

MAULES CREEK COAL MINE
REVISED NEW SOUTH WALES BIODIVERSITY OFFSET STRATEGY



PREPARED BY
WHITEHAVEN COAL LIMITED

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EXECUTIVE SUMMARY

The Maules Creek Coal Mine (the MCCM) is located in the Gunnedah Basin approximately 18 kilometres to the north-east of Boggabri in the north-west region of New South Wales (NSW). The MCCM is a joint venture between Aston Coal 2 Pty Limited (a wholly owned subsidiary of Whitehaven Coal Limited [Whitehaven]) (75 percent [%]), ICRA MC Pty Ltd (an entity associated with ITOCHU Corporation) (15%) and J-Power Australia Pty Ltd (a wholly owned subsidiary of Electric Power Development Co., Ltd.) (10%). Maules Creek Coal Pty Ltd is a wholly owned subsidiary of Whitehaven which manages the MCCM on behalf of Aston Coal 2 Pty Ltd, ICRA MC Pty Ltd and J-Power Australia Pty Ltd.

Project Approval [PA] 10_0138), Condition 44 of Schedule 3 requires the proponent to establish biodiversity offset areas in accordance with the approved NSW Biodiversity Offset Strategy.

This revised NSW Biodiversity Offset Strategy has been prepared in accordance with Condition 45 of Schedule 3 to PA 10_0138. The purpose of this revised NSW Biodiversity Offset Strategy is not to re-assess the approved NSW Biodiversity Offset Strategy but rather to:

1. identify the additional low diversity derived native grassland, cultivated land and pasture improved land to be included in the offset to provide a buffer and connectivity between core remnant habitat;
2. identify the additional offset land within the zone of affectation in the Eastern and Western offset areas that has been secured by the Proponent and where properties have not been secured identify substitute areas that would provide an equivalent increase in biodiversity values;
3. avoid inclusion of any strategic agricultural land in the offset areas, unless it is demonstrated that the inclusion would not have any adverse impacts on agricultural production; and
4. identify a minimum additional 1,000 hectares (ha) of offset area targeting habitat for threatened species affected by the project which includes restoration of habitat to provide an improvement in biodiversity values.

There is substantial overlap between the offset areas subject to Approval Decision EPBC 2010/5566 and this revised NSW Biodiversity Offset Strategy. However, this revised NSW Biodiversity Offset Strategy is only relevant to the MCCM offset areas required under the NSW PA 10_0138.

A comparison between the approximate area of native vegetation communities to be cleared at the MCCM and the revised NSW Biodiversity Offset Strategy is provided in Table ES-1.

Table ES-1
Revised NSW Biodiversity Offset Strategy Compared to the Area of Clearance

	Approximate Area to be Cleared (ha)	Approximate Area to be Offset (ha)
Box-Gum Woodland EEC/CEEC (Woodland and Grassland Form)	544	5,476.8
Other Native Vegetation (Not Box-Gum Woodland EEC/CEEC)	1,534.5	4,727.5
Sub-total Native Vegetation	2,078.5	10,204.3
Low Diversity Native Grassland/Pasture Improved and Cultivated Land	98.8	1,964.6
Grand Total (Land Area)	2,177.3	12,168.9
Mine Site Rehabilitation	-	2,078
Overall Total	-	14,246.9

In summary, the revised NSW Biodiversity Offset Strategy:

- increases the size and quality of the approved offset areas listed in Condition 44 of Schedule 3 to PA 10_0138;
- includes 295.6 ha of additional low diversity derived native grassland, cultivated land and pasture improved land which will be revegetated to buffer remnant vegetation and increase connectivity between remnant vegetation;
- includes substitute offset areas for two previously proposed offset areas, that would provide an equivalent increase in biodiversity values;
- limits inclusion of any strategic agricultural land and avoids inclusion of any strategic agricultural land that would adversely impact agricultural production;
- includes approximately 1,919 ha of offset land in the Southern Offset Area, comprising 1,525.3 ha of existing woodland/forest, 169.7 ha of derived native grassland (moderate to good condition) and 224.7 ha of low diversity derived native grassland; and
- includes, in total, 1,835.9 ha of additional offset land above that required under Condition 44 of Schedule 3 to PA 10_0138, comprising approximately 965.8 ha of Existing Woodland/Forest, approximately 574.5 ha Derived Native Grassland (of which 280.2 ha meets the criteria for the Box-Gum Woodland EEC) and 295.6 ha of low diversity derived native grassland, cultivated land and pasture improved land.

This revised NSW Biodiversity Offset Strategy was finalised following consultation with stakeholders (Commonwealth Department of the Environment, the NSW Department of Planning and Environment (DP&E), Office of Environment and Heritage [OEH], North West Local Land Services, Maules Creek Coal Mine Community Consultative Committee and Department of Primary Industries - Land and Natural Resources).

1 INTRODUCTION

1.1 OBJECTIVE

The Maules Creek Coal Mine (the MCCM) is located in the Gunnedah Basin approximately 18 kilometres (km) to the north-east of Boggabri in the north-west region of New South Wales (NSW) (Figures 1 and 2). The MCCM is a joint venture between Aston Coal 2 Pty Limited (a wholly owned subsidiary of Whitehaven Coal Limited [Whitehaven]) (75 percent [%]), ICRA MC Pty Ltd (an entity associated with ITOCHU Corporation) (15%) and J-Power Australia Pty Ltd (a wholly owned subsidiary of Electric Power Development Co., Ltd.) (10%). Maules Creek Coal Pty Ltd (MCC) is a wholly owned subsidiary of Whitehaven which manages the MCCM on behalf of Aston Coal 2 Pty Ltd, ICRA MC Pty Ltd and J-Power Australia Pty Ltd.

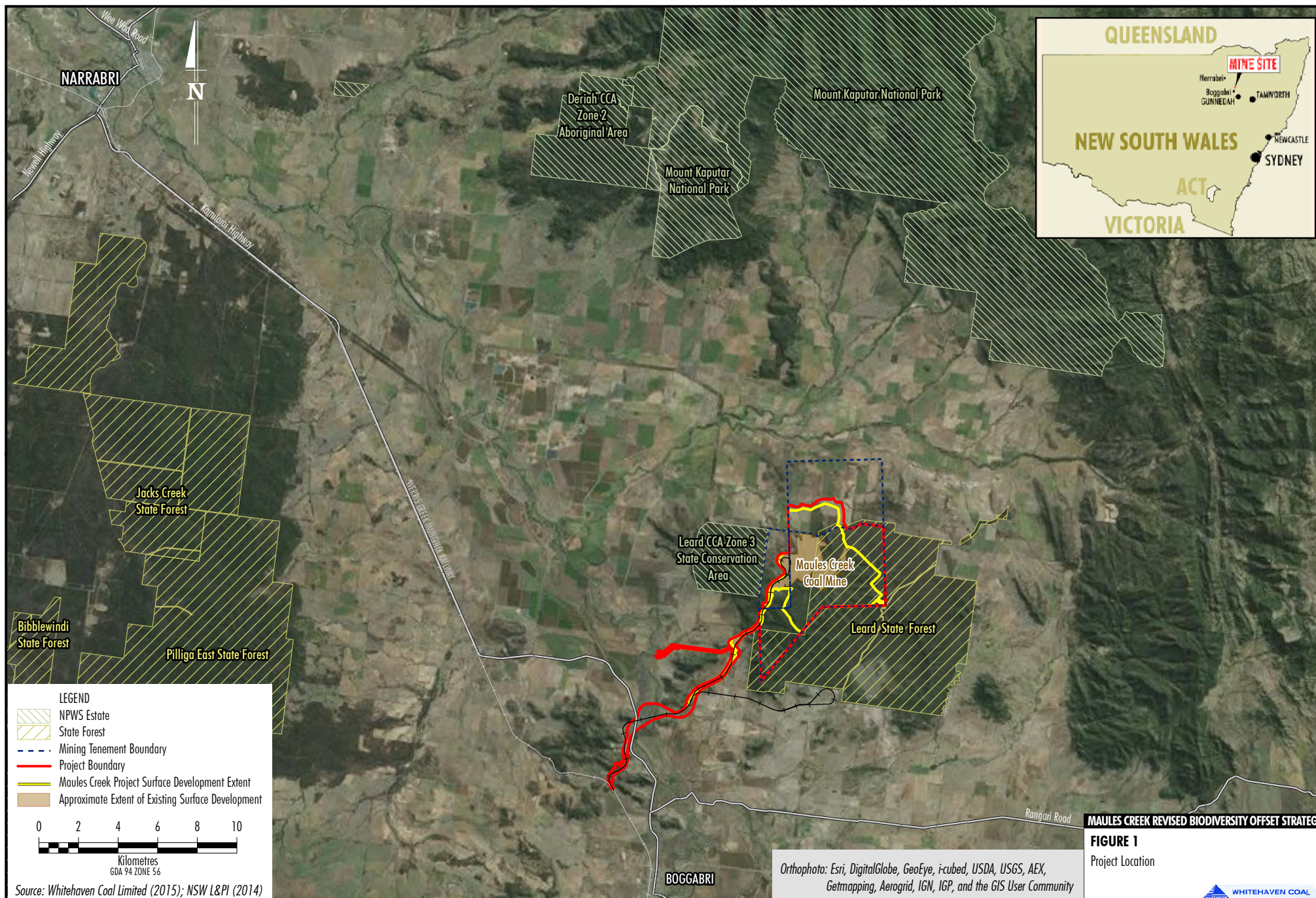
Project approval under the NSW *Environmental Planning and Assessment Act* (EP&A Act) was granted for the MCCM by the Planning Assessment Commission (PAC) under delegation of the Minister for Planning and Infrastructure on 23 October 2012 (Project Approval [PA] 10_0138). The Commonwealth Minister for the Environment granted approval for the MCCM under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 11 February 2013 (Approval Decision 2010/5566).

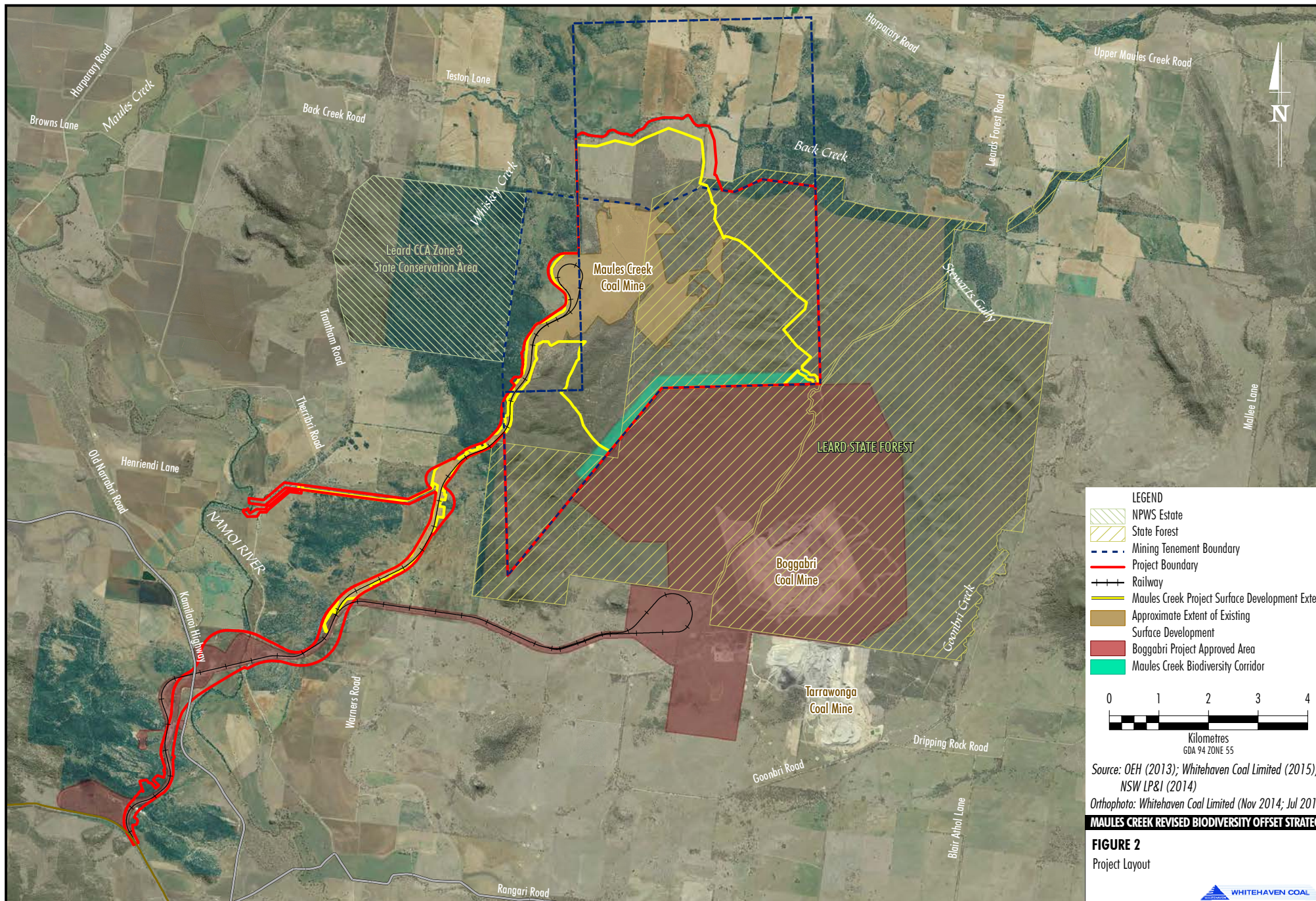
The purpose of this revised NSW Biodiversity Offset Strategy is not to re-assess the approved NSW Biodiversity Offset Strategy (described in Condition 44 of Schedule 3 to PA 10_0138) but rather to:

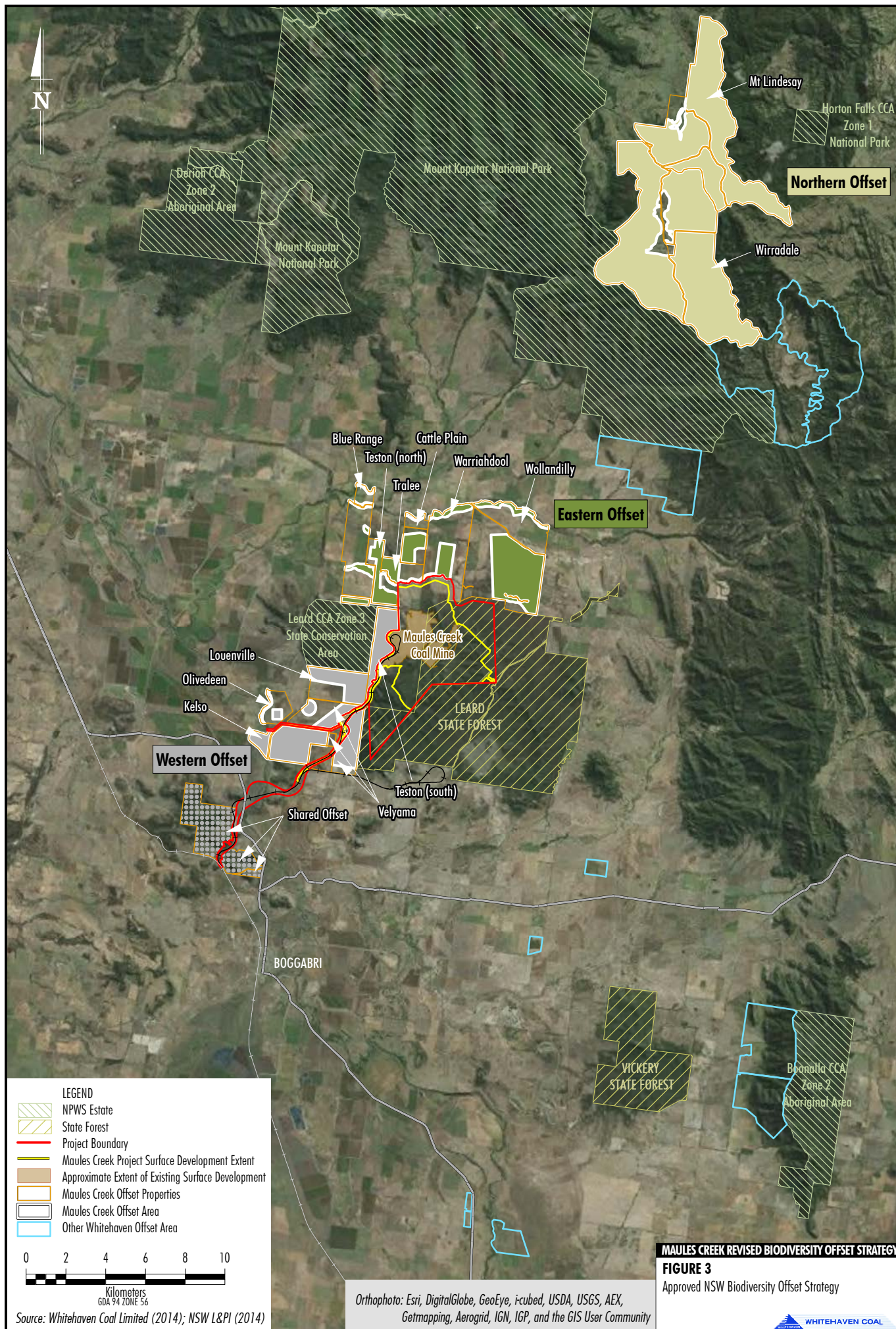
1. identify the additional low diversity derived native grassland, cultivated land and pasture improved land to be included in the offset to provide a buffer and connectivity between core remnant habitat;
2. identify the additional offset land within the zone of affectation in the Eastern and Western offset areas that has been secured by the Proponent and where properties have not been secured identify substitute areas that would provide an equivalent increase in biodiversity values;
3. avoid inclusion of any strategic agricultural land (as defined in the final *New England North West Strategic Regional Land Use Plan* (Department of Planning and Infrastructure [DP&], 2012; NSW Government, 2014) in the offset areas, unless it is demonstrated that the inclusion would not have any adverse impacts on agricultural production; and
4. identify a minimum additional 1,000 hectares (ha) of offset area targeting habitat for threatened species affected by the project which includes restoration of habitat to provide an improvement in biodiversity values.

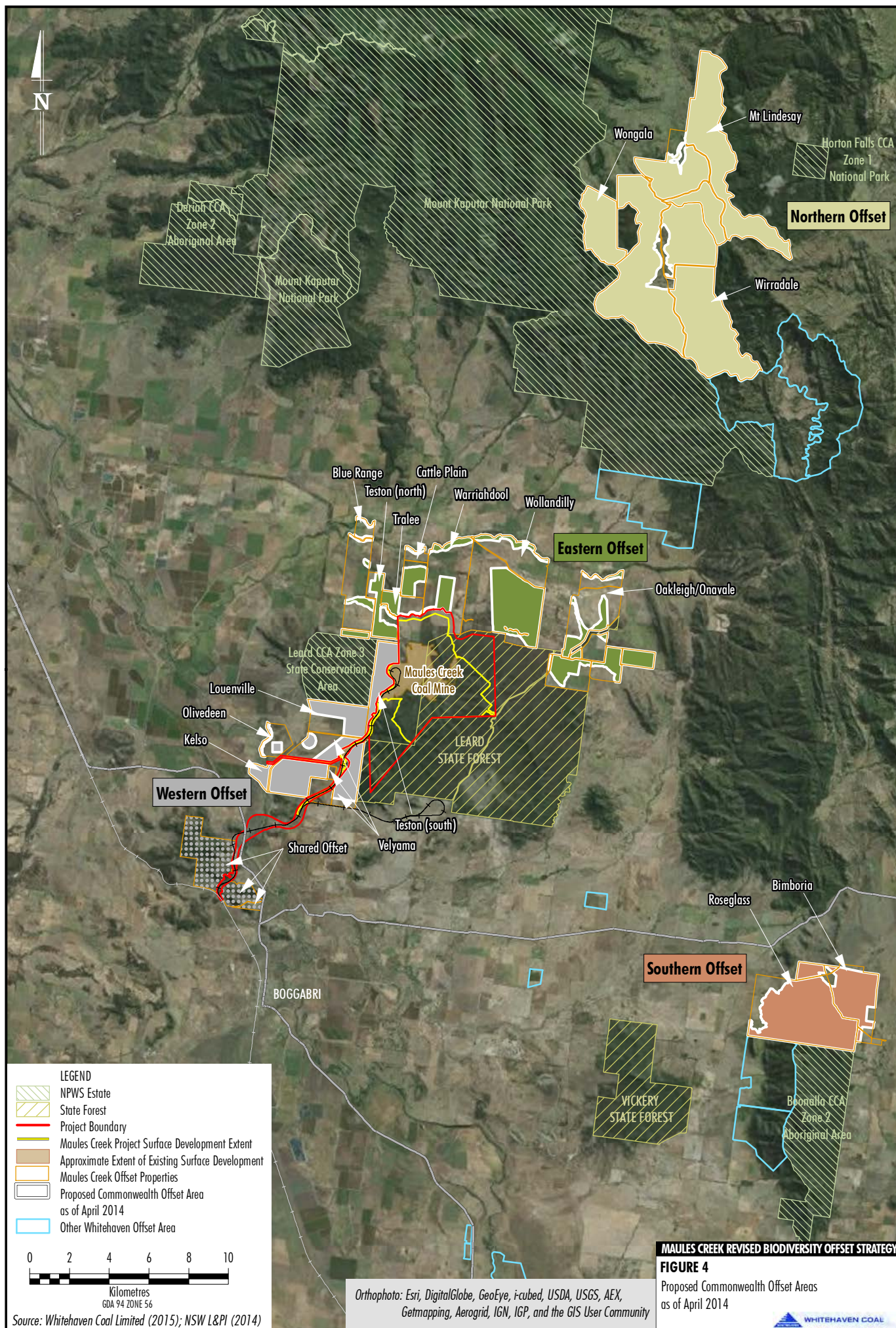
There is substantial overlap between the offset areas subject to Approval Decision EPBC 2010/5566 and this revised NSW Biodiversity Offset Strategy (Figures 3 to 5). However, this revised NSW Biodiversity Offset Strategy is only relevant to the MCCM offset areas required under the NSW PA 10_0138.

Condition 45 of PA 10_0138 has informed the structure and scope of this revised NSW Biodiversity Offset Strategy. Condition 45 of PA 10_0138 is detailed in Table 1-1, together with a reference to where these conditions are addressed in this revised NSW Biodiversity Offset Strategy.









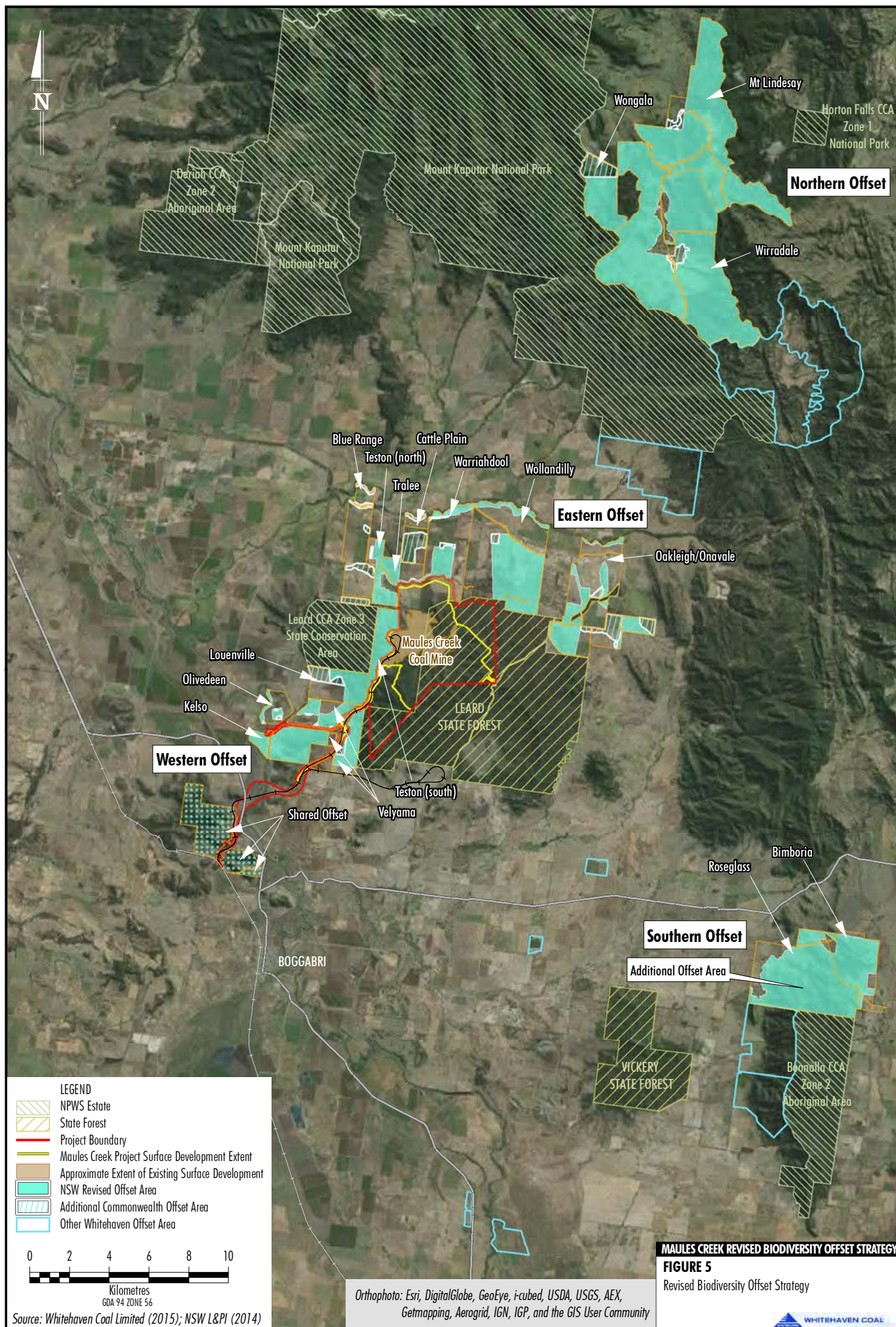


Table 1-1
Reconciliation of Condition 45 against the Sections of the Document

Requirement	Relevant Section
<i>The Proponent shall prepare and implement a revised biodiversity offset strategy for the identified offset areas in Table 16 to the satisfaction of the Director-General. The revised Strategy must:</i>	
<i>(a) not reduce the size or quality of the proposed offset areas;</i>	Section 3.5
<i>(b) be consistent (as far as is possible) with the recommendations and objectives of the Leard Forest Mining Precinct Regional Biodiversity Strategy;</i>	Section 1.2
<i>(c) be prepared in consultation with OEH, Namoi CMA, CCC, DPI Catchments and Lands and SEWPaC;</i>	Section 1.3
<i>(d) identify the additional low diversity derived native grassland, cultivated land and pasture improved land to be included in the offset to provide a buffer and connectivity between core remnant habitat;</i>	Section 3.1
<i>(e) identify the additional offset land within the zone of affectation in the Eastern and Western offset areas that has been secured by the Proponent and where properties have not been secured identify substitute areas that would provide an equivalent increase in biodiversity values;</i>	Section 3.2
<i>(f) avoid inclusion of any strategic agricultural land (as defined in the final New England North West Strategic Regional Land Use Plan) in the offset areas, unless it is demonstrated that the inclusion would not have any adverse impacts on agricultural production;</i>	Section 3.3
<i>(g) identify a minimum additional 1,000 ha of offset area targeting habitat for threatened species affected by the project which includes restoration of habitat to provide an improvement in biodiversity values; and</i>	Section 3.4
<i>(h) be submitted to the Director-General for approval within 30 months of the date of this approval, or within 6 months of the approval of Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy (whichever is sooner) for endorsement by OEH and subsequent approval by the Director-General.</i>	Section 1.3

1.2 LEARD FOREST MINING PRECINCT REGIONAL BIODIVERSITY STRATEGY

It has not been possible to prepare this revised NSW Biodiversity Offset Strategy in conjunction with Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy being co-ordinated by the Department of Planning and Environment (DP&E) as it is yet to be developed. Nevertheless, this Biodiversity Offset Strategy is consistent with the intent of the Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy in that it seeks to improve the biodiversity values of the offset areas.

1.3 CONSULTATION

A draft revision of this NSW Biodiversity Offset Strategy was provided to all of the below listed stakeholders on the 17 and 18 March 2015 for comment:

- DP&E;
- NSW Office of Environment and Heritage (OEH);
- Commonwealth Department of the Environment (DotE);
- North West Local Land Services;
- Maules Creek Coal Mine Community Consultative Committee (MCCM CCC) (note that the MCCM CCC were consulted about the document on the 4 March 2015); and
- Department of Primary Industries (DPI) - Crown Lands and DPI - Agriculture NSW (formerly DPI Catchments and Lands).

MCC specifically met with the following stakeholders to discuss the draft revised NSW Biodiversity Offset Strategy:

- DP&E on the 18 March 2015 and 2 June 2015;
- OEH on the 20 March 2015 and 2 June 2015;
- DotE on the 19-20 March 2015;
- North West Local Land Services on the 19 March 2015; and
- DPI - Crown Lands on the 19 March 2015.

Comments on the draft revised NSW Biodiversity Offset Strategy were provided during these discussions and also on the following dates:

- NWLLS on the 1 April 2015;
- OEH on the 10 April 2015; and
- DPI - Crown Lands on the 10 April 2015;
- DP&E on the 18 June 2015;
- OEH on the 18 June 2015; and
- MCCM CCC on the 12 August 2015.

The draft revised NSW Biodiversity Offset Strategy was revised in light of comments by or discussions with those stakeholders before it was submitted to DP&E for approval.

2 EXISTING BIODIVERSITY OFFSET STRATEGY

The approved/existing MCCM NSW Biodiversity Offset Strategy contains long-term security of land-based offset areas and the mine site rehabilitation for conservation purposes. The approved/existing MCCM NSW Biodiversity Offset Strategy is provided in Condition 44 of Schedule 3 to PA 10_0138 and reproduced in Table 2-1. The approved/existing MCCM NSW Biodiversity Offset Strategy is shown on Figure 3.

Table 2-1
Summary of the NSW Biodiversity Offset Strategy

Area	Offset Type	Minimum Size (ha)
<i>Northern Offset Area currently owned or under option by Proponent</i>	<p><i>Existing native woodland/forest* of 4,286 ha to be protected and enhanced.</i></p> <p><i>Additional native vegetation to be established with the restoration of at least 1,470 ha of derived native grassland including 1,396 ha of derived native grassland Box Gum Woodland EEC as listed under the TSC Act.</i></p> <p><i>Additional targeted restoration of up to 58 ha of low diversity derived native grassland, pasture improved and cultivated land to provide buffer to offset and connectivity between remnant vegetation.</i></p> <p><i>Note: the final area of restoration of low diversity derived native grassland, pasture improved and cultivated land is subject to completion of the revised offset strategy required in condition 45.</i></p>	5,756
<i>Eastern Offset Area currently owned or under option by Proponent</i>	<p><i>Existing native woodland/forest* of 190 ha to be protected and enhanced.</i></p> <p><i>Additional targeted restoration of up to 319 ha of adjacent low diversity derived native grassland, pasture improved and cultivated land to provide buffer to offset and connectivity between remnant vegetation.</i></p> <p><i>Note: the final area of restoration of low diversity derived native grassland, pasture improved and cultivated land is subject to completion of the revised offset strategy required in condition 45.</i></p>	190
<i>Western Offset Area including 50% Joint Venture property currently owned or under option by Proponent</i>	<p><i>Existing native woodland/forest* of 891 ha to be protected and enhanced.</i></p> <p><i>Additional native vegetation to be established with the restoration of at least 148 ha of derived native grassland including 90 ha of derived native grassland Box Gum Woodland EEC as listed under the TSC Act and existing 7 ha of Belah Woodland on property 'Velyama' to be enhanced with restoration of at least 5ha of surrounding derived native grassland to Belah Woodland.</i></p> <p><i>Additional targeted restoration of up to 368 ha of adjacent low diversity derived native grassland, pasture improved and cultivated land to provide buffer to offset and connectivity between remnant vegetation.</i></p> <p><i>Note: the final area of restoration of low diversity derived native grassland, pasture improved and cultivated land is subject to completion of the revised offset strategy required in condition 45.</i></p>	1,039
<i>Eastern Offset Area identified in the zone of affectation</i>	<p><i>Existing native woodland/forest* of 336 ha to be protected and enhanced.</i></p> <p><i>Additional targeted restoration of 768 ha of adjacent low diversity derived native grassland, pasture improved and cultivated land to provide buffer to offset and connectivity between remnant vegetation.</i></p> <p><i>Note: the final area of restoration of low diversity derived native grassland, pasture improved and cultivated land is subject to completion of the revised offset strategy required in condition 45.</i></p>	336

Table 2-1 (Continued)
Summary of the NSW Biodiversity Offset Strategy

Area	Offset Type	Minimum Size (hectares)
<i>Western Offset Area identified in the zone of affectation</i>	<p><i>Existing native woodland/forest* of 343 ha to be protected and enhanced.</i></p> <p><i>Additional targeted restoration of 156 ha of adjacent low diversity derived native grassland, pasture improved and cultivated land to provide buffer to offset and connectivity between remnant vegetation.</i></p> <p><i>Note: the final area of restoration of low diversity derived native grassland, pasture improved and cultivated land is subject to completion of the revised offset strategy required in condition 45.</i></p>	343
<i>Additional offset areas required to be included by the Proponent</i>	<p><i>Additional remnant native vegetation of moderate to good condition native forest/woodland* and derived native grassland to provide habitat for impacted threatened species, targeting EEC or highly cleared vegetation communities impacted by the project.</i></p> <p><i>Note: Location and type of offset subject to final approval as part of revised Biodiversity Strategy to be prepared by Proponent under condition 45</i></p>	1,000
<i>Rehabilitation Area</i>	<p><i>Except for the area of the minimised final void, pre-mining native vegetation communities to be re-established (544 ha of Box Gum Woodland EEC) for a biodiversity conservation land use objective, with the area subject to finalisation of the rehabilitation management plan as required under this approval.</i></p> <p><i>Note: the final mix and area of native vegetation communities is subject to the approved Biodiversity Management Plan.</i></p>	2,078 <i>(less the area of the minimised void approved under the closure plan required under this approval)</i>

Source: Condition 44 of Schedule 3 to PA 10_0138

* The term woodland/forest is used by Condition 44 of Schedule 3 to PA 10_0138 to describe all native vegetation communities (of varying structure) other than derived grassland.

The objectives of the offset areas are to:

- protect and enhance existing native woodland/forest (including areas of *White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland* [Box-Gum Woodland] [listed as a Critically Endangered Ecology Community (CEEC) under the EPBC Act and an Endangered Ecological Community [EEC] under the NSW *Threatened Species Conservation Act* [TSC Act] [Box-Gum Woodland EEC/CEEC] in woodland form and habitat for threatened species listed under the TSC Act, namely those listed in Conditions 49 and 50 of Schedule 3 to PA 10_0138, and threatened species listed under the EPBC Act, namely, the Regent Honeyeater [*Anthochaera phrygia*], Swift Parrot [*Lathamus discolor*] and South-eastern Long-eared Bat [*Nyctophilus corbeni*]);
- protect and enhance areas of semi-cleared woodland/forest;
- restore self-sustaining vegetation communities within derived native grassland;
- restore the woodland form of Box-Gum Woodland within existing areas of Box-Gum Woodland EEC/CEEC (derived native grassland); and
- restore self-sustaining vegetation communities within areas of low diversity derived native grassland, pasture improved and cultivated land.

Condition 44 of Schedule 3 to PA 10_0138 describes an approved/existing offset area with an approximate size of 9,333 ha¹ and a minimum size of 8,664 ha (calculated from the area of existing woodland/forest and derived native grassland) (Table 2-1).

Not including the additional offset areas required to be included by the MCCM, the approved/existing MCCM NSW Biodiversity Offset Strategy under Condition 44 of Schedule 3 to PA 10_0138 comprises:

- approximately 6,046 ha of Existing Woodland/Forest;
- approximately 1,618 ha Derived Native Grassland; and
- approximately 1,669 Low Diversity Native Grassland/Pasture Improved and Cultivated Land.

Once approved by DP&E, this revised NSW Biodiversity Offset Strategy will replace the approved/existing MCCM NSW Biodiversity Offset Strategy.

¹ Excluding the additional 1000 ha of remnant native vegetation and a total of 2,078 ha (less the area of the minimised void) of pre-mining native vegetation communities to be re-established on the post-mine landforms (544 ha of Box Gum Woodland EEC) for a biodiversity conservation land use objective

3 REVISED BIODIVERSITY OFFSET STRATEGY

This section is structured as follows:

- Section 3.1 – identifies the additional low diversity derived native grassland, cultivated land and pasture improved land to be included in the offset.
- Section 3.2 – identifies the additional offset land within the zone of affectation in the Eastern and Western offset areas (that has been secured by the proponent and where properties have not been secured identify suitable area that would provide an equivalent increase in biodiversity values).
- Section 3.3 – provides a discussion on strategic agricultural land (as defined in the final New England North West Strategic Regional Land Use Plan [DP&I, 2012; NSW Government, 2014]) in the offset areas.
- Section 3.4 – identifies a minimum additional 1,000 ha of offset area.
- Section 3.5 – provides a summary of the revised NSW Biodiversity Offset Strategy.

3.1 ADDITIONAL LOW DIVERSITY DERIVED NATIVE GRASSLAND, PASTURE IMPROVED AND CULTIVATED LAND

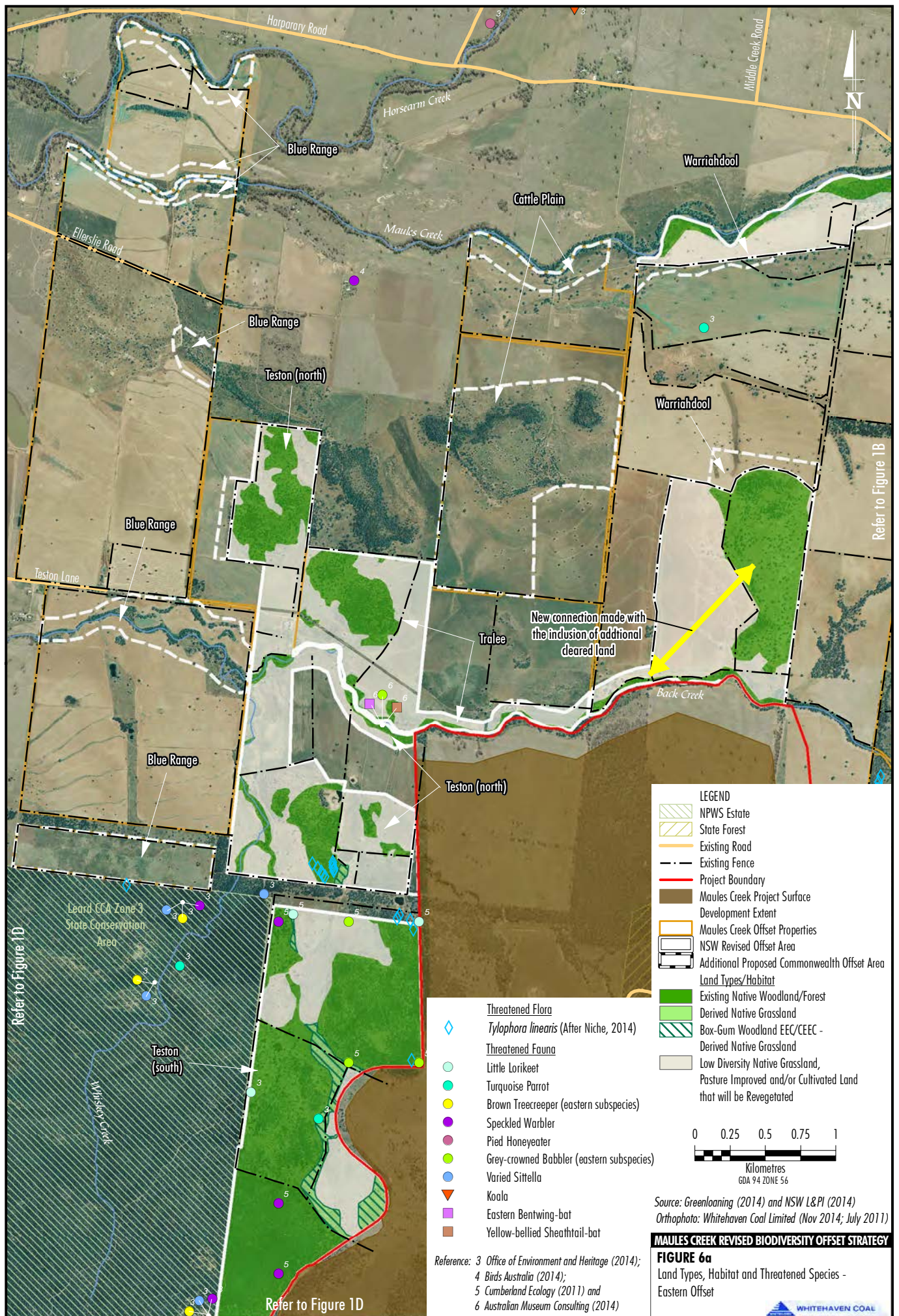
As described in the MCCM BMP, an objective of the NSW Biodiversity Offset Strategy is to restore self-sustaining vegetation communities within areas of low diversity derived native grassland, pasture improved and cultivated land (Figures 6a to 6g). This restoration programme targets at least 1,669 ha as described in Condition 44 of Schedule 3 to PA 10_0138.

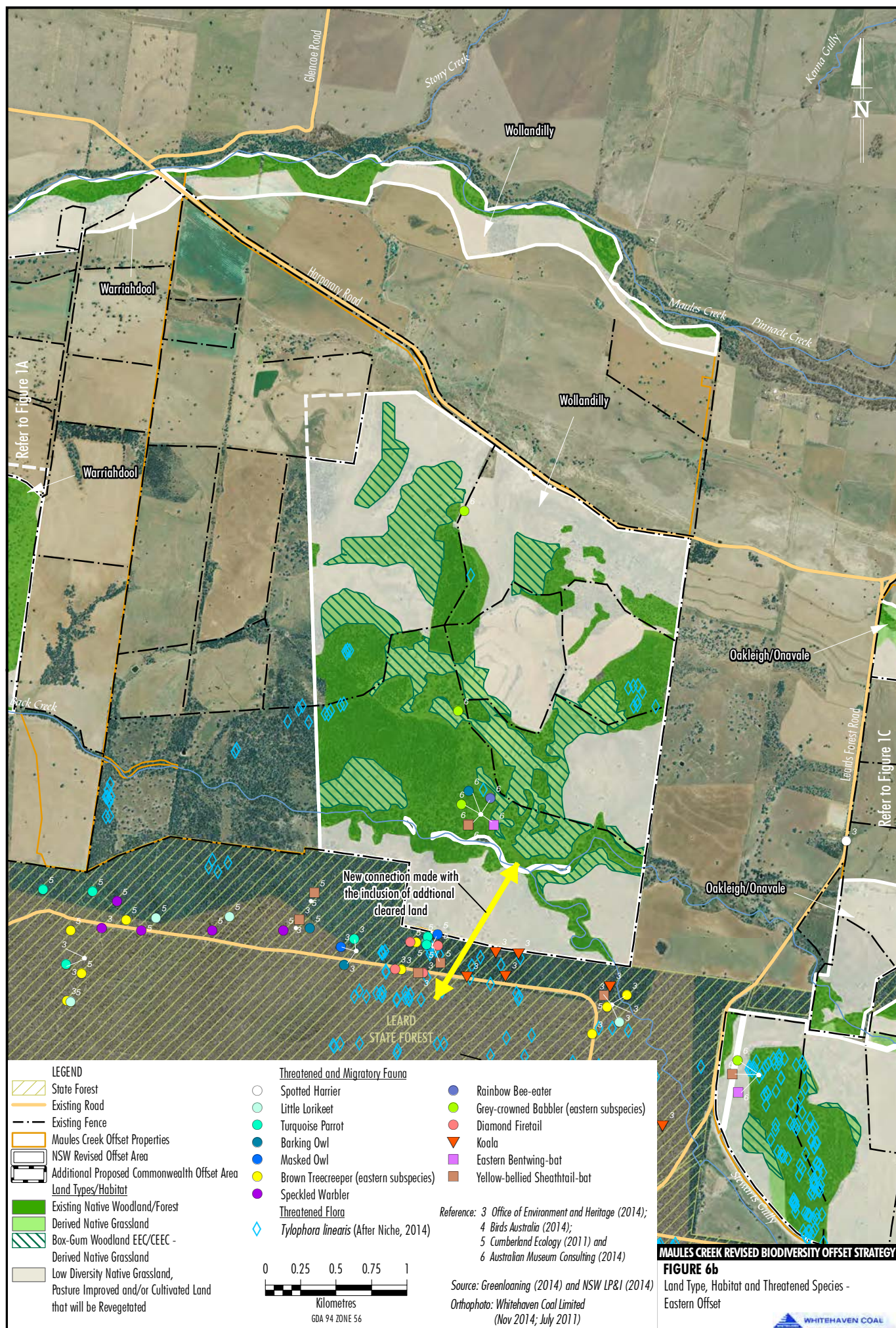
In July 2014, Greenloaning Biostudies (independent reviewer approved by DotE) produced vegetation mapping for the Maules Creek offset areas as part of, and following, the independent review of the offset areas (Greenloaning Biostudies, 2013 and 2014a). The vegetation mapping in the offset areas is shown in Figures 7a to 7d.

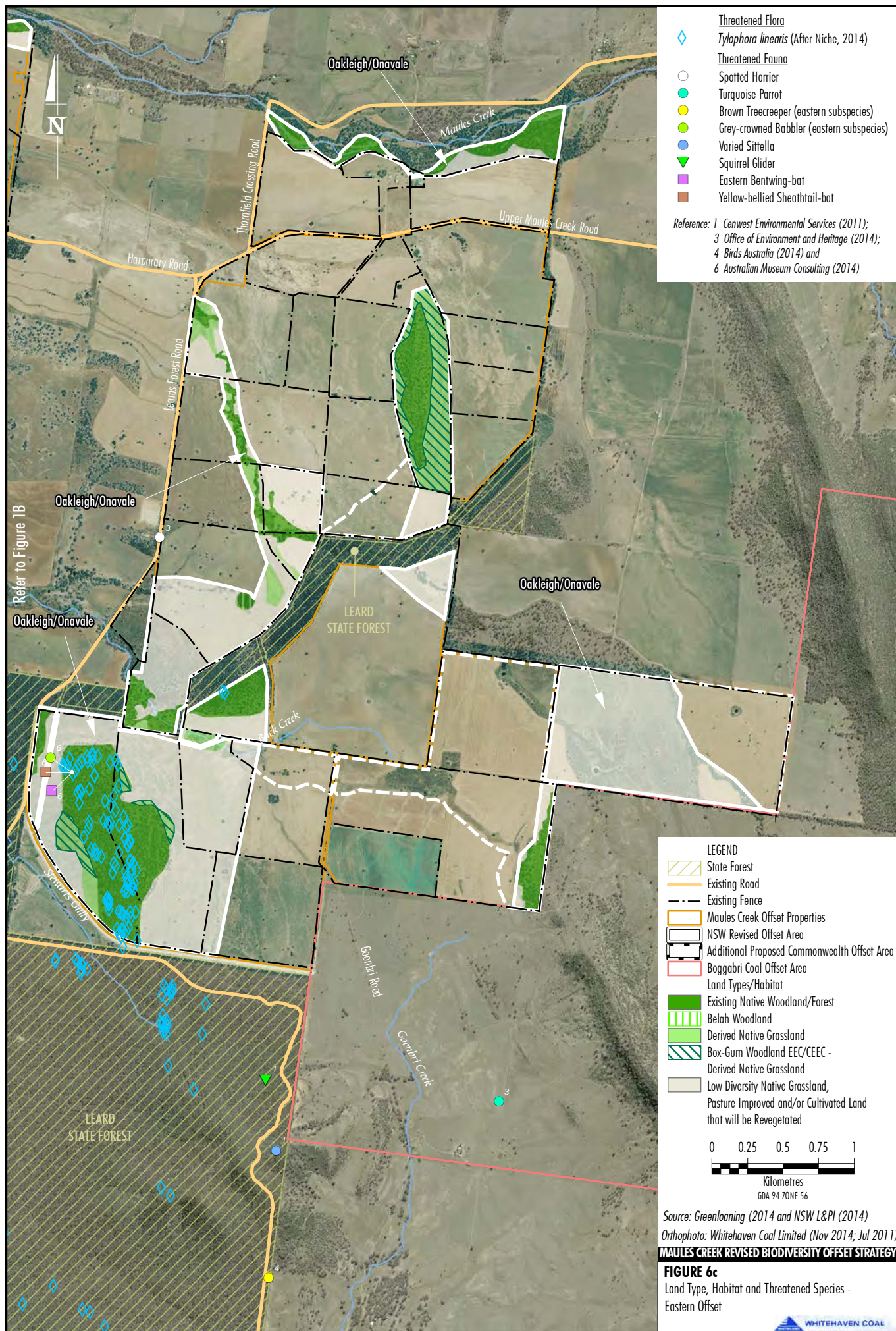
A review of the offset boundaries was undertaken to identify the additional low diversity derived native grassland, cultivated land and pasture improved land that could provide additional buffer and increased connectivity between remnant vegetation. This resulted in an adjustment to the total area of low diversity native grassland/pasture improved and cultivated land to 1,964.6 ha (Table 3-1), which is 295.6 ha more than that stated and required by Condition 44 of Schedule 3 to PA 10_0138. Figures 6a to 6g demonstrates the buffer to the offsets and connectivity between remnant vegetation by showing the:

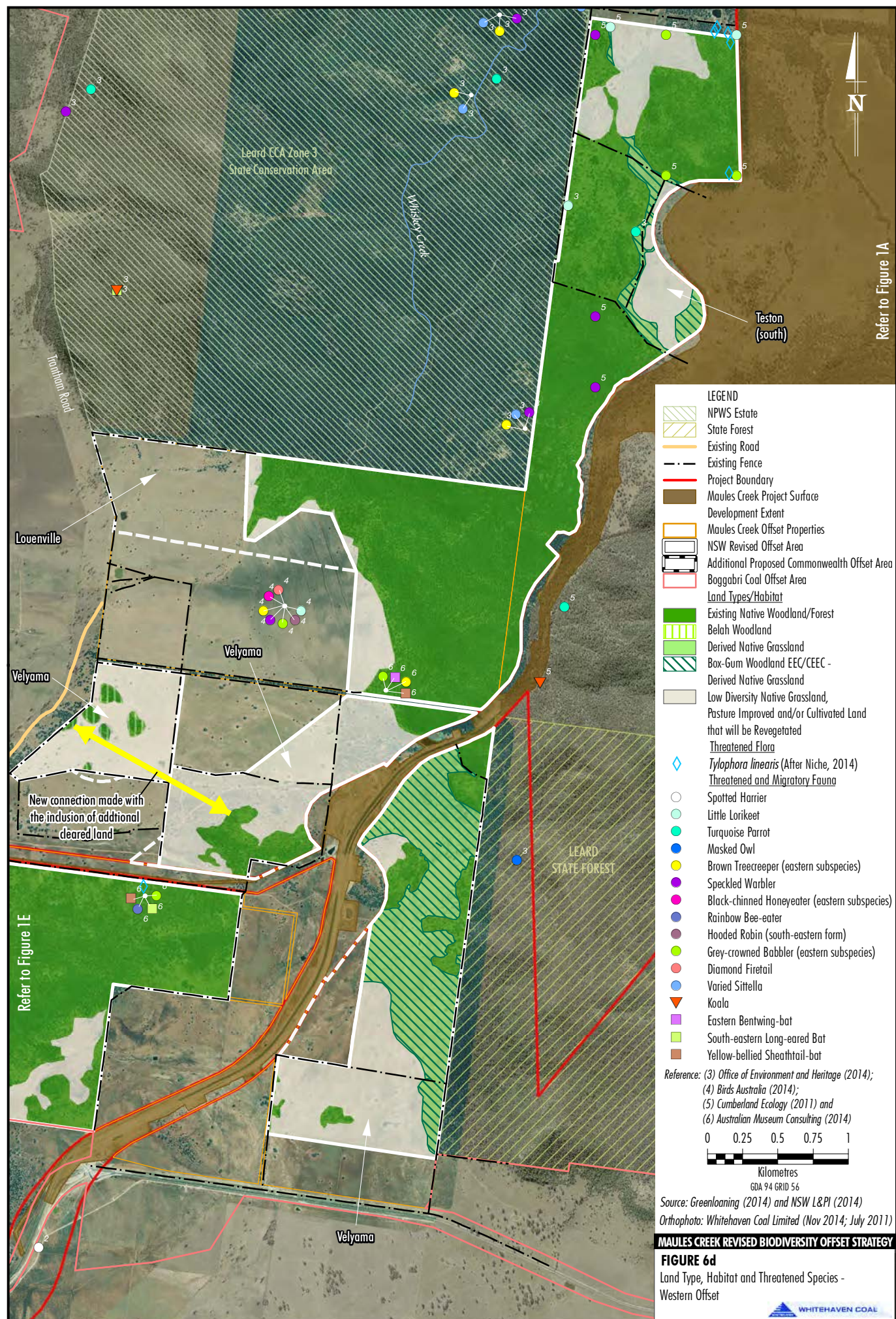
- existing native woodland/forest (including Belah Woodland);
- derived native grassland (moderate to good condition) (including Box-Gum Woodland EEC/CEEC in grassland form);
- low diversity derived native grassland, pasture improved and cultivated land;
- the locations of existing fence lines; and
- offset property boundaries.

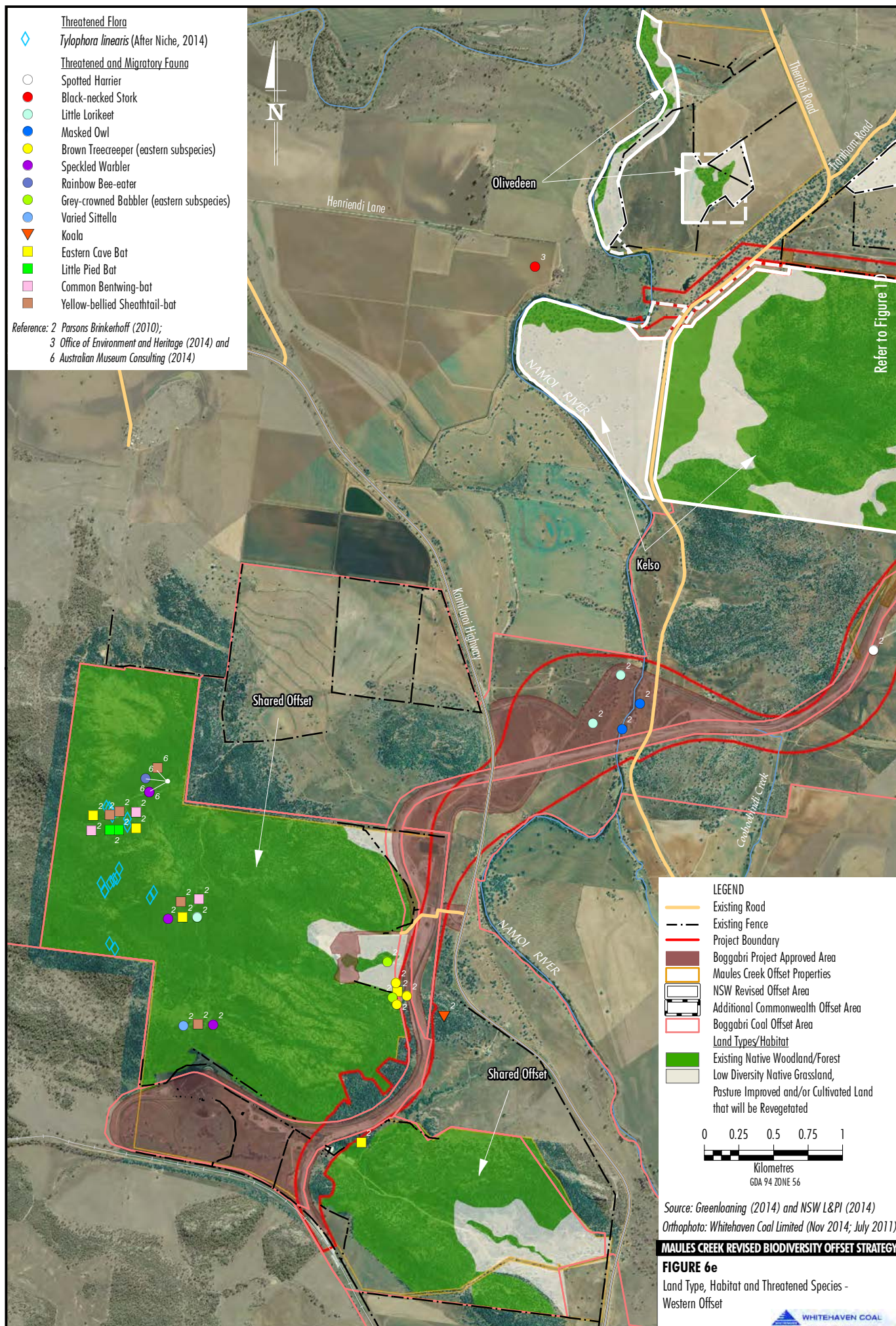
Additional linkages (areas of increased connectivity) are shown on Figures 7a, 7b and 7d.

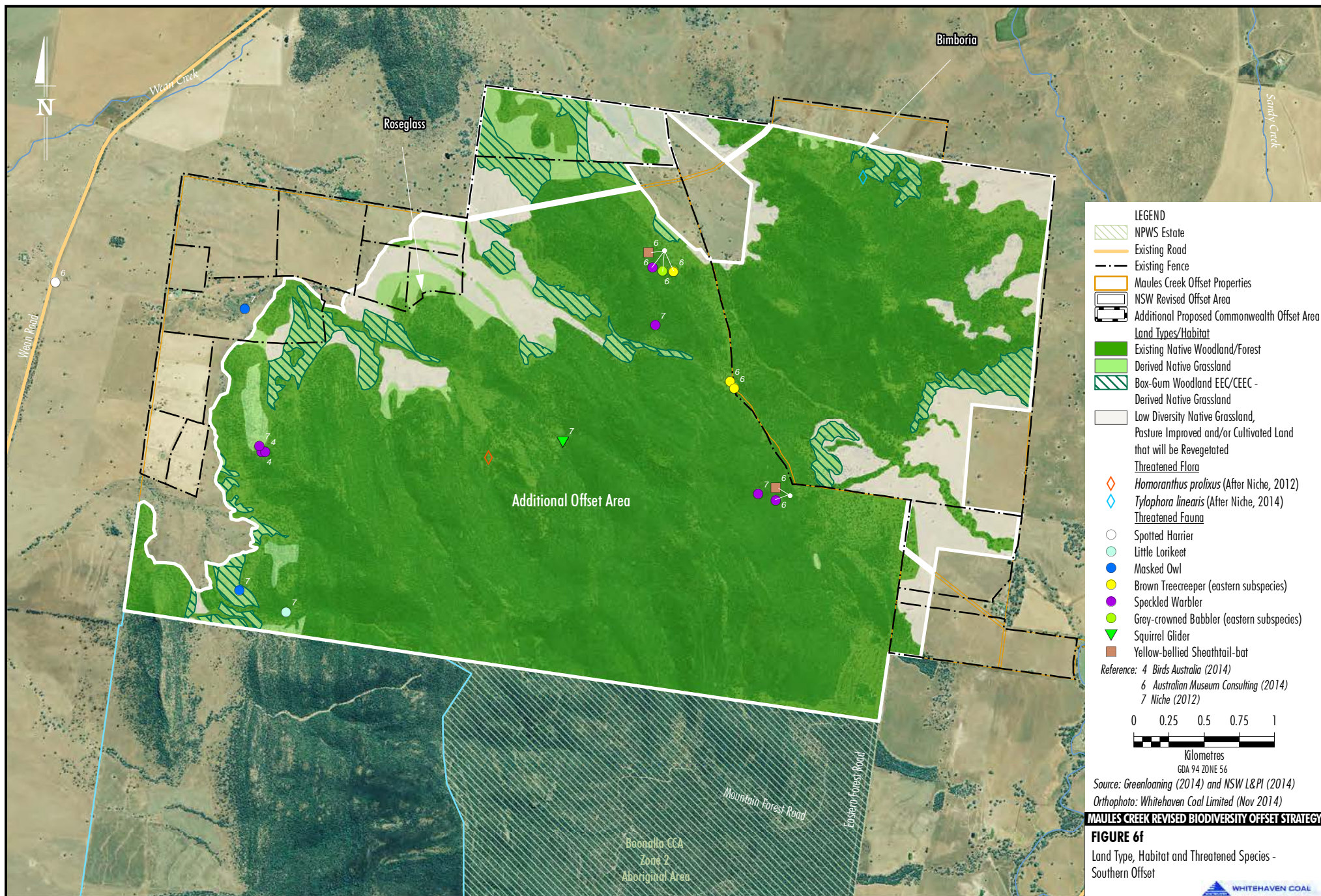


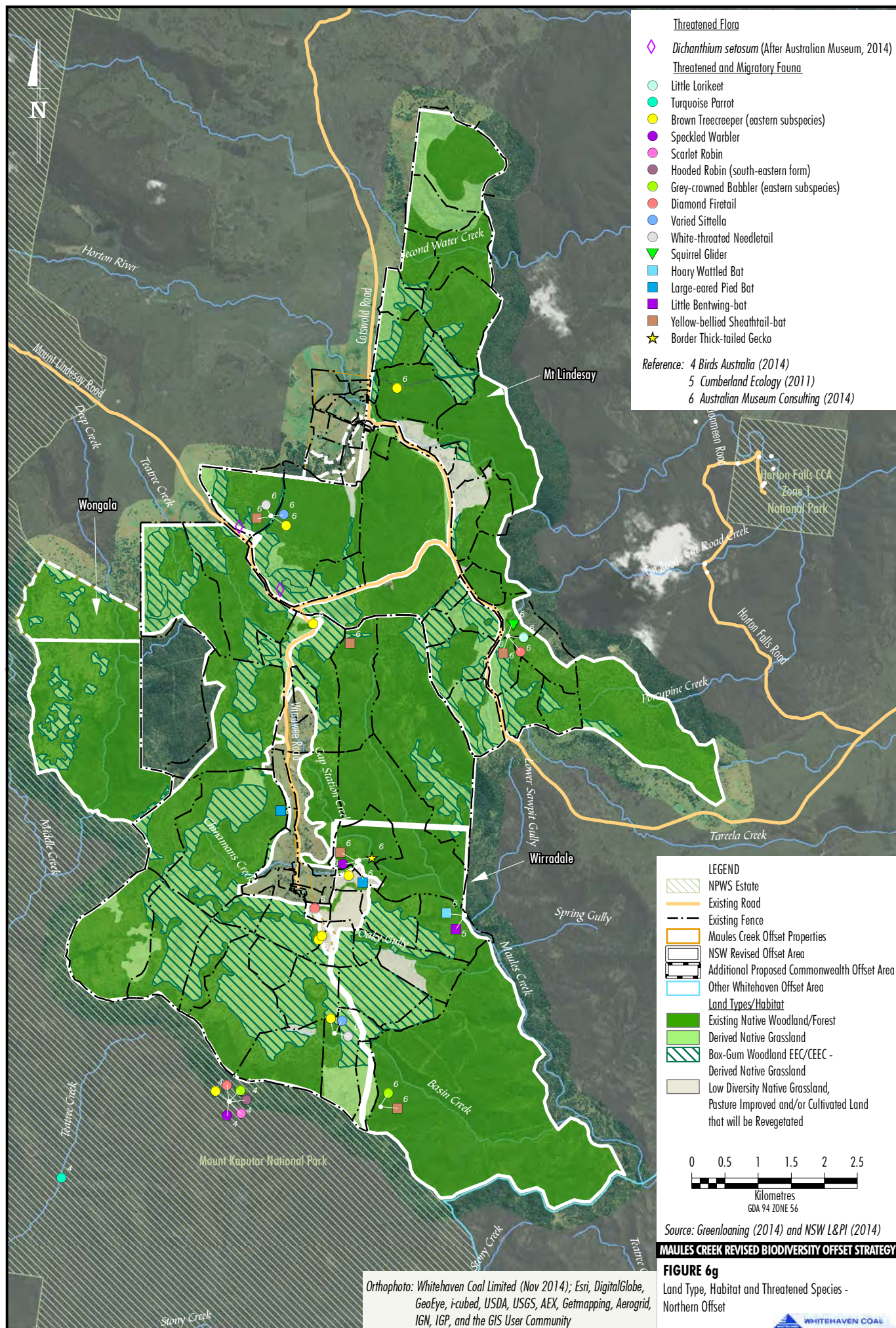


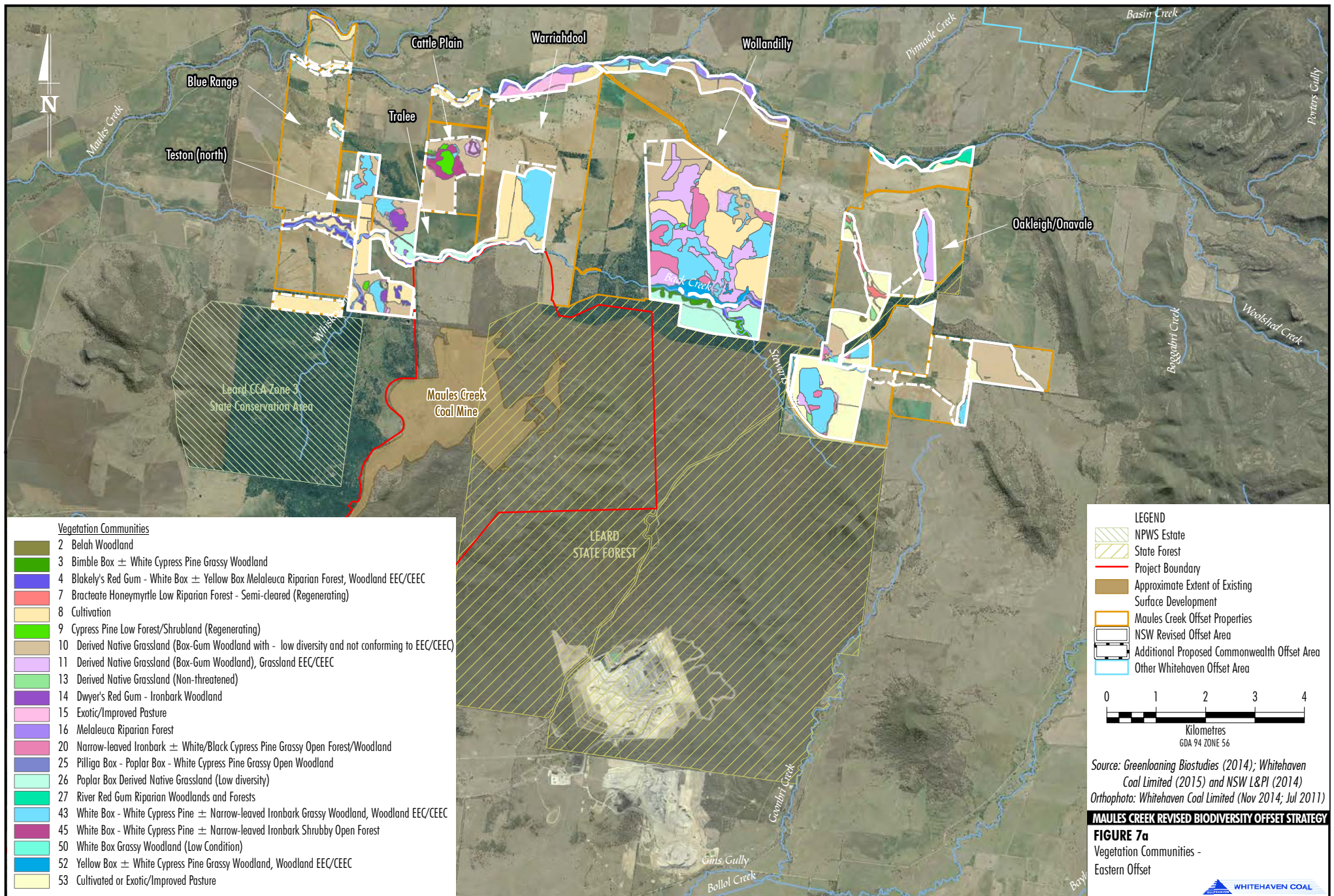


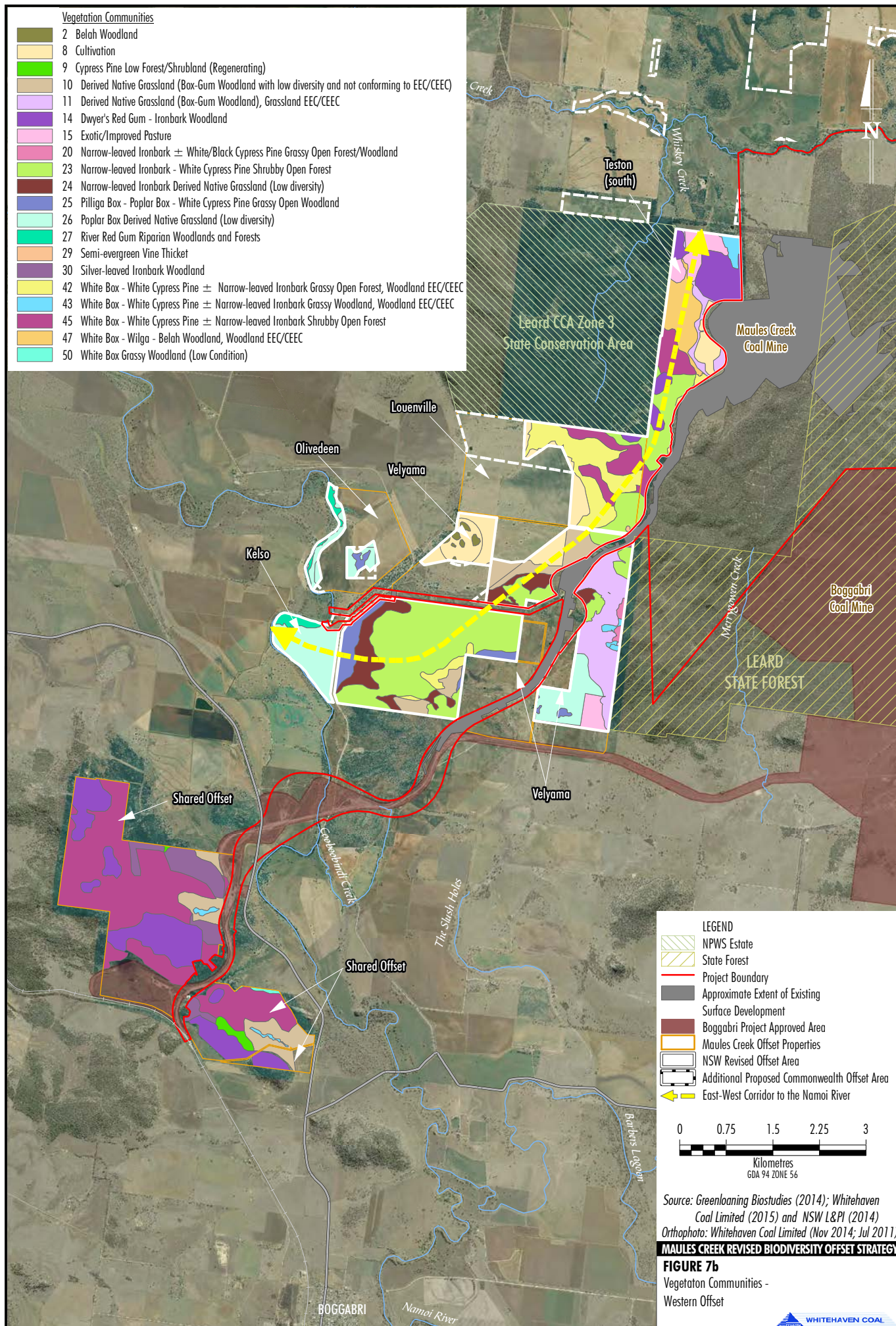


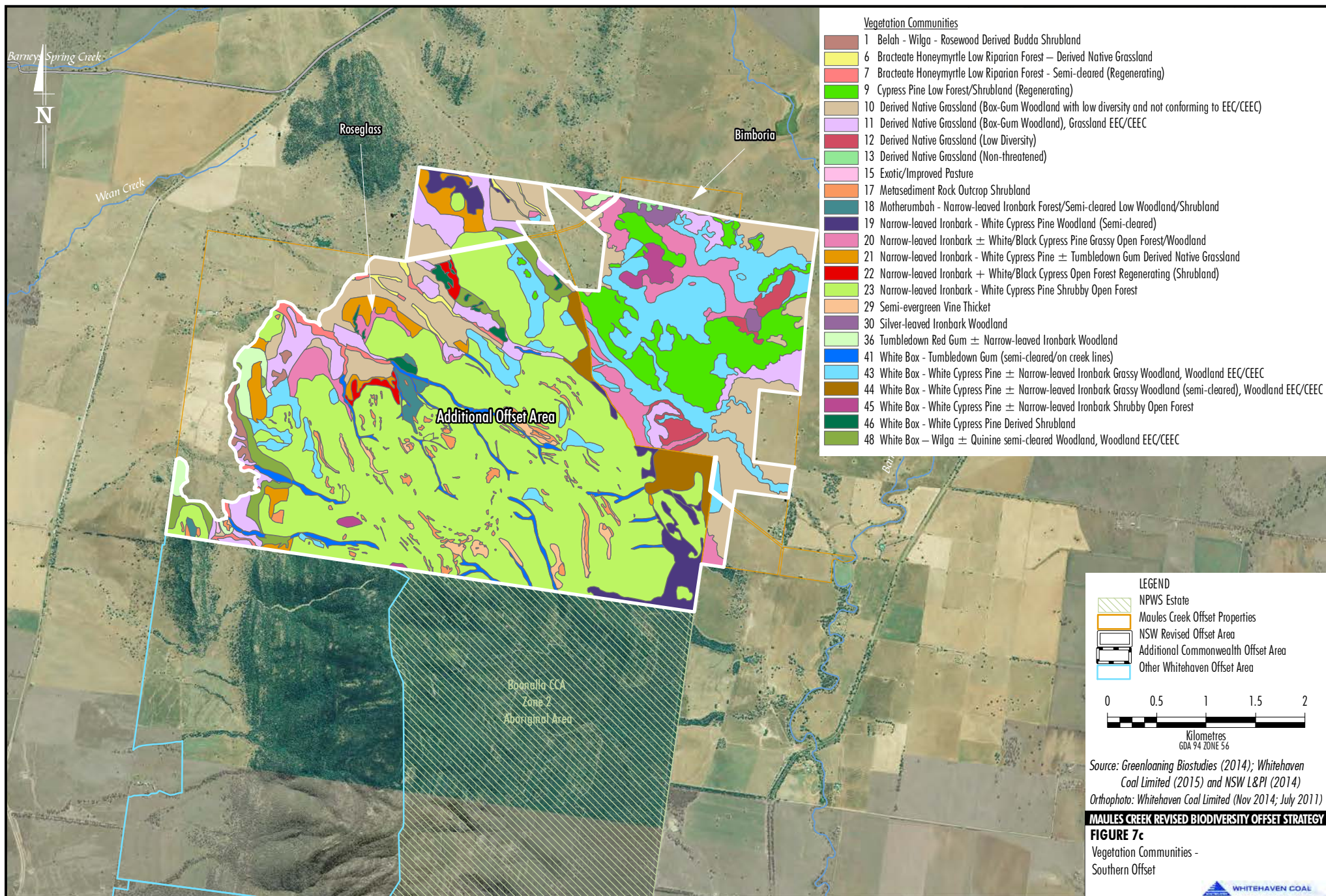












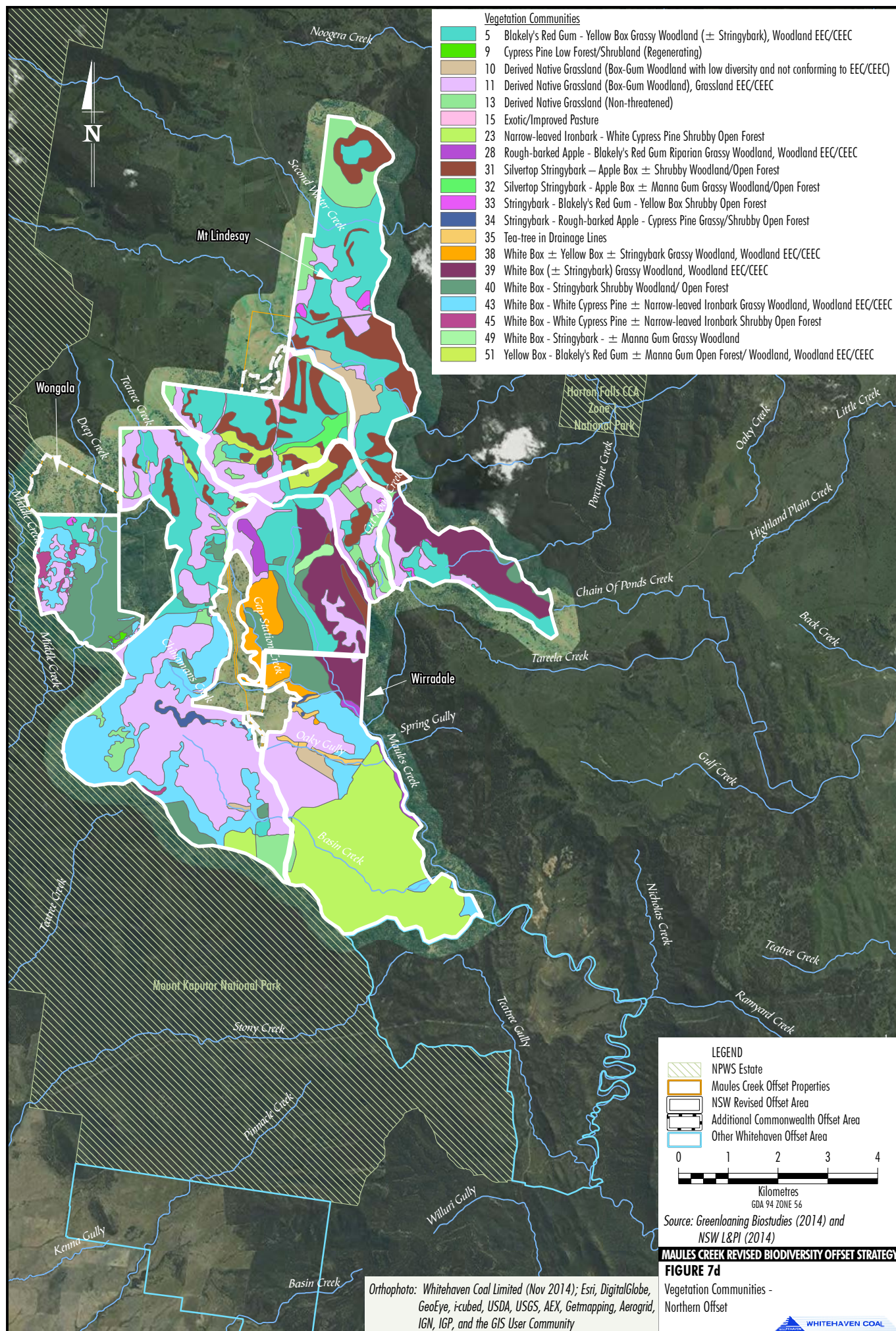


Table 3-1
Additional Low Diversity Derived Native Grassland, Pasture Improved and Cultivated Land

	Approved NSW Biodiversity Offset Strategy	Revised NSW Biodiversity Offset Strategy	Adjustment
Area of Low Diversity Native Grassland/Pasture Improved and Cultivated Land (ha)*	1,669	1,964.6	295.6

* Based on Vegetation Mapping by Greenloining Biostudies (2014b).

The quantity of additional low diversity derived native grassland, cultivated land and pasture improved land is considered sufficient as:

- It does not decrease the size of the offset areas.
- It provides additional buffering and increased connectivity between existing native woodland/forest and core remnant habitat.
- Inclusion would have minimal effect on agricultural production as the additional low diversity derived native grassland, cultivated land and pasture improved land is not located on strategic agricultural land (as defined in the final *New England North West Strategic Regional Land Use Plan* [DP&I, 2012; NSW Government, 2014] refer to Section 3.3).

Further to the above, restoration of self-sustaining vegetation communities within derived native grassland (moderate to good condition) will also help provide a buffer and increase connectivity between remnant habitats. In addition to the additional land area in Table 3-1, the revised NSW Biodiversity Offset Strategy also includes an additional 574.5 ha of derived native grassland (moderate to good condition) equating to a total of approximately 2,306.2 ha of derived native grassland (moderate to good condition) in the offset areas.

3.2 ADDITIONAL OFFSET LAND WITHIN THE ZONE OF AFFECTATION IN THE EASTERN AND WESTERN OFFSET AREAS

MCCM has secured, through the purchase of, the properties on which the MCCM NSW Biodiversity offsets are located with the exception of two. For the purpose of this revised NSW Biodiversity Offset Strategy, and in accordance with Condition 45(e) of Schedule 3 to PA 10_0138, the originally proposed offset areas of the Blue Range and Cattle Plain Properties have been substituted with offset areas on a different property (i.e. the Oakleigh/Onavale Property). The Blue Range and Cattle Plain Properties are located in the zone of affectation² of the MCCM as is the Oakleigh/Onavale Property.

The Oakleigh/Onavale Property is owned by MCC and also contains Commonwealth offset areas subject to Approval Decision EPBC 2010/5566 (Figure 4). The offset areas on the Oakleigh/Onavale Property are shown in the approved BMP (dated 23 October 2014) that was prepared in consultation with DP&E, OEH, DotE, North West Local Land Services and MCCM CCC.

In accordance with Condition 45(e) of Schedule 3 to PA 10_0138, the substitute offset areas provide an equivalent increase in biodiversity values as outlined in Table 3-2 and discussed below. Vegetation mapping for the Blue Range/Cattle Plain Offset Areas and Oakleigh/Onavale Offset Areas is shown on Figure 7a.

² The zone in which the MCCM may affect environmental aspects such as air and/or noise of near receptors.

Table 3-2
Comparison Between the Blue Range/Cattle Plain Offset and Oakleigh/Onavale Offset

Vegetation Communities	Area of Blue Range/Cattle Plain Contribution towards Condition 44 (ha)	Area of Oakleigh/Onavale Contribution towards Condition 44 (ha)
^ Blakely's Red Gum - White Box - ± Yellow Box - Melaleuca Riparian forest	12	0
Cypress Pine Low Forest/Shrubland (regenerating)	8.7	0
Melaleuca Riparian Forest	7.3	0
River Red Gum Riparian Woodlands and Forests	0	12
^ White Box - White Cypress Pine ± Narrow-leaved Ironbark Grassy Woodland	3.2	42
White Box - White Cypress Pine ± Narrow-leaved Ironbark Shrubby Open Forest	15.7	0
^ Derived Native Grassland (Box-Gum Woodland)	0	29.5
Derived Native Grassland (Box-Gum Woodland - low diversity and not Conforming to EEC/CEEC)	88.9	93.3
Cultivated or Exotic/Improved Pasture	111.4	240
Existing Woodland/Forest	46.9	54
Derived Native Grassland	0	29.5
Low Diversity Native Grassland/Pasture Improved and Cultivated Land	200.3	333.3
Box-Gum Woodland EEC/CEEC (Grassland Form)	0	29.5
Box-Gum Woodland EEC/CEEC (Woodland Form)	15.2	42
Box-Gum Woodland EEC/CEEC (Woodland and Grassland)	15.2	71.5
Threatened Species (Figures 6a and 6c)	No known records	<ul style="list-style-type: none"> • <i>Tylophora linearis</i>. • Grey-crowned Babbler (eastern subspecies) (<i>Pomatostomus temporalis temporalis</i>). • Eastern Bentwing-bat (<i>Miniopterus schreibersii oceanensis</i>). • Yellow-bellied Sheath-tail-bat (<i>Saccolaimus flaviventris</i>).

^ Conforms to Box-Gum Woodland EEC/CEEC.

* Based on Vegetation Mapping by Greenloining Biostudies (2014b).

As indicated in Table 3-2, some vegetation communities present on the Blue Range and Cattle Plain Properties are not present on the Oakleigh/Onavale Property. However, substantially more Box-Gum Woodland EEC/CEEC occurs in the Oakleigh/Onavale Property (71.5 ha) than the Blue Range and Cattle Plain Properties (15.2 ha) (Table 3-2).

The portion of the offset area in the Oakleigh/Onavale Property is mapped as containing 12 ha of River Red Gum Riparian Woodlands and Forests along Maules Creek, whereas the portion of the offset area in the Blue Range and Cattle Plain properties is mapped as containing Blakely's Red Gum - White Box ± Yellow Box - Melaleuca Riparian forest and Melaleuca Riparian Forest along the creeks (Greenloining Biostudies, 2014b).

The White Box - White Cypress Pine ± Narrow-leaved Ironbark Shrubby Open Forest is not present in the Oakleigh/Onavale Property (Table 3-2) but it is well represented elsewhere in the offset areas (approximately 314.9 ha) (Appendix A).

The Oakleigh/Onavale Property has known records of threatened species, namely, *Tylophora linearis*, the Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*), Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*) and Yellow-bellied Sheath-tail-bat (*Saccolaimus flaviventris*) (Table 3-2; Figure 6c), whereas the Blue Range and Cattle Plain Properties do not have any known records of threatened species.

3.3 STRATEGIC AGRICULTURAL LAND

A review of the final *New England North West Strategic Regional Land Use Plan* (DP&I, 2012; NSW Government, 2014) was conducted so as to avoid inclusion of Biophysical Strategic Agricultural Land (BSAL) in the MCCM NSW biodiversity offset areas. During this review, consideration was given to avoiding the inclusion of BSAL which has resulted in 0.1% of the total BSAL mapped in the *New England North West Strategic Regional Land Use Plan* (DP&I, 2012; NSW Government, 2014) being included in the MCCM NSW biodiversity offset areas. The areas of BSAL included in the MCCM NSW biodiversity offset areas are represented in Figure 8.

In January 2015, McKenzie Soil Management Pty Ltd (Dr David McKenzie) undertook an Agricultural Suitability Assessment in accordance with Condition 46 of Schedule 3 to PA 10_0138. McKenzie Soil Management Pty Ltd (2015) considers that the Biodiversity Offset Strategy will not have adverse impacts on agricultural production in BSAL areas because:

- The offset areas have been developed to minimise the amount of mapped BSAL included in the offset areas.
- The area of mapped BSAL in the offset areas represents only 0.1% of the mapped BSAL areas in the *New England North West Strategic Regional Land Use Plan* (DP&I, 2012; NSW Government, 2014).
- Agricultural production will continue in mapped BSAL areas in non-offset areas of the offset properties.

3.4 ADDITIONAL 1,000 HECTARE OFFSET AREA

3.4.1 Requirement

Condition 45 of Schedule 3 to PA 10_0138 requires this revised NSW Biodiversity Offset Strategy to identify a minimum additional 1,000 ha of offset area targeting habitat for threatened species affected by the MCCM which includes restoration of habitat to provide an improvement in biodiversity values. Accordingly, habitat for threatened species recorded in the MCCM Project Boundary or otherwise significantly impacted (Table 3-3) was targeted for inclusion in the additional offset area³.

³ The Spotted Harrier, Black-necked Stork and Eastern False Pipstrelle are threatened species that have not been recorded in the Project Boundary.

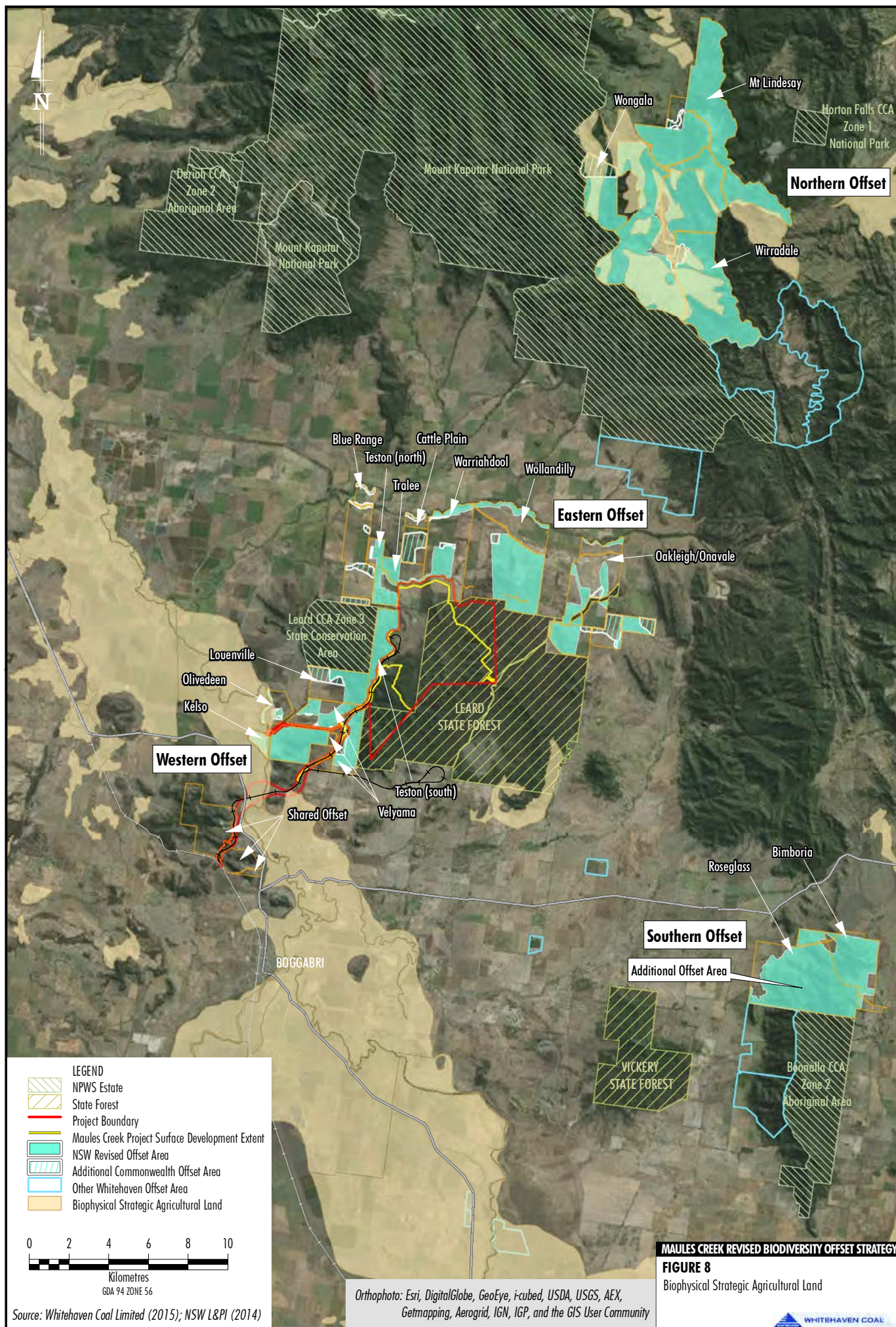


Table 3-3
Threatened Species Recorded or Significantly Impacted

Common Name	Scientific Name	Conservation Status ¹	
		TSC Act	EPBC Act
Flora			
-	<i>Tylophora linearis</i>	V	E
Scant Pomaderris	<i>Pomaderris queenslandica</i>	E	-
Reptiles			
Pale-headed Snake	<i>Hoplocephalus bitorquatus</i>	V	-
Birds			
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	E	-
Little Lorikeet	<i>Glossopsitta pusilla</i>	V	-
Square-tailed Kite	<i>Lophoictinia isura</i>	V	-
Spotted Harrier	<i>Circus assimilis</i>	V	-
Little Eagle	<i>Hieraaetus morphnoides</i>	V	-
Turquoise Parrot	<i>Neophema pulchella</i>	V	-
Swift Parrot	<i>Lathamus discolor</i>	E	E
Masked Owl	<i>Tyto novaehollandiae</i>	V	-
Barking Owl	<i>Ninox connivens</i>	V	-
Speckled Warbler	<i>Pyrrholaemus sagittatus</i>	V	-
Regent Honeyeater	<i>Anthochaera phrygia</i>	CE	CE
Black-chinned Honeyeater (eastern subspecies)	<i>Melithreptus gularis gularis</i>	V	-
Painted Honeyeater	<i>Grantiella picta</i>	V	V
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	V	-
Diamond Firetail	<i>Stagonopleura guttata</i>	V	-
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>	V	-
Hooded Robin (south-eastern form)	<i>Melanodryas cucullata cucullata</i>	V	-
Varied Sittella	<i>Daphoenositta chrysoptera</i>	V	-
Mammals			
Koala	<i>Phascolarctos cinereus</i>	V	V
Squirrel Glider	<i>Petaurus norfolcensis</i>	V	-
Yellow-bellied Sheathtail-bat	<i>Saccolaimus flaviventris</i>	V	-
Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	V	-
South-eastern Long-eared Bat	<i>Nyctophilus corbeni</i>	V	V
Little Pied Bat	<i>Chalinolobus picatus</i>	V	-
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	V	-
Eastern Cave Bat	<i>Vespadelus troughtoni</i>	V	-

Sources: Cumberland Ecology (2011, 2014) and Parsons Brinkerhoff (2010).

¹ Threatened species conservation status: V = Vulnerable, E = Endangered.

Current as of August 2015.

Also in relation to the additional offset area, Condition 44 of Schedule 3 to PA 10_0138 requires it to comprise remnant native vegetation of moderate to good condition native forest/woodland⁴ and derived native grassland to provide habitat for impacted threatened species, targeting endangered ecological communities or highly cleared vegetation communities impacted by the MCCM.

Vegetation communities to be cleared by the MCCM are listed in Table 3-4 and shown on Figure 9.

Table 3-4
Vegetation Communities to be Cleared by the MCCM

Vegetation Communities	Area (ha)
Narrow-Leaved Ironbark – White Cypress Pine Shrubby Open Forest	594.8
^White Box – Narrow-Leaved Ironbark – White Cypress Pine Grassy Open Forest	407
Silver-Leaved Ironbark Heathy Woodland	334.5
Derived Native Grassland (Low Diversity – White Box Woodland)	210.9
White Box – Narrow-Leaved Ironbark – White Cypress Pine Shrubby Open Forest	136.4
Dwyer's Red Gum – Ironbark Woodland	123.6
Derived Native Grassland (Low Diversity – With Scattered Poplar Box Trees)	112.7
^Derived Native Grassland	86.5
^White Box – Wilga – Belah Woodland	31.5
Pilliga Box – Poplar Box – White Cypress Pine Grassy Open Woodland	11.7
^White Box – Blakely's Red Gum – Melaleuca Riparian Forest	10.1
^Yellow Box – Blakely's Red Gum Grassy Woodland	8.6
Belah Woodland	4.2
Derived Native Grassland (Low Diversity – Ironbark Woodland)	3.7
River Red Gum Riparian Woodlands and Forests	1.6
White Box – White Cypress Pine Grassy Woodland	0.8
Dwyer's Red Gum Woodland	0.1
Total	2,078.7

Source: Hansen Bailey (2011).

^ Conforms to Box-Gum Woodland EEC/CEEC.

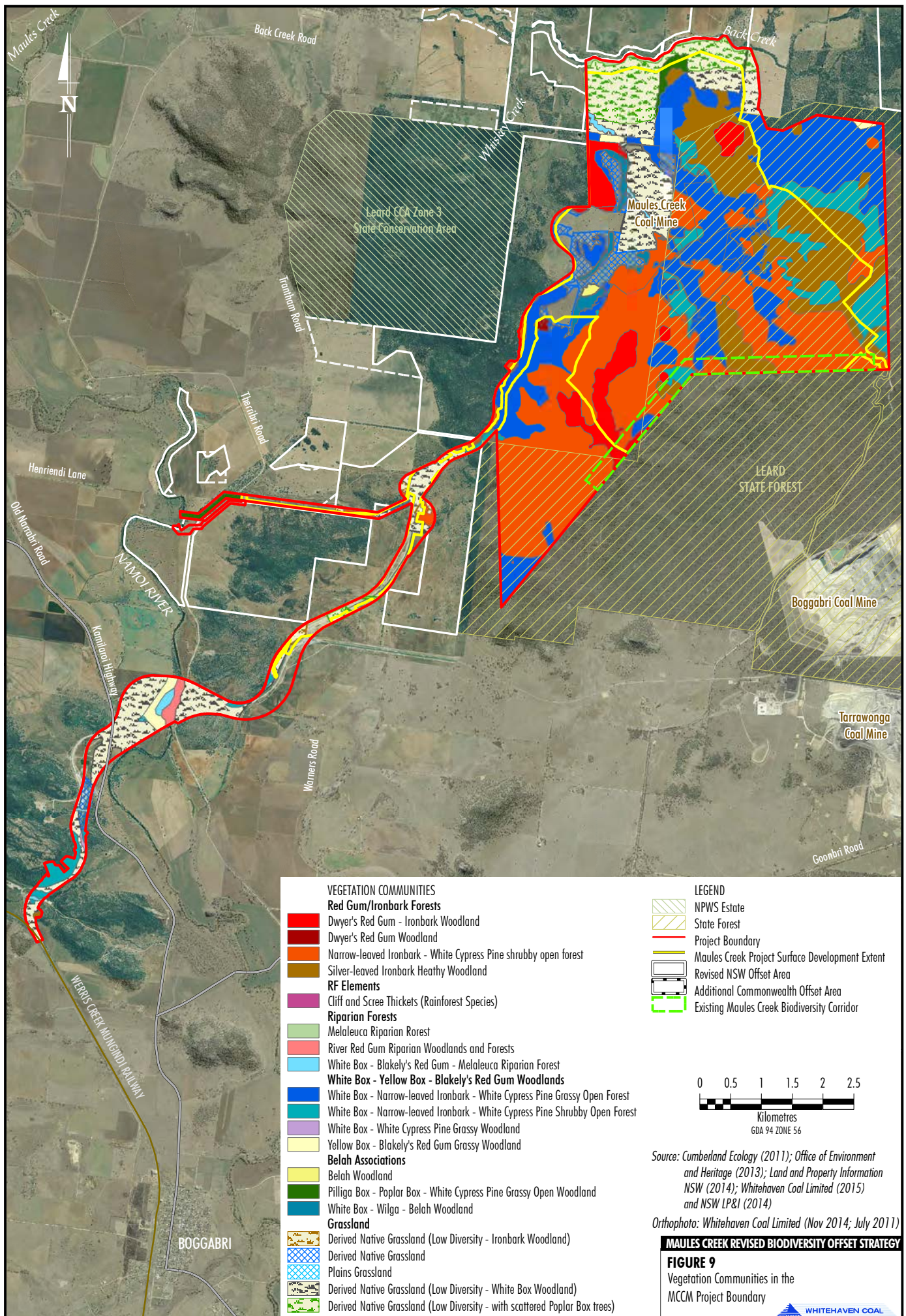
3.4.2 Description of the Additional Offset Area

Location

The additional offset area is proposed to be located on the Roseglass and Bimbooria Properties (i.e. the Southern Offset Area) which is owned by MCC (Figures 5, 6f and 7c). The full extent of the offset area on the Roseglass and Bimbooria Properties is shown in the approved BMP (dated 23 October 2014) that was prepared in consultation with DP&E, OEH, DotE, North West Local Land Services and MCCM CCC.

The Roseglass and Bimbooria Properties were both included in the revised NSW Biodiversity Offset Strategy following consultation with OEH and DP&E.

⁴ The term woodland/forest is used by Condition 44 of Schedule 3 to PA 10_0138 to describe all native vegetation communities (of varying structure) other than derived grassland.



The Southern Offset Area is a suitable location for the offset as it is:

- adjacent to Boonalla Community Conservation Area (CCA) (Figure 5);
- adjacent to an existing Whitehaven Offset Area (Figure 5);
- within recognised priority areas for climate change corridors and recognised key fauna habitats (Department of Environment and Climate Change [DECC], 2007) (Figure 10);
- not within the BSAL as mapped in the final *New England North West Strategic Regional Land Use Plan* (DP&I, 2012; NSW Government, 2014) (Figure 8); and
- included in the priority offset landscape as described in the draft *New England North West Strategic Regional Land Use Plan* (Figure 11)

3.4.3 Habitat for Threatened Species

The additional offset area contains potential habitat for threatened species recorded in the MCCM Project Boundary or otherwise significantly impacted by the MCCM (i.e. those threatened species listed in Condition 49) (Tables 3-3 and 3-4). The additional offset area compliments the habitat for threatened species that already occurs in the existing offset areas. Threatened species recorded in the offset areas are shown on Figures 6a to 6g. Table 3-5 provides reference to species recorded in the offset areas and those recorded in the additional offset area.

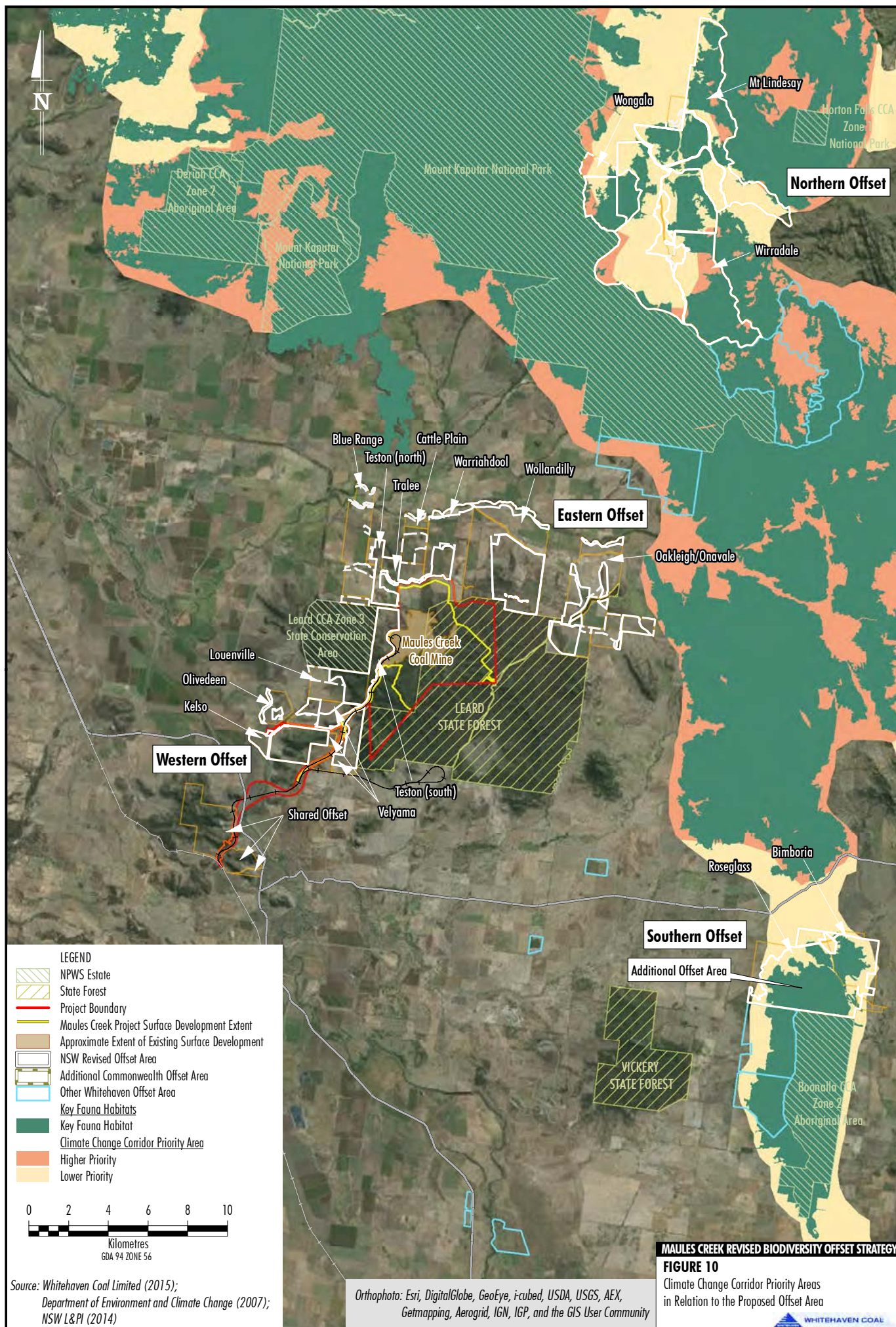
In addition to the threatened species listed in Table 3-5, Niche Environment and Heritage (2012) recorded a threatened plant in the additional offset area, namely the Granite Homoranthus (*Homoranthus prolixus*) (Plate 1; Figure 6f). The Granite Homoranthus (*Homoranthus prolixus*) is listed as vulnerable under the TSC Act and EPBC Act.



Source: Niche Environment and Heritage

Plate 1 - Photos of Granite Homoranthus Collected in the Additional Offset Area

A total of eight threatened species listed under the TSC Act have been recorded in the additional offset area to date, namely, the Granite Homoranthus (*Homoranthus prolixus*), Little Lorikeet (*Glossopsitta pusilla*), Masked Owl (*Tyto novaehollandiae*), Speckled Warbler (*Pyrrholaemus sagittatus*), Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*), Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*), Squirrel Glider (*Petaurus norfolcensis*) and Yellow-bellied Sheath-tail-bat (*Saccolaimus flaviventris*) (Figure 6f).



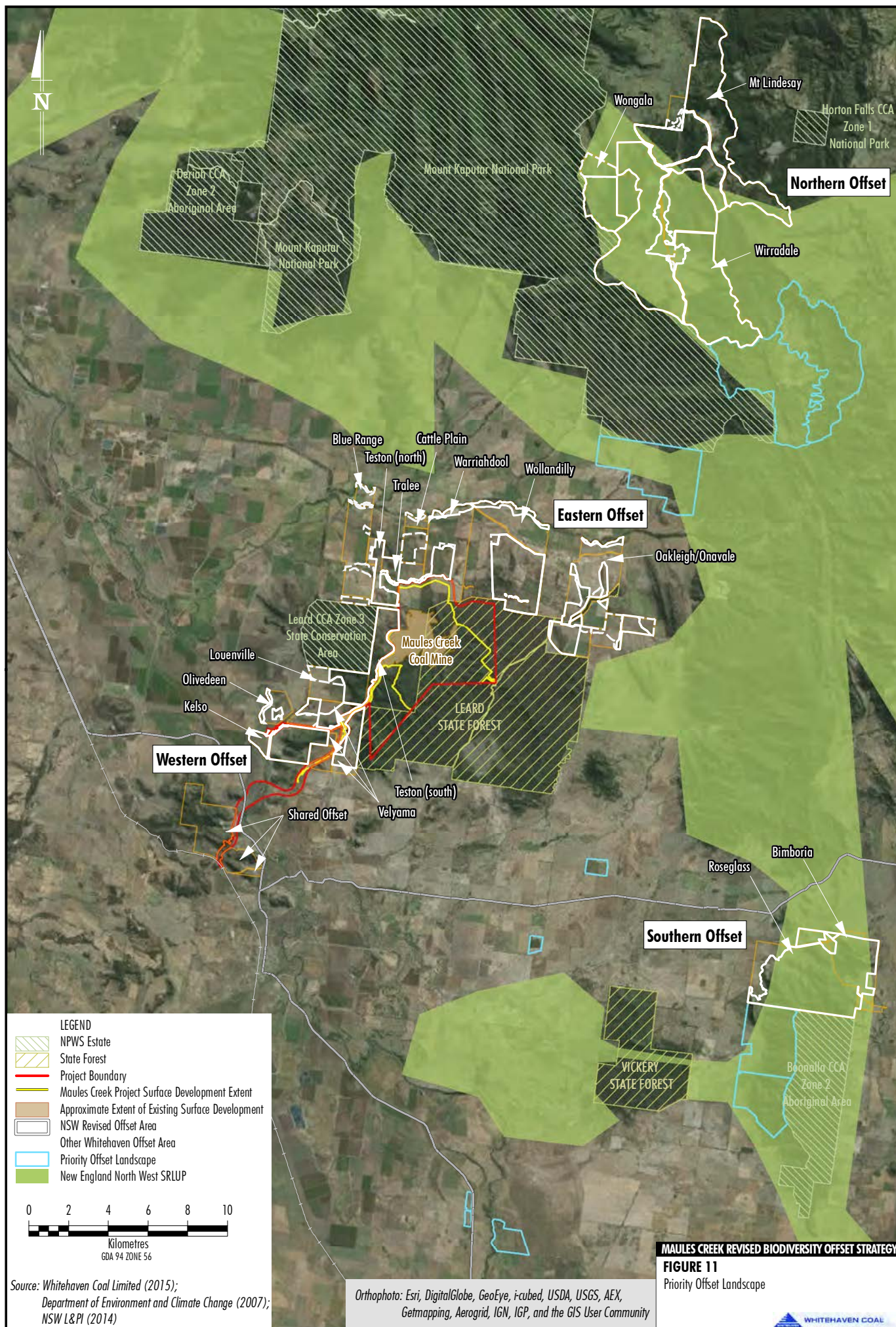


Table 3-5
Threatened Species Relevant to the MCCM and their Representation in the Offset Areas

Common Name	Scientific Name	Conservation Status ¹		Records of Threatened Species in the Offset Areas Covered by the Revised NSW Biodiversity Offset Strategy	Habitat for Threatened Species in the Additional Offset Area
		TSC Act	EPBC Act		
Flora*					
-	<i>Tylophora linearis</i>	V	E	This species was recorded within the Eastern, Western and Southern Offset Areas by Niche Environment and Heritage (2014) (Figures 6a to 6f).	This species was recorded in the Southern Offset Area by Niche Environment and Heritage (2014) (Figure 6f).
Scant Pomaderris	<i>Pomaderris queenslandica</i>	E	-	Potential habitat.	-
Reptiles					
Pale-headed Snake	<i>Hoplocephalus bitorquatus</i>	V	-	Preliminary monitoring results indicate that this species was recorded in the offset areas during February 2015 (Australian Museum Consulting pers. comm., 2015).	<p>This species is found mainly in dry eucalypt forests and woodlands, cypress forest and occasionally in rainforest or moist eucalypt forest (OEH, 2015). The Pale-headed Snake shelters between loose bark and tree-trunks, or in hollow trunks and limbs of dead trees (OEH, 2015). The additional offset area contains dry eucalypt forests and woodlands and cypress forest.</p> <p>The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 972 ha) provides potential habitat for the Pale-headed Snake. Box-Gum Woodland EEC is potential habitat for this species (as recognised by the NSW Scientific Committee, 2011).</p>
Birds					
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	E	-	Potential habitat occurs in the offset area along the Namoi River. Back Creek and Maules Creek.	-
Little Lorikeet	<i>Glossopsitta pusilla</i>	V	-	This species was recorded within the Northern Offset Area by Australian Museum Consulting (2014) (Figure 6g) and Cumberland Ecology (2011). It was also recorded in the Southern Offset Area by Niche Environment and Heritage (2012) (Figure 6f) and in the Western Offset Area by Cumberland Ecology (2011) (Figure 6a).	The Little Lorikeet forages primarily in the canopy of open <i>Eucalyptus</i> forest and woodland, especially box–ironbark species (OEH, 2015). The Little Lorikeet was recorded in the additional offset area by Niche Environment and Heritage (2012) (Figure 6f). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 972 ha) provides potential habitat for the Little Lorikeet.

Table 3-5 (Continued)
Threatened Species Recorded in the MCCM Project Boundary and their Representation in the Offset Areas

Common Name	Scientific Name	Conservation Status ¹		Records of Threatened Species in the Offset Areas Covered by the Revised NSW Biodiversity Offset Strategy	Habitat for Threatened Species in the Additional Offset Area
		TSC Act	EPBC Act		
<i>Birds (Continued)</i>					
Square-tailed Kite	<i>Lophoictinia isura</i>	V	-	Potential habitat.	The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 931 ha) provides potential habitat for the Square-tailed Kite.
Spotted Harrier	<i>Circus assimilis</i>	V	-	Potential habitat and preliminary monitoring results indicate that this species was recorded nearby the offset areas during February 2015 (Australian Museum Consulting pers. comm., 2015).	The Spotted Harrier occurs throughout the Australian mainland (OEH, 2015). OEH (18 June 2015) recognise over 500 ha of potential habitat for the Spotted Harrier in the additional offset area.
Little Eagle	<i>Hieraaetus morphnoides</i>	V	-	Potential habitat.	The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 1,029 ha) provides potential habitat for the Little Eagle.
Turquoise Parrot	<i>Neophema pulchella</i>	V	-	This species was recorded within the Northern Offset Area and Western Offset Area by Cumberland Ecology (2011). Database records of this species in the Western Offset Area are shown on Figures 6a and 6d.	Although not recorded in the additional offset area to date, this species lives on the edges of eucalypt woodland adjoining clearings, timbered ridges in farmland (OEH, 2015). Box-Gum Woodland EEC/CEEC is potential habitat for this species (as recognised by the NSW Scientific Committee, 2011). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 972 ha) provides potential habitat for the Turquoise Parrot.
Swift Parrot	<i>Lathamus discolor</i>	E	E	Potential habitat.	The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 972 ha) provides potential habitat for the Swift Parrot.
Masked Owl	<i>Tyto novaehollandiae</i>	V	-	This species was recorded within the Southern Offset Area by Niche Environment and Heritage (2012) (Figure 6f).	The Masked Owl lives in dry eucalypt forests and woodlands (OEH, 2015). The Masked Owl was recorded in the additional offset area by Niche Environment and Heritage (2012) (Figure 6f). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 991 ha) provides potential habitat for the Masked Owl.
Barking Owl	<i>Ninox connivens</i>	V	-	This species was recorded multiple times at one location within the Eastern Offset Area by Australian Museum Consulting (2014) (Figure 6b).	The Barking Owl inhabits woodland and open forest, including fragmented remnants and partly cleared farmland (OEH, 2015). Box-Gum Woodland EEC is potential habitat for this species (as recognised by the NSW Scientific Committee, 2011). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 931 ha) provides potential habitat for the Barking Owl.

Table 3-5 (Continued)
Threatened Species Recorded in the MCCM Project Boundary and their Representation in the Offset Areas

Common Name	Scientific Name	Conservation Status ¹		Records of Threatened Species in the Offset Areas Covered by the Revised NSW Biodiversity Offset Strategy	Habitat for Threatened Species in the Additional Offset Area
		TSC Act	EPBC Act		
Birds (Continued)					
Speckled Warbler	<i>Pyrrholaemus sagittatus</i>	V	-	This species was recorded within the Western, Southern and Northern Offset Areas by Australian Museum Consulting (2014) (Figures 6a, 6d to 6g) and Cumberland Ecology (2011) (Figures 6a and 6d). It was also recorded in the Southern Offset Area by Niche Environment and Heritage (2012) (Figure 6f).	The Speckled Warbler lives in a wide range of Eucalyptus dominated dry sclerophyll forests and woodlands that have a grassy understorey, often on rocky ridges or in gullies (Birdlife Australia, 2014; OEH, 2015). The Speckled Warbler was recorded in the additional offset area by Australian Museum Consulting (2014) and Niche Environment and Heritage (2012) (Figure 6f). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 996 ha) provides potential habitat for the Speckled Warbler.
Regent Honeyeater	<i>Anthochaera phrygia</i>	CE	CE	Potential habitat.	The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 931 ha) provides potential habitat for the Regent Honeyeater.
Black-chinned Honeyeater (eastern subspecies)	<i>Melithreptus gularis gularis</i>	V	-	This species was recorded within the Northern Offset Area by Cumberland Ecology (2011).	The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 972 ha) provides potential habitat for the Black-chinned Honeyeater (eastern subspecies).
Painted Honeyeater	<i>Grantiella picta</i>	V	V	Potential habitat.	This species inhabits Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests (OEH, 2015). Box-Gum Woodland EEC is potential habitat for this species (as recognised by the NSW Scientific Committee, 2011). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 991 ha) provides potential habitat for the Painted Honeyeater.
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	V	-	This species was recorded within the Western and Southern Offset Areas by Australian Museum Consulting (2014) (Figures 6d and 6f) and in the Western and Northern Offset Areas by Cumberland Ecology (2011).	Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range (OEH, 2015). Mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts. The Brown Treecreeper (eastern subspecies) was recorded in the additional offset area by Australian Museum Consulting (2014) (Figure 6f). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 972 ha) provides potential habitat for the Brown Treecreeper (eastern subspecies).

Table 3-5 (Continued)
Threatened Species Recorded in the MCCM Project Boundary and their Representation in the Offset Areas

Common Name	Scientific Name	Conservation Status ¹		Records of Threatened Species in the Offset Areas Covered by the Revised NSW Biodiversity Offset Strategy	Habitat for Threatened Species in the Additional Offset Area
		TSC Act	EPBC Act		
Birds (Continued)					
Diamond Firetail	<i>Stagonopleura guttata</i>	V	-	This species was recorded within the Northern Offset Area by Australian Museum Consulting (2014) (Figure 6g).	The Diamond Firetail is mainly found in grassy eucalypt woodlands but also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities (OEH, 2015). Box-Gum Woodland EEC is potential habitat for this species (as recognised by the NSW Scientific Committee, 2011). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 1,029 ha) provides potential habitat for the Diamond Firetail.
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>	V	-	This species was recorded within all of the Northern, Eastern, Western and Southern Offset Areas by Australian Museum Consulting (2014) (Figures 6a to 6d, 6f and 6g). Cumberland Ecology (2011) recorded this species in the Eastern and Western Offset Areas.	This species inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress Pine and open Box Woodlands on alluvial plains (OEH, 2015). The Grey-crowned Babbler (eastern subspecies) was recorded in the additional offset area by Australian Museum Consulting (2014) (Figure 6f). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 972 ha) provides potential habitat for the Grey-crowned Babbler (eastern subspecies).
Hooded Robin (south-eastern form)	<i>Melanodryas cucullata cucullata</i>	V	-	Potential habitat.	The Hooded Robin prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas (OEH, 2015). Box-Gum Woodland EEC is potential habitat for this species (as recognised by the NSW Scientific Committee, 2011). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 991 ha) provides potential habitat for this species.
Varied Sittella	<i>Daphoenositta chrysoptera</i>	V	-	This species was recorded within the Northern Offset Area by Australian Museum Consulting (2014) (Figure 6g). Cumberland Ecology (2011) also recorded this species in the Northern Offset Area as well as the Western Offset Area.	This species inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and <i>Acacia</i> woodland (OEH, 2015). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 1,029 ha) provides potential habitat for the Varied Sittella.

Table 3-5 (Continued)
Threatened Species Recorded in the MCCM Project Boundary and their Representation in the Offset Areas

Common Name	Scientific Name	Conservation Status ¹		Records of Threatened Species in the Offset Areas Covered by the Revised NSW Biodiversity Offset Strategy	Habitat for Threatened Species in the Additional Offset Area
		TSC Act	EPBC Act		
Mammals					
Koala	<i>Phascolarctos cinereus</i>	V	V	Potential habitat.	<p>The Koala inhabit eucalypt woodlands and forests (OEH, 2015). Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species (OEH, 2015). Appropriate food trees in high densities, and floristic diversity are important for this species.</p> <p>Box-Gum Woodland EEC is potential habitat for this species (as recognised by the NSW Scientific Committee, 2011). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 972 ha) provides potential habitat for the Koala.</p>
Squirrel Glider	<i>Petaurus norfolcensis</i>	V	-	This species was recorded within the Northern Offset Area by Australian Museum Consulting (2014) (Figure 6g). It was also recorded in the Southern Offset Area by Niche Environment and Heritage (2012) (Figure 6f).	<p>This species inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas (OEH 2015). It prefers mixed species stands with a shrub or Acacia midstorey (OEH, 2015). The Squirrel Glider was recorded in the additional offset area by Niche Environment and Heritage (2012) (Figure 6f). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 972 ha) provides potential habitat for the Squirrel Glider.</p>
Yellow-bellied Sheathtail-bat	<i>Saccolaimus flaviventris</i>	V	-	This species was recorded within all of the Northern, Eastern, Western and Southern Offset Areas by Australian Museum Consulting (2014) (Figures 6a to 6g).	<p>The Yellow-bellied Sheathtail-bat was recorded in the additional offset area by Australian Museum Consulting (2014) (Figure 6f). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 996 ha) provides potential habitat for the Yellow-bellied Sheathtail-bat.</p>

Table 3-5 (Continued)
Threatened Species Recorded in the MCCM Project Boundary and their Representation in the Offset Areas

Common Name	Scientific Name	Conservation Status ¹		Records of Threatened Species in the Offset Areas Covered by the Revised NSW Biodiversity Offset Strategy	Habitat for Threatened Species in the Additional Offset Area
		TSC Act	EPBC Act		
Mammals					
Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	V	-	Probable records of this species were obtained from within the Western and Eastern Offset Areas by Australian Museum Consulting (2014) (Figures 6a to 6d).	The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 991 ha) provides potential habitat for the Eastern Bentwing-bat.
South-eastern Long-eared Bat	<i>Nyctophilus corbeni</i>	V	V	<p>This species was recorded within the Western Offset Area by Australian Museum Consulting (2014) (Figure 6d). Preliminary monitoring results indicate that this species was recorded during February 2015 in the Eastern, Western and Northern Offset Areas (Australian Museum Consulting pers. comm., 2015).</p> <p>As verified by Greenloaning Biostudies (independent reviewer approved by DotE) (2013, 2014a), and in accordance with Condition 9 of the Approval Decision EPBC 2010/5566, the Commonwealth Biodiversity Offset Strategy provides for the long-term security of no less than 9,334 ha of equivalent or better quality of habitat for the South-eastern Long-eared Bat.</p>	Greenloaning Biostudies (2014a) (independent reviewer approved by DotE) mapped potential habitat for the South-eastern Long-eared Bat in the additional offset area.
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	V	V	This species was recorded within the Northern Offset Area by Australian Museum Consulting (2014) (Figure 6g).	The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 991 ha) provides potential habitat for the Large-eared Pied Bat.
Little Pied Bat	<i>Chalinolobus picatus</i>	V	-	Potential habitat.	The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 991 ha) provides potential habitat for the Little Pied Bat.
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	V	-	Potential habitat.	The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 991 ha) provides potential habitat for the Eastern False Pipistrelle.
Eastern Cave Bat	<i>Vespadelus troughtoni</i>	V	-	Potential habitat.	A cave-roosting species that is usually found in dry open forest and woodland, near cliffs or rocky overhangs (OEH, 2015). The majority of the Existing Woodland/Forest in the Southern Offset Area (at least 991 ha) provides potential habitat for the Eastern Cave Bat.

* Unconfirmed records of Scant Pomaderris (*Pomaderris queenslandica*) were made by Parsons Brinkerhoff (2010). Samples of possible Scant Pomaderris in 2015 were confirmed to be *Alphitonia excelsa* by the Royal Botanic Gardens & Domain Trust – Sydney.

¹ Threatened species conservation status: V = Vulnerable, E = Endangered.
Current as of August 2015.

3.4.4 Vegetation

Niche Environment and Heritage (2012) originally mapped the vegetation on the Roseglass Property. Greenloaning Biostudies (independent reviewer approved by DotE) has produced vegetation mapping for the Maules Creek offset areas (including the Roseglass and Bimbooria Properties) as part of, and following, the independent review of the offset areas (Greenloaning Biostudies, 2013 and 2014a) (Figure 7c).

The vegetation communities in the additional offset area are listed in Table 3-6 and shown on Figures 7a to 7d. The additional offset area comprises of moderate to good condition native forest/woodland⁵ and derived native grassland (totalling approximately 1,695 ha) and 224.7 ha of Low Diversity Native Grassland/Pasture Improved and Cultivated Land. In fact, Greenloaning Biostudies (2014a) describes that most of the vegetation on the total Roseglass and Bimbooria Properties is in good condition. Greenloaning Biostudies (2014a) describes that the average overall habitat value for the Roseglass Property is higher than the average overall habitat value for the Project Site, attributed in part to the representation of large mature and old growth trees in numerous sectors of the Roseglass Property, particularly within sheltered gullies and the more remote slopes and ridges. Notwithstanding, the additional offset includes derived native grassland and cleared land that will be restored to provide an improvement in biodiversity values.

Table 3-6
Vegetation Communities in the Additional Offset Area

Vegetation	Area (ha)	Condition
Narrow-Leaved Ironbark - White Cypress Pine Shrubby Open Forest	782.6	Moderate to Good
*White Box - White Cypress Pine ± Narrow-Leaved Ironbark Grassy Woodland	210.2	Moderate to Good
Derived Native Grassland (Box-Gum Woodland -Low Diversity not Conforming to EEC/CEEC)	202.7	Low
Cypress Pinelaw Forest/Shrubland (Regenerating)	128.1	Moderate to Good
*Derived Native Grassland (Box Gum Woodland)	113.7	Moderate to Good
Narrow-Leaved Ironbark - White Cypress Pine ± Grassy Open Forest/Woodland	93.2	Moderate to Good
Narrow-Leaved Ironbark - White Cypress Pine Woodland (Semi-Cleared)	48.1	Moderate to Good
Narrow-Leaved Ironbark - White Cypress Pine ± Tumbledown Gum Derived Native Grassland	45.9	Moderate to Good
*White Box - Wilga ± Quinine Semi-Cleared Woodland	41.4	Moderate to Good
White Box - Tumbledown Gum (Semi-Cleared/On Creek Lines)	35.3	Moderate to Good
*White Box - White Cypress Pine ± Narrow-Leaved Ironbark Grassy Woodland (Semi-Cleared)	34.4	Moderate to Good
Metasediment Rock Outcrop Shrubland	33.8	Moderate to Good
Derived Native Grassland (Low Diversity)	21.5	Low
Semi-Evergreen Vine Thicket	20	Moderate to Good
Tumbledown Red Gum ± Narrow-Leaved Ironbark Woodland	19.5	Moderate to Good
Bracteata Honey myrtle Low Riparian Forest_Semi-Cleared Regenerating	15.5	Moderate to Good
White Box - White Cypress Pine ± Narrow-Leaved Ironbark Shrubby Open Forest	14.5	Moderate to Good
Silver-Leaved Ironbark Woodland	11.3	Moderate to Good

⁵ The term woodland/forest is used by Condition 44 of Schedule 3 to PA 10_0138 to describe all native vegetation communities (of varying structure) other than derived grassland.

Table 3-6 (Continued)
Vegetation Communities in the Additional Offset Area

Vegetation	Area (ha)	Condition
Motherumba - Narrow-Leaved Ironbark Forest/Semi-Cleared Low Woodland/Shrubland	10.5	Moderate to Good
White Box - White Cypress Pine Derived Shrubland	9.1	Moderate to Good
Belah - Wilga - Rosewood Derived Budda Shrubland	9	Moderate to Good
Narrow-Leaved Ironbark - White Cypress Pine Open Forest Regenerating	8.6	Moderate to Good
Bracteata Honey Myrtle Low Riparian Forest-Derived Native Grassland	8	Moderate to Good
Derived Native Grassland (Non-Threatened)	2.1	Moderate to Good
Exotic/Improved Pasture	0.5	Low
Existing Woodland/Forest	1,525.1	Moderate to Good
Derived Native Grassland	169.7	Moderate to Good
Low Diversity Native Grassland/Pasture Improved and Cultivated Land	224.7	Low
Overall Total	1,919.5	-

Source: Greenloining Biostudies (2014b).

* Box-Gum Woodland EEC/CEEC.

The MCCM will mostly disturb Narrow-Leaved Ironbark – White Cypress Pine Shrubby Open Forest (approximately 595 ha) (Table 3-4) and therefore the additional offset area mostly conserves this community (approximately 782.6 ha) (Table 3-6). This vegetation community provides habitat for impacted threatened species (as required by Condition 44 of Schedule 3 to PA 10_0138).

The Roseglass and Bimbooria Properties were specifically purchased by MCC to target the Box-Gum Woodland EEC/CEEC for inclusion in the revised NSW Biodiversity Offset Strategy. The additional offset area also contains approximately 399 ha of Box-Gum Woodland EEC/CEEC (Table 3-7).

Table 3-7
Box-Gum Woodland EEC/CEEC in the Additional Offset Area

Vegetation	Area (ha)
White Box - White Cypress Pine ± Narrow-Leaved Ironbark Grassy Woodland	210.2
White Box - White Cypress Pine ± Narrow-Leaved Ironbark Grassy Woodland (Semi-Cleared)	34.4
White Box - Wilga ± Quinine Semi-Cleared Woodland	41.4
Derived Native Grassland (Box-Gum Woodland)	113.7
Total Woodland	286.1
Total Derived Native Grassland	113.7
Total Box-Gum Woodland EEC/CEEC	399.8
Total Box-Gum Woodland EEC/CEEC plus the Derived Native Grassland (Box-Gum Woodland -Low Diversity not Conforming to EEC/CEEC)	602.5

Source: Greenloining Biostudies (2014b).

With the addition of approximately 399.8 ha of Box-Gum Woodland EEC/CEEC in the additional offset area (Table 3-7), the revised NSW Biodiversity Offset Strategy contains a total of approximately 5,476.8 ha of Box-Gum Woodland EEC/CEEC.

The additional offset area also contains approximately 202.7 ha of Derived Native Grassland (derived from Box-Gum Woodland but currently with low diversity and not conforming to the EEC/CEEC), which has the potential to be restored to Box-Gum Woodland. The total area of Box-Gum Woodland EEC/CEEC and Derived Native Grassland (derived from Box-Gum Woodland but currently with low diversity and not conforming to the EEC/CEEC) is 602.5 ha (60.25% of the 1,000 ha offset requirement)(Table 3-7).

The MCCM BMP has been revised to include the additional offset area. As described earlier, an objective of the NSW Biodiversity Offset Strategy is to restore self-sustaining vegetation communities within areas of low diversity derived native grassland, pasture improved, cultivated land and derived native grassland (moderate to good condition). The additional offset area includes approximately 394.4 ha of derived native grassland and cleared land that will be restored to provide an improvement in biodiversity values.

3.4.5 Summary of Benefits

In summary the additional offset area:

- covers 1,919 ha of land (with 1,695 ha of mostly moderate to good condition native forest/woodland⁶ and derived native grassland);
- is located adjacent to Boonalla CCA (Figure 5);
- is located adjacent to an existing Whitehaven Offset Area (Figure 5);
- not within the BSAL as mapped in the final *New England North West Strategic Regional Land Use Plan* (DP&I, 2012; NSW Government, 2014) (Figure 8);
- is within a recognised priority areas for climate change corridors and recognised key fauna habitats (DECC, 2007) (Figure 10);
- is located within the Priority Offset Landscape mapped in the draft Strategic Regional Landuse Plan - New England North West (Figure 11);
- comprises mostly of the same vegetation community that would be most disturbed by the MCC (Narrow-Leaved Ironbark – White Cypress Pine Shrubby Open Forest);
- includes Box-Gum Woodland EEC/CEEC (including opportunity to restore Box-Gum Woodland EEC/CEEC);
- includes known habitat for threatened species that are likely to be impacted by the MCCM;
- includes known habitat for threatened species that are not likely to be impacted by the MCCM (i.e. Granite Homoranthus [*Homoranthus prolixus*]); and
- includes derived native grassland and cleared land that will be restored to provide an improvement in biodiversity values.

⁶ The term woodland/forest is used by Condition 44 of Schedule 3 to PA 10_0138 to describe all native vegetation communities (of varying structure) other than derived grassland.

3.5 SUMMARY - REVISED BIODIVERSITY OFFSET STRATEGY

The MCCM offset areas contribute towards a considerable area of offset land near Leard State Forest (Figure 12). The offset areas that form part of the revised MCCM NSW Biodiversity Offset Strategy cover approximately 12,168 ha of land⁷ (Appendix A), comprising:

- approximately 7,898.1 ha of Existing Woodland/Forest;
- approximately 2,306.2 ha Derived Native Grassland; and
- approximately 1,964.6 Low Diversity Native Grassland/Pasture Improved and Cultivated Land.

A comparison between the approximate area of native vegetation communities to be cleared at the MCCM and the revised NSW Biodiversity Offset Strategy is provided in Table 3-8. A summary of vegetation communities in the revised NSW Biodiversity Offset Strategy is provided in Appendix A.

Table 3-8
Revised NSW Biodiversity Offset Strategy Compared to the Area of Clearance

	Approximate Area to be Cleared (ha) ¹	Approximate Area to be Offset (ha) ²
Box-Gum Woodland EEC/CEEC (Woodland and Grassland Form)	544	5,476.8*
Other Native Vegetation (Not Box-Gum Woodland EEC/CEEC)	1,534.5	4,727.5
Sub-total Native Vegetation	2,078.5	10,204.3*
Low Diversity Native Grassland/Pasture Improved and Cultivated Land	98.8	1,964.6
Grand Total (Land Area)	2,177.3	12,168.9
Mine Site Rehabilitation	-	2,078
Overall Total	-	14,246.9

¹ Hansen Bailey (2011).

² Based on Vegetation Mapping by Greenloining Biostudies (2014b).

* Note: the Commonwealth offset areas subject to Approval Decision EPBC 2010/5566 are proposed to cover an additional land covering a minimum of 5,532 ha of equivalent or better quality Box-Gum Woodland CEEC and 9,334 ha of equivalent or better quality habitat for Commonwealth listed threatened species.

Reconciliation of the Revised NSW Biodiversity Offset Strategy against Condition 44

A reconciliation of the revised NSW Biodiversity Offset Strategy against Condition 44 of Schedule 3 to PA 10_0138 is provided in Table 3-9. This revised NSW Biodiversity Offset Strategy does not reduce the size or quality of the offset areas but rather increases the size and quality of the offset areas. As described in Section 2, Condition 44 of Schedule 3 to PA 10_0138 describes an approved Biodiversity Offset Strategy with an approximate size of 9,333 ha and a minimum size of 8,664 ha (calculated from the area of existing woodland/forest and derived native grassland) and an additional requirement for 1,000 ha (Table 2-1; Appendix B). Including the additional offset area, this revised NSW Biodiversity Offset Strategy is approximately 12,168 ha (with approximately 10,204 ha of existing woodland/forest and derived native grassland) (Table 3-8; Appendix B).

⁷ In addition, a total of 2,078 ha (less the area of the minimised void) of pre-mining native vegetation communities is to be re-established on the post-mine landforms (544 ha of Box Gum Woodland EEC) for a biodiversity conservation land use objective (i.e. long-term security).

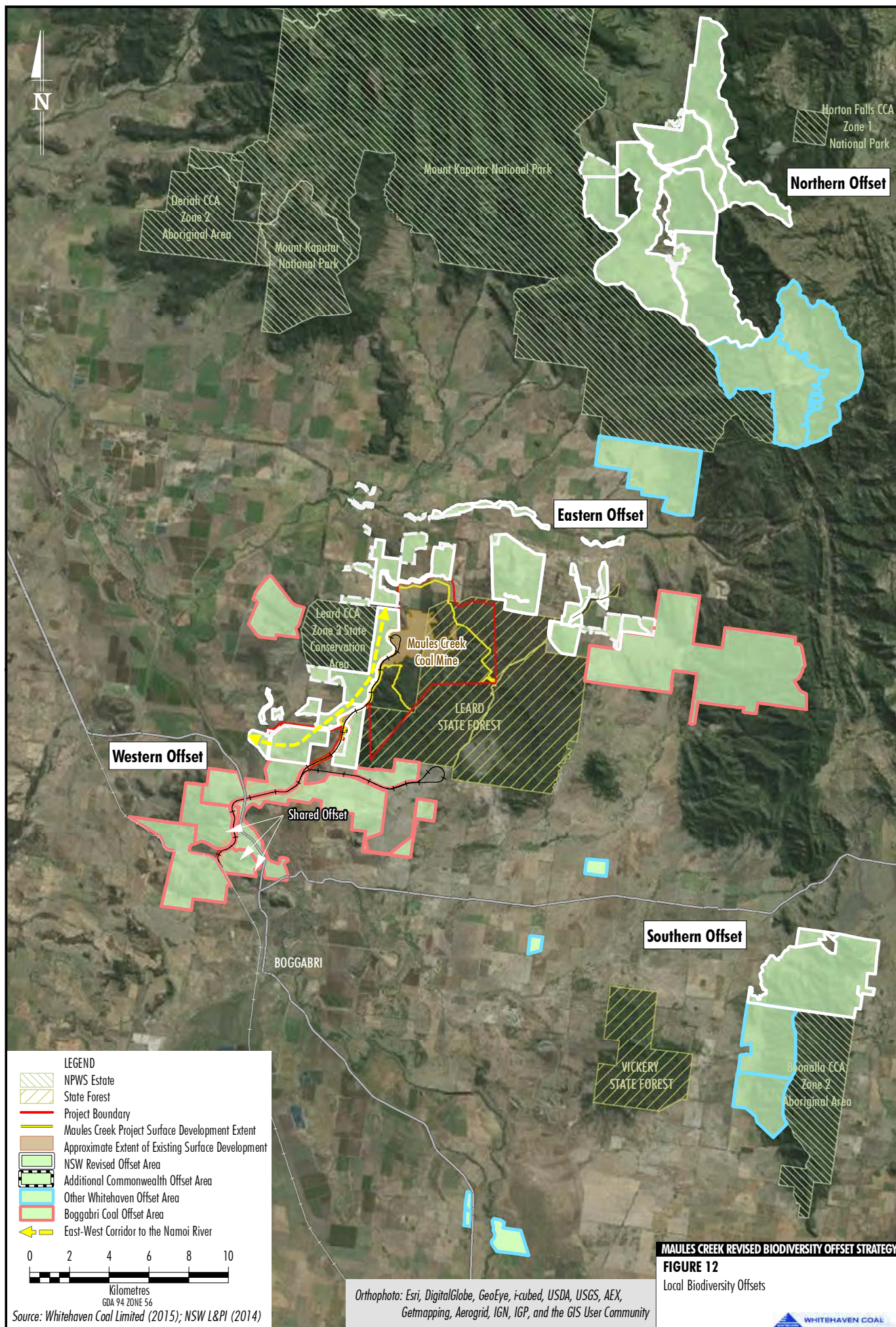


Table 3-9
Reconciliation of the Revised Biodiversity Offset Strategy against Condition 44[#]

Location	Offset Type	NSW Requirement (Condition 44) (ha)	NSW Revised Biodiversity Offset Strategy (ha)	Difference (ha)
Northern Offset Area currently owned or under option by Proponent (Mt Lindesay and Wirradale)	Existing Woodland/Forest*	4,286	4,604.9	318.9
	Derived Native Grassland	1,470	1,798.5	328.5
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC	1,396	1,444.1	48.1
	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	58	99.7	41.7
Eastern Offset Area currently owned or under option by Proponent (Teston North, Tralee and Warriahdool)	Existing Woodland/Forest*	190	190 ^A	Equal
	Derived Native Grassland	0	0.8	0.8
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC	0	0.8	0.8
	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	319	335.9	16.9
Western Offset Area including 50% Joint Venture property currently owned or under option by Proponent (Shared Offset, Louenville, Olivedeen, Teston South and Velyama)	Existing Woodland/Forest* (including 7 ha of Belah Woodland)	891	891 ^B	Equal
	Derived Native Grassland	148	148 ^C	Equal
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC	90	132 ^D	42
	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	368	377.4	9.4
Eastern Offset Area identified in the zone of affectation (Blue Range [^] , Cattle Plain [^] and Wollandilly)	Existing Woodland/Forest*	336	343.9 ^E	7.9
	Derived Native Grassland	0	189.1 ^F	189.1
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC	0	189.1 ^F	189.1
	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	768	768 ^G	Equal
Western Offset Area identified in the zone of affectation (Kelso)	Existing Woodland/Forest*	343	343 ^H	Equal
	Derived Native Grassland	0	0	0
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC	0	0	0
	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	156	159 ^I	3

Table 3-9 (Continued)
Reconciliation of the Revised Biodiversity Offset Strategy against Condition 44[#]

Location	Offset Type	NSW Requirement (Condition 44) (ha)	NSW Revised Biodiversity Offset Strategy (ha)	Difference (ha)
Additional Offset areas required to be included by the Proponent	Existing Woodland/Forest*	1,000	1,525.3	695
	Derived Native Grassland		169.7	
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC		113.7	
	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	0	224.7	224.7
Overall Total Area		10,333	12,168.9	1,835.9
Total Existing Woodland/Forest*		6,046 + additional offset	7,898.1 (includes 886.3 ha of required additional offset)	965.8
Total Derived Native Grassland		1,618 + additional offset	2,306.2 (includes 113.7 ha of required additional offset)	574.5
Total Derived Native Grassland Comprising Box-Gum Woodland EEC (Subset of the Total Derived Native Grassland above)		1,486 + additional offset	1,879.9 (includes 113.7 ha of additional)	280.2
Total Low Diversity Native Grassland/Pasture Improved and Cultivated Land		1,669	1,964.6	295.6

* The term woodland/forest is used by Condition 44 of Schedule 3 to PA 10_0138 to describe all native vegetation communities (of varying structure) other than derived grassland.

^A Substituted with Oakleigh/Onavale (Section 3.2).

[#] The Biodiversity Offset Strategy also includes the Rehabilitation Area required under Condition 44 of Schedule 3 to PA 10_0138 (Table 2-1)

^A Includes 7.4 ha of Existing Woodland/Forest from Oakleigh/Onavale.

^B Includes 73 ha of Existing Woodland/Forest from Oakleigh/Onavale.

^C Includes 22 ha of Derived Native Grassland from Oakleigh/Onavale.

^D Includes 5.6 ha of Derived Native Grassland from Oakleigh/Onavale.

^E Includes 54.6 ha of Existing Woodland/Forest from Oakleigh/Onavale.

^F Includes 30 ha of Derived Native Grassland from Oakleigh/Onavale.

^G Includes 330 ha of Low Diversity Native Grassland/Pasture Improved and Cultivated Land from Oakleigh/Onavale.

^H Includes 5.3 ha of Existing Woodland/Forest from Oakleigh/Onavale.

^I Includes 8.2 ha of Low Diversity Native Grassland/Pasture Improved and Cultivated Land from Oakleigh/Onavale.

The revised NSW Biodiversity Offset Strategy includes, in total, 1,835.9 ha of additional offset land above that required under Condition 44 of Schedule 3 to PA 10_0138, comprising approximately 965.8 ha of Existing Woodland/Forest, approximately 574.5 ha Derived Native Grassland (of which 280.2 ha meets the criteria for the Box-Gum Woodland EEC) and 295.6 ha of low diversity derived native grassland, cultivated land and pasture improved land.

This additional offset land above that required under Condition 44 of Schedule 3 to PA 10_0138 is mostly located on the Bimbooria Property (Section 3.4.2) and the Wongala Property (Figures 6g and 7d; Table 3-9; Appendix B). The revised NSW Biodiversity Offset Strategy includes 417 ha of land in the Wongala Property, comprising 369.9 ha of Existing Woodland/Forest (of which 115.5 ha meets the criteria for the Box-Gum Woodland EEC) and approximately 47.8 ha Derived Native Grassland (which meets the criteria for the Box-Gum Woodland EEC).

Offset Land Summary

The offset properties associated with the NSW and Commonwealth Biodiversity Offset Strategy is provided in Table 3-10.

Table 3-10
Summary of Biodiversity Offset Strategy Properties

Property Name	Within the Revised NSW Biodiversity Offset Strategy	Within the Commonwealth Biodiversity Offset Strategy
<i>Eastern and Western Offset</i>		
#Blue Range	No	Yes
#Cattle Plain	No	Yes
Teston (north)	Yes	Yes
Tralee	Yes	Yes
Wollandilly	Yes	Yes
Warriahdool	Yes	Yes
Kelso	Yes	Yes
Louenville	Yes	Yes
Olivedeem	Yes	Yes
Teston (south)	Yes	Yes
Velyama	Yes	Yes
Oakleigh/Onavale	Proposed	Proposed
*Shared Property	Yes	Yes
<i>Southern Offset</i>		
Roseglass	Proposed	Proposed
Bimbooria	No	Proposed
<i>Northern Offset</i>		
Mt Lindesay	Yes	Yes
Wirradale	Yes	Yes
#Wongala	Proposed	Proposed

* MCC owns the Shared Offset Property under a joint venture ownership with Idemitsu Australia. MCC intends to dedicate its 50% of the property to this offset strategy and will contribute to the management of the area accordingly.

MCC does not currently own these properties.

4 CONCLUSIONS

In summary, the revised NSW Biodiversity Offset Strategy:

- Does not reduce the size or quality of the total approved offset areas listed in Condition 44 of Schedule 3 to PA 10_0138.
- Includes an additional 295.6 ha of additional low diversity derived native grassland, cultivated land and pasture improved land which will be revegetated to buffer remnant vegetation and increase connectivity between remnant vegetation.
- For two previously proposed offset areas, includes substitute offset areas that would provide an equivalent increase in biodiversity values.
- Limits inclusion of any strategic agricultural land and avoids inclusion of any strategic agricultural land that would adversely impact agricultural production.
- Includes approximately 1,919 ha of offset land in the Southern Offset Area, comprising 1,525.3 ha of existing woodland/forest, 169.7 ha of derived native grassland (moderate to good condition) and 224.7 ha of low diversity derived native grassland.
- Includes, in total, 1,835.9 ha of additional offset land above that required under Condition 44 of Schedule 3 to PA 10_0138, comprising approximately 965.8 ha of Existing Woodland/Forest, approximately 574.5 ha Derived Native Grassland (of which 280.2 ha meets the criteria for the Box-Gum Woodland EEC) and 295.6 ha of low diversity derived native grassland, cultivated land and pasture improved land.

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APPENDIX A

SUMMARY OF VEGETATION COMMUNITIES IN THE REVISED NEW SOUTH WALES BIODIVERSITY OFFSET STRATEGY

Table A1
Quantity of Vegetation Communities in the Revised Biodiversity Offset Strategy*

Vegetation Communities	Area
Belah - Wilga - Rosewood Derived Budda Shrubland	9
Belah Woodland	8.3
Bimble Box ± White Cypress Pine Grassy Woodland	17.1
^Blakely's Red Gum - White Box - ± Yellow Box - Melaleuca Riparian Forest	15.8
^Blakely's Red Gum - Yellow Box Grassy Woodland (± Stringybark)	1,285.1
Bracteata Honeymyrtle Low Riparian Forest-Derived Native Grassland	8
Bracteata Honeymyrtle Low Riparian Forest Semi-Cleared Regenerating	28.2
Cultivated Or Exotic/Improved Pasture	245.5
Cultivation	513.2
Cypress Pinelaw Forest/Shrubland (Regenerating)	139.9
^Derived Native Grassland (Box Gum Woodland)	1,879.9
Derived Native Grassland (Box-Gum Woodland -Low Diversity and Not Conforming to EEC/CEEC)	708.1
Derived Native Grassland (Low Diversity)	21.5
Derived Native Grassland (Non-Threatened)	372.5
Dwyer's Red Gum - Ironbark Woodland	176.6
Exotic/Improved Pasture	108.6
Melaleuca Riparian Forest	58.4
Metasediment Rock Outcrop Shrubland	33.8
Motherumba - Narrow-Leaved Ironbark Forest/Semi-Cleared Low Woodland/Shrubland	10.5
Narrow-Leaved Ironbark - White Cypress Pine Woodland (Semi-Cleared)	48.1
Narrow-Leaved Ironbark - White Cypress Pine ± Grassy Open Forest/Woodland	179.7
Narrow-Leaved Ironbark - White Cypress Pine ±Tumbledown Gum Derived Native Grassland	45.9
Narrow-Leaved Ironbark - White Cypress Pine Open Forest Regenerating	8.6
Narrow-Leaved Ironbark - White Cypress Pine Shrubby Open Forest	1,965.8
Narrow-Leaved Ironbark Derived Native Grassland (Low Diversity)	82.8
Pilliga Box - Poplar Box - White Cypress Pine Grassy Open Woodland	49.0
Poplar Box Derived Native Grassland (Low Diversity)	284.9
River Red Gum Riparian Woodlands and Forests	38.5
^Rough-Barked Apple - Blakely's Red Gum Riparian Grassy Woodland	49.5
Semi-Evergreen Vine Thicket	20.5
Silver-Leaved Ironbark Woodland	45.9
Silvertop Stringybark + Apple Box Woodland/Open Forest ± Shrubby	484.6
Silvertop Stringybark ± Manna Gum + Apple Box Grassy Woodland	38.7
Stringybark - Blakely's Red Gum - Yellow Box Shrubby Open Forest	18.5
Stringybark - Rough-Barked Apple - Cypress Pine ± Shrubby Open Forest	21.8
Tea Tree In Drainage Lines	30.2
Tumbledown Red Gum ± Narrow-Leaved Ironbark Woodland	19.5
^White Box - ± Yellow Box ± Stringybark Grassy Woodland	119.1
^White Box - Stringybark - ± Manna Gum Grassy Woodland	16.1
White Box - Stringybark Shrubby Woodland/Open Forest	485.4

Table A1 (Continued)
Quantity of Vegetation Communities in the Revised Biodiversity Offset Strategy*

Vegetation Communities	Area
White Box - Tumbledown Gum (Semi-Cleared/On Creek Lines)	35.3
^White Box - White Cypress Pine ± Narrow-Leaved Ironbark Grassy Open Forest	124.1
^White Box - White Cypress Pine ± Narrow-Leaved Ironbark Grassy Woodland	1,279.0
^White Box - White Cypress Pine ± Narrow-Leaved Ironbark Grassy Woodland (Semi-Cleared)	34.4
White Box - White Cypress Pine ± Narrow-Leaved Ironbark Shrubby Open Forest	314.9
White Box - White Cypress Pine Derived Shrubland	9.1
^White Box - Wilga - Belah Woodland	52.9
^White Box - Wilga ± Quinine Semi-Cleared Woodland	41.4
^White Box (± Stringybark) Grassy Woodland	463.2
White Box Grassy Woodland (Low Condition)	5.0
^Yellow Box - Blakely's Red Gum ± Manna Gum Open Forest/Woodland.	78.4
^Yellow Box ± White Cypress Pine Grassy Woodland	37.8
Total Existing Woodland/Forest	7,898.1
Total Derived Native Grassland	2,306.2
Total Low Diversity Native Grassland/Pasture Improved and Cultivated Land	1,964.6
Total Box Gum Woodland EEC/CEEC(Grassland Form)	1,879.9
Total Box Gum Woodland EEC/CEEC (Woodland Form)	3,596.8
Total Box Gum Woodland EEC/CEEC (Woodland and Grassland)	5,476.8
Overall Total	12,168.9

^ Conforms to Box-Gum Woodland EEC/CEEC.

* Based on Vegetation Mapping by Greenloining Biostudies (2014b)

APPENDIX B

RECONCILIATION OF THE REVISED BIODIVERSITY OFFSET STRATEGY AGAINST CONDITION 44

Table B-1
Reconciliation of the Revised Biodiversity Offset Strategy against Condition 44[#]

NSW Requirement (Condition 44)				NSW Revised Biodiversity Offset Strategy		Difference	
Area	Offset Type	Area (ha)	Minimum Size (Based on Existing Woodland/Forest and Derived Native Grassland) (ha)	Area (ha)	Size Based on Existing Woodland/Forest and Derived Native Grassland (ha)	Difference Area (ha)	Difference Minimum Size (ha)
Northern Offset Area currently owned or under option by Proponent (Mt Lindesay and Wirradale)	Existing Woodland/Forest*	4,286	5,756	4,604.9	6,403.4	318.9	647.4
	Derived Native Grassland	1,470		1,798.5		328.5	
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC	1,396		1,444.1		48.1	
	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	58		99.7		41.7	
Eastern Offset Area currently owned or under option by Proponent (Teston North, Tralee and Warriahdool)	Existing Woodland/Forest*	190	190	190 ^A	190.8	Equal	0.8
	Derived Native Grassland	0		0.8		0.8	
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC	0		0.8		0.8	
	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	319		335.9		16.9	
Western Offset Area including 50% Joint Venture property currently owned or under option by Proponent (Shared Offset, Louenville, Oliveleen, Teston South and Velyama)	Existing Woodland/Forest* (including 7 ha of Belah)	891	1,039	891 ^B	1,039	Equal	Equal
	Derived Native Grassland	148		148 ^C		Equal	
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC	90		132 ^D		42	
	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	368		377.4		9.4	

Table B-1 (Continued)
Reconciliation of the Revised Biodiversity Offset Strategy against Condition 44[#]

NSW Requirement (Condition 44)				NSW Revised Biodiversity Offset Strategy		Difference	
Area	Offset Type	Area (ha)	Minimum Size (Based on Existing Woodland/Forest and Derived Native Grassland) (ha)	Area (ha)	Size Based on Existing Woodland/Forest and Derived Native Grassland (ha)	Difference Area (ha)	Difference Minimum Size (ha)
Eastern Offset Area identified in the zone of affectation (Blue Range [^] , Cattle Plain [^] and Wollandilly)	Existing Woodland/Forest*	336	336	343.9 ^E	533	7.9	197
	Derived Native Grassland	0		189.1 ^F		189.1	
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC	0		189.1 ^F		189.1	
	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	768		768 ^G		Equal	
Western Offset Area identified in the zone of affectation (Kelso)	Existing Woodland/Forest*	343	343	343 ^H	343	Equal	Equal
	Derived Native Grassland	0		0		0	
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC	0		0		0	
	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	156		159 ^I		3	
Additional Offset areas required to be included by the Proponent	Existing Woodland/Forest*	1,000	1,000	1,525.3	1,695	695	
	Derived Native Grassland			169.7			
	Subset of Derived Native Grassland comprising Box-Gum Woodland EEC			113.7			

Table B-1 (Continued)
Reconciliation of the Revised Biodiversity Offset Strategy against Condition 44[#]

NSW Requirement (Condition 44)				NSW Revised Biodiversity Offset Strategy		Difference	
Area	Offset Type	Area (ha)	Minimum Size (Based on Existing Woodland/Forest and Derived Native Grassland) (ha)	Area (ha)	Size Based on Existing Woodland/Forest and Derived Native Grassland (ha)	Difference Area (ha)	Difference Minimum Size (ha)
Additional Offset areas required to be included by the Proponent	Low Diversity Native Grassland/Pasture Improved and Cultivated Land	-		224.7	-	224.7	
	Overall Total Area	10,333	8,664	12,168.9	10,204.3	1,835.9	1,540.3
Total Existing Woodland/Forest*		6,046 + additional offset		7,898.1 (includes 886.3 ha of required additional offset)		965.8	
Total Derived Native Grassland		1,618 + additional offset		2,306.2 (includes 113.7 ha of required additional offset)		574.5	
Total Derived Native Grassland Comprising Box-Gum Woodland EEC		1,486 + additional offset		1,879.9 (includes 113.7 ha of additional)		280.2	
Total Low Diversity Native Grassland/Pasture Improved and Cultivated Land		1,669		1,964.6		295.6	

* The term woodland/forest is used by Condition 44 of Schedule 3 to PA 10_0138 to describe all native vegetation communities (of varying structure) other than derived grassland.

^ Substituted with Oakleigh/Onavale.

The Biodiversity Offset Strategy also includes the Rehabilitation Area required under Condition 44 of Schedule 3 to PA 10_0138 (Table 2-1)

A Includes 7.4 ha of Existing Woodland/Forest from Oakleigh/Onavale.

B Includes 73 ha of Existing Woodland/Forest from Oakleigh/Onavale.

C Includes 22 ha of Derived Native Grassland from Oakleigh/Onavale.

D Includes 5.6 ha of Derived Native Grassland from Oakleigh/Onavale.

E Includes 54.6 ha of Existing Woodland/Forest from Oakleigh/Onavale.

F Includes 30 ha of Derived Native Grassland from Oakleigh/Onavale.

G Includes 330 ha of Low Diversity Native Grassland/Pasture Improved and Cultivated Land from Oakleigh/Onavale.

H Includes 5.3 ha of Existing Woodland/Forest from Oakleigh/Onavale.

I Includes 8.2 ha of Low Diversity Native Grassland/Pasture Improved and Cultivated Land from Oakleigh/Onavale.