NSW NATIONAL PARKS & WILDLIFE SERVICE

Terry Hie Hie Aboriginal Area

Plan of Management

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The preparation of this plan was greatly helped by the valuable information and comments provided by the members of the Terry Hie Hie Aboriginal Area Joint Management Committee, as well as feedback from the Northern Plains National Parks and Wildlife Regional Advisory Committee and the Border Rivers/Gwydir Community Conservation Advisory Committee.

For additional information or any inquiries about this Aboriginal area or this plan of management, contact the NPWS Narrabri Area Office at 1/100 Maitland Street, Narrabri, or by telephone on (02) 6792 7300.

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Department of Planning, Industry and Environment
Locked Bag 5022, Parramatta NSW 2124
Phone: +61 2 9995 5000 (switchboard)
Phone: 1300 361 967 (Environment, Energy and Science enquiries)
TTY users: phone 133 677, then ask for 1300 361 967
Speak and listen users: phone 1300 555 727, then ask for 1300 361 967
Email: info@environment.nsw.gov.au
Website: www.environment.nsw.gov.au

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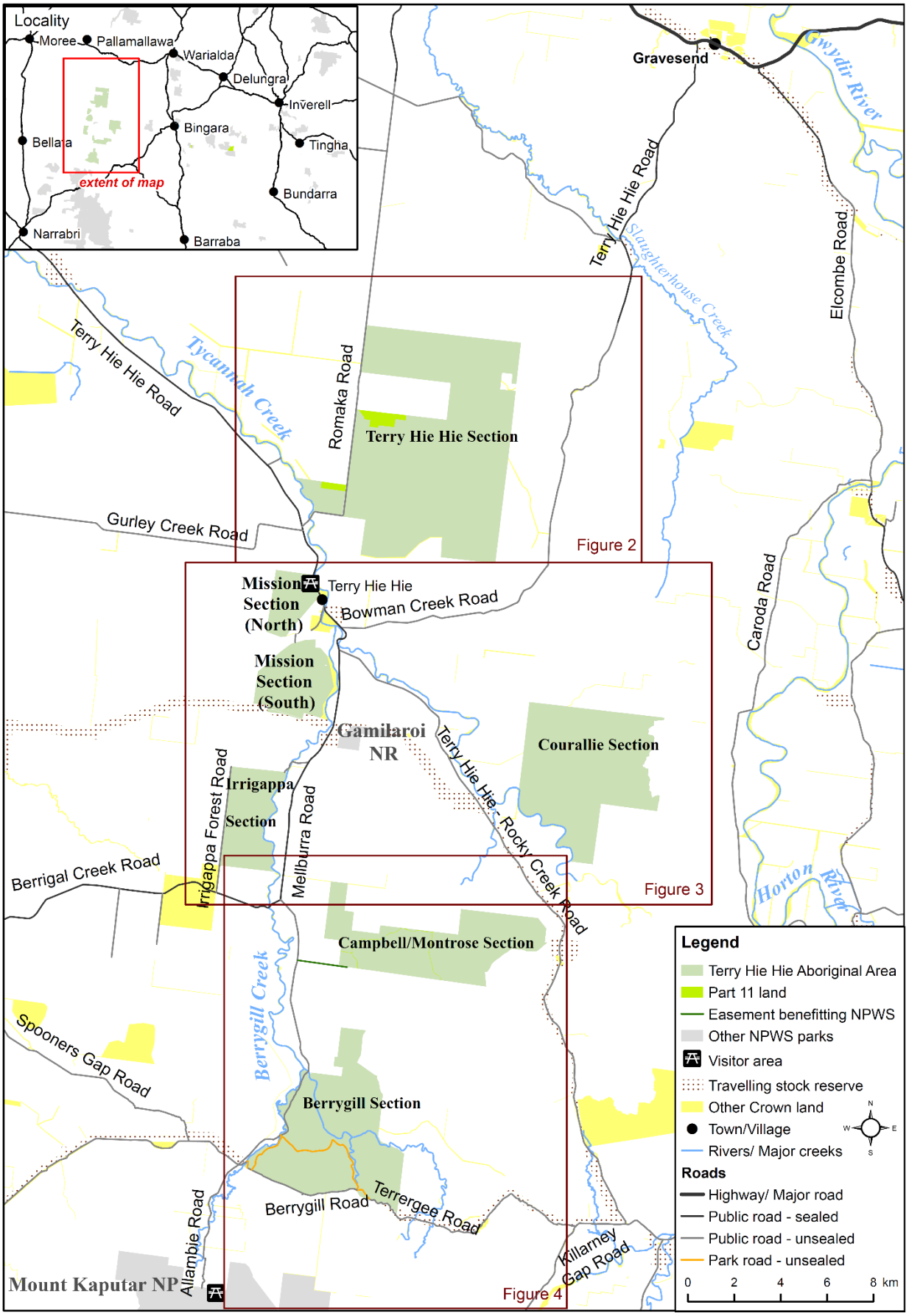

Figure 1 **Terry Hie Hie Aboriginal Area – overview and locality**

1. Introduction

1.1 Location, reservation and regional setting

Features	Description
Location	Terry Hie Hie Aboriginal Area (referred to as the 'Aboriginal area' in this plan) is a Zone 2 Community Conservation Area. It is situated within Gamilaroi Country around the small village of Terry Hie Hie, about 50 kilometres south-east of Moree in northern inland NSW.
Reservation date	The Aboriginal area was reserved on 1 December 2005 as an outcome of the NSW Government's decision to conserve 350,000 hectares of woodlands in the Brigalow Belt South and Nandewar bioregions.
Previous tenure and area	The Terry Hie Hie Aboriginal Area is 15,382 hectares. It was formerly seven state forests and comprises six separate sections, named after the former state forest (see Figure 1), as follows: • Terry Hie Hie Section (Figure 2) – 5742 ha • Mission Section, North and South (Figure 3) – 1270 ha • Irrigappa Section (Figure 3) – 896 ha • Courallie Section (Figure 3) – 2786 ha • Campbell/Montrose Section (Figure 4) – 1964 ha • Berrygill Section (Figure 4) – 2724 ha There are also several areas vested in the Minister for Energy and Environment under Part 11 of the NSW *National Parks and Wildlife Act 1974* in the vicinity of, and managed in association with, the Aboriginal area. These Part 11 lands are: • the corridors of several roads/trails — Terrergee Road in the Berrygill Section; and three neighbour access trails in the Campbell/Montrose Section • two areas, totalling 120 hectares, adjacent to the Terry Hie Hie Section. Although these lands are not reserved as part of the Aboriginal area, their management is subject to the National Parks and Wildlife Regulation and this plan.
Regional context	
Biogeographic region	Terry Hie Hie Aboriginal Area is located on the boundary of the Nandewar and Brigalow Belt South bioregions. These bioregions are extensively cleared and, before 2005, had less than 3% of their areas in conservation reserves (Thackway & Cresswell 1995). The Terry Hie Hie, Mission, Irrigappa, Berrygill and part of the Campbell/Montrose sections of the Aboriginal area lie in the Northern Basalts subregion of the Brigalow Belt South Bioregion. The Courallie and the rest of Campbell/Montrose sections lie in the Peel subregion of the Nandewar Bioregion (Environment Australia 2000).
Surrounding land use	The lands surrounding the Aboriginal area are predominantly cleared and are principally used for mixed farming. Travelling stock reserves and Crown waterway reserves along named streams provide some connectivity between the Aboriginal area's sections.
Other authorities	The Aboriginal area is located within the areas of the Moree Local Aboriginal Land Council, North West Local Land Services, Moree Plains Shire Council and the currently inactive Border Rivers/Gwydir Community Conservation Advisory Committee.

1.2 Statement of significance

Terry Hie Hie Aboriginal Area is significant because of its natural and cultural values, including:

Landscape/catchment values

- The majority of the Aboriginal area lies on the western slopes of the Nandewar Range and contributes to the protection of water quality in the creeks which feed into the Mehi and Gwydir rivers.
- The landscape of the Terry Hie Hie Aboriginal Area is central to the area's cultural significance for the Gamilaroi People. The Tycannah and Berrygill creek systems form part of the Yellowbelly Dreaming Trail and the lands themselves are recognised as the meeting of the 'black' and the 'red' soils.

Biological values

- The Aboriginal area is part of an important wildlife corridor across northern New South Wales, comprised of parks and other areas of public land, including state forests, travelling stock reserves and roadside vegetation, as well as privately owned vegetation remnants.
- It provides habitat for many of the plants and animals known to occur in the Brigalow Belt South and Nandewar bioregions, including four threatened ecological communities and 18 threatened animals.

Aboriginal heritage.

- The Aboriginal area is of high cultural significance for the Gamilaroi People. ('Gamilaroi' is also spelt 'Gomeroi', 'Kamilaroi' and 'Gamilaraay'.) A range of Aboriginal sites have been recorded and local families maintain a strong and passionate contemporary connection to Country.
- Stories and links to the Terry Hie Hie area provide the basis of spiritual and physical Aboriginal cultural sites, as well as the occupational sites and traditional areas which remain of significance to local and surrounding Aboriginal people.
- The Terry Hie Hie district is known for its ceremonial significance, as shown by the presence of bora grounds, ritual designs carved on trees, rock engravings and art sites with paintings and stencils. These all indicate an intimate spiritual and physical attachment to this sacred landscape.
- The Gamilaroi People are actively involved in managing the Aboriginal area through a joint management committee and memorandum of understanding. This contributes to the maintenance and continuance of Gamilaroi cultural heritage and identity, and the local Aboriginal community's wellbeing.

Recreation, tourism and education

- The Aboriginal area offers a range of visitor experiences in the Mission (North), Berrygill, Courallie and Terry Hie Hie sections, focusing on the Mission Visitor Area and walking track.
- The Aboriginal area provides opportunities for on-site interpretation of Aboriginal culture, and ecological and geological themes during periods of peak visitation or for special interest groups.

2. Management context

2.1 Legislative and policy framework

The management of the community conservation area is in the context of the legislative and policy framework of the NSW National Parks and Wildlife Service (NPWS), primarily the National Parks and Wildlife Act and Regulation, the Community Conservation Area Agreement developed under the *Brigalow and Nandewar Community Conservation Area Act 2005*, the *Biodiversity Conservation Act 2016* and NPWS policies.

Other legislation, strategies and international agreements may also apply to management of the area. In particular, the NSW *Environmental Planning and Assessment Act 1979* may require assessment of the environmental impact of works proposed in this plan. The NSW *Heritage Act 1977* may apply to the excavation of known archaeological sites or to sites with potential to contain historic archaeological relics. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* may apply in relation to actions that impact matters of national environmental significance, such as migratory and threatened species listed under that Act.

A plan of management is a statutory document under the National Parks and Wildlife Act. Once the Minister has adopted a plan, the plan must be carried out and no operations may be undertaken in relation to the lands to which the plan relates unless the operations are in accordance with the plan. This plan will also apply to any future additions to Terry Hie Hie Aboriginal Area. Should management strategies or works be proposed in future that are not consistent with this plan, an amendment to the plan will be required.

2.2 Management purposes and principles

Community conservation areas

Community conservation areas are established under the Brigalow and Nandewar Community Conservation Area Act. This Act provides for four dedicated management zones of which zones 1, 2 and 3 relate to land reserved under the National Parks and Wildlife Act as a national park, Aboriginal area or a state conservation area respectively. Land in zones 1, 2 and 3 are managed consistent with the relevant management principles set out in the National Parks and Wildlife Act.

Zone 2 Aboriginal areas

Zone 2 community conservation areas are reserved as Aboriginal areas under the National Parks and Wildlife Act to protect and conserve areas associated with a person, event or historical theme; or containing a building, place, feature or landscape of natural or cultural significance to Aboriginal people, or of importance in improving public understanding of Aboriginal culture and its development and transitions.

Under section 30K of the National Parks and Wildlife Act, Zone 2 community conservation areas are therefore managed to:

- conserve natural values, buildings, places, objects, features and landscapes of cultural value to Aboriginal people in accordance with the cultural values of the Aboriginal people to whose heritage the buildings, places, objects, features or landscapes belong
- conserve natural and other cultural values
- allow use of the Aboriginal area by Aboriginal people for cultural purposes
- promote public appreciation and understanding of the area's natural and cultural values and significance where appropriate

- provide for appropriate research and monitoring, in accordance with the cultural values of the Aboriginal people
- provide for sustainable visitor or tourist use that is compatible with the area's natural and cultural values and the cultural values of the Aboriginal people
- provide for sustainable use (including adaptive re-use) of any buildings or structures or modified natural areas having regard to the area's natural and cultural values and the cultural values of the Aboriginal people.

Zone 2 community conservation areas are places that have been identified as having special significance to Aboriginal people. The primary purpose of Aboriginal areas is the conservation of Aboriginal heritage.

2.3 Aboriginal joint management

NPWS is committed to cooperative management of the Aboriginal area with the Gamilaroi People, and has been working with the local Aboriginal community to provide increased opportunities for access to the Aboriginal area and provide meaningful input to its management. The Terry Hie Hie Aboriginal Area Joint Management Committee was established in 2009. It is an advisory committee made up of five to nine local Aboriginal community representatives who can demonstrate knowledge of local Aboriginal culture and Country, a connection with the local Aboriginal community (including membership or involvement with local Aboriginal organisations), and an ability to work cooperatively with others to achieve positive outcomes.

One of the outcomes of establishing the joint management committee has been the development and adoption of a memorandum of understanding (MOU) which details the cooperative management arrangements for Terry Hie Hie Aboriginal Area.

The Terry Hie Hie MOU formally acknowledges the Terry Hie Hie Aboriginal Area Joint Management Committee members as representatives of the surrounding Aboriginal communities and NPWS's commitment to working in partnership with the joint management committee in the management of the Aboriginal area.

As traditional custodians of the land, Aboriginal people have a unique role to care for and manage Country. This role overlaps with NPWS's legislative responsibilities to manage land for conservation. Partnerships recognise and capitalise on these mutual interests and responsibilities, including recognition that:

- All parks are part of Aboriginal people's Country and are places where Aboriginal people can care for their Country and access their Country and its resources. Given the history of dispossession in New South Wales, public lands and parks play an important role in the maintenance of Aboriginal culture and connection to Country. Meaningful engagement with Aboriginal communities on the management and use of parks is essential to ensure their needs in relation to their Country are met.
- Aboriginal communities obtain cultural, social and economic benefits through being involved in park management.
- Access to land managed by NPWS provides particular opportunities for Aboriginal people to sustain spiritual and cultural activities.
- NPWS, in partnership with the Aboriginal community, is better able to protect and interpret cultural heritage and to apply Aboriginal knowledge to land management and the conservation of cultural and natural values.
- Visitors to parks have an enriched experience through interaction with Aboriginal people and an understanding of Aboriginal cultural values.

2.4 Specific management directions

Consistent with the management principles for Aboriginal areas (see Section 2.2), the primary management directions for the Aboriginal area are to facilitate the conservation and maintenance of its Aboriginal cultural heritage while protecting these important isolated remnants of original vegetation.

In addition, the following specific management directions apply:

- facilitating the use of the Aboriginal area by the local Gamilaroi People to connect with Country and maintain culture
- continuing to manage the Aboriginal area in partnership with the Gamilaroi People, observing the principles of joint management in all aspects of park management
- providing visitor facilities in the Mission Section
- encouraging use of the Aboriginal area by local schools and other education groups
- recognising and interpreting the Aboriginal area's historic heritage values in addition to its Aboriginal heritage values
- continuing current access arrangements along Terrergee Road (pending the transfer of this road's corridor to Moree Plains Shire Council control) and also between private properties through the Campbell/Montrose Section of the Aboriginal area
- investigating future management options for (including potential disposal of) the unreserved Part 11 lands that have been intensively farmed and, in the meantime, allowing for these lands to be used for cropping or grazing.

3. Values

This plan aims to conserve both natural and cultural values of the Aboriginal area. The location, landforms and plant and animal communities of an area have determined how it has been used and valued by both Aboriginal and non-Aboriginal people. 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. To make the plan clear and easy to use, various aspects of natural heritage, cultural heritage, threats and ongoing use are dealt with individually but their interrelationships are recognised.

3.1 Geology, landscape and hydrology

The majority of the Aboriginal area lies on the western slopes of the northern extension of the Nandewar Range. Located on the western side of the New England Tableland, the Nandewar Range generally forms the watershed between the Namoi River and Gwydir River catchments to the south and north respectively. The Aboriginal area drains into the northern, Gwydir system via the Mehi River.

Rising from 280 to 640 metres above sea level, altitudes in the Aboriginal area are lowest in the Terry Hie Hie, Mission and Irrigappa sections, where the landscape is undulating slopes. In the Aboriginal area's southern and western sections the landscape includes high, steep ridges where natural slopes in excess of 45 degrees occur, particularly in the north-east corner of the Berrygill Section. The only named high point in the Aboriginal area is Bald Hill in the Campbell/Montrose Section, the summit of which is above 580 metres.

The Aboriginal area features two semi-permanent creek systems: Berrygill Creek and Tycannah Creek (see Figure 1). Berrygill Creek rises in Mount Kaputar National Park before merging with Tycannah Creek at Terry Hie Hie village. Tycannah Creek rises on the Nandewar Range, just south of the Courallie Section, and drains to the north-west, entering the Mehi River just north of Combadello Station.

The landscape of the Terry Hie Hie Aboriginal Area is central to the cultural significance of the area to the Gamilaroi People. Tycannah and Berrygill creeks form a part of the Yellowbelly Dreaming Trail and the lands themselves are recognised as the meeting of the 'black' and the 'red' soils. The soils of the Aboriginal area are variable and include (DMR 2002):

- red brown earths
- coarsely cracking grey and brown clays
- yellow and red texture-contrast (or duplex) soils
- deep black cracking clays
- shallow loams.

The geology of the Aboriginal area is predominantly Jurassic coarse-grained sediments of the Surat Basin (part of the Great Artesian Basin) comprising siltstone, mudstone and minor coal dating from 150–200 million years ago. Other deposits include Jurassic fine-grained sediments, older Carboniferous metasediments (from 300–360 million years ago), overlain by the more recent alluvium and volcanics from the Cenozoic (DMR 2002).

Issues

The majority of the Aboriginal area has high potential hazard for topsoil and subsoil erosion, with high erodibility predicted for areas of steeper terrain. Sheet and gully erosion occur as a result of high intensity or high volume rainfall events, damaging management trails and catchment values. NPWS management, therefore, seeks to undertake all works in a manner that minimises disturbance, erosion and any impact on water quality.

Activities that may potentially exacerbate erosion include the use and maintenance of roads and trails. Soil erosion is also likely to increase following fire events. Unauthorised vehicle use (predominantly by trail bikes) is causing significant damage to roads and trails in the Aboriginal area, and is actively contributing to soil erosion and declining water quality. Law enforcement patrols and targeted surveillance are carried out to address this issue.

Desired outcomes

- Landscape and catchment values are protected.
- Erosion, sediment displacement and degradation of park roads and management trails are minimised.

Management response

3.1.1. Undertake remedial action where runoff is causing gully erosion, sediment displacement or degradation of park roads or management trails.

3.1.2. Close trails that are excess to management requirements and allow them to revegetate.

3.2 Native plants

Terry Hie Hie Aboriginal Area is home to at least 575 native species of plants. Many of these plants were used by the local Gamilaroi People for a variety of purposes (see Table 1 for some examples of these plants). In order to survive, the Gamilaroi People knew which plants could be eaten, which plants could be used to assist with healing, which plants provided habitat for animals, which plants could be used to make tools or shelters, and which plants should be used to carry out ceremonies or funerals (McKemey & White 2011).

Table 1 Some plants significant to the Gamilaroi People

Common name	Scientific name	Gamilaroi name	Materials used
Trees			
Belah	*Casuarina cristata*	Bilaarr	Wood (for spears)
Bimble box	*Eucalyptus populnea* subsp. *bimbil*	Buubaya/Bibil	Wood, bark
Box trees (white box)	*Eucalyptus* spp.	Bibil	Wood, bark, roots, leaves
Brigalow	*Acacia harpophylla*	Burrii	Wood, bark
Cypress pine – white and black	*Callitris glaucophylla* *Callitris endlicheri*	Gurraari	Sap, wood, seeds, leaves
Kurrajong	*Brachychiton populneus*	Nhimin	Seeds, roots, sap, bark
Rough-barked apple	*Angophora floribunda*	Bulamin	Nectar, wood, sap
River red gum	*E. camaldulensis*	Yarraan	Leaves, bark, gum, wood
Silver-leaved ironbark	*E. melanophloia*	Thiinyaay	Wood, bark, sap
Weeping myall	*Acacia pendula*	Maayal/Maayaal/Mayal	Seeds, wood, bark
Shrubs and vines			
Kangaroo apple	*Solanum* spp.	Gumi	Fruit
Native orange	*Capparis mitchellii*	Bambul	Leaves, fruit, seeds
Mistletoe	*Lysiana* spp.	Baan	Fruit, nectar, leaves

Common name	Scientific name	Gamilaroi name	Materials used
Tarvine	*Boerhavia dominii*	Wuthugaa/Wudhugaa	Taproot
Herbs and grasses			
Bulbine lily	*Bulbine bulbosa*	Milaan	Bulb
Kangaroo grass	*Themeda australis*	Garaarr/Ggaraarr	Seeds

Source: McKemey and White (2011) and Ash et al. (2003).

Comprehensive plant surveys of each section of the Aboriginal area have been completed (Hunter 2009a–f; NPWS 2002). These surveys identified 24 plant community types across the Aboriginal area (listed in Appendix A), including four threatened ecological communities (see Table 2). No threatened plant species are currently known from the Aboriginal area.

Table 2 Threatened ecological communities in the Aboriginal area

Threatened ecological community (Plant community type – see Appendix A)	Section	Status [1]	
		BC Act	EPBC Act
Brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains Bioregions [2] (Brigalow Woodland)	Terry Hie Hie	EEC	EEC
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes Bioregions [4] (Myall and Derived Grasslands [3])	Mission	EEC	EEC
Natural Grasslands on Basalt and Fine-textured Alluvial Plains of northern New South Wales and southern Queensland (Queensland Bluegrass – Cottonbush Low Open Woodland [3])	Terry Hie Hie	NA	CEEC
White Box – Yellow Box – Blakely's Red Gum Grassy Woodland (Yellow Box – Red Gum and White Cypress – Rough-barked Apple Woodland [3])	Courallie, Berrygill	EEC	CEEC

Source: Hunter (2009a–f).

[1] BC Act = Biodiversity Conservation Act; EPBC Act = Environment Protection and Biodiversity Conservation Act;
EEC = endangered ecological community; CEEC = critically endangered ecological community; NA = not listed.

[2] Listed on EPBC Act as Brigalow (*Acacia harpophylla* dominant and co-dominant).

[3] Only some areas of this plant community conform to the description of the threatened ecological community.

[4] Listed on EPBC Act as Weeping Myall Woodlands.

Strategies for the recovery of threatened species, populations and ecological communities have been set out in a statewide *Biodiversity Conservation Program* (OEH 2017) – formerly known as the *Threatened Species Priorities Action Statement*. These actions are currently prioritised and implemented through the *Saving our Species* program which aims to maximise the number of threatened species that can be secured in the wild in New South Wales for 100 years (OEH 2013b). Recovery actions relevant to the threatened ecological communities found in the Aboriginal area are listed in Table 3.

Table 3 Management of threatened ecological communities

Threatened ecological community (Short title)	Threat	Action
Brigalow	Weed invasion	Employ best management practice standards in controlling weeds
	Inappropriate fire regimes	Determine optimal management regimes for high quality remnants (e.g. fire regimes)
Myall Woodland	Weed invasion	Target priority weeds for control
	Overgrazing by feral and domestic animals	Control rabbits and goats
	Inappropriate fire regimes	Prevent stock from entering the Aboriginal area Apply and manage fire within biodiversity thresholds
Natural Grasslands on Basalt and Fine-textured Alluvial Plains	Weed invasion	Employ best management practice standards in controlling weeds
	Overgrazing by feral and domestic animals	Prevent stock from entering the Aboriginal area
White Box – Yellow Box – Blakely's Red Gum Woodland	Pest & weed invasion	Target priority pests/weeds for control
	Inappropriate fire regimes	Determine optimal management regimes for high quality remnants (e.g. fire regimes)
	Collection of firewood	Prohibit firewood harvesting

Issues

Under its previous management as state forest, Terry Hie Hie Aboriginal Area was modified by selective logging, grazing and silvicultural practices such as non-commercial thinning associated with timber stand improvement. In addition, parts were cleared and farmed. While the woodlands of the Aboriginal area retain a diversity of species and most assemblages are in reasonable condition today, this land use history has affected the range and populations of native plants and communities. In some areas the forest structure has been altered and the absence of mature cypress and ironbark trees is apparent. This lack of mature trees has reduced the habitat values for native animal species (see Section 3.3).

The four threatened ecological communities found in the Aboriginal area are currently subject to the following threats:

- soil disturbance including erosion (see Section 3.1)
- weed invasion (see Section 4.1)
- inappropriate fire regimes (see Section 4.2)
- grazing by goats (see Section 4.1) as well as by stock straying from neighbouring properties (see Section 5.1).

In addition, their long-term viability is affected by loss of connectivity with other vegetated lands (see Section 4.3).

Desired outcomes

- Significant ecological communities are conserved.
- Negative impacts on threatened ecological communities are minimised.
- Structural diversity and habitat values are restored in degraded areas, including reserved areas previously cleared for farming.

Management response

3.2.1. Implement relevant strategies in the *Biodiversity Conservation Program* for threatened ecological communities present in the Aboriginal area (see Table 2), and for any threatened plant species should they be found.

3.2.2 Within the area reserved as Aboriginal area, encourage the natural regeneration of lands subjected to previous clearing and other disturbance, supplementing natural regeneration with weed control, site preparation and revegetation programs where necessary.

3.3 Native animals

The relatively healthy condition of the Aboriginal area's woodland communities is reflected in its diversity of wildlife. Terry Hie Hie Aboriginal Area is part of the Kaputar–Horton Range Key Habitat (Andren 2004), a network of areas which includes refuges for the conservation of a representative sample of the region's native animals and for the maintenance of ecological processes. It also acts as the linkage or stepping stones that allow dispersal by more mobile species, such as woodland birds and medium to large mammals, to larger conservation areas such as Mount Kaputar National Park to the south (NPWS 2010).

A native animal survey was conducted in the Terry Hie Hie Section of the Aboriginal area in 2010 which, combined with numerous incidental sightings, has added to knowledge of the Aboriginal area's native animals. Currently, 154 vertebrate species have been recorded, including 98 birds, 29 reptiles, 24 mammals and three frogs. There is an absence of small ground-dwelling native mammals in the Aboriginal area, a situation that is common across much of New South Wales west of the Great Dividing Range (NPWS 2010).

The 18 threatened species recorded in the Aboriginal area are listed in Table 4.

Table 4 Threatened animals recorded in the Aboriginal area

Common name	Scientific name	Status 1	
		BC Act	EPBC Act
Reptiles			
Border thick-tailed gecko	*Uvidicolus sphyrurus*	V	V
Five-clawed worm-skink	*Anomalopus mackayi*	E	V
Birds			
Barking owl	*Ninox connivens*	V [2]	
Brown treecreeper	*Climacteris picumnus victoriae*	V	
Glossy black-cockatoo	*Calyptorhynchus lathami*	V	
Grey-crowned babbler	*Pomatostomus temporalis temporalis*	V	
Hooded robin	*Melanodryas cucullata cucullata*	V	
Little lorikeet	*Glossopsitta pusilla*	V	
Masked owl	*Tyto novaehollandiae*	V [2]	
Speckled warbler	*Chthonicola sagittata*	V	
Turquoise parrot	*Neophema pulchella*	V	
Varied sittella	*Daphoenositta chrysoptera*	V	
Mammals			
Black-striped wallaby	*Macropus dorsalis*	E	

Common name	Scientific name	Status 1	
		BC Act	EPBC Act
Corben's long-eared bat	*Nyctophilus corbeni*	V	V [3]
Koala	*Phascolarctos cinereus*	V [2]	V [3]
Little pied bat	*Chalinolobus picatus*	V	
Squirrel glider	*Petaurus norfolcensis*	V	
Yellow-bellied sheathtail-bat	*Saccolaimus flaviventris*	V	

[1] BC Act = Biodiversity Conservation Act; EPBC Act = Environment Protection and Biodiversity Conservation Act; E = endangered; V = vulnerable.

[2] Recovery plan approved or drafted under the now-repealed NSW *Threatened Species Conservation Act 1995*.

[3] Recovery plan in preparation under the EPBC Act.

Threatened species known to occur in the Aboriginal area fall into three main groups:

- animals dependent on large intact remnants that contain hollow-bearing trees (e.g. the large forest owls and parrots)
- animals dependent on relatively large intact areas of heterogeneous (mixed) woodland (e.g. declining woodland birds such as the brown treecreeper, varied sittella, speckled warbler and hooded robin)
- animals with specialist habitat requirements, such as the black-striped wallaby and the koala.

Some, like the glossy black-cockatoo, fall into two groups, requiring hollows for nesting as well as having specialist habitat or foraging requirements. In the case of the glossy black-cockatoo, stands of she-oak (*Casuarina* spp.) provide important foraging habitat.

The ability of Terry Hie Hie Aboriginal Area to support apex (top-order) predators such as the masked owl is indicative of both the habitat quality and significance of this area. Although former logging activity has reduced the quality of wildlife habitat in the Aboriginal area to some extent, the cessation of forestry operations and grazing will lead to a gradual improvement of habitat for a range of species. Restoration of shrubby, grassy and litter components of the woodlands (important for the woodland birds) and an increase in old-growth structural elements (such as hollows in standing live and dead trees, and fallen logs and timber) are anticipated to occur naturally over time. The diversity of the Aboriginal area's wildlife is likely to improve as these habitats and structural elements are restored and protected. Fire management will be an important component of habitat management (see Section 4.2).

A biodiversity monitoring strategy for the parks within the former NPWS Northern Plains Region (NPWS 2015a) provides for the monitoring of the area's wildlife to detect changes over time.

As for plants, strategies for the recovery of threatened animal species and populations have been set out in a statewide *Biodiversity Conservation Program* and are currently prioritised and implemented through the *Saving our Species* program. Those nationally listed species for which recovery plans are being prepared are indicated in Table 3.

Issues

The threatened animals found in the Aboriginal area are currently at risk from the following, all of which have been identified as key threatening processes (OEH 2015):

- removal of large, hollow-bearing trees and logs that provide shelter, nest sites and food resources during road maintenance and fence construction or due to illegal activities such as felling trees and collecting fallen timber for firewood (see Section 5.1 and 5.2)
- vegetation clearing on neighbouring lands, which removes wildlife corridors, reduces landscape connectivity and increases isolation, and so increases the risk of extinction due to small population size or chance events such as drought and fire (see Section 4.3)

- frequent fire which reduces the abundance and recovery of belah and other she-oaks and destroys hollow-bearing trees that provide important nest sites (see Section 4.2)
- competition with the European honeybee (*Apis mellifera*) for nectar and hollows (see Section 5.2)
- predation and competition from pest species, such as foxes, cats and goats (see Section 4.1).

Other threats present include impacts from straying stock (see Section 5.1).

Desired outcomes

- Negative impacts on threatened species are minimised.
- The habitat and populations of all threatened animal species are protected and maintained.
- Structural diversity and habitat values are restored in degraded areas.

Management response

3.3.1. Implement relevant strategies in the *Biodiversity Conservation Program* and recovery plans for threatened species and populations present in the Aboriginal area.

3.3.2. In accordance with the Northern Plains Biodiversity Monitoring Strategy, encourage or undertake regular surveys in the Aboriginal area to monitor changes in wildlife communities over time.

3.3.3. Implement management regimes that retain hollow-bearing trees, fallen logs and ground debris, and protect she-oaks in the Aboriginal area.

3.4 Aboriginal connections to Country

Terry Hie Hie Aboriginal area lies within the traditional Country of the Gamilaroi People. It is a special place for the Gamilaroi People, protecting a number of ceremonial sites, art sites, tool-making areas, burial sites, hunting grounds and places where Aboriginal people lived both before and after contact with Europeans.

For tens of thousands of years the Gamilaroi People have maintained a strong and ongoing connection to their traditional lands and waters (DECCW 2011). The land, water, plants and animals 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 and need to be managed in an integrated manner across the landscape.

The Gamilaroi People used the landscape as both a natural and cultural resource. Plants were gathered for various purposes (see Table 1 in Section 3.2). Animals such as kangaroos and possums were used for food, clothing and decoration; and stone and wooden hunting tools such as spears, boomerangs and waddies were developed to catch them. Stone tools were made from local and traded stone, including greywacke and quartz.

A large number of grinding grooves are found in the Terry Hie Hie area with at least 240 axe grinding grooves of various shapes and sizes recorded within nearby Terry Hie Hie Aboriginal Place. The region around Terry Hie Hie is also known for carved trees and art sites, indicating an intimate spiritual and physical attachment to the sacred landscape.

The area around the village of Terry Hie Hie is of great spiritual significance as it is part of the Great Ancestral Bora (*buurru*[1], *buurra*[2]). This site was created by Baiame (*baayama*[1], *baayami*[2]), one of

1. [1] Spelling as per Austin and Nathan (1998).
2. [2] Spelling sourced from Ash et al. (2003).

the great ancestral beings of the Creation period whose journeys are recorded in song, dance, art, oral histories and Dreaming sites. Traditionally, Baiame is associated with all bora ceremonies across much of New South Wales, but most of the bora grounds are now gone, destroyed by cropping and other farming practices. The ceremonial bora ground at Terry Hie Hie is the largest in north-west NSW (NORL 2004) and is the most important to the Gamilaroi People (NPWS 2004). Other bora grounds also occur in the Aboriginal area.

The Terry Hie Hie region is a place with a marked history of conflict between Aboriginal and non-Aboriginal people. During the early days of occupation by squatters, the local Aboriginal people were subjected to violence, disease and sexual exploitation, and pushed away from creeks and waterholes. The Aboriginal men retaliated by spearing stock and attacking the stations. In 1837, two of the convicts working at Terry Hie Hie Station were killed by Aborigines (Griffiths 2012). In response, several organised massacres took place in the region. Eight massacre sites are recorded within 50 kilometres of the Aboriginal area, including the sites of the infamous 1838 Waterloo Creek and Myall Creek massacres. The closest massacre to the Aboriginal area occurred on Slaughterhouse Creek, approximately seven kilometres east of what is now the Terry Hie Hie Section of the Aboriginal area. In 1849, police were sent to the area and much of the Aboriginal resistance was suppressed by the mid-1850s (NPWS 2000a). The descendants of the survivors of the Myall Creek massacre moved to Terry Hie Hie (Curby & Humphreys 2002).

From the 1840s to the 1880s, European station owners allowed the local Aboriginal people to live on their lands in what were called ‘station camps’. The shortage of European labour during the gold rushes strengthened this system of ‘dual occupation’ and, as a result, the Aboriginal labour force was crucial to the functioning of the pastoral economy between the late 19th and mid-20th centuries. Aboriginal people living on the stations were able to remain in their Country, maintain spiritual and ceremonial traditions, and continue the cultural and economic practices that linked them with the land (NPWS 2000a).

The local Aboriginal people of the region retained their traditional practices, including knowledge of languages, stories and sacred sites (Bickford 1980). Observations of some traditions and occasions, such as funerals and burial ceremonies, were recorded (NPWS 2000a). The last corroboree at Terry Hie Hie described in a written record was held in 1883 (Briggs-Smith 2003). If any ceremonies were held after, they were held in secrecy, possibly to avoid intrusion by Europeans. As agricultural land use intensified and government control over Aboriginal people strengthened, the importance of continuing traditional practices grew and the need for secrecy became more crucial (NPWS 2000a).

A transition from pastoralism to broad-acre wheat cropping occurred from the 1880s to the 1920s following a major change in land tenure. This had been prompted by a push to ‘unlock the lands’ to allow access by small selectors to the vast lands formerly held under pastoral leases. The conditions that had allowed dual occupation to occur in the past disappeared. This served to alienate the Aboriginal community who could now no longer use the land as they had traditionally, due both to their limited access to the land and its changing ecology under agricultural production (NPWS 2000a). Aboriginal communities were driven from their homelands and onto reserves or ‘missions’, including a reserve at Terry Hie Hie established in 1895. Unlike many others, the Terry Hie Hie Aboriginal Reserve was located at a site with considerable Aboriginal significance, being a traditional camping and ceremonial area (NPWS 2000a).

During those transition times, the forests around Terry Hie Hie became even more important to the Aboriginal community. In 1898, lands that now make up the Mission, Irrigappa, Berrygill and Terry Hie Hie sections of the Aboriginal area were protected as Crown reserves for the ‘preservation and growth of timber’. The protection of these forests enabled the Aboriginal people to use them for gathering food (both plants and animals) and for traditional spiritual and cultural practices (Curby & Humphreys 2002). The Terry Hie Hie Aboriginal Reserve and the surrounding section of Mission State Forest were the focus for Aboriginal settlement in the district for about 30 years.

The NSW Government had established the Aborigines Protection Board (‘the Board’) in the 1880s. Initially responsible only for the distribution of blankets and rations on the Aboriginal reserves, the Board began to exert a tighter grip on the lives of the Aborigines, placing ever more restrictions on the rights of the communities (NPWS 2000a). A resident manager for the Terry Hie Hie Reserve was

appointed in 1911. Children in Aboriginal communities were increasingly the targets of the Board, which relied on the power vested in it by the NSW *Aborigines Protection Act 1909*. By 1915, the strength of the Aborigines Protection Act had increased, giving the Board the power to remove Aboriginal children from their families if the wellbeing of the child was considered at risk. When children began to be removed from their parents in the reserve, the Elders were forced to make the difficult decision to split the camps and move to Queensland, Boomi, Tingha and Moree (Briggs-Smith 1999).

Leaving Terry Hie Hie was a great hardship for people in the Aboriginal community as it meant leaving their homes, places of employment and separating from friends and family, however, the fear of having children taken away meant that this had to be done (Briggs-Smith 1999).

The Board withdrew its manager from the Terry Hie Hie Aboriginal Reserve in 1924 and leased the reserve land to European farmers, bringing an end to the reserve and its regime (Curby & Humphreys 2002). Today, remnants from the days of the Terry Hie Hie Aboriginal Reserve, including a cemetery, a traditional burial site, a corroboree ground and grinding grooves continue to have cultural significance for the Gamilaroi People. A small part of the former reserve, situated between the two parts of the Mission Section, was declared as the Terry Hie Hie Corroboree Ground and Grinding Grooves Aboriginal Place in 2009 (see Figure 3). The older, more traditional burial site is a 0.3-hectare inholding in Mission (south) Section, just off Cemetery Road. This land is vested in the NSW Aboriginal Land Council and managed by the Moree Local Aboriginal Land Council.

Aboriginal sites are places with evidence of Aboriginal occupation or that are related to other aspects of Aboriginal culture. They are important as evidence of Aboriginal history and as part of the culture of local Aboriginal people. In the Aboriginal area, 19 Aboriginal sites have been recorded, including modified trees, artefact scatters, grinding grooves and resource gathering sites, but it is likely that there are many other unrecorded sites.

While the NSW Government has legal responsibility for the protection of Aboriginal sites and places, NPWS acknowledges the right of Aboriginal people to make decisions about their own heritage. Aboriginal communities are consulted and involved in managing Aboriginal sites, places and related issues, and in promoting and presenting Aboriginal culture and history. The Terry Hie Hie Joint Management Committee and MOU (see Section 2.3) enable this involvement in Terry Hie Hie Aboriginal Area.

Issues

Knowledge of the traditional uses of resources is part of the intellectual property of the Gamilaroi People. It is recognised that the maintenance and continuance of Gamilaroi cultural heritage and identity depends on the cultural use of wild resources, such as medicinal plants and bush tucker. Gathering of wild resources within the Aboriginal area is subject to NPWS policies and consent.

The Aboriginal area lies within the area subject to a registered native title claim by the Gomeroi People (NC11/006). This claim is active but is yet to be determined.

Although some site surveys have been undertaken within the Aboriginal area, a systematic search of the entire Aboriginal area has not been undertaken.

Aboriginal sites are potentially threatened by the following:

- lack of knowledge of the location of Aboriginal sites
- unregulated visitation and illegal activities such as firewood collection, off-trail motorbike use and vandalism (see Section 3.6)
- fire (see Section 4.2)
- trampling or browsing by straying stock (see Section 5.1)
- machinery use during infrastructure maintenance (see Section 5.1).

Due to the potential for damage by visitors, access restrictions may be required in the vicinity of some sites. However, access by Aboriginal community members with cultural connections to these

sites should be maintained and may need to be facilitated by NPWS, particularly for the Courallie and Campbell/Montrose sections which are accessed via private property.

The visitor area in the Mission (North) Section of the Aboriginal area is an appropriate setting for educational groups, including school groups, to be introduced to the traditional use of the area by local Aboriginal people and the continuing importance of the Aboriginal area to local Aboriginal people (see Section 3.7).

Desired outcomes

- Aboriginal places, sites and values are identified and protected, and negative impacts on Aboriginal heritage values minimised.
- Local Aboriginal descendants are involved in management of the Aboriginal area, in particular the management of Aboriginal cultural values of the Aboriginal area.
- Understanding of the cultural values of the Aboriginal area is improved.
- Terry Hie Hie provides opportunities to access Country and supports activities with cultural purposes to encourage the transfer of existing cultural knowledge and the ongoing development of a living culture.

Management response

3.4.1. Continue to consult and involve the Terry Hie Hie Aboriginal Area Joint Management Committee in the management of the Aboriginal area, including the management of Aboriginal cultural heritage and natural values.

3.4.2. Pursue opportunities to involve Gamilaroi People in working with NPWS on projects such as revegetation works, site protection and maintenance works, development of interpretive signage and Aboriginal site surveys.

3.4.3. Undertake an archaeological survey and cultural assessment before all works with the potential to impact Aboriginal sites or values.

3.4.4. Encourage further research into the Aboriginal cultural heritage values of the Aboriginal area with the Terry Hie Hie Aboriginal Area Joint Management Committee.

3.4.5. Reinstate and maintain the fence around the bora ground in the Courallie Section to prevent damage from straying stock.

3.4.6. Work with the Moree Local Aboriginal Land Council to maintain the fence around the traditional burial site and provide access as required through the Aboriginal area.

3.4.7. Continue to identify and actively manage places where sustainable cultural, social and wild resource use can occur and issue consents with conditions as appropriate for this use.

3.4.8. Investigate and pursue opportunities to record oral histories of people with connections to the area.

3.4.9. In consultation with the Terry Hie Hie Aboriginal Area Joint Management Committee, investigate the feasibility of holding culture camps in the Aboriginal area. If feasible, provide consent with conditions for culture camp opportunities within the Aboriginal area.

3.4.10. Investigate the feasibility of using Gamilaroi language for place names within the Aboriginal area.

3.4.11. In accordance with the memorandum of understanding, facilitate access by Aboriginal community members to areas of the park.

3.5 Shared heritage

Heritage places and landscapes are made up of living stories as well as connections to the past which can include natural resources, objects, customs and traditions that individuals and communities have inherited and wish to conserve for current and future generations. Cultural heritage comprises places and items that may have historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance. NPWS conserves the significant heritage features of NSW parks and reserves.

The explorer and later Surveyor General of NSW, John Oxley, first visited the region in 1818, noting the suitability of the region for agriculture. Squatters moved into the region in the late 1820s but it was not until 1836 that squatting licences were issued (NPWS 2000b). In 1836, George Bowman established Terry Hie Hie, a 120,000-hectare pastoral run in the area east of Narrabri and Moree. Cattle grazing was the dominant land use of the region at this time (Curby & Humphreys 2002). By the end of the 1800s sheep grazing became more popular following improvements to pasture and fencing (NPWS 1991).

The gold rush of the 1850s led to the rapid development of several towns in the region including Barraba, Bingara and Inverell. The fertility of the region's soils allowed the increased farm yields needed to feed the miners. These towns later thrived as a result of agricultural production, particularly wheat, with the replacement of the large pastoral stations with smaller holdings and the advent of more sophisticated equipment introduced in the 1860s and 1870s (Heritage Office 1996).

Since the 1840s, timber-getting has been a regular activity around the Terry Hie Hie area. Forest management began in the late 1870s when the first forest reserves were dedicated. Such forest management was driven not by an understanding of ecological process and impacts (NPWS 2000b) but by the simple need to protect stands of timber for future use, as all forests were under threat from uncontrolled and 'injudicious' clearing for agriculture (Curby & Humphreys 2002).

The initial protection of the Mission, Irrigappa, Berrygill and Terry Hie Hie sections of the Aboriginal area occurred in 1898 as reserves for the 'preservation and growth of timber'. In 1914 Berrygill State Forest was reserved and, with an addition in 1926, assumed the current shape and size of the Berrygill Section. The Mission, Campbell, Montrose, Courallie and Terry Hie Hie state forests were dedicated in 1917. Irrigappa State Forest was reserved in 1919.

A cottage for the forest overseer was erected in Mission State Forest during the 1920s but this was burnt down in the 1970s, and a church was erected in the 1930s (Curby & Humphreys 2002). A machinery shed was also erected and has been upgraded and replaced over the years.

Commercial timber harvesting in the region has concentrated mainly on white cypress (*Callitris glaucophylla*) and narrow-leaved ironbark (*Eucalyptus crebra*) in the past 100 years, although broad-leaved ironbark (*E. fibrosa*), bulloak (*Allocasuarina luehmannii*), black cypress (*Callitris endlicheri*) and western box species (*E. melliodora, E. pilligaensis, E. microcarpa* and *E. populnea*) were all harvested in the area in the past 80–100 years (Hartley et al. 2000). Forests were also available under permit for grazing and beekeeping.

Within the Aboriginal area, the physical evidence of this recent history includes internal fences and stock enclosures, log and sleeper dumps, management trails and dams. Intensive silvicultural activities undertaken within the forests, such as thinning of white cypress stands, are also evident. Preliminary assessments of heritage significance have assigned a contributory or local significance to most of the sites. Sites of potential national heritage significance occur on other lands near the Mission Section. These include the Mission Chapel which lies just outside the Aboriginal area (Curby & Humphreys 2002).

Issues

The scattered historic heritage remnants in the Aboriginal area have generally not been recorded and, as such, a complete picture of the historic heritage and its potential significance has not been

obtained. It is necessary to address this issue to ensure the historic heritage in the Aboriginal area is appropriately managed.

Desired outcomes

- Negative impacts on historic heritage values are minimised.
- Understanding of the cultural values of the Aboriginal area is improved.

Management response

3.5.1. Record historic sites and assess their significance so that an appropriate management approach can be applied.

3.5.2. Undertake an archaeological survey and cultural assessment before all works with the potential to impact historic sites and places.

3.6 Visitor use

NPWS parks and reserves provide a range of visitor opportunities. NPWS aims to ensure that visitors enjoy, experience and appreciate the parks while park values are conserved and protected.

Each of the six sections of the Aboriginal area are characterised by different topography, vegetation, and plants and animals. As a result, the Aboriginal area provides visitor opportunities in various natural settings, including grasslands, woodlands, forests, riparian zones, flat plains, undulating hills and mountainous ranges.

The Aboriginal area generally experiences low levels of visitation. Current levels of visitation are centred around low-impact, self-reliant nature-based recreation such as bushwalking, birdwatching, picnicking, nature appreciation and cycling. Visitation to the Aboriginal area needs to be carefully managed as visitors can negatively impact the natural and cultural values of the Aboriginal area. The nature and severity of potential visitor impacts depends on the type, frequency and interaction of activities, visitor numbers and behaviour, site capacity and durability, and the sensitivity of the site's natural and cultural values.

Pets (and other domesticated animals) are not allowed in the Aboriginal area, except when transported in vehicles along Terrergee Road in the Berrygill Section (see Section 5.2).

Vehicular access

NPWS is in the process of reviewing access arrangements within the Aboriginal area. Access strategies have been developed as part of a statewide review of excess Crown lands and will clarify ownership of certain road corridors and seek to provide secure access for management and authorised public access purposes.

Vehicular access to the Aboriginal area for visitors is via the following roads:

- Romaka Road (Terry Hie Hie Section)
- Terry Hie Hie Road (Mission (North) Section)
- Irrigappa Forest Road (Irrigappa Section)
- Mellburra Road (Berrygill Section).

The Courallie and Campbell/Montrose sections and the southern part of Mission Section are accessed via private property and there is no public right of way to these sections. Hence visitor use of the Aboriginal area will be concentrated in the northern part of Mission Section, focusing on the Mission Visitor Area and Yana-y Warruwi Walking Track. The Berrygill, Irrigappa and Terry Hie Hie sections are likely to be used to a lesser extent.

Within the Aboriginal area, the park roads available for public vehicular use are Terrergee Road and Berrygill Trail in the Berrygill Section, and the short access road to the Mission Visitor Area in Mission (North) Section. While these roads are generally available to public vehicle use, they may be closed following wet weather, or due to operational or cultural reasons.

Public vehicular access is not allowed within the Campbell/Montrose, Courallie, Irrigappa, Mission (South) and Terry Hie Hie sections, apart from neighbour access trails in the Campbell/Montrose Section (see Section 5.2).

Visitor facilities

Visitor facilities have been established in the Mission (North) Section of the Aboriginal area in consultation with the Terry Hie Hie Aboriginal Area Joint Management Committee with the intent of providing opportunities to share local Aboriginal culture with visitors. The Mission Visitor Area is close to a ceremonial corroboree ground, with several carved trees, scarred trees and axe grinding grooves nearby. The visitor area incorporates gas barbecues, tables, toilet (disabled access), an information shelter, a bush tucker garden, rainwater tank and carpark for general visitor use.

In consultation with the Terry Hie Hie Aboriginal Area Joint Management Committee, the existing forestry machinery shed has been refurbished to incorporate a meeting room for use by groups as a learning centre (see Section 3.7).

Associated with the Mission Visitor Area is the 3.2-kilometre Yana-y Warruwi Walking Track that makes its way through the cypress pine and silver-leaf ironbark woodland, open grassland and smooth-bark apple (*Angophora costata*) woodland of the Mission (North) Section (see Figure 3).

Camping

No formal camping areas are currently provided in the Aboriginal area. Opportunities for camping and cabin accommodation in a natural setting are available to the south of the Aboriginal area in Mount Kaputar National Park.

Two small areas between the Mellburra Road and Berrygill Creek, close to some significant Aboriginal sites, have been used in the past for cultural camping by Aboriginal people. It is intended that similar low-key usage will be allowed into the future. No formal facilities are proposed for this area, and it will not be signposted or promoted for wider usage. The permissibility of camping will be reviewed if negative impacts are detected at the sites or in the surrounding area.

Camping elsewhere in the Aboriginal area will be subject to NPWS consent.

Cycling and horse riding

Cycling is permitted on park roads and management trails where it will not degrade natural or cultural heritage values. Management trails in the Aboriginal area provide approximately 120 kilometres of cycleway, with the flatter areas in Terry Hie Hie, Irrigappa and Mission sections suitable for less experienced riders and families, and the steeper park roads and management trails in Berrygill offering a more challenging experience (see Figures 2, 3 and 4). Cycling is not permitted off park roads or trails or on designated walking tracks, such as the Yana-y Warruwi Walking Track.

Horse riding is a popular recreational activity that has cultural associations for many Australians. Horse riding is generally considered inappropriate in Aboriginal areas as it has the potential to disturb Aboriginal sites. The Terry Hie Hie Aboriginal Area Joint Management Committee has, however, decided that horse riding should be allowed on management trails in the Berrygill, Irrigappa, Mission (North) and Terry Hie Hie sections of the Aboriginal area as well as park roads (see Figures 2, 3 and 4).

Both uses will be monitored and restrictions may be introduced if unacceptable impacts or other issues emerge.

Group activities

Group activities can provide opportunities for people who would otherwise not be able to experience the Aboriginal area and can promote environmental understanding and support for conservation. Large groups can, however, have an environmental impact and can restrict opportunities for independent visitors and campers.

Non-commercial, large-scale organised group activities may require consent under the National Parks and Wildlife Regulation depending on the nature of the activity or the number of people involved. The standard group size threshold of 40 applies for the Aboriginal area; that is, any groups involving more than 40 people will require written NPWS consent. This consent may be subject to conditions to maintain conservation values and visitor experiences.

Competitive or sporting events of any size will require written consent, however, competitive cycling events will not be permitted in the Aboriginal area. Organised group activities of a commercial nature, regardless of the group's size or nature, require licensing under the National Parks and Wildlife Act.

All proposals for group activities must be consistent with the management principles of the Aboriginal area and be compatible with its natural and cultural heritage values. Applications will be assessed in accordance with relevant NPWS policies and procedures. Group educational activities will be encouraged and approved, subject to conditions on group size, activities and location to protect the values of the Aboriginal area.

Issues

Unauthorised and illegal activities known to occur in the Aboriginal area include pig hunting, rubbish dumping, camping, unregistered and off road trail bike riding, firewood collecting and vandalism. Felling trees and collecting fallen timber for firewood, principally for use outside the park, is a major threat to wildlife habitat in the Aboriginal area (see Section 3.3). Camping, particularly where it involves the use of camp fires, can damage cultural sites and initiate wildfires (see Section 4.2). Signage is required to inform visitors of activities that are not permitted in the Aboriginal area (see Section 3.7).

Community use of the Aboriginal area, particularly where it is associated with the provision of information about the Aboriginal area's values (see Section 3.7), will increase support for its protection and support for NPWS's regulatory actions regarding illegal activities. However, community or visitor use must be balanced with any potential impacts on cultural and natural values. Visitor access will need to be managed to minimise impacts on cultural heritage values (see Section 3.4).

Desired outcomes

- Visitor use of the Aboriginal area is appropriate and ecologically sustainable.
- Negative impacts of visitors on the values of the Aboriginal area are minimised.
- Visitor opportunities encourage appreciation and awareness of the Aboriginal area's values and their conservation.
- Group activities have minimal impacts on the natural and cultural values and other users.

Management response

3.6.1. Implement the Terry Hie Hie Aboriginal Area Reserve Access Strategy.

3.6.2. Provide and promote opportunities for low-impact, self-reliant, nature-based recreation in the Aboriginal area, but only in the Mission (North), Berrygill, Irrigappa and Terry Hie Hie sections.

3.6.3. Maintain the Mission Visitor Area. No camping or wood fires are permitted, except with NPWS consent and agreement from the joint management committee. No additional facilities will be constructed.

3.6.4. Manage cultural camping in the Berrygill Section in consultation with the joint management committee. Use of the sites will be monitored and permissibility reviewed if negative impacts are detected.

3.6.5. Allow cycling on the park roads and management trails in the Berrygill, Irrigappa, Mission (North) and Terry Hie Hie sections only. Cycling will not be allowed off road, off-trail or on designated walking tracks. Trails will be monitored and areas showing signs of unacceptable damage, or where there are risks to cyclists or other users, will be closed to cycling.

3.6.6. Allow horse riding on the park roads and the management trails in the Berrygill, Irrigappa, Mission (North) and Terry Hie Hie sections only. Horse riding will not be allowed off road, off-trail or on designated walking tracks. The road and trail will be monitored and areas showing signs of unacceptable damage, or where there are risks to horse riders or other users, will be closed to horse riding.

3.6.7. Monitor group activities with respect to cumulative impacts, safety requirements and compliance with licence or consent conditions. Licences or consents may be cancelled if there is a breach of the conditions.

3.7 Information and education

Information provision assists the protection of natural and cultural heritage, promotes support for conservation, and increases the enjoyment and satisfaction of visitors. Information is provided at the Mission Visitor Area, with interpretational signage that describes the area and the Aboriginal links to the land provided in the visitor area and along the Yana-y Warruwi Walking Track. Educational material has been developed to be used in conjunction with the signs at the visitor area and walking track. This package is promoted and distributed to local schools.

It is anticipated that visitation to the Aboriginal area will remain relatively low, however, the Terry Hie Hie Aboriginal Area Joint Management Committee would like to encourage more opportunities for on-site interpretation, for example during periods of peak visitation or for special interest groups. This interpretation should focus on the following themes:

- the traditional use of the area by local Aboriginal people and the importance of the Aboriginal area to local contemporary Aboriginal people
- the Aboriginal area's plants and animals, and ecological processes
- the Aboriginal area's geology
- the historic heritage of the area.

The machinery shed located at the Mission Visitor Area has been refitted and refurbished with a meeting room to enable it to be used as a learning centre. It is also occasionally used by NPWS for storage of materials and machinery (see Section 5.1).

Issues

Interpretation of the Aboriginal area's value is currently limited to information displays and trackside signage in the Mission (North) Section and an education package for schools.

While other signage has been progressively updated since 2006 to reflect the change in tenure from state forest to Aboriginal area, there are still a number of signs to be replaced or updated to bring the signage in line with current NPWS standards. Priorities are park entry and boundary signs that accurately identify the Aboriginal area as Terry Hie Hie Aboriginal Area and the removal of obsolete forestry signs. Additional regulatory signs are also required to assist with the management of illegal activities (see Section 3.6).

There is no power connected to the learning centre in the shed at the Mission Visitor Area. Changes in visitor patterns and demand, in particular an expansion of visitor use, may warrant the ongoing expense of providing power to the building. This would require further investigation.

Desired outcomes

- There is widespread community understanding and appreciation of the Aboriginal area's natural and cultural values.
- Visitors are aware of the Aboriginal area's recreation opportunities and can easily find their way to the facilities.
- The Aboriginal area is a useful educational resource for local schools and community organisations.
- Group activities facilitate a quality experience for participants, enhancing their understanding and appreciation of the natural and cultural heritage value of the Aboriginal area.

Management response

3.7.1. Maintain orientation and interpretive signs at the Mission Visitor Area and the associated walking track, and upgrade and expand the signage as required.

3.7.2. Provide safety and minimal impact use information at the Mission Visitor Area and the area used for cultural camping in the Berrygill Section.

3.7.3. Install and maintain NPWS boundary and regulatory signage and replace or remove obsolete forestry signs.

3.7.4. Provide additional directional signposting within the Aboriginal area as required.

3.7.5. Subject to demand and the outcomes of a cost-benefit analysis, provide power to the shed at the Mission Visitor Area if feasible.

3.7.6. Involve the local Aboriginal community in development of material and programs for interpretation of Aboriginal culture.

3.7.7. Support and assist educational use of the Aboriginal area by schools, community groups and individuals through distributing the education package and providing programs such as guided walks and talks.

3.7.8. Prepare appropriate and relevant public information resources for the Aboriginal area to be used to promote the values of the area to local communities and interest groups.

4. Threats

4.1 Pests

Pest species are plants, animals and pathogens that have negative environmental, economic and social impacts. Commonly they are introduced species. Pests can have impacts across the range of park values, including impacts on biodiversity, cultural heritage, catchment and scenic values.

The *Biosecurity Act 2015* and its regulations provide specific legal requirements for the response, management and control of biosecurity risks, including weeds and pest animals. These requirements apply equally to public and privately owned land. Under this framework, Local Land Services (LLS) has prepared regional strategic weed management plans and regional strategic pest animal management plans for each of its 11 regions, including the North West Region (North West LLS 2017, 2018).

The LLS plans identify priority weeds and pest animals in each of the regions, plus the appropriate management response for the region (i.e. prevention/alert, eradication, containment or asset protection).

NPWS prepares regional pest management strategies which identify the operations and control actions undertaken by NPWS to meet the priorities from regional strategic pest and weed management plans. This also includes other important programs such as the *Biodiversity Conservation Program* (see Sections 3.2 and 3.3). The overriding objective of the NPWS regional pest management strategies is to minimise adverse impacts of introduced species on biodiversity and other park and community values while complying with legislative responsibilities. These strategies are regularly updated. Reactive programs may also be undertaken in cooperation with neighbouring land managers, in response to emerging issues.

Pest species that are also key threatening processes may be managed under the *Biodiversity Conservation Program* where it includes key threatening processes strategies. The *Saving our Species* program has developed targeted strategies for managing key threatening processes using the best available information to minimise current and future impacts of key threatening processes on priority biodiversity values, including threatened species and ecological integrity.

Major pests of concern in the parks are listed in Table 5. These are currently targeted in priority regional pest programs. However, priorities may change over time as pests are brought under control, or as new threats emerge.

Table 5 Priority pest plants and animals in the Aboriginal area

Common name	Scientific name	Location in Aboriginal area
Weeds		
Common prickly pear Velvet tree pear	*Opuntia stricta* *Opuntia tomentosa* [1]	Occur in all sections of the Aboriginal area at varying densities
Coolatai grass	*Hyparrhenia hirta* [2]	Found on farmed encroachment and adjacent to Campbell/Montrose Section
Green cestrum	*Cestrum parqui* [3]	Occurs along Cap and Bonnet Creek in the Terry Hie Hie Section
Spiny burr grass	*Cenchrus incertus* *C. longispinus* [2]	Found on the sandy rises within the Irrigappa Section
Pest animals		
European red fox	*Vulpes vulpes* [2 3 4 5 6]	Widespread populations in all sections
Feral cat	*Felis catus* [2 3 5]	Scattered populations in all sections
Feral goat	*Capra hircus* [2 3 5]	Isolated populations in Berrygill and Courallie sections, and scattered occurrences in other sections
Feral pig	*Sus scrofa* [2 3 4 5 6]	Scattered populations in all sections

1 State-level priority weed under the *Biosecurity Act 2015*.

2 Key threatening process under the Biodiversity Conservation Act.

3 Identified as a regional level priority weed or pest animal (North West LLS 2017, 2018).

4 Declared 'pest' under the *Local Land Services Act 2013*.

5 Key threatening process under the Environment Protection and Biodiversity Conservation Act.

6 Threat abatement plan endorsed for this species.

Weeds

Common prickly pear and **velvet tree pear** occur in isolated infestations in the Aboriginal area. These are identified as state-level priority weeds, as dense patches of prickly pears can form impenetrable barriers and harbour pest animals such as rabbits. Seasonal weed spraying operations

occur throughout the year to control these species and to achieve the mandatory statewide requirement of protecting assets such as the Aboriginal area's natural and cultural values.

Green cestrum is an invasive plant that grows well on alluvial creek flats, often to the exclusion of other vegetation. It is toxic to cattle, sheep, horses, pigs and poultry, and is also claimed to be toxic to birds and bees that feed on the fruit and flowers. Terry Hie Hie Aboriginal Area lies in the exclusion zone where the objectives for management under the regional strategic weed management plan are prevention and eradication (North West LLS 2017). The infestation along Cap and Bonnet Creek in the Terry Hie Hie Section has been identified as a critical priority for control in the NPWS Northern Plains pest management strategy. It occurs in vegetation classed as Box Gum Woodland endangered ecological community (see Section 3.2). Control is carried out using both physical removal and herbicide application.

Spiny burr grass competes with and displaces native species. It readily establishes on disturbed sites and each plant can yield up to 1000 seeds. The seeds are encased within burrs containing barbed spines which readily attach to vehicles, machinery and animals, and can degrade visitor areas. Due to the extent of infestations of spiny burr grass in previously disturbed areas of the Irrigappa Section, the most efficient and effective method of control is herbicide application. Chemicals available for this are effective but are non-selective in nature.

In addition to the weeds listed here, there are generalist weed species that may be found in most vegetation communities. All weeds species compete with native vegetation for resources, alter vegetation community structure, restrict access for recreation and management purposes, and may provide refuge for pest animals and restrict the movement of native animals.

Pest animals

Vertebrate pests are affecting the values of the Aboriginal area to varying degrees. Where possible, control programs are coordinated and implemented in collaboration with neighbours, Local Land Services and other agencies. Aerial shooting, baiting and trapping may be used.

The impact of **feral pigs** on conservation values is due to their foraging, wallowing and digging behaviours which cause major disturbance and damage to soils, roots, sensitive plants and wetland environments. Areas disturbed by feral pigs are at risk from subsequent weed invasion, soil erosion, and reduced water quality in creeks and pools. As well as competing with native animals for food resources they prey on native birds, reptiles, frogs and soil invertebrates; and are a potential host of a number of exotic diseases. In agricultural settings, pigs can significantly increase the cost of production. The impacts of feral pigs are listed as a key threatening process at federal and state levels (NSW SC 2004b; TSSC 2001b).

Pig populations within the Aboriginal area are influenced by seasonal conditions. The focus of activity in the Aboriginal area is along Berrygill and Tycannah creeks. When conditions are suitable, pigs spread throughout the Aboriginal area and onto neighbouring lands where they can damage crops, causing considerable losses in the high-yielding cropping areas.

The impact of **feral goats** on conservation values is substantial because they graze native plants; compete with native animals for food, water and shelter; spread weeds; trample vegetation and damage Aboriginal heritage sites. Congregation of goats in favoured locations can result in overgrazing and soil erosion. The impact of feral goats is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2004a) and Environment Protection and Biodiversity Conservation Act (DoE 2009).

Goat numbers in the Aboriginal area are generally low, focused around the higher ridges of the Courallie and Berrygill sections.

Red foxes suppress native animal populations, particularly medium-sized mammals, ground-nesting birds and freshwater turtles. They have also been implicated in the spread of a number of weed species such as blackberry. As foxes are known to prey on domestic stock, including lambs and poultry, the European red fox is a declared pest throughout New South Wales. Predation by the

European red fox is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 1998) and Environment Protection and Biodiversity Conservation Act (DSEWPC 2011).

Foxes occur in the Aboriginal area and surrounding landscape. Fox numbers are generally higher nearer the edge of the Aboriginal area as they tend to use the forest as refuge and forage out into the surrounding agricultural lands. Fox baiting to protect the border thick-tailed gecko in the Aboriginal area is carried out in accordance with the NPWS regional pest management strategy.

Feral cats are found in nearly all habitats across Australia. They are known to prey on native species such as small mammals and birds, reptiles, amphibians and invertebrates. This is a particular concern in modified, fragmented environments such as previously logged areas where alternative prey such as rabbits or mice fluctuate in abundance. Cats have contributed to the disappearance of many ground-dwelling birds, small mammals, reptiles and amphibians. Predation by feral cats is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2000c) and Environment Protection and Biodiversity Conservation Act (DoE 2009).

The distribution of cats and their true ecological impact on the Aboriginal area is unknown. Management programs for feral cats are difficult due to the lack of effective and humane broadscale control techniques. Feral cats are generally shy of traps and humans, do not take buried baits and are mostly nocturnal, making the implementation of control programs more difficult than other invasive species. Control is opportunistic when targeting other pest species.

Desired outcomes

- Pest plants and animals are controlled and where possible eliminated.
- Negative impacts of introduced species on the Aboriginal area's values are minimised.

Management response

4.1.1. Continue weed control and pest animal control programs as outlined in pest management strategies relevant to the Aboriginal area, with current priority given to green cestrum, feral pigs and foxes.

4.1.2. Undertake pest plant and animal control programs in cooperation with North West Local Land Services, Moree Plains Shire Council and neighbours.

4.1.3. Monitor state-level and regional level priority weeds, and significant environmental weeds and their impacts. Treat any new outbreaks as a priority where possible.

4.2 Fire

The primary objectives of NPWS fire management are to protect life, property, community assets and cultural heritage from the adverse impacts of fire, while also managing fire regimes in parks to maintain and enhance biodiversity. NPWS also assists in developing fire management practices that contribute to conserving biodiversity and cultural heritage across the landscape, and implements cooperative and coordinated fire management arrangements with other fire authorities, neighbours and the community (OEH 2013a).

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 the ecological impacts of high frequency fires have been listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2000b).

Generally the forest and woodlands of the Aboriginal area have low to moderate fuel loads. These areas are susceptible to fire but generally have a long interval between fire events. The principal fire risk in the Aboriginal area is generated by ephemeral grasses that grow following wet springs and summers. These grasses increase the fuel loads, change the structure of the vegetation and readily ignite.

Separate fire management strategies that define the fire management approach for the Aboriginal area have been prepared for each section and are updated periodically (NPWS 2015b–g). The strategies outline recent fire history of the section, key assets within and adjoining each section (including sites of natural and cultural heritage value), and fire control advantages such as management trails, water supply points and zones where fuel levels are reduced.

They also contain fire regime guidelines for the conservation of the Aboriginal area's vegetation communities. These guidelines include implementing appropriate fire regimes on a mosaic basis to ensure that not all habitat and food resources within a locality are burnt at one time, to retain a diverse understorey, promote natural succession and allow the regeneration of she-oaks. Fire will also be managed to maintain and where necessary restore structural diversity to woodland ecosystems and preserve old-growth elements.

The fire history in what is now the Aboriginal area is only partially known, with no records of wildfire or hazard reduction burns before 2006. A number of hazard reduction burns have been implemented since 2006 targeting strategic zones in the Berrygill, Irrigappa, Terry Hie Hie and Mission sections.

Assets that are at risk of damage from fire and fire suppression works in the Aboriginal area include visitor infrastructure at the Mission Visitor Area and other infrastructure such as boundary fences and signs. Habitat for threatened species such as the black-striped wallaby and glossy black-cockatoo is also at risk due to fire changing the vegetation structure, loss of nest trees and reduced abundance of she-oaks. Aboriginal cultural heritage sites such as stone artefacts, scarred trees and tools can be threatened directly by fire and through the construction of fire trails and use of machinery such as dozers, motor vehicles and hand tools.

Updates to the fire management strategies are triggered when new information becomes available, such as additional Aboriginal and historic heritage sites that require protection from fire or improved understanding of the fire ecology of the Aboriginal area's vegetation, or after fire events.

NPWS maintains cooperative arrangements with surrounding landowners and the Rural Fire Service and is actively involved with the Narrabri/Moree Bush Fire Management Committee. Cooperative arrangements include fire planning, fuel management and information sharing. Hazard reduction programs, ecological burning proposals and fire trail works are provided annually to the bush fire management committee.

Desired outcomes

- Negative impacts of fire on life, property and the environment are minimised.
- The potential for spread of bushfires on, from or into the Aboriginal area is minimised.
- Fire regimes are appropriate for conservation of native plant and animal communities.

Management response

4.2.1. Implement the fire management strategies for the Aboriginal area and update them as required.

4.2.2. Continue to be involved in the Narrabri/Moree Bush Fire Management Committee and maintain cooperative arrangements with local Rural Fire Service brigades and other fire authorities and surrounding landowners in regard to fuel management and fire suppression.

4.2.3. Suppress unplanned fires in the Aboriginal area in accordance with the fire management strategies and NPWS policy.

4.2.4. Manage the Aboriginal area to protect biodiversity in accordance with the identified fire regimes in the fire management strategies. Monitor the ability of plants to recover between fires and review regimes where relevant.

4.2.5. Rehabilitate areas disturbed by fire suppression operations as soon as practical after the fire.

4.3 Isolation, fragmentation and climate change

The area surrounding each of the disjunct sections of the Aboriginal area has been extensively cleared, which has resulted in a high loss of biodiversity and fragmentation of habitat in the region. Some connectivity between each section is provided by remnant vegetation in the network of road reserves, waterway reserves and travelling stock reserves. Long-term conservation of biodiversity depends on the protection, enhancement and connection of these areas of remaining habitat across the landscape, on both public and private lands. Nearby vegetated areas contribute to the habitat values of the Aboriginal area. Facilitating wildlife movement through maintaining and improving vegetated corridors, which provide links between each section of the Aboriginal area and to adjacent vegetated areas, is important in ensuring long-term viability of the Aboriginal area's biological values.

Human-induced climate change is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2000a) and the associated loss of habitat is listed under the Environment Protection and Biodiversity Conservation Act (TSSC 2001a).

The latest information on projected changes to climate is from the NSW and ACT Regional Climate Modelling (NARClim) project (OEH 2014). The climate projections for 2020–39 are described as 'near future'; and projections for 2060–79 are described as 'far future'. The snapshot shown in Table 5 is for the New England North West Region which includes Terry Hie Hie Aboriginal Area (OEH 2014).

Table 6 New England North West Region climate change snapshot

Projected temperature changes:	
Maximum temperatures are projected to **increase** in the near future by 0.4–1.0°C	Maximum temperatures are projected to **increase** in the far future by 1.9–2.7°C
Minimum temperatures are projected to **increase** in the near future by 0.5–1.0°C	Minimum temperatures are projected to **increase** in the far future by 1.6–2.7°C
The number of hot days (with maximum temperatures > 35°C) will **increase**	The number of cold nights (with minimum temperatures < 2°C) will **decrease**
Projected rainfall changes:	
Rainfall is projected to **decrease** over most of the region in winter	Rainfall is projected to **increase** in autumn
Projected Forest Fire Danger Index changes:	
Average fire weather is projected to **increase** in summer, spring and winter	Severe fire weather days are projected to **increase** in summer and spring

Source: OEH 2014.

The projected increases in temperature, number of hot days and severe fire weather days (OEH 2014) are likely to influence bushfire frequency and intensity across the region. Higher rainfalls in autumn may lead to greater intensity of regional flooding, increased average runoff and water availability, but decreased rainfall in winter may lead to more severe short-term droughts (DECCW 2010).

Climate change may significantly affect biodiversity by changing the size of populations and the distribution of species, altering both wildlife habitat and the geographical extent and composition of ecosystems. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes, slow growth rates or specialist foraging requirements.

The potential impact of climate change on Terry Hie Hie Aboriginal Area is difficult to predict since it depends on the compounding effects of other pressures, particularly barriers to migration and pressure from introduced animals. It is likely that reductions in vegetation cover and productivity due to poorer growing conditions will leave soils more vulnerable to wind and water erosion, and reduce foraging habitat and the capacity of the individual sections of the Aboriginal area to support viable populations of wildlife.

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

Desired outcomes

- The values of the Aboriginal area as part of a regional corridor for wildlife movement are maintained and improved.
- The effects of climate change on natural systems are minimised.

Management response

4.3.1. Encourage neighbouring landholders to maintain and enhance the integrity of native vegetation on their lands to improve the connectivity of wildlife habitat across the landscape.

4.3.2. Continue existing fire, pest and weed management programs to increase the Aboriginal area's ability to cope with future disturbances, including climate change, and encourage research into appropriate indicators to monitor the effects of climate change.

5. Management operations and other uses

5.1 Management facilities and operations

Access for management

In addition to the public and park roads which are available for vehicular use by the general public (see Section 3.6), there is an extensive network of management trails in the Aboriginal area (see Figures 2–4). The management trails in the Aboriginal area are for NPWS management purposes including fire management, pest control, law enforcement and activities related to maintaining Aboriginal sites. Walkers, cyclists and horse riders (see Section 3.6) may use management trails in the Berrygill, Irrigappa, Mission (North) and Terry Hie Hie sections of the Aboriginal area.

Gates and increased regulatory signage may be required to prevent unauthorised vehicle use of management trails. These restrictions are considered necessary as many of these trails are generally not suitable for public use due to the terrain, soil types and localised erosion (see Section 3.1). Established for purposes such as silviculture, timber harvesting and fire management, most were never constructed to cope with ongoing use, particularly in wet weather. Unrestricted use has accelerated the degradation of trails in the Aboriginal area and resulted in illegal activities such as firewood collection.

A number of trails within the Aboriginal area are not required for management or visitor access, and will not be maintained. They are identified as ‘dormant’ trails in the fire management strategies (see Section 4.2) and may be temporarily reopened in fire suppression operations as necessary but then closed and allowed to revegetate.

The Courallie, Mission (South) and Campbell/Montrose sections can only be accessed through neighbouring properties on roads that are not contained within public road reserves. Access to these sections of the Aboriginal area for management purposes is subject to agreement from the neighbouring landholders, and is being formalised via easements to guarantee ongoing access for management. These sections of the Aboriginal area will not be promoted for visitation.

Boundary fences

Grazing by domestic stock can cause significant changes to the structure and composition of native vegetation. Grazing impairs the growth and regeneration of native vegetation, accelerates soil erosion, creates environments favourable for colonisation by introduced plants and assists weed spread. These changes, in turn, impact wildlife populations due to changes in the availability of resources such as food and shelter (DEC 2004). In addition, trampling by stock may impact Aboriginal sites. Straying stock from neighbouring properties is an issue in those sections of the Aboriginal area where boundary fencing is inadequate or non-existent.

A priority for NPWS is to gain the cooperation of neighbours in regard to the construction and maintenance of effective boundary fencing. Although not legally bound by the *Dividing Fences Act 1991*, NPWS may contribute to the cost of boundary fencing with neighbours where resources are available and where it is necessary for the exclusion of livestock.

Other management facilities

There are several dams, constructed before the reservation of the Aboriginal area, located in most sections. These now provide water points for firefighting. See Section 4.2.

The machinery shed at the Mission Visitor Area operates as a learning centre (see Section 3.7), and is also occasionally used by NPWS for temporary storage of materials and machinery on an as needs basis.

Desired outcomes

- Management facilities and operations adequately serve management needs and have minimal impact on the Aboriginal area's values.
- Unauthorised use of management trails is prevented.
- Legal access to all sections of the Aboriginal area is secured for management purposes.

Management response

5.1.1. Install gates or regulatory signs, or both, on management trails and undertake patrols to restrict illegal activity as required.

5.1.2. Close trails not shown on Figures 2, 3 and 4 and those identified as being surplus to management requirements.

5.1.3. Monitor the trail network condition and undertake maintenance as required.

5.1.4. Negotiate and maintain access easements to secure permanent management access to the Courallie, Mission (South) and Campbell/Montrose sections.

5.1.5. Encourage construction and maintenance of effective boundary fences to exclude stock from the Aboriginal area. Subject to available resources, fencing assistance may be provided in accordance with NPWS policy.

5.1.6. Maintain water points in accordance with the Aboriginal area's fire management strategies.

5.2 Non-NPWS uses and operations

Authorised occupations and access

The Terry Hie Hie Section includes two parcels of farmed land, of approximately 120 hectares, which are vested in the Minister administering the National Parks and Wildlife Act for the purposes of Part 11 of that Act (see Figure 2). The occupation and farming of these parcels of land were authorised under the former NSW *Forestry Act 1916* through occupation permits for the purposes of grazing and cropping. Cropping on the larger of these two parcels (~90 hectares) by the adjoining landowner continues to be authorised by NPWS. These Part 11 lands have a long history of disturbance and have been extensively modified. Their current use is not compatible with the Aboriginal area and it is intended to examine options for their future management, including removal from NPWS management.

Other Part 11 lands within the Aboriginal area include the neighbour access trails through the Campbell/Montrose Section, and the corridor of Terrergee Road in the Berrygill Section (see Figure 4). These were excluded from the lands reserved as Aboriginal area to ensure continued access to neighbouring land. While these roads do not form part of the reserved area of Terry Hie Hie Aboriginal Area, their management is subject to this plan and the National Parks and Wildlife Regulation.

The neighbour access trails are mainly used as a convenient shortcut to move machinery from one property to another. While they may continue to be used for purposes for which they were used immediately before reservation of the Aboriginal area, their maintenance is subject to NPWS consent and any upgrade of these trails would be subject to a formal access agreement.

In contrast, Terrergee Road provides the only practical access to private property neighbouring the Aboriginal area and is also used as a public thoroughfare between Mellburra Road and Killarney Gap Road. This road is currently maintained by Moree Plains Shire Council and NPWS is currently negotiating the transfer of this road's corridor to council's control.

Unauthorised encroachments

There is a significant anomaly in the boundary fencing along the south western boundary of the Campbell/Montrose Section. At some unknown point in the past, approximately 40 hectares of what is now the Aboriginal area were fenced into the neighbour's property. This land is cleared and has been farmed for many years. As NPWS has no record of this occupation being formally authorised under the Forestry Act, it cannot be treated as an existing interest under the National Parks and Wildlife Act. It is necessary to investigate this anomaly further and, if possible, return this section of the Aboriginal area to NPWS control and revegetate the land.

Apiary sites

Nine apiarists currently maintain European honeybee (*Apis mellifera*) hives seasonally within the Aboriginal area, at 45 designated sites. These sites are recognised as existing interests under the National Parks and Wildlife Act as they are authorised uses that pre-date the Aboriginal area's reservation. NPWS's *Beekeeping Policy* (NPWS 2016) allows existing sites to continue but does not allow any new or additional sites.

Sites are limited in size and maintained by mowing or slashing. While no problems are currently known in the Aboriginal area, hive sites may cause unacceptable environmental impacts or user conflicts in the future. Where needed, NPWS will aim to negotiate relocation of hives to sites that allow the closure of trails or minimise the impact of the honeybees.

The European honeybee can have adverse impacts on some native plants and animals (Paton 1996) including poor flower pollination and competition with native nectar feeders. Feral hives also occupy hollows that would otherwise provide habitat for a range of native animals such as possums, owls and parrots (see Section 3.3).

Desired outcomes

- Non-NPWS uses and occupations have minimal impacts on the Aboriginal area's values and are appropriately authorised under the National Parks and Wildlife Act.

Management response

5.2.1. Seek to negotiate a formal access agreement with the relevant neighbours for their use and maintenance of the neighbour access trails through the Campbell/Montrose Section.

5.2.2. Work with Moree Plains Shire Council to transfer Terrergee Road to council's control. In the meantime, allow the transport of animals by vehicle along Terrergee Road as long as the vehicle does not stop and the animal remains within the vehicle.

5.2.3. NPWS will undertake an assessment of the future management of the Part 11 lands before seeking approval for removal from NPWS management. Until such time, continue to authorise farming operations on these lands.

5.2.4. Investigate the boundary anomaly in the Campbell/Montrose Section with the aim of managing the land as part of the Aboriginal area.

5.2.5. Continue to authorise and manage the apiary sites within the Aboriginal area in accordance with NPWS policy. If a site significantly compromises the environmental values of the area or leads to user conflicts, or is situated on a trail that should be closed, it will be relocated in consultation with the apiarist.

5.2.6. Monitor use of apiary sites and, if feasible, remove or destroy any feral beehives that may establish in the Aboriginal area.

6. Implementation

This plan of management establishes a scheme of operations for the Aboriginal area. Implementation of this plan will be undertaken within the annual program of the NPWS. Identified activities for implementation are listed in Table 6. Relative priorities are allocated against each activity as follows:

High priority activities are imperative to achieving the plan's objectives and desired outcomes, and must be undertaken in the near future to avoid significant deterioration in natural, cultural or management resources.

Medium priority activities are necessary to achieve the plan's objectives and desired outcomes but are not urgent.

Low priority activities are desirable to achieve the plan's objectives and desired outcomes but can wait until resources become available.

Ongoing activities are undertaken on an annual basis or in response to an issue that arises.

This plan of management does not have a specific term and will stay in force until amended or replaced in accordance with the National Parks and Wildlife Act.

Table 7 List of management responses

Management response	Priority
Geology, landscape and hydrology	
3.1.1 Undertake remedial action where runoff is causing gully erosion, sediment displacement or degradation of park roads or management trails.	High
3.1.2 Close trails that are excess to management requirements and allow them to revegetate.	Medium
Native plants	
3.2.1 Implement relevant strategies in the *Biodiversity Conservation Program* for threatened ecological communities present in the Aboriginal area (see Table 2), and for any threatened plant species should they be found.	High
3.2.2 Within the area reserved as Aboriginal area, encourage the natural regeneration of lands subjected to previous clearing and other disturbance, supplementing natural regeneration with weed control, site preparation and revegetation programs where necessary.	Ongoing
Native animals	
3.3.1 Implement relevant strategies in the *Biodiversity Conservation Program* and recovery plans for threatened species and populations present in the Aboriginal area.	High
3.3.2 In accordance with the Northern Plains Biodiversity Monitoring Strategy, encourage or undertake regular surveys in the Aboriginal area to monitor changes in wildlife communities over time.	Medium
3.3.3 Implement management regimes that retain hollow-bearing trees, fallen logs and ground debris, and protect she-oaks in the Aboriginal area.	Ongoing
Aboriginal heritage	
3.4.1 Continue to consult and involve the Terry Hie Hie Aboriginal Area Joint Management Committee in the management of the Aboriginal area, including the management of Aboriginal cultural heritage and natural values.	Ongoing
3.4.2 Pursue opportunities to involve Gamilaroi People in working with NPWS on projects such as revegetation works, site protection and maintenance works, development of interpretive signage and Aboriginal site surveys.	Ongoing

Management response	Priority
3.4.3 Undertake an archaeological survey and cultural assessment before all works with the potential to impact Aboriginal sites or values.	Ongoing
3.4.4 Encourage further research into the Aboriginal cultural heritage values of the Aboriginal area with the Terry Hie Hie Aboriginal Area Joint Management Committee.	High
3.4.5 Reinstate and maintain the fence around the bora ground in the Courallie Section to prevent damage from straying stock.	High
3.4.6 Work with the Moree Local Aboriginal Land Council to maintain the fence around the traditional burial site and provide access as required through the Aboriginal area.	Ongoing
3.4.7 Continue to identify and actively manage places where sustainable cultural, social and wild resource use can occur and issue consents with conditions as appropriate for this use.	Ongoing
3.4.8 Investigate and pursue opportunities to record oral histories of people with connections to the area.	High
3.4.9 In consultation with the Terry Hie Hie Aboriginal Area Joint Management Committee, investigate the feasibility of holding culture camps in the Aboriginal area. If feasible, provide consent with conditions for culture camp opportunities within the Aboriginal area.	High
3.4.10 Investigate the feasibility of using Gamilaroi language for place names within the Aboriginal area.	Medium
3.4.11 In accordance with the memorandum of understanding, facilitate access by Aboriginal community members to areas of the park.	Ongoing
Shared heritage	
3.5.1 Record historic sites and assess their significance so that an appropriate management approach can be applied.	Medium
3.5.2 Undertake an archaeological survey and cultural assessment before all works with the potential to impact historic sites and places.	Ongoing
Visitor use	
3.6.1 Implement the Terry Hie Hie Aboriginal Area Reserve Access Strategy	Ongoing
3.6.2 Provide and promote opportunities for low-impact, self-reliant, nature-based recreation in the Aboriginal area, but only in the Mission (North), Berrygill, Irrigappa and Terry Hie Hie sections.	Ongoing
3.6.3 Maintain the Mission Visitor Area. No camping or wood fires are permitted, except with NPWS consent and agreement from the joint management committee. No additional facilities will be constructed	Ongoing
3.6.4 Manage cultural camping in the Berrygill Section in consultation with the joint management committee. Use of the sites will be monitored and permissibility reviewed if negative impacts are detected.	Low
3.6.5 Allow cycling on the park roads and management trails in the Berrygill, Irrigappa, Mission (North) and Terry Hie Hie sections. Cycling will not be allowed off road, off-trail or on designated walking tracks. Trails will be monitored and areas showing signs of unacceptable damage, or where there are risks to cyclists or other users, will be closed to cycling.	Ongoing
3.6.6 Allow horse riding on the park roads and the management trails in the Berrygill, Irrigappa, Mission (North) and Terry Hie Hie sections only. Horse riding will not be allowed off road, off-trail or on designated walking tracks. The road and trail will be monitored and areas showing signs of unacceptable damage, or where there are risks to horse riders or other users, will be closed to horse riding.	Ongoing
3.6.7 Monitor group activities with respect to cumulative impacts, safety requirements and compliance with licence or consent conditions. Licences or consents may be cancelled if there is a breach of the conditions.	Ongoing
Information and education	

Management response	Priority
3.7.1 Maintain orientation and interpretive signs at the Mission Visitor Area and the associated walking track, and upgrade and expand the signage as required.	Ongoing
3.7.2 Provide safety and minimal impact use information at the Mission Visitor Area and the area used for cultural camping in the Berrygill Section.	High
3.7.3 Install and maintain NPWS boundary and regulatory signage and replace or remove obsolete forestry signs.	High
3.7.4 Provide additional directional signposting within the Aboriginal area as required.	Medium
3.7.5 Subject to demand and the outcomes of a cost-benefit analysis, provide power to the shed at the Mission Visitor Area if feasible.	Low
3.7.6 Involve the local Aboriginal community in development of material and programs for interpretation of Aboriginal culture.	Ongoing
3.7.7 Support and assist educational use of the Aboriginal area by schools, community groups and individuals through distributing the education package and providing programs such as guided walks and talks.	Ongoing
3.7.8 Prepare appropriate and relevant public information resources for the Aboriginal area to be used to promote the values of the area to local communities and interest groups.	Medium
Pests	
4.1.1 Continue weed control and pest animal control programs as outlined in pest management strategies relevant to the Aboriginal area, with current priority given to green cestrum, feral pigs and foxes.	Ongoing
4.1.2 Undertake pest plant and animal control programs in cooperation with North West Local Land Services, Moree Plains Shire Council and neighbours.	Medium
4.1.3 Monitor state-level and regional level priority weeds, and significant environmental weeds and their impacts. Treat any new outbreaks as a priority where possible.	Ongoing
Fire	
4.2.1 Implement the fire management strategies for the Aboriginal area and update them as required.	High
4.2.2 Continue to be involved in the Narrabri/Moree Bush Fire Management Committee and maintain cooperative arrangements with local Rural Fire Service brigades and other fire authorities and surrounding landowners in regard to fuel management and fire suppression.	Ongoing
4.2.3 Suppress unplanned fires in the Aboriginal area in accordance with the fire management strategies and NPWS policy.	High
4.2.4 Manage the Aboriginal area to protect biodiversity in accordance with the identified fire regimes in the fire management strategies. Monitor the ability of plants to recover between fires and review regimes where relevant.	Ongoing
4.2.5 Rehabilitate areas disturbed by fire suppression operations as soon as practical after the fire.	Ongoing
Isolation, fragmentation and climate change	
4.3.1 Encourage neighbouring landholders to maintain and enhance the integrity of native vegetation on their lands to improve the connectivity of wildlife habitat across the landscape.	Ongoing
4.3.2 Continue existing fire, pest and weed management programs to increase the Aboriginal area's ability to cope with future disturbances, including climate change, and encourage research into appropriate indicators to monitor the effects of climate change.	Ongoing
Management facilities and operations	
5.1.1 Install gates or regulatory signs, or both, on management trails and undertake patrols to restrict illegal activity as required.	Medium

Management response	Priority
5.1.2 Close trails not shown on Figures 2, 3 and 4 and those identified as being surplus to management requirements.	Medium
5.1.3 Monitor the trail network condition and undertake maintenance as required.	Ongoing
5.1.4 Negotiate and maintain access easements to secure permanent management access to the Courallie, Mission (South) and Campbell/Montrose sections.	High
5.1.5 Encourage construction and maintenance of effective boundary fences to exclude stock from the Aboriginal area. Subject to available resources, fencing assistance may be provided in accordance with NPWS policy.	Ongoing
5.1.6 Maintain water points in accordance with the Aboriginal area's fire management strategies.	Ongoing
Non-NPWS uses and operations	
5.2.1 Seek to negotiate a formal access agreement with the relevant neighbours for their use and maintenance of the neighbour access trails through the Campbell/Montrose Section.	Low
5.2.2 Work with Moree Plains Shire Council to transfer Terrergee Road to council's control. In the meantime, allow the transport of animals by vehicle along Terrergee Road as long as the vehicle does not stop and the animal remains within the vehicle.	Ongoing
5.2.3 NPWS will undertake an assessment of the future management of the Part 11 lands prior to seeking approval for removal from NPWS management. Until such time, continue to authorise farming operations on these lands.	Ongoing
5.2.4 Investigate the boundary anomaly in the Campbell/Montrose Section with the aim of managing the land as part of the Aboriginal area.	Medium
5.2.5 Continue to authorise and manage the apiary sites within the Aboriginal area in accordance with NPWS policy. If a site significantly compromises the environmental values of the area or leads to user conflicts, or is situated on a trail that should be closed, it will be relocated in consultation with the apiarist.	Ongoing
5.2.6 Monitor use of apiary sites and, if feasible, remove or destroy any feral beehives that may establish in the Aboriginal area.	Ongoing

Appendix A: Plant communities found in the Aboriginal area

Communities in the table are listed from the largest area to the smallest area. Area (hectares) is calculated from geographical information system and so the total area may differ slightly from reserved areas stated in the Brigalow and Nandewar Community Conservation Area Act.

Name of plant community	Area (ha)	Reservation status	Section of Aboriginal area
White Cypress Pine – Silver-leaved Ironbark	6440	Well reserved, not currently of concern	Berrygill, Courallie, Campbell/Montrose, Irrigappa, Mission
White Cypress Pine – Wilga Woodland	2201	Well reserved, not currently of concern	Terry Hie Hie
White Cypress Pine – Red Ash – Narrow-leaved Ironbark Woodland	1690	Well reserved, not currently of concern	Terry Hie Hie
Black Cypress Pine – Narrow-leaved Ironbark – Brown Bloodwood	768	Well reserved, not currently of concern	Berrygill, Terry Hie Hie
White Box – White Cypress Pine Woodland	708	Generally not of concern, well reserved across its range	Campbell/Montrose
Smooth-barked Apple – White Cypress Pine Woodland	684	Well reserved, not currently of concern	Irrigappa, Mission, Terry Hie Hie
Black Cypress Pine – Narrow-leaved Ironbark	617	Well reserved, not currently of concern	Berrygill
Green Mallee – White Cypress Pine Low Woodland	560	Well reserved, not currently of concern	Terry Hie Hie
Queensland Bluegrass – Cottonbush Low Open Woodland	500	Native grassland on fine-textured alluvial soils – including areas dominated by bluegrass (*Dichanthium* spp.) in the absence of cottonbush – is listed as **critically endangered** nationally	Campbell/Montrose, Irrigappa, Terry Hie Hie
White Cypress Pine – Black Cypress Pine – Narrow-leaved Ironbark	428	Well reserved, not currently of concern	Berrygill

Name of plant community	Area (ha)	Reservation status	Section of Aboriginal area
White Cypress Open Woodland	273	Well reserved, not currently of concern	Courallie
Black Tea-tree Woodland	212	Well reserved, not currently of concern	Berrygill, Courallie, Campbell/Montrose, Terry Hie Hie
Black Cypress Pine – Silver-leaved Ironbark	77	Well reserved, not currently of concern	Berrygill, Courallie
Wilga – Poplar Box	57	Well reserved, not currently of concern	Mission
Brigalow Woodland	41	Listed as **endangered** in NSW and nationally	Terry Hie Hie
Belah Woodland	37	Poorly conserved and 'of concern' but not currently listed as threatened	Campbell/Montrose, Irrigappa, Mission
White Cypress – Rough-barked Apple Woodland	36	Generally not of concern, though areas within this community conform to the Box Gum Woodlands listed as **endangered** in NSW and **critically endangered** nationally	Courallie
Grey Box – White Cypress Pine Open Woodland	28	Well reserved, not currently of concern	Terry Hie Hie
Myall & Derived Grasslands	27	Parts containing weeping myall (*Acacia pendula*) listed as **endangered** in NSW and nationally	Mission
Black Cypress Pine – Mugga Ironbark	21	Well reserved, not currently of concern	Mission
Tumbledown Gum – White Cypress Pine Woodland	17	Not of conservation concern at present	Campbell/Montrose
Yellow Box – Red Gum	11	Box Gum Woodlands listed as **endangered** in	Berrygill

Name of plant community	Area (ha)	Reservation status	Section of Aboriginal area
		NSW and **critically endangered** nationally	
Red Grass – Rat's Tail Grassland	9	Derived assemblage	Courallie
River Redgum – River Oak	5	Well reserved, not currently of concern	Courallie

Source: Hunter (2009a–f), NPWS (2002) and JT Hunter (pers. comm. 2018).

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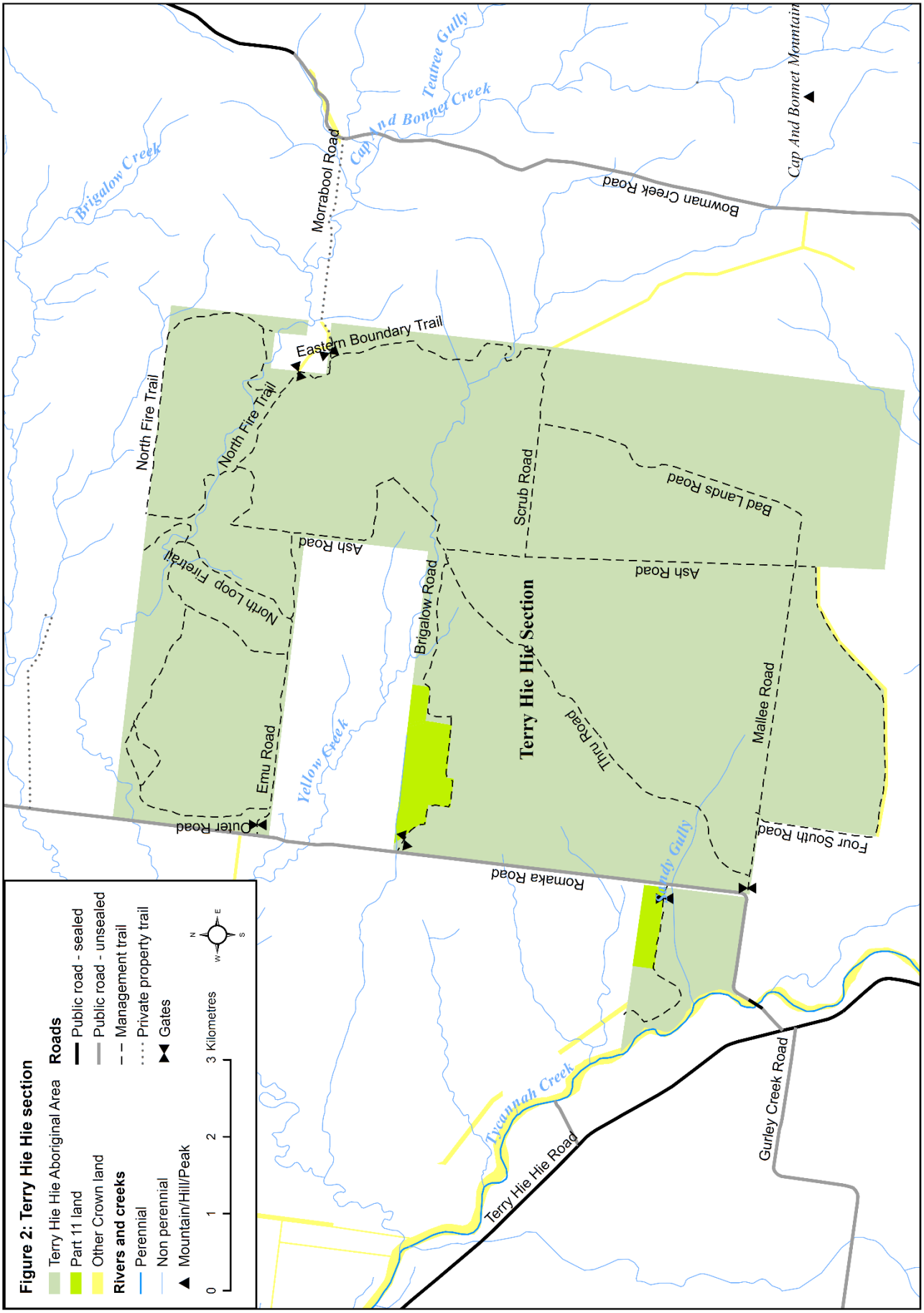

Figure 2 **Terry Hie Hie Section**

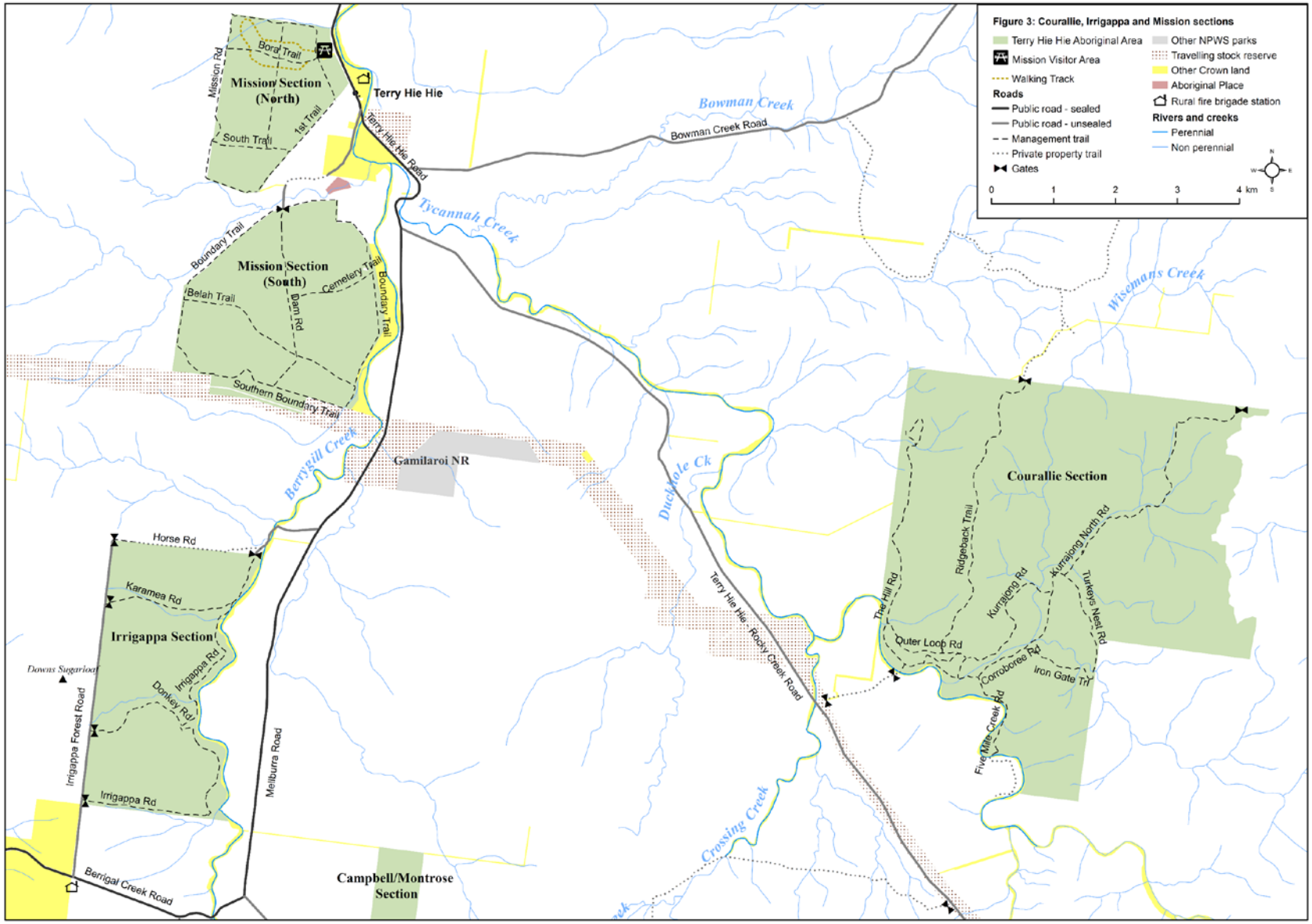

Figure 3 **Courallie, Irrigappa and Mission sections**

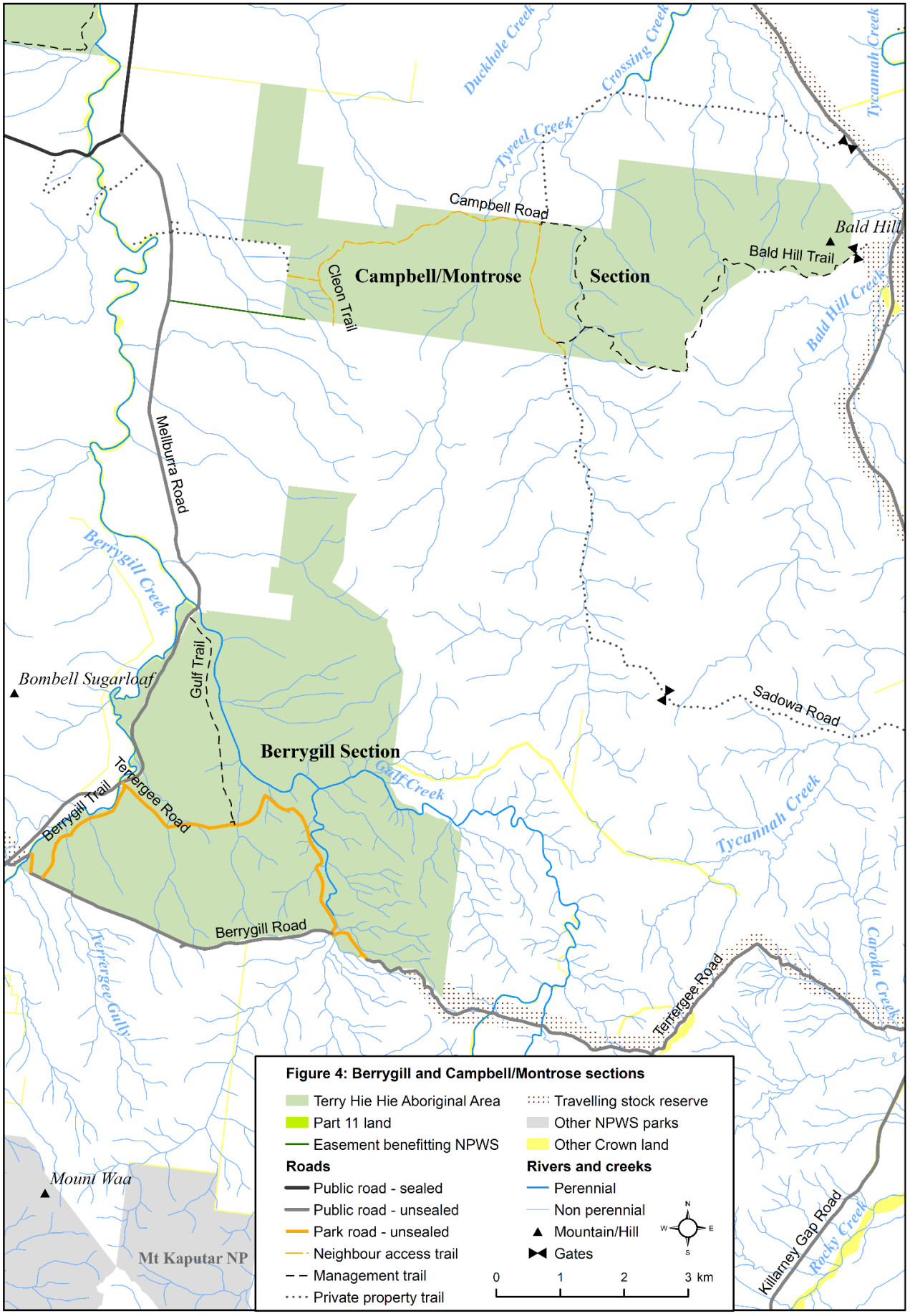

Figure 4 **Berrygill and Campbell/Montrose sections**