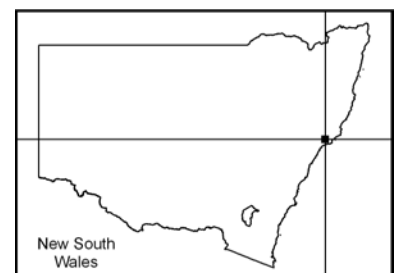




Draft Plan of Management

Karuah, Medowie and Wallaroo Group

Incorporating Karuah National Park, Wallaroo National Park,
Karuah State Conservation Area, Medowie State Conservation Area,
Karuah Nature Reserve and Medowie Nature Reserve



**KARUAH, MEDOWIE AND WALLAROO GROUP OF
RESERVES**

**(INCORPORATING KARUAH NATIONAL PARK,
WALLAROO NATIONAL PARK,
KARUAH STATE CONSERVATION AREA,
MEDOWIE STATE CONSERVATION AREA,
KARUAH NATURE RESERVE AND
MEDOWIE NATURE RESERVE)**

DRAFT PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

January 2012

Acknowledgements

The NPWS acknowledges that these reserves are in the traditional country of the Worimi Aboriginal people.

This plan of management was prepared by staff of the Hunter Region of the NSW National Parks and Wildlife Service (NPWS), part of the Office of Environment and Heritage, Department of Premier and Cabinet.

For additional information or any inquiries about this park or this plan of management, contact the NPWS Hunter Coast Area Office, Locked Bag 99 Nelson Bay Delivery Centre or by telephone on 49848253.

Disclaimer: This publication is for discussion and comment only. Publication indicates the proposals are under consideration and are open for public discussion. Any statements made in this draft publication are made in good faith and do not render the NPWS liable for any loss or damage. Provisions in the final management plan may not be the same as those in this draft plan.

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INVITATION TO COMMENT

The *National Parks and Wildlife Act 1974* (NPW Act) requires that a plan of management be prepared that outlines how an area will be managed by the NSW National Parks and Wildlife Service (NPWS).

The procedures for the exhibition and adoption of plans of management are specified under Part 5 of the NPW Act and involve the following stages:

- The draft plan is placed on public exhibition for at least 90 days and any person may comment on it;
- The plan and submissions received on the plan are referred to the Regional Advisory Committee for consideration;
- The plan, submissions and any advice from the Regional Advisory Committee are referred to the National Parks and Wildlife Advisory Council for consideration;
- The plan, submissions and the recommendations of the Advisory Council are referred to the Minister administering the NPW Act, and a copy referred to the Regional Advisory Committee;
- After considering the submissions, the recommendations of the Advisory Council and any advice from the Regional Advisory Committee, the Minister may adopt the plan or may refer the plan back to the NPWS and Council for further consideration.

Members of the public, whether as individuals or as members of community interest groups, are invited to comment in writing on this plan of management.

Comments should be forwarded to:

The Planner
Karuah National Park
NPWS
Locked Bay 99
Nelson Bay Delivery Centre 2315

Comments may also be sent via email to hunter.region@environment.com.au

The closing date for comments on the plan is Monday 30th April 2012.

All submissions received by NPWS are a matter of public record and are available for public inspection upon request to NPWS. Your comments on this draft plan of management may contain information that is defined as “personal information” under the NSW *Privacy and Personal Information Protection Act 1998*. The submission of personal information with your comments is voluntary.

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1. LOCATION, GAZETTAL AND REGIONAL CONTEXT

Karuah National Park, Wallaroo National Park, Medowie State Conservation Area, Karuah State Conservation Area, Medowie Nature Reserve and Karuah Nature Reserve (referred to herein as the “planning area”) are located near Raymond Terrace and Karuah. Maps 1 and 2 show the planning area in a state and regional context respectively. The total size of the planning area is 10,301 hectares (refer to Table 1). The reserves have been grouped in this plan due to their biogeographical association.

Table 1. Size of the planning area

Reserve Name	Area (ha)
Karuah National Park	3534
Wallaroo National Park	2780
Medowie State Conservation Area	2851
Karuah State Conservation Area	74
Medowie Nature Reserve	238
Karuah Nature Reserve	824
TOTAL	10,301

Karuah National Park is located approximately 30 kilometres north-east of Raymond Terrace. The park adjoins the Karuah River to the east, Wallaroo State Forest to the south and freehold land on the other boundaries. Karuah National Park was formerly Karuah State Forest (reserved in 1914) until gazetted as Karuah Nature Reserve by the *Forestry and National Parks Estate Act 1998*, then reclassified as national park under the *National Park Estate (Lower Hunter Region Reservations) Act 2006*.

Wallaroo National Park is located approximately 20 kilometres north-east of Raymond Terrace. The park adjoins Wallaroo State Forest in the south and east and freehold land in the north and west. Wallaroo National Park was formerly Wallaroo State Forest (reserved in 1922) until gazetted as Wallaroo Nature Reserve by the *Forestry and National Parks Estate Act 1998*, then reclassified as Wallaroo National Park under the *National Park Estate (Lower Hunter Region Reservations) Act 2006*.

Medowie State Conservation Area is located approximately 14 kilometres north-east of Raymond Terrace. Medowie State Conservation Area adjoins Defence land and freehold land in the east and freehold on the other boundaries, with some neighbouring Hunter Water Corporation Land in the south west. Formerly Medowie State Forest (reserved in 1922), the area was gazetted as Medowie State Conservation Area by the *National Park Estate (Reservations) Act 2002*.

Karuah State Conservation Area adjoins Karuah National Park on all boundaries except the west, where it adjoins the Bucketts Way. Formerly Karuah State Forest, it was reserved by the *National Park Estate (Reservations) Act 2002*.

Medowie Nature Reserve adjoins Medowie State Conservation Area in the west and is entirely either mangrove or salt marsh, on the western bank of Reedy Creek. Formerly classified as part of Karuah and Worimi Nature Reserves, the area was

renamed Medowie Nature Reserve by the *National Park Estate (Lower Hunter Region Reservations) Act 2006*.

Karuah Nature Reserve comprises two separate portions of land. The largest portion covers 701 hectares and is located three kilometres east of Karuah. It was gazetted under the *National Park Estate (Lower Hunter Region Reservations) Act 2006* as part of the compensatory habitat process for the construction of the Pacific Highway Karuah bypass. The remaining portion covers 123 hectares and is located 15 kilometres north of Karuah (see inset map, Map 2). It was formerly Karuah State Forest (1914) until gazetted as Karuah Nature Reserve by the *Forestry and National Parks Estate Act 1998*. Both portions are surrounded by freehold land.

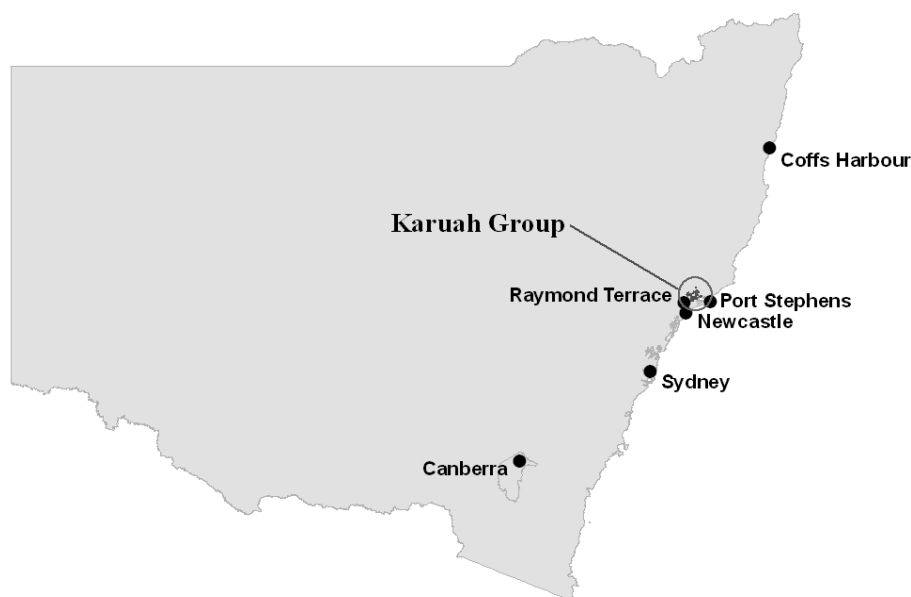
As well as parks and reserves, the planning area includes lands which are vested in the Minister under Part 11 of the NPW Act. These lands ensure a continuation of access arrangements to neighbouring private lands and include Winters and Mine Hill Trails, and Witt Road (see Map 2).

The planning area is located to the west of Port Stephens, which is part of the Port Stephens – Great Lakes Marine Park.

The Hunter Valley has experienced major land clearing since European settlement. The planning area protects landscapes and vegetation communities in the Karuah and Williams River catchments. Most of the areas covered by this plan were State Forests, some reserved as far back as 1914. While the areas have experienced major changes through logging activity over many years, they conserve vegetation types with restricted distribution.

The planning area is within the geographical area of the Port Stephens, Dungog and Great Lakes local government areas, the Hunter-Central Rivers Catchment Management Authority, and both Worimi and Karuah Local Aboriginal Land Councils.

MAP 1: State location map



2. MANAGEMENT CONTEXT

2.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of nature reserves, national parks and state conservation areas in NSW is in the context of the legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the NPW Regulation, *Threatened Species Conservation Act 1995* (TSC Act), and the policies of the National Parks and Wildlife Service (NPWS).

Other legislation, international agreements and charters may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* (EPA Act) may require the assessment and mitigation of the environmental impacts of works proposed in this plan. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) also applies in relation to actions that may impact on migratory species and threatened species listed under that Act.

A plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, no operations may be undertaken within the planning area except in accordance with this plan. This plan will also apply to any future additions to the planning area. Should management strategies or works be proposed for the planning area or any additions that are not consistent with this plan, an amendment to this plan or a new plan will be prepared and exhibited for public comment.

2.2 MANAGEMENT PURPOSES AND PRINCIPLES

Nature reserves are reserved under the NPW Act to protect and conserve areas containing outstanding, unique or representative ecosystems, species, communities or natural phenomena.

Under the Act (section 30J), nature reserves are managed to:

- conserve biodiversity, maintain ecosystem functions, and protect geological and geomorphological features and natural phenomena;
- conserve places, objects, features and landscapes of cultural value;
- promote public appreciation, enjoyment and understanding of the reserve's natural and cultural values; and
- provide for appropriate research and monitoring.

Nature reserves differ from national parks in that they do not have the provision of recreation as a management principle.

National parks are reserved under the NPW Act to protect and conserve areas containing outstanding or representative ecosystems, natural or cultural features or landscapes or phenomena that provide opportunities for public appreciation and inspiration and sustainable visitor or tourist use.

Under the Act (section 30E), national parks are managed to:

- conserve biodiversity, maintain ecosystem functions, protect geological and geomorphological features and natural phenomena and maintain natural landscapes;
- conserve places, objects, features and landscapes of cultural value;
- protect the ecological integrity of one or more ecosystems for present and future generations;
- promote public appreciation and understanding of the park's natural and cultural values;
- provide for sustainable visitor or tourist use and enjoyment that is compatible with conservation of natural and cultural values;
- provide for sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to conservation of natural and cultural values; and
- provide for appropriate research and monitoring.

State conservation areas are reserved under the NPW Act to protect and conserve areas that contain significant or representative ecosystems, landforms or natural phenomena or places of cultural significance; that are capable of providing opportunities for sustainable visitor or tourist use and enjoyment, the sustainable use of buildings and structures, or research; and that are capable of providing opportunities for uses permitted under other provisions of the Act.

Under the Act (section 30G), state conservation areas are managed to:

- conserve biodiversity, maintain ecosystem functions, protect natural phenomena and maintain natural landscapes;
- conserve places, objects and features of cultural value;
- provide for the undertaking of uses permitted under other provisions of the NPW Act (including uses permitted under section 47J such as mineral exploration and mining), having regard to the conservation of the natural and cultural values of the state conservation area;
- provide for sustainable visitor or tourist use and enjoyment that is compatible with conservation of the area's natural and cultural values and with uses permitted in the area;
- provide for sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to conservation of the area's natural and cultural values and with other uses permitted in the area; and
- provide for appropriate research and monitoring.

The NPW Act requires a review of the classification of state conservation areas every five years in consultation with the Minister administering the *Mining Act 1992*. In the long term it is intended for Medowie and Karuah State Conservation Areas to become national park and so management will also be guided by the management principles of national parks where possible. The first five year review was undertaken in November 2008 (DECC 2008) in which the status of Karuah and Medowie State Conservation Areas remained unchanged as mineral exploration titles apply to both reserves.

2.3 STATEMENT OF SIGNIFICANCE

The planning area is considered to be significant for:

- Biological Values: The planning area contains remnant vegetation communities following large scale clearing in Williams and Karuah River valleys. Several plant and animal species listed as vulnerable under the TSC Act have been recorded in the planning area. The planning area also includes two endangered ecological communities (EECs) listed under the TSC Act; Estuarine Saltmarsh and Lowland Rainforest on Floodplain on the NSW North Coast. Further vegetation surveys may classify some of the Spotted Gum/Ironbark forest as an EEC.
- Landscape/Catchment Values: Gilmore Hill and Karuah Mountain provide scenic backgrounds to Clarence Town and Karuah townships. The planning area contains some of the largest forested sections in the lower catchments of the Williams River, Karuah River and Port Stephens.
- Aboriginal Heritage Values: Several Aboriginal sites have been recorded along the Karuah River within the planning area, and there is a high probability that other sites occur in the reserves.
- Historic Heritage Values: A convict built road constructed during the establishment of the Australian Agricultural Company in Port Stephens between 1826 and 1830 is located in Karuah Nature Reserve.

2.4 SPECIFIC MANAGEMENT DIRECTIONS

In addition to the general principles for the management of nature reserves, state conservation areas and national parks (refer section 2.2), the following specific management directions apply to the management of the planning area:

- Identification and protection of endangered ecological communities.
- Fire management to protect life and property and maintain appropriate burn frequencies within ecological thresholds.
- Rationalisation of the network of vehicular roads and tracks.
- Provision of sustainable camping opportunities in Karuah National Park.

3. VALUES

The location, landforms and plant and animal communities of an area have determined how it has been used and valued. Both Aboriginal and non-Aboriginal people place values on natural areas, including aesthetic, social, spiritual and recreational values. These values may be attached to the landscape as a whole or to individual components, for example to plant and animal species used by Aboriginal people. This plan of management aims to conserve both natural and cultural values. For reasons of clarity and document usefulness, various aspects of natural heritage, cultural heritage, threats and on-going use are dealt with individually, but their inter-relationships are recognised.

3.1 GEOLOGY, LANDSCAPE AND HYDROLOGY

The planning area is characterised by undulating lowlands and low to steep hills on complex patterns of faulted and gently folded Carboniferous conglomerate, lithic sandstone, felspathic sandstone, and mudstone, general elevation 50 to 275m, local relief 40 to 150m. The Carboniferous system has been extensively deformed into a series of north-west trending folds, disrupted by north to north-east trending faults (Matthei 1995). This is evidenced in the planning area by the north-south alignment of the Karuah and Williams River valleys and hill formations in Wallaroo National Park and Karuah Nature Reserve.

Wallaroo National Park in the west of the planning area is dominated by Gilmore Hill (232 metres above sea level), with steep slopes on the western face above Williams River and long spurs on the eastern side. Soils are developed from sandstone and ignimbrites.

Karuah Hill (246 metres above sea level) dominates Karuah Nature Reserve in the east of the planning area. This conical hill is similar to those near Shoal Bay, developing from carboniferous volcanic flows of rhyolite and dacitic ignimbrites, with occasional interbeds of sandstone and conglomerate (Matthei 1995).

Medowie State Conservation Area and Karuah National Park in the centre of the planning area comprises flat to gently undulating terrain on relict sediments. Sediments of unknown age occur in this area. These undated sediments consist of an iron bearing layer underlain by kaolinitic clays. Clay deposits can be over 25 metres deep. Mining of clay deposits occurs just outside Medowie State Conservation Area, north of Swan Bay Road. Drainage lines are narrow and deeply incised in the upper reaches, grading into moderately broad drainage plains.

Most of Medowie Nature Reserve and parts of Karuah National Park contain estuarine tidal flats vegetated by mangroves and salt marsh. Almost all of Medowie Nature Reserve and parts of Medowie State Conservation Area, Karuah National Park and Karuah Nature Reserve have also been identified as wetlands worthy of protection under State Environmental Planning Policy (SEPP) 14.

The western fall of Gilmore Hill in Wallaroo National Park drains into the Williams River, while the remainder of the planning area drains to Port Stephens.

3.2 NATIVE PLANTS

The planning area supports sixteen vegetation communities, including two endangered ecological communities (EECs) listed under the TSC Act; Estuarine Saltmarsh, and Lowland Rainforest on Floodplain on the NSW North Coast (see Table 2). Further surveys and mapping may identify additional vegetation communities, including the EEC; Lower Hunter Spotted Gum-Ironbark Forest.

Available floristic data includes mapping by State Forests (Forestry Commission 1989), the Lower Hunter and Central Coast Regional Environmental Management Strategy Project (NPWS 2000), NPWS Comprehensive Regional Assessments (CRA) (NPWS 1999) and a preliminary vegetation survey of Karuah and Wallaroo Nature Reserves (Bell 2002). A detailed flora list of Wallaroo National Park has been compiled by McDonald (2004). Table 3 provides a list of threatened and significant plant species recorded in the planning area.

Table 2. Vegetation communities in the planning area (Bell 2002)

Community	Reserve
Estuarine Saltmarsh/Grassland	KNP, MSCA, MNR, KNR
Estuarine Mangrove Open-Closed Scrub	KNP, MSCA, MNR, KNR
Estuarine Fringing Swamp Oak Forest	KNP, MSCA, MNR, KNR
Spotted Gum/Ironbark Grassy Open Forest	MSCA, WNP, KNP, KNR,
Forest Redgum/Narrow-leaf Ironbark Grassy Open Forest	WNP, KNP, KNR, KSCA,
Grey Box/Narrow-leaf Ironbark Grassy Open Forest	WNP, KNP, KNR,
Spotted Gum/Tallowood/White Mahogany Sheltered Open Forest	MSCA, WNP, KNP, KNR, KSCA
Blackbutt/White Stringybark/Ironbark Tall Open Forest	MSCA, WNP, KNP, KNR,
Turpentine Moist Forest	KNP
Red Bloodwood/Smooth-barked Apple/Stringbark/Sydney Peppermint Heathy Open Forest	MSCA, WNP, KNP, KNR, KSCA, MNR
Red Bloodwood/Charmhaven Apple Heathy Open Woodland	KNP
Swamp Mahogany/Paperbark/Swamp Oak Alluvial Swamp Forest	KNP
Swamp Mahogany/Red Mahogany/Paperbark Riparian Sedge Forest	KNP, WNP
Red Mahogany/Charmhaven Apple/Paperbark Swamp Forest	KNP
Red Mahogany/Smooth-barked Apple/Sieber's Paperbark Grassy Drainage Forest	KNP, WNP
Gallery Rainforest/Flooded Gum Forest	KNP, WNP
Weeping Lily Pily/Water Gum Riparian Rainforest	KNP
Swamp Mahogany/Lily Pily/ Livistona Riparian Rainforest	KNP

Key: KNP (Karuah National Park), WNP (Wallaroo National Park), MSCA (Meadowie State Conservation Area), KSCA (Karuah State Conservation Area), MNR (Meadowie Nature Reserve)

Table 3. Threatened and significant plant species recorded in the planning area

Common name	Scientific name	Status
Charmhaven apple	<i>Angophora inopina</i>	Vulnerable * # ^
Elbow orchid	<i>Arthrochilus prolixus</i>	^
Netted bottlebrush	<i>Callistemon linearifolius</i>	Vulnerable * ^
	<i>Eucalyptus fergusonii</i> subsp. <i>fergusonii</i>	^
Small-flower grevillea	<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Vulnerable * #
	<i>Macrozamia flexuosa</i>	^
Black-eyed Susan	<i>Tetradlea juncea</i>	Vulnerable * # ^

* Status under TSC Act

Denotes species also listed as nationally threatened under the EPBC Act.

^ Denotes species listed as a Rare or Threatened Australian Plant (ROTAP) according to Briggs and Leigh (1996)

Under the TSC Act, a Threatened Species Priorities Action Statement (PAS) has been prepared (DEC 2006). The PAS outlines the broad strategies and detailed priority actions in NSW to promote the recovery of threatened species, populations and ecological communities and to manage key threatening processes. The PAS and recovery plans will be used to guide management of threatened plants in the planning area.

Key actions to recover Charmhaven apple include: ensuring an appropriate fire regime (prevent frequent fires from impacting on populations); and habitat rehabilitation through weed removal. Key actions to recover netted bottlebrush include: protecting populations from management actions (e.g. road maintenance); and ensuring an appropriate fire regime. Key actions to recover the small-flower grevillea include: ensuring that personnel planning and undertaking road maintenance are able to identify the species and are aware of its habitat; reinstating an appropriate fire regime; undertake weed control using methods that will not impact on the species (hand pull or cut and paint weeds); and mapping known populations and marking/fencing off sites during road maintenance activities. Key actions to recover black-eyed Susan include: reinstating an appropriate fire regime which protects the species from frequent fire; and undertaking weed control as required using methods that will not impact on the species (hand pull or cut and paint weeds).

Timber extraction activity throughout much of the planning area in the past has produced a forest structure with a high proportion of immature trees and very few habitat trees. There is a need to investigate and, if appropriate, implement strategies to enhance the habitat values of the regrowth areas.

3.3 NATIVE ANIMALS

Key habitats and corridors mapping for forest fauna has been undertaken by the NPWS to provide a landscape framework for conservation in north east NSW (Scotts 2002). Key habitats are areas of predicted high conservation value for forest fauna mapped using fauna assemblage information (assemblages are groupings of

conservation priority fauna with similar distributions). Corridors are areas mapped for their potential habitat values for resident populations or nomadic and migratory species and to provide overall landscape connectivity to facilitate fauna movement. Almost eighty percent of the planning area has been mapped as key habitat and eighty five percent of the planning area has been identified as part of a regional corridor.

Commonly sighted species in the planning area include eastern grey kangaroo (*Macropus giganteus*), swamp wallaby (*Wallabia bicolor*), lace monitor (*Varanus varius*) and the yellow-tailed black cockatoo (*Calyptorhynchus funereus*). A number of threatened species have been recorded in the planning area (see Table 4).

Table 4. Threatened and significant animal species recorded in the planning area.

Common name	Scientific name	Legal Status *
Bush stone-curlew	<i>Burhinus grallarius</i>	Endangered
Glossy black-cockatoo	<i>Calyptorhynchus lathami</i>	Vulnerable
Spotted-tailed quoll	<i>Dasyurus maculatus</i>	Vulnerable #
Varied sittella	<i>Daphoenositta chrysoptera</i>	Vulnerable #
Swift parrot	<i>Lathamus discolor</i>	Endangered #
Hooded robin	<i>Melanodryas cucullata</i> (south eastern form)	Vulnerable
Little bentwing-bat	<i>Miniopterus australis</i>	Vulnerable
Eastern bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	Vulnerable
Eastern freetail-bat	<i>Mormopterus norfolkensis</i>	Vulnerable
Turquoise parrot	<i>Neophema pulchella</i>	Vulnerable
Powerful owl	<i>Ninox strenua</i>	Vulnerable
Squirrel glider	<i>Petaurus norfolcensis</i>	Vulnerable
Brush-tailed phascogale	<i>Phascogale tapoatafa</i>	Vulnerable
Koala	<i>Phascolarctos cinereus</i>	Vulnerable
Grey-crowned babbler	<i>Pomatostomus temporalis temporalis</i> (eastern subsp.)	Vulnerable
Long-nosed potoroo	<i>Potorous tridactylus</i>	Vulnerable #
Grey-headed flying-fox	<i>Pteropus poliocephalus</i>	Vulnerable #
Greater broad-nosed bat	<i>Scoteanax rueppellii</i>	Vulnerable
Masked owl	<i>Tyto novaehollandiae</i>	Vulnerable

* Status under TSC Act

Denotes species also listed as nationally threatened under the EPBC Act.

The planning area is also important for birds listed under the China Australia Migratory Bird Agreement (CAMBA), Japan Australia Migratory Bird Agreement (JAMBA) and Republic of Korea Australia Migratory Bird Agreement (ROKAMBA) with numerous migratory bird species recorded from the planning area.

The Threatened Species Priorities Action Statement (PAS) also identifies strategies and actions to promote the recovery of threatened animal species, populations and ecological communities and manage key threatening processes (DEC 2006). The PAS will be used to guide management of threatened fauna in the planning area.

Key threats to native animal species include fire, introduced species, erosion, stream degradation and inappropriate human activities. Protection of habitat and appropriate fire regimes are a major determinant of the distribution and abundance of native animals in the planning area. There is also a paucity of habitat trees within the planning area due to previous land use. This has significantly reduced the suitable habitat for a wide range of fauna that require tree hollows.

Fauna surveys related to the CRA process and the construction of the Pacific Highway Karuah bypass have been conducted in parts of the planning area. Karuah Nature Reserve, one of the least disturbed of the reserves in the planning area, will be prioritised for future fauna surveys.

There is a single record of emus (*Dromaius novaehollandiae*) being sighted adjacent to the Pacific Highway in Medowie State Conservation Area in 1990, which if present would be part of the endangered "Emu population in the NSW North Coast Bioregion and Port Stephens LGA", however there does not appear to be any recent sightings.

3.4 ABORIGINAL HERITAGE

Aboriginal communities have an association and connection to the land. The land and water within a landscape are central to Aboriginal spirituality and contribute to Aboriginal identity. Aboriginal communities associate natural resources with the use and enjoyment of foods and medicines, caring for the land, passing on cultural knowledge, kinship systems and strengthening social bonds. Aboriginal heritage and connection to nature are inseparable from each other and need to be managed in an integrated manner across the landscape.

The planning area is amongst a landscape that is part of the identity, spirituality, connection and resource base of the Aboriginal people of the Worimi Nation. Prior to European settlement the Worimi people lived in an area from Port Stephens to Foster/Tuncurry and as far west as Gloucester. The Worimi Nation was made up of several nurras or local groups within the tribe and spoke dialects of the Kattang language.

An Aboriginal mission was established at Karuah in 1898. People from the mission were employed in fishing, oyster farming and timber getting in the local area. The Karuah River and surrounds including Karuah National Park, continues to be an integral part of the culture of the Karuah Aboriginal community.

There are a number of recorded Aboriginal sites within the planning area, particularly along the Karuah River. These sites include modified trees, artefacts, earth mounds, shell middens and a burial on the boundary of Karuah National Park.

The Aboriginal community have expressed interest in conducting culture camps and associated cultural activities in the planning area, with a focus on Karuah National

Park. Following appropriate consultation with the Aboriginal community, a NPWS consent may be issued for short term culture activities, including camping, or an area may be set aside for the exclusive use of the Aboriginal community to conduct cultural activities subject to an amendment to this plan of management.

While the NSW Government currently has legal responsibility for the protection of Aboriginal sites, the NPWS acknowledges the right of local Aboriginal people to be part of the decisions about their own heritage. Consultation has traditionally occurred with local Aboriginal people through the Local Aboriginal Land Councils. The planning area falls within the Worimi and Karuah Local Aboriginal Land Councils.

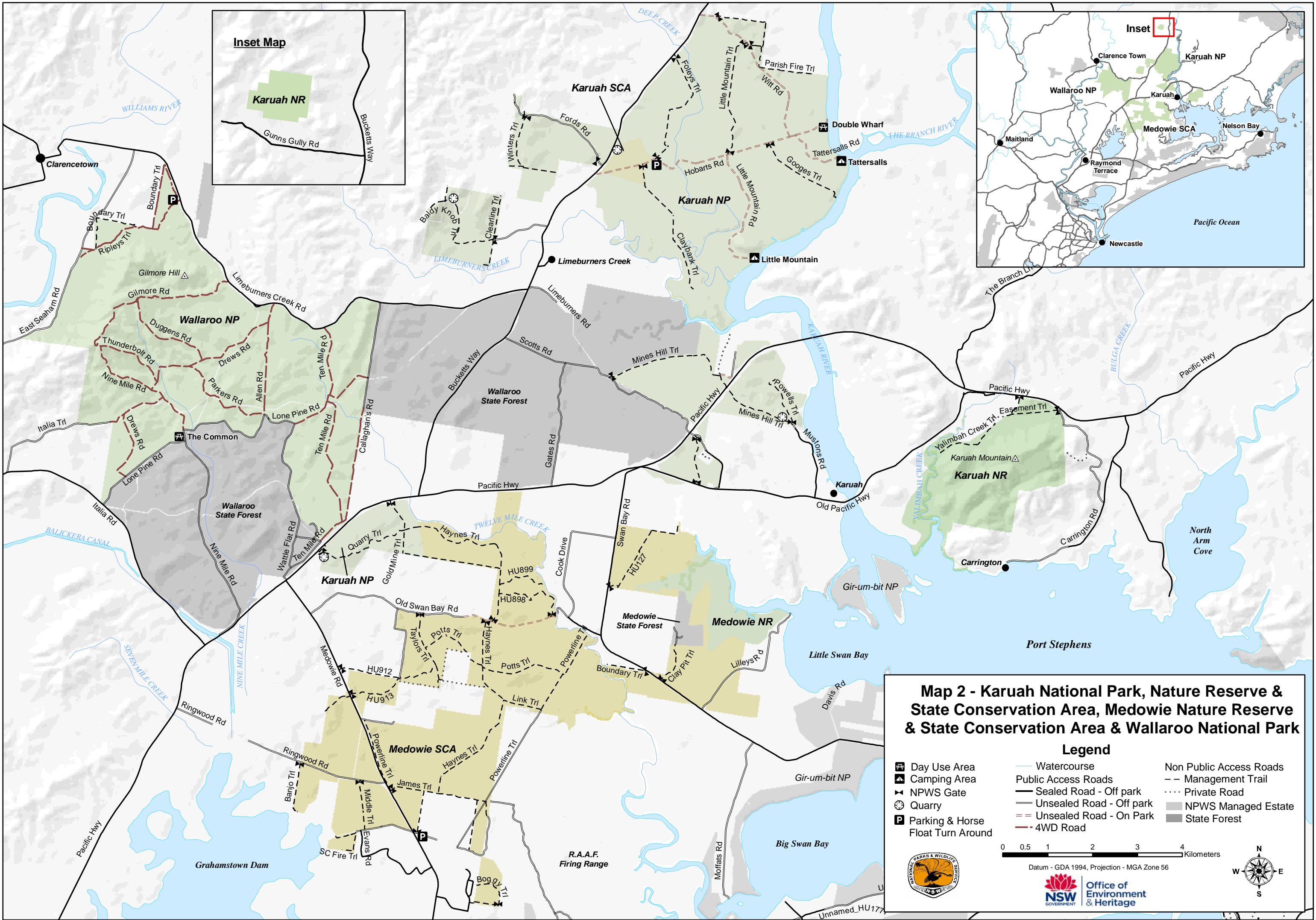
3.5 HISTORIC HERITAGE

Following the early European explorers, escaped convicts and cedar cutters, the Australian Agricultural Company established a base at Carrington on the northern shore of Port Stephens in 1826. Robert Dawson (1831), the initial chief agent describes the settlement and relationships with the local Aborigines in detail. During this time, a convict built road was established connecting Carrington with Karuah. Sections of this road, still in reasonable condition, are located in Karuah Nature Reserve.

Additional history of much of the planning area is described in a booklet published by the Limeburners Creek Progress Association (1988). The earliest leasehold on the eastern side of the Williams River near Wallaroo National Park was advertised in 1838. The initial transport in the region was along the waterways. The earliest paddle steamer built in Australia, named William the Fourth, was constructed at Clarence Town in 1831. By 1840 a well defined road linked the Australian Agricultural Company towns of Booral, Stroud and Gloucester to Raymond Terrace.

Karuah State Forest was the first in the area, dedicated in 1914, with Medowie and Wallaroo State Forests dedicated in 1922. A Forests NSW management plan for the area (Forestry Commission of NSW 1981) describes the history of forest management practices. The area was generally regarded as 'cut out' of high quality timber by the 1920s. Large trees considered to be of no commercial value were removed to create openings for regrowth from the 1920s. The opening of the Masonite plant in the late 1930s promoted the harvesting of low quality timber. Pit props and other mining timber were first sold from the area in 1938, and this market expanded along with mining operations in the Hunter Valley. Round mining timber remained the main product harvested from the State Forests prior to transfer to conservation reserves. The most obvious indicators of the history of timber industry in the planning area are the road network and the structure of the forest. Other indicators include the timber loading ramps on the banks of the Karuah River at Double Warf and a pine plantation in Karuah National Park.

Several huts were built along the banks of the river in Karuah National Park. These were removed in the 1980s, however sections of concrete and old bricks remain in some locations. Other recorded historic sites in Karuah National Park include a set of yards at Witt Road, Hunter Jetty at Claybank Road, and Double Wharf at the end of Hobarts Road (NPWS 2003). The site of an early school in Medowie is located near Boundary Road in Medowie State Conservation Area, however no evidence remains



of the school building. Historic sites in Wallaroo National Park include cattle yards on Ripleys and Callaghans trails, an old sawmill site, a post and rail fence line near Ten Mile Road, two bridges on Drews Road, and a bridge on Ten Mile Road.

3.6 RECREATION AND EDUCATION

The planning area plays a relatively low key but locally significant role in providing a range of recreation opportunities including bushwalking, camping, four-wheel driving, motor bike riding, cycling/mountain biking, horse riding, boating and fishing. However, recreational use of the planning area has evolved in a relatively unplanned fashion and in some cases this has led to environmental damage. Recreation use of the park is currently at a moderate level although it is expected to increase in association with planned population growth at Kings Hill north of Raymond Terrace and at Medowie.

The extensive network of roads and trails in the planning area was originally constructed to allow timber extraction and plantation establishment. Over the past decade, the existing network of roads and trails has contributed to the growing popularity of exploring the area by four wheel drive and/or trail bikes. Unfortunately, in some cases it appears these activities have evolved from a simple interest in exploration, to an adventure activity, and in many places the damage due to increased level and intensity of use, suggests the attraction is increasingly the “adventure activity”, rather than an appreciation of the location. Trail bike riding in particular has resulted in the unplanned/illegal development of extensive lengths of single-track, and in some cases four wheel drive use seems to have sought to find challenging “hill-climb” sites. Both of these types of recreational vehicle “adventure activities” have capacity to increase erosion, reduce local water quality, exacerbate the spread of weeds, and compromise the efficacy and safety of trails used for the management of fire within the planning area.

Soil types high in clay content are widespread in the planning area (Matthei 1995) and together with the flat terrain in many parts of the planning area, make it difficult to construct road drainage. This combination of factors causes roads to quickly deteriorate if used in wet weather from the effects of vehicular traffic. Roads often become impassable even to four wheel drive vehicles in these conditions. When conditions dry, sections of the roads often remain impassable until repaired by earthmoving machinery. These conditions are most common in parts of Karuah National Park, the lower areas of Wallaroo and all of Medowie State Conservation Area.

Rationalisation of the road and trail network in the planning area is needed for environmental protection, to ensure safe access and to reduce ongoing maintenance costs, while still maintaining appropriate access for recreation opportunities and fire management. Map 2 shows the proposed park road and management trail network in the planning area. The park road network provides access to the key visitor destinations, including camping and day use areas.

The extensive network of roads and trails in Wallaroo National Park and the adjoining Wallaroo State Forest has also attracted increasing numbers of mountain bike riders in recent years. In a regional context, Wallaroo National Park and the

adjoining Wallaroo State Forest provide an alternative mountain biking opportunity to existing sites at Glenrock State Conservation Area (near Newcastle) and Awaba Mountain Bike Park in Olney State Forest (near Cooranbong).

Mountain biking is a legitimate recreational pursuit when managed appropriately, and within the scope of objectives for national parks, will be permitted on designated trails in Wallaroo National Park in the future in line with the NPWS Cycling Policy and the NPWS Sustainable Mountain Biking Strategy (OEH, 2011). There is potential to develop a series of short and longer distance (upwards of 30-40 kilometres) mountain biking loops in Wallaroo National Park, which incorporate a mixture of existing roads/trails and single-track, whilst not compromising the park's natural and cultural values. Ideally, loops will be designed to provide linkages to the more 'intense' existing trail loops on the adjoining Wallaroo State Forest.

There is also an opportunity to develop a day use area at the 'Common' as part of the rehabilitation of the site and as a means to encourage legitimate recreational use to the site. The 'Common' is a large open area in Wallaroo National Park at the junction of Nine Mile Road and Lone Pine Road. Part of the area is within the adjoining Wallaroo State Forest. The site has been heavily degraded by vehicle activity and is regularly used as a dumping site for stolen motor vehicles.

Recreational horse riding is undertaken on parts of the park road and trail network by a small number of riders and typically includes use of adjoining state forest and public roads.

There is a history of camping and day use along the Karuah River in Karuah National Park. Current camping capacity in the park will be maintained by consolidating and expanding opportunities at Tattersall's camping area and continuing camping at Little Mountain.

There are no designated walking tracks in the planning area, however the road and management trail network in the planning area provides over 50 kilometres of walking opportunities.

The Karuah Progress Association has suggested re-establishing the convict road link between Karuah and Carrington by building a new bridge across Yalimbah Creek. The route crosses a variety of tenures, including Karuah Nature Reserve, Port Stephens-Great Lakes Marine Park, Crown Road Reserve and private property. The concept of re-establishing a bridge is generally supported, however to be viable, the support of all land holders and land managers is required. A potential walking route north of Gilmore Trail in Wallaroo National Park to a location overlooking Clarence Town has also been identified.

Visitor information is an important aspect of park management in that it enhances the visitor experience and understanding while promoting appropriate use. Interpretive and promotional themes particularly relevant to the planning area include Aboriginal cultural values, past logging history and the diversity of native plants and animals. Low key interpretive facilities are needed at key visitor access locations in Karuah and Wallaroo national parks.

4. ISSUES

4.1 WEEDS

A weed is defined in this plan as any plant species not native to the planning area. Weeds can be listed as noxious weeds, weeds of national significance and environmental weeds. The *Noxious Weeds Act 1993* places an obligation upon public authorities to control noxious weeds on land that they occupy to the extent necessary to prevent such weeds spreading to adjoining lands.

The Draft Hunter Region Regional Pest Management Strategy 2012-2015 (OEH 2011 in prep) provides a strategic approach to pest management and broadly identifies pest distribution and their associated impacts. Principle weeds of concern within the planning area include lantana (*Lantana camara*), blackberry (*Rubus fruticosus*), coral tree (*Erythrina crista-galli*) and pine trees (*Pinus spp.*). Control of lantana and blackberry along roads and drainage lines has been undertaken in Wallaroo National Park for over five years. Many other weed species have been recorded in the planning area (McDonald 2004), but most are not considered weeds of environmental concern in this context.

Prior to its gazettal Karuah National Park was managed as state forest and there are approximately 16 hectares of remnant plantation of *Pinus* spp within the reserve. The NPWS has assessed plantations on NPWS estate in Northern NSW and has developed options for their management (NPWS 2010). Removal of mature trees and eradication of wildings is recommended as a high priority for the plantation in Karuah National Park.

4.2 PEST ANIMALS

A pest animal is defined in this plan as any animal species not native to the planning area. Pest animals in the planning area and on adjoining land are of concern because they have the potential to have detrimental effects on native animal communities through competition for resources, predation, disturbance and transmission of diseases. Pest animals can also impact on native vegetation and have the potential to have an adverse economic impact on neighbouring properties.

The Draft Hunter Region Regional Pest Management Strategy 2012-15 (OEH 2011 in prep) provides a strategic approach to pest management and broadly identifies pest distribution and their associated impacts. Pest animal species recorded in the planning area include the fallow deer (*Dama dama*), fox (*Vulpes vulpes*), dog (*Canis lupus familiaris*), cat (*Felis catus*) and rabbit (*Oryctolagus cuniculus*).

Wild dogs have been recorded in the planning area. Wild dogs, including dingoes, have been declared as pest animals under the *Rural Lands Protection Act 1998* (RLP Act) throughout NSW. Hence, the NPWS has a statutory obligation to control wild dogs on its estate.

The level of predation on koalas by wild dogs was identified as a significant threat by the Port Stephens Vertebrate Pest Animal Management Committee. In response, a coordinated program of wild dog control is carried out in the Port Stephens Local

Government Area. Annual wild dog baiting has been undertaken in Karuah National Park, Wallaroo National Park and Medowie State Conservation Area for ten years.

4.3 FIRE

The primary fire management objectives of the NPWS are to protect life and property and community assets from the adverse impacts of fire, whilst managing fire regimes to maintain and protect biodiversity and cultural heritage.

Fire is a natural feature of many environments and is essential for the survival of some plant communities. However, inappropriate fire regimes can lead to loss of particular plant and animal species and communities, and high frequency fires have been listed as a key threatening process under the TSC Act.

There is a history of wildfires in Wallaroo National Park and Medowie State Conservation Area threatening property along Twelve Mile Creek and Swan Bay under the influence of west or north-west winds.

Separate (map-based) Reserve Fire Management Strategies (RFMS) have been prepared for Karuah National Park and State Conservation Area, Wallaroo National Park, and Medowie Nature Reserve and State Conservation Area. The RFMS outline the recent fire history of the reserves, key assets within and adjoining the reserves including sites of natural and cultural heritage value, fire management zones which may include asset protection zones, and fire control advantages such as management trails and water supply points. Hazard reduction programs, ecological burning proposals and fire trail works are submitted annually to the Lower Hunter Bush Fire Management Committee (BFMC). There is currently no RFMS for Karuah Nature Reserve.

NPWS maintains cooperative arrangements with surrounding landowners and Rural Fire Service (RFS) brigades and is actively involved in the Lower Hunter BFMC. Cooperative arrangements include approaches to fuel management, support for neighbours' fire management efforts and information sharing.

4.4 ISOLATION AND FRAGMENTATION

The area surrounding the planning area has been extensively cleared, which has resulted in a high loss of biodiversity and fragmentation of habitat in the region. Long term conservation of biodiversity depends upon the protection, enhancement and connection of remaining habitat across the landscape, incorporating vegetation remnants on both public and private lands. Nearby vegetated areas contribute to the habitat values of the planning area and provide ecological corridors to other vegetated areas. Maintaining the integrity of the remaining habitat within the planning area and, where possible, linking this to adjacent vegetated areas to facilitate wildlife corridors is important in ensuring long term viability of the planning area's biological values.

4.5 CLIMATE CHANGE

Climate change has been listed as a key threatening process under the TSC Act. Projections of future changes in climate for the Hunter region include higher temperatures, increased temperature extremes and higher evaporative demand in all seasons. Sea level rise is likely to continue and will be coupled with increased flooding. Changes in rainfall are more difficult to simulate for the coastal areas of this region, however it is anticipated that runoff and stream flow are likely to increase in summer and autumn and decrease in spring and winter. Short term droughts are likely to become more severe while medium and long term droughts will be less severe. Higher temperatures and changes to rainfall patterns will more likely than not lead to increased fire frequency, but the return period of fires is considered to remain within the current domain of acceptable fire intervals. Changes to fuel availability are uncertain.

Climate change may significantly affect biodiversity by changing population size and distribution of species, modifying species composition, and altering the geographical extent of habitats and ecosystems. The potential impact of climate change is difficult to assess since it depends on the compounding effects of other pressures, particularly barriers to migration and pressure from feral animals. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates.

Programs to reduce the pressures arising from other threats, such as habitat fragmentation, invasive species, bushfires, pollution and urban expansion, will help reduce the severity of the effects of climate change.

5. MANAGEMENT OPERATIONS AND OTHER USES

In order to achieve protection of the values of the planning area, to provide opportunities for visitors and to facilitate management operations it is important to build and maintain appropriate infrastructure. Infrastructure may also be provided on the park by other authorities or for other purposes authorised under the NPW Act.

5.1 MANAGEMENT TRAILS

A number of roads and trails within the planning area have been identified as necessary for public access or management purposes such as weed control and fire management, however many of the minor tracks that remain from logging operations are not appropriate for public or management vehicular access. Many are in poor condition, overgrown and are not required for ongoing management purposes. The rehabilitation of these tracks is important to minimise erosion and improve habitat condition.

There are a number of neighbours whose only access to their properties is through the planning area. In such cases access may be formalised through a licence arrangement.

5.2 QUARRIES

The planning area contains quarries at Quarry Trail, Mines Hill Trail, Baldy Knob Road and adjacent to the Bucketts Way (see Map 2). These quarries provide a valuable gravel resource for maintaining roads and trails within the planning area. NPWS will prepare a quarry management and rehabilitation plan and an environmental assessment prior to extracting gravel from these quarries.

5.3 TRANSMISSION LINES

The planning area contains a number of powerlines and associated access trails that pre-date gazettal of the reserves in the planning area. Energy Australia has a number of powerlines traversing the planning area. These power lines are not covered by a formal easement. In accordance with the *Electricity Supply Act 1995* a network operator can operate and use the existing powerlines whether or not there is a formal easement in place, however the power lines could be regularised by way of the grant of an easement under section 153(1) of the NPW Act.

Clearings and vehicle trails along the power lines have significant environmental and visual impacts. No access or maintenance agreement currently exists with Energy Australia but the company must comply with the NPW Act and Regulations when carrying out any maintenance or replacement work and will require NPWS consent for certain works.

A number of new infrastructure projects are proposed for the planning area. A power line east of Taylors Road in Medowie State Conservation Area is proposed by Energy Australia, and a gas pipe line under the power line east of East Seaham Road in Wallaroo National Park is proposed by AGL. These projects are subject to appropriate environmental assessment and approval under the NPW Act.

5.4 MINING AND MINERAL INTERESTS

Exploration for minerals and petroleum, as well as mining and petroleum production, are permissible uses within state conservation areas. Karuah and Medowie state conservation areas are currently covered by a Group 5 and Petroleum exploration title.

The Department of Trade and Investment, Regional Infrastructure and Services (DTIRIS) is the lead authority for mining and petroleum activities, including mineral exploration and mine site rehabilitation. NPWS and DTIRIS work together to ensure that exploration and production proposals in SCAs comply with all statutory requirements, including any necessary environmental impact assessments and approvals.

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7. IMPLEMENTATION

Current Situation	Desired Outcomes	Management Response	Priority*
6.1 On-Park Ecological Conservation			
The planning area supports two EECs, four vulnerable plant species, eighteen vulnerable animal species and two endangered animal species.	All native plant and animal species and communities are conserved.	6.1.1 Implement relevant actions in the PAS and recovery and threat abatement plans for threatened species and populations.	High
Limited vegetation surveys have been undertaken to identify and map threatened species and EECs.	Structural diversity and habitat values are restored in areas subject to past logging.	6.1.2 Undertake detailed vegetation mapping. Manage park to reduce adverse impacts on threatened species and EECs.	High
Very few habitat trees exist due to previous land use.	Improved knowledge of threatened and significant plants and animals including their ecology and habitat requirements.	6.1.3 Investigate and implement if appropriate, management strategies to enhance habitat values of the regrowth areas.	Medium
Limited fauna surveys have been undertaken in Karuah Nature Reserve.	Soil erosion is minimised.	6.1.4 Encourage surveys for threatened and significant plant and animal species with priority given to predicted habitat for threatened species and Karuah Nature Reserve.	Medium
There is a single record of emus adjacent to the pacific highway in Medowie State Conservation Area, however there does not appear to be any recent sightings.	Landscapes and catchment values are protected.	6.1.5 Vehicle access may be restricted in the planning area to prevent damage during periods of wet weather and/or to ensure public safety.	Medium / Ongoing
Soil types high in clay content are widespread in the planning area. Flat terrain in many parts of the planning area makes it difficult to construct road drainage. This combination of factors causes roads to quickly deteriorate in wet weather from the effects of vehicular traffic. Roads often become impassable even to four wheel drive vehicles in these conditions. When conditions dry, sections of the roads often remain impassable until repaired	The effects of climate change on natural systems are reduced.	6.1.6 Develop and implement a staged program for closure and rehabilitation of minor tracks.	High
		6.1.7 Continue existing fire, pest and weed management programs to increase the reserves ability to cope with future disturbances, including climate change.	Ongoing

Current Situation	Desired Outcomes	Management Response	Priority*
<p>by earthmoving machinery. These conditions are most common in parts of Karuah National Park and all of Medowie State Conservation Area.</p> <p>Many of the minor tracks are significantly eroded, with potential for further erosion, resulting in sedimentation of creeks.</p> <p>Climate change has been identified as a key threatening process under the TSC Act. Climate change may significantly affect biodiversity by changing the population size and distribution of species, modifying species composition, and altering the geological extent of habitats and ecosystems.</p>			
<p>6.2 Cultural Heritage</p> <p>The landscape of and around the planning area is part of the identity, spirituality, connection and resource base of the Aboriginal people of the Worimi Nation.</p> <p>There are a number of recorded Aboriginal sites within the planning area, particularly along the Karuah River.</p> <p>The Aboriginal community have expressed interest in conducting culture camps and associated cultural activities in Karuah National Park.</p> <p>Historic sites in Karuah National Park include hut remains along the river, a set of yards at Witt Road, Hunter Jetty at Claybank Road, and Double</p>	<p>Aboriginal places and values are identified and protected.</p> <p>Aboriginal people are involved in management of the Aboriginal cultural values of the planning area.</p> <p>Negative impacts on Aboriginal and historic heritage values are stable or diminishing.</p>	<p>6.2.1 Consult and involve the Karuah and Worimi Local Aboriginal Land Councils (LALC), and other relevant Aboriginal community organisations in the management of Aboriginal sites, places and values, including interpretation of places or values.</p> <p>6.2.2 Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact on Aboriginal or historic sites and places.</p> <p>6.2.3 Encourage further research into the Aboriginal heritage values of the park with the Karuah and Worimi LALC.</p> <p>6.2.4 Consult with Aboriginal community to identify a location(s) and reach agreement on operations of sites for</p>	<p>High</p> <p>Ongoing</p> <p>Medium</p> <p>High</p>

Current Situation	Desired Outcomes	Management Response	Priority*
<p>Wharf at the end of Hobarts Road. Historic sites in Wallaroo National Park include cattle yards on Ripleys and Callaghans trails, a post and rail fence line near Ten Mile Road, two bridges on Drews Road, and a bridge on Ten Mile Road.</p>	<p>Karuah National Park provides opportunities for Aboriginal culture activities.</p> <p>Historic features are recorded and protected.</p>	<p>cultural activities.</p> <p>6.2.5 A NPWS consent may be issued for short term cultural activities, including camping or an area may be set aside for the exclusive use by the Aboriginal community to conduct cultural activities subject to an amendment to this plan of management.</p> <p>6.2.6 Record historical sites, assess for heritage value and retain in situ. Undertake works if necessary to retain any sites of high heritage value</p>	<p>High</p> <p>Medium</p>
<p>6.3 Visitor Use and Services</p> <p>The network of roads and trails was originally constructed to allow timber extraction and plantation establishment. Current recreational use has developed using this network. Vehicle access to Medowie State Conservation Area is ecologically unsustainable, and is characterised by severe erosion of trails from use in wet weather. Rationalisation of the road network is needed throughout the planning area for environmental protection, to ensure all access roads are safe and to reduce ongoing maintenance costs.</p> <p>Horse riding and cycling are undertaken within the planning area and adjoining state forests. There is room to park vehicles and horse floats in places along the road edges within the planning area.</p> <p>The network of roads and trails in Wallaroo National Park has attracted increasing numbers of mountain bike riders in recent years. There is</p>	<p>Visitor access is appropriate and ecologically sustainable.</p> <p>Environmental impacts of visitor use activities are sustainable.</p> <p>There are enjoyable, safe and ecologically sustainable horse riding and cycling networks which link to off-park opportunities.</p> <p>Current camping capacity is maintained.</p> <p>Camping is permitted at</p>	<p>6.3.1 Public vehicular access will be permitted on the park roads shown on Map 2, however access may be restricted to prevent damage during periods of wet weather and/or to ensure public safety. Tracks and trails not shown on Map 2 will be closed and rehabilitated.</p> <p>6.3.2 Horse riding will be permitted on park roads and management trails shown on Map 2, except for Tattersalls Road and Claybank Trail in Karuah National Park and in Karuah Nature Reserve. Suitable parking sites and turn around sites for horse floats are shown on Map 2, however overnight camping with horses is not permitted within the planning area. Group rides involving more than 20 riders will require consent.</p> <p>6.3.3 Cycling/mountain biking will be permitted on park roads and management trails shown on Map 2.</p> <p>6.3.4 Undertake a review and assessment of potential mountain biking trail loops in Wallaroo National Park. The</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Management Response	Priority*
<p>potential to develop a series of short and longer distance (upwards of 30-40 kilometres) mountain biking loops, which incorporate a mixture of existing roads/trails and single-track.</p>	<p>Tattersall's and Little Mountain Camping Areas.</p>	<p>review will address the planning, development and management criteria identified in the NPWS Cycling Policy, and will include consideration of: opportunities and demand for mountain biking across the region; appropriateness of the site; environmental impacts; ecological sustainability; provision of a quality experience for riders; balancing competing visitor demands; availability of resources to provide and maintain the trails; and visitor safety.</p>	
<p>Camping occurs along the river in Karuah National Park. No facilities are provided and existing camp grounds are not well defined. A number of locations are also used as day use areas. It is proposed to maintain current camping capacity in the park by consolidating and expanding Tattersall's camping area, and maintaining a camping area at Little Mountain. New campsites at Tattersall's will compensate for the closure of camping at Double Wharf.</p>	<p>There are a small number of designated walking tracks leading to key features in the planning area.</p> <p>Visitors are aware of the planning areas values and recreational opportunities, and can easily find their way to facilities.</p>	<p>6.3.5 Following consultation with local mountain biking groups and other stakeholders, prepare and implement a strategy for the development and management of a sustainable mountain biking trail network in Wallaroo National Park. Mountain biking will be managed in accordance with the NPWS Cycling Policy and NPWS Sustainable Mountain Biking Strategy.</p>	High
<p>Small boats are launched at Tattersall's camping area and Double Wharf day use area. Stabilisation works are required to reduce erosion at the launch sites.</p>		<p>6.3.6 Roads and trails, including mountain biking trails, will be monitored for environmental impacts, and may be closed temporarily due to track conditions or for visitor safety.</p>	High
<p>The "Common" in Wallaroo National Park is heavily degraded from vehicle use. Part of the site is within Wallaroo State Forest.</p>		<p>6.3.7 Expand Tattersall's camping area and upgrade to include a toilet, fireplaces and site designation.</p>	High
<p>There are no designated walking tracks in the planning area, however the road and management trail network provide for walking.</p>		<p>6.3.8 Improve site designation at Little Mountain camping area and install a toilet.</p>	Medium
<p>A potential walking route north of Gilmore Trail in Wallaroo National Park to a location overlooking Clarence Town has been identified. The convict built road in Karuah Nature Reserve is a potential walking track, but would require a new bridge to</p>		<p>6.3.9 Improve site designation at Double Wharf day use area and install a toilet and signs stating that camping is not permitted.</p> <p>6.3.10 Undertake stabilisation works at the small boat launching sites at Tattersall's camping area and Double Wharf day use area to reduce erosion.</p>	High

Current Situation	Desired Outcomes	Management Response	Priority*
<p>connect with Karuah and support of adjoining land holders and land managers.</p> <p>Signposting of roads and boundaries in the planning area is insufficient. There are no existing interpretation facilities.</p>		<p>6.3.11 Manage the “Common” as a day use area in conjunction with Forests NSW. Control vehicle access and implement bush regeneration to restore the degraded area.</p> <p>6.3.12 Investigate and develop a walking track north of Gilmore Trail to a location overlooking Clarence Town in Wallaroo National Park.</p> <p>6.3.13 Investigate and develop a walking track along the old convict road in Karuah Nature Reserve, subject to support of adjoining land holders and land managers.</p> <p>6.3.14 Improve park signage generally. Develop interpretation panels for Hobart’s Road, Tattersall’s Camping Area, Lone Pine Road and the “Common”.</p>	<p>High</p> <p>Medium</p> <p>Low</p> <p>Medium</p>
<p>6.4 Community Programs and Education</p> <p>There is a need to inform the local community and park neighbours of the planning areas values and regulations.</p>	<p>The local community is aware of the significance of the park, park management programs and regulations.</p>	<p>6.4.1 Organise media releases, educational material and contact with neighbours and community organisations.</p>	<p>Medium</p>
<p>6.5 Weeds and Pest Animals</p> <p>Principle weeds of concern within the planning area include lantana, blackberry, prickly pear, coral tree and pine trees. Control of lantana and blackberry along roads and drainage lines has been undertaken in Wallaroo National Park over the past five years.</p>	<p>Weeds and pest animals are controlled and where possible eliminated.</p>	<p>6.5.1 Implement pest control activities in accordance with the Draft Hunter Region Regional Pest Management Strategy. Priority will be given to lantana, blackberry, pine trees, dogs and foxes.</p>	<p>High</p>

Current Situation	Desired Outcomes	Management Response	Priority*
<p>Pest animal species recorded in the planning area include the fallow Deer, fox, dog, cat, rabbit, pig and horse. Annual wild dog baiting has been undertaken in Karuah National Park, Wallaroo National Park and Medowie State Conservation Area for the past ten years.</p> <p>A plantation of introduced pine is located in Karuah National Park.</p>	<p>Appropriate pest management techniques are implemented.</p> <p>The impact of weeds and pest animals on native species and neighbouring land is minimised.</p>	<p>6.5.2 Monitor noxious and significant environmental weeds. Treat any new outbreaks where possible.</p> <p>6.5.3 Undertake control programs for wild dogs and foxes.</p> <p>6.5.4 Seek the cooperation of neighbours in implementing weed and pest animal control programs. Undertake control in cooperation with the reserve neighbours.</p> <p>6.5.5 Remove mature pine trees and wildlings in Karuah National Park.</p>	<p>High</p> <p>High</p> <p>Medium</p> <p>High</p>
<p>6.6 Fire Management</p> <p>Fire is a natural feature of many environments but inappropriate fire regimes can lead to loss of particular plant and animal communities. High frequency fires have been listed as a key threatening process under the TSC Act.</p> <p>Reserve Fire Management Strategies (RFMS) have been prepared for Karuah National Park and State Conservation Area, Medowie Nature Reserve and State Conservation Area, and Wallaroo National Park. A RFMS is required for Karuah Nature Reserve.</p>	<p>Life, property and natural and cultural values are protected from fire.</p> <p>Fire regimes are appropriate for conservation of native plant and animal communities.</p> <p>Negative impacts of fire on natural and cultural heritage values are stable or diminishing.</p>	<p>6.6.1 Prepare a RFMS for Karuah Nature Reserve.</p> <p>6.6.2 Implement the RFMS for the planning area, including hazard reduction activities and trail maintenance.</p> <p>6.6.3 Participate in the Lower Hunter BFMC. Maintain cooperative arrangements with local RFS brigades and fire control officers, Forests NSW and surrounding landowners in regard to fuel management and fire suppression.</p> <p>6.6.4 Manage the planning area to protect biodiversity in accordance with the identified fire regimes/thresholds in the RFMS.</p> <p>6.6.5 Avoid the use of heavy machinery for fire suppression other than where appropriate on existing fire management trails or on old timber snigging trails which remain clearly delineated. No new trails to be constructed.</p>	<p>High</p> <p>High</p> <p>High / Ongoing</p> <p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Management Response	Priority*
		<p>6.6.6 Avoid the use of fire retardants in the planning area.</p> <p>6.5.7 Rehabilitate areas disturbed by fire suppression as soon as practical after the fire.</p> <p>6.6.8 Encourage further research into the ecological effects of fire in the planning area, particularly the fire response of significant plant species.</p>	<p>High</p> <p>High</p> <p>Medium</p>
<p>6.7 Infrastructure and Maintenance</p> <p>There is a high density of road development in the planning area from previous land use. Many of these minor tracks are in poor condition, overgrown and are not required for management purposes. The rehabilitation of these tracks is important to minimise erosion, reduce ongoing maintenance costs and improve habitat.</p> <p>Several park roads and trails provide the only practical means of access to private property.</p> <p>Existing quarries are used to supply gravel to maintain roads and management trails in the planning area. Planning is required to ensure that use of the quarries does not inhibit future stabilisation and rehabilitation.</p> <p>A number of power lines and associated access trails in the planning area are not covered by a formal easement.</p> <p>There is a proposed gas pipe line under the power line east of Seaham Road in Wallaroo</p>	<p>Public park roads, management trails and Part 11 lands are provided as necessary for fire and pest management, private property access and other management purposes.</p> <p>Management facilities and operations adequately serve management needs and have minimal impact.</p> <p>NPWS are able to source gravel from the planning area for road and trail maintenance.</p> <p>Existing and proposed</p>	<p>6.7.1 Maintain the roads and management trails shown on Map 2.</p> <p>6.7.2 Gate and/or signpost management trails to restrict unauthorised access.</p> <p>6.7.3 Close and actively regenerate all other tracks.</p> <p>6.7.4 Grant licences where necessary to allow continued access to private property under Section 153C of the NPW Act.</p> <p>6.7.5 Undertake an environmental assessment and, if ongoing use is acceptable, prepare quarry management and rehabilitation plans for quarries at Quarry Trail, Mines Hill Trail, Baldy Knob Road and adjacent to the Bucketts Way.</p> <p>6.7.6 Liaise with Energy Australia to ensure any maintenance and/or replacement works comply with the NPW Act and Regulations.</p> <p>6.7.7 Formalise licences for existing power lines and access</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>Medium</p> <p>Ongoing</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Response	Priority*
National Park and a proposed electricity line east of Taylors Road in Medowie State Conservation Area.	non-park infrastructure is managed to minimise impacts on natural and cultural values.	trails in accordance with Section 153 of the NPW Act. 6.7.8 Liaise with gas pipeline and power line proponents to minimise impacts on natural and cultural values in the planning area.	High

* **High** priority activities are those imperative to achievement of the objectives and desired outcomes. They must be undertaken in the near future to avoid significant deterioration in natural, cultural or management resources.

Medium priority activities are those that are necessary to achieve the objectives and desired outcomes but are not urgent.

Low priority activities are desirable to achieve management objectives and desired outcomes but can wait until resources become available.

Ongoing is for activities that are undertaken on an annual basis or statements of management intent that will direct the management response if an issue that arises.

