

FIELD ASSESSMENT OF AREAS MAPPED AS WHITE BOX – STRINGYBARK GRASSY WOODLAND ON THE OFFSET PROPERTIES ‘WIRRADALE’ AND ‘MT LINDESAY’

Wendy Hawes

6th September 2013

INTRODUCTION

On Monday 26th August 2013, I inspected four areas on the properties ‘Wirradale’ and ‘Mt Lindesay’, near Barraba NSW, that had been mapped as White Box-Stringybark grassy woodland by Cumberland Ecology (refer Appendix 1). The purpose of the inspection was to determine the validity of the vegetation mapping presented by Cumberland Ecology in the *Draft Biodiversity Offset Management Plan* (2011) for Maules Creek Coal project.

METHOD

Thirteen sites were surveyed using rapid data points (RDP) refer Appendix 2. RDPs assist in determining the accuracy and spatial delineation of vegetation community boundaries and features. They allow for a smaller amount of information to be collected from areas of vegetation increasing the number of direct on-ground observation points, thereby significantly improving the accuracy of any mapping product. All points surveyed were in the proximity of sites previously surveyed by North West Ecological Services on 9th January 2013.

The location of each RPD was recorded using a GPS. As a minimum, the information collected included the three dominant species and their percentage cover (where present) within the canopy layer, shrub layer and ground layer. Also recorded were the;

- percentage non-vascular groundcover elements (litter, bare soil and large rocks)
- weed cover , and
- the number of hollow bearing trees within a 30m radius of the GPS point.

Four photos were taken at each point, East, South, West and North. These photos are supplied in the attached Appendix 3.

Flora survey plots using 20 x 50 quadrats required to determine ground layer consistency with the Commonwealth *White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland* critically endangered ecological community (CEEC) listing of were not undertaken (DEWHA 2008). As the timing of the current survey was outside the active growing, flowering and seed set season for many ground layer flora species. Given the limited time available, it was considered important to determine whether the vegetation community mapped broadly fitted the description of the CEEC over as large an area as possible.

In preparing this report I have reviewed the following documentation:

- New South Wales Vegetation Classification and Assessment database (NSWVCA, Benson *et al.* 2010);
- ‘*Vegetation Information System*’, the OEH systematic flora survey database (OEH 2013).
- North West Ecological Services (2013) *Results from field assessment of Maules Creek Coal offset properties Wirradale and Mt Lindesay, targeting sections of vegetation mapped as White Box – Stringybark grassy woodland.*

- Composite vegetation map for the Namoi and Border Rivers-Gwydir CMAs (Eco Logical Australia 2008).
- White Box – Yellow Box – Blakely’s Red Gum grassy woodlands and derived native grasslands. EPBC Act Policy Statement. (Dept of The Environment and Heritage 2006)

RESULTS

Approximately 4km was walked through the ‘Wirradale’ and 3km through Mt Lindesay remnants mapped as grassy White box – stringybark grassy woodland by Cumberland Ecology (refer Appendices 1 and 2). The area inspected on each property was approximately 80ha and 100ha respectively. As shown in Table 1, the results of this survey indicate while generally there some variation within the overstorey composition the regional vegetation community (RCV) which, in my opinion, best fits the majority of sites (62%) is: Stringybark-Blakely’s red gum-rough-barked apple open forest (RVC 50). This conclusion is based on the dominance of silvertop stringybark (*Eucalyptus laevopinea*) variously associated with rough-barked apple (*Angophora floribunda*), yellow box (*E. melliodora*), Blakely’s red gum (*E. blakelyi*), manna gum (*E. viminalis*), New England blackbutt (*E. andrewsii*) and orange gum (*E. prava*), as well as the presence of a patchy to dense shrub layer and sparse to mid-dense ground cover.

Only one site (waypoint 1045) supported yellow box (*E. melliodora*) grassy woodland that I would consider constitutes RVC 17 – Box-gum woodlands of the Brigalow Belt South and is potentially consistent with the Commonwealth listed CEEC. This was a small area of approximately 1ha comprising an advanced regenerating stand coppicing from a historic clearing event. A further two small areas of yellow box grassy woodland of approximately 0.5ha each, were noted on ‘Wirradale’ area. All these areas of potential CEEC were small, localised occurrences within the dominant more extensive stringybark shrubby woodland/open forest. A further three sites at waypoints 1046, 1050 and 1051 also comprises Box-gum woodlands of the New England Tablelands (RVC 16) but the dominance of rough-bark apple, manna gum and apple box (*E. bridgesiana*) indicate that this community is not representative of the CEEC.

The only white box (*Eucalyptus albens*) observed during the survey occurs on ‘Wirradale’ at waypoint 1049 and comprises RVC 41 White box – stringybark shrubby woodlands. This was again a small patch (<2ha) within the more extensive stringybark shrubby woodland/open forest. Structurally and floristically, this community is not consistent with the Cumberland mapping as it comprises a shrubby open forest rather than grassy woodland, nor does it constitute the Commonwealth CEEC.

DISCUSSION

Contrary to the Cumberland Ecology vegetation mapping, the findings of this survey indicate no areas of white box -stringybark grassy woodland, consistent with the CEEC listing, occur within the four remnants surveyed on the offset properties. This survey did identify three small, isolated patches of box-gum woodland dominated by yellow box that would potentially comprise the Commonwealth CEEC. Only 2ha of box-gum woodland consistent with the CEEC were observed within the approximately 180ha inspected.

The findings of this survey also demonstrate the Eco Logical Australia (2008) vegetation mapping for the offset properties, that indicate the presence of large areas of box-gum grassy woodlands on Mt Lindesay, is also incorrect (refer Appendix 2). Additionally Dr John Hunter, a botanist with extensive experience in mapping the vegetation communities of Mt Kaputar and its surrounds, has stated

‘my experience would strongly suggest that the mapping of Grassy White Box communities within this study area are vastly over stated and that if they do occur at all at those altitudes and on those soils it would only be minimal occurrences’. (Hunter pers comm 2013)

Maps in Appendix 4 show a range of vegetation maps completed by John in the vicinity of the offset properties.



Wendy Hawes
Terrestrial Ecologist

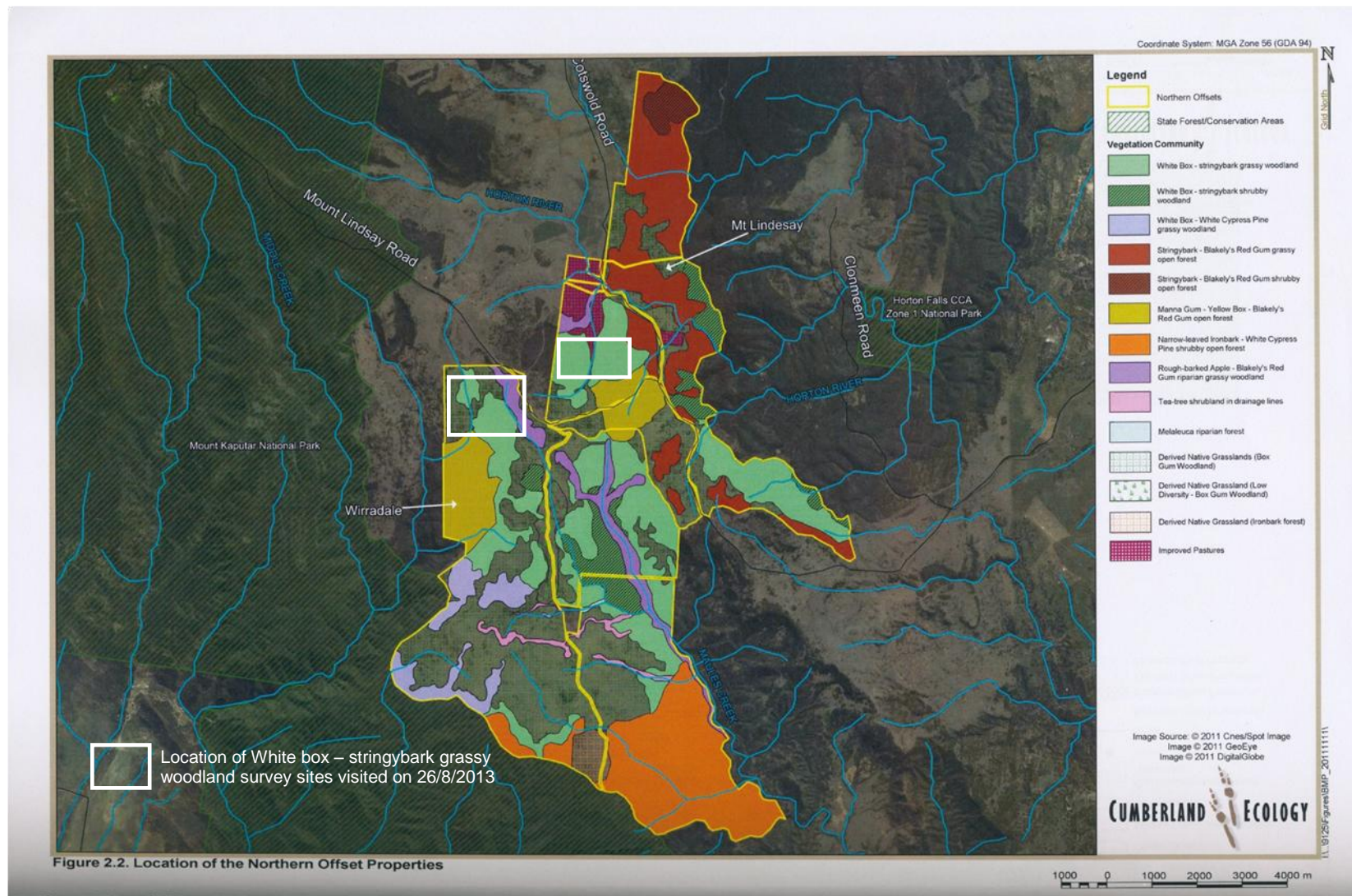
TABLE 1: FIELD SURVEY RESULTS IN AREAS MAPPED AS WHITE BOX – STRINGYBARK GRASSY WOODLAND BY CUMBERLAND ECOLOGY ON THE OFFSET PROPERTIES 'WIRRADALE' AND 'MT LINDESAY'

Waypoint (altitude)	1045	1046	1047	1048	1049	1050	1051
Altitude (asl)	989m	968m	944m	976m	972m	948m	956m
Dominant overstorey spp	Eucalyptus melliodora	Angophora floribunda	Eucalyptus laevopinea	Eucalyptus laevopinea	Eucalyptus albens	Angophora floribunda	Angophora floribunda
	Angophora floribunda	Eucalyptus viminalis	Eucalyptus blakelyi	Eucalyptus bridgesiana	Eucalyptus laevopinea	Eucalyptus bridgesiana	Eucalyptus viminalis
			Angophora floribunda	Angophora floribunda		Eucalyptus viminalis	Eucalyptus bridgesiana
% cover of all spp in the overstorey layer	30	40	40	30	45	25	30
Dominant understorey spp		Angophora floribunda	Angophora floribunda	Angophora floribunda	Eucalyptus albens	Angophora floribunda	Angophora floribunda
		Eucalyptus viminalis	Eucalyptus blakelyi	Eucalyptus bridgesiana		Eucalyptus melliodora	
						Eucalyptus viminalis	
% cover of all spp in the understorey layer	10	15	5	5	<5	10	40
Dominant shrub layer spp	Dodonaea viscosa	Olearia viscidula	Olearia elliptica	Olearia elliptica	Olearia elliptica	Angophora floribunda	Olearia elliptica
	Olearia elliptica	Leptospermum sp	Olearia viscidula		Dodonaea viscosa	Dodonaea viscosa	Olearia viscidula
	Cassinia laevis		Dodonaea viscosa				Angophora floribunda
% cover of all spp in the shrub layer	10	<5	40	50	45	20	30
Dominant ground layer spp	Aristida vagans	Aristida vagans	Aristida caput-medusa	Aristida caput-medusa	Rytidosperma racemosa	Aristida vagans	Poa sieberiana
	Hydrocotyle laxiflora	Poa sieberiana	Cymbopogon refractus	Aristida ramosa	Hydrocotyle laxiflora	Poa sieberiana	Acaena novae-zelandiae
		Pteridium esculentum	Themeda australis	Cymbopogon refractus	Poa sieberiana		Angophora floribunda
% cover of all spp in the ground layer	70	60	50	40	10	60	70
% litter /bare soil	30	40	50	60	90	40	30
% weed cover	<5	<5	<5	<5	<5	<5	<5
Tree hollows /ha	0	0	11	11	7		0
Regional Vegetation Community	Box-gum grassy woodlands – Brigalow Belt South(RVC 17)	Box-gum grassy woodlands – New England Tablelands (RVC 16)	Stringybark-Blakely's red gum-rough-barked apple open forest (RVC 50)	Stringybark-Blakely's red gum-rough-barked apple open forest (RVC 50)	White box-stringybark shrubby woodlands (RVC 41)	Box-gum grassy woodlands – New England Tablelands (RVC 16)	Box-gum grassy woodlands – New England Tablelands (RVC 16)

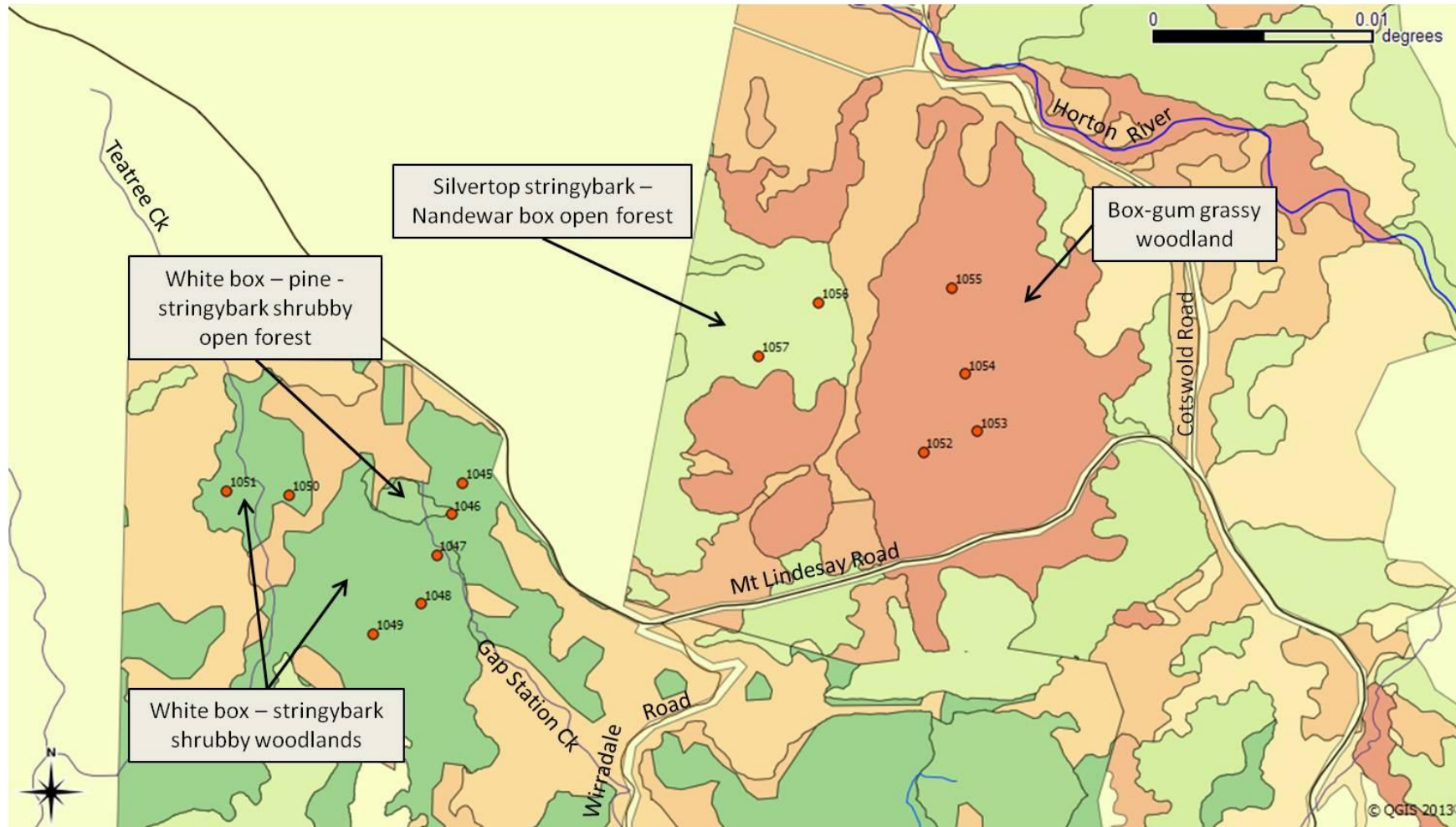
TABLE 1: (cont'd)

Waypoint	1052	1053	1054	1055	1056	1057
Altitude (asl)	958m	970m	965m	971m	932m	973m
Dominant overstorey spp	Eucalyptus laevopinea	Eucalyptus laevopinea	Eucalyptus macrorhyncha	Eucalyptus laevopinea	Eucalyptus laevopinea	Eucalyptus andrewsii
	Eucalyptus melliodora	Angophora floribunda	Eucalyptus melliodora	Eucalyptus melliodora	Eucalyptus viminalis	Angophora floribunda
	Eucalyptus blakelyi	Eucalyptus melliodora	Angophora floribunda	Angophora floribunda	Eucalyptus andrewsii	Eucalyptus prava
% cover of all spp in the overstorey layer	40	45	45	35	40	40
Dominant understorey spp	Angophora floribunda	Angophora floribunda	Eucalyptus macrorhyncha	Eucalyptus laevopinea	Eucalyptus spp	Eucalyptus spp
	Eucalyptus blakelyi	Eucalyptus viminalis	Angophora floribunda	Angophora floribunda	Exocarpos cupressiformis	Angophora floribunda
	Exocarpos cupressiformis		Eucalyptus melliodora	Eucalyptus melliodora		
% cover of all spp in the understorey layer	10	10	20	15	15	10
Dominant shrub layer spp	Pultenaea cuneata	Olearia viscidula	Olearia elliptica	Olearia viscidula	Olearia viscidula	Pultenaea cuneata
	Olearia viscidula	Pultenaea cuneata	Olearia viscidula	Eucalyptus spp	Eucalyptus spp	Olearia viscidula
		Olearia elliptica	Pultenaea cuneata			Eucalyptus spp
% cover of all spp in the shrub layer	30	40	50	40	40	40
Dominant ground layer Spp	Aristida caput-medusa	Goodenia sp	Melichrus urceolatus	Aristida caput-medusa	Austrostipa scabra	Melichrus urceolatus
	Goodenia sp	Hydrocotyle laxiflora	Hydrocotyle laxiflora	Microlaena stipoides	Microlaena stipoides	Microlaena stipoides
		Brachyloma daphnoides	Austrostipa scabra	Cymbopogon refractus	Melichrus urceolatus	Hibbertia sp
% cover of all spp in the ground layer	10	10	10	70	10	10
% litter / bare soil	90	90	90	30	90	90
% weed cover	nil	<5	<5	<5	<5	<5
Tree hollows /ha	7	7	14	18	14	32
Regional Vegetation Community	Stringybark-Blakely's red gum-rough-barked apple open forest (RVC 50)	Stringybark-Blakely's red gum-rough-barked apple open forest (RVC 50)	Stringybark-Blakely's red gum-rough-barked apple open forest (RVC 50)	Stringybark-Blakely's red gum-rough-barked apple open forest (RVC 50)	Stringybark-Blakely's red gum-rough-barked apple open forest (RVC 50)	Stringybark-Blakely's red gum-rough-barked apple open forest (RVC 50)

APPENDIX 1: The vegetation map of Wirraldale and Mt Lindesay prepared by Cumberland Ecology for Appendix E *Final Draft Biodiversity Offset Management Plan* December 2011, note extent of White Box - Stringybark grassy woodland



APPENDIX 2: The location of survey waypoints on the properties Wirradale and Mt Lindesay overlaid on the Eco Logical Australia vegetation map developed for the Namoi and BRG CMAs as a composite Namoi/BRG layer.



APPENDIX 3: PHOTOGRAPHS OF WIRRADALE AND MT LINDESAY SURVEY SITES (26/8/2013)



Plate 1: Waypoint 1045



Plate 2: Waypoint 1046



Plate3: Waypoint 1047



Plate 4: Waypoint 1048



Plate 5: Waypoint 1049



Plate 6: Waypoint 1050



Plate 7: Waypoint 1051



Plate 8: Waypoint 1052



Plate 9: Waypoint 1053



Plate10: Waypoint 1054



Plate11: Waypoint 1055

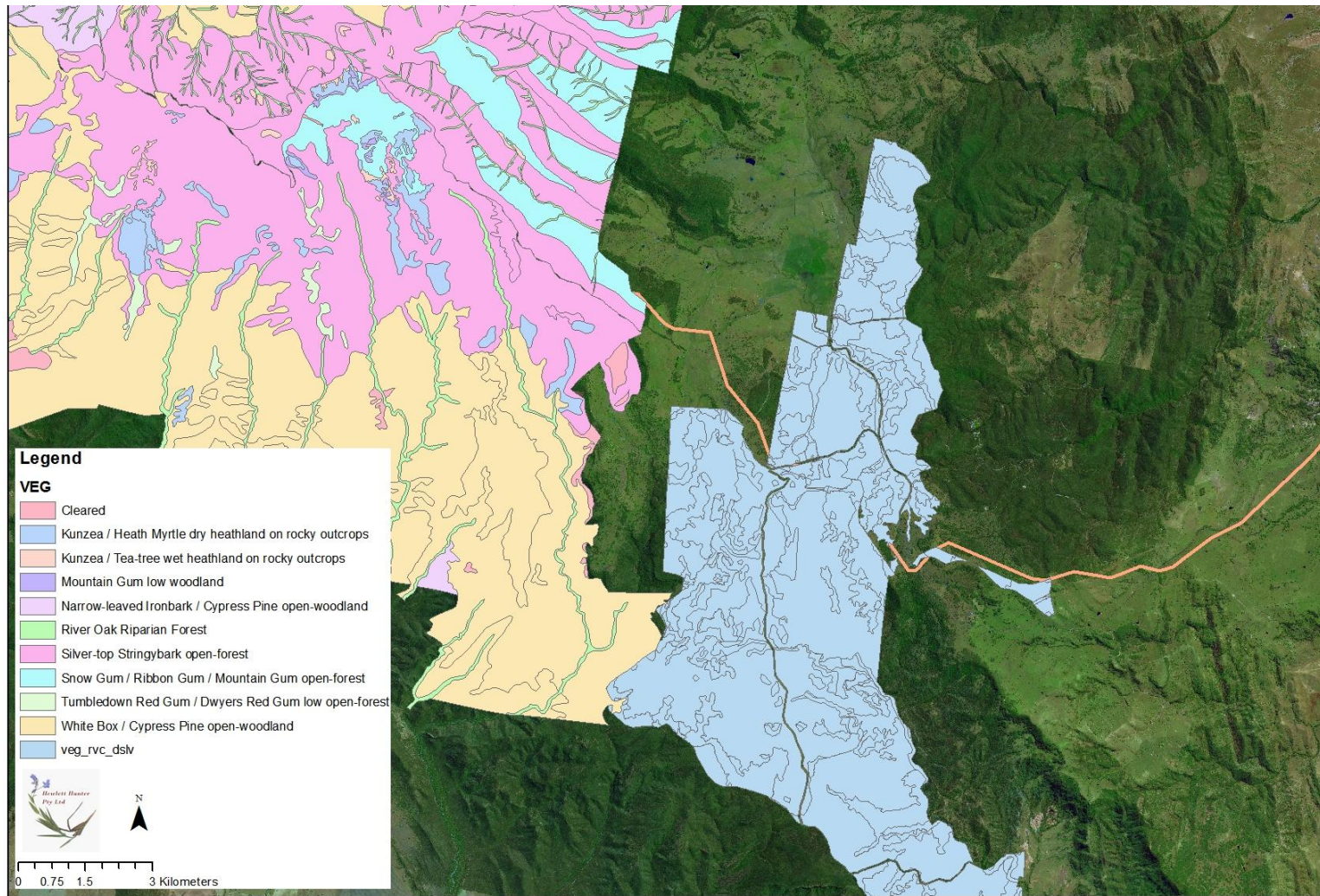


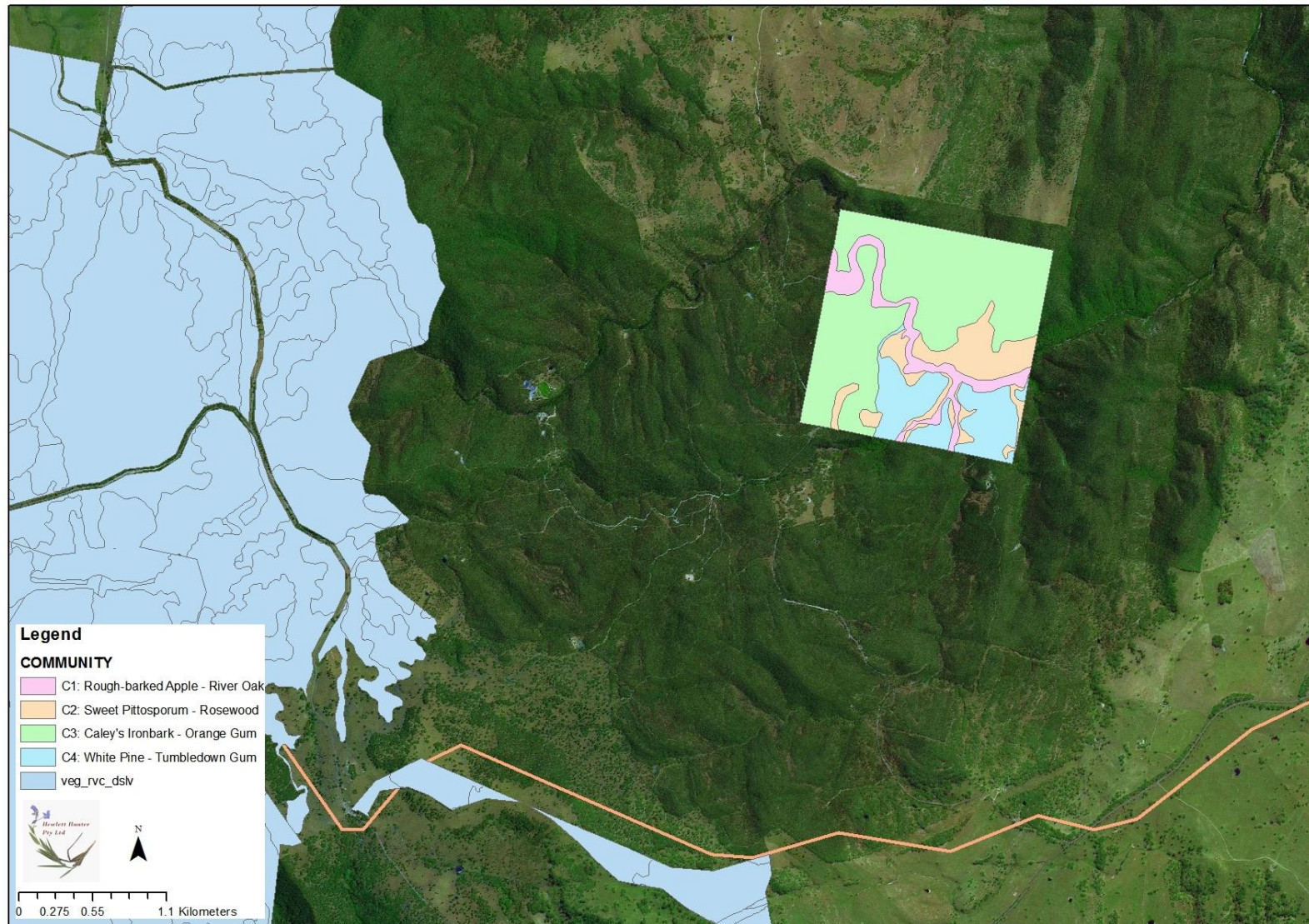
Plate12: Waypoint 1056

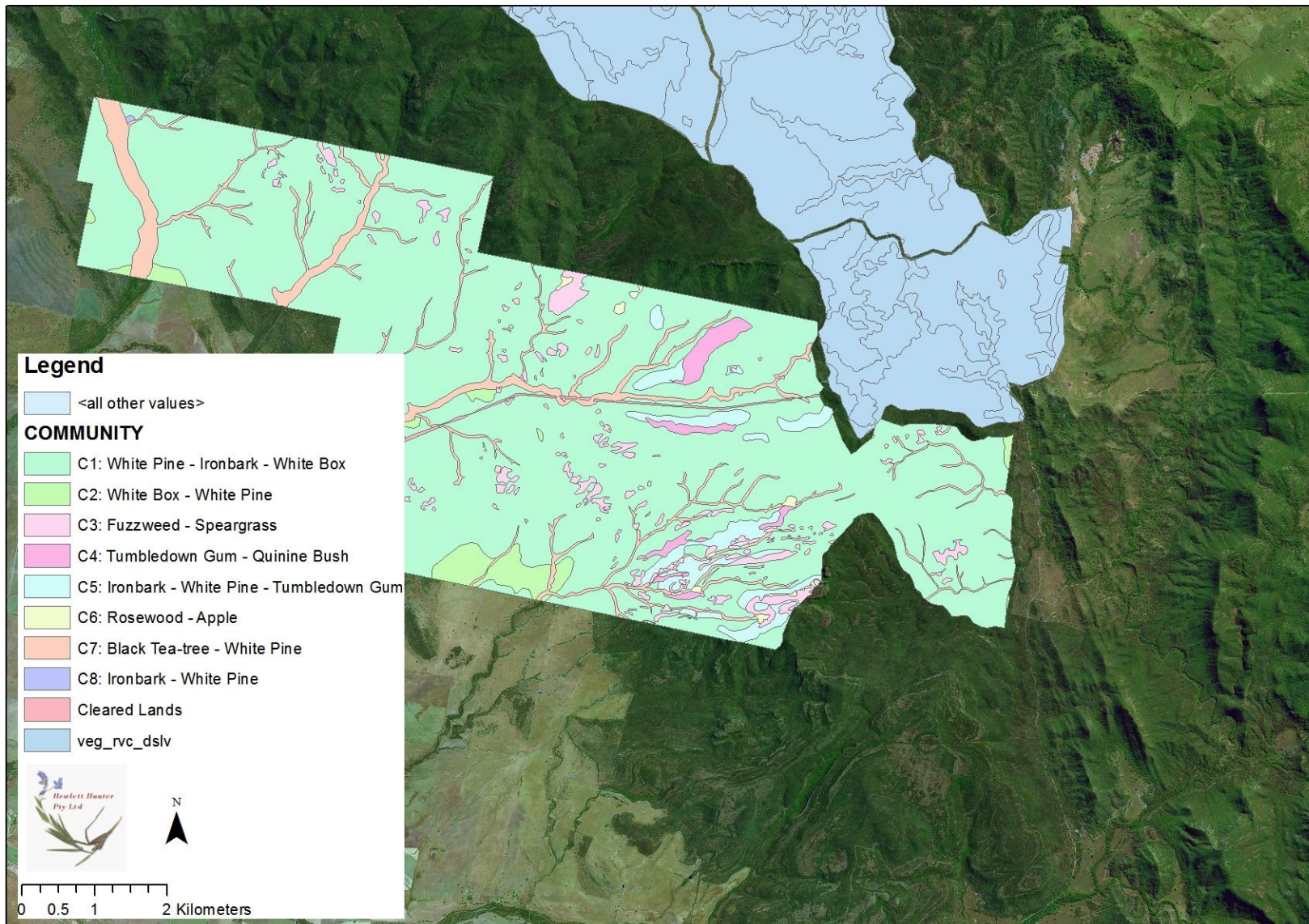


Plate13: Waypoint 1057

APPENDIX 4: Vegetation mapping undertaken by Dr John Hunter in the vicinity of the offset properties marked in light blue.







Note:
 The White Pine – Ironbark – White Box community with large areas mapped as adjoining the offset properties is generally a shrubby woodland/forest community.