

NAMOI MINING PTY LTD

ABN: 24 071 158 373

Sunnyside Coal Project

via Gunnedah



Koala Management Plan

Prepared by

Kevin Mills and Associates

October, 2007

**Specialist Consultant Studies Compendium
Part 3B**

Koala Management Plan

of the

Sunnyside Coal Project via Gunnedah

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Cover Photograph:

An oblique aerial photograph of the property known as 'Sunnyside', showing the Project Site and treed areas on and surrounding the property.

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EXECUTIVE SUMMARY

This report contains a Plan of Management for the Koala population on and around the property known as 'Sunnyside', located approximately 15 kilometres to the west of Gunnedah on the north-western slopes of New South Wales. Namoi Mining Pty Limited proposes to develop a coal mine on the property. The need for the preparation of this management plan was triggered by the identification of the woodland on the property as core Koala habitat as defined by the *State Environment Planning Policy 44 – Koala Habitat Protection*.

The key issues in managing the Koala population on and around the Project Site are identified and addressed in the Plan. These issues encompass the main threats to the local Koala population. The plan shows how the company, as a landowner, can successfully address these threats and avoid their mining activities impacting on the Koala population.

The following issues are specifically addressed in this Plan; which has two main aims, i.e. to avoid and minimise the impact of the proposed coal mine and to improve the habitat for the Koala population on the property.

- Protection, enhancement and expansion of Koala habitat.
- Maintenance and expansion of habitat corridors.
- Addressing the main local threats to the Koala, namely road kills and dog attacks.
- Highlighting the status of the Koala amongst company staff and contractors.

This draft plan is submitted to the Department of Environment and Climate Change and Gunnedah Shire Council for consideration, and to the Minister for final approval.

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1 INTRODUCTION

This report was commissioned by Olsen Environmental Consulting Pty Limited on behalf of Namoi Mining Pty Limited, the Proponent of the proposed Namoi Coal Project ("the Project") to be developed near Gunnedah on the north-western slopes of New South Wales. This report has been prepared in response to the provisions of *State Environmental Planning Policy No. 44 - Koala Habitat Protection* (NSW 1995); see **Appendix 1**. The Policy "aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline". The Policy states that this would be achieved by:

- "requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat;
- encouraging the identification of areas of core koala habitat; and
- encouraging the inclusion of areas of core koala habitat in environment protection areas."

In relation to development consent and core Koala habitat, the Policy states that "before a council may grant consent to a development application for consent to carry out development on land to which this part applies that it is satisfied is a core Koala habitat, there must be a plan of management prepared in accordance with Part 3 that applies to the land".

The Policy defines "core Koala habitat" as meaning "an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population".

Under Part 3, the Policy states that the person preparing the Koala Plan of Management must consult with the Director-General of the National Parks and Wildlife Service, now the Director-General of the Department of Environment and Climate Change (DECC). The relevant Council and the Director-General must approve such a plan, although in this case the development is being assessed under Part 3A of the Act and the Minister is the determining authority.

The fauna study prepared by Kevin Mills & Associates (2007) identified the woodland within and adjacent to the Sunnyside Coal Project land as being core Koala habitat; see Section 2.4, thus triggering the need to prepare this Koala Plan of Management.

This document identifies a "Plan Area", defined as the land area to which the plan applies. The Plan Area encompasses the Project Site and immediately adjacent areas; most particularly Coochoonah Lane.

Nothing in this Plan is inconsistent with the Draft Recovery Plan for the Koala prepared by the National Parks and Wildlife Service (2003).

2 THE PROJECT SITE

2.1 Location and Setting

The Project Site is located on the property known as 'Sunnyside', which is on the western side of Coochoonah Lane, just north of the Oxley Highway and the Old Gunnedah No.5 Colliery, approximately 15 kilometres to the west of Gunnedah; see **Figure 1**. The Project Site consists of the proposed open cut mine area, the land on which the associated infrastructure facilities are to be located, and all immediately adjoining areas, which is virtually the whole property.

'Sunnyside' has had a long history of cropping and grazing. The mine is to be located in the centre of the property with an area of disturbance of approximately 100 hectares, producing about one million tonnes of coal per annum.

The Project Site is located in the Gunnedah Basin, which is part of the Sydney Basin. Permian rocks dominate the area with the coal seam targeted for mining being the Hoskissons Coal member. Overlying this coal seam is the Benalabri Formation, composed of mudstone sequences. The Wallala Formation also outcrops locally. This formation is predominantly a lithic conglomerate of chert, jasper and volcanic pebbles in a coarse sandstone matrix.

The Gunnedah district is within the Liverpool Plains Province of the Northern Sandstones Region, as defined by Morgan and Terry (1992). The Liverpool Plains Province is characterised by "extensive grasslands on alluvial plains with small wooded sedimentary and volcanic hills".

'Sunnyside' ranges in elevation from about 310 metres AHD at the northern end of the property to 428 metres AHD in the south-eastern corner, where there is a pronounced knoll. The proposed open cut mine area is located on gently sloping land to the north and north-west of the knoll. A few small ephemeral watercourses cross the property from south to north, each of which have very small catchments so there are no pronounced channels, except in the south-eastern corner of the property.

The following annual climatic data have been recorded for Gunnedah.

Mean Annual Daily Maximum Temperature:	26.0°C; range 16.7°C (July) - 34.0°C (December).
Mean Annual Daily Minimum Temperature:	10.9°C; range 2.9°C (July) - 18.3°C (December).
Mean Annual Rainfall:	616.4 mm.
Mean Annual Number of Raindays:	71.7 days
Monthly Range in No. Raindays:	4.3 days (April) - 6.9 days (October & December).

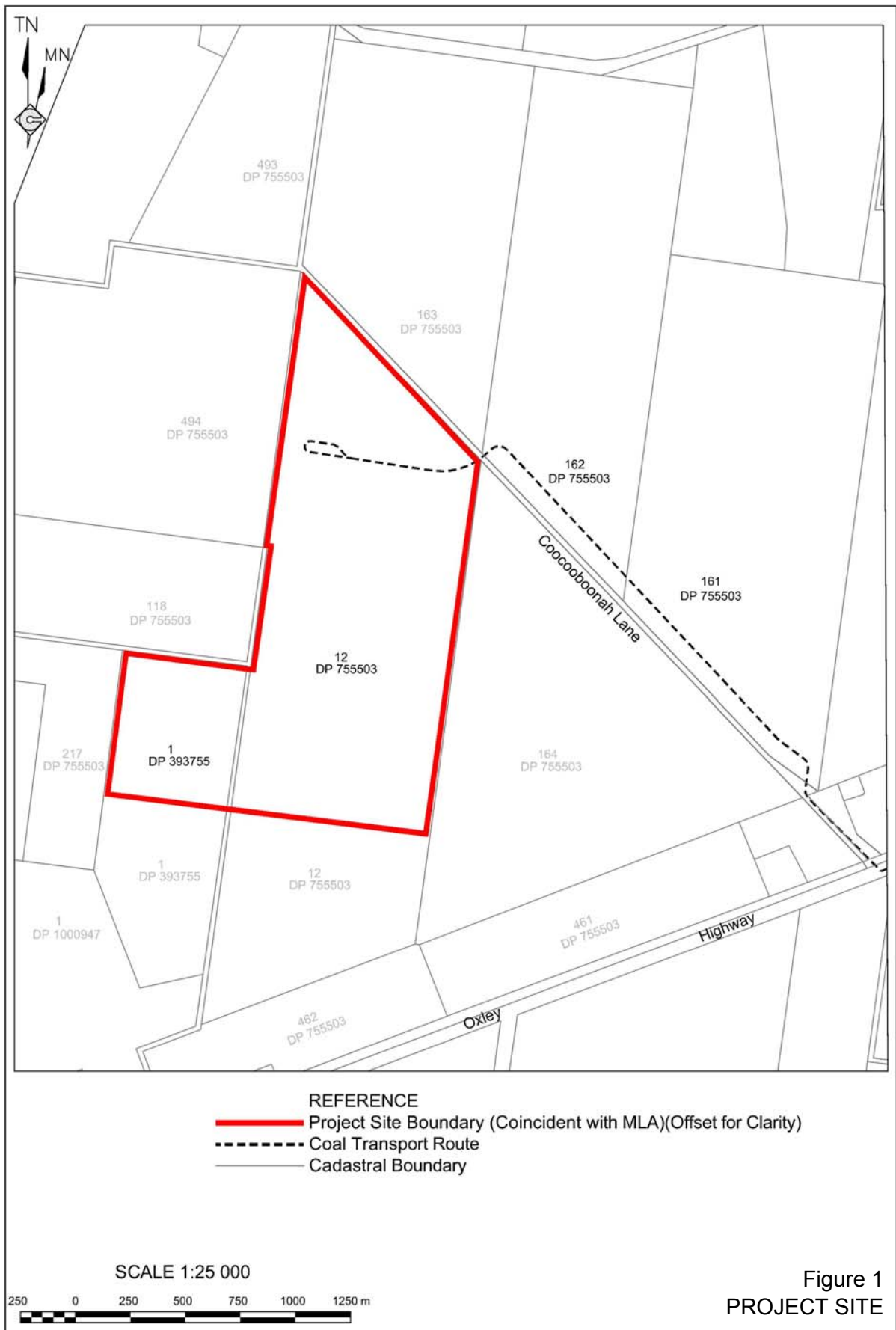


Figure 1
PROJECT SITE

Figure Prepared by R.W. Corkery & Co. Pty Ltd

2.2 The Project

Namoi Mining Pty. Ltd. (NMPL) propose to establish a small scale open cut coal mine with a capacity to produce up to 1.00 million tonnes per annum (Mtpa) from the Hoskissons Coal Seam. NMPL is part of the Whitehaven Group of Companies. The Mine would be located within an area of approximately 230 hectares (the Project Site) on the 'Sunnyside' property approximately 15 kilometres west of Gunnedah. The Project Site is located just north of the Oxley Highway and the old Gunnedah No. 5 Colliery site facilities and immediately west of Coochooboonah Lane. Mining and associated activities would be undertaken within Lot 12 and Lot 462 DP 755503 'Sunnyside' owned by NMPL.

There would be a purpose built transport corridor parallel to and northeast of Coochooboonah Lane. This would be located on Lots 162 and 163 DP 755503 which are part of the 'Plain View' property. Arrangements with the owner of this property have been negotiated. The Project Site represents the area of potential maximum surface disturbance associated with all mining related activities. The Whitehaven Coal Handling and Preparation Plant (CHPP) and Rail Loading Facility, are located approximately three kilometres northwest of Gunnedah and 17 kilometres by road east of 'Sunnyside'. **Figure 2** shows the layout of the Project.

The Project would involve the development of an open cut mine and the construction of associated infrastructure such as processing facilities and site facilities. The coal would be mined using traditional open cut methods, which involve drilling and blasting, followed by removal of the coal by heavy equipment.

The product coal would be transported by highway truck along a haul road to be constructed to link the coal mine with the Oxley Highway to the south of the Project Site, then along the highway to a rail loading facility. The coal would be stockpiled at the rail siding prior to being loaded onto trains via a conveyor system.

The site facilities in the Project Site would consist of an office and bathhouse buildings, car park, stores yard, sewage treatment facility, air compressor and general mine buildings. There would also be an overburden emplacement immediately to the north of the proposed mine, where the existing house and farm sheds are located. A coal processing plant is not required, for the coal is to be transported as a run-of-mine product. The haul road would be an all weather gravel road about to two kilometres long. The investigations identified two possible coal transport routes, one to the south of the mine directly from the property onto the Oxley Highway and one to the northwest of Coochooboonah Lane, on an adjoining property; see **Figure 2**. The latter route is the one selected for the coal transport route.

2.3 Habitats in the Study Area

Most of the fauna habitat existing on the Project Site is exotic grassland, the original woodland vegetation having been cleared long ago. Rock outcrops and stands of woodland occur on the southern part of the property, while a strip of remnant woodland occurs along Coochooboonah Lane.

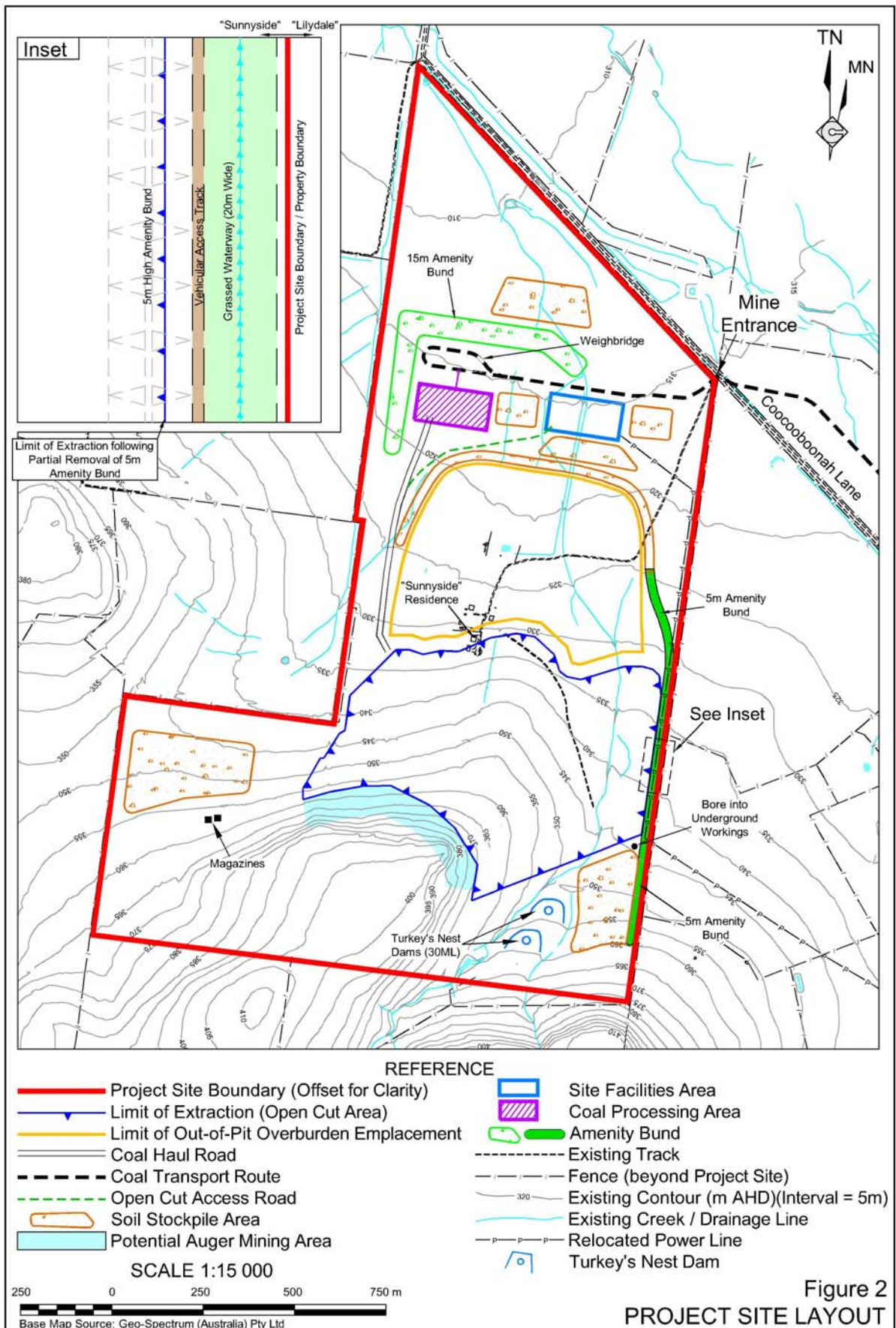


Figure Prepared by R.W. Corkery & Co. Pty Ltd

Note: A colour version of this figure is presented on the Project CD

The main fauna habitat types are summarised in **Table 1** that contains notes on the key plant species (usually the trees) and other physical features of each habitat. **Figure 3** shows where the various habitat types are located on and near the property.

Table 1
Summary of Habitat Types

Habitat	Key Plant Species	Features
Exotic Grassland	<i>Hordeum</i> sp. Pasture weeds Some herbaceous natives	Pasture improved, native pasture, grazing land, virtually treeless.
Hills Woodland	<i>Eucalyptus dealbata</i> <i>Eucalyptus albens</i> <i>Callitris glaucophylla</i>	Good quality woodland along the rocky escarpment; mostly small trees, native understorey, fallen logs and branches common, few tree hollows.
Plains Woodland	<i>Eucalyptus albens</i> <i>Eucalyptus populnea</i> <i>Eucalyptus melliodora</i>	Some large trees, native shrubs, narrow remnants along road reserves, tree hollows common.
Rock Outcrops	<i>Alphitonia excelsa</i> <i>Notelaea microcarpa</i> <i>Geijera parviflora</i>	Rocky cliffs, overhangs, surfaces, diverse range of trees, mostly small trees.

Exotic Grassland

Most of the Project Site is covered by a mixture of exotic grassland and improved pasture. Native grasses and herbs dominate some areas, but only natives hardy enough to survive intensive grazing, species such as Three-awned Spear-grass *Aristida* sp., Burr-daisy *Calotis* sp., Blue Bell *Wahlenbergia* sp., Windmill Grass *Chloris* sp., Spear-grass *Stipa* sp. and New Holland Daisy *Vittadinia* sp.

The area of the proposed open cut is covered by a mosaic of improved pasture, exotic grassland, mixed native and exotic grassland, and occasional trees of Wilga *Geijera parviflora* and Kurrajong *Brachychiton populneus*. The area to be mined extends just into the treed area below the rocky escarpment. Here, there are numerous small pollarded trees of Whitewood *Atalaya hemiglauca*, heavily pruned during the drought to obtain stock feed. The understorey is a mixture of natives and exotics, and there are only scattered shrubs and no other trees. Around the farm house, planted Peppercorn *Schinus molle* and White Cedar *Melia azedarach* are the most common trees, along with various garden plants.

The habitat value of these cleared parts of the Project Site is low. There is little to attract native animals with the food resource being scant for most species except, perhaps, for kangaroos and other macropods, and there are few shelter sites.

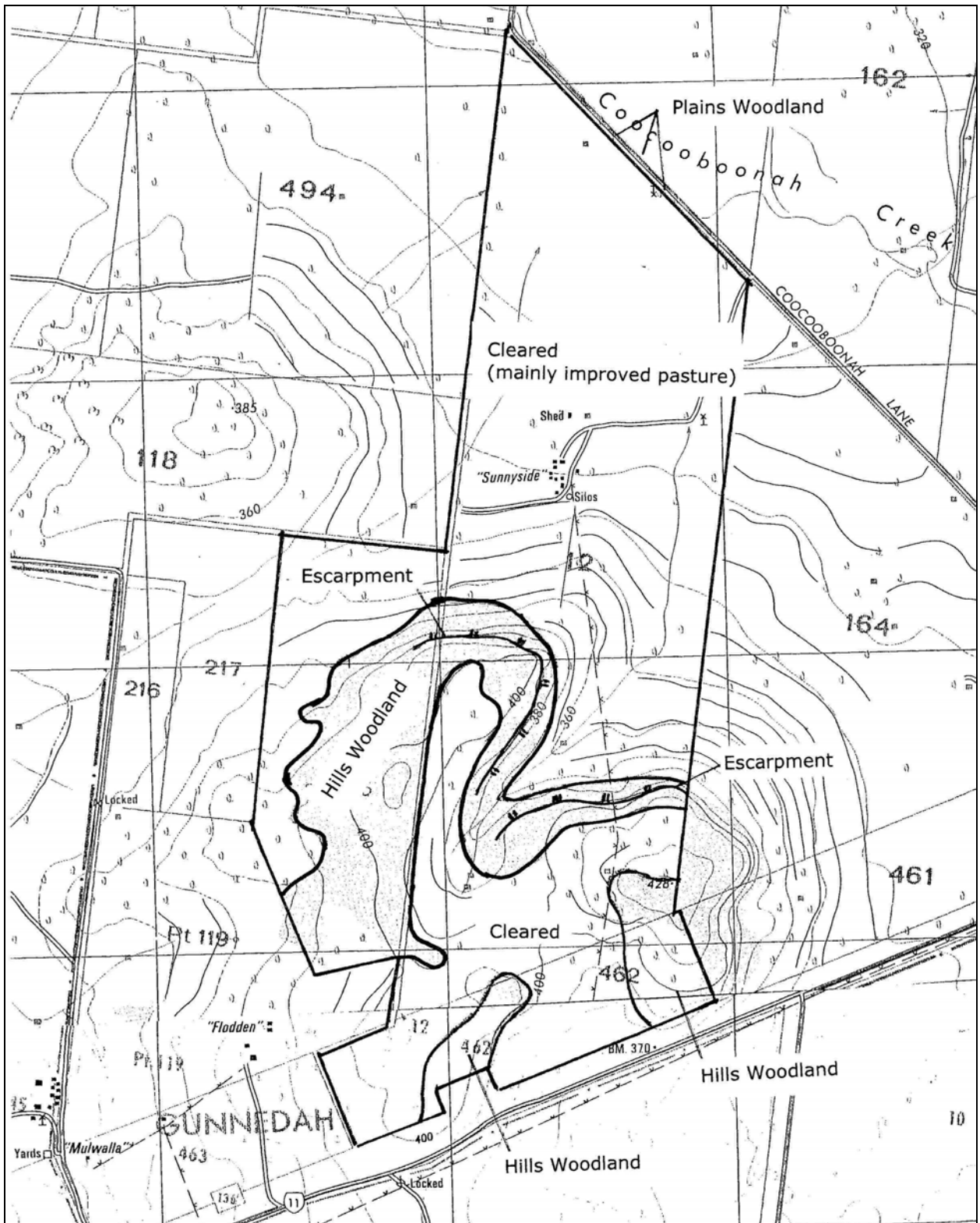


Figure 3
DISTRIBUTION OF MAIN HABITAT TYPES

Hills Woodland (Tumble-down Red Gum - White Box - White Cypress)

The small rocky escarpment extending from east to west across the southern part of the Project Site supports Hills Woodland. This woodland is dominated by White Box *Eucalyptus albens*, Tumble-down Red Gum *Eucalyptus dealbata*, Motherumbah *Acacia cheeli* and White Cypress *Callitris glaucophylla*, with occasional Red Ash *Alphitonia excelsa*, Kurrajong *Brachychiton populneus* and Weeping Pittosporum *Pittosporum phillyreoides*. Various small tree species are also present, including Wilga *Geijera parviflora*.

Most of the trees along the escarpment are small and many are multi-stemmed, which may be indicative of past clearing. Few of the trees are large and/or old enough to have developed hollows. The shrubs present include Hop Bush *Dodonaea viscosa*, Pinkwood *Beyeria viscosa*, Budda *Eremophila mitchelli*, Water Bush *Myoporum montanum* and Native Olive *Notelaea microcarpa*. The shrub layer is quite dense in some places. The ground cover is grassy, mostly rather open to sparse.

Plains Woodland (Yellow Box - White Box - Poplar Box Woodland)

Much of the Project Site would have originally been covered by Plains Woodland, but most of it was cleared many years ago. The Plains Woodland in the Project Site is now restricted to the road reserve of Coochoonah Lane, although there is also a narrow and discontinuous example along the lower section of the road reserve on the western boundary of the 'Sunnyside' property.

The main tree species in this community are White Box *Eucalyptus albens*, Poplar Box *Eucalyptus populnea* and Yellow Box *Eucalyptus melliodora*, and smaller tree species such as Wilga *Geijera parviflora*, Yarran *Acacia omalophylla*, Desert Cassia *Senna zygomorpha*, Kurrajong *Brachychiton populneus* and Water Bush *Myoporum montanum*. The ground cover is grassy, containing a mix of native species and introduced herbaceous weeds. Some of the trees are large and have hollows, including a few dead trees.

Rock Outcrops (Red Ash - Native Olive - Wilga Forest)

The escarpment is characterised by large outcrops of sandstone and conglomerate rock, with many crevices and small overhangs. The habitat value of the rock outcrops is high for the native fauna of the local area, particularly for reptiles. Rock outcrops such as these provide ideal shelter sites for snakes and lizards.

Several Koalas were observed in the trees along the edge of the escarpment, probably trying to take advantage of any cool breeze. The prime Koala feed tree species, White Box *Eucalyptus albens*, is common along the escarpment, usually just above and/or just below the rocky area.

Some of the vegetation along the escarpment is quite distinctive because of the presence of plant species with rainforest affinities. These species include Red Ash *Alphitonia excelsa*, Native Olive *Notelaea microcarpa*, Whitewood *Atalaya hemiglaucula*, Wilga *Geijera parviflora* and several species of vine.

Distribution of Koala Habitat

The hills and plains woodland areas are known Koala habitat, based on the occurrence of Koalas in these areas during the study and the information gained from the property owner that Koalas have always been in this area. All stands of woodland across the property and on the adjoining road reserves of Coochoonah Lane and the Oxley Highway, are considered to be part of the core Koala habitat; see **Figure 3**.

2.4 SEPP No. 44 - Koala Habitat Protection

Gunnedah is one of the local government areas listed on Schedule 1 of *State Environmental Planning Policy No. 44 - Koala Habitat Protection* (SEPP 44) (New South Wales 1995). SEPP 44 encourages the conservation and management of natural vegetation that provides habitat for Koalas, to ensure a permanent free-living population over the species' present range and to reverse the current trend of Koala population decline; see Appendix 3.

SEPP 44 helps to identify "potential Koala habitat", namely "areas of native vegetation where the trees of the types listed in Schedule 2 [SEPP 44 – Feed Tree Species] constitute at least 15% of the total number of trees in the upper or lower strata of the tree component". If no Schedule 2 tree species are present or if they constitute less than 15% of the total number of trees present, then no further provisions of the Policy apply.

If more than 15% of the trees in the area are Schedule 2 tree species, then an assessment must be made by a qualified person to determine whether the area contains "core koala habitat", a term applied to "an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population".

Three Schedule 2 Koala feed trees occur in the Gunnedah area, namely River Red Gum *Eucalyptus camaldulensis*, White Box *Eucalyptus albens* and Poplar Box *Eucalyptus populnea*. The Project Site and the adjoining land support two Schedule 2 Koala feed trees. White Box *E. albens* is very common in most of the stands of woodland in the south of the Project Site, while Poplar Box *E. populnea* and White Box *E. albens* are common along Coochoonah Lane. The Project Site is therefore "potential Koala habitat".

Several observations of Koalas were made within the Project Site, as set out in Section 3.3. These observations, the long history of Koalas in this area and the observation of past breeding nearby, lead to the conclusion that there is a resident population of Koalas in and adjacent to the Project Site and that the woodland in the area is "core Koala habitat".

3 THE KOALA

3.1 Species Profile

The following species profile has been prepared for the Koala.

Name: Koala *Phascolarctos cinereus*

Conservation Status: Vulnerable; under the *Threatened Species Conservation Act 1995* (NSW).

Distribution and Abundance: Prior to European settlement, Koalas were common in the eucalypt forests and woodlands extending from north Queensland, to New South Wales, Victoria and the south-eastern corner of South Australia. However, the species' distribution has contracted dramatically and abundance has declined. In New South Wales, a Koala survey in 1986-87 revealed that Koalas now mainly occur on the north coast, although they have a wide but highly fragmented distribution west of the Great Dividing Range and in the southern half of the state (Reed & Lunney 1990). They were found to be uncommon to rare in most locations.

Habitat: Koalas inhabit eucalypt forest and woodland, preferring stands on high nutrient soils and containing their preferred food tree species. Koalas now often live in marginal habitat because so much of their prime habitat has been cleared.

Threats: Koalas were hunted and killed for their pelts in the 19th and early 20th centuries, when several million were destroyed. Disease (chlamydiosis) is also a major cause of Koala mortality. In addition to these causes of mortality, European settlement brought profound change, with vast areas of Koala habitat being cleared to allow new land uses including agriculture, grazing, housing and mining. As a result, the population declined even further and the species' geographic range contracted markedly. Prime Koala habitat was preferentially cleared because it occurred on the best soils, so Koalas are now often forced to subsist in marginal habitat.

Koalas have probably always been adversely affected by bushfires, but in pre-European times they were less frequent and less intense, and were generally confined to the shrub and ground cover layers. The canopy was severely burnt only occasionally, allowing Koalas to survive in the treetops. Lee & Martin (1988) commented that "the catastrophic fires which accompanied European presence had a profound influence on their abundance".

The removal and fragmentation of Koala habitat is still a major threat to some populations, and intensive development in previously rural areas increase the threat of road kills and dog attacks. Phillips (1990) stated that "the impact of motor vehicles on Koalas nationwide is clearly significant although impossible to quantify. . . [and that] . . . the prevalence of Koala injuries and deaths resulting from altercations with domestic dogs is growing and, in urban areas adjoining forest habitat, individual and packs of uncontrolled dogs have a serious impact on Koala populations". The shooting and intentional killing of Koalas is only a minor problem.

The loss of treed corridors hampers the movement of Koalas from one area of habitat to another and stops recolonisation of areas devoid of Koalas, sometimes due to a catastrophic event such as a wildfire. Lee and Martin (1988) commented that "isolation and fragmentation may pose a greater threat to the survival of the Koala than chlamydiosis". Koala populations have become more isolated from one another, increasing the chance of local population crashes and extinctions.

3.2 Occurrence in the Gunnedah District

The Koalas of the Gunnedah district were studied by the National Parks and Wildlife Service and documented in their report entitled *Koalas and land use in Gunnedah Shire* (Smith 1992). The study confirmed the presence of several healthy colonies in a broad arc extending from the southwest, to the west and northwest of Gunnedah (see Map 4 in Smith 1992), where the population as a whole has increased dramatically since the 1970s. The absence of chlamydia or "wet bottom", the stress-related illness that can produce infertility, was an important finding of the study. However, although the population was found to be healthy and increasing in size, the author noted that "this growing number of koalas currently faces a finite and, in some localities, diminishing availability of habitat. Stress and illness brought about by overcrowding, declining food quality and quantity, increasing distances between shelter trees and mates, and physical injury from dog attacks and cars pose substantial threats to the continued good health of Gunnedah's koalas." As far as we are aware, no comprehensive studies have been undertaken in the 15 years since the NPWS study was undertaken. Koalas are still common in some places in the above area, and can still be observed sometimes in the town of Gunnedah.

The study by Smith (1992) provided the following summary of his study of the Koala in the Gunnedah district between 1990 and 1992.

1. "that the Gunnedah area supports a large and thriving population of wild koalas which displays a strong fecundity;
2. that a significant number of Gunnedah Shire's koalas regularly use roadside vegetation and are thus especially vulnerable to car-induced mortality;
3. that the Gunnedah Shire koala population is in fine health;
4. that cars kill significant numbers of koalas in the Gunnedah area;
5. that White Box (*Eucalyptus albens*) is the most favoured species of tree utilised as food and shelter by the Gunnedah area koalas and that Blakely's red gum (*Eucalyptus blakelyi*), tumbledown red gum (*Eucalyptus dealbata*), white cypress pine (*Callitris glauca*), bimble box (*Eucalyptus populnea*) and narrow-leaved (grey) box (*Eucalyptus microcrpa-pillagaensis*) are also important and favoured food trees for koalas in the Gunnedah area;
6. that koalas favour hills and mountains as a topographic location in the Gunnedah area, probably due to their generally heavily-wooded condition;
7. that koalas in the local area show a strong propensity to locate on soils of better quality;

8. that wooded hill tops in the central and eastern part of the study area are home to a heavy concentration of koalas and that the density of the animal's distribution away from this core area tends to diminish as one moves further away;
9. that visible symptoms of chlamydia (that is 'wet bottom' and conjunctivitis) have rarely, if ever, been seen amongst the local koala population."

3.3 Occurrence on the Project Site

Koalas were observed in woodland remnants on the 'Sunnyside' property and adjoining road reserves at the locations indicated in **Table 2**; see also **Figure 4**. All observations were of one Koala sitting in the tree species indicated.

Table 2
Location of Koala Observations

Location Observed	GPS Location	Tree Species	Koala
Cocoooonah Lane	56 0224808 6569640	<i>Eucalyptus albens</i>	
Cocoooonah Lane	56 0224503 6569974	<i>Geijera parviflora</i>	
Cocoooonah Lane	56 0225135 6569283	<i>Eucalyptus melliodora</i>	
Cocoooonah Lane	56 0225317 6569157	<i>Eucalyptus albens</i>	
South-western corner of Project Site	56 0224058 6566605	<i>Eucalyptus albens</i>	
South-western corner of Project Site	56 0223876 6566397	<i>Eucalyptus dealbata</i>	
Easement, Oxley Highway	56 0224344 6566520	<i>Eucalyptus albens</i>	
Ridge south of farm house	56 0224373 6568048	<i>Eucalyptus albens</i>	
Western part of woodland area	56 0223964 6568062	<i>Geijera parviflora</i>	
Western part of woodland area	56 0223651 6567681	<i>Eucalyptus dealbata</i>	
Western part of woodland area	56 0223893 6567846	<i>Alphitonia excelsa</i>	
Eastern part of woodland area	56 0224568 6567516	<i>Geijera parviflora</i>	

Figure 4 shows where Koalas were observed during this study. Koalas were seen in five tree species, namely *Eucalyptus albens*, *Eucalyptus melliodora*, *Eucalyptus dealbata*, *Geijera parviflora* and *Alphitonia excelsa*. All except Red Ash *Alphitonia excelsa* are among the ten "tree species favoured by Gunnedah koalas" (Smith 1992), six of which occur in the Project Site.

Some of the trees in which we observed Koalas may have been used for resting rather than feeding. *Geijera parviflora* and *Alphitonia excelsa* have denser canopies than eucalypts, so the Koalas may have been taking advantage of the shade during their daytime resting periods.

Habitat Corridors

Corridors of habitat promote the movement and interaction (physical and genetic) of fauna across the landscape. Some fauna species do not cross broad areas of cleared land; these species require continuous corridors of habitat to survive in a rural landscape, or at least strategically located "stepping stones" of habitat.

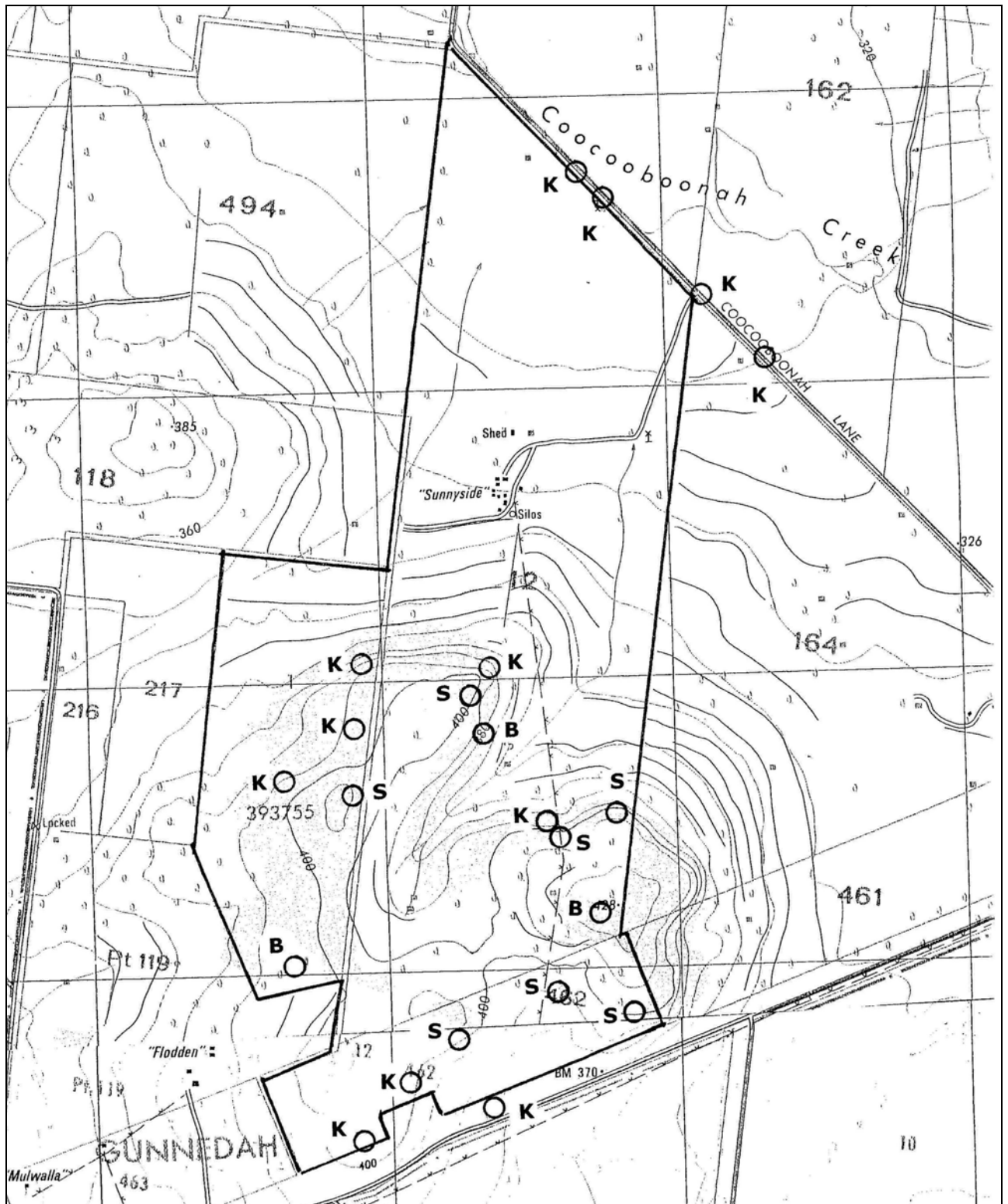


Figure 4
DISTRIBUTION OF THREATENED SPECIES OBSERVED ON THE PROJECT SITE

- K – Koala observations
- B – Grey-crowned Babbler observations
- S – Speckled Warbler observations

The woodland on the Project Site is on hilly terrain between the Namoi River plains in the east and the Collygra Creek lowlands in the west, where numerous woodland remnants exist. Some of these remnants, such as Wondoba State Forest, are very large compared to the woodland on the Project Site. The woodland remnants are often linked by roadside remnants or scattered smaller remnants that form important "stepping stones" between the larger remnants.

4 THE MANAGEMENT PLAN

4.1 Plan Objectives

The objectives and subsequent management actions set out in this Plan are guided by the two principle on ground objectives of the *Draft Recovery Plan for the Koala* (NPWS 2003), namely:

Objective 1: To conserve Koalas in their existing habitat.

Objective 2: To rehabilitate and restore Koala habitat and populations.

The objectives of this Plan are:

- (i) to describe the Koala population and Koala habitat in the Plan Area
- (ii) to identify the key issues in managing the Koala population and its habitat in the area;
- (iii) to outline management actions to address the above key issues.

4.2 Key Issues

The key issues in managing the Koala and its habitat on the Project Site are derived in part from the threats identified in Section 3.1, the matters covered in the study by Smith (1992) titled *Koalas and Land Use in Gunnedah Shire*, our observations in the area and the nature of the proposed coal mine development.

(i) Clearing of Koala Habitat

The removal of prime Koala habitat has been the most significant cause of reduction in the population of the Koala across its range. Although clearing has largely halted, habitat is sometimes removed, often incrementally through the clearing of small areas. Many stands of habitat are not managed for conservation and their quality is being decreased by inappropriate land uses.

(ii) Roadkill

The death of Koalas by being hit by motor vehicles can be one of the most important impacts on Koala populations. Koalas regularly travel along the ground and are very susceptible to being hit by vehicles, particularly as roadsides often support the only woodland remnants in an area.

(iii) Dog Attack

Attack by domestic dogs, and probably feral animals, may represent an important impact on Koalas. Dogs readily kill Koalas, if not immediately, then though causing fatal injuries; Koalas are defenceless against these animals and are often found moving along the ground where dogs can get at them. Smith (1992) notes that 12 percent of survey respondents to his study identified attack by dogs as a common or occasional killer of Koalas.

(iv) Shooting of Animals

The killing of Koalas has previously been reported in the Gunnedah district (Smith 1992), although it would be a heartless individual that carried out such a deed.

(v) Disease (Chlamydiosis)

The Gunnedah population of Koalas is reputed to be free of these diseases. Nothing proposed by the coal mine is likely to influence disease in Koalas.

(vi) Death from Cattle

Smith (1992) reported that stock have been observed killing Koalas by stomping on them. The prevalence of this is unknown, but is probably not common.

4.3 Management Actions

The following management actions are based on the three key requirements for a Koala population to survive and thrive, namely (i) availability of suitable feed trees, (ii) existence of treed movement corridors and (iii) protection from key threatening processes.

(i) Habitat Protection

The remnant woodland in the following areas would be totally protected from any degrading activities, such as clearing, grazing, storing and dumping materials and vehicle incursion not related to management.

- woodland corridor along Coochooboonah Lane, in relatively good condition;
- treed corridor along the inside of the western boundary of the Project Site, not presently continuously treed;
- major areas of woodland in the south of the Project Site

(ii) Improving and Expanding Habitat

The above woodland areas would be enhanced through the planting of local tree species to improve their value as Koala habitat as well as their functioning as movement corridors for the Koala and other native fauna. The locations of the protected woodland and the proposed tree plantings are shown on **Figure 5**.

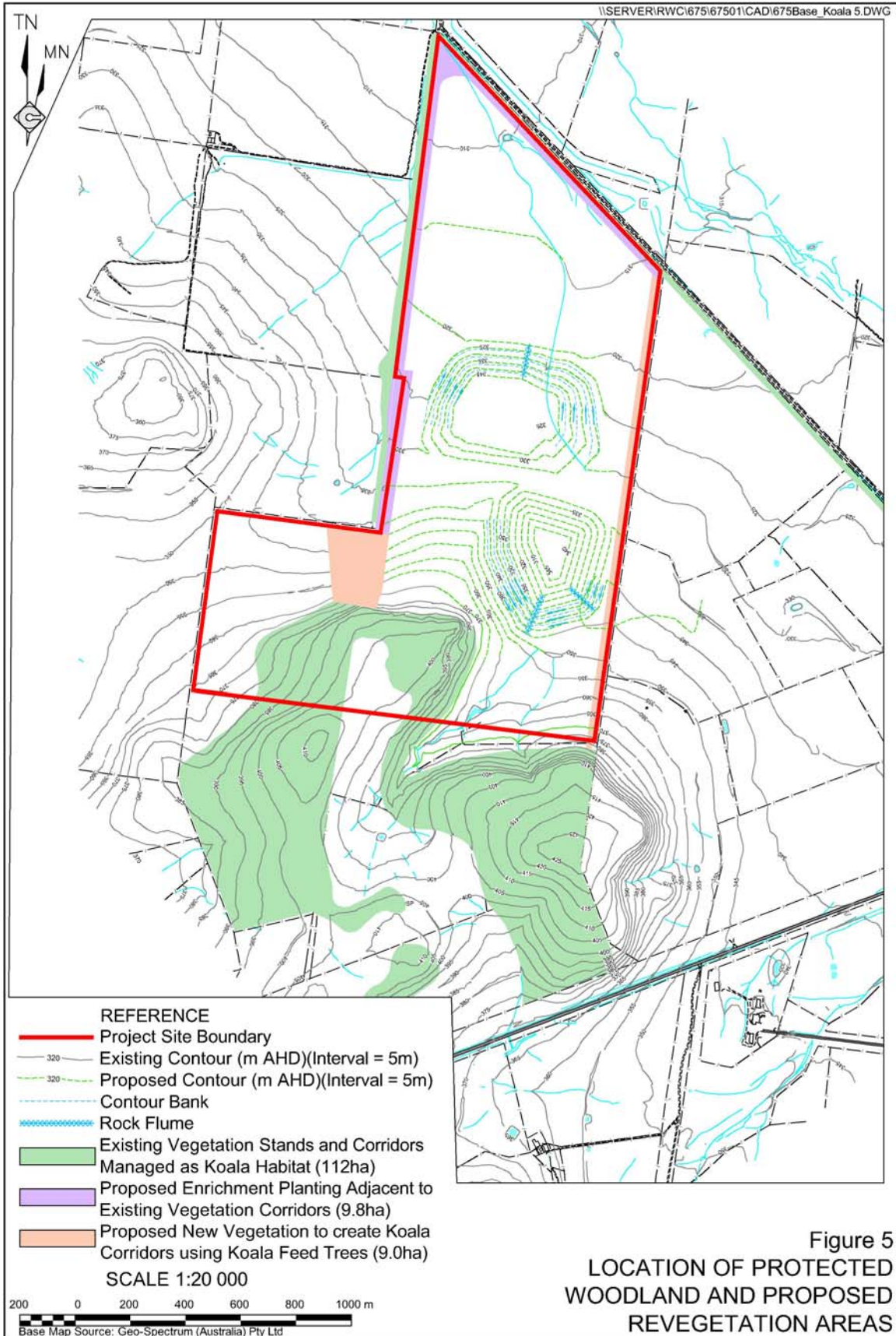


Figure 5
 LOCATION OF PROTECTED
 WOODLAND AND PROPOSED
 REVEGETATION AREAS

Note: A colour version of this figure is presented on the Project CD

Figure 5
 LOCATION OF PROTECTED WOODLAND AND PROPOSED REVEGETATION AREAS

Additionally, these areas would be fenced, if required, to exclude stock. Access to these areas would only be permitted for personnel working on the revegetation program. Gates to the mine and the haul road would be closed when not in use by company vehicles. A sign at the mine office would explain the importance of the area for Koalas and identify the key restrictions to protect the species locally, including road speed limits and the prohibition of cutting down trees anywhere on the Project Site.

The planting programs would only utilise local tree species; these would be obtained from a local seed source. The range of species would be those identified in Section 2.3, above. The following species would be priority species; those with an asterisk (*) are Koala feed tree species.

Kurrajong	<i>Brachychiton populneus</i>
Motherumbah	<i>Acacia cheeli</i>
Poplar Box	<i>Eucalyptus populnea</i> *
Red Ash	<i>Alphitonia excelsa</i>
Tumble-down Red Gum	<i>Eucalyptus dealbata</i>
White Box	<i>Eucalyptus albens</i> *
White Cypress	<i>Callitris glaucophylla</i>
Wilga	<i>Geijera parviflora</i> .
Yellow Box	<i>Eucalyptus melliodora</i> *

Bushfire would not be used as a woodland management tool unless agreement has been obtained from the DECC. Fires that do start, would be extinguished as soon as practicable.

(iii) Prevention of Roadkill

The measures proposed to minimise road kill of Koalas in the area are set out below:

- all staff and contractors on site would undergo induction that would include a section on the importance of the site for Koalas;
- Koala awareness signs would be installed at 500 metre intervals along the haul road and at other relevant locations around the Project Site;
- a speed limit of 40 kph would be established on all roads in the Project Site, including Coochoonah Lane, if that public road is used for access to the mine;
- information on the local Koalas and the contact details for treating injured animals would appear on a sign at the mine office.

(iv) Fencing of Mine Area

A Koala proof fence would be erected around the southern edge of the mine, as Koalas are most likely to enter the working mine area in this location as the woodland is close by.

(v) Monitoring of Population

Knowledge of the Koala population in the area would be improved through reporting of all Koala incidents observed on the Project Site. Staff would be encouraged to report on observations of Koalas, roadkills and other relevant incidents. This information would be included in an annual report to DECC and DoP (see below); note that with consent from the DoP, the report may go to Gunnedah Shire Council.

The Company would co-operate with authentic Koala researchers working in the region.

The Company would co-operate with neighbouring properties, Council and relevant government departments in protecting and managing Koalas in the local area.

(vi) Monitoring of disease

All animals found sick, injured or dead would be taken to a wildlife rescue organisation in Gunnedah for examination, particularly to determine if any animals are suffering from the chlamydiosis diseases.

(vii) Dog Attack

Domestic dogs would be banned from the Project Site. Professional shooters would be engaged to deal with feral animals, as required.

(viii) Shooting of Animals

All firearms would be banned from the Project Site, except for registered shooters engaged by the Company to undertake culling of feral animals.

4.4 Responsibilities

The Site Manager would be responsible for the successful implementation of the above management actions, along with the annual report that is to be prepared and submitted to the DECC and DoP; note that with consent from the DoP, the report may go to Gunnedah Shire Council. The Site Manager is also to ensure that all company staff and visiting contractors are aware of the presence of and need to protect the Koala and its habitat on and near the Project Site.

4.5 Reporting

An annual report would be prepared by the Site Manager for submission to the DECC and DoP. The following matters would, as a minimum, be incorporated into this annual report.

- number and location of Koalas found road killed on the Project Site or nearby;

- number and location Koalas observed on the property or along the coal transport route;
- the areas planted with woodland during the pervious 12 months;
- information on the success of the planted areas and any maintenance activities carried out in those areas;
- confirmation that the measures undertaken to protect Koalas in the area have been adequately maintained; e.g. signs in good condition, staff induction carried out, speed limits adhered to.

5 CONCLUSION

This draft of the Koala Plan of Management has been prepared for consideration by the Department of Environment and Climate Change and Department of Planning, as required by *State Environmental Planning Policy No. 44 - Koala Habitat Protection*. Following comment from the Departments, the Plan would be finalised and incorporated into the Environmental Assessment of the Sunnyside Coal Project under Part 3A of the *Environmental Planning and Assessment Act 1979*.

6 REFERENCES

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APPENDICES

(No. of pages excluding this page = 6)

Appendix 1 SEPP No. 44 - Koala Habitat Protection

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Appendix 1

SEPP No. 44 – Koala Habitat Protection

(No. of pages excluding this page = 6)

State Environmental Planning Policy No 44 - Koala Habitat Protection

Part 1 – Preliminary

1. Name of Policy

This Policy may be cited as *State Environmental Planning Policy No 44 - Koala Habitat Protection*.

2. Commencement

This Policy commences on 13 February 1995.

3. 3 Aims, objectives etc

This Policy aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline:

- (a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and
- (b) by encouraging the identification of areas of core koala habitat, and
- (c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.

4. Definitions

In this Policy:

"core koala habitat" means an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population.

"guidelines" means the guidelines, as in force from time to time, made for the purposes of this Policy by the Director.

"potential koala habitat" means areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.

5. Land to which this Policy applies

- (1) This Policy applies to each local government area listed in Schedule 1.
- (2) However, it does not apply to land dedicated or reserved under the *National Parks and Wildlife Act 1974* or to land dedicated under the *Forestry Act 1916* as a State forest or flora reserve.

Part 2 – Development control of koala habitats

6. Land to which this Part applies

This Part applies to land:

- (a) that is land to which this Policy applies, and
- (b) that is land in relation to which a development application has been made, and
- (c) that:
 - (i) has an area of more than 1 hectare, or
 - (ii) has, together with any adjoining land in the same ownership, an area of more than 1 hectare, whether or not the development application applies to the whole, or only part, of the land.

7. Step 1 - Is the land potential koala habitat?

- (1) Before a council may grant consent to an application for consent to carry out development on land to which this Part applies, it must satisfy itself whether or not the land is a potential koala habitat.
- (2) A council may satisfy itself as to whether or not land is a potential koala habitat only on information obtained by it, or by the applicant, from a person who is qualified and experienced in tree identification.
- (3) If the council is satisfied:
 - (a) that the land is not a potential koala habitat, it is not prevented, because of this Policy, from granting consent to the development application, or
 - (b) that the land is a potential koala habitat, it must comply with clause 8.

8. Step 2 - Is the land core koala habitat?

- (1) Before a council may grant consent to an application for consent to carry out development on land to which this Part applies that it is satisfied is a potential koala habitat, it must satisfy itself whether or not the land is a core koala habitat.
- (2) A council may satisfy itself as to whether or not land is a core koala habitat only on information obtained by it, or by the applicant, from a person with appropriate qualifications and experience in biological science and fauna survey and management.
- (3) If the council is satisfied:
 - (a) that the land is not a core koala habitat, it is not prevented, because of this Policy, from granting consent to the development application, or
 - (b) that the land is a core koala habitat, it must comply with clause 9.

9. Step 3 - Can development consent be granted in relation to core koala habitat?

- (1) Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies that it is satisfied is a core koala habitat, there must be a plan of management prepared in accordance with Part 3 that applies to the land.
- (2) The council's determination of the development application must not be inconsistent with the plan of management.

10. Guidelines - matters for consideration

Without limiting clause 17, a council must take the guidelines into consideration in determining an application for consent to carry out development on land to which this Part applies.

Part 3 - Plans of management

11. Preparation of plan of management

- (1) A plan of management may be prepared for:
 - (a) the whole of a local government area listed in Schedule 1, or
 - (b) a part of such a local government area (including an area of land that is the subject of a development application).
- (2) Anyone (including a council) may prepare a plan of management.
- (3) A plan of management is to be prepared in accordance with the guidelines.

12. Consultation with Director-General of National Parks and Wildlife

A person who prepares a plan of management for the whole of a local government area listed in Schedule 1 must consult the Director-General of National Parks and Wildlife.

13. Approval of plan of management

- (1) A plan of management prepared by the council has no effect unless it is approved by the Director.
- (2) A plan of management prepared by a person other than the council has no effect unless it is approved by the council and by the Director.
- (3) A plan of management takes effect on the day it is approved by the Director or on a later day specified in it for the purpose.

14. Amendment or repeal of plan of management

A plan of management may be amended or repealed by another plan of management prepared and approved in accordance with this Part.

Part 4 - Other environmental planning measures

15. Surveys, environmental protection zones and development control plans

In order to give effect to the aims of this Policy, a council of a local government area listed in Schedule 1 would:

- (a) survey the land within its area so as to identify areas of potential koala habitat and core koala habitat, and
- (b) make or amend a local environmental plan:
 - (i) to include land identified as a core koala habitat within an environmental protection zone, or
 - (ii) to identify land that is a core koala habitat and apply special provisions to control the development of that land, and
- (c) give consideration to preparing an appropriate development control plan for land that is or adjoins a core koala habitat.

16. Preparation of local environmental studies

Without affecting the power of the Director to give a direction under section 74 (2) (b) of the *Environmental Planning and Assessment Act 1979* to a council, the Director would consider giving a direction that sections 57 and 61 of that Act are to apply to a draft local environmental plan (with the consequence that the council must prepare an environmental study of the land to which the draft local environmental plan applies) if, under the draft plan, it is proposed to zone (or rezone) land that is a potential koala habitat or a core koala habitat otherwise than as environment protection.

17. Guidelines - generally

- (1) In exercising any function under this Policy, a council must take into consideration the guidelines that are relevant to the exercise of the function.
- (2) Anyone may inspect the guidelines free of charge at any office of the Department of Planning during the hours when the office is open to the public.

Schedule 1 Local government areas (Clauses 5 (1), 11 (1), 12, 15)

Page 1 of 2

Armidale	Liverpool
Ballina	Lockhart
Barraba	Maclean
Bathurst	Maitland
Bega Valley	Manilla
Bellingen	Merriwa
Berrigan	Moree Plains
Bingara	Mudgee
Blayney	Mulwaree
Blue Mountains	Murray
Bombala	Muswellbrook
Boorowa	Nambucca
Bourke	Narrabri
Brewarrina	Narrandera
Byron	Narromine
Cabonne	Newcastle
Campbelltown	Nundle
Central Darling	Nymbioda
Cessnock	Oberon
	Parkes
Coolah	Parry
Cooma-Monaro	Pittwater
Coonabarabran	Port Stephens
Coonamble	Quirindi
Copmanhurst	Richmond River
Corowa	Rylstone
Crookwell	Scone
Dumaresq	Severn
Dungog	Shoalhaven
Eurobodalla	Singleton
Evans	Snowy River
Forbes	Tallaganda
Gilgandra	Tenterfield
Gloucester	Tumbarumba
Gosford	Tumut
Grafton	Tweed
Great Lakes	Ulmarra
Greater Lithgow	Uralla
Greater Taree	Wagga Wagga
Gunnedah	Wakool
Gunning	Walcha
Guyra	Walgett
Hastings	Warren

Schedule 1 Local government areas (Cont'd) (Clauses 5 (1), 11 (1), 12, 15)

Page 2 of 2

Hawkesbury	Warringah
Hornsby	Weddin
Hume	Wentworth
Inverell	Windouran
Kempsey	Wingecarribee
Ku-ring-gai	Wollondilly
Kyogle	Wollongong
Lake Macquarie	Wyong
Leeton	Yallaroi
Lismore	Yarrowlumla
	Yass

Schedule 2 Feed tree species (Clause 4)

Scientific Name	Common Name
<i>Eucalyptus tereticornis</i>	Forest red gum
<i>Eucalyptus microcorys</i>	Tallowwood
<i>Eucalyptus punctata</i>	Grey Gum
<i>Eucalyptus viminalis</i>	Ribbon or manna gum
<i>Eucalyptus camaldulensis</i>	River red gum
<i>Eucalyptus haemastoma</i>	Broad leaved scribbly gum
<i>Eucalyptus signata</i>	Scribbly gum
<i>Eucalyptus albens</i>	White box
<i>Eucalyptus populnea</i>	Bimble box or poplar box
<i>Eucalyptus robusta</i>	Swamp mahogany

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