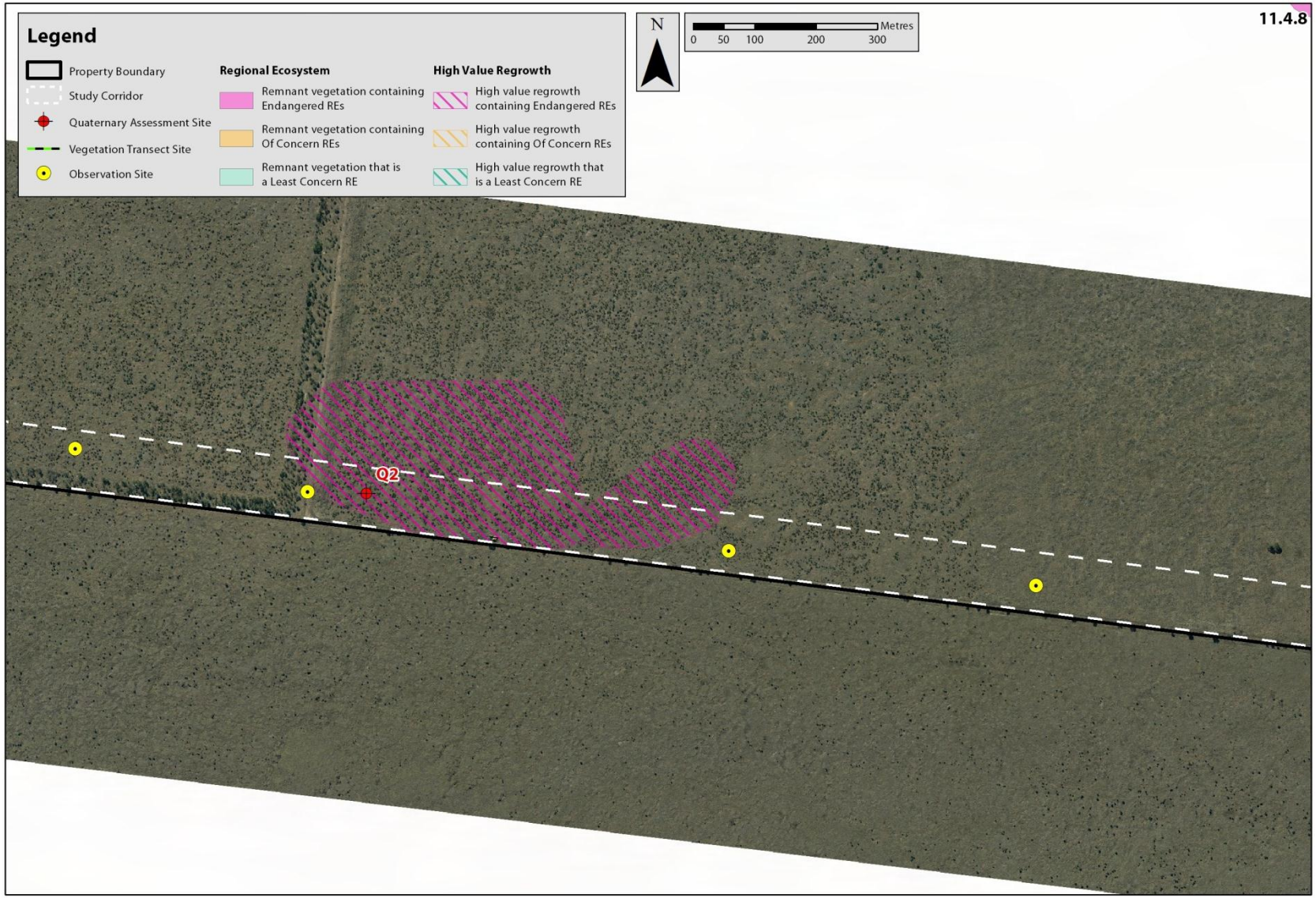
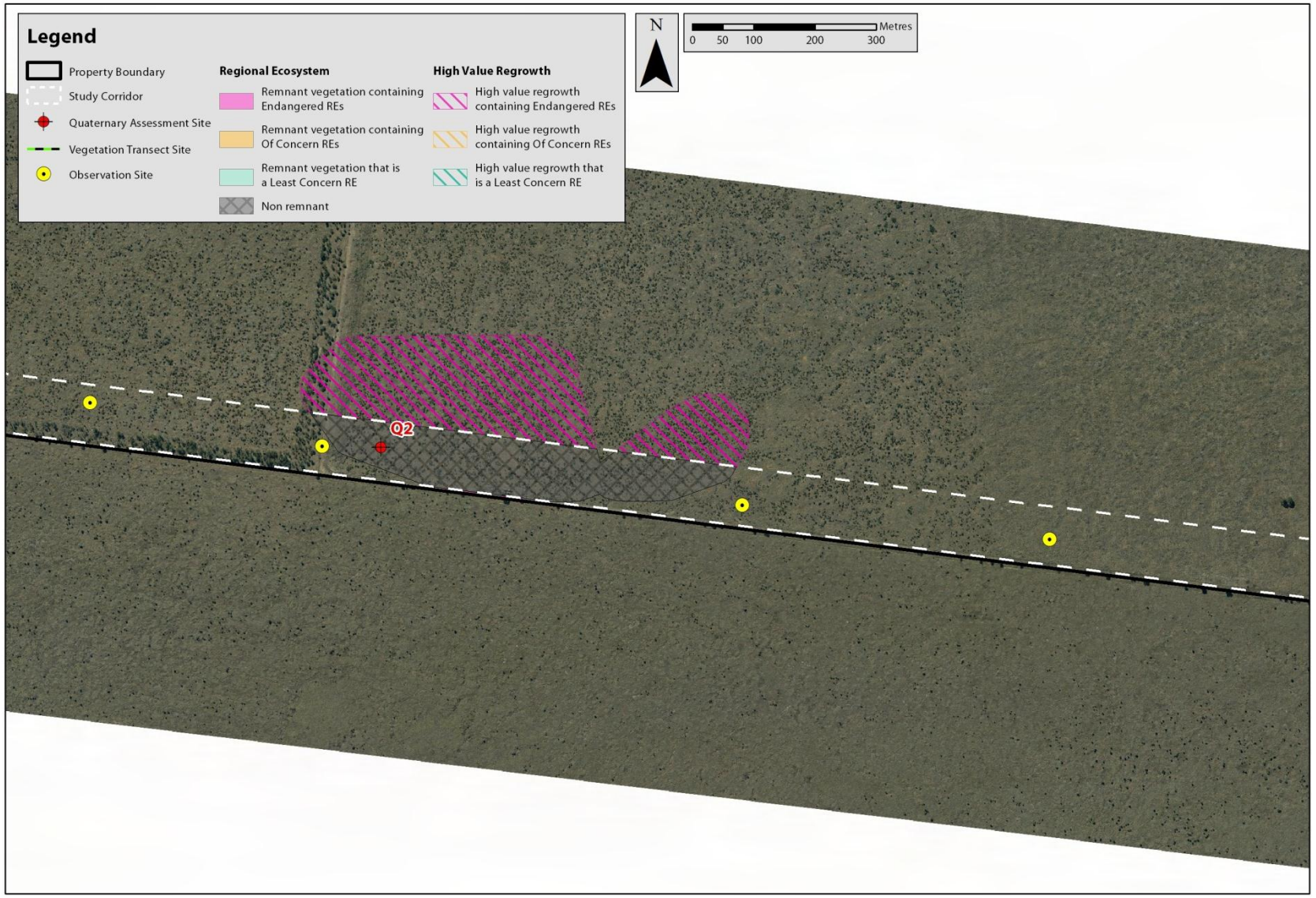


Figure 14: Regional Ecosystem Changes (Area B)



6.3. T Jones - Area C Polygon I

Table 14: T Jones Area C – Polygon 1 Summary

Site Description		
Location:	T Jones; Lot 8 on DC98	
Site Description:	The site is located within mapped polygon described as Endangered High Value Regrowth – Figure 16 The areas soil and geological formation appears consistent with Landzone 4 described as Cainozoic clay deposits, usually forming level to gently undulating plains above current alluvial systems. As per the majority of mapped regrowth areas on this property vegetation observed contains only occasional very scattered *Acacia harpophylla* (Brigalow) specimens (<1m) in height, that do not form part of a regrowth vegetation community. Exotic/introduced weed species including *Pennisetum ciliare* (Buffel Grass), *Parthenium hysterophorus* (Parthenium) and *Sorghum halepense* (Johnsons Grass) are dominant within the survey area Refer to Quaternary Site 3 and Figures 16 for the proposed mapping changes As depicted by aerial imagery the area does not contain vegetation consistent with a high value regrowth community.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	557643.34 m E	7575459.35 m S
Regional Ecosystem Profile		
Current High Value Regrowth v2.1 mapping	Regrowth of Endangered RE 11.4.8	
Regional Ecosystem Observed:	Non Remnant	
Width of RE:	150m	

Photo: Area C - Polygon 1

The area mapped as Endangered High Value Regrowth. Area contains very scattered Acacia harpophylla and no other other vegetation within the T1, T2 or shrub layer.

6.4. T Jones - Area C Polygon 2

Table 15: T Jones Area C – Polygon 2 Summary

Site Description		
Location:	T Jones; Lot 8 on DC98	
Site Description:	The site is located within mapped polygon described as Endangered High Value Regrowth – Figure 15 The location is within an existing agricultural land holding and as per Polygon 1 this area was observed to contain only occasional very scattered small *Acacia harpophylla* (Brigalow) specimens (<1m) in height. As depicted by aerial imagery the area does not contain vegetation consistent with a high value regrowth community. Exotic/introduced weed species including *Pennisetum ciliare* (Buffel Grass), *Parthenium hysterophorus* (Parthenium) and *Sorghum halepense* (Johnsons Grass) are dominant within the survey area Refer to Quaternary Site 4 and Figures 16 for the proposed mapping changes.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	558620.91 m E	7575305.35 m S
Regional Ecosystem Profile		
Current High Value Regrowth v2.1 mapping	Regrowth of Endangered RE 11.4.8	
Regional Ecosystem Observed:	Non Remnant	
Width of RE:	200m	

Photo: Area C- Polygon 2

The area mapped as Endangered High Value Regrowth. Area contains very scattered Acacia harpophylla and no other other vegetation within the T1, T2 or shrub layer.

Figure 15: Regional Ecosystem and Survey Effort (Area C – Polygon 1 & 2)

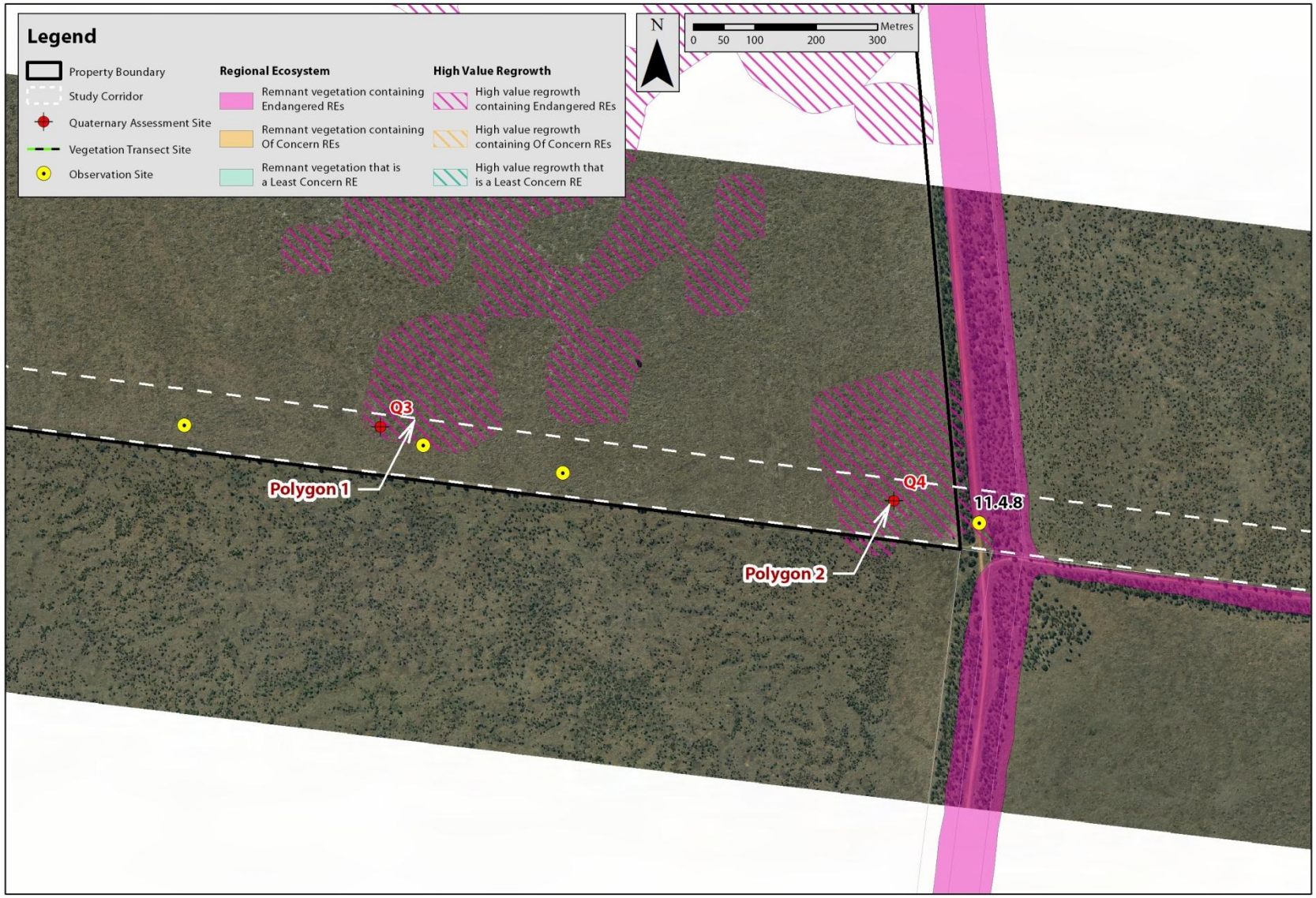
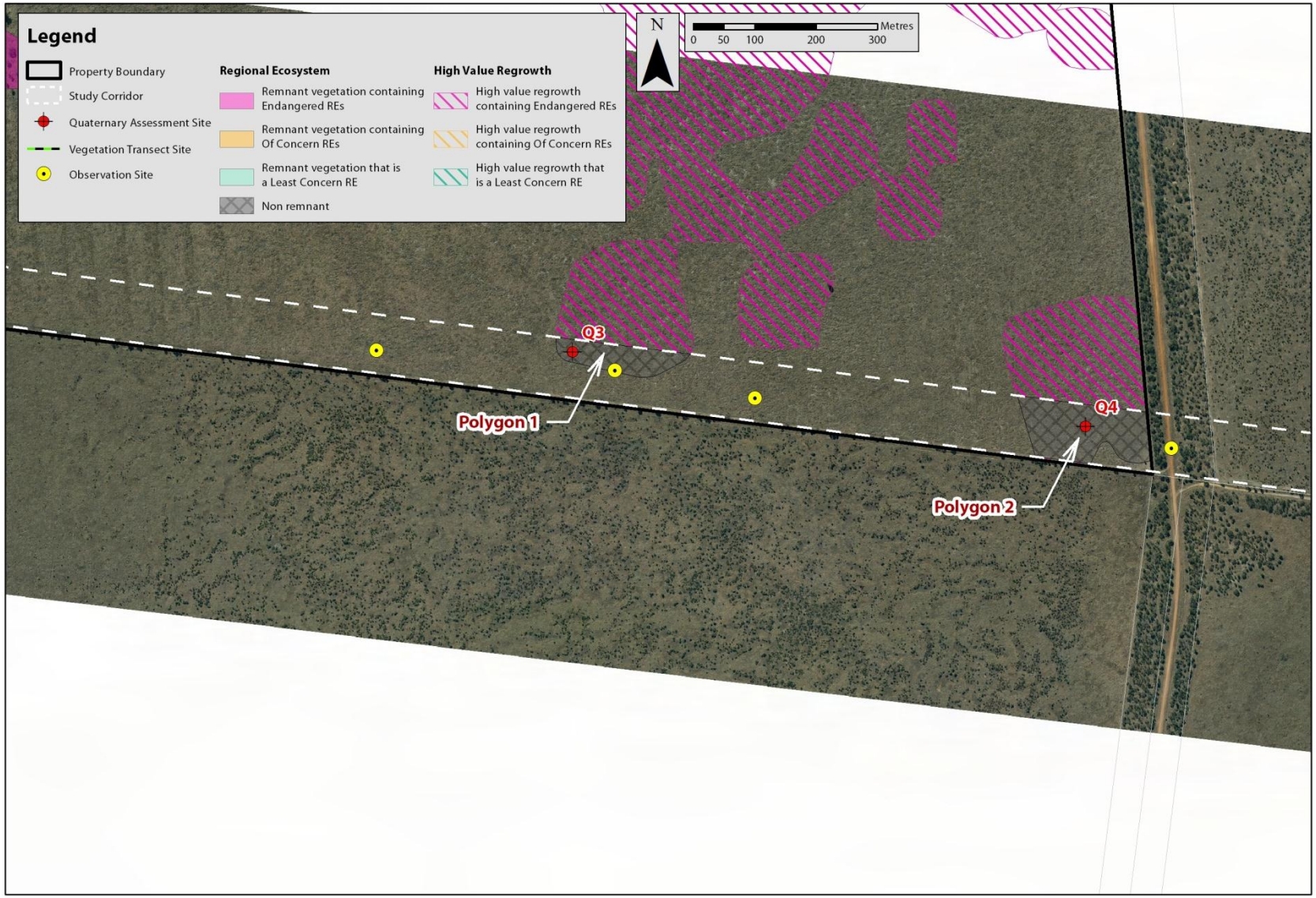


Figure 16: Regional Ecosystem Changes (Area C – Polygon 1 & 2)



7. L & O Scott

The *Vegetation Management Act Regional Ecosystem and Remnant Map Version 6.1* have mapped one regional ecosystem community within the L & O Scott property.

No field survey was conducted on the property; however 2011 Aerial imagery clearly indicates inaccuracies in the current *Vegetation Management Act Regional Ecosystem and Remnant Map Version 6.1* mapping. Imagery demonstrates this area is clearly non remnant.

Refer Figures 17 a and 17 b for current RE mapping.

Figures 18 a and 18b include close ups of aerial imagery demonstrating the lack of vegetation values.

Table 16: L & O Scott Summary

Site	Current RE Mapping Version 6.1	Current RE Mapping Version 6.1 (Area)	RE Observed	RE Observed (Area)
L & O Scott Area A – Polygon 1	Endangered RE 11.4.8	< 0.5 ha	Non-remnant	-

Figure 17a: Regional Ecosystem Mapping (Area A)

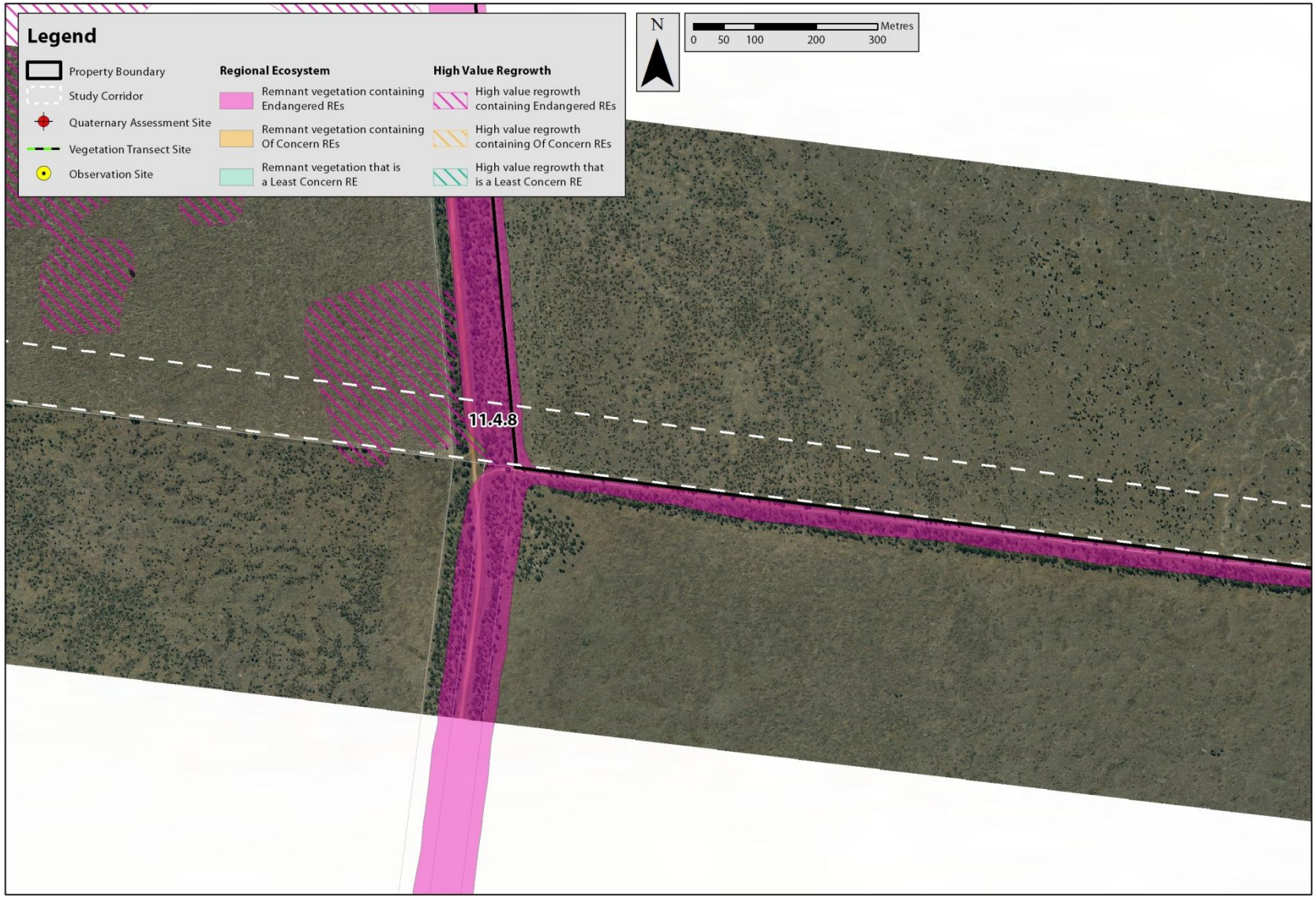


Figure 17b: Regional Ecosystem Mapping (Area A)

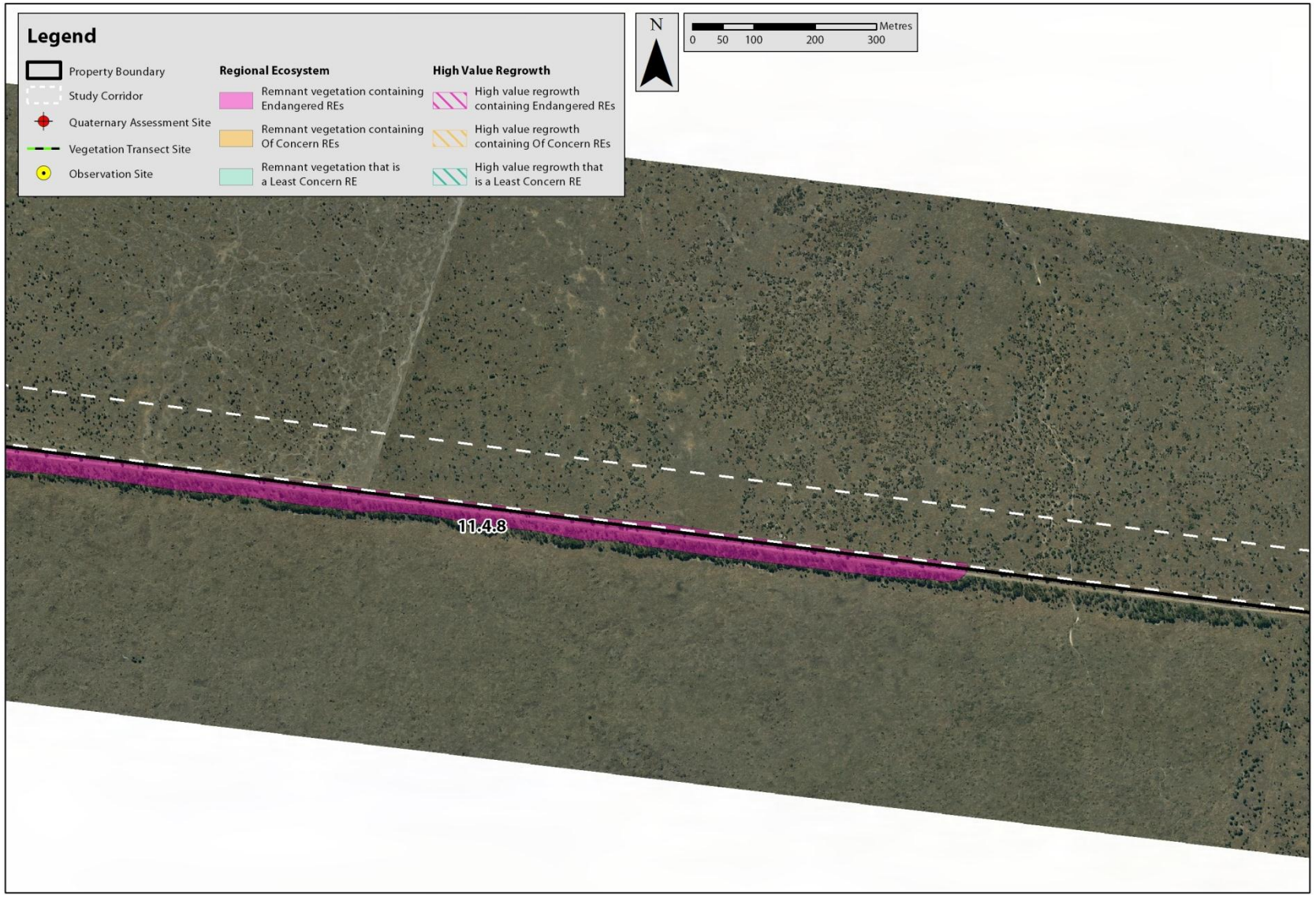


Figure 18a: Regional Ecosystem Changes (Area A)

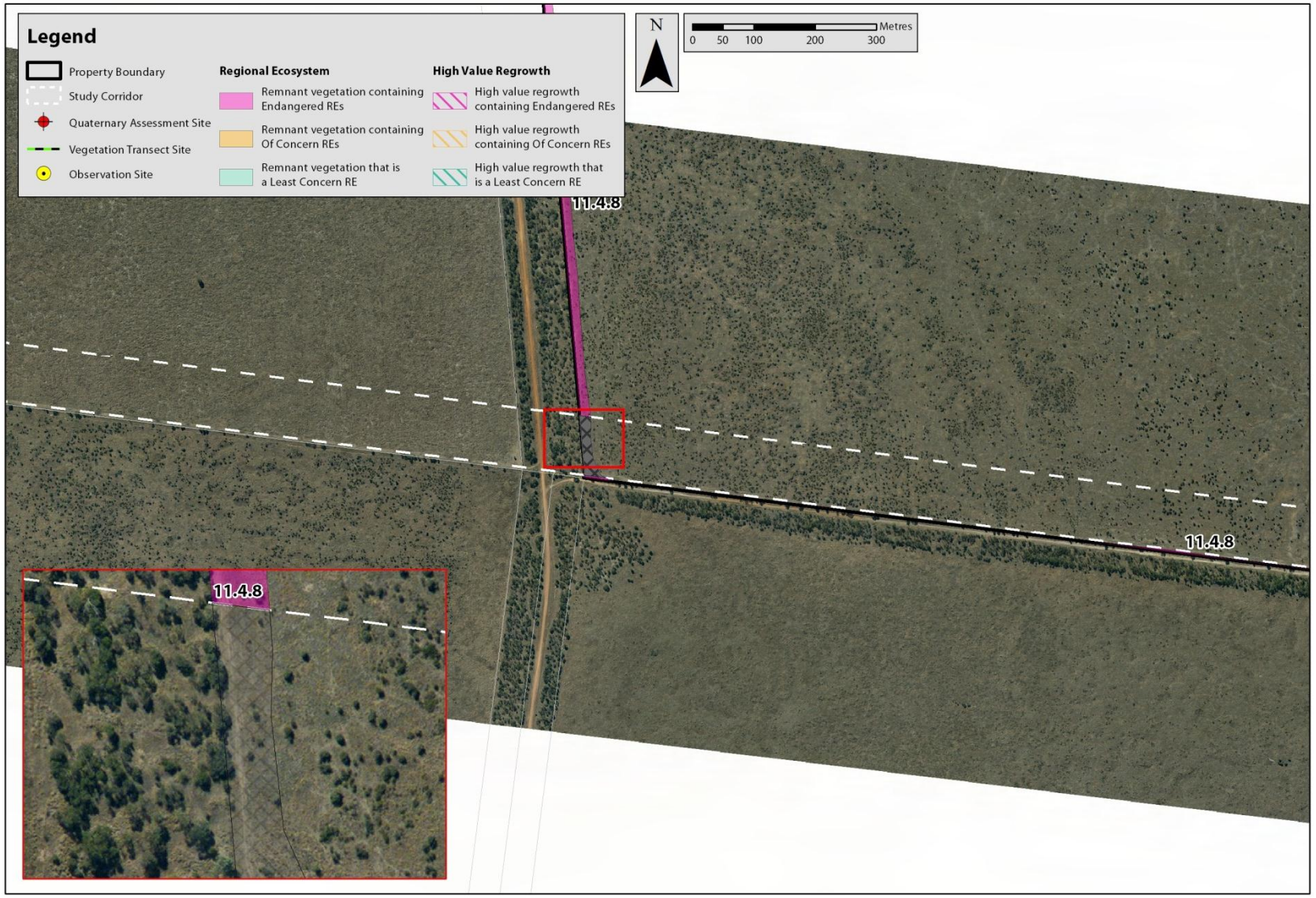
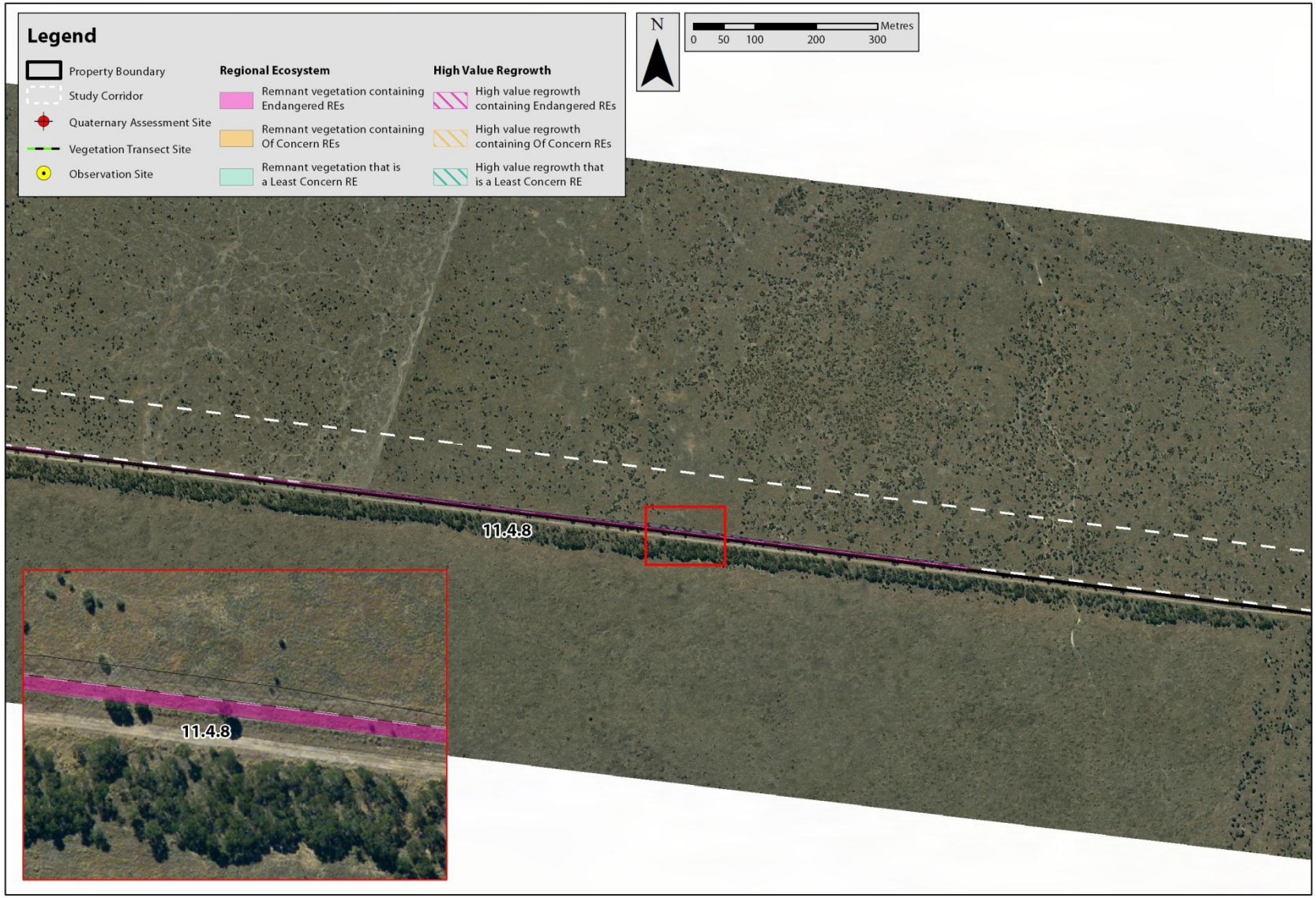


Figure 18b: Regional Ecosystem Changes (Area A)



8. H & S Phillip

The *Vegetation Management Act Regional Ecosystem, Remnant Map Version 6.1 & High Value Regrowth v2.1* have mapped two regional ecosystem communities across the one Landzone within the H& S Phillip property.

The application area within the L & O Scott property was divided into two (2) assessment areas based on the location of the mapped remnant polygon and status of the regional ecosystem community. No field survey was conducted on the property; however 2011 Aerial imagery clearly indicates absence of vegetation within each assessment area.

Table 17: H&S Phillip

Site	Current RE Mapping Version 6.1	Current RE Mapping Version 6.1 (Area)	RE Observed	RE Observed (Area)
H & S Philip Area A – Polygon 1	Endangered RE 11.4.11/11.4.9/11.4.5	< 0.5 ha	Non-remnant	< 0.5 ha
H & S Philip Area B – Polygon 2	Endangered RE 11.4.11/11.4.9/11.4.5	< 0.5 ha	Non-remnant	< 0.5 ha
H & S Philip Area B – Polygon 3	Endangered RE 11.4.9	< 0.5 ha	Non-remnant	< 0.5 ha

Figure 17: Regional Ecosystem Mapping (L & O Scott - Area A)

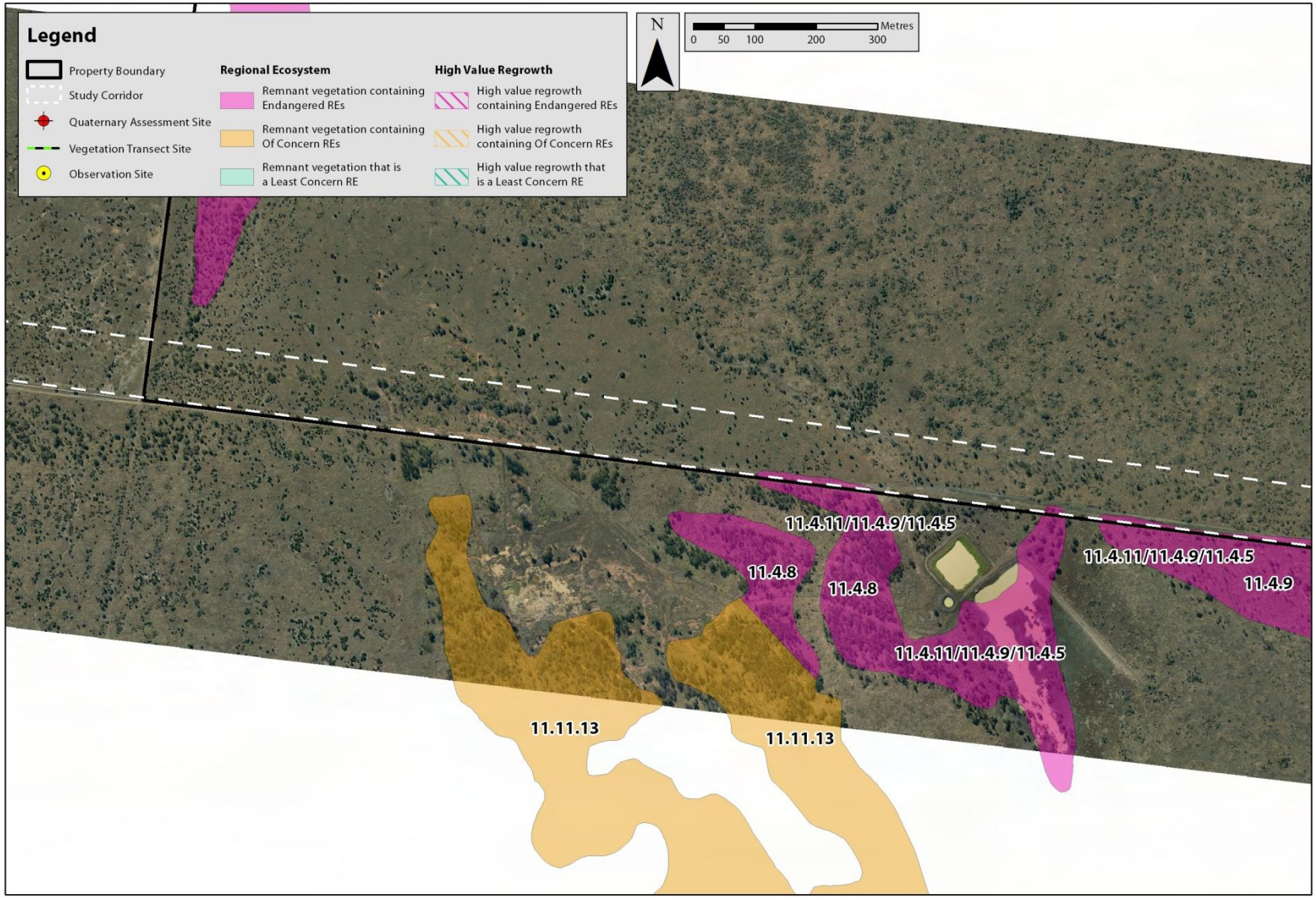


Figure 18: Regional Ecosystem Changes (Area A)

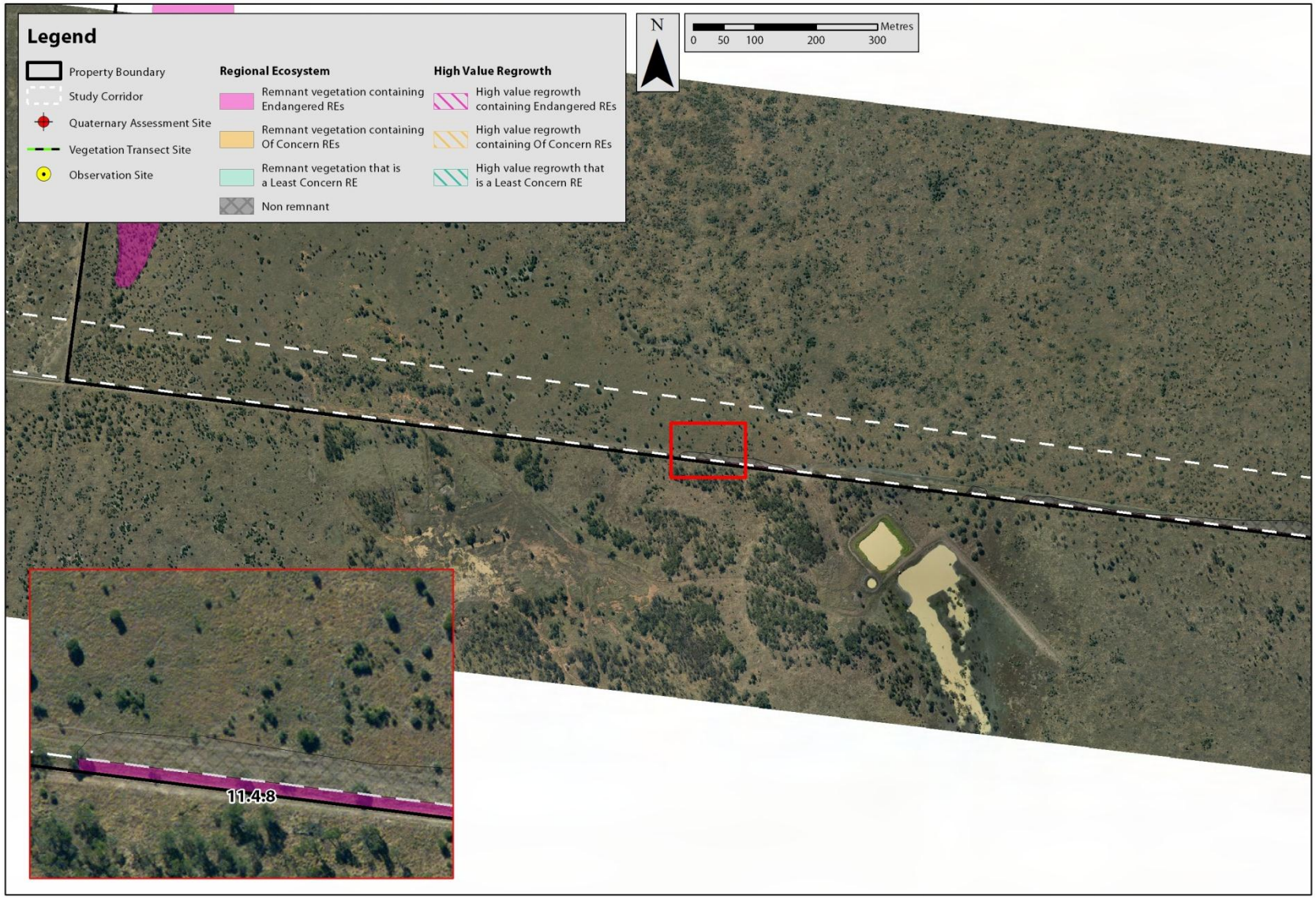


Figure 18: Regional Ecosystem Changes (Area B)

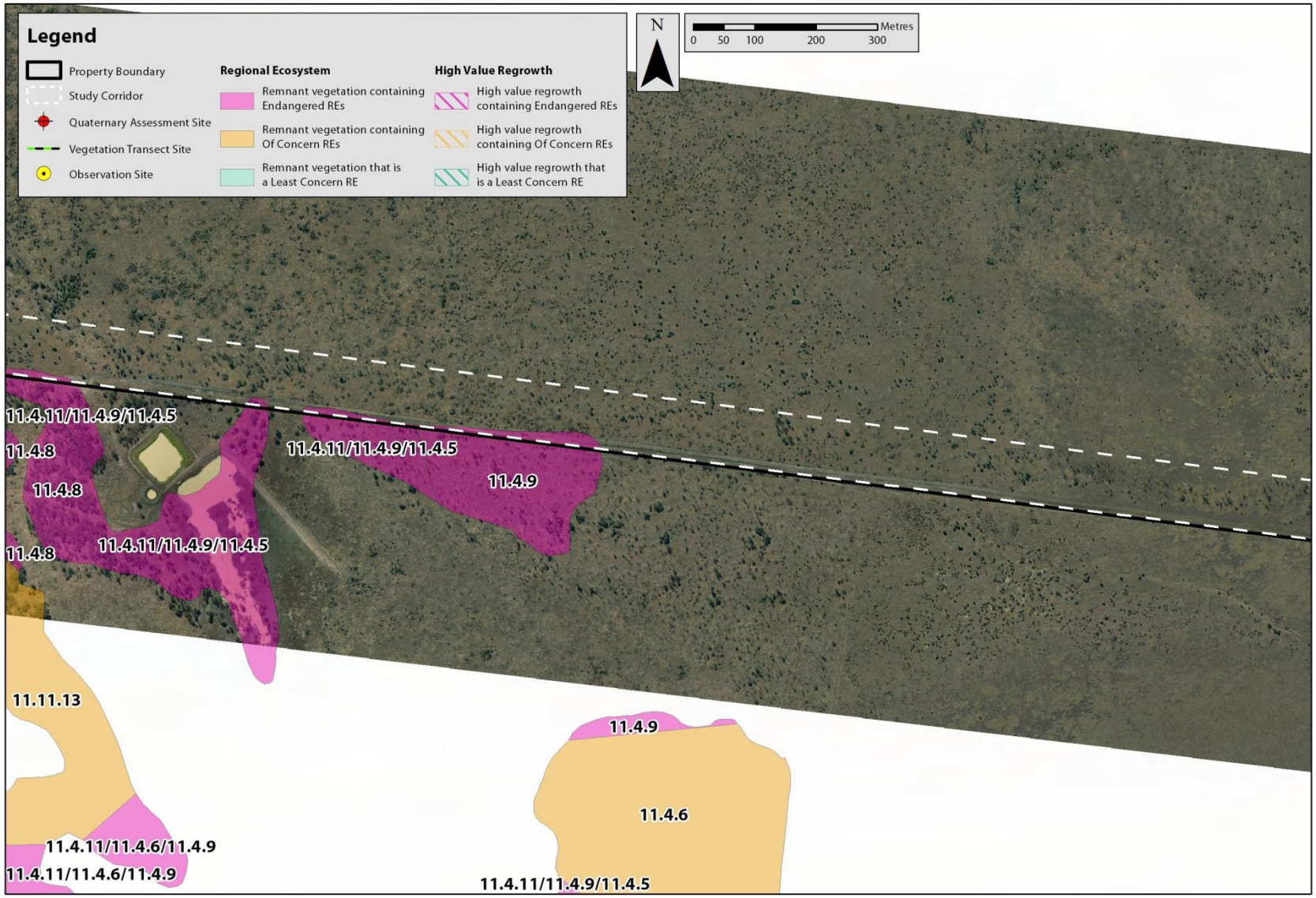
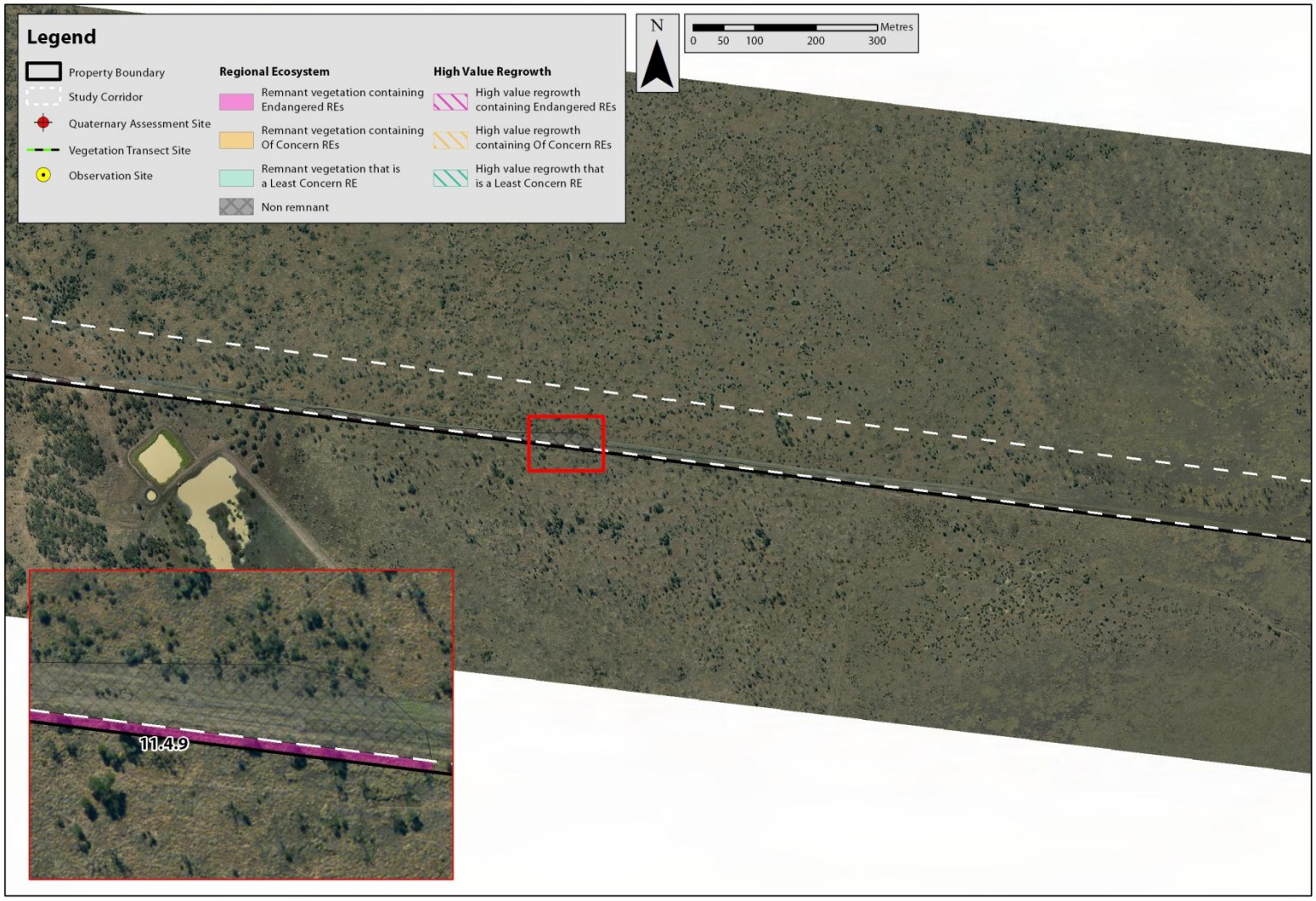


Figure 18: Regional Ecosystem Changes (Area B)

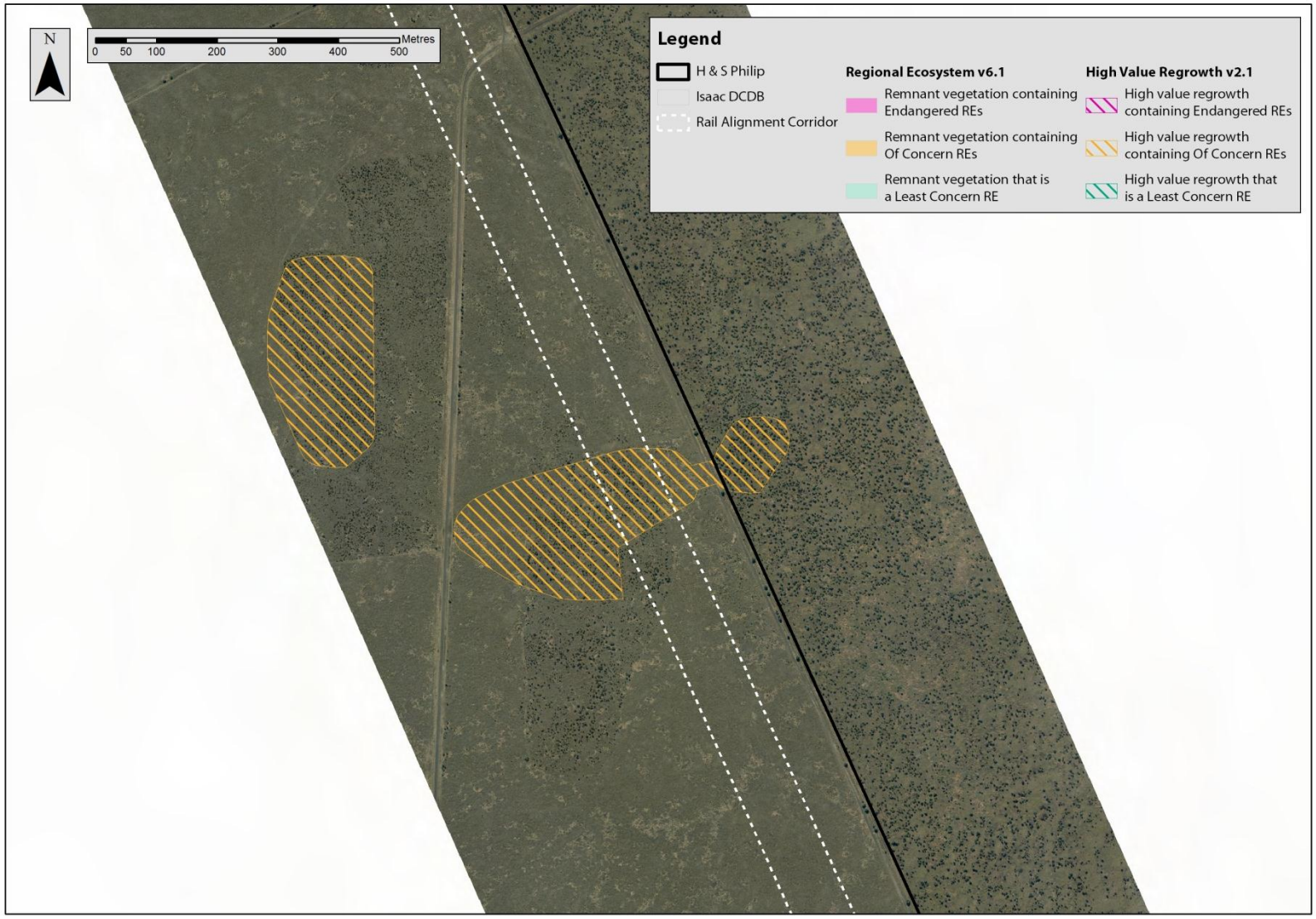


9. K, S & R Hughes

The *Vegetation Management Act Regional Ecosystem and Remnant Map Version 6.1* have mapped a single polygon of Of Concern High Value Regrowth across the K, S & R Hughes property. The preclear data within this area identifies that the regrowth is from the Of Concern RE11.4.6

No field survey was conducted within this property.

Figure 20: Regional Ecosystem Mapping v6.1 (K, S & R Hughes - Area A)



10. Rugby Run

The *Vegetation Management Act Regional Ecosystem and Remnant Map Version 6.1* have mapped two regional ecosystems across two landzones within the Rugby Run property.

Six vegetation polygons were assessed throughout the rail corridor which includes one composite regional ecosystem and one single regional ecosystem community.

The assessment identified that RE mapping is correct within the property with the exception of some minor mapping amendments required to confirm RE boundaries at the property scale.

Table 18: Rugby Run Summary

Site	Current RE Mapping Version 6.1	Current RE Mapping Version 6.1 (Area)	RE Observed	RE Observed (Area)
Rugby Run Area A – Polygon 1	Endangered RE 11.3.1	1.7 ha	Endangered RE 11.3.1	1.0 ha
Rugby Run Area B – Polygon 1	Least Concern RE 11.5.3/11.5.9c	2.1 ha	Least Concern RE 11.5.3/11.5.9c	2.1 ha
Rugby Run Area C – Polygon 1	Least Concern RE 11.5.3/11.5.9c	11.2 ha	Least Concern RE 11.5.3/11.5.9c	11.2 ha
Rugby Run Area D – Polygon 1	Least Concern RE 11.5.3/11.5.9c	6.3 ha	Least Concern RE 11.5.3/11.5.9c	6.3 ha
Rugby Run Area E – Polygon 1	Least Concern RE 11.5.3/11.5.9c	< 1 ha	Least Concern RE 11.5.3/11.5.9c	< 1 ha
Rugby Run Area F – Polygon 1	Least Concern RE 11.5.3/11.5.9c	19.2 ha	Least Concern RE 11.5.3/11.5.9c	19.2 ha

10.1. Rugby Run – Area A

Table 19: E & R Action (Rugby Run) - Area A Summary

Site Description		
Location:	E & R Action (Rugby Run); Lot 2 on GV248	
Site Description:	The rail corridor is currently mapped as containing Endangered RE 11.3.1 – Figure 21 *Acacia harpophylla* (Brigalow) was observed within the T1 layer with *Eremophila mitchellii* and *Geijera parviflora* within the shrub layer. Vegetation consistent with this Regional Ecosystem type was observed within this location indicating the presence of Endangered RE 11.3.1. Some minor amendments are proposed to mapped boundaries. The minor rectification of boundaries in this area is due to current RE mapping inaccuracies (scale). Cattle grazing is apparent and the area is highly disturbed. Exotic/introduced weed species including *Pennisetum ciliare* (Buffel Grass) and *Parthenium hysterophorus* (Parthenium) are dominant within the survey area. Refer to Quaternary Site 1 and Figures 22 for the proposed mapping changes.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	585622.84E	7562728.60S
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Endangered RE 11.3.1	
Regional Ecosystem Observed:	Endangered RE 11.3.1	
Width of RE:	150m	

Photo: Area A

The area mapped as remnant RE11.3.1 within the investigation area.

Figure 21: Regional Ecosystem Mapping and Survey Effort (Rugby Run - Area A)

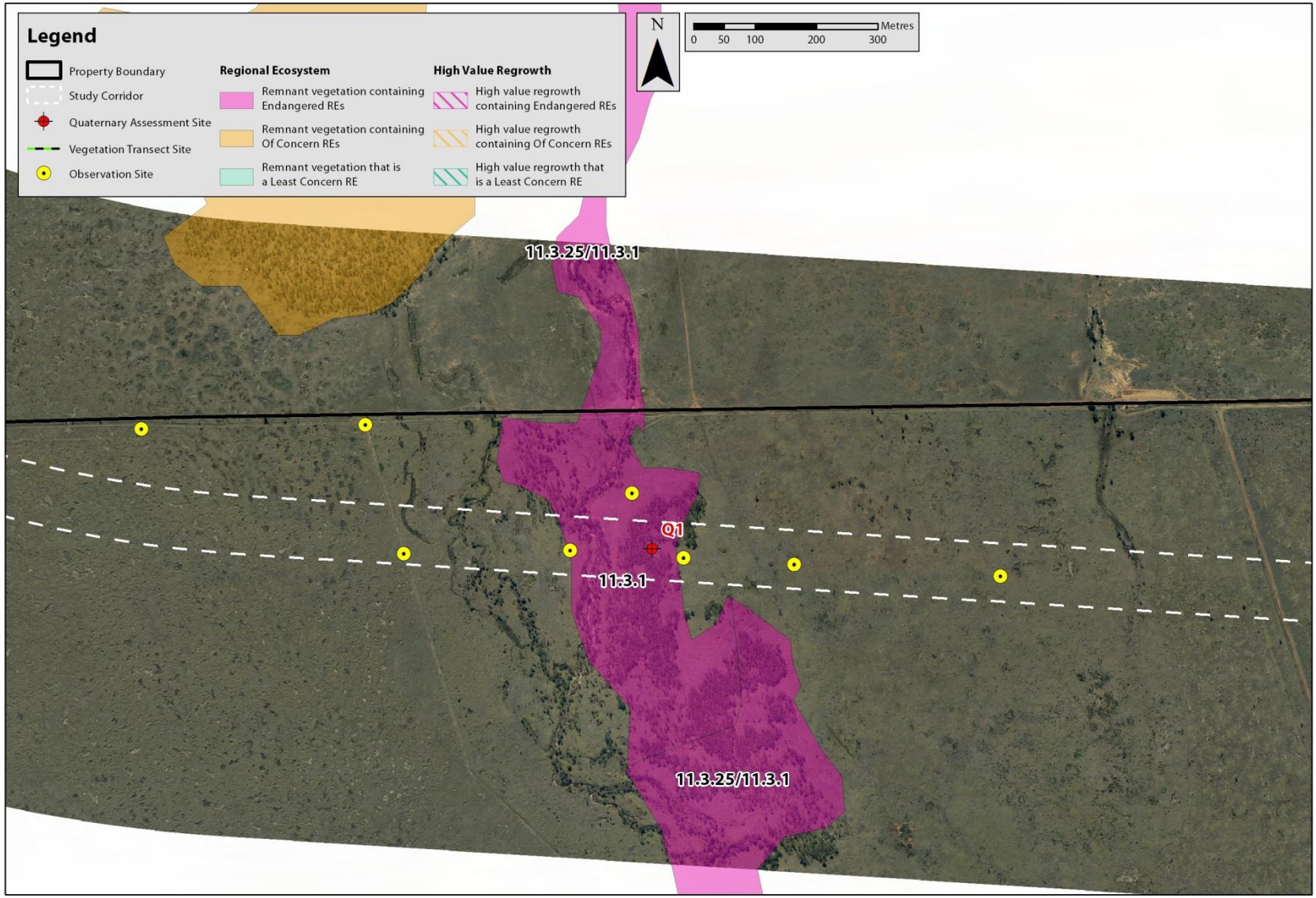
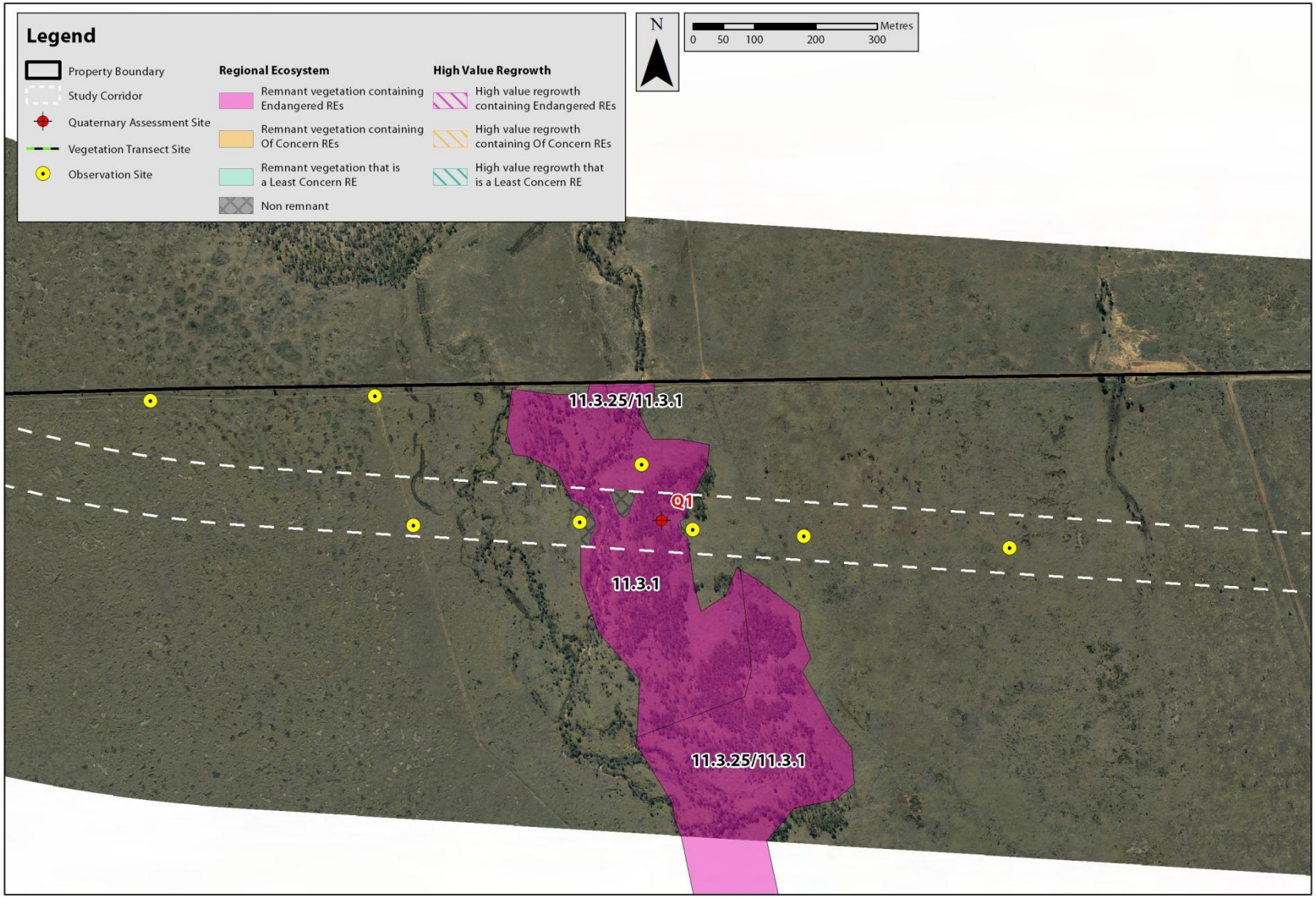


Figure 22: Regional Ecosystem Changes (Rugby Run - Area A)



10.2. Rugby Run – Area B

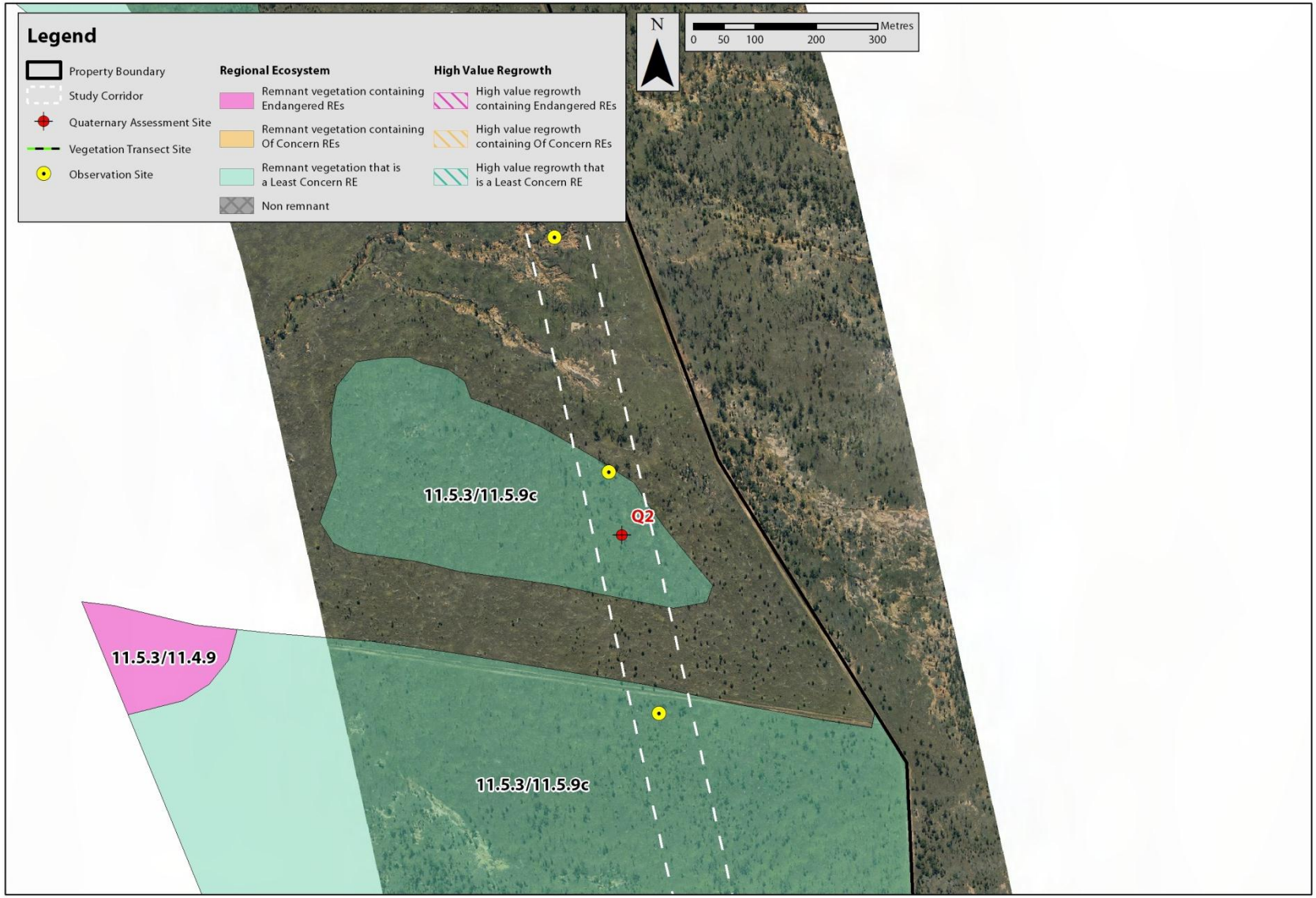
Table 20: E & R Action (Rugby Run) - Area B Summary

Site Description		
Location:	E & R Action (Rugby Run); Lot 2 on GV248	
Site Description:	The site is mapped as a composite vegetation community described as Least Concern RE 11.5.3/11.5.9c. The community is described as comprising approximately 50% Least Concern RE 11.5.2 and 50% Least Concern 11.5.9c. Species observed include *Eucalyptus populnea*, *Eucalyptus crebra* and *Corymbia clarksonia* within the T1 layer and *Petalostigma pubsecens* and *Acacia excelsa* within the T2 and shrub layers. Ground layer was dominated by *Pennisetum ciliare*, *Heteropogon contortus* and *Themeda triandra*. Moderate levels of disturbance were observed within the survey area including weed invasion, grazing,erosion and historical clearing. Field observations indicate the presence of species consistent with both 11.5.3 and 11.5.9 within the polygons of Area B. Refer to Quaternary site 2 and Figure 22. No mapping changes are proposed within this location.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	593394.60	7560324.30
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Least Concern 11.5.3/11.5.9c	
Regional Ecosystem Observed:	Least concern 11.5.3/11.5.9c	
Width of RE:		

Photo: Area B

The area mapped as remnant RE11.5.3/1.5.9 within the investigation area. Note large areas of erosion within gully lines.

Figure 22: Regional Ecosystem and Survey Effort (Area B – No Changes Proposed)



10.3. Rugby Run – Area C

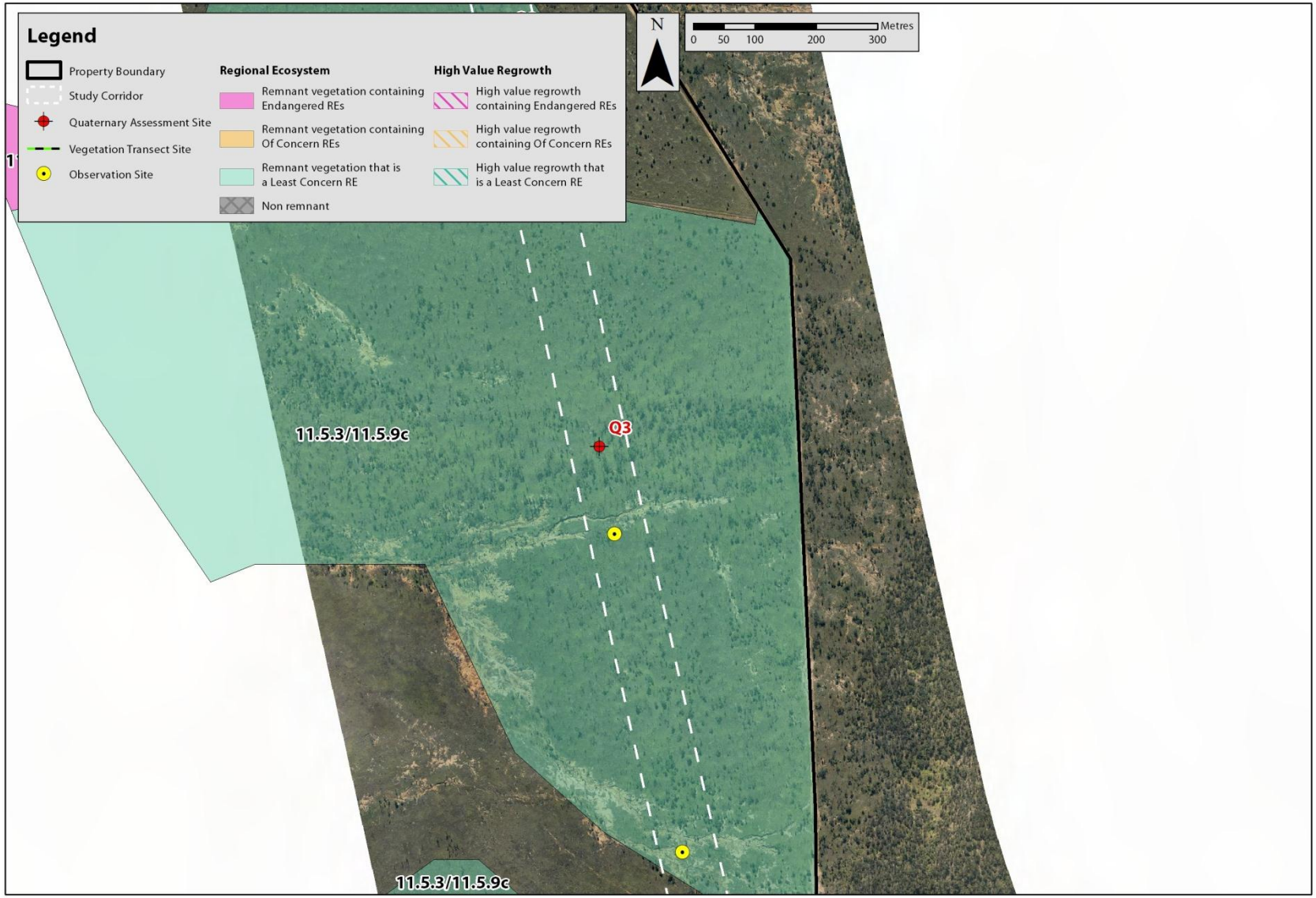
Table 21: E & R Action (Rugby Run) - Area C Summary

Site Description		
Location:	E & R Action (Rugby Run); Lot 2 on GV248	
Site Description:	The site is mapped as a composite vegetation community described as Least Concern RE 11.5.3/11.5.9c. The community is described as comprising approximately 50% Least Concern RE 11.5.2 and 50% Least Concern 11.5.9c. Species observed include *Eucalyptus populnea* and *Corymbia clarksonia* within the T1 layer and *Petalostigma pubsecens*, *Alphitonia excels*a and *Acacia excelsa* within the T2 and shrub layers. Ground layer was dominated by *Pennisetum ciliare* and *Themeda triandra*. High levels of disturbance were observed within the survey area including weed invasion, grazing and historical clearing. Large quantity of dead standing timber within survey area. Field observations indicate the presence of species consistent with both 11.5.3 and 11.5.9 within the polygons of Area C . Refer to Quaternary site 3 and Figure 23 for proposed mapping changes.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	593564.63E	7559504.12S
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Least Concern RE11.5.3/11.5.9c	
Regional Ecosystem Observed:	Least Concern RE11.5.3/11.5.9c	
Width of RE:	>10Ha	

Photo: Area C

The area mapped as remnant RE11.5.3/1.5.9 within the investigation area. High levels of disturbance from grazing, clearing and erosion.

Figure 23: Regional Ecosystem and Survey Effort (Area C – No Changes Proposed)



10.4.E & R Action (Rugby Run) Area D

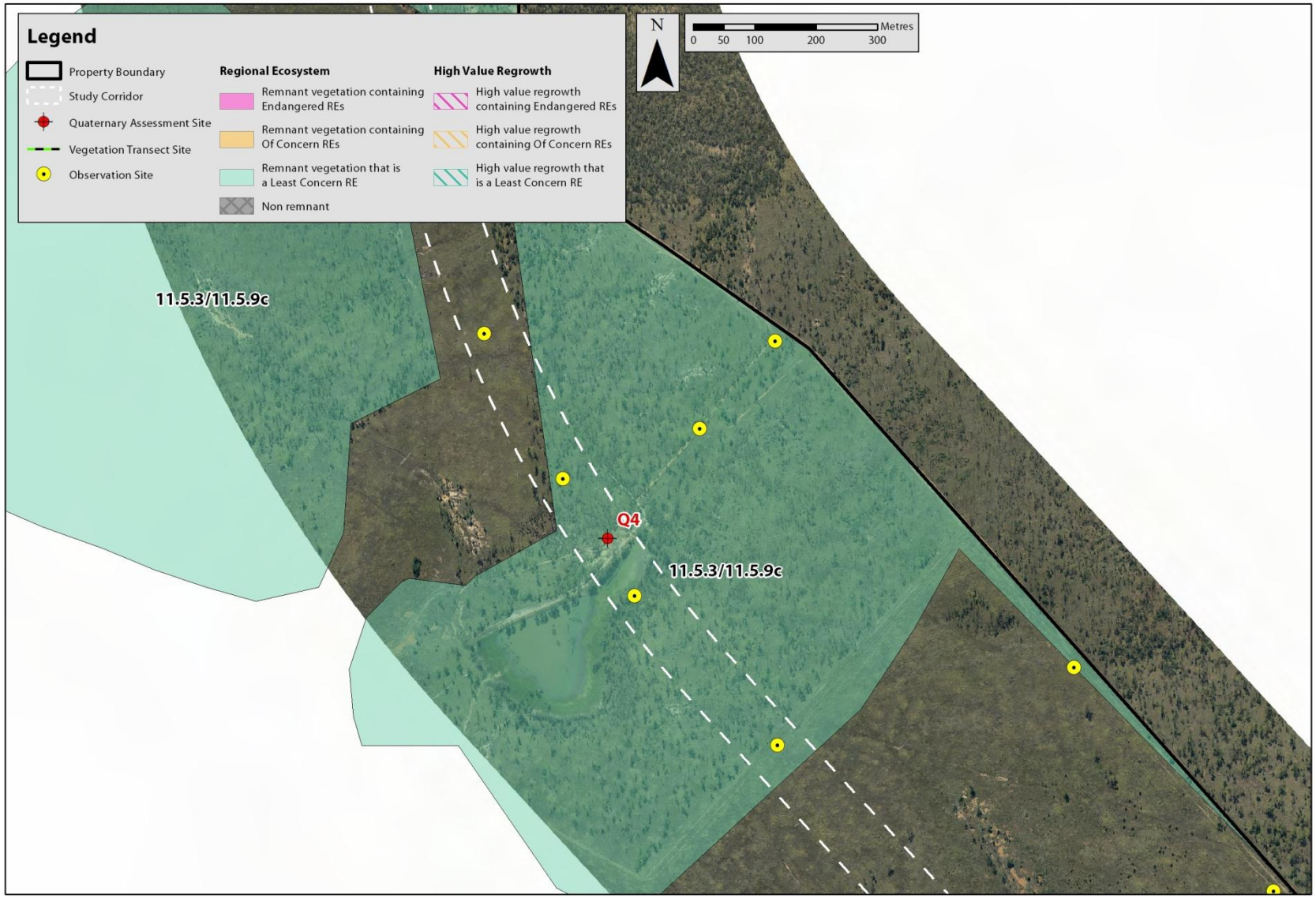
Table 22: E & R Action (Rugby Run) - Area D Summary

Site Description		
Location:	E & R Action (Rugby Run); Lot 2 on GV248	
Site Description:	The site is mapped as a composite vegetation community described as Least Concern RE 11.5.3/11.5.9c. The community is described as comprising approximately 50% Least Concern RE 11.5.2 and 50% Least Concern 11.5.9c. Species observed include *Eucalyptus populnea* and *Corymbia clarksonia* within the T1 layer and *Petalostigma pubsecens, Alphitonia excels*a and *Acacia excelsa* within the T2 and shrub layers. Ground layer was dominated by *Pennisetum ciliare* and *Themeda triandra*. Moderate levels of disturbance were observed within the survey area including weed invasion, grazing and historical clearing. Field observations indicate the presence of species consistent with both 11.5.3 and 11.5.9 within the polygons of Area D. Refer to Quaternary site 4 and Figure 24 for proposed mapping changes.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	594076.41E	7557971.82S
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Least Concern RE 11.5.3/11.5.9c	
Regional Ecosystem Observed:	Least Concern RE 11.5.3/11.5.9c	
Width of RE:	>10Ha	

Photo: Area D

The area mapped as remnant RE11.5.3/1.5.9 within the investigation area. Note dense Pennisetum ciliare (Buffel Grass) within understorey.

Figure 24: Regional Ecosystem and Survey Effort (Area D – No Changes Proposed)



10.5.E & R Action (Rugby Run) Area E

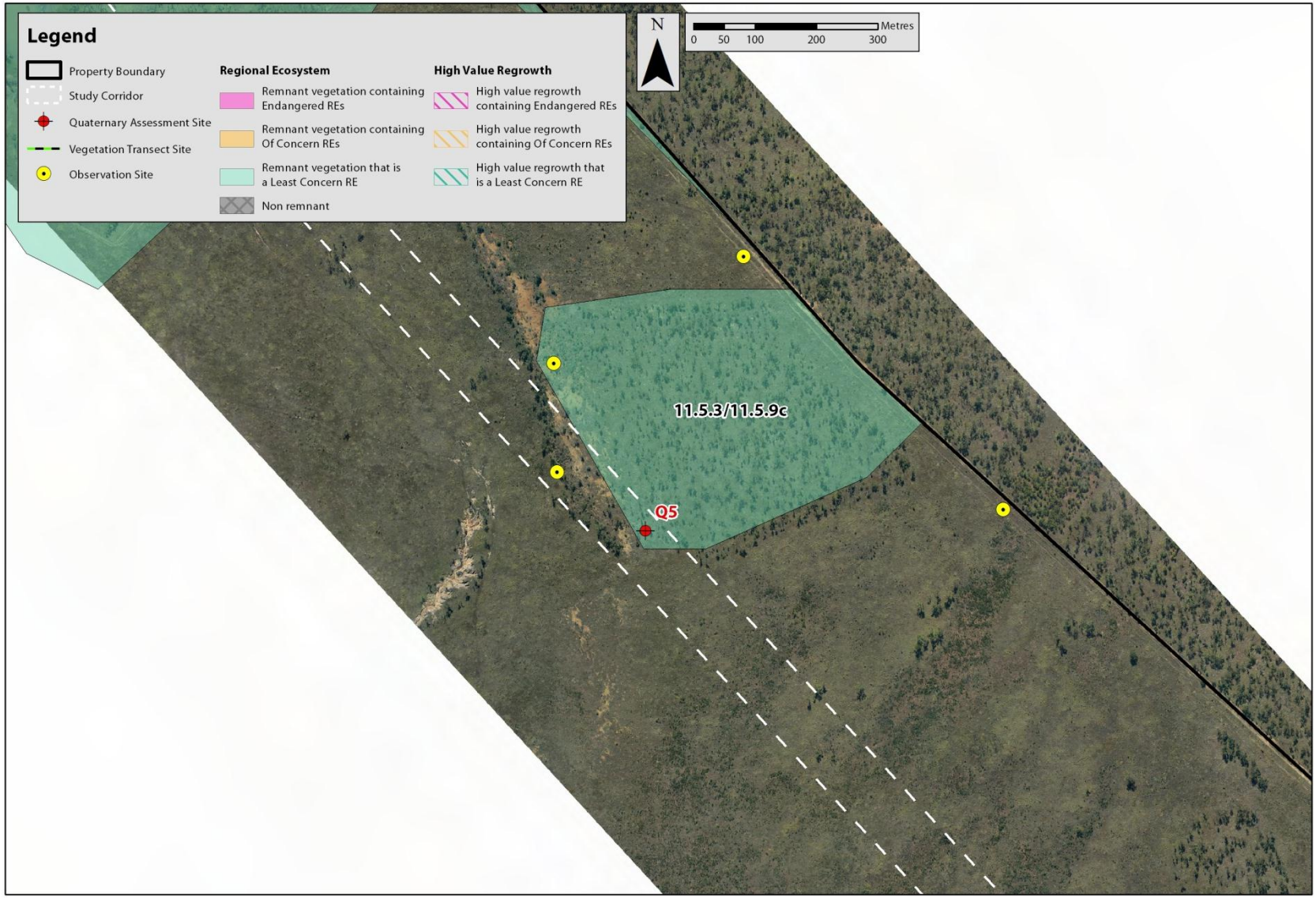
Table 23: E & R Action (Rugby Run) - Area E Summary

Site Description		
Location:	E & R Action (Rugby Run); Lot 2 on GV248	
Site Description:	The site is mapped as a composite vegetation community described as Least Concern RE 11.5.3/11.5.9c. The community is described as comprising approximately 50% Least Concern RE 11.5.2 and 50% Least Concern 11.5.9c. Species observed include *Eucalyptus populnea, Eucalyptus crebra, Eucalyptus exerta* and *Corymbia clarksonia* within the T1 layer and *Petalostigma pubsecens, Alphitonia excelsa* and *Acacia excelsa* within the T2 and shrub layers. Ground layer was dominated by *Pennisetum ciliare*. Moderate levels of disturbance were observed within the survey area including weed invasion, grazing and historical clearing. Field observations indicate the presence of species consistent with both 11.5.3 and 11.5.9 within the polygons of Area E. Refer to Quaternary site 5 and Figure 25 for proposed mapping changes.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	594867.07E	7557141.62s
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Least Concern RE 11.5.3/11.5.9c	
Regional Ecosystem Observed:	Least Concern RE 11.5.3/11.5.9c	
Width of RE:	5-20Ha	

Photo: Area E

The area mapped as remnant RE11.5.3/1.5.9 within the investigation area. Note vegetation positioned on rocky outcrop.

Figure 25: Regional Ecosystem and Survey Effort (Area E – No Changes Proposed)



10.6.E & R Action (Rugby Run) Area F

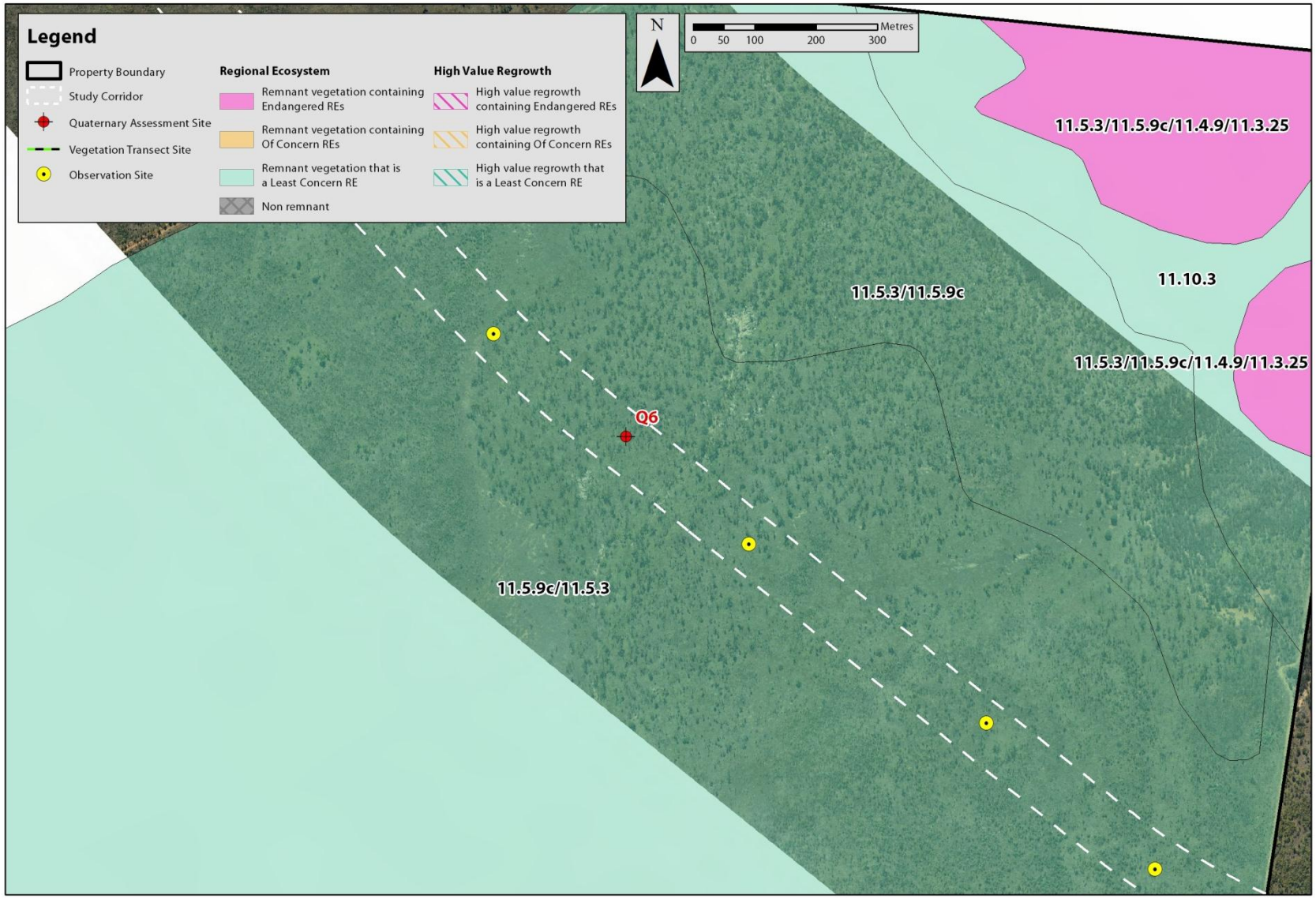
Table 24: E & R Action (Rugby Run) - Area F Summary

Site Description		
Location:	E & R Action (Rugby Run); Lot 2 on GV248	
Site Description:	The site is mapped as a composite vegetation community described as Least Concern RE 11.5.3/11.5.9c. The community is described as comprising approximately 50% Least Concern RE 11.5.2 and 50% Least Concern 11.5.9c. Species observed include *Eucalyptus crebra, Eucalyptus melanophloia, Corymbia clarksonia, Corymbia intermedia* and *Eucalyptus cambageana* within the T1 layer and *Petalostigma pubsecens, Alphitonia excelsa* and *Acacia excelsa* within the T2 and shrub layers. Ground layer was dominated by *Pennisetum ciliare* and *Themeda triandra*. High levels of disturbance were observed within the survey area including weed invasion, grazing and historical clearing. Large quantities of dead standing timber observed. Copus growth obvious on a large number of trees in the area. In areas dense regrowth of Acacia spp evident. Field observations indicate the presence of species consistent with both 11.5.3 and 11.5.9 within the polygons of Area F. Refer to Quaternary site 6 and Figure 26 for proposed mapping changes.	
Datum:	GDA94 MGA55	
Eastings/Northings	Eastings	Northings
	596234.97E	7555663.79
Regional Ecosystem Profile		
Current RE Mapping (Version 6.1)	Least Concern RE 11.5.9c/11.5.3	
Regional Ecosystem Observed:	Least Concern RE 11.5.9c/11.5.3	
Width of RE:	>20Ha	

Photo: Area D

The area mapped as remnant RE11.5.9/11.5.3 within the investigation area. Note dense Pennisetum ciliare (Buffel Grass) within understorey.High levels of disturbance from clearing and grazing within survey area.

Figure 26: Regional Ecosystem and Survey Effort (Area F – No Changes Proposed)



II.BHP Coal

The *Vegetation Management Act Regional Ecosystem and Remnant Map Version 6.1* have mapped three regional ecosystems across three landzones within the BHP property.

This area was not accessible during the time of the survey and therefore no RE mapping amendments are proposed – Refer Figures 27 – 28.

Figure 27: Regional Ecosystem (Area A – No Changes Proposed)

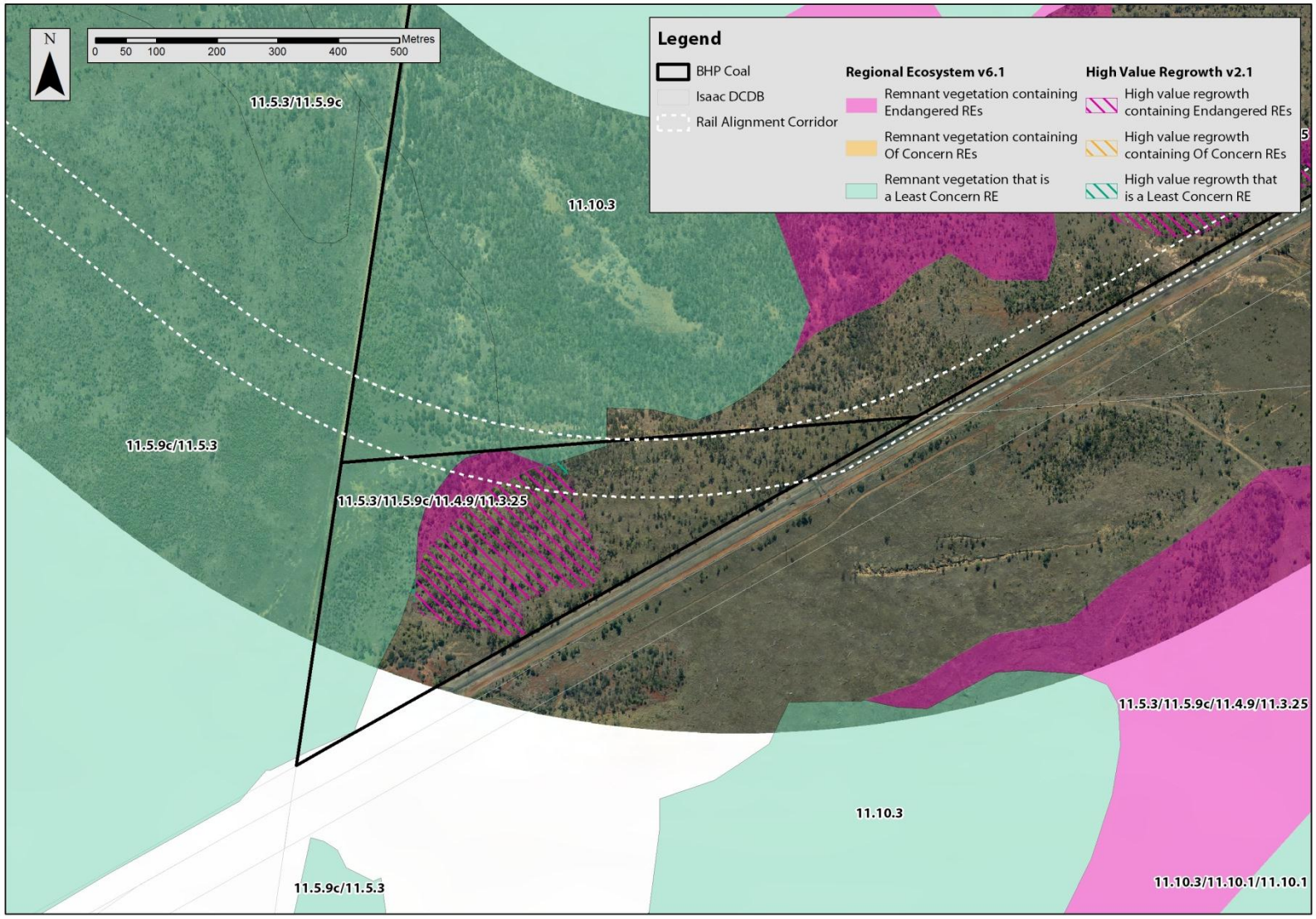
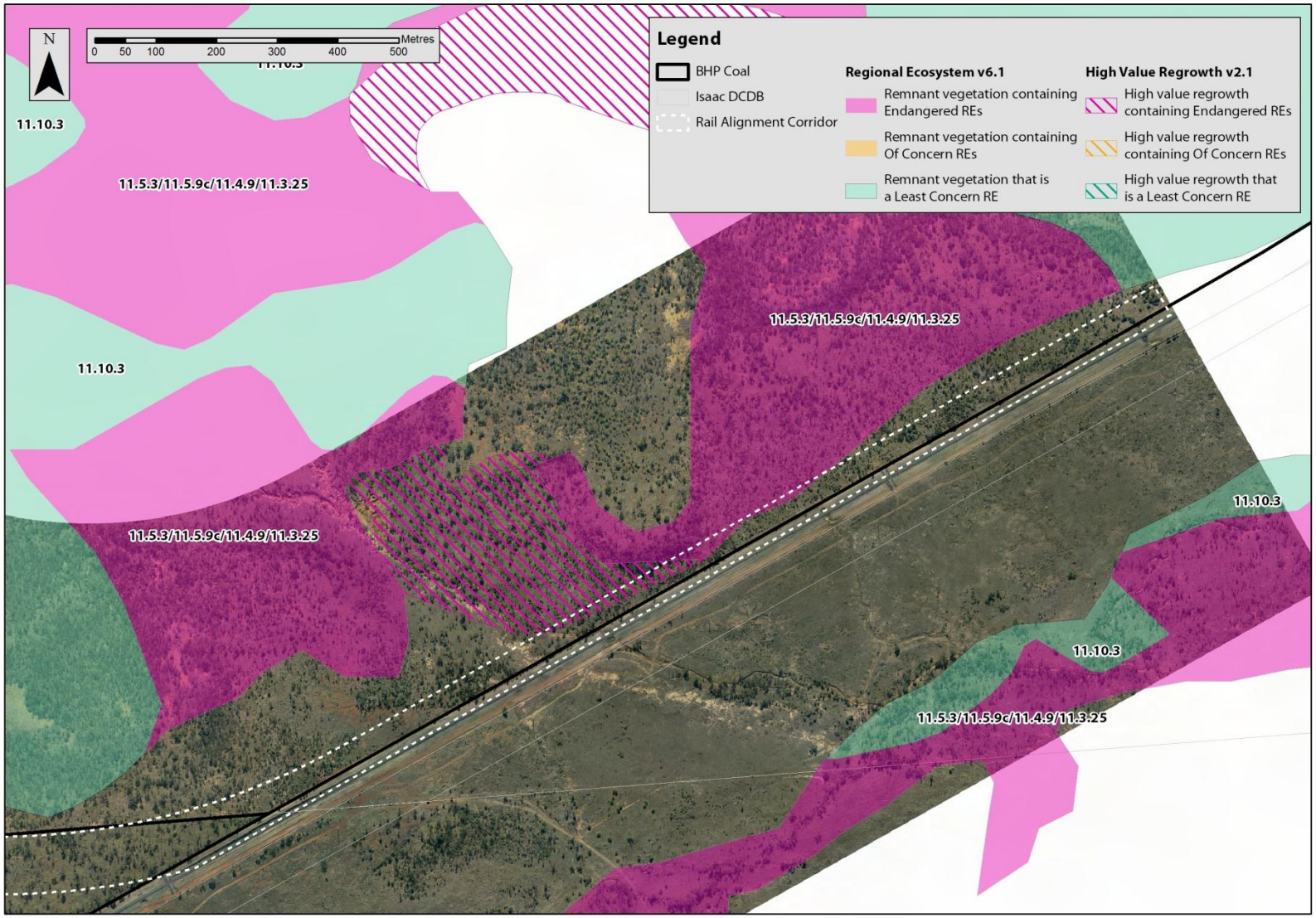


Figure 28: Regional Ecosystem (Area B No Changes Proposed)



12. Appendices

Appendix A

H & S Dahl

Appendix B

H & T Jones

Appendix C

T Jones

Appendix D

Rugby Run

Appendix A

H&S Dahl

H&S Dahl - Vegetation Transect I

Site No.	1	**Recorder:**	David Havill / Steve Reeves	**Day/Date:**	2/9/12
Purpose	Regional Ecosystem & Remnant Check				
Locality:	H & S Dahl (Isaac Regional Council)				

Vegetation Structure

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	16m	10 – 20m	S
T2	7m	4 – 10m	S
T3			
S1	2m	1 – 3m	VS
S2			
G	0.6m	0 – 1m	D
Structural formation including height: (estimated)			
Woodland			
Ecologically dominant layer:	T1		

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		**Datum:**	MGA 55	**Transect length:**	100m
Start point	Zone **5 5** E	7577378.57	N	543610.57	
End point	Zone **5 5** E	7577350.52	N	543515.59	

Interval (metres)	Intercept	Str.	Height	*Species*	Common Name
T1 Transect Intercept					
0 – 7.2m	7.2m	T1	9.7m	*Acacia cambagei*	Stinking Wattle
9.9 – 11.5m	1.6m	T2	6.7m	*Terminalia oblongata*	Yellowwood
11.5 – 13.5m	2.0m	T2	4.5m	*Acacia cambagei*	Stinking Wattle
14.3 – 18m	3.7m	T2	6.1m	*Acacia cambagei*	Stinking Wattle
21.6 – 28m	6.4m	T1	10.3m	*Acacia cambagei*	Stinking Wattle
37.1 – 45.6m	8.5m	T1	20.6m	*Acacia cambagei*	Stinking Wattle
45.6 – 51.5m	5.9m	T1	11.5m	*Acacia cambagei*	Stinking wattle
68.2 – 72.4m	4.2m	T2	6.8m	*Acacia cambagei*	Stinking wattle

Interval (metres)	Intercept	Str.	Height	*Species*	Common Name
94 - 100	6.0m	T1	11.4m	*Acacia Cambagei*	Stinking Wattle
Shrub Transect Intercept					
9 – 9.9m	0.9m	S	1.7m	*Eremophila mitchellii*	False Sandlewood
16.0 – 17.4m	1.4m	S	1.5m	*Terminalia oblongata*	Yellowwood
Ground Transect Intercept					
0-11.6m	11.6m	G	0..5m	*Pennisetum ciliare*	Buffel Grass
11.6-21.7m	10.1m	G	0.5m	*Astrebla squarrosa*	Bull Mitchell Grass
21.7-23.4m	1.7m	G	0.5m	*Enchylaena tomentosa*	Ruby Salt Bush
23.4-31.2m	7.8m	G	0.5m	*Astrela squarrosa*	Bull Mitchell Grass
31.2-33.3m	2.1m	G	0.5m	*Panicum decompositum*	Native Millet
33.3-35.5m	2.2m	G	0.5m	*Bare Earth*	Bare Earth
35.5-41m	5.5m	G	0.5m	*Astrebla squarrosa*	Bull Mitchell Grass
41-45m	4m	G	0.5m	*Panicum decompositum*	Native Millet
45-46.1m	1.1m	G	0.5m	*Cynodon dactylon*	Couch
46.1-47m	0.9m	G	0.5m	*Pennisetum ciliare*	Buffel Grass
47-48.8m	1.8m	G	0.5m	*Cynodon dactylon*	Couch
48.8-50m	1.2m	G	0.5m	*Astrebla squarrosa*	Bull Mitchell Grass

Summary:	
Minimum height of plants included in the transect table:	5.9m
Intercept of EDL 0 - 50m:	26.5m
Intercept of EDL 50 -100m:	7.5m
Measured crown cover % of EDL 0 -100m:	34.0%
Structural formation	Open Forest to Woodland

Conclusions/notes:

- Species representing both regional ecosystems were observed throughout the mapped polygon.
- Remnant polygon to remain as Of Concern status.
- Some evidence of cattle disturbance throughout polygon.
- No changes to current regional ecosystem mapping proposed.

Plant Species *(D – Dominant; C – codominant; A – associated; S – Suppressed)*

Str.	Rel.	Scientific Name	Common Name
E	D	*Acacia cambagei*	Stinking Wattle
T!	D	*Acacia cambagei*	Stinking Wattle
	A	*Terminalia oblongata*	Yellowwood

Str.	Rel.	Scientific Name	Common Name
S	A	*Acacia cambagei*	Stinking Wattle
	A	*Terminalia oblongata*	Yellowwood
		Owenia acidula	Emu Apple
		Eremophila mitchellii	False Sandlewood
G	A	*Cynodon dactylon*	Couch
	A	*Panicum decompositum*	Native Millet
	C	*Astrebla squarrosa*	Bull Mitchell Grass
		Enchylaena tomentosa	Ruby Salt Bush
	D	*Pennisetum ciliare*	Buffel Grass

H&S Dahl - Vegetation Transect 2

Area C

Site No.	2	**Recorder:**	David Havill / Steve Reeves	**Day/Date:**	2/9/12
Purpose	Regional Ecosystem & Remnant Check				
Locality:	H & S Dahl (Isaac Regional Council)				

Vegetation Structure

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	11m	8-14m	S/M
T2	5m	4-7m	S
T3			
S1	2m	1-3m	VS
S2			
G	0 – 0.5m	0.3m	D
Structural formation including height: (estimated)			
Woodland			
Ecologically dominant layer:	T1		

Transect – Crown Cover Measured (Transect intercept method)

GPS coordinates:		**Datum:**			MGA 55	**Transect length:**		100m	
Start point	Zone	**5**	**5**	E	7576735.78	N	547738.82		
End point	Zone	**5**	**5**	E	7576741.66	N	547642.23		

Interval (metres)	Intercept	Str.	Height	*Species*	Common Name
T1 Transect Intercept					
0-10.4m	10.4m	T1	18.0m	*Eucalyptus coolabah*	Coolabah
10.4 – 13.0m	2.6m	T2	4.6m	*Eucalyptus coolabah*	Coolabah
22.5 – 31.9m	9.4m	T1	10.8m	*Eucalyptus coolabah*	Coolabah
28.3 – 31.4	3.1m	T2	6.1m	*Eucalyptus coolabah*	Coolabah
41.1 – 52.1m	11.0m	T1	11.8m	*Eucalyptus coolabah*	Coolabah
53.4 -56m	2.6m	T2	6.0m	*Eucalyptus Coolabah*	Coolabah
83.4 – 91.8	8.4m	T1	12.1m	*Eucalyptus coolabah*	Coolabah

Interval (metres)	Intercept	Str.	Height	*Species*	Common Name
Groundlayer Transect Intercept					
0 – 5.9m	5.9m	G	0.5m	*Cyperus sp.*	Sedge
5.9 – 7m	1.1m	G	0.5m	*Cynodon dactylon*	Couch
7 – 7.3m	0.3m	G	0.5m	*Astrebla squarrosa*	Bull Mitchell Grass
7.3 – 7.9m	0.6m	G	0.5m	*Cyperus sp.*	Sedge
7.9 – 9.0m	1.1m	G	0.5m	*Cynodon dactylon*	Couch
9.0 – 10.2m	1.2m	G	0.5m	*Cyperus sp.*	Sedge
10.2 – 12.0m	1.8m	G	0.5m	*Cynodon dactylon*	Couch
12.0 – 13.0m	1.0m	G	0.5m	*Cyperus sp.*	Sesbane Pea
13.0 – 15.8m	2.8m	G	0.5m	*Panicum decompositum*	Native Millet
15.8 – 18.5m	2.7m	G	0.5m	*Cynodon dactylon*	Couch
18.5 – 20.7m	2.2m	G	0.5m	*Panicum decompositum*	Native Millet
20.7 – 21.7m	1.0m	G	0.5m	*Cynodon dactylon*	Couch
21.7 – 25.8m	4.1m	G	0.5m	*Panicum decompositum*	Native Millet
25.8 – 29.3m	3.5m	G	0.5m	*Cynodon dactylon*	Couch
29.3 – 31.7m	2.4m	G	0.5m	*Cyperus sp.*	Sedge
31.7 – 36.1m	4.4m	G	0.5m	*Panicum decompositum*	Native Millet
36.1 – 36.7m	0.6m	G	0.5m	*Cyperus sp.*	Sedge
36.7 – 42.4m	5.7m	G	0.5m	*Astrebla squarrosa*	Bull Mitchell Grass
42.4 – 50m	7.6m	G	0.5m	*Cyperus sp.*	Sedge

Summary:	
Minimum height of plants included in the transect table:	5.9m
Intercept of EDL 0 - 50m:	26.5m
Intercept of EDL 50 -100m:	7.5m
Measured crown cover % of EDL 0 -100m:	34.0%
Structural formation	Open Forest to Woodland

Conclusions/notes:

- Species representing both regional ecosystems were observed throughout the mapped polygon.
- Remnant polygon to remain as Of Concern status.
- Some evidence of cattle disturbance throughout polygon.
- No changes to current regional ecosystem mapping proposed.

Plant Species *(D – Dominant; C – codominant; A – associated; S – Suppressed)*

Str.	Rel.	Scientific Name	Common Name
E	D	*Acacia cambagei*	Stinking Wattle
T1	D	*Acacia cambagei*	Stinking Wattle
	A	*Terminalia oblongata*	Yellowwood
S	A	*Acacia cambagei*	Stinking Wattle
	A	*Terminalia oblongata*	Yellowwood
		Owenia acidula	Emu Apple
		Eremophila mitchellii	False Sandlewood
G	A	*Cynodon dactylon*	Couch
	A	*Panicum decompositum*	Native Millet
	C	*Astrebla squarrosa*	Bull Mitchell Grass
		Enchylaena tomentosa	Ruby Salt Bush
	D	*Pennisetum ciliare*	Buffel Grass

H&S Dahl - Quaternary Site 1

High Value Regrowth containing Of Concern Regional Ecosystems

Dominance (D,CD,O,A)		Species
T1 / T2		*Acacia cambagei*
		Terminalia oblongata
		Lysiphyllum carronii
		Acacia harpophylla
Ground / Shrub	A	*Panicum decompositum*
	D	*Pennisetum ciliare*
	A	*Acacia harpophylla*
Notes : Ground layer dominated by Pennisetum ciliare. Species appear consistent with re 11.4.6		

H&S Dahl - Quaternary Site 2

High Value Regrowth containing Endangered Regional Ecosystems

Dominance (D,CD,O,A)		Species
T1 / T2	D	*Eucalyptus coolabah*
	A	*Terminalia oblongata*
	A	*Geijera parviflora*
	A	*Acacia harpophylla*
Ground / Shrub	A	*Xanthium pungens*
	A	*Leptochloa digitata*
	A	*Panicum decompositum*
	D	*Pennisetum ciliare*
	A	*Meuhlenbeckia florulenta*
	A	*Parthenium hysterophorus*
	A	*Evolvulus alsinoides*
	A	*Acacia harpophylla*
	A	*Dactyloctenium radulans*
Notes : Ground layer dominated by Pennisetum ciliare. Species appear		

Appendix B

H&T Jones

H&T Jones - Quaternary Site I

Endangered western end

T1 Layer	D	*Eucalyptus coolibah*
T2 Layer	A	*Acacia cambagei*
		Eucalyptus coolibah
Shrub Layer	O	*Meuhlenbeckia florulenta*
	O	*Eremophila mitchelli*
Ground	CD	*Pennisetum ciliare*
	CD	*Dichanthium sericeum*
	A	*Themeda triandra*
	O	*Aristida latifolia*
	O	*Astrebla sp.*
	A	*Heteropogon contortus*

Notes:

- Coolibah woodland on alluvial plains. Native grass and exotic understorey.
- *Acacia harpophylla* not present in area.
- Some hollows and nests within larger coolibah specimens.
- Area very open with very sparse T2 and shrub layer.

H&T Jones - Quaternary Site 2

Endangered Brigalow eastern Boundary

T1 Layer	CD	*Acacia harpophylla*
	CD	*Acacia cambagei*
T2 Layer	A	*Acacia cambagei*
		Eremophila mitchellii
Shrub Layer	O	*Lysiphyllum carronii*
	O	*Eremophila mitchelli*
Ground	CD	*Pennisetum ciliare*
	O	*Aristida latifolia*
	A	*Themeda triandra*
	A	*Eriocereus martinii*
	O	*Astrebla sp.*
	A	*Heteropogon contortus*

Notes:

- *Acacia harpophylla* present in area highly disturbed
- *Pennisetum ciliare* dense within ground layer.
- Very thin strip of vegetation.
- Lots of dead standing timber
- Area very open with very sparse T2 and shrub layer.

Appendix C

T Jones

T Jones – Quaternary Site 1

Endangered Western End

T1 Layer		*ABSENT*
T2 Layer		*ABSENT*
Shrub Layer	O	*Lysiphyllum carronii*
	O	*Eremophila mitchelli*
	A	*Acacia harpophylla*
Ground	CD	*Pennisetum ciliare*
	O	*Parthenium hysterophorus*
	CD	*Themeda triandra*
	A	*Eriocereus martinii*
	O	*Astrebla sp.*
	A	*Heteropogon contortus*
Notes: *Acacia harpophylla* present in shrub layer. Highly disturbed *Pennisetum ciliare* dense within ground layer. No remnant vegetation within area. Remnant vegetation to the south of the alignment. Area very open with very sparse T2 and shrub layer.		

T Jones – Quaternary Site 2

Endangered High value regrowth western End

T1 Layer		*Absent*
T2 Layer		*Absent*
Shrub Layer	O	*Acacia harpophylla*
	A	*Sesbania cannabina*
Ground	CD	*Pennisetum ciliare*
	O	*Parthenium hysterophorus*
	O	*Dichanthium sericeum*

	A	*Aristida latifolia*
	CD	*Sorghum halapense*
Notes • No regrowth observed in proximity to area. • Area appears to have been cleared and cultivated. • Exotic weeds such as *Sorghum halapense, Pennisetum ciliare and Parthenium hysterophorus.* • Very little regrowth observed.		

T Jones – Quaternary Site 3

Second patch of regrowth endangered high value

T1 Layer	-	*Absent*
T2 Layer	-	*Absent*
Shrub Layer	O	*Acacia harpophylla*
	A	*Sesbania cannabina*
Ground	CD	*Pennisetum ciliare*
	O	*Parthenium hysterophorus*
	CD	*Sorghum halapense*
	O	*Dichanthium sericeum*
	A	*Aristida latifolia*
Notes No regrowth observed in proximity to area. Area appears to have been cleared and cultivated. Exotic weeds such as *Sorghum halapense, Pennisetum ciliare* and *Parthenium hysterophorus.* Very little regrowth observed.		

T Jones – Quaternary Site 4

High value endangered regrowth vegetation

T1 Layer	-	*Absent*
T2 Layer	-	*Absent*
Shrub Layer	O	*Acacia harpophylla*
	A	*Sesbania cannabina*
Ground	CD	*Pennisetum ciliare*
	O	*Parthenium hysterophorus*
	CD	*Sorghum halapense*
	O	*Dichanthium sericeum*
	A	*Aristida latifolia*
Notes • No regrowth observed in proximity to area. • Area appears to have been cleared and cultivated. • Exotic weeds such as *Sorghum halapense, Pennisetum ciliare and Parthenium hysterophorus.* • Very little regrowth observed.		

Appendix D

Rugby Run

Rugby Run – Quaternary Site 1

Area A

Dominance (D,CD,O,A)		Species
T1 Layer	CD	*Acacia harpophylla*
	CD	*Acacia cambagei*
	A	*Casuarina cristata*
	A	*Eucalyptus coolabah*
T2 Layer	C	*Eremophila mitchellii*
	A	*Acacia harpophylla*
Shrub Layer	A	*Geijera parviflora*
	A	*Carissa ovata*
Ground	A	*Carissa ovata*
	D	*Pennisetum ciliare*
	A	*Cenchrus echinatus*
	A	*Chloris virgata*

Notes :

- *Acacia harpophylla* (Brigalow) and *Acacia cambagei* (Gidgee) are co-dominant species.
- Vegetation structure and species composition consistent with Endangered Regional ecosystem
- Heavily grazed.

Rugby Run – Quaternary Site 2

Area B

Dominance (D,CD,O,A)		Species
T1 Layer	A	*Eucalyptus melanophloia*
	D	*Eucalyptus populnea*
	A	*Corymbia dallachiana*
T2 Layer	D	*Eucalyptus populnea*
	A	*Alphitonia excels*
	A	*Acacia excelsa*

Ground	A	*Capparis lasiantha*
	A	*Sida cordifolia*
	A	*Cenchrus echinatus*
	A	*Dactyloctenium radulans*
	O	*Leptochloa digitata*
	O	*Panicum decompositum*
	O	*Sporobolus caroli*

Notes :

- *Eucalyptus populnea* dominant species.
- Vegetation structure and species composition consistent with Regional Ecosystem Mapping
- Heavily grazed.

Rugby Run – Quaternary Site 3

Area C

T1 Layer	CD	*Eucalyptus populnea*
	CD	*Corymbia clarksonia*
T2 Layer	A	*Acacia excelsa*
	O	*Petalsotigma pubescens*
Shrub Layer	A	*Petalostigma pubescens*
	O	*Alphitonia excelsa*
	O	*Archidendropsis basaltica*
	A	*Eremophila mitchellii*
Ground	CD	*Pennisetum ciliare*
	A	*Aristida latifolia*
	CD	*Themeda triandra*
	O	*Heteropogon contortus*

Notes:

- Open woodland/woodland highly disturbed due to grazing.
- Areas of erosion
- Large quantity of dead timber standing and on the ground.
- Shrub layer dense in spots.
- Grass layer mix of exotic and native grasses

Rugby Run – Quaternary Site 4

Area D

T1 Layer	D	*Eucalyptus populnea*
	A	*Corymbia clarksonia*
T2 Layer	A	*Acacia excelsa*
	A	*Petalsotigma pubescens*
Shrub Layer	O	*Petalostigma pubescens*
	A	*Alphitonia excelsa*
	A	*Archidendropsis basaltica*
	O	*Eremophila mitchellii*
Ground	D	*Pennisetum ciliare*
	A	*Aristida latifolia*
	A	*Themeda triandra*
	A	*Heteropogon contortus*

Notes:

- Open woodland/woodland highly disturbed due to grazing.
- Areas of erosion
- Large quantity of dead timber standing and on the ground.
- Shrub layer dense in spots.
- Grass layer mix of exotic and native grasses

Rugby Run – Quaternary Site 5

Area E

T1 Layer	D	*Eucalyptus crebra*
	A	*Eucalyptus cambageana*
	A	*Corymbia intermedia*
	O	*Eucalyptus melanophloia*

	A	*Eucalyptus exerta*
T2 Layer	-	*Absent*
Shrub Layer	CD	*Petalostigma pubescens*
	O	*Acacia excelsa*
	CD	*Alphitonia excelsa*
	A	*Capparis lassiantha*
Ground	CD	*Themeda triandra*
	A	*Aristida sp.*
	O	*Chloris virgata*
	O	*Chloris truncata*
	CD	*Panicum decompositum*
	A	*Pennisetum ciliare*
Notes • Open forest / Woodland • Native grass understorey • Heavily grazed, High levels of disturbance.		

Rugby Run - Quaternary Site 6

Area F

T1 Layer	D	*Eucalyptus crebra*
	A	*Eucalyptus cambageana*
	A	*Corymbia intermedia*
	O	*Eucalyptus melanophloia*
	O	*Corymbia clarksonia*
T2 Layer	A	*Eucalyptus exerta*
Shrub Layer	CD	*Petalostigma pubescens*
	O	*Acacia excelsa*
	CD	*Alphitonia excelsa*
	A	*Capparis lassiantha*

Ground	CD	*Themeda triandra*
	A	*Aristida sp.*
	O	*Chloris virgata*
	O	*Chloris truncata*
	CD	*Panicum decompositum*
	A	*Pennisetum ciliare*

Notes

- Open forest / Woodland
- Native grass understorey
- Heavily grazed, High levels of disturbance.