

# CROWN LANDS DIVISION

## DEPARTMENT OF PRIMARY INDUSTRIES

### CAPERTEE FLORA & FAUNA RESERVE

### PLAN OF MANAGEMENT

ADOPTED JUNE 2011



## CONTENTS

CONTENTS .....	2
1.0 Introduction.....	4
1.1 Land to which the Plan of Management Applies .....	4
1.2 Objectives .....	7
1.3 Managing Crown Land.....	7
1.3.1 Crown Lands Act 1989 .....	7
1.3.2 Requirements of a Plan of Management for a Crown Reserve.....	8
2.0 Reserve Assessment .....	9
2.1 Reserve Location and Description .....	9
2.2 Background and History .....	9
2.3 Surrounding Land Use and Regional Context.....	10
2.4 Cultural Values .....	11
2.4.1 Aboriginal Heritage.....	11
2.4.2 Non-Aboriginal Heritage.....	11
2.5 Climate.....	11
2.6 Landform, Geology and Soils.....	11
2.7 Native Vegetation.....	12
2.8 Native Fauna.....	15
2.9 Fire.....	16
3.0 Basis for Management .....	17
3.1 Land Management Purposes.....	17
3.2 Statement of Significance.....	17
3.3 Current Impacts and Uses .....	17
3.3.1 Reserve access.....	17
3.3.2 Other physical disturbances.....	18
3.3.3 Recreation and public use .....	18
3.3.4 Introduced species .....	18

3.3.5 Firewood collection ..... 19

3.3.6 Erosion and catchment/water quality..... 19

3.3.7 Fire..... 19

3.3.8 Mines ..... 19

3.3.9 Management ..... 20

4.0 Management Issues, Strategies and Actions..... 21

4.1 Land Management ..... 21

4.2 Cultural Heritage ..... 22

4.3 Identification, Access and Recreation ..... 22

4.4 Other Potential Uses ..... 23

5.0 Implementation..... 24

6.0 References..... 27

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Cover images: Top: The summit pagodas of Blackmans Crown (1010m).

Centre: Inland Scribbly Gum (*Eucalyptus rossii*) woodland after planned burn, northern sector of reserve.

Bottom: Looking north-west over Capertee Reserve and shooting range (centre) from Blackmans Crown.

Photographs taken by Epacris Environmental unless otherwise noted.

## 1.0 Introduction

### 1.1 Land to which the Plan of Management Applies

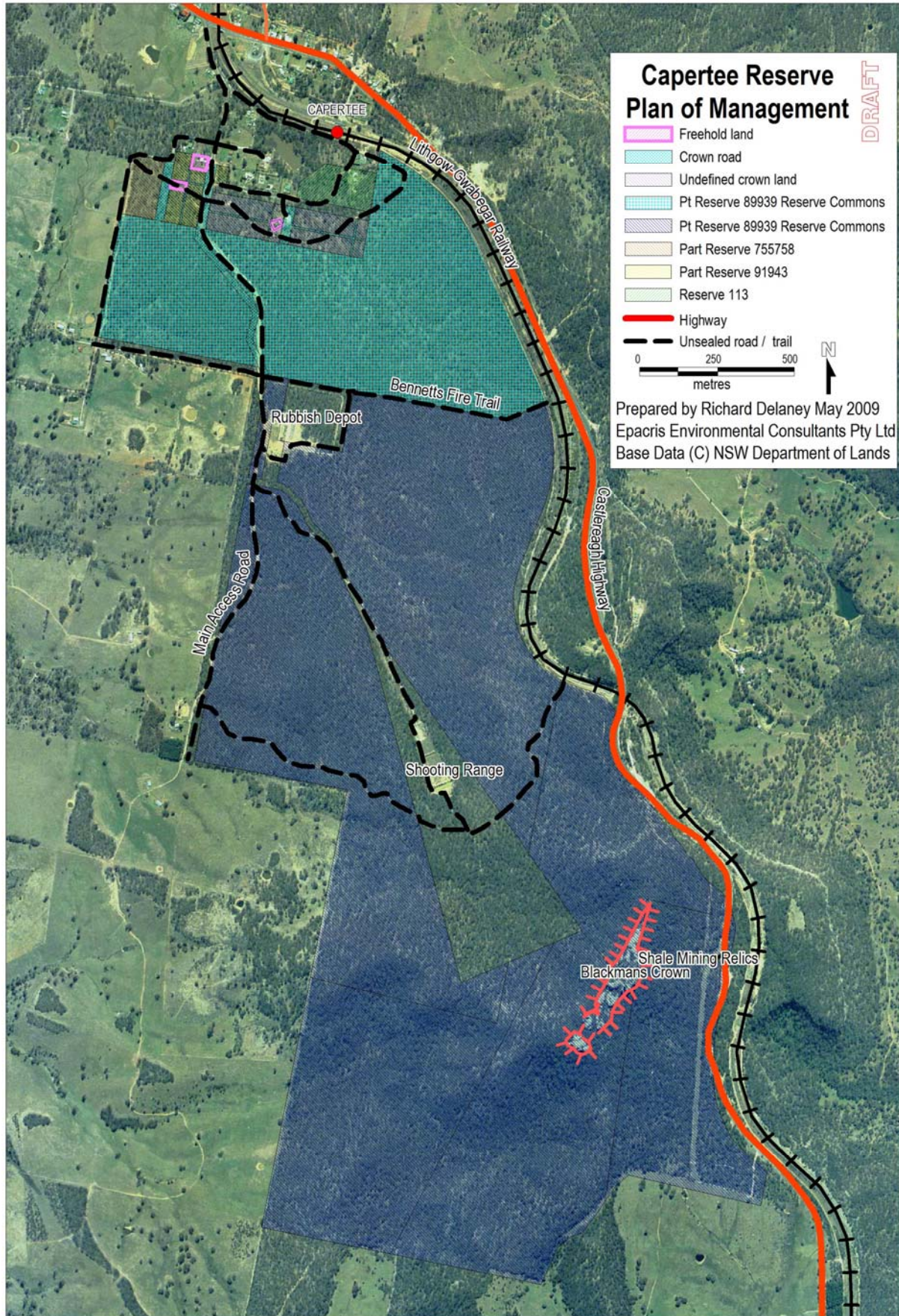
Capertee Reserve (see Map 1) is comprised of 61 separate land parcels within 5 Crown reserves and two other areas of Crown land. The total area is about 366 hectares. The reserves and parcels are listed in Table 1 and partially shown in Map 1 and Map 2.

*Table 1. Lands within Capertee Reserve and covered by this plan of management*

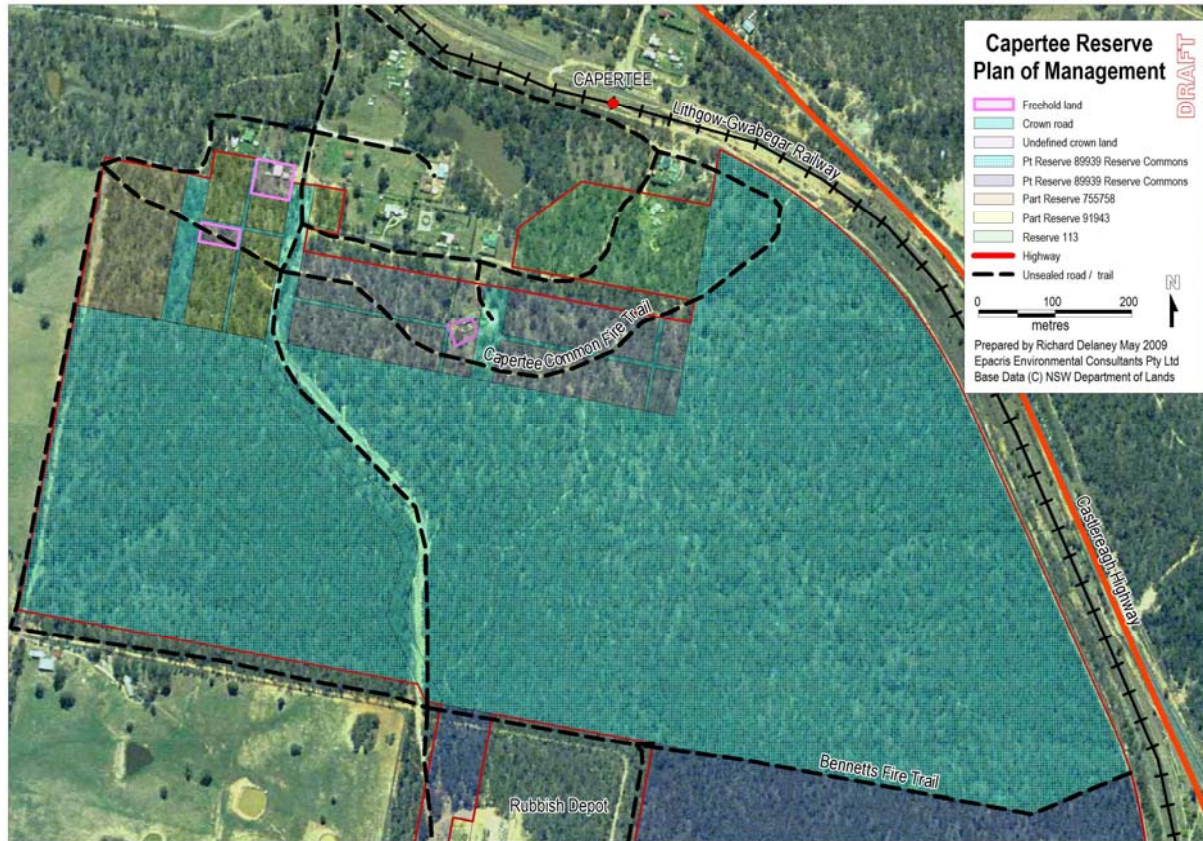
Reserve no.	Purpose of reservation	Date reserved	Area	Land parcels
89939 (part)	Preservation of native flora and fauna	1 October 1976	c.198 ha	Lot 7011, DP 1029386 Lot 7012, DP 1029386 Lot 7013, DP 1029386 Lot 7022, DP 1029388 Lot 1, section 18, DP 758222 Lot 1, section 21, DP 758222 Lot 7026, DP 1066212 Lot 7027, DP 1066212 Lot 7024, DP 1066211 Lot 7025, DP 1066211 Lot 701, DP 1058328 Lot 702, DP 1058328 Lot 7014, DP 1029387 Lot 7015, DP 1029387 Lot 7016, DP 1029387 Lot 7017, DP 1029387 Lot 7018, DP 1030008 Lot 7019, DP 1030008 Lot 7020, DP 1030008 Lot 7024, DP 1030008 Lot 701, DP 1030007 Lot 702, DP 1030007 Lot 703, DP 1030007

				Lot 704, DP 1030007 Lot 701, DP 1058325 Lot 702, DP 1058325 Lot 7023, DP 1116918 Lot 7005, DP 1116573 Lot 7006, DP 1116573 Lot 7021, DP 1030009
53410	Public recreation	8 August 1919	c.122 ha	Lot 7007, DP1124442 Lot 7008, DP1124442 Lot 7009, DP1124442
755758 (part)	Future public requirements	29 June 2007	32.6 ha	Lot 7305, DP 1130823 Lot 7309, DP 1130828
91943 (part)	Unspecified	14 March 1980	2.2 ha	18 small lots, section 12, DP 758222
113	Public buildings	1 September 1885	2.77 ha	Lot 7303, DP 1132711
Crown roads			3 ha	
Undefined Crown land			5.16 ha	Lot 7036, DP 1065193 Lot 7037, DP 1065193 Lot 7034, DP 1109601 Lot 7035, DP 1109601 4 other lots
TOTAL AREA			365.73 ha	

Map 1: Capertee Reserve



Map 2. Northern sector of Capertee Reserve with detail of land classification



## 1.2 Objectives

The priority management objective for the reserve is:

- To protect and enhance the natural and cultural values of the reserve, including catchment values.

Other objectives are:

- To exclude or minimise damaging processes, uses and activities.
- To permit low impact recreation and education that does not require the provision of facilities or other services.
- To manage fire risk emanating from the reserve.
- To improve knowledge of the reserve and its values.

## 1.3 Managing Crown Land

### 1.3.1 Crown Lands Act 1989

Capertee Reserve is classified as Crown land reserve and the Crown Lands Act 1989 (CL Act) is the primary act applying to its management. The CL Act governs the planning, management and use of Crown land, including reservation or dedication for a range of public purposes, and leasing and licensing.

All reserved Crown land is subject to the general land management objectives and provisions of the CL Act. The objectives and principles of Crown land management are listed in section 11 of the Act. These principles are:

- that environmental protection principles be observed in relation to the management and administration of Crown land;
- that the natural resources of Crown land (including water, soil, flora, fauna and scenic quality) be conserved wherever possible;
- that public use and enjoyment of appropriate Crown land be encouraged;
- that, where appropriate, multiple use of Crown land be encouraged;
- that, where appropriate, Crown land should be used and managed in such a way that both the land and its resources are sustained in perpetuity, and
- that Crown land be occupied, used, sold, leased, licensed or otherwise dealt with in the best interests of the State consistent with the above principles.

In July 2005, the Crown Land Legislation Amendment Act 2005 was passed and introduced a comprehensive body of amendments to the CL Act. These amendments allow flexibility in the granting of leases, permits, easements or right of way provisions over a Crown reserve. Section 112 allows that a Crown reserve may be used for a purpose that is additional to the purpose for which the land has been reserved or dedicated if the additional purpose is authorised by a plan of management for the reserve.

### **1.3.2 Requirements of a Plan of Management for a Crown Reserve**

This Plan of Management has been prepared according to the requirements of the CL Act.

Specific objectives of a plan of management for Crown land are to:

- identify the values of the reserve to the community;
- identify potential opportunities for future development of the reserve based on community priorities;
- identify threats to the ecological quality of the bushland;
- address issues, including leases and licences, the preferred mix of recreational facilities, conflict between users, weed invasion in bushland and the recreational needs of residents;
- prepare a concept plan showing practical future developments;
- recommend performance measures by which the objectives of the plan shall be achieved, and the manner in which those measures will be assessed;
- prepare guidelines for the future management and maintenance of the reserve.



## 2.0 Reserve Assessment

### 2.1 Reserve Location and Description

Capertee Reserve has an area of about 366 hectares. It is located in the Central Tablelands of New South Wales, immediately south of the village of Capertee. The eastern side of the reserve adjoins the Castlereagh Highway and the (disused) Lithgow-Gwabegar railway line. The southern and western sides of the reserve join private rural lands.

The reserve lies at the north-eastern extremity of the South Eastern Highlands Biogeographic Region. It is largely native bushland, with areas of disturbance in the north-west close to Capertee village and in the east as a result of historical mining and a powerline.

Two separate Crown reserves which are not part of Capertee Reserve lie within the boundaries of Capertee Reserve. These are Reserve 53609 for Rifle Range (c.26 hectares) and Reserve 58962 for Rubbish Depot, Sanitary Purposes (4 hectares). Both these areas include substantial clearings and other disturbances.

The watershed of the Great Dividing Range passes through the northern edge of the reserve, with the high sandstone ridge of Blackmans Crown (1010m) as the reserve's outstanding topographic and scenic feature.

### 2.2 Background and History

Most of the reserve (some 87 per cent) is made up of two smaller Crown reserves. The first large area was reserved in 1919, for the 'preservation of native flora and fauna', and the second in 1976 for 'public recreation'. The remainder of the reserve is made up of various parcels of Crown land, including three smaller reserves, undefined Crown land and some Crown roads.

The shooting range was also reserved in 1919, and the rubbish depot in 1926. Oil shale mining took place in the eastern part of the reserve beneath Blackmans Crown in 1896, and possibly periodically from 1905 to 1932 (records of Department of Mineral Resources). Some of this area was probably cleared around the same time, and a number of relics, adits and shafts remain.

More recent disturbance is associated with fire trails and transmission lines. Three fire trails cross the northern part of the reserve. Two local electricity transmission lines traverse the reserve. One follows the north-south public access road that links Capertee village to properties south-west of the reserve. The other lies close to the Castlereagh Highway. The corridor beneath the latter has been partially cleared with the removal of all mature trees.

The north-western corner of the reserve shows evidence of substantial clearing and other disturbance in the past. Most of the remainder of the reserve shows little disturbance other than informal logging, firewood collection and grazing. There is no record of any leases or licences over any part of the reserve.

Several informal uses are currently occurring, including firewood/timber collection, recreational vehicle use, camping and bushwalking. Fire management activities such as planned burns have been carried out on the reserve, most recently in 2008.

### 2.3 Surrounding Land Use and Regional Context

Land use in the area is predominantly rural, residential and conservation, with forestry, coalmining, power generation and associated industries to the east towards Lithgow. Much of the uncleared land in the vicinity of the reserve is protected within Gardens of Stone National Park (2 km to the east of the reserve) and Turon National Park (1-2 km west of the reserve).

The reserve lies on the western extremity of the Blue Mountains plateau, and at the top of the watershed. It straddles the catchment boundary between the Capertee River (Hawkesbury-Nepean system) draining to the east and the Turon River (Macquarie River system) draining to the west.

## 2.4 Cultural Values

### 2.4.1 Aboriginal Heritage

Capertee Reserve would have been used traditionally by Aboriginal people and has value for contemporary Aboriginal people. The reserve is within the traditional territory of the Wiradjuri language group and the administrative area of Bathurst Local Aboriginal Land Council. No Aboriginal sites have been recorded for the reserve, but no archaeological surveys have been undertaken and it is possible that sites are present.

### 2.4.2 Non-Aboriginal Heritage

No historic sites have been formally recorded, and no surveys have been undertaken. However mine adits, shafts, other works and some equipment and other relics associated with historical oil shale mining are located in the eastern part of the reserve, adjacent to the Castlereagh Highway.

Oil shale mining occurred in 1896, and possibly intermittently from 1905 to 1932, and involved the use of ponies and carts (Harcombe, 2004). The early phases were contemporaneous with larger scale mining at the nearby Torbane and New Hartley, under Mount Airly. Unusual rock cracking is present in sandstone outcrops on the northern part of Blackmans Crown ridge, which is likely to be a consequence of subsidence caused by these mines.

A number of initials engraved on a rock outcrop below the summit of Blackmans Crown may also be of historical interest.

## 2.5 Climate

The reserve has a temperate climate. The historical average annual precipitation lies somewhere between the two closest long-term weather stations of Lithgow, with 858 mm and Bathurst airport with 572 mm. At Lithgow rainfall is well distributed across the year with a slight summer peak. The driest month of September has an average precipitation of 58.9 mm and the wettest month of January has an average precipitation of 94.3 mm. Summer rain tends to come from the east and in storms, while winter rain tends to come from the west with the prevailing winds. Snow falls occasionally in winter.

Lithgow has an annual mean maximum temperature of 18.2°C and annual mean minimum temperature of 6.4°C. The coldest month is July, with a mean temperature range of minimum 0.7°C to maximum 10.4°C. The warmest month is January, with a mean temperature range of minimum 11.9°C to maximum 25.5°C.

## 2.6 Landform, Geology and Soils

The reserve ranges in elevation from about 810 metres to just over 1000 metres. The prominent ridge of Blackmans Crown (1010m) extends southwards from the Great Dividing Range on the northern boundary. It forms a prominent rocky 'pagoda' landmark in the eastern part of the reserve. The land falls to east and west from this ridge, abruptly at first in vertical cliffs, before levelling out further west and north into gentle slopes.

The reserve lies on the western edge of the geological structure of the Sydney Basin, with sub-horizontal Sydney Basin sediments occurring over the whole reserve. Triassic age Narrabeen Sandstone is the youngest layer and outcrops in the cliffs and pagodas of

Blackmans Crown. The Permian age Illawarra Coal Measures form the midslopes and Permian sediments of the Shoalhaven Group form the more gently sloping northern part of the reserve at the lowest elevations.

The same Sydney Basin geology extends to the east into the Capertee Valley and Gardens of Stone National Park. West of the reserve, the elevation decreases into more heavily incised terrain. Here, the Sydney Basin sediments have been stripped away and the topography intersects metasediments and volcanics of the underlying Lachlan Fold Belt.

Soils are mostly poor in structure and fertility, sandy on the heights where sandstone dominates. The soils of the lower slopes show a greater clay content due to the stronger influence of mixed Permian sediments.

## 2.7 Native Vegetation

Eucalypt-dominated open forests of variable composition cover most of the reserve, with small patches of heathland on the rocky outcrops of Blackmans Crown ridge. The bushland is generally in good condition with minimal weed invasion over most of the reserve. Some disturbed areas with significant weed infestations occur in the north close to Capertee village, and firewood and timber collection has caused minor disturbance on the western flats.

No detailed vegetation mapping is available for the reserve as a whole, but several local surveys provide some information. Vegetation of the western Blue Mountains was mapped for the Comprehensive Regional Assessment (CRA) process by the NSW Department of Environment and Climate Change (DECC 2008). This mapping included the north-east corner of Capertee Reserve around the northern end of the Blackmans Crown ridge. The following communities were mapped in this area:

- Pagoda Rock Sparse Shrubland (top of Blackmans Crown rocky ridge);
- Capertee Slopes Red Ironbark-Red Stringybark-Narrow-leaved Stringybark Shrubby Woodland (slopes immediately east of Blackmans Crown ridge cliffs);
- Hillslope Talus Mountain Gum-Brown Stringybark-Grey Gum-Broad-leaved Hickory Moist Forest (mid-slopes east of Blackmans Crown ridge);
- Capertee-Wolgan Slopes Red Box-Grey Gum-Stringybark Grassy Open Forest (remainder of north-east corner of reserve).

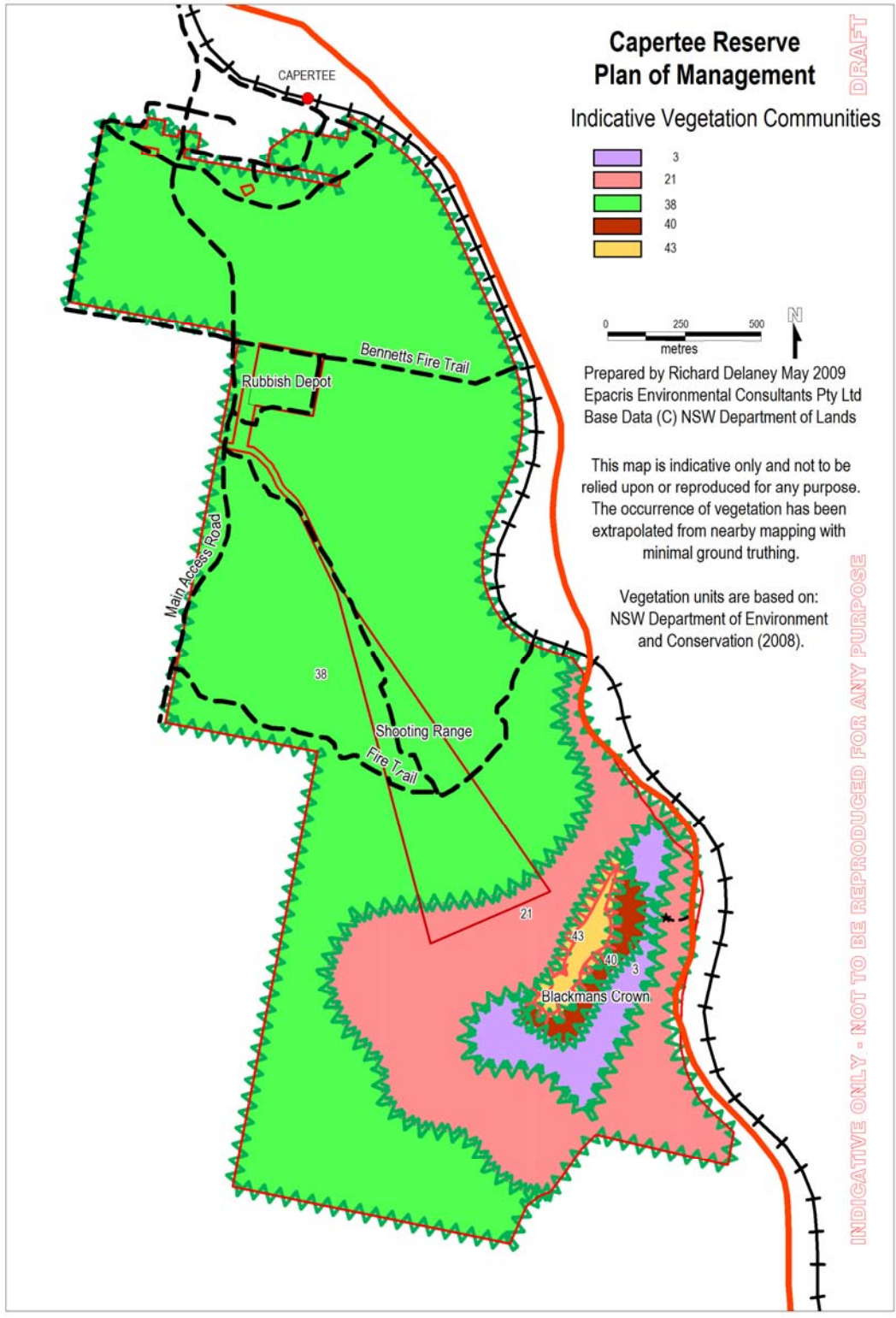
Other communities mapped to the east of the highway on mid-altitude Permian ridges within Gardens of Stone National Park included:

- Capertee Grey Gum-Narrow-leaved Stringybark-Scribbly Gum-Callitris-Ironbark Shrubby Open Forest;
- Capertee Rough-barked Apple-Redgum-Yellow Box Grassy Woodlands.

Together, these six communities may cover most of the unmapped portion of Capertee Reserve. The estimated distribution of these communities within the reserve is shown on Map 3.

Bell (1998) mapped vegetation in environments in the nearby Wollemi National Park which are comparable those in Capertee Reserve. This mapping, which used a broader classification than the CRA mapping, suggests the higher parts of Capertee Reserve support 'Sandstone Sheltered Forests' and 'Sandstone Rocky Heath', while the lower slopes support 'Permian Talus Woodland'. These communities are consistent with the more detailed CRA mapping.

Map 3. Indicative vegetation communities



Vegetation communities indicated on map:

3. Hillslope Talus Mountain Gum–Brown Stringybark-Grey Gum–Broad-leaved Hickory Moist Forest
21. Capertee-Wolgan Slopes Red Box–Grey Gum–Stringybark Grassy Open Forest
38. Capertee Grey Gum–Narrow-leaved Stringybark–Scribbly Gum–Callitris–Ironbark Shrubby Open Forest
40. Capertee Slopes Red Ironbark-Red Stringybark-Narrow-leaved Stringybark Shrubby Woodland
43. Pagoda Rock Sparse Shrubland

There are no records of threatened plant species within the reserve. However 5 species have been recorded within 10 km of the reserve, as follows (with their status under the NSW Threatened Species Conservation Act 1995):

<i>Eucalyptus cannonii</i>	Capertee stringybark	Vulnerable
<i>Persoonia marginata</i>	Clandulla Geebung	Vulnerable
<i>Grevillea obtusiflora</i> subsp. <i>fecunda</i>		Endangered
<i>Prostanthera stricta</i>		Vulnerable
<i>Pultanaea</i> sp. Genowlan Point		Endangered

Several of these species occur in the Capertee Valley in habitats which are similar to those within Capertee Reserve.

## 2.8 Native Fauna

No comprehensive fauna surveys have been carried out within the reserve, but a number of terrestrial mammals are known or expected to occur, including the Eastern Grey Kangaroo (*Macropus giganteus*), Red-necked Wallaby (*Macropus rufogriseus*), Wallaroo (*Macropus robustus*) and Common Wombat (*Vombatus ursinus*), as well as a variety of arboreal mammals, birds and reptiles.

The Department of Mineral Resources undertook a bat survey of local mine shafts and adits in 2001 (Harcombe, 2003-04). The survey identified the following species as occurring in the historical shale mining adits within Capertee Reserve:

Eastern Horseshoe Bat	<i>Rhinolophus megaphyllus</i>	status = unlisted
Eastern Bentwing Bat	<i>Miniopterus schreibersii oceanensis</i>	status = vulnerable
Chocolate Wattled Bat	<i>Chalinolobus morio</i>	status = unlisted

This site was considered to be a possibly maternity site for the Eastern Horseshoe Bat and Eastern Bentwing Bat.

Two further species of bat were identified as possible inhabitants:

Large-eared Pied Bats	<i>Chalinolobus dwyeri</i>	status = vulnerable
Large-footed Myotis	<i>Myotis macropus</i>	status = vulnerable

Five and possibly 6 other threatened fauna species have been recorded in the NSW Wildlife Atlas within 5 km of Blackmans Crown and all are likely to use the reserve:

Turquoise Parrot	<i>Neophema pulchella</i>	status = vulnerable
Square-tailed Kite	<i>Lophoictinia isura</i>	status = vulnerable
Eastern Free-tailed Bat	<i>Mormopterus sp</i>	status = vulnerable
Powerful Owl	<i>Ninox strenua</i>	status = vulnerable
Diamond Firetail	<i>Stagonopleura guttata</i>	status = vulnerable
Regent Honeyeater	<i>Xanthomyza phrygia</i>	status = endangered

(NB: status refers to listings under schedules to the NSW Threatened Species Conservation Act 1995)

## 2.9 Fire

The fire history of the reserve is largely unknown and there is no record of the last wildfire. However:

- the main area of the reserve (south of Bennetts Fire Trail) has not been burnt for at least ten years;
- the area north of Bennetts Fire Trail was subject to a planned hazard reduction burn in 2008;
- the reserve generally is reported to have been historically subject to occasional planned burns on a mosaic pattern, and the last (before 2008) may have occurred in 1998.

Bennetts Fire Trail is a registered fire trail under the Lithgow District Bush Fire Risk Management Plan (in preparation).



## 3.0 Basis for Management

### 3.1 Land Management Purposes

The reserve is to be managed primarily for nature conservation, protection of cultural heritage and compatible recreation.

### 3.2 Statement of Significance

Capertee Reserve protects a significant sample of Blue Mountains plateau native vegetation, in an ecologically significant zone near the transition from Sydney Basin sediments to Lachlan Fold Belt metasediments, and also along a declining rainfall gradient from east to west over the Great Dividing Range. The reserve has a high connectivity value as it forms the major part of a potential bushland connection between Gardens of Stone National Park to the east and Turon National Park to the west.

The only survey of flora or fauna in the reserve has been a 2001 survey of microbats in the historical mine adits. This identified one vulnerable species as present and two further vulnerable species as possible inhabitants. A number of other threatened plants and animals known from the surrounding area may also occur in the reserve.

The reserve contains the prominent landmark and scenic feature of Blackmans Crown, with its spectacular pagodas, cliffs, domes and other rock features. These higher parts of the reserve provide panoramic views over the district.

The reserve contains historical oil shale mines and associated works and relics. These are unassessed but are potentially of regional or state significance.

The reserve is easily accessible and of importance to the local community for its scenic, recreational and educational values.

### 3.3 Current Impacts and Uses

#### 3.3.1 Reserve access

Public vehicle access to and within the reserve is available via:

- the Castlereagh Highway which adjoins part of the eastern boundary;
- the short unsealed road from the Castlereagh Highway to the oil shale mines;
- the unsealed public roads which approximately follow the north and north-western boundaries of the reserve, and pass through the reserve from Capertee village to the rubbish dump and beyond;
- the unsealed access road into the rubbish dump and around its eastern side which links to Bennetts Fire Trail;

- four other unsealed roads and tracks which traverse parts of the reserve
  - Capertee Common Fire Trail south of the northern boundary of the reserve,
  - Bennetts Fire Trail which crosses the reserve north of the rubbish dump,
  - from the western boundary road to the shooting range and beyond and
  - across the reserve south of the shooting range.

Most of these access roads are shown on Map 1.

The unnamed council-maintained public road that runs through the reserve from Capertee village, past the rubbish depot to the properties of 'Newhaven' and 'Rayburn' appears to lie outside the surveyed road reserve for much of its length.

Access is also currently available along the north-eastern boundary, via the access road along the disused Lithgow-Gwabegar railway line. This road is unlikely to be authorised for public use.

A few other minor vehicle tracks in the reserve are used for a low level of off-road vehicular recreation (trail bikes and four wheel drive) as well as access for bushwalking and unauthorised timber/fire wood collection.

### 3.3.2 Other physical disturbances

A disused and silted-up dam occurs in the north-western corner of the reserve, and historic oil shale mines in the south-eastern corner. An electricity transmission line and an associated cleared corridor crosses the south-eastern corner. Another electricity line follows the main access road through the reserve, from Capertee village to properties south of the rubbish tip. Several reserve boundaries have fences in disrepair. The rubbish dump may encroach slightly into the reserve. Climbing bolts and short ropes have been affixed in two places at the northern end of the Blackmans Crown ridge.

### 3.3.3 Recreation and public use

Apart from illegitimate vehicular recreation, most of the recreational use of the reserve is on foot, with low levels of bushwalking, sightseeing and camping. The main attractions are Blackmans Crown and associated pagoda features, which are mostly difficult of access, and the oil shale mines.

### 3.3.4 Introduced species

A variety of weeds occur in significant numbers on the highly disturbed north-west corner of the reserve. Some of these extend into the area to the east, immediately south of the Capertee residential area. These species include:

- Blackberry *Rubus* sp.
- St Johns Wort *Hypericum perforatum*
- Thistle *Onopordum* sp.
- Briar *Rosa* sp.
- Tree of Heaven *Ailanthus altissima*

Several minor weed outbreaks near the rubbish dump may be within the reserve.

Introduced animals known to occur in the reserve include European Rabbits (*Oryctolagus cuniculus*) and Feral Goats (*Capra hircus*). Both species also occur throughout the local area.

### 3.3.5 Firewood collection

Evidence of stumps and sawn logs demonstrates a long history of illegal collection of firewood and timber, mainly in the central part of the reserve. Minor tracks off the main vehicle trails provide access for these activities.

### 3.3.6 Erosion and catchment/water quality

The only land stability issues within the reserve are associated with the unsealed roads and trails and disturbed areas including the oil shale mines, and all are minor. Both the disturbed north-west corner and the historic mines are largely revegetated and stable, including the mining mullock heaps. Rock cracking in cliffs and outcrops above the mine adits is not readily manageable, but may lead to rockfall and exposed ground in the future.

The shooting range and rubbish dump are almost surrounded by the reserve. Management of cleared land in these areas should take into account potential sedimentation and contamination impacts on the reserve.

### 3.3.7 Fire

The year of the last wildfire in the reserve is unknown, but the area has been burnt historically on an informal mosaic basis, with the most recent planned burns in 1998 (area unknown) and 2008 (northern sector).

Possible causes of unplanned ignitions within the reserve include lightning or human arson/accident. The rubbish dump is a potential point source of ignitions adjacent to the reserve. There are no significant built or cultural heritage assets which are at risk from fire within the reserve, but vegetation and fauna may be adversely affected by inappropriate fire regimes.

Wildfires commencing on or burning into the reserve pose a potential threat to private lands and assets which adjoin the reserve. Severe fire weather is likely to involve winds from the north to south-west, so the threat to neighbours is greatest on the northern, eastern and southern boundaries of the reserve. Under very severe conditions fire could run up the western slopes of Blackmans Crown and spot across the highway corridor and some distance to the east.

Under the Rural Fires Act 1997, the Department of Lands is responsible for managing fire on Capertee Reserve. The Department is an active member of the Lithgow District Bush Fire Management Committee and works closely with the Rural Fire Service, other agencies and reserve neighbours to manage fire on the reserve. The reserve is included in the Lithgow District Bush Fire Risk Management Plan which is in preparation.

### 3.3.8 Mines

An historic oil shale mining area is located in the south-eastern corner of the reserve, on the lower slopes of Blackmans Crown and close to the Castlereagh Highway. Little is known of the history or significance of the mines.

Visible features include two adits (both securely grilled), one shaft (poorly fenced), mullock heaps, benching, masonry foundations, benched access tracks and some metallic relics. Access is available via an unsealed two-wheel-drive track off the Castlereagh Highway. The area has largely grown over with sparse native forest.

### 3.3.9 Management

There are few records of management activities in the reserve. The only known recent action has been the planned burn in the northern sector in 2008.

## 4.0 Management Issues, Strategies and Actions

### 4.1 Land Management

Active land management is required to protect the reserve's natural and cultural values. The main issues are weeds, feral animals and fire.

#### Strategies and Actions

- Liaise with the local community on the management and protection of the reserve.
- Undertake weed control in the northern sector of the reserve in conjunction with neighbours.
- Liaise with Lithgow City Council about eliminating weeds near the rubbish depot and ongoing monitoring.
- Undertake bi-annual weed inspections and treat any new weed occurrences promptly.
- Control feral goats and rabbits in conjunction with control on neighbouring lands.
- Seek opportunities for the survey of native plants and animals on the reserve.
- Develop a simple fire plan for the reserve in conjunction with the local Rural Fire Service, neighbours, National Parks and Wildlife Service and other stakeholders, and consistent with the Lithgow District Bush Fire Risk Management Plan.
- Include appropriate fire management zones within the fire plan, such as an Asset Protection Zone (APZ) close to residences on the northern boundary of the reserve, a Strategic Fire Advantage Zone between the APZ and Bennetts Fire Trail and a Land Management Zone for the reserve south of Bennetts Fire Trail.
- Apply within the fire plan, biodiversity threshold guidelines for plant communities that are consistent with the best available ecological knowledge. Initially, apply the thresholds from the Fire Management Strategy for Wollemi National Park (NSW NPWS, 2005) as follows (thresholds, if exceeded, indicate when plant species decline is possible):
  - Sandstone Sheltered Forests and Sandstone Rocky Heath:

Avoid two or more successive fires each less than 10 years apart; no fire for more than 30 years; two or more successive fires with 100 per cent canopy scorch.

- Major Sandstone Plateau Forests and Woodlands, Arid Sandstone Plateau Forests and Woodlands:

Avoid two or more successive fires each less than 10 years apart; no fire for more than 25 years; two or more successive fires with 100 per cent canopy scorch.

- Permian Talus Woodland:

Avoid two or more successive fires each less than 15 years apart; no fire for more than 25 years; two or more successive fires with 100 per cent canopy scorch.

- Liaise with the managers of the shooting range and rubbish depot to ensure that erosion, contamination, weed and other impacts on the reserve are minimised.
- Establish a formal agreement with the electricity authority to cover vegetation management along the electricity transmission line near the eastern boundary of the reserve.

## 4.2 Cultural Heritage

The only known cultural heritage in the reserve is the oil shale mining precinct, for which little information is available. Public safety management in relation to adits and shafts will continue to be necessary.

### Strategies and Actions

- Replace the fence around the shaft and monitor the security of the grills over the shaft and adits.
- Seek opportunities for research into the history and significance of the oil shale mines.
- When knowledge is available, install an interpretive sign at the mines.
- Seek opportunities to survey the reserve for Aboriginal heritage.

## 4.3 Identification, Access and Recreation

Currently there is no signage to identify the reserve or its purpose. Management vehicle access is required to the rubbish dump and for fire management. Public vehicle access can be retained with minimal risk to the reserve environment.

### Strategies and Actions

- Install signs at the main public entry points to the reserve, and at several roadside points along the western, north-eastern and northern boundaries, communicating the reserve's name, managing agency and protected status.
- Inform all neighbours and the local community of the reserve's status and that certain activities are illegal (unauthorised vehicle access, timber collection).
- Retain and maintain (annually) the following roads for both management and public access:

- the unnamed road leading south from Capertee village to 'Newhaven' and 'Rayburn';
  - the short unsealed road from the Castlereagh Highway to the oil shale mines;
  - Capertee Common Fire Trail;
  - Bennetts Fire Trail;
  - the unnamed internal trail which crosses the reserve south of the shooting range;
  - the unnamed internal trail which connects the shooting range to the above trail.
- Liaise with the railway authority on determining and resolving the issue of both public and management access for vehicles off the railway easement.
  - If necessary, consider formalising the unnamed council-maintained public road that runs through the reserve from Capertee village to the properties of 'Newhaven' and 'Rayburn' and lies partly outside the road reserve.
  - Close all other vehicle tracks and allow them to rehabilitate.
  - Retain pedestrian access throughout the reserve for low impact, nature-based recreation such as bushwalking and birdwatching.

#### 4.4 Other Potential Uses

The reserve is to be managed for the conservation of its natural and cultural values, while allowing for appropriate, low-impact public recreation. Therefore no other potential uses are considered appropriate.

## 5.0 Implementation

The management actions specified in section 4.0 above will be implemented by the NSW Department of Lands, or any subsequent managing authority, according to the resources available and the broad priorities indicated in Table 1.

The Department of Lands will monitor and assess the implementation of this plan according to the criteria shown in Table 1.

*Table 1. Management priorities and performance criteria*

Strategy/Action	Priority	Performance Criteria
<b>4.1 Land Management</b>		
Liaise with the local community on management and protection of the reserve.	High Ongoing	- Human impacts and illegal activity are reduced.  - Neighbours & community are involved in reserve management.
Undertake weed control in the northern sector of the reserve in conjunction with neighbours.	High Ongoing	- Co-operative annual weed programs are implemented.  - Occurrence of weeds is steadily reduced.  - No new weed species become established.
Liaise with Lithgow City Council about eliminating weeds near the rubbish depot and ongoing monitoring.	High Ongoing	- Weed threats to reserve from rubbish depot are eliminated.
Undertake bi-annual weed inspections and treat any new weed occurrences promptly.	High Ongoing	- No new weed species become established.
Control feral goats and rabbits in conjunction with neighbours.	High Ongoing	- Co-operative annual feral programs are implemented.  - Occurrence of feral animals is steadily reduced.  - No new feral species established.
Strategy/Action	Priority	Performance Criteria
Seek opportunities for the survey of native plants and animals on the reserve.	Medium	- Documented knowledge of reserve plants and animals increases.



Develop a simple fire plan for the reserve in conjunction with the local RFS, neighbours, NPWS and other stakeholders, and consistent with the Lithgow District Bush Fire Risk Management Plan. Include appropriate fire management zones and biodiversity threshold guidelines.	Medium	<ul style="list-style-type: none"> <li>- Reserve fire plan is adopted.</li> <li>- Fire is managed according to fire plan.</li> <li>- Vegetation communities remain within identified fire thresholds.</li> <li>- Neighbours are satisfied with fire management in the reserve.</li> </ul>
Liaise with the managers of the shooting range and rubbish depot to ensure that erosion, contamination, weed and other impacts on the reserve are minimised.	High Ongoing	<ul style="list-style-type: none"> <li>- All threats to reserve from shooting range are eliminated.</li> </ul>
Establish a formal agreement with the electricity authority to cover vegetation management along the electricity transmission line.	Medium	<ul style="list-style-type: none"> <li>- A vegetation management agreement is concluded.</li> <li>- Vegetation is managed according to the agreement.</li> </ul>
<b>4.2 Cultural Heritage</b>		
Replace the fence around the shaft and monitor the security of the grills over the shaft and adits.	High Ongoing	<ul style="list-style-type: none"> <li>- Appropriate safety barriers are installed and maintained.</li> <li>- No incidents occur.</li> </ul>
Seek opportunities for research into the history and significance of the oil shale mines.	Medium	<ul style="list-style-type: none"> <li>- Knowledge of the oil shale mines increases.</li> </ul>
When knowledge is available, install an interpretive sign at the mines.	Low	<ul style="list-style-type: none"> <li>- Interpretive sign is installed.</li> </ul>
Seek opportunities to survey the reserve for Aboriginal heritage.	Medium	<ul style="list-style-type: none"> <li>- Knowledge of Aboriginal heritage on the reserve increases.</li> </ul>
<b>4.3 Identification, Access and Recreation</b>		
Install identification signs at the main public entry points to the reserve, and at several roadside points along the boundaries.	High	<ul style="list-style-type: none"> <li>- Signs are installed and maintained.</li> </ul>
Inform all neighbours and the local community of the reserve's status and that certain activities are illegal.	High Ongoing	<ul style="list-style-type: none"> <li>- Incidence of illegal activities is reduced.</li> </ul>
Retain and maintain (annually) specified roads for both management and public access.	Medium Ongoing	<ul style="list-style-type: none"> <li>- Roads and trails are effectively maintained annually.</li> </ul>

Liaise with the railway authority on determining and resolving public and management access for vehicles off the railway easement.	Medium	- Access issues are resolved.
If necessary, consider formalising the unnamed council-maintained public road that runs through the western side of the reserve.	Low	- Road is formalised.
Close all other vehicle tracks and allow them to rehabilitate.	Medium	- Unwanted roads are rehabilitated.
Retain pedestrian access throughout the reserve for low impact, nature-based recreation such as bushwalking and birdwatching.	High Ongoing	- Pedestrian access remains unrestricted.

## 6.0 References

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