Appendix 4. Threatened Species Assessment of Significance (7-part tests)

The project area falls within the Strzelecki Desert Western Dunefields CMA subregion, within which there are 46 threatened species listed under the NSW Threatened Species Conservation Act 1995 (35 fauna species, 11 flora species). Fauna and flora surveys conducted in the project area for this Review of Environmental Factors detected 15 of these threatened fauna species. In addition, the Plains Mouse (*Pseudomys australis*) was recently rediscovered in NSW on Fowlers Gap Station (~300 km south of the project area). Although not listed within the CMA subregion at present, it is predicted to occur within the project area and thus was included. A summary of all 47 threatened species is presented below. Table 1 lists fauna species and Table 2 lists flora species.

Seven of the 47 species were deemed unlikely to occur within the project area based on their specific habitat requirements. Detailed rationale for each of these species is given in Table 1 and 2. 7-part tests were conducted on the remaining 40 species to determine the potential impact of the proposed action on these species. For each species, a summary of its ecology, threatening processes and recommended management actions was drawn from The NSW Threatened species profile search [http://www.environment.nsw.gov.au/threatenedspeciesapp/] and other available literature, which is cited in the text and referenced at the end of this appendix.

It should be noted that a key aim of the proposed activity is to restore the arid ecosystem within the project area and to reinstate physical and ecological processes relevant to threatened species conservation, including the reintroduction of locally extinct mammal species. This is reflected in the 7-part tests below, with the project activities likely to significantly improve the status of threatened species within the area by ameliorating threatening processes and creating areas protected from feral predators and introduced herbivores. The recommended management actions listed in the OEH Threatened Species Profiles which the proposed project will address, are highlighted in bold text.

None of the 7-part tests identified any significant negative impacts on any of the 40 threatened species. Indeed, most of the 40 assessed species are expected to benefit from the proposed actions, with the remainder expected to be unaffected.

Table 1. Threatened fauna species known or predicted to occur in the Strzelecki Desert Western Dunefields CMA subregion.
Occurrence within Sturt National Park (SNP) is indicated, along with species records during surveys for this REF (or previously). Species for which a 7-part test are conducted are indicated, with a rationale provided for those species for which a 7-part test has not been conducted.

Common name	Scientific name	Type	NSW status	Occurrence in SNP	Recorded in project area?	Recorded in Strzelecki Desert Dunefields CMA subregion?	7 part test conducted	Rationale if not included in 7 part test
BIRDS								
Blue-billed Duck	*Oxyura australis*	Bird	Vulnerable	Known	N	N	N	No suitable wetland habitat for this species within project area. This species utilises deep freshwater lakes, whereas all wetlands within the project footprint are shallow, highly ephemeral claypans and swamps. Known to occur on Lake Pinaroo which is 12 km to the East of the project area.
Freckled Duck	*Stictonetta naevosa*	Bird	Vulnerable	Known	N	Y	N	No suitable wetland habitat for this species within project area. This species utilises deep freshwater lakes, whereas all wetlands within the project footprint are shallow, highly ephemeral claypans and swamps. Known to occur on Lake Pinaroo which is 12 km to the East of the project area.
Brolga	*Grus rubicunda*	Bird	Vulnerable	Known	N	Y	Y	
Australian Bustard	*Ardeotis australis*	Bird	Endangered	Known	Y	N	Y	
Plains-wanderer	*Pedionomus torquatus*	Bird	Endangered	Predicted	N	N	Y	
Black-tailed Godwit	*Limosa limosa*	Bird	Vulnerable	Known	N	N	N	No suitable wetland habitat for this species within project area. May at times visit nearby wetlands, including Lake Pinaroo which is 12 km to the East of the project area.
Grey Falcon	*Falco hypoleucos*	Bird	Endangered	Known	Y	Y	Y	
Black-breasted Buzzard	*Hamirostra melanosternon*	Bird	Vulnerable	Known	N	Y	Y	
Little Eagle	*Hieraaetus morphnoides*	Bird	Vulnerable	Known	N	Y	Y	
Spotted Harrier	*Circus assimilis*	Bird	Vulnerable	Known	Y	N	Y	
Flock Bronzewing	*Phaps histrionica*	Bird	Endangered	Known	Y	Y	Y	

Common name	Scientific name	Type	NSW status	Occurrence in SNP	Recorded in project area?	Recorded in Strzelecki Desert Dunefields CMA subregion?	7 part test conducted	Rationale if not included in 7 part test
Hall's Babbler	*Pomatostomus halli*	Bird	Vulnerable	Predicted	N	N	N	Occurs on rocky and stony rises. No suitable habitat for this species within project area.
Redthroat	*Pyrrholaemus brunneus*	Bird	Vulnerable	Known	N	Y	Y	
Painted Honeyeater	*Grantiella picta*	Bird	Vulnerable	Predicted	N	N	Y	
Pied Honeyeater	*Certhionyx variegatus*	Bird	Vulnerable	Known	Y	Y	Y	
White-fronted Chat	*Epthianura albifrons*	Bird	Vulnerable	Known	N	Y	Y	
MAMMALS								
Forrest's Mouse	*Leggadina forresti*	Mammal	Vulnerable	Known	Y	Y	Y	
Dusky Hopping-mouse	*Notomys fuscus*	Mammal	Endangered	Known	Y	Y	Y	
Desert Mouse	*Pseudomys desertor*	Mammal	C. Endangered	Known	Y	N	Y	
Sandy Inland Mouse	*Pseudomys hermannsburgensis*	Mammal	Vulnerable	Known	Y	Y	Y	
Long-haired Rat	*Rattus villosissimus*	Mammal	Vulnerable	Known	N	Y	Y	
Kultarr	*Antechinomys laniger*	Mammal	Endangered	Known	N	Y	Y	
Stripe-faced Dunnart	*Sminthopsis macroura*	Mammal	Vulnerable	Known	Y	Y	Y	
Little Pied Bat	*Chalinolobus picatus*	Mammal	Vulnerable	Predicted	N	N	Y	
Yellow-bellied Sheath-tail bat	*Saccolaimus flaviventris*	Mammal	Vulnerable	Known	N	Y	Y	
Plains mouse	*Pseudomys australis*	Mammal	Presumed extinct	Predicted	N	N	Y	
REPTILES								
Wedgesnout Ctenotus	*Ctenotus brooksi*	Reptile	Vulnerable	Known	Y	Y	Y	
Leopard Ctenotus	*Ctenotus pantherinus ocellifer*	Reptile	Endangered	Predicted	N	N	Y	

Appendix 4. 7-part tests for the Wild Deserts Project

Common name	Scientific name	Type	NSW status	Occurrence in SNP	Recorded in project area?	Recorded in Strzelecki Desert Dunefields CMA subregion?	7 part test conducted	Rationale if not included in 7 part test
Centralian Blue-tongued Lizard	*Tiliqua multifasciata*	Reptile	Vulnerable	Known	Y	Y	Y	
Yellow-tailed Plain Slider	*Lerista xanthura*	Reptile	Vulnerable	Known	Y	Y	Y	
Eastern Fat-tailed Gecko	*Diplodactylus platyurus*	Reptile	Endangered	Predicted	N	Y	Y	
Crowned Gecko	*Lucasium stenodactylum*	Reptile	Vulnerable	Known	Y	Y	Y	
Barrier Range Dragon	*Ctenophorus mirrityana*	Reptile	Endangered	Predicted	N	N	N	This species is restricted to rocky outcrops and gorges. There is no suitable habitat within the project area. It has been listed in this CMA region possibly due to the more rocky habitats in the east of the Park
Interior Blind Snake	*Anilios endoterus*	Reptile	Endangered	Known	Y	Y	Y	
Woma Python	*Aspidites ramsayi*	Reptile	Vulnerable	Predicted	N	Y	Y	
Narrow-banded Snake	*Simoselaps fasciolatus*	Reptile	Vulnerable	Known	N	Y	Y	

Table 2. Threatened flora species known or predicted to occur in the Strzelecki Desert Western Dunefields CMA subregion.
Occurrence within Sturt National Park (SNP) is indicated, along with species records during surveys for this REF (or previously). Species for which a 7-part test are conducted are indicated, with a rationale provided for those species for which a 7-part test has not been conducted.

Common name	Scientific name	Type	NSW status	Occurrence in SNP	Recorded in project area?	Recorded in Strzelecki Desert Dunefields CMA	7 part test conducted	Rationale if not included in 7 part test
Purple-wood Wattle	*Acacia carneorum*	Plant	Vulnerable	Known	N	Y	Y	
Not applicable	*Atriplex infrequens*	Plant	Vulnerable	Predicted	N	N	Y	
Green Bird Flower	*Crotalaria cunninghamii*	Plant	Endangered	Known	N	Y	Y	
Perennial forb	*Dipteracanthus australasicus subsp. corynothecus*	Plant	Endangered	Known	N	Y	Y	
prostrate forb	*Dysphania platycarpa*	Plant	Endangered	Predicted	N	N	Y	
Flame Spider Flower	*Grevillea kennedyana*	Plant	Vulnerable	Known	N	N	N	This species is confined to rocky mesa slopes and only occurs in the east of Sturt National Park. There is no suitable habitat within the Sturt Service Site.
Silky Cow-Vine	*Ipomoea polymorpha*	Plant	Endangered	Known	N	Y	Y	
Fleshy Minuria	*Kippistia suaedifolia*	Plant	Endangered	Known	Y	Y	Y	
Not applicable	*Polycarpaea spirostylis subsp. glabra*	Plant	Endangered	Predicted	N	N	Y	
Fan Flower	*Scaevola collaris*	Plant	Endangered	Predicted	N	N	Y	
Not applicable	*Stackhousia clementii*	Plant	Endangered	Known	Y	Y	Y	

Fauna

Birds

Brolga, *Grus rubicunda* (NSW: Vulnerable, Nationally: Not Listed)
The Brolga is one of Australia's largest flying birds, standing 1.3 metres tall with a wingspan of nearly 2.5 metres. The Brolga was formerly found across Australia, but has suffered declines. It is still abundant in the northern tropics, but very sparse across the southern part of its range. Though Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are also dependent on wetlands, especially shallow swamps, as foraging areas. In the arid zone they are often found in artificial wetlands, such as bore drains (Badman 1987) or in floodplain environments.

This species has not been recorded from the project area, but has potential to visit the area following flooding of ephemeral swamps.

Listed Threats in NSW:

- In former times, Brolgas were poisoned and shot because of their feeding incursions into crops, following drainage of swamps.
- Loss of wetland habitat through clearing and draining for flood mitigation and agriculture.

Recommended Management Actions in NSW:

- Retain or reintroduce ecologically sustainable water flows to wetland habitat.
- Monitor Brolga populations to identify any sign of illegal persecution.
- Report persecution of Brolgas (and other native wildlife) to National Parks and Wildlife Service.

7-part test for Brolga*, Grus rubicunda*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species. This species is normally associated with wetlands in the arid zone; usually shallow but long-lived sites such as floodplains, large lakes or artificial bore drains. As such, the project area represents non-ideal habitat, but the species may visit some ephemeral swamps during the rare occasions that they are inundated. The proposed actions are unlikely to impact on these occasional visitations.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the site does not support an endangered population
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community:	(i) The proposed actions will not remove or modify any ephemeral wetland habitat that may support visits by this species.

7-part test for Brolga*, Grus rubicunda*	
Part	**Answer**
(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(ii) The proposed actions will not fragment or isolate any habitat for this species (iii) The 46.3 ha of disturbed area along fenceline corridors is of no importance to this species.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The proposed action will not have any adverse impacts on critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no currently accepted recovery plan for the species. However, the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed does not in any way constitute a threatening process for this species.

Australian Bustard, *Ardeotis australis* (NSW: Endangered, Nationally: Not Listed)
The Australian Bustard is a large, heavy-bodied, ground-dwelling bird up to one metre tall. It occurs in arid inland and the subtropical north of Australia and is now scarce or absent from southern and south-eastern parts of the continent. In NSW, bustards are mainly found in the north-west corner and less often recorded in the lower western and central west plains regions. Breeding now only occurs in the north-west region of NSW. Bustards feed on insects, reptiles, small mammals, leaves, seeds and fruit. Individuals are highly dispersive, with irregular widespread movements over hundreds of kilometres (Ziembicki and Woinarski 2007). Movements are thought to be in response to habitat and climatic conditions, with birds known to converge on areas with high mouse numbers or patches recently burnt by wildfires.

One Australian Bustard was observed during the during fauna surveys in the Sturt Service Site, near OY Tank on the Whitecatch Road during December 2016. No other records exist for the project area.

Listed Threats in NSW:

- Alteration to tussock grasslands through overgrazing.
- Predation by foxes and cats.
- Illegal hunting.
- Loss, fragmentation and degradation of semi-arid open grassy woodlands.
- Secondary poisoning from rabbit baiting

Recommended Management Actions in NSW:

- Educate landholders to not spread poison baits for rabbits when are bustards present in an area.
- **Conduct fox control throughout the species range.**
- **Protect or fence small refugia to create high quality habitat that sustains a core population or foraging areas (e.g. 10 ha patches).**

- Encourage involvement by indigenous people in recovery actions.
- Conduct long term monitoring of known locations to determine changes in status of the species.
- Encourage and train landholders to conduct annual monitoring of known populations.
- **Monitor the response of the species to management actions and to identify any new threats at the site.**
- Address the threat of illegal hunting.
- Develop a community education strategy for incentives.
- Involve volunteers and community groups in the survey effort for this species.
- Undertake an ecological burn at selected locations where required.
- Develop EIA guidance for consent and determining authorities with regard to development and other activities.
- Implement goat and pig control at Nocoleche NR and Culgoa NP.

7 part test for Australian Bustard, *Ardeotis australis*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species. Removal of feral grazing pressure and predation by cats and foxes from the project area is likely to increase prey availability for this species and reduce the threat of predation (including nest predation). Thus, the activities are likely to have positive effects on the species and reduce its risk of extinction.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on the local population of this species. Removal of feral grazing pressure and predation by cats and foxes from the project area is likely to increase prey availability for this species and reduce the threat of predation (including nest predation). Thus, the activities are likely to have positive effects on the species and reduce the risk of local population extinction.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition, which will increase prey availability and reduce predation risk. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The proposed actions will not fragment or isolate any habitat for this species. Bustards are highly dispersive, flying hundreds of kilometres in response to environmental conditions to exploit productive patches of habitat (Ziembicki and Woinarski 2007). Thus the project area is likely to provide improved habitat at a scale that this species can exploit.

7 part test for Australian Bustard, *Ardeotis australis*	
Part	**Answer**
	(iii) The 46.3 ha of disturbed habitat is of no importance to the long-term survival of the species. This species is likely to respond positively to the removal of threats and its visitation rate to the project area is likely to increase as a direct result of the proposed actions.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. Bustards move nomadically across vast areas of inland Australia, throughout a range of habitats. The proposed action will not have any adverse impacts on critical habitat. Conversely, it is likely to improve habitat in the area.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not currently an accepted recovery plan for the species. However, the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will remove the key threats of introduced and feral predation and competition from introduced grazers, aiming to create a significant net benefit to this species.

Plains wanderer*, Pedionomus torquatus* (NSW: Vulnerable, Nationally: Critically Endangered)

The Plains-wanderer is a small ground-dwelling bird that inhabits sparse native grasslands. Although it resembles a quail in its appearance and habitat, it is the sole member of a genus of birds most closely related to shorebirds and found only in south-eastern Australia. The Plains-wanderer has declined greatly since European settlement, but has recently been upgraded to Critically Endangered on the list of threatened species under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). In recent years, significant declines in numbers of plains-wanderers have been recorded in the species core locations, including the NSW Riverina (Commonwealth of Australia 2016).

Little is known about the species habitats or status in the arid zone, although some sporadic records are known from arid plains supporting sparse low grass or herbage cover following rainfall. The species is known for its highly cryptic nature, making study of its behaviour and information on its conservation status, habitat preferences or movement behaviour extremely challenging (Commonwealth of Australia 2016). The species has been recorded to the east of the project area within Sturt National Park. There are no known records from the project area, although the species may occur in this area following favourable conditions. Currently, high macropod numbers in the project area have reduced ground cover (Rees *et al.* 2017), making the ground-level habitat structure too sparse for Plains-wanderer.

Listed Threats in NSW:

- Historical loss of habitat from clearing and pasture improvement.
- Prolonged drought or overgrazing will also result in a loss of habitat due to the reduction of suitable ground cover.
- Fox predation and developments that lead to elevated numbers of foxes represent a significant threat. Increased mouse densities that are associated with irrigated cereal crops such as rice can cause an increase in fox numbers.
- High intensity fire completely destroys suitable habitat.

- Pesticides, including those used in locust control, such as fipronil and fenitrothion, have the potential to impact on Plains-wanderers either directly or via their food supply.
- Feral cats may be a predator of the Plains-wanderer.
- Rabbits can cause damage to Plains-wanderer habitat.
- Significant (>90%) decline of monitored population over 14-year period.
- Boxthorn can provide perches for raptors that may prey upon Plains-wanderers, and shelter for pest species such as foxes and rabbits

Recommended Management Actions in NSW:

- Habitat that occurs within 'Habitat Clusters' and 'Core Areas' should be protected from inappropriate developments, which directly remove habitat or which otherwise negatively impact upon birds and their habitat. Inappropriate developments are those that lead to elevated fox densities.
- Ensure that impacts on Plains-wanderers and their habitat are accurately assessed during planning and environmental assessment processes.
- Maintain and improve the current extent and condition of Plains-wanderer habitat through incentive-based land management instruments to reward landholders who manage Plains-wanderer habitat for conservation outcomes.
- Where possible, 'Green Guard' (*Metarhizium fungus*) biological control agent is to be used for locust control within 1 km of all Plains-wanderer habitat.
- **Conduct broad-scale and frequent fox control on reserve and private land.**
- Conduct further research on the ecology and threats of the Plains-wanderer.
- Increase community awareness and involvement in the Plains-wanderer recovery program.
- **Conduct feral cat control on reserve and private land.**
- Continue with the long-term Plains-wanderer monitoring program that commenced in 2001.

7-part test for Plains wanderer*, Pedionomus torquatus*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species. Conversely, the removal of feral predators and reductions in grazing are likely to increase ground cover, with some areas likely to match the specific habitat requirements of this species. Thus it is likely that the proposed action will increase feeding and breeding habitat for the species, with improvements to its viability.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the site is not known to support an endangered population
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community:	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of potential habitat for this species through removal of threatening

7-part test for Plains wanderer*, Pedionomus torquatus*	
Part	**Answer**
(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	processes and improvements in vegetation structure and composition, which will increase food availability and reduce predation risk. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat. (ii) The proposed actions will not fragment or isolate any habitat for this species. The project area is likely to provide improved habitat at a scale that this species can exploit. (iii) The 46.3 ha of disturbed habitat is of no importance to the long-term survival of the species. This potential for this species to occur within the project area will be increased by the proposed actions through improved habitat structure and threat removal.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The proposed action will not have any adverse impacts on critical habitat. Conversely, it is likely to improve habitat in the area.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no NSW Recovery Plan in place for this species currently, but the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold. The actions are consistent with the National Recovery Plan objectives and strategies for this species, particularly Objective 2: Enhance the condition of habitat across the plains-wanderers' range to maximise survival and reproductive success, and provide refugia during periods of extreme environmental fluctuation (Commonwealth of Australia 2016).
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed is likely to increase food resources, reduce predation risk and provide safe areas for this ground nesting species. The proposed actions aim to provide net benefit to this species.

Grey Falcon, *Falco hypoleucos* (NSW: Endangered, Nationally: Not Listed)

The Grey Falcon is a medium-sized, compact, pale falcon with a heavy, thick-set, deep-chested appearance. The species is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with rare vagrants east of the Great Dividing Range. The breeding range has contracted since the 1950s with most breeding now confined to arid parts of the range. Population trends are unclear, though it is believed to be extinct in areas with more than 500 mm rainfall in NSW. The species preys primarily on birds, especially parrots and pigeons, using high-speed chases and stoops; reptiles and mammals are also taken. Like other falcons it utilises old nests of other birds of prey or corvids, usually high in a living eucalypt near water or a watercourse, or on man-made structures such as communications towers. Laying occurs in late winter/early spring.

A single Grey Falcon was observed in late February 2017, flying over the Sturt Service Site. This species is known to breed locally in Sturt National Park, see Janse *et al.* (2015). An additional 3 records within the project area are recorded in the Bionet Atlas.

Listed Threats in NSW:

- Grazing and clearing of arid and semi-arid zone rangelands.
- Secondary poisoning through mouse and locust control programs.
- Taking of eggs and young for collections and falconry.

Recommended Management Actions in NSW:

- Monitor secondary poisoning from mouse or locust control.
- Educate and encourage landholders to protect and rehabilitate riparian habitat and implement grazing regimes that create or protect large areas of good quality habitat to enhance the prey biomass.
- Involve volunteers and community groups in the survey effort for this species.
- Develop management strategies for water flow regimes to protect riparian areas.
- Ensure implementation of management strategies that reduce disturbance of riparian areas.
- Determine significance of species to indigenous cultures.
- Address the threat of illegal collection by establishing sand plots, cameras, etc to record the presence of thieves at suspected sites.
- Protect all located nest trees and establish a program to monitor reproduction at each nest site (via landholders).
- **Encourage grazing regimes that create or protect large areas of good quality habitat to enhance the prey biomass.**

7-part test for Grey Falcon, *Falco hypoleucos*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species. Removal of feral grazing pressure is likely to increase food resources for granivorous birds such as pigeons and parrots and thus increase prey availability for the Grey Falcon. The removal of cats from the project area will reduce the threat of nest predation. Thus, the activities are likely to have positive effects on the species and reduce its risk of extinction.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on local populations of this species. Removal of feral grazing pressure is likely to increase food resources for granivorous birds such as pigeons and parrots and thus increase prey availability for the Grey Falcon. The removal of cats from the project area will reduce the threat of nest predation. Thus, the activities are likely to have positive effects on the species and reduce the risk of local population extinction.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition, which will increase prey availability and reduce predation risk. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat.

7-part test for Grey Falcon, *Falco hypoleucos*	
Part	**Answer**
survival of the species, population or ecological community in the locality.	(ii) The proposed actions will not fragment or isolate any habitat for this species. Grey Falcons move over large spatial scales. Thus the project area is likely to provide improved habitat at a scale that this species can exploit. (iii) The 46.3 ha of disturbed habitat is of no importance to the long-term survival of the species. This species is likely to respond positively to the removal of threats usage of the project area is likely to increase as a direct result of the proposed actions.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The proposed action will not have any adverse impacts on critical habitat. Conversely, it is likely to improve habitat in the area.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no currently accepted recovery plan for the species. However, the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will crease prey biomass and reduce nest predation risk, aiming to create a net benefit to this species.

Black-breasted Buzzard *Hamirostra melanosternon* (NSW: Endangered, Nationally: Not Listed)

The Black-breasted Buzzard is a large bird of prey, with a wingspan of up to 1.5 metres. In flight this species is recognised by conspicuous white patches in its wings. Black-breasted buzzards live in a range of inland habitats, especially along timbered watercourses which is the preferred breeding habitat, but hunt mainly in open country. The species feeds mostly on reptiles, small mammals, birds, including nestlings, and carrion. It also specialises in feeding on large eggs, including those of emus, which it cracks either on a rock or by dropping smaller rocks from above.

This species was recorded opportunistically at two sites adjacent to the project area (Fort Grey Homestead and Frome Swamp) in early 2017. An additional record from within the project area exists in the Bionet Atlas.

Listed Threats in NSW:

- Clearing of trees along inland watercourses.
- Degradation of foraging habitat through overgrazing and tree clearing.
- Illegal egg collection and shooting.

Recommended Management Actions in NSW:

- Educate and encourage landholders to protect and rehabilitate riparian habitat and implement grazing regimes that create or protect large areas of good quality habitat to enhance the prey biomass.
- **Involve volunteers and community groups in the survey effort for this species.**
- Develop management strategies for water flow regimes to protect riparian areas.
- Implement management strategies that reduce disturbance of riparian areas.
- Determine significance of species to indigenous cultures.
- Protect all located nest trees and establish a program to monitor reproduction at each nest site (via landholders).

- **Encourage grazing regimes that create or protect large areas of good quality habitat to enhance the prey biomass.**
- Monitor secondary poisoning from mouse or locust control.

7-part test for Black-breasted Buzzard *Hamirostra melanosternon*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species. The removal of cats from the project area will reduce the threat of nest predation.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species. The removal of cats from the project area will reduce the threat of nest predation, thus decreasing the likely risk of extinction for the nearby local population.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area, to protect 4,300 ha. This habitat is unlikely to be important to the species and the actions are unlikely to have any impact on the species. (ii) The proposed actions will not fragment or isolate any habitat for this species. Black-breasted Buzzards move over large spatial scales. Thus the project area is likely to provide improved habitat at a scale that this species can exploit. (iii) The 46.3 ha of disturbed habitat is of no importance to the long-term survival of the species.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The proposed action will not intersect or impact on any critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no currently accepted recovery plan for the species. However, the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will is unlikely to affect the species in any way and does not constitute a threatening process.

Little Eagle, *Hieraaetus morphnoides* (NSW: Vulnerable, Nationally: Not Listed)
The Little Eagle is a medium-sized bird of prey that occurs in pale or dark colour forms. The species is found throughout the Australian mainland and occupies a vast range of habitat types. Pairs build a large stick nest in winter. The species preys on birds, reptiles and mammals, occasionally adding large insects and carrion. This species was recorded opportunistically near Frome Swamp (20 km East of the project area) in March 2017. An additional record from within the project area exists in the Bionet Atlas.

Listed Threats in NSW:

- Secondary poisoning from rabbit baiting
- Clearing and degradation of foraging and breeding habitat

Recommended Management Actions in NSW:

- Protect and maintain high quality habitat
- **Improve prey availability through restoration of degraded remnants, control of exotic plants and revegetation**
- Increase abundance of paddock trees
- Raise awareness amongst landholders regarding the risks of secondary poisoning from the use of pindone rabbit baits (encourage use of other poisons, such as 1080)

7-part test for Little Eagle, *Hieraaetus morphnoides*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species. The removal of cats from the project area will reduce the threat of nest predation.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the site does not support an endangered population
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area, to protect 4,300 ha. This habitat is unlikely to be important to the species and the actions are unlikely to have any impact on the species. (ii) The proposed actions will not fragment or isolate any habitat for this species. Black-breasted Buzzards move over large spatial scales. Thus the project area is likely to provide improved habitat at a scale that this species can exploit. (iii) The 46.3 ha of disturbed habitat is of no importance to the long-term survival of the species.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The proposed action will not intersect or impact on any critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no currently accepted recovery plan for the species. However, the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.

Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will is unlikely to affect the species in any way and does not constitute a threatening process.

Spotted Harrier*, Circus assimilis* (NSW: Vulnerable, Nationally: Not Listed)
The Spotted Harrier is a medium-sized, bird of prey that occurs throughout the Australian mainland. By gliding and soaring, harriers slowly quarter above flat or undulating landscapes covered with low or open vegetation, on the lookout for small birds and mammals on the ground, and then dive or drop onto their quarry. Individuals disperse widely in NSW and comprise a single population. The species is generally recorded in the arid zone during exceptional seasonal conditions when rainfall and vegetation growth promote the arrival of ground nesting birds. Although the species was not recorded in the project area during surveys and no Bionet Atlas records exist, it is likely to visit the area when prey resources are sufficient and may benefit from ecosystem changes expected from the proposed actions.

Listed Threats in NSW:

- Loss of foraging and breeding habitat, particularly that which affects prey densities
- Loss of mature trees from rural landscapes
- Secondary poisoning from the use of pindone in rabbit control
- Secondary poisoning from rodenticides
- Lack of knowledge of locations of key breeding habitat and breeding ecology and success

Recommended Management Actions in NSW:

- **Retain and protect nesting and foraging habitat**
- **Protect areas of habitat from overgrazing.**
- Encourage landholders to avoid using pindone to control rabbits
- Protect areas of habitat from development.

7-part test for Spotted Harrier*, Circus assimilis*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species. The removal of cats from the project area will reduce the threat of nest predation. Expected increases in ground-dwelling birds and small mammals are likely to increase prey availability and habitat suitability for this species.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the site does not support an endangered population
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed,	(i) Fenceline construction will disturb 46.3 ha of the project area, to protect 4,300 ha. This habitat is unlikely to be important to the species and the actions are unlikely to have any impact on the species.

7-part test for Spotted Harrier, *Circus assimilis*	
Part	**Answer**
(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(ii) The proposed actions will not fragment or isolate any habitat for this species. Black-breasted Buzzards move over large spatial scales. Thus the project area is likely to provide improved habitat at a scale that this species can exploit. (iii) The 46.3 ha of disturbed habitat is of no importance to the long-term survival of the species.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The proposed action will not intersect or impact on any critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no currently accepted recovery plan for the species. However, the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will is unlikely to negatively affect the species in any way and does not constitute a threatening process. Conversely increases in prey availability and reduction in nest predation are likely to be of benefit.

Flock Bronzewing, *Phaps histrionica* (NSW: Endangered, Nationally: Not Listed)
A large, sandy-coloured, ground-feeding pigeon that flies rapidly on long, backswept wings, usually in large flocks. The species has suffered substantial declines since European settlement, with flocks previously numbering tens of thousands to hundreds of thousands now no longer seen (McAllan 1996). The species is now rarely observed in NSW (McAllan 1996), but is more common in the subtropical north, including the Barkly Tableland of Western Queensland and the Northern Territory (Dostine *et al.* 2015). Flock Bronzewings nest and feed on the ground, making them vulnerable to introduced predators.

One male Flock Bronzewing was recorded in the project area, drinking at OY Dam, in November 2016. An additional record from within the project area exists in the Bionet Atlas.

Listed Threats in NSW:

- Grazing, by sheep in particular, removes the grass bulk which provides habitat (cover) and potential food sources. It also allows herbaceous prickly weeds to dominate. Trampling of nests by stock when the species is nesting near watering points can be a problem.
- Cultivation removes tussock grasses thus destroying any potential habitat of this species.
- Predation by cats and foxes is likely at all times, particularly when nesting.

Recommended Management Actions in NSW:

- **Encourage management of livestock grazing so as to maintain or improve habitat grass cover and seed production.**
- Educate and encourage the community to protect and rehabilitate habitat of this icon species.
- Identify sites where the species is commonly observed and target for incentives and habitat management.
- **Control feral goats, rabbits and pigs near known foraging habitat (best practice: locally/regionally efficient and effective).**

- **Control foxes and cats (domestic & feral) near flocks of breeding birds (best practice: regionally efficient and effective).**
- Determine if and/or where an ecological burn is required.
- Ensure the Threatened Species Hazard Reduction List is updated with the requirements of this species and that personnel undertaking burns are aware of its habitat requirements.
- Develop EIA guidance for consent and determining authorities with regard to development and other activities.
- Determine significance of species to indigenous cultures and encourage involvement by indigenous people in recovery actions.
- Opportunistically monitor populations after wildfire to determine fire ecology.
- Create an incentive program to encourage location and disclosure of threatened species by landholders and the general public.
- Provide map of known occurrences to Rural Fire Service and seek inclusion of mitigative measures on Bush Fire Risk Management Plan(s), risk register and/or operation map(s).
- Reserve Fire Management Strategy for Sturt NP to include operational guidelines to protect this species from fire (add prescription if known).

7-part test for Flock Bronzewing, *Phaps histrionica*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species. Conversely, the removal of feral predators and reductions in grazing will lower predation risk, increase ground cover and food resources for this species. Thus the project is likely to increase feeding and breeding habitat for the species, with improvements to its viability.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on local populations of this species. Conversely, the removal of feral predators and reductions in grazing will lower predation risk, increase ground cover and food resources for this species. Thus the project is likely to increase feeding and breeding habitat for the species, with improvements to the viability of local populations.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition, which will increase food availability and reduce predation risk. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat. (ii) The proposed actions will not fragment or isolate any habitat for this species. Flock Bronzewing are highly dispersive over vast spatial scales, with irruptions in smaller areas of suitable habitat following appropriate seasonal

7-part test for Flock Bronzewing, *Phaps histrionica*	
Part	**Answer**
	conditions (Pedler and Lynch 2016). Thus the project area is likely to provide improved habitat at a scale that this species can exploit. (iii) The 46.3 ha of disturbed habitat is of no importance to the long-term survival of the species. This species is likely to respond positively to the removal of threats usage of the project area is likely to increase as a direct result of the proposed actions.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The proposed action will not have any adverse impacts on critical habitat. Conversely, it is likely to improve habitat in the area.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no currently accepted recovery plan for the species. However, the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will increase food resources, reduce predation risk and provide safe areas for this ground nesting species. The proposed actions aim to provide net benefit to this species.

Redthroat*, Pyrrholaemus brunneus* (NSW: Vulnerable, Nationally: Not Listed)
The Redthroat is a small, shy greyish-brown bird, most often seen swiftly darting through low branches and shrubs or hopping mouse-like on the ground. The species is usually found in thick shrubby parts of arid landscapes, including along creeklines. In NSW, the species is confined to the far west of the state. Within the vicinity of the project area, a population exists in the Bulloo Overflow to the east of Tibooburra (120 km to the east of the project site), with occasional records further to the west in the stony plains on the eastern side of Sturt National Park.
The species was not recorded in the project area during surveys and no records were found on the Bionet Atlas search. The project site represents non-optimal habitat due to the scarcity of thick chenopod shrubs. It is unlikely that the species currently occurs in the project area, however with vegetation recovery from reduced grazing pressure, its chenopod habitat may recover sufficiently to support the species.

Listed Threats in NSW:

- Clearing of chenopod shrublands, Lignum and Canegrass vegetation communities may result in the isolation of populations.
- Overgrazing of saltbush and bluebush shrublands by domestic and feral herbivores causes degradation of the species' habitat and also prevents its regeneration.
- As a species that feeds and breeds near the ground probably suffers from fox and cat predation.
- Infestation of habitat by Mesquite.
- Poor knowledge of the species' distribution and abundance across its range.

Recommended Management Actions in NSW:

- **Control of vertebrate pest populations, particularly feral cats.**
- **Reduce domestic stock grazing pressure and exclude feral herbivores, particularly goats to allow regeneration of habitat, food resources and nest sites.**

- **Retention of chenopod shrublands, particularly Old Man Saltbush, Black Bluebush and Dillon Bush as well as Lignum and Canegrass.**

7-part test for Redthroat, *Pyrrholaemus brunneus*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species. Currently the species is unlikely to occur at the project site due to the degradation of chenopod shrubs from heavy macropod grazing. Reduced grazing by kangaroos and rabbits is likely to improve habitat quality. Thus it is likely that the proposed action will increase habitat suitability for this species.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the site is not known to support an endangered population
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of potential habitat for this species through removal of threatening processes and improvements in vegetation structure and composition, which will increase food availability and reduce predation risk. (ii) The proposed actions will not fragment or isolate any habitat for this species. The project area is likely to provide improved habitat at a scale that this species can exploit. (iii) The 46.3 ha of disturbed habitat is of no importance to the long-term survival of the species. This potential for this species to occur within the project area will be increased by the proposed actions through improved habitat structure and threat removal.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The proposed action will not have any adverse impacts on critical habitat. Conversely, it is likely to improve habitat in the area.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no NSW Recovery Plan in place for this species currently, but the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed is likely to increase food resources, reduce predation risk and provide safe areas for this species. The proposed actions aim to provide net benefit to this species.

Painted honeyeater, *Grantiella picta* (NSW: Vulnerable, Nationally: Vulnerable)
The Painted Honeyeater is small and distinctive nomadic honeyeater, which occurs at low densities throughout its range. The species mainly inhabits Boree/ Weeping Myall (*Acacia pendula*), Brigalow (*A. harpophylla*) and Box-Gum Woodlands and Box-Ironbark Forests in

NSW. None of these vegetation associations occur within the project area. The species was not detected during bird surveys and no Bionet Atlas records occur near the project area. It is a specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias and may occur as a vagrant at the project site during mass flowering events.

Listed Threats in NSW:

- Clearing of woodlands and open forests.
- Removal of large, old trees with heavy mistletoe infestations.
- Degradation of open forest and woodland remnants, including thinning of trees bearing mistletoe.
- Heavy grazing of grassy woodlands.
- Habitat infestation by weeds such as African boxthorn, Gazania and invasive grasses.
- Inappropriate fire regimes.
- Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners.

Recommended Management Actions in NSW:

- **Manage grazing on sites where Painted Honeyeater habitat occurs.**
- **Encourage regeneration of habitat by fencing remnant stands and undertaking new plantings.**
- **Protect remnant woodland and open forest throughout the range of the species.**
- Regenerate and replant local flora species to maintain breeding and foraging habitat.
- Conduct further research to increase understanding of habitat selection and nomadic movements of the Painted Honeyeater.

7-part test for Painted honeyeater*, Grantiella picta*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species, which has low change of occurrence within the project area. Conversely, the reductions in grazing will lower benefit the recruitment of plants that host mistletoes (its specific food resource) reduce predation risk from feral cats.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the site does not support an endangered population
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of potential habitat for this species through removal of threatening processes and improvements in vegetation structure and composition, which will increase food availability and reduce predation risk. (ii) The proposed actions will not fragment or isolate any habitat for this species. The project

7-part test for Painted honeyeater*, Grantiella picta*	
Part	**Answer**
(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	area is likely to provide improved habitat at a scale that this species can exploit. (iii) The 46.3 ha of disturbed habitat is of no importance to the long-term survival of the species. This potential for this species to occur within the project area will be increased by the proposed actions through improved habitat structure and threat removal.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The proposed action will not have any adverse impacts on critical habitat. Conversely, it is likely to improve habitat in the area.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no NSW Recovery Plan in place for this species currently, but the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed is likely to increase food resources, reduce predation risk and provide safe areas for this species. The proposed actions aim to provide net benefit to this species.

Pied Honeyeater*, Certhionyx variegatus* (NSW: Vulnerable, Nationally: Not listed)
The male Pied Honeyeater is a distinctive small, black and white honeyeater with white wing-bar, rump and tail-panels, and a bluish-grey wattle below the eye. The female is greyish-brown, with a strong pattern of pale edging to feathers on the wing. The species is widespread throughout acacia, Mallee and spinifex scrubs of arid and semi-arid Australia. Pied Honeyeaters are highly nomadic, following the erratic flowering of shrubs. They may locally common at times following rainfall, but then absent for long periods thereafter.

The species was detected during November and December 2016 within the project site. An additional record exists in the Bionet Atlas.

Listed Threats in NSW:

- The clearing of nectar-producing shrubs (such as *Eremophila* and *Grevillea spp*.) reduces food supplies and may interrupt broadscale nomadic movements.
- Grazing has a similar but less immediate impact compared to clearing, although many of the preferred food shrubs appear immune to grazing effects.
- Infestation of habitat by boxthorn in some areas.
- Loss of woodland habitat, including large old trees.
- Fragmentation of woodland habitat.
- Inappropriate fire regimes.
- Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners.
- Reduction in resources due to drought conditions, increasing due to climate change.

Recommended Management Actions in NSW:

- **Encourage landholders to protect ground layer and midstorey vegetation**
- **Implement control of invasive perennial grasses and boxthorn**
- Raise public awareness of importance of large trees
- Measure the impact of noisy miners on species populations and habitat
- **Conduct targeted research into restoring the structure and function of ground layer vegetation in degraded habitats**

7-part test for Pied Honeyeater*, Certhionyx variegatus*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species. Conversely, the reductions in grazing will lower benefit the recruitment of food plants, including *Eremophila spp*., *Grevillia spp*. and *Hakea sp*p. within the project area. Additionally, the proposed actions will reduce predation risk from feral cats. The proposed actions will increase feeding and breeding habitat for the species, with improvements to its viability.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the site does not support an endangered population
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition, which will increase food availability and reduce predation risk. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat. (ii) The proposed actions will not fragment or isolate any habitat for this species. Pied Honeyeaters are nomadic over vast spatial scales, with irruptions in small patches following rainfall or flowering of food plants. Thus the project area is likely to provide improved habitat at a scale that this species can exploit. (iii) The 46.3 ha of disturbed habitat is of no importance to the long-term survival of the species. This species is likely to respond positively to the removal of threats usage of the project area is likely to increase as a direct result of the proposed actions.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The proposed action will not have any adverse impacts on critical habitat. Conversely, it is likely to improve habitat in the area.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no currently accepted recovery plan for the species. However, the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will increase food resources, reduce predation for this species. The proposed actions aim to provide net benefit to this species.

White-fronted chat*, Epthianura albifrons* **(NSW: Vulnerable, Nationally: Not Listed)**
The White-fronted Chat is an endemic Australian passerine bird usually found foraging for insects and their larvae in small flocks on bare or grassy ground in wetland or saltmarsh areas. They construct neat nests from grass and plant stems in which they lay three tiny eggs. Once thought to be a type of thornbill, taxonomic studies have shown chats to be part of the Meliphagidae family (honeyeaters).

White-fronted chats may be resident near saline wetlands in mesic areas, but are found in arid areas only during times following significant inland rainfall. The species was not recorded in the project area during surveys and no records were detected in the Bionet Atlas, however following exceptional seasonal conditions they may occur in the project area near ephemeral swamps and wetlands.

Listed Threats in NSW:

- Reduction in habitat size and quality.
- Human disturbance (particularly in urban areas) and elevated nest-predation levels.
- Much of their natural habitat is prone to alteration due to modification of river flows and floodplains.
- Prone to predation from snakes and mammals, particularly Feral Cats, European Red Foxes and rodents, as well as birds, particularly ravens.
- In coastal areas mangrove encroachment and sea-level rise associated with global warming present an additional future threat to their preferred habitat.

Recommended Management Actions in NSW:

- Survey to identify the key populations around the state
- Protect saltmarsh habitats in coastal areas
- Implement appropriate flow regimes in wetland habitats
- **Implement feral predator control programs**
- Consider impacts of urbanisation on coastal habitats in planning instruments

7-part test for White-fronted chat*, Epthianura albifrons*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed actions are unlikely to have any adverse effects on this species, which is likely to visit the area only after exceptional rainfall events which fill temporary wetlands. The eradication of cats and foxes from the project area increases in vegetation cover near ephemeral wetlands are likely to increase habitat suitability for this species.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the site is not known to support an endangered population
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community:	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of potential habitat

7-part test for White-fronted chat*, Epthianura albifrons*	
Part	**Answer**
(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	for this species through removal of threatening processes and improvements in vegetation structure and composition, which will increase food availability and reduce predation risk during the rare times that this species may visit the area. (ii) The proposed actions will not fragment or isolate any habitat for this species. The project area is likely to provide improved habitat at a scale that this species can exploit. (iii) The 46.3 ha of disturbed habitat is of no importance to the long-term survival of the species. This potential for this species to occur within the project area will be increased by the proposed actions through improved habitat structure and threat removal.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The proposed action will not have any adverse impacts on critical habitat. Conversely, it is likely to improve habitat in the area.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no NSW Recovery Plan in place for this species currently, but the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed is likely to increase food resources, reduce predation risk and provide safe areas for this species.

Mammals

Forrest's Mouse*, Leggadina forresti* (NSW: Vulnerable, Nationally: Not Listed)
The Forrest's Mouse is a small rodent (15-25g) with a conspicuously short tail, short ears and short, broad muzzle. The species is sparsely distributed across arid and semi-arid inland Australia. In north west NSW, it has been recorded from Sturt National Park, Tibooburra, Fowler's Gap, Mutawintji National Park (as subfossil remains), and from near Wilcannia. Nocturnal and solitary, this animal shelters during the day in nests in shallow burrows and cracks in the soil. They feed on seeds, arthropods and green leaves & stems and, like other well-adapted desert rodents, obtain sufficient moisture from their food to meet all their water needs.

Only 1 record of a Forrest's Mouse exist from within the Project Area. There is one other record of a Forrest's Mouse trapped in 1973 in the east of Sturt National Park (approximately 50 km from the project area).

Listed Threats in NSW:

- Heavy grazing and trampling of habitat by domestic stock, feral goats, rabbits and pigs. This also makes individuals more vulnerable to predation and reduces their ability to move between habitat fragments.
- Predation by foxes and feral cats.
- Poisoning from 1080 baits, particularly those targeting feral pigs.
- Competition with introduced herbivores (stock, rabbits, goats, house mouse) for food resources and habitat.
- Loss of habitat through too frequent fires or altered fire regimes.
- Introduction of standing water, which attracts potential predators and competitors.
- Loss of habitat through clearing (trees, shrubs and grasses), removal of ground debris and loss of hollows.

Recommended Management Actions in NSW:

- **Develop and implement a monitoring program at identified sites to assess population status and trends.**
- **Gain an understanding of the size and viability of populations of these species by supporting and assisting the continued monitoring of small mammal populations in Sturt NP and Fowlers Gap.**
- **Identify at least 8 sites for implementation of recovery actions and monitoring.**

7-part test for Forrest's Mouse, *Leggadina forresti*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The Forrest's Mouse is likely present in the study area but in very low abundance, due to predation by cats and foxes and heavy grazing by stock (historically) and kangaroos (currently). The proposed action will therefore remove these significant threats to the species which is likely to decrease the chance of extinction of the local population. The introduction of fossorial mammals will likely decrease the extinction risk for this species by providing additional refuges, and increased ground cover and food availability through increased soil turnover and seedling establishment. The introduction of native predators (quoll and mulgara) is not expected to increase the risk of extinction for this species. Previous predator diet studies do not show these species to be selective but rather the predators

7-part test for Forrest's Mouse, *Leggadina forresti*	
Part	**Answer**
	are generalists, consuming invertebrates as well as vertebrates in relation to availability. The reintroduction of quolls to Arid Recovery did not impact small mammal populations which have increased to 15 times their densities outside the fenced reserve since the removal of feral species (Moseby *et al.* 2009).
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the species is not listed as endangered
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Forrest's mouse will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. This species is likely to respond well to the removal of threats and will likely increase in abundance and distribution throughout the project area. This response has been documented at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. Forrest's Mouse is found in a variety of habitats, ranging from sand plains or ridges characterised by spinifex, to chenopod shrubland, Mulga woodland and claypans. The vegetation to be disturbed by the proposed action intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. The action will directly contribute to recovery action 2 of the NSW Recovery Plan for this species (NPWS 2002) *"protect the populations of Forrest's Mouse and Sandy Inland Mouse from the threatening processes of overgrazing by herbivores and predation by feral animals"*
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will remove the key threats of introduced and feral predation and competition from introduced grazers, aiming to create a significant net benefit to this species.

Dusky Hopping-mouse *Notomys fuscus* (NSW: Endangered, Nationally: Vulnerable)
A medium-sized mouse with long hind legs, large ears and a long, tufted tail and pale orange fur. After suffering widespread declines from the Australian arid zone the species has made a major recovery in some areas, linked to ecosystem changes wrought by reduction in rabbit numbers by rabbit calicivirus (Pedler *et al.* 2016). Formerly extinct in NSW, the species was rediscovered in Sturt National Park in the State's far north west corner in 2003. Since then, the species has been recorded from around 50km south of Sturt National Park, and from around 80 km north of Broken Hill. More recently, a single individual was found killed by a cat in the Broken Hill urban area. Dusky hopping-mice are nocturnal, feeding primarily of seeds, and also green vegetation insects. The species is most commonly found in sand dunes country, and is often associated with perennial Sandhill Canegrass (*Zygochloa paradoxa*), Dillon Bush (*Nitraria billardierei*) and *Acacia* species, characteristic of the Simpson Strzelecki Dunefields Bioregion.

16 trapping records exist for this species within the project area. In addition, the species was sighted on spotlight surveys for this REF and estimated to be at a density of 4.9 hopping mice/km^2.

Listed Threats in NSW:

- Predation by cats and foxes.
- Habitat loss and degradation as a result of pastoral activities, including soil compaction and vegetation removal by domestic stock.
- Grazing impacts associated with rabbits and goats.
- Inherent vulnerability to local extinction from stochastic events, given the restricted distribution and abundance of this species.

Recommended Management Actions in NSW:

- If discovered off-park, undertake an immediate assessment of the status of the population, identify any threats and determine the appropriate recovery strategy.
- **Control feral goats and rabbits near colonies (best practice: locally/regionally efficient and effective).**
- **Control feral cats near colonies (best practice: locally efficient and effective).**
- If discovered off-park, negotiate with the managers to prepare and implement site management plans that address threats.
- **Fence selected warren sites to prevent rabbit and goat grazing and soil compaction.**
- If discovered off-park, encourage landholders to enter Vacs and other site management agreements.
- Conduct long term monitoring of known locations to determine changes in status of the species.
- Investigate use of current habitat models to identify potential habitat and guide surveys off-park.
- Conduct research to determine best management practices.
- **Test whether small predator-refuge patches of artificially enhanced cover established near colonies can increase population survival and reproduction.**
- Utilise continuing and existing research to inform recovery actions and the potential for surveys off-park.

7-part test for Dusky Hopping-mouse *Notomys fuscus*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such	No. The dusky-hopping mouse is present in the project area but in low abundance, most likely the result of predation by cats and foxes and grazing competition from introduced herbivores. The

7-part test for Dusky Hopping-mouse *Notomys fuscus*	
Part	**Answer**
that a viable local population of the species is likely to be placed at risk of extinction.	proposed action will remove these key threats from a large area of potential habitat for the species, thus providing a local safe haven for the species and decreasing the chance of extinction of the local population. The introduction of fossorial mammals will likely decrease the extinction risk for this species by providing additional refuges, and increased ground cover and food availability through increased soil turnover and seedling establishment. The introduction of native predators (quoll and mulgara) is not expected to increase the risk of extinction for this species. Previous predator diet studies do not show these species to be selective but rather the predators are generalists, consuming invertebrates as well as vertebrates in relation to availability. The reintroduction of quolls to Arid Recovery did not impact small mammal populations which have increased to 15 times their densities outside the fenced reserve since the removal of feral species (Moseby *et al.* 2009).
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. The dusky-hopping mouse is present in the project area but in low abundance, most likely the result of predation by cats and foxes and grazing competition from introduced herbivores. The proposed action will remove these key threats from a large area of potential habitat for the species, thus providing a local safe haven for the species and decreasing the chance of extinction of the local population.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Dusky hopping mouse will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. Indeed, a similar reserve in South Australia, Arid Recovery, hopping mouse populations adjacent to the fenced reserve have also increased, with the reserve acting as a safe haven for breeding and recruitment. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. This species is likely to respond well to the removal of threats and will likely increase in abundance and distribution throughout the project area. This response has been documented for

7-part test for Dusky Hopping-mouse *Notomys fuscus*	
Part	**Answer**
	the spinifex hopping mouse at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. Dusky Hopping Mouse is most commonly found in sand dunes, of which there is extensive representation within the project area. The vegetation to be disturbed by the proposed action intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not currently an accepted recovery plan for the species. However, the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will remove the key threats of introduced and feral predation and competition from introduced grazers, aiming to create a significant net benefit to this species.

Sandy Inland Mouse *Pseudomys hermannsburgensis* (NSW: Vulnerable, Nationally: Not Listed)

The Sandy Inland Mouse is greyish-brown to sandy-brown above and off-white below. Widely but very sparsely distributed over the arid and semi-arid zones of inland Australia. NSW occurrences are only in the far north-west where it is known from seven widely-scattered localities including Fowlers Gap, Sturt National Park, Tibooburra, east of Enngonia, Mutawintji National Park (as subfossil remains), just east of Mutawintji National Park and near Kajuligah Nature Reserve (north of Ivanhoe). The species occurs in a very wide range of open vegetation types including coolibah or Acacia woodlands, tall open shrublands (especially Mulga scrub) and hummock grasslands. Mostly on sands (plains and dunes) and sandy loams, but also in areas of cracking earth soils and gibber plains. Seeds are the dominant food, although grass and other green plant material (including shoots), roots, small tubers and, to a lesser extent, insects are also consumed. Foraging is mostly terrestrial, but some food is obtained underground and animals may also climb up to 1 m above the ground to obtain food.

46 trapping records exist for this species within the project area.

Listed Threats in NSW:

- Heavy grazing and trampling of habitat by domestic stock, feral goats, rabbits and pigs. This also makes individuals more vulnerable to predation and reduces their ability to move between isolated Mallee areas.
- Predation by foxes and feral cats.
- Poisoning from 1080 baits.
- Competition with introduced herbivores (stock, rabbits, goats, house mouse) for food resources and habitat.
- Loss of habitat through too frequent fires or altered fire regimes.
- Introduction of standing water, which attracts potential predators and competitors.
- Loss of habitat through clearing (trees, shrubs and grasses), removal of ground debris and loss of hollows.

Recommended Management Actions in NSW:

- Identify locations of populations. Liaise with landholders to manage livestock grazing to maintain or improve habitat for this species.
- **Control feral pests at priority sites.**

- Raise awareness about poisoning non-target species with 1080 baits.
- **Undertake control of introduced herbivores (e.g. rabbits, goats, mice) in areas of critical foraging habitat.**
- Implement appropriate fire management practices.

7-part test for Sandy Inland Mouse *Pseudomys hermannsburgensis*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The Sandy Inland Mouse is present in the project area but in low abundance, most likely the result of predation by cats and foxes and grazing competition from introduced herbivores. The proposed action will remove these key threats from a large area of potential habitat for the species, thus providing a local safe haven for the species and decreasing the chance of extinction of the local population. The introduction of fossorial mammals will likely decrease the extinction risk for this species by providing additional refuges, and increased ground cover and food availability through increased soil turnover and seedling establishment. The introduction of native predators (quoll and mulgara) is not expected to increase the risk of extinction for this species. Previous predator diet studies do not show these species to be selective but rather the predators are generalists, consuming invertebrates as well as vertebrates in relation to availability. The reintroduction of quolls to Arid Recovery did not impact small mammal populations which have increased to 15 times their densities outside the fenced reserve since the removal of feral species (Moseby *et al.* 2009).
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the species is not listed as endangered
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Sandy Inland mouse will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the

7-part test for Sandy Inland Mouse *Pseudomys hermannsburgensis*	
Part	**Answer**
	species. This species is likely to respond well to the removal of threats and will likely increase in abundance and distribution throughout the project area. This response has been documented at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The Sandy Inland Mouse is found in a range of habitats including hummock grasslands, Mulga flats, alluvial flats and gibber plains. The vegetation to be disturbed by the proposed action intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. The action will directly contribute to recovery action 2 of the NSW Recovery Plan for this species (NPWS, 2002) *"protect the populations of Forrest's Mouse and Sandy Inland Mouse from the threatening processes of overgrazing by herbivores and predation by feral animals"*
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will remove the key threats of introduced and feral predation and competition from introduced grazers, aiming to create a significant net benefit to this species.

Desert Mouse *Pseudomys desertor* (NSW: Critically Endangered: Not Listed)
The Desert Mouse is a medium sized rodent weighing 11-35g, with bright chestnut brown fur, overlaid by long, dark guard hairs that produce a spiny, unkempt appearance.
The Desert Mouse was once found right across the Australian arid zone, but has now contracted to the central deserts. Until recently, there had been no confirmed records of the Desert Mouse in NSW since 1857. In September 2008, a single male Desert Mouse was captured in a pitfall trap in Sturt National Park. Despite intensive surveys in this area over an extended period, the species was only found at the one location. Most records of the Desert Mouse come from sand dune or sand plain habitats; usually in areas of dense groundcover of grasses, sedges or shrubs.

1 trapping record exists for this species within the project area.

Listed Threats in NSW:

- Grazing and trampling of habitat by domestic stock, feral goats, rabbits and pigs.
- Loss of habitat through clearing (in particular shrubs and grasses).
- Loss and degradation of habitat as a result of altered fire regimes, in particular high frequency fires.
- Predation by foxes and feral cats.
- Introduction of stock watering points, which attracts predators and degrades habitat by supporting feral and native herbivores.
- Competition with introduced herbivores including the House Mouse, Mus domesticus.

Recommended Management Actions in NSW:

- Identify core population/s of the species in NSW.
- Identify tenure, ecology and threats at all critical sites.
- Identify threats and determine additional recovery strategies.
- Model and verify potential mesic/drought refuge habitat to inform targeted survey and management.

- **Protect and manage identified refuge habitat, including exclusion and control of stock and feral herbivores.**
- Undertake targeted cross-tenure surveys in areas of potential refuge habitat.

7-part test for Desert Mouse *Pseudomys desertor*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The Desert Mouse is present in the project area but in very low abundance, most likely the result of predation by cats and foxes and grazing competition from introduced herbivores. The proposed action will remove these key threats from a large area of potential habitat for the species, thus providing a local safe haven for the species and decreasing the chance of extinction of the local population. The introduction of fossorial mammals will likely decrease the extinction risk for this species by providing additional refuges, and increased ground cover and food availability through increased soil turnover and seedling establishment. The introduction of native predators (quoll and mulgara) is not expected to increase the risk of extinction for this species. Previous predator diet studies do not show these species to be selective but rather the predators are generalists, consuming invertebrates as well as vertebrates in relation to availability. The reintroduction of quolls to Arid Recovery did not impact small mammal populations which have increased to 15 times their densities outside the fenced reserve since the removal of feral species (Moseby *et al.* 2009).
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. The Desert Mouse is present in the project area but in very low abundance, most likely the result of predation by cats and foxes and grazing competition from introduced herbivores. The proposed action will remove these key threats from a large area of potential habitat for the species, thus providing a local safe haven for the species and decreasing the chance of extinction of the local population.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Desert mouse will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the

7-part test for Desert Mouse *Pseudomys desertor*	
Part	**Answer**
	species. This species is likely to respond well to the removal of threats and will likely increase in abundance and distribution throughout the project area. This response has been documented at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. Most records of the Desert Mouse come from sand dune or sand plain habitats; usually in areas of dense groundcover of grasses, sedges or shrubs. There is a wide distribution of appropriate sand dune habitat throughout the project area although groundcover is currently significantly reduced due to overgrazing. The vegetation to be disturbed by the proposed action intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not currently an accepted recovery plan for the species. However, the proposed action aligns closely with the NSW targeted management strategy for the species, listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will remove the key threats of introduced and feral predation and competition and habitat trampling from introduced grazers, aiming to create a significant net benefit to this species.

Stripe-faced Dunnart *Sminthopsis macroura* (NSW: Vulnerable, Nationally: Not Listed)
The Stripe-faced Dunnart is a mouse-sized marsupial with a slender pointed muzzle and a distinct black stripe that extends from between the eyes to between the ears. The tail is longer than the head-body length (the sympatric Fat-tailed Dunnart has a shorter tail than head-body) and is often carrot-shaped. The species is found right across inland Australia, including in dry grasslands and low dry shrublands. In many arid zone habitats this species is found in cracking clay habitats, where they shelter in cracks in the soil.

There are 5 records for this species within the project area.

Listed Threats in NSW:

- Clearing of dry grassland and shrubland habitat for agriculture.
- Heavy grazing and trampling of habitat by domestic stock.
- Frequent and extensive fire in dry grasslands and low dry shrublands.
- Predation by foxes and feral cats.
- Removal of fallen timber.
- Dunnarts are very sensitive to the organophosphorus pesticide fenitrothion which is used to control locusts. Even sub-lethal intoxication causes lethargy and temporary immobilization, thus increasing vulnerability to predation.

Recommended Management Actions in NSW:

- **Trial installation of small (10-20ha) stock-proof enclosures in agricultural landscapes, to act as population refuges. Enclosures should be monitored to evaluate effectiveness using an adaptive management approach.**

- Negotiate with landholders and land managers managing dunnart habitat, to promote the retention of patches of intact saltbush or other ground layer vegetation, with minimal grazing or other disturbance.
- Liaise with relevant landholders and fire management agencies throughout the species' range, to promote fire regimes that aim to retain patches of ground layer vegetation and coarse woody debris throughout the landscape.
- Identify travelling stock reserves that are particularly important as dunnart habitat, and negotiate to manage grazing as walk-through only, avoiding intensive grazing wherever possible.
- **Conduct targeted survey for the species in areas with suitable habitat to identify new populations and clarify the species' distribution and abundance**
- Raise awareness of the occurrence and importance of the species, among relevant landholders, with particular attention to identifying dunnarts brought in by domestic cats and encouraging responsible cat ownership.
- Raise awareness among agricultural landholders of the potential impacts of using fenitrothion in or near dunnart habitat. Promote the use of less toxic alternatives.

7-part test for Stripe-faced Dunnart *Sminthopsis macroura*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The Stripe-faced Dunnart is present in the project area but in low abundance, most likely due to threats of introduced predators and herbivores. The proposed action will remove these threats, likely reducing the chance of extinction of the local population. The introduction of fossorial mammals will likely decrease the extinction risk for this species by providing additional refuges, and increased ground cover and food availability through increased soil turnover and seedling establishment. The introduction of native predators (quoll and mulgara) is not expected to increase the risk of extinction for this species. Previous predator diet studies do not show these species to be selective but rather the predators are generalists, consuming invertebrates as well as vertebrates in relation to availability. The reintroduction of quolls to Arid Recovery did not impact small mammal populations which have increased to 15 times their densities outside the fenced reserve since the removal of feral species (Moseby *et al.* 2009).
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the species is not endangered
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed,	The species is found right across inland Australia, including in dry grasslands and low dry shrublands. In many arid zone habitats this species is found in cracking clay habitats, where they shelter in cracks in the soil.

7-part test for Stripe-faced Dunnart *Sminthopsis macroura*	
Part	**Answer**
(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Stripe-faced Dunnart will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. This species is likely to respond well to the removal of threats and will likely increase in abundance and distribution throughout the project area. This response has been documented at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The Stripe-faced Dunnart is found in a range of habitats including grasslands, shrublands and cracking clay habitats. The vegetation to be disturbed by the proposed action intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will remove the key threats of introduced and feral predation and competition and habitat trampling from introduced grazers, aiming to create a significant net benefit to this species.

Long-haired rat *Rattus villossismus* (NSW: Vulnerable, Nationally: Not Listed)
Named for the long black guard hairs on the back, this rat is otherwise pale grey-brown. The species has been recorded over vast areas of western NSW. Strongholds are north-west of NSW, with plagues spreading south and east along river channels. Otherwise, the species is found in scattered localities in low numbers. Following extended periods of above average rainfall or flood, this species can breed rapidly. Resulting populations disperse widely, then die away abruptly as food is depleted and water evaporates. Predators rely on these rat plagues for their own rapid reproduction.

There are no records of this species from the project area. This species would be most likely to occur in the project area following periods of significant rainfall, when populations are known to plague and disperse widely.

Listed Threats in NSW:

- Degradation of vegetation and soil structure by rabbits and livestock reduces population size and lead to local extinction.
- Rainfall is the most important factor influencing abundance, but the species is restricted to moist refugia during drought.

- Predators have little effect on peak populations but can impact on residual populations restricted to small refuge areas.
- Overgrazing depletes vegetative cover which is essential for food and predator protection.

Recommended Management Actions in NSW:

- **Control vertebrate pest populations, e.g. foxes, cats and rabbits.**
- Apply appropriate fire regimes which ensure natural succession and allow a mosaic of unburned areas to persist.
- **Reduce stock intensity of, or exclude grazing in, some areas to allow regeneration of vegetation.**
- Restrict cultivation around remnant habitat.
- **Retain grasslands and ensure a full cycle of grass development.**
- **Fence to prevent grazing of vegetation and erosion of stream banks.**
- Prevent clearing of habitat such as nesting sites and food sources.
- Revegetate gullies and stream banks where vegetation has been cleared; widen the strip of riparian vegetation.
- Survey for stable refuge populations

7-part test for Long-haired rat *Rattus villossismus*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	There are no records of this species from the project area. This species would be most likely to occur in the project area following periods of significant rainfall, when populations are known to plague and disperse widely. The proposed action will therefore not pose an extinction risk to a local population. The introduction of fossorial mammals will likely decrease the extinction risk for this species by providing additional refuges, and increased ground cover and food availability through increased soil turnover and seedling establishment. The introduction of native predators (quoll and mulgara) is not expected to increase the risk of extinction for this species. Previous predator diet studies do not show these species to be selective but rather the predators are generalists, consuming invertebrates as well as vertebrates in relation to availability. The reintroduction of quolls to Arid Recovery did not impact small mammal populations which have increased to 15 times their densities outside the fenced reserve since the removal of feral species (Moseby *et al.* 2009).
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the species is not endangered
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community

Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Long-haired rat will enable it to easily pass through the 50 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species as the species is only likely to use the habitat when in plague proportions following significant periods of rainfall. The project area is not a current refuge of the species between these times.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The project area is not identified as a refuge of this species in between times of significant rainfall. The vegetation to be disturbed by the proposed action therefore does not intersect critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will remove the key threat of degradation of soil structure by introduced herbivores and stock. This would therefore increase the suitability of the habitat within the project area for the species during plague times.

Kultarr *Antechinomys laniger* (NSW: Vulnerable, Nationally: Not Listed)
The kultarr is a small, mouse sized marsupial that is brown/sandy coloured with a white belly. It is widespread across arid and semi-arid NSW but present in very low numbers. The kultarr is a terrestrial insectivore that inhabits open country, especially claypans among *Acacia* woodlands. Populations appear to fluctuate seasonally in response to environmental stresses, including declines following periods of drought and intensive flooding.

There are no records of the Kultarr within the project area. There is one record from the eastern part of Sturt National Park (approximately 40 km from the project area).

Listed Threats in NSW:

- Predation by domestic and feral cats may be severe on local populations.
- Predation by the European red fox.
- Even low-intensity livestock grazing degrades habitat; overstocking causes destruction of the vegetation and soil structure (i.e. collapse of soil cracks used as shelter).
- Flooding can eliminate populations locally.
- Cultivation eliminates shelter and reduces foraging success.
- Fire can destroy refuge sites and, on a larger scale, temporarily degrades cover and abundance of prey.

- Populations may be reduced by intensification of land uses.

Recommended Management Actions in NSW:

- **Control vertebrate pest populations (e.g. foxes, cats and rabbits) that either prey on, or compete with this species for resources.**
- Apply appropriate fire regimes that ensure natural succession and allow a mosaic of unburned areas to persist.
- **Reduce stock intensity of, or exclude grazing in, some areas to allow regeneration of vegetation and provide habitat, such as food sources and nest sites.**
- Restrict cultivation around remnant habitat.
- **Retain grasslands and ensure the full cycle of development of grasses, such as flowering, seed-set and tussock formation.**
- **Retain stick and leaf litter for shelter and food resources.**
- Maintain spinifex or porcupine grasses (Triodia spp.) in the area.
- **Retain understorey shrubs and allow them to complete their life cycle (i.e., seed set, germination, establishment, growth to maturity).**
- **Retain fallen logs as habitat, especially those with hollows**.
- Maintain exfoliating and soil-surface rocks in the area of concern.
- Prevent clearing of habitat, such as nesting sites and food sources.

7-part test for Kultarr *Antechinomys laniger*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. There is not currently a known local population of this species. The proposed action will remove the key threats of introduced predators from the project area which may enable the species to colonise the project area from populations elsewhere in the Park. The introduction of fossorial mammals will likely decrease the extinction risk for this species by providing additional refuges, and increased ground cover and food availability through increased soil turnover and seedling establishment. The introduction of native predators (quoll and mulgara) is not expected to increase the risk of extinction for this species. Previous predator diet studies do not show these species to be selective but rather the predators are generalists, consuming invertebrates as well as vertebrates in relation to availability. The reintroduction of quolls to Arid Recovery did not impact small mammal populations which have increased to 15 times their densities outside the fenced reserve since the removal of feral species (Moseby *et al.* 2009).
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as the species is not endangered
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the	Not applicable as not an endangered ecological community

7-part test for Kultarr *Antechinomys laniger*	
Part	**Answer**
action proposed adversely affects extent or modifies the community	
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Kultarr will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. The project area is not a current refuge of the species. Extensive suitable habitat will remain intact throughout the project area.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The Kultarr inhabits open country, especially claypans among Acacia woodlands. The fenceline has been carefully selected to avoid clearing as much Acacia woodland as possible. The vegetation to be disturbed by the proposed action intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. The action will directly contribute to recovery action 3 of the NSW Recovery Plan for this species (NPWS 2002) *"ameliorative measures are established to reduce potential threats"*
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will remove the key threats of introduced and feral predation and competition and habitat trampling from introduced grazers, aiming to create a significant net benefit to this species.

Plains Mouse *Pseudomys australis* (NSW: Presumed Extinct, Nationally: Vulnerable)
The Plains Mouse weighs between 30 and 50 grams and is one of the largest rodent species still inhabiting the arid zone. The Plains Mouse (*Pseudomys australis*) *w*as once widespread throughout the arid and semi-arid regions of Australia. Since European settlement its range has declined by 50-90% and it is now restricted to the gibber (stone-covered) plains of the Lake Eyre Basin in northern South Australia and the Southern Northern Territory. The Plains mouse reappeared within the Arid Recovery reserve following exclusion of feral predators and herbivores and has since proliferated in abundance and range within the reserve.

There are no records of this species within the project area. The species was recently rediscovered in New South Wales on Fowlers Gap Station (approximately 300 km south). The species has been trapped just over the border from the project area, in the South Australian section of the Strzlecki Desert, on Quinyambie Station (approximately 50 km south-west of the project area). It is possible that the species could recolonise the project area if threats are reduced.

Listed Threats in NSW:

- Habitat degradation due to trampling and intensive grazing from cattle and sheep.
- Predation from feral cats and foxes

Recommended Management Actions in NSW:

- Discourage the construction of new watering points in areas of habitat critical for survival
- **Implement effective feral predator control at and around key populations**
- **Ensure grazing pressure from domestic stock is kept at a level that does not lead to degradation of gilgais**

7-part test for Plains Mouse *Pseudomys australis*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. There are no records of this species within the project area. The species was recently rediscovered in New South Wales on Fowlers Gap Station (approximately 300 km south). The species has been trapped just over the border from the project area, in the South Australian section of the Strzlecki Desert, on Quinyambie Station (approximately 50 km south-west of the project area). It is possible that the species could recolonise the project area if threats are reduced. This occurred at the Arid Recovery Reserve in South Australia, where the species was presumed locally extinct but then recolonised following feral predator exclusion. The proposed action would be likely to increase the chance of establishment of a colonising population and decrease the risk of extinction. The introduction of fossorial mammals will likely decrease the extinction risk for this species by providing additional refuges, and increased ground cover and food availability through increased soil turnover and seedling establishment. The introduction of native predators (quoll and mulgara) is not expected to increase the risk of extinction for this species. Previous predator diet studies do not show these species to be selective but rather the predators are generalists, consuming invertebrates as well as vertebrates in relation to availability. The reintroduction of quolls to Arid Recovery did not impact small mammal populations which have increased to 15 times their densities outside the fenced reserve since the removal of feral species (Moseby *et al.* 2009).
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. There are no records of this species within the project area. The species was recently rediscovered in New South Wales on Fowlers Gap Station (approximately 300 km south). The species has been trapped just over the border from the project area, in the South Australian section of the Strzlecki Desert, on Quinyambie Station (approximately 50 km south-west of the project area). It is possible that the species could recolonise the project area if threats are reduced. This occurred at the Arid Recovery Reserve in South Australia, where the species was presumed locally extinct but then recolonised following feral predator exclusion. The proposed action would be likely to increase the chance of

7-part test for Plains Mouse *Pseudomys australis*	
Part	**Answer**
	establishment of a colonising population and decrease the risk of extinction.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Plains Mouse will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. The project area is not a current refuge of the species. Extensive suitable habitat will remain intact throughout the project area should the species colonise the area. The Plains Mouse successfully returned and colonised the Arid Recovery Reserve despite similar extent of disturbed habitat to construct predator exclusion fences.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The Plains Mouse inhabits a variety of habitats including productive gilgais on swales and sand plains and dunes within the Arid Recovery Reserve. The vegetation to be disturbed by the proposed action intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. Implementation of feral predator control is one of the main management objectives consistent with the National Recovery Plan for the Plains Mouse (Moseby 2012).
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The action proposed will remove the key threats of introduced and feral predation and competition and habitat trampling from introduced grazers, aiming to create a significant net benefit to this species.

Little Pied Bat *Chalinolobus picatus* (NSW: Vulnerable, Nationally: Not Listed)
The Little Pied Bat is a distinctive black and white bat that weighs four to eight grams. Occurs in dry open forest, open woodland, mulga woodlands, chenopod shrublands, cypress pine forest and Mallee and Bimbil box woodlands. Roosts in caves, rock outcrops, mine shafts, tunnels, tree hollows and buildings.

There are no records of this species within the project area or the Strzlecki Desert Western Dunefields CMA subregion but it is predicted to occur.

Listed Threats in NSW:

- Loss or modification of habitat.
- Predation by cats.
- Application of pesticides in or adjacent to foraging areas.

Recommended Management Actions in NSW:

- **Control feral cats.**
- **Retain foraging and roosting habitat.**
- Minimise the use of pesticides within or adjacent to areas where insectivorous bats occur.

7-part test for Little Pied Bat *Chalinolobus picatus*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. There are no records of this species in the project area or the Strzlecki Dunefields region. A local population is therefore unlikely to be placed at risk of extinction. If a local population was present which has not yet been detected, then the proposed activity will remove key threats such as predation by cats, which will likely decrease the chance of extinction.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as not listed as an endangered species
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of the foraging habitat for this species through improvements in vegetation structure and composition. In addition, the restoration of vegetation structure within the Wild Training Zone (10,400 ha), will create a vast area of protected foraging habitat for this species. (ii) The Little Pied Bat is a flying mammal so the fences will not fragment the habitat. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. The species is most likely to use the area for foraging rather than roosting and breeding. The proposed action will improve foraging habitat for the species, thus supporting long-term survival.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The vegetation to be disturbed by the proposed action intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process	No. The proposed action is likely to improve the vegetation structure of potential foraging habitat

or is likely to result in the operation of, or increase the impact of, a key threatening process.	for the species and will remove feral cats from a large area of suitable habitat, thus removing key threatening processes.

Yellow-bellied Sheath-tail Bat *Saccolaimus flaviventris* (NSW: Vulnerable, Nationally: Not Listed)

The Yellow-bellied Sheath-tail bat is a wide-ranging species found across northern and eastern Australia. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory.

There are no records of this species from within the project area but there are 2 records of a call heard at the Fort Grey Homestead in 1993. Another record of a call is listed at Bancannia (approximately 30 km from the project area), in the eastern part of the park.

Listed Threats in NSW:

- Disturbance to roosting and summer breeding sites.
- Foraging habitats are being cleared for residential and agricultural developments, including clearing by residents within rural subdivisions.
- Loss of hollow-bearing trees; clearing and fragmentation of forest and woodland habitat.
- Pesticides and herbicides may reduce the availability of insects, or result in the accumulation of toxic residues in individuals' fat stores.

Recommended Management Actions in NSW:

- Raise landowners' awareness about the presence of the species and provide information on how their management actions will affect the species' survival.
- Conduct searches for the species in suitable habitat in proposed development areas.
- DEC should be consulted when planning development/s to minimise impact/s on populations.
- **Retain stands of native vegetation, especially those with hollow-bearing trees (including dead trees), and retain other structures containing bats.**
- Retain a buffer of vegetation around roost sites in vegetated areas.
- Protect hollow-bearing trees for breeding sites, including those on farmland; younger mature trees should also be retained to provide replacements for the older trees as they die and fall over.
- Reduce the use of pesticides in the environment.
- **Encourage regeneration** and replanting **of local flora species to maintain bat foraging habitat.**
- Assess the site's importance to the species' survival, including linkages provided between ecological resources across the broader landscape.
- Mark known sites and potential habitat onto maps used for planned poison-spraying activities.

7-part test for Yellow-bellied Sheath-tail bat *Saccolaimus flaviventris*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. There are no records of the species within the project area but there are 2 records of a call heard at the Fort Grey Homestead in 1993. The species is documented to roost in buildings and trees so these records likely reflect the presence of the homestead buildings and higher density of large trees with hollows surrounding Lake Pinaroo. A local population is therefore unlikely to

7-part test for Yellow-bellied Sheath-tail bat *Saccolaimus flaviventris*	
Part	**Answer**
	be placed at risk of extinction by the proposed activity.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as not an endangered species
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an endangered ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of the foraging habitat for this species through improvements in vegetation structure and composition. In addition, the restoration of vegetation structure within the Wild Training Zone (10,400 ha), will create a vast area of protected foraging habitat for this species. (ii) The Yellow-bellied Sheath-tail Bat is a flying mammal so the fences will not fragment the habitat. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. The species is most likely to use the area for foraging rather than roosting and breeding. The proposed action will improve foraging habitat for the species, thus supporting long-term survival.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The vegetation to be disturbed by the proposed action intersects no known critical habitat. The reintroduction of burrowing mammals may also provide additional roosting sites for this species as it is known to use mammal burrows in areas where tree hollows are limited.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed action is likely to improve the vegetation structure of potential foraging habitat for the species, thus removing a key threatening process.

Reptiles

Yellow-tailed Plain Slider *Lerista xanthura* (NSW: Vulnerable, Nationally: Not Listed)
A fossorial pale pinkish-buff skink with a bright yellow tail. The species is elongate and both the forelimbs and hindlimbs are reduced and bear only four-digits. Individuals reach a total length of approximately 90 mm. Since the 1970s, it has only been recorded from Kinchega, Sturt and Mutawintji National Parks, Tarawe Nature Reserve, and one record from Broken Hill. Occurs in a variety of semi-arid and arid habitats, including grassed alluvial sands and sand dunes, dry open woodlands and spinifex-dominated red sand plains. The species is fossorial and usually found in loose soil or sand.
There are 2 records of this species from within the project area.

Listed Threats in NSW:

- Loss of habitat as a result of clearing has led to a decline in species distribution and abundance
- Fragmentation, resulting from clearing or degradation of the habitat has reduced genetic variability and reproductive opportunities and has increased genetic isolation and the potential for significant impacts arising from stochastic events such as drought or fire.
- Degradation of the habitat, as a result of inappropriate grazing or fire regimes, has resulted in changes to the physical nature of the habitat, for example change in diversity and structure of floristics or invertebrates. Changes to the habitat may result in it being unsuitable for the species or may increase other threatening processes such as predation.
- Fire may cause the direct loss of individuals, and inappropriate fire regimes may cause long-term changes to physical features such as floristic structure or leaf litter, which is unfavourable to sustaining a viable population of the species.
- Predation by foxes or cats may have an impact, particularly where populations have already declined.
- Catastrophic events such as drought or extensive wildfire.
- Anthropogenic climate change is a long term significant threat as it will alter physical characteristics of the habitat such that it is no longer able to sustain a viable population.

Recommended Management Actions in NSW:

- Determine the current range and distribution of the species, through intensive surveys, then identify at least 10 currently inhabited sites across the species range for recovery actions to be implemented.
- Establish a comprehensive monitoring program across the 10 sites to determine the success or otherwise of recovery actions and to guide future actions.
- Develop and implement an appropriate fire regime that retains hollow logs & trees and hummock grasses as shelter and foraging habitat.
- **Establish and implement a joint pest control program between DEC and landholders for foxes, feral cats, goats and rabbits in and around areas of suitable habitat.**
- Develop a rapport with landholders within the species range and encourage them to understand and assist in the species recovery through brochures, on-site visits, etc.
- **Erect fences around areas of suitable habitat to prevent trampling and grazing by stock or to buffer from cropping activities and to allow regeneration of habitat.**
- Revegetate riparian strips, gullies and stream banks.
- Retain, where ever possible, all ground timber, fallen logs, rocks, grass cover, Spinifex, understorey shrubs and soil cracks in areas of suitable habitat.

- Prepare a Multi- Species Recovery Plan for Reptiles of the North-West.
- Reserve Fire Management Strategies for Kinchega, Mutawintji and Sturt NP's to include operational guidelines to protect this species habitat from fire.

7-part test Yellow tailed Plain Slider, *Lerista xanthura*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species is present in the project area but in very low abundance. This is likely due to degradation of the habitat through grazing and feral predation pressure. The proposed activity will address these key threats and is likely to improve the status of the local population. The reintroduction of extinct mammal species are likely to stabilise leaf litter refuges used by this species. *Lerista* species at other arid zone mammal reintroduction sites have been unaffected by the return of medium-sized omnivorous marsupials (Moseby *et al.* 2009)
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as not listed as an endangered species
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The Yellow tailed Plain Slider is a fossorial species so could pass under the fences or its size will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. This species is likely to respond well to the removal of threats and will likely increase in abundance and distribution throughout the project area. This response has been documented at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species occurs in a variety of habitats, including grassed alluvial sands and sand dunes, dry open woodlands and spinifex-dominated red sand plains. There is extensive suitable habitat throughout the project area. The vegetation to be disturbed by the proposed action intersects no known critical habitat.

7-part test Yellow tailed Plain Slider, *Lerista xanthura*	
Part	**Answer**
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity will remove the key threats of habitat degradation and predation by introduced predators.

Crowned Gecko *Lucasium stenodactylum* (NSW: Vulnerable, Nationally: Not Listed)
Small (90 mm) reddish brown gecko, with a pale vertebral stripe that commences as separate stripes from each eye that converge and fuse at the nape. Widespread and common across the southern Australian arid zone, but in NSW only known from four separate locations in the state's far west, including Sturt National Park.

There are 36 records of this species within the project area, with 6 trapping records reported in this REF.

Listed Threats in NSW:

- Grazing by introduced herbivores affects the density and structure of spinifex, adjacent shrubs and ground cover. This may reduce habitat quality and increase the risk of predation for individuals moving between patches of vegetation.
- Fragmentation of populations increases the risk of extinction due to genetic effects and chance events (e.g., drought and fire).
- Predation by foxes or cats.

Recommended Management Actions in NSW:

- Determine the current range and distribution of the species, through intensive surveys, then identify at least 10 currently inhabited sites across the species range for recovery actions to be implemented.
- Establish a comprehensive monitoring program across the 10 sites to determine the success or otherwise of recovery actions and to guide future actions.
- Develop and implement an appropriate fire regime that retains hollow logs & trees and hummock grasses as shelter and foraging habitat.
- **Establish and implement a joint pest control program between DEC and landholders for foxes, feral cats, goats and rabbits in and around areas of suitable habitat.**
- Develop a rapport with landholders within the species range and encourage them to understand and assist in the species recovery through brochures, on-site visits, etc.
- Erect fences around areas of suitable habitat to prevent trampling and grazing by stock or to buffer from cropping activities and to allow regeneration of habitat.
- Revegetate riparian strips, gullies and stream banks.
- **Retain, where ever possible, all ground timber, fallen logs, rocks, grass cover, Spinifex, understorey shrubs and soil cracks in areas of suitable habitat.**
- Prepare a Multi- Species Recovery Plan for Reptiles of the North-West.
- Reserve Fire Management Strategies for Sturt, Mutawintji and Paroo-Darling NP to include operational guidelines to protect this species habitat from fire (add prescription if known).

7-part test Crowned Gecko, *Lucasium stenodactylum*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. the species is present in the project area but in low abundance, likely due to previous grazing pressure and predation by introduced predators. The proposed activity will address these key threats to the species. Increased cover and an absence of introduced predators, plus expected increases in insect prey biomass will likely benefit the life cycle of the Crowned Gecko and decrease the risk of extinction of the local population.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as not listed as an endangered species
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Crowned Gecko will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. This species is likely to respond well to the removal of threats and will likely increase in abundance and distribution throughout the project area. This response has been documented at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species is reported from a variety of sand habitats. There is extensive suitable habitat throughout the project area. The vegetation to be disturbed by the proposed action intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity will remove the key threats of habitat degradation by introduced herbivores and predation by introduced predators.

Wedgesnout Ctenotus *Ctenotus brooksi* (NSW: Vulnerable, Nationally: Not Listed)
A skink that reaches a total length of 10-12 cm. The species is fawn to reddish-bronze or crimson above, with stripes and variegations that vary between individuals. Some bear a narrow, pale-edged black vertebral stripe from the nape to the tail.

There are 366 records of this species from the project area, with 352 of these reported in this REF. The species has been trapped throughout the project area.

Listed Threats in NSW:

- Fragmentation, resulting from clearing or degradation of habitat, may reduce the size of populations and increase the extent to which they are isolated. Small, isolated populations have a greater risk of extinction due to genetic effects and chance events (e.g., drought and fire).
- Degradation of the habitat, a result of inappropriate grazing or fire regimes, may result in changes to the physical and biological nature of the habitat (e.g., changes in the structure and floristics of vegetation, diversity and abundance of invertebrates). These changes may render habitat unsuitable or increase the risk posed by other threatening processes (e.g., predation).
- Fire may cause the direct loss of individuals.
- Predation by foxes or cats, particularly where populations have already declined.
- Catastrophic events such as drought or extensive wildfire.
- Anthropogenic climate change is a long term threat as it may alter habitat characteristics (e.g., change in physical structure or productivity) such that its capacity to support viable populations is reduced.

Recommended Management Actions in NSW:

- **Control feral goats, feral pigs and rabbits near dense populations (best practice: locally/regionally efficient and effective).**
- **Control foxes and cats (domestic & feral) near dense populations (best practice: regionally efficient and effective).**
- Encourage livestock management so as to maintain or improve habitat for this species.
- **Annually monitor ecological parameters to determine population viability (e.g. breeding success, demography, diet etc).**
- Establish the extent of the population and identify core areas for protection.
- Develop ‘interim’ optimal fire regime recommendations based on best available knowledge.
- Ensure the Threatened Species Hazard Reduction List is updated with the requirements of this species and that personnel undertaking burns are aware of its presence and fire sensitivity.
- Monitor the response of the species to management actions, and identify any new or secondary threats at the site.
- Research the ecology, life history and habitat requirements of this little-known species.
- **Encourage retention of spinifex or porcupine grass (Triodia spp.) communities, bark, leaf and woody plant litter.**
- Identify two targeted populations (per year over initial three years) and focus recovery actions there, applying adaptive management strategies to determine and ameliorate threats.
- Provide map of known occurrences to Rural Fire Service and seek a patchy fire with a fire frequency >10 years in Acacia habitat on Bush Fire Risk Management Plan(s), risk register and/or operation map(s).

- Reserve Fire Management Strategies for Sturt NP, Mutawintji NP and Paroo-Darling NP to include operational guidelines to protect this species from fire, with patchy burn and a fire frequency of >10 years in Acacia habitat.

7-part test for Wedgesnout Ctenotus *Ctenotus brooksi*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species is the most commonly trapped reptile in the project area, suggesting there is a strong local population. The reintroduction of extinct mammals is unlikely to have any adverse effects on this species. *Ctenotus* skinks have not been identified in the diet of omnivorous marsupials such as the bilby. This diurnal reptile will have little behavioural overlap with nocturnal marsupial predators that are proposed for reintroduction. The expected increases in vegetation cover from the proposed actions are likely to provide greater protection from predators (e.g. birds of prey). Overall, the proposed actions are likely to reduce the risk of extinction for the local population.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as not listed as an endangered species
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Wedgesnout Ctenotus will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. This species is likely to respond well to the removal of threats and will likely increase in abundance and distribution throughout the project area. This response has been documented at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species is recorded occurring through the project area. There is extensive suitable habitat throughout the project area. The vegetation to be disturbed by the proposed action intersects no known critical habitat.

7-part test for Wedgesnout Ctenotus *Ctenotus brooksi*	
Part	**Answer**
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity will remove the key threats of habitat degradation by introduced herbivores and predation by introduced predators.

Centralian blue-tongued lizard *Tiliqua multifasciata* (NSW: Vulnerable, Nationally: Not Listed)

Robust grey skink with numerous orange-brown crossbands traversing the body. The species inhabits dunes, swales, plains and inland hills, usually where there is an abundance of sandy or stony ground. In NSW it is probably restricted to *Triodia* habitat on red sands. Its diet includes insects, carrion and vegetation.

The species was not detected during surveys for this REF. Within the Bionet Atlas, there is one record of this species within the project area and one just outside the area, by approximately 5 km.

Listed Threats in NSW:

- Excessive grazing pressure by herbivores degrades habitat.
- Fire harms suitable habitat at least temporarily.
- Predation by foxes and cats could be significant on a local scale.

Recommended Management Actions in NSW:

- Identify three targeted populations (per year over initial three years) and focus recovery actions there, applying adaptive management strategies to determine and ameliorate threats.
- **Control feral goats and rabbits near known populations (best practice: locally efficient and effective).**
- **Control foxes and cats (feral and domestic) near selected populations (best practice: locally efficient and effective).**
- Encourage management of livestock grazing so as to improve ground cover in vicinity of known populations.
- Create an incentive program to encourage location and disclosure of the species by landholders and general public.
- Develop EIA guidance for consent and determining authorities with regard to development and other activities.
- Prepare guide to augmenting and protecting rock and log ground cover at selected target sites.
- Undertake research to determine optimal fire regime in preferred habitat.
- Ensure the Threatened Species Hazard Reduction List is updated with the requirements of this species and that personnel undertaking burns are aware of its presence and fire sensitivity.
- Opportunistically monitor populations after wildfire to determine fire ecology.
- Reserve Fire Management Strategy for Sturt NP include operational guidelines to protect this species habitat from fire (add prescription if known).
- Assess the species' status via a review of the literature and past surveys, and by conducting and encouraging surveys in known and potential habitat.

7-part test for Centralian blue-tongued lizard *Tiliqua multifasciata*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species is likely present in the project area but in very low abundance. The species' ideal habitat is thought to be red sand dunes dominated by *Triodia*. *Triodia* habitat is extensive to the north of Cameron Corner in south-west Queensland, but is present only as isolated small patches within the project area. As such, the low number of records suggest that the project area does not provide suitable habitat for the species. In addition, the project site has suffered habitat degradation from introduced herbivores and predation by introduced predators. This species uses mammal burrows as refuges during hot weather and is likely to benefit from the increased burrow refuges provided by reintroduced mammals such as burrowing bettongs. Increases in herbage cover are also likely to benefit this primarily herbivorous species. The proposed activity will address these threats, likely increasing the value of the project site for this species.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as not listed as an endangered species
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The fences may restrict movement of adult Centralian blue-tongued lizards, but will permit movement of juveniles. (iii) The area of disturbed habitat and potential restriction of adult movement has low importance to the long-term survival of the species. This species (and other lizards in the family e.g. *Tiliqua rugosa*), have been shown to increase in abundance within similar fenced reserves (Moseby *et al.* 2009), suggesting that the removal of threats is more important to long-term survival than the potential restrictions on movement. Previous studies on home range of the Centralian blue-tongued lizard in the tropics have found home ranges average 4ha (Price-Rees *et al.* 2013). Studies of a related species, *Tiliqua*

	rugosa, in the arid zone found home range sizes varied from 2.7 to 9 ha (Bull and Freake 1999). This would suggest that the 2,000ha enclosed within each exclosure would provide a large area for multiple individual home ranges without detrimental effects on long-term survival.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. This species is thought to rely on *Triodia* habitat. The vegetation to be disturbed by the proposed action does not include any of isolated patches of *Triodia* within the project area.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity will remove the key threats of habitat degradation by introduced herbivores and predation by introduced predators.

Narrow-banded snake *Simoselaps fasciolatus* (NSW: Vulnerable, Nationally: Not Listed)

A nocturnal burrowing snake that shelters under well embedded fallen timber and stumps, in associated soil cracks and holes within litter, or under grass hummocks. Has irregular, ragged black bands on white and pink background. Dark blotches on head and nape.

There are two records of this species from 2009 within the project area, and 3 from areas further east in the Park. This species was not recorded in surveys for this REF.

Listed Threats in NSW:

- Habitat destruction including blade ploughing, cultivation and removal of fallen timber.
- Grazing eliminates habitat by compacting the soil surface, disturbing and reducing litter layers, destroying soil cracks and breaking up the surface soil crust.
- Predation by foxes and cats is possibly a problem.
- Degradation of habitat by feral browsers (goats, pigs, rabbits).
- Poor knowledge of the species' distribution and abundance.

Recommended Management Actions in NSW:

- Liaise with relevant landholders and land managers to raise awareness of the importance of retaining rock and log ground cover within areas of known important habitat for the species.
- **Fence or otherwise protect strategically-located small (e.g. 10 hectare) patches of refugia to create high quality habitat areas capable of sustaining a core population.**
- **Control feral goats, pigs and rabbits, using best-practice techniques and taking an adaptive management approach, in the vicinity of known populations.**
- Assess the species' distribution and abundance via a review of past surveys and the literature, and by conducting and encouraging surveys in known and potential habitat.
- Negotiate agreements with relevant landholders, particularly in-perpetuity covenants or stewardship agreements, that promote the retention and connectivity of suitable habitat, including removal of grazing and retention of fallen timber, rocks and debris.

7-part test for Narrow banded snake, *Simoselaps fasciolatus*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species is present in the project area but in very low abundance. This is likely due to degradation of the habitat by feral browsers and predation by cats and foxes. This species is preyed on disproportionately to its abundance by cats (John Read, unpublished data). Thus the removal of feral cats and increases in ground cover and food resources that are likely through the proposed activity will address these key threats. This is expected to decrease the risk of extinction for the local population.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as not listed as an endangered species
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Narrow banded snake will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. This species is likely to respond well to the removal of threats and will likely increase in abundance and distribution throughout the project area. This response has been documented at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species prefers open woodland or shrubland, sometimes with a hummock grass understorey. There is extensive suitable habitat throughout the project area, although the grasses are currently heavily grazed. The vegetation to be disturbed by the proposed action intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.

7-part test for Narrow banded snake, *Simoselaps fasciolatus*	
Part	**Answer**
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity will remove the key threats of habitat degradation by feral browsers and predation by introduced predators.

Interior blind snake *Anilios endoterus* (NSW: Endangered, Nationally: Not Listed)
A small worm-like burrowing snake. Grey brown to reddish brown with a paler snout. The species is nocturnal and feeds principally on ants and termites. The species shelters in the ground, termite nests or under rocks and logs. It has been recorded in red sandy soils in spinifex, Mitchell grassland or shrubland. There is 1 record of this species from within the project area (reported in this REF) and 10 recorded in the Bionet Atlas database, from locations further east of the project area within the Park.

Listed Threats in NSW:

- overgrazing of habitat and soil compaction by feral goats and livestock.
- small size of this population also makes it vulnerable to genetic introgression and one-off catastrophic events.

Recommended Management Actions in NSW:

- Develop EIA guidance for consent and determining authorities with regard to development and other activities.
- Prepare guide to augmenting and protecting rock and log ground cover at selected target sites.
- **Protect or fence small refugia to create high quality habitat that sustains a core population or foraging areas (e.g. 10 ha patches) .**
- **Control feral goats and rabbits in the vicinity of known populations (best practice: locally efficient and effective).**
- Identify two targeted populations (per year over initial three years) and focus recovery actions there, applying adaptive management strategies to determine and ameliorate threats.
- Assess the species' status via a review of past surveys and literature, and by encouraging surveys in known and potential areas.

7-part test for Interior blind snake, *Anilios endoterus*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species is likely present in the project area but in very low abundance, probably due to historic grazing pressure and soil compaction by feral goats and livestock and predation by feral cats. Grazing pressure will be significantly reduced in the project area, feral cats will be removed and reintroduced mammals will improve soil structure. The ant species that this species preys upon are likely to increase in abundance. Thus the proposed action is likely to decrease the risk of extinction of the local population of this species.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species is likely present in the project area but in very low abundance, probably due to historic grazing pressure and soil compaction by feral goats and livestock. Grazing pressure will be significantly reduced in the project area and reintroduced mammals will improve soil structure,

	thus likely to decrease the risk of extinction of the local population of this species.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Interior blind snake will enable it to easily pass through the 30 mm netting fences and as it is a burrowing species, also pass under the fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. This species is likely to respond well to the removal of threats and will likely increase in abundance and distribution throughout the project area. In addition, return of native soil engineering processes through the reintroduction of fossorial mammals will likely assist this species. This response has been documented at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species is found in red sandy soils in spinifex, Mitchell grassland or shrubland. There is extensive suitable habitat throughout the project area. The vegetation to be disturbed by the proposed action intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity will remove the key threats of overgrazing and soil compaction. The reintroduction of extinct mammals will return key soil turnover processes to the environment, further reducing threatening processes.

Woma Python *Aspidites ramsayi* (NSW: Endangered, Nationally: Not Listed)

The Woma Python is the largest snake found in the area, with adults reach up to 2.7 m. The species was previously found in inland sandy desert environments across all mainland states, but has suffered significant declines across its range (Pedler 2011). The species is found in hummock grasslands, shrublands or woodlands and shelters in animal burrows, feeding on range of small-medium sized mammal and reptile prey. In some areas it is known as 'the Bilby Snake', related to its former mammalian prey items the burrows it utilises as shelter sites (Pedler 2011). The Woma Python previously occurred in north-western NSW, as far east as Louth and Bourke. In was last recorded in these areas in the late 1890s, and in 1983 from the Tibooburra region. Recent records from the neighbouring Strzelecki Desert in South Australia and south-west Queensland indicate this area as a stronghold for the

species (Pedler 2011). Recent anecdotal reports suggest that the species may also be present within or adjacent to the project area, but in low abundance.

Listed Threats in NSW:

- Fragmentation, resulting from clearing or degradation of habitat, may reduce the size of populations and increase the extent to which they are isolated; small, isolated populations have a greater risk of extinction due to genetic effects and chance events (e.g., drought and fire).
- Degradation of the habitat, a result of inappropriate grazing or fire regimes, has resulted in changes to the physical and biological nature of the habitat (e.g. changes in the structure and floristics of vegetation, diversity and abundance of invertebrates); these changes may render habitat unsuitable or increase the risk posed by other threatening processes (e.g., predation).
- Fire may cause the direct loss of individuals.
- Predation by foxes or cats, particularly where populations have already declined.
- Catastrophic events such as drought or extensive wildfire.
- Hunting or illegal collection, although infrequent, is likely to cause a significant impact where populations are isolated and/or small.
- Human-induced climate change is a long-term threat as it may alter habitat characteristics (e.g. changes in physical structure or productivity) such that its capacity to support viable populations is reduced.
- Loss of critical shelter or breeding features such as tree hollows and standing or fallen timber is a threat.
- Ripping or blasting of warrens may reduce refuges or result in the direct loss of individuals.

Recommended Management Actions in NSW:

- **Control vertebrate pest populations (e.g., foxes, cats and rabbits) that either prey on the species or compete for resources.**
- Avoid disturbing the species; deny access to people who may be involved in illegal collection.
- **Reduce stocking intensity or exclude grazing in some areas to allow regeneration of vegetation to provide shelter for the species and habitat for food resources.**
- **Retain grasslands and allow grassland species to complete their lifecycle (i.e., seed set, germination, establishment, tussock formation).**
- **Retain understorey shrubs and allow them to complete their life cycle (i.e., seed set, germination, establishment, growth to maturity).**
- **Retain fallen logs and ground debris.**
- **Maintain exfoliating and soil-surface rocks.**
- **Maintain spinifex or porcupine grass (*Triodia spp*.) in the area.**
- **Prevent activities that will eliminate soil cracks (e.g., cultivation).**
- Buffer habitat areas from the impacts of other activities (e.g., cultivation).
- **Fence habitat to prevent grazing of vegetation and erosion of stream banks.**
- **Prevent clearing of suitable habitat.**
- Revegetate gullies and stream banks where vegetation has been cleared; widen the strip of riparian vegetation.

7-part test for Woma python, *Aspidites ramsayi*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such	No. The species is likely to be present in the project area but in very low abundance, probably

that a viable local population of the species is likely to be placed at risk of extinction.	due to predation of juveniles by feral cats and foxes and changes induced by grazing pressure. The eradication of cats and foxes, increases in ground cover and increases/reintroduction of small-medium sized mammalian prey species (e.g. hopping-mice, bilbies) are likely to benefit this species. Moreover, the burrowing of fossorial marsupials such as bilbies and burrowing bettongs is expected to increase the density and quality of shelter sites for this species. Thus the proposed action is likely to improve the habitat quality and prey abundance within the project area and will likely improve the status of the local population.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species is likely to be present in the project area but in very low abundance, probably due to predation of juveniles by feral cats and foxes and changes induced by grazing pressure. The eradication of cats and foxes, increases in ground cover and increases/reintroduction of small-medium sized mammalian prey species (e.g. hopping-mice, bilbies) are likely to benefit this species. Moreover, the burrowing of fossorial marsupials such as bilbies and burrowing bettongs is expected to increase the density and quality of shelter sites for this species. Thus the proposed action is likely to improve the habitat quality and prey abundance within the project area and will likely improve the status of the local population.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and prey availability. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) Woma Pythons reintroduced at the Arid Recovery reserve in arid South Australia could successfully climb through or over netting fences of the specifications proposed (Read *et al.* 2011). Juveniles and sub-adults (up to 1 m long) will easily pass through the 30 mm netting fences. The proposed action will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species. This species is likely to respond well to the removal of threats, increased shelter sites and prey availability and will likely increase in abundance and distribution throughout the project area.

Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. No known critical habitat is known from the area. The species, if present in the project area, is likely to be widely dispersed. The proposed action is unlikely to effect critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity will ameliorate key threats and improve habitat and prey availability.

Leopard Ctenotus *Ctenotus pantherinus ocellifer* (NSW: Endangered, Nationally: Not Listed)

Grey to olive-brown skink with white or yellow spots, each with a black bar on each side. Individuals reach between 180-220mm in length. In NSW, the subspecies is known from a single specimen collected west of Goodooga. It is predicted to occur in the Strzlecki Dunefields system as the single specimen was collected in *Triodia mitchelli*, habitat upon which it appears to rely.

There are no records of this species from within the project area or Strzlecki Desert Western Dunefields CMA subregion, although it is predicted to occur within the area.

Listed Threats in NSW:

- Fragmentation, resulting from clearing or degradation of habitat, may reduce the size of populations and increase the extent to which they are isolated. Small, isolated populations have a greater risk of extinction due to genetic effects and chance events (e.g., drought and fire).
- Degradation of the habitat, a result of inappropriate grazing or fire regimes, may result in changes to the physical and biological nature of the habitat (e.g., changes in the structure and floristics of vegetation, diversity and abundance of invertebrates). These changes may render habitat unsuitable or increase the risk posed by other threatening processes (e.g., predation).
- Fire may cause the direct loss of individuals.
- The density and structure of spinifex and adjacent shrubs and ground cover, which may represent a critical ecological requirement for the species, is affected by both livestock and feral species.
- Predation by foxes or cats, particularly where populations have already declined.
- Catastrophic events such as drought or extensive wildfire.
- Anthropogenic climate change is a long term threat as it may alter habitat characteristics (e.g., change in physical structure or productivity) such that its capacity to support viable populations is reduced.

Recommended Management Actions in NSW:

- **Control vertebrate pest populations (e.g., foxes, cats and rabbits) which either prey on the species or compete for resources.**
- Implement appropriate fire regime so as to not burn all habitat within a locality at one time and to promote natural succession.
- **Reduce stocking intensity or exclude grazing in some areas to allow regeneration of vegetation to provide shelter for the species and habitat for food resources.**
- **Retain grasslands and allow grassland species to complete their lifecycle (i.e., seed set, germination, establishment, tussock formation).**

- **Retention of stick and leaf litter.**
- **Retain understorey shrubs and allow them to complete their life cycle (i.e. seed set, germination, establishment, growth to maturity).**
- Retain fallen logs and ground debris.
- Maintain Triodia (spinifex or porcupine grass) in the area.
- Buffer habitat areas from the impacts of other activities.
- Prevent clearing of habitat.

7-part test for Leopard Ctenotus *Ctenotus pantherinus ocellifer*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. There are no records of this species from within the project area or Strzelecki Desert Western Dunefields CMA subregion, although it is predicted to occur within the area. The lack of records may be indicative of a lack of suitable habitat as there are only a few isolated patches of *Triodia* within the project area, habitat which the species is thought to rely on.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. There are no records of this species from within the project area or Strzlecki Desert Western Dunefields CMA subregion, although it is predicted to occur within the area. The lack of records may be indicative of a lack of suitable habitat as there are only a few isolated patches of *Triodia* within the project area, habitat which the species is thought to rely on.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, predator numbers will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Leopard Ctenotus will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species as it does not currently occur within the area. This species may colonise the area following the removal of key threats such as predation and grazing. This may increase the abundance and distribution throughout the project area. This response has been documented in other small reptile species at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species is not recorded within the project area. It is thought to rely on *Triodia mitchelli* habitat. The vegetation to be disturbed by the

	proposed action does not include *Triodia mitchelli* so intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity will remove the key threats of habitat degradation by introduced herbivores and predation by introduced predators.

Eastern Fat-Tailed Gecko *Diplodactylus platyurus* (NSW: Endangered, Nationally: Not Listed)

The Fat-tailed Gecko is distributed from the north coast of Western Australia, through the Northern Territory and the interior of South Australia and Queensland, to north-western New South Wales. In NSW, the species is known from a small number of specimens detected at three locations: Sturt National Park, Nocoleche Nature Reserve and Wanaaring Nature Reserve and a single record from Mutawintji National Park. Habitat constraints are unknown, although the species' rarity suggests that it is highly specialised in its use of habitat. It is also known to shelter in vertical spider burrows and cracks in the ground.

No records of this species exist within the project area. It is predicted to occur in the Strzelecki Desert Western Dunefields CMA subregion. The recent record collected from Sturt National Park was from riverine habitat. The other two records within Sturt National Park are all in the east of the park, in habitat very different to the project area.

Listed Threats in NSW:

- Trampling by livestock, especially where stock aggregate close to waterways, disturbs soil structure and litter cover.
- Overgrazing by feral and domestic stock.

Recommended Management Actions in NSW:

- **Retain sticks and leaf litter for food and shelter.**
- **Retain understorey shrubs continuing their complete life cycle.**
- Retain fallen logs.
- Monitor and appropriately manage all known populations
- Conduct baseline surveys to locate new populations and extend the ranges of known populations.

7-part test for Eastern Fat-Tailed Gecko *Diplodactylus platyurus*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. No records of this species exist within the project area. The recent record collected from Sturt National Park was from riverine habitat. The other two records within Sturt National Park are all in the east of the park, in habitat very different to the project area. It is probable that the lack of records in the project area is due to a lack of unsuitable habitat. However, if a local population is currently undetected then the removal of exotic predators and introduced herbivores would address threatening processes for this species and therefore won't increase the risk of extinction.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely	No. No records of this species exist within the project area. The recent record collected from

to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Sturt National Park was from riverine habitat. The other two records within Sturt National Park are all in the east of the park, in habitat very different to the project area. It is probable that the lack of records in the project area is due to a lack of unsuitable habitat. However, if a local population is currently undetected then the removal of exotic predators and introduced herbivores would remove key threatening processes for this species and therefore likely reduce the risk of extinction.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat for this species through removal of threatening processes and improvements in vegetation structure and composition. In addition, overgrazing will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The size of the Eastern Fat-tailed Gecko will enable it to easily pass through the 30 mm netting fences so this will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species as it does not currently occur within the area. This species may colonise the area following the removal of key threats such as grazing pressure. This may increase the abundance and distribution throughout the project area. This response has been documented in other gecko species at other fenced reserve sites in similar arid habitat (Moseby *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species is not recorded within the project area. It has previously been recorded in the park in riverine habitat. The vegetation to be disturbed by the proposed action does not include any riverine habitat so intersects no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity will remove the key threats of habitat degradation by introduced herbivores and predation by introduced predators.

Flora

Fleshy Minuria *Kippistia suaedifolia* (NSW: Endangered, Nationally: Not Listed)
Strongly aromatic, hairless, compact subshrub to 60 cm high, with a thick woody base. Fleshy Minuria grows around saline lakes and depressions, often in association with gypsum. The species is rare in NSW, recorded only from a restricted area on a loamy and highly gypseous soil. Despite its restricted distribution, at sites where the species has been recorded, plants are usually common to abundant. The species is highly aromatic and unpalatable to vertebrates.

There is one record of this species from margin of the project area from 2003, found on the edge of a claypan on aeoleon brown sandy loam under *Hakea leucoptera*, *Maireana astrotricha* and *Senna spp*.

Listed Threats in NSW:

- Excavation (mining) and roadworks.
- Habitat clearing and modification (restricted to specialised habitats of saline lakes and depressions associated with gypsum).

Recommended Management Actions in NSW:

- Conduct surveys and assessments of less known sites to confirm presence of species and develop and implement conservation management agreements with landholders for high priority sites.
- Monitor the Conoble Railway Station and Marlow Gypsum Mine populations annually.
- Ensure that local govt and other planning agencies are kept informed of the Marlow and Conoble populations in order to assist them in making informed planning decisions regarding roadworks, mining, excavation and other development activities.
- Conduct experimental research into mineral tolerance of the species.
- **Conduct experimental research into the effects of fire, grazing and other disturbances.**
- Investigate the appropriateness and usefulness of using *K. suaedifolia* to assist in the rehabilitation of mined gypsum sites, including conducting experimental rehab plots.
- Conduct surveys in potential habitat to identify new sites for conservation.
- Investigate seed viability, germination, dormancy and longevity (in natural environment and in storage).
- Conduct research to determine ecological requirements.
- Develop an Expression of Interest (EOI) for incentives targeted towards private landowners to locate new sites for conservation.

7-part test for Fleshy Minuria, *Kippistia suaedifolia*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The one record of this species was from the very edge of the project area, away from where proposed fences and tracks will be constructed. The project will not change the area in which the record is located. There may be suitable habitat for this species elsewhere within the project area although it was not detected. The species is unpalatable to vertebrates so is unlikely to be affected by the reintroduced mammalian herbivores.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered	No. The one record of this species was from the very edge of the project area, away from where proposed fences and tracks will be constructed. The project will not change the area in which the

7-part test for Fleshy Minuria, *Kippistia suaedifolia*	
Part	**Answer**
population such that a viable local population of the species is likely to be placed at risk of extinction.	record is located. There may be suitable habitat for this species elsewhere within the project area although it was not detected. The species is unpalatable to vertebrates so will not be affected by the reintroduced mammalian herbivores.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines only intersect 0.3 ha of claypan habitat, to which this species is restricted. The exclosures will surround 91 ha of claypan habitat, thus protecting it from further modification. The species is not palatable to vertebrates so will not be affected by the reintroduction of herbivorous mammals. (ii) The fencelines will not fragment areas of habitat as they only intersect one claypan. (iii) The habitat where this species has been found in the project area will not be affected by the project activities.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species has not recorded within the project area and the project activities intersect no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is not an accepted recovery plan for the species but the proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity does not constitute any threatening process and is unlikely to indirectly increase the impact of any key threatening processes.

***Stackhousia clementii* (NSW: Endangered, Nationally: Not Listed)**

Dense forb, 18-50 cm high, with slender, hairless stems which are much-branched in upper part. Leaves usually scale-like, mostly 5-15 mm long. Flowers pale green, yellow or dark brown, in clusters of 1-3 in cylindrical spikes, the petals loosely joined into a slender tube, with 5 lobes at the top.

The only known NSW record is from Sturt National Park adjacent to Frome Swamp – an extensive wetland area ~20 km to the east of the project site. It is a species of disjunct range across arid Australia, also occurring in WA, NT, SA and Qld.

Listed Threats in NSW:

- Grazing by stock and native herbivores (other *Stackhousia* species are eaten by stock at times).
- Habitat depletion.
- Very little ecological information available.

Recommended Management Actions in NSW:

- **Fence known site to exclude grazing (feral goats and rabbits).**
- Survey for unknown populations using habitat models derived from other populations.
- If further populations discovered, undertake an immediate assessment of the population status, identify any threats and determine the appropriate recovery strategy.

- Verify presence in NSW through targeted survey in the vicinity of past records and likely habitat.

7-part test for *Stackhousia clementii*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species has been found in Sturt National Park adjacent to Frome Swamp so could possibly occur on/near swamps within the project area. The species was not detected within the project area therefore the activities are unlikely to affect it in any way. If a local population has been undetected, then the removal of rabbits and reduction in kangaroo numbers will remove key threatening processes for this species and likely reduce the risk of extinction.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species has been found in Sturt National Park adjacent to Frome Swamp so could possibly occur on/near swamps within the project area. The species was not detected within the project area therefore the activities are unlikely to affect it in any way. If a local population has been undetected, then the removal of rabbits and reduction in kangaroo numbers will remove key threatening processes for this species and likely reduce the risk of extinction.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, this species was not recorded within this disturbance corridor or from anywhere within the project site. (ii) The fencelines will not fragment areas of habitat as the species has not been recorded at the site. (iii) The species has not been detected at the project site and therefore is not likely to be affected in any way.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species has not recorded within the project area and the project activities intersect no known habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. The proposed action is consistent with the NSW threat management strategies listed above which focus on undertaking surveys to try to understand the distribution and ecological requirements of this species further. Annual vegetation surveys in the project area may detect colonising populations following removal of threatening processes. There is not an accepted recovery plan for the species.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	The proposed action will remove rabbits and other introduced grazers from the project area. This will remove key threatening processes for this species.

Purple-wood wattle *Acacia carneorum* (NSW: Vulnerable, Nationally: Vulnerable)
The Purple-wood Wattle (formerly *Acacia carnei*) is a dark green and prickly shrub to small tree, 2 - 4 m tall. Plants have a striking, deep-purple heartwood. The phyllodes (wattle leaves) are rigid and needle-like, sharply pointed,

This species occurs on sand ridges, sandspreads, sandy flats, alluvium along watercourses or on shallow calcareous loamy brown earths. The species has reproduces clonally, with suckers forming clumps in which it is the dominant vegetation form.

The species was not detected during flora surveys and there are no known records from the area (including the broader region to the north-west of Tibooburra). Thus it is unlikely that the species occurs within the project area, despite the area having potentially appropriate landforms and soils.

Listed Threats in NSW:

- Rabbit grazing pressure has been shown to be the cause of a lack of recruitment in populations; regeneration is severely limited by rabbit grazing, as newly emergent sucker recruits are eaten-off at the base; rabbits also contribute to mortality or dieback of established plants by stripping the bark.
- Kangaroos and goats also strip the stems of phyllodes, often killing the plant.
- Erosion of habitat, caused by the undermining of the soil by rabbits, exposes the roots of plants particularly on destabilised sand dunes
- Cattle sheltering under trees of this species contribute to further destabilising of the soil.
- The low seed viability and low rate of seedling recruitment are also major threats to the long-term survival of the species.

Recommended Management Actions in NSW:

- Some form of rabbit control is necessary to maintain populations in the long-term; give high priority to further rabbit control in areas on pastoral leases, particularly following heavy rains that would result in significant suckering.
- Protect from kangaroo and goat grazing.
- Do not permit further clearing of potential habitat.
- Protect known seed sources (successful seed production is limited to very few populations, with only two study sites representing known seed sources).
- Exclude mining and destructive mineral exploration from any areas containing this species.
- Initiate monitoring programs at sites with construction of rabbit, stock and goat-proof exclosures around representative populations.
- Baseline surveys are required to confirm known populations and to locate new ones.

7-part test for Purple-wood wattle, *Acacia carneorum*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species has not been detected from the project site or in the surrounding region. Never-the-less the proposed actions will address threatening processes for this species, including grazing by rabbits, potentially improving conditions for the occurrence of this species.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of	Not applicable

7-part test for Purple-wood wattle, *Acacia carneorum*	
Part	**Answer**
the species is likely to be placed at risk of extinction.	
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, this species was not recorded within this disturbance corridor or from anywhere within the project site. (ii) The fencelines will not fragment areas of habitat as the species has not been recorded at the site. (iii) The species has not been detected at the project site and therefore is not likely to be affected in any way.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species has not recorded within the project area and the project activities intersect no known habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. Proposed action is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity does not constitute any threatening process and is unlikely to indirectly increase the impact of any key threatening processes.

***Atriplex infrequens* (NSW: Vulnerable, Nationally: Vulnerable)**
Small spreading forb, with numerous branches covered with a minute scaly layer. The leaves are narrow, to 15 mm long. The species is associated with broad drainage tracts, clay flats and possibly occasionally inundated habitats. Very little ecological information is available for this species so it's critical habitat components can only be speculated as relatively undisturbed and ungrazed drainage lines and flats.

There are no records for this species within the Strzelecki Western Dunes CMA subregion. The species was not detected within the project area or anywhere within a 150 km radius of the site.

Listed Threats in NSW:

- Habitat clearing (modification and loss of essential habitat, including relatively undisturbed and ungrazed drainage lines and flats).
- Disturbances from rabbits, in sandy and scalded soils.
- Grazing (stock, rabbits, native herbivores).

Recommended Management Actions in NSW:

- Undertake targeted surveys across entire predicted range to locate new populations and re-confirm status of known populations. Collect data on area of occupancy, population status, habitat and undertake threat assessment
- Investigate life history dynamics; including seed set, seed viability, germination and seedling survival.

- Conduct experimental research into the relative impacts of grazing and fire on the species survival and recruitment.

7-part test for *Atriplex infrequens*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	There are no records for this species within the Strzelecki subregion. The species was not detected within the project area therefore the activities are unlikely to affect it in any way. If a local population has been undetected, then the removal of introduced herbivores and reduction in kangaroo numbers will remove key threatening processes for this species and likely reduce the risk of extinction.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable as not listed as an endangered species
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat through removal of heavy grazing pressure. In addition, overgrazing will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat for this species. (ii) The fences will not isolate areas of known habitat for this species. The *Atriplex* genus are wind pollinated and dispersal is aided by faunal consumption of seed. Thus if a local population has been undetected, its dispersal ability is unlikely to be affected. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species as it does not currently occur within the area. This species may colonise the area following the removal of key threats such as grazing pressure. This may increase the abundance and distribution throughout the project area. This response has been documented in other saltbush species within the Arid Recovery reserve in arid South Australia (Munro *et al.* 2009).
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	This species is speculated to occur on undisturbed and ungrazed drainage lines and flats. The majority of the project area has been historically heavily grazed by stock and currently experiences heavy grazing pressure from kangaroos. There is no known critical habitat within the project area.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. The proposed action is consistent with the NSW threat management strategies listed above which focus on undertaking surveys to try to

7-part test for *Atriplex infrequens*	
Part	**Answer**
	understand the ecological requirements of this species further. Annual vegetation surveys in the project area may detect colonising populations following removal of threatening processes. There is not an accepted recovery plan for the species.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	The proposed action will remove rabbits and other introduced grazers from the project area. This will remove key threatening processes for this species.

Green bird flower *Crotalaria cunninghamii* (NSW: Endangered, Nationally: Not listed)
Perennial shrub or subshrub, 1-2 m high, with stout velvety stems. Leaves large, soft and woolly on both surfaces. Flowers large and showy, clustered, yellowish green and streaked with purple, pea-like, resembling birds attached by the beak to the central stalk of the flowerhead. Pods club-shaped, swollen, hard and velvety. Green Bird Flower is usually found in Mulga communities or on unstable sand dunes, particularly on the dune crests. It is not grazed by stock and is one of the more attractive plants found in sand dune communities.

There are no records of this species within Sturt National Park. There is one record of the species within the Strzelecki subregion, approximately 100 km south of Sturt National Park. There is potential habitat for this species within the project area.

Listed Threats in NSW:

- Habitat degradation (sites with deep sandy soils are susceptible to erosion by rabbits).
- Grazing (possibly by stock in some areas but may not be a threat; grazed by goats in central Australia).

Recommended Management Actions in NSW:

- **Protection of populations from rabbits.**
- Monitoring of grazing impacts on plants.
- Survey for new populations

7-part test for Green bird flower *Crotalaria cunninghamii*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. There are no records of this species within the park so a local population will not be placed at risk of extinction. The removal of introduced herbivores may increase the suitability of the habitat within the project area.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. There are no records of this species within the park so a local population will not be placed at risk of extinction. The removal of introduced herbivores may increase the suitability of the habitat within the project area.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community

7-part test for Green bird flower *Crotalaria cunninghamii*	
Part	**Answer**
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, the fencelines will protect and enhance 4,300 ha of habitat through removal of heavy grazing pressure. In addition, overgrazing will be significantly reduced in the Wild Training Zone (10,400 ha), representing a vast area of protected habitat, which may be suitable for this species. (ii) The fences will not isolate areas of habitat for this species. (iii) The 46.3 ha of disturbed habitat has low importance to the long-term survival of the species as it does not currently occur within the area. This species may colonise the area following the removal of key threats such as grazing pressure. This may increase the abundance and distribution throughout the project area.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. Green Bird Flower is usually found in Mulga communities or on unstable sand dunes, particularly on the dune crests. There is extensive habitat of this type throughout the project area. The vegetation to be disturbed includes no known critical habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. There is no recovery plan for this species but the proposed project is consistent with the NSW threat management strategies listed above and highlighted in bold.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	No. The proposed activity will remove a key threat of rabbit grazing from a large area of potential habitat for this species.

Dipteracanthus australasicus subsp. corynothecus **(NSW: Endangered, Nationally: Not listed)**

Perennial forb or low woody subshrub, usually covered with a stiff down. Plants are dense and form clumps 30 cm in diameter. Leaves bright green, opposite, somewhat clustered, 8-25 mm long, 5-10 mm wide. Flowers blue, purple or white, corolla (petals) 6-14 mm long, tubular and expanded upwards into 5 lobes, each flower subtended by 2 small bracts. Fruit a club-shaped capsule 7-13 mm long, contracted at the base, seeds 1-6 on well-developed hooks. Grows in skeletal sandy soil, usually in dry localities. The species is known to occur on scarps in mesa country, sometimes on clay soils and from areas regenerating after clearing. The species was not detected during vegetation surveys and no records exists from the project area. However there are two historic records from the eastern side of Sturt National Park, within the Strzelecki Desert Western Dunefields CMA subregion.

Listed Threats in NSW:

- Grazing (plants are readily eaten by sheep, cattle and horses).
- Feral goats (cause erosion and disturb the fragile rocky scarp and mesa-top habitats).
- Limited habitat availability (the species is restricted to skeletal soils in dry rocky mesa country, habitats which are relatively uncommon in NSW).

Recommended Management Actions in NSW:

- Protect existing populations with the construction of stock-proof fencing.
- Protection of sites from goats.
- No further loss of extant populations.
- Survey for new populations

7-part test for *Dipteracanthus australasicus subsp. corynothecus*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species was not detected within the project area therefore the activities are unlikely to affect it in any way. If a local population has been undetected, then the removal of rabbits and reduction in kangaroo numbers will remove grazing pressure – a listed threat to this species.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species was not detected within the project area therefore the activities are unlikely to affect it in any way. If a local population has been undetected, then the removal of rabbits and reduction in kangaroo numbers will remove grazing pressure – a listed threat to this species.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, this species was not recorded within this disturbance corridor or from anywhere within the project site. The species is known to respond well to disturbance such as land clearing, so if a population is present, but undetected it is unlikely to be adversely affected by fenceline construction. (ii) The fencelines will not fragment areas of habitat as the species has not been recorded at the site. (iii) The species has not been detected at the project site and therefore is not likely to be affected in any way.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species has not recorded within the project area and the project activities intersect no known habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. The proposed action is consistent with the NSW threat management strategies listed above which focus on undertaking surveys to try to understand the distribution and ecological requirements of this species further. Annual vegetation surveys in the project area may detect colonising populations following removal of threatening processes. There is not an accepted recovery plan for the species.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	The proposed action will remove rabbits and other introduced grazers from the project area. This will remove threatening processes for this species.

***Dysphania platycarpa* (NSW: Endangered, Nationally: Not listed)**
Prostrate annual with simple or glandular hairs, and numerous slender stems arising from the base. Distributed Australia-wide in extreme western NSW, south-western Qld, central and eastern SA, west-central WA and the south-eastern NT. Grows on heavy soils near ephemeral water, generally in clay or mud by fresh water. Recorded from the eastern end of Sturt National Park from previously flooded flats adjacent to sandplains. Interstate habitats include claypan margins, sand above the Samphire level of a flooded clay flat, and in Gidgee scrub.

Listed Threats in NSW:

- Grazing, trampling and pugging (at heavily utilised, low-lying, seasonally flooded depression habitats).
- Clearing and cropping of habitat (with artificial flooding regimes and salination).

Recommended Management Actions in NSW:

- Protect existing populations from stock with the construction of appropriate fencing.
- No further loss of extant populations.
- Survey for new populations

7-part test for *Dysphania platycarpa*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species was not detected within the project area, although it has been found to the east in Sturt National Park in seasonally flooded habitats and so could possibly occur within the project area. The proposed activities are unlikely to affect it in any way. If a local population has been undetected, then the removal of rabbits and reduction in kangaroo numbers will reduce grazing pressure for this species.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species was not detected within the project area, although it has been found to the east in Sturt National Park in seasonally flooded habitats and so could possibly occur within the project area. The proposed activities are unlikely to affect it in any way. If a local population has been undetected, then the removal of rabbits and reduction in kangaroo numbers will reduce grazing pressure for this species.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, this species was not recorded within this disturbance corridor or from anywhere within the project site. (ii) The fencelines will not fragment areas of habitat as the species has not been recorded at the site. (iii) The species has not been detected at the project site and therefore is not likely to be affected in any way.

7-part test for *Dysphania platycarpa*	
Part	**Answer**
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species has not recorded within the project area and the project activities intersect no known habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. The proposed action is consistent with the NSW threat management strategies listed above which focus on undertaking surveys to try to understand the distribution and ecological requirements of this species further. Annual vegetation surveys in the project area may detect colonising populations following removal of threatening processes. There is not an accepted recovery plan for the species.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	The proposed action will remove rabbits and other introduced grazers from the project area. This will remove key threatening processes for this species.

Silky cow-vine *Ipomoea polymorpha* (NSW: Endangered, Nationally: Not listed)
Non-twining annual forb or creeper, with stems covered with white hairs and arising from tuberous roots. Grows in sandy, rarely clay, soils in open *Acacia* and *Eucalyptus* communities. It occurs in a variety of habitats including red sand ridges, small depressions and ephemeral creeks in Mulga communities. A relatively uncommon and infrequent plant which appears in small clumps in good seasons after heavy summer rainfall.

There are no records from the project area and the species was not detected during flora surveys. However there is a historic record from the area adjacent to the project site, north of Fort Grey Homestead, near Fortville Bore. Thus the species may occur at the project site following heavy summer rainfall.

Listed Threats in NSW:

- Grazing and trampling (stock and possibly native herbivores).
- Rabbits (grazing and undermining of the soil).
- Competition from other seasonal annuals may limit the species.
- Clearing of habitat.
- infrequent summer rainfall

Recommended Management Actions in NSW:

- **Rabbit eradication and control program.**
- Protect existing populations from grazing.
- Seasonal monitoring of populations.
- No further loss of extant populations.
- **Survey for new populations**

7-part test for Silky cow-vine *Ipomoea polymorpha*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species has been found in Sturt National Park, north of Fort Grey Homestead and could possibly occur on sand ridges in the project area after sufficient rainfall, although it was not detected within the project area during surveys. If a local population has been undetected, then the removal of rabbits and reduction in kangaroo

7-part test for Silky cow-vine *Ipomoea polymorpha*	
Part	**Answer**
	numbers will remove threatening processes for this species and improve its local status.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species has been found in Sturt National Park, north of Fort Grey Homestead and could possibly occur on sand ridges in the project area after sufficient rainfall, although it was not detected within the project area during surveys. If a local population has been undetected, then the removal of rabbits and reduction in kangaroo numbers will remove threatening processes for this species and improve its local status.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, this species was not recorded within this disturbance corridor or from anywhere within the project site. (ii) The fencelines will not fragment areas of habitat as the species has not been recorded at the site. (iii) The species has not been detected at the project site and therefore is not likely to be affected in any way. Changes to the habitat from the removal of rabbits are likely to benefit the species, if present but undetected.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species has not recorded within the project area and the project activities intersect no known habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. The proposed action is consistent with the NSW threat management strategies listed above which focus on undertaking surveys to try to understand the distribution and ecological requirements of this species further. Annual vegetation surveys in the project area may detect colonising populations following removal of threatening processes. The removal of rabbits from the project area may benefit the species, if present. There is not an accepted recovery plan for the species.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	The proposed action will remove rabbits and other introduced grazers from the project area. This will remove key threatening processes for this species.

Polycarpaea spirostylis subsp. glabra **(NSW: Endangered, Nationally: Not listed)**
Small annual herb, hairless and often stiff and much-branched. Recorded from a dune slope on a sandplain with Mulga vegetation and from a sandy duplex soil supporting Sturt's Pigface *Gunniopsis quadrifida*. Other recorded habitats include a sand dune, gravely scree slope, rocky areas, and eucalypt woodland with grassy understorey on granite-derived gravel.

This species is predicted to occur in the Strzelecki Dunefields although no specimens have been found. The species was not detected during surveys for this REF.

Listed Threats in NSW:

- Clearing of habitat.
- Mining and excavation impacts.
- Grazing and trampling.
- Availability of specific mineral and water requirements.

Recommended Management Actions in NSW:

- No further degradation or loss of potential habitat.
- **Protect existing populations from stock and other grazing animals.**
- Protection from mining activities.
- No further loss of extant populations.
- **Survey for new populations**
- Baseline surveys required to confirm known and locate new populations.

7-part test for *Polycarpaea spirostylis subsp. glabra*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species was not detected within the project area and no records are known from Strzelecki Desert Western Dunefields CMA subregion therefore the activities are unlikely to affect it in any way. If a local population has been undetected, then the removal of rabbits and reduction in kangaroo numbers will remove key threatening processes for this species and likely reduce the risk of extinction.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species was not detected within the project area and no records are known from Strzelecki Desert Western Dunefields CMA subregion therefore the activities are unlikely to affect it in any way. If a local population has been undetected, then the removal of rabbits and reduction in kangaroo numbers will remove key threatening processes for this species and likely reduce the risk of extinction.
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, this species was not recorded within this disturbance corridor or from anywhere within the project site. (ii) The fencelines will not fragment areas of habitat as the species has not been recorded at the site. (iii) The species has not been detected at the project site and therefore is not likely to be affected in any way.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species has not recorded within the project area and the project activities intersect no known habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. The proposed action is consistent with the NSW threat management strategies listed above which focus on undertaking surveys to try to understand the distribution and ecological requirements of this species further. Annual

7-part test for *Polycarpaea spirostylis subsp. glabra*	
Part	**Answer**
	vegetation surveys in the project area may detect colonising populations following removal of threatening processes. There is not an accepted recovery plan for the species.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	The proposed action will remove rabbits and other introduced grazers from the project area. This will reduce threatening processes for this species.

Fan flower *Scaevola collaris* (NSW: Vulnerable, Nationally: Vulnerable)
Hairless erect perennial subshrub to 50 cm high with succulent leaves. In NSW the species has only been recorded from the Yandama Creek track on the Callabonna-Frome outflow, in the far north west. It is not clear whether the specimen was collected in NSW or SA. However the habitat is similar so the species is likely to occur in NSW. The species grows in arid areas, usually on saline soils around salt lakes, and on sand and gypsum dunes and dry creek beds. No herbarium records exist found from NSW, however interstate specimens are all from salt lake, floodplain and claypan habitats.

This species is predicted to occur in the Strzelecki Dunefields although no specimens have been found. The species was not detected during surveys for this REF.

Listed Threats in NSW:

- Probably vulnerable to disturbance of habitat by stock.
- Potentially grazing.

Recommended Management Actions in NSW:

- **Verify presence in NSW through targeted survey in the vicinity of past records and likely habitat.**
- Establish a comprehensive monitoring program for the 6 identified populations to determine the success or otherwise of recovery actions and to guide future actions.
- Understand the species response to disturbance regimes by conducting experimental research into the effects of fire, salinity and grazing disturbance, in order to guide recovery actions.
- Provide brochures and other educational material to landholders and visitors to Sturt NP and encourage them to report any sightings of the species.

7-part test for Fan flower *Scaevola collaris*	
Part	**Answer**
Test 1 (a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	No. The species has not been recorded in NSW or the project area, but may occur. The proposed activities are unlikely to affect it in any way. If a local population has been undetected, then the removal of rabbits and reduction in kangaroo numbers may reduce threats for this species.
Test 2 (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.	Not applicable
Test 3 (c) In the case of a critically endangered or endangered ecological community, whether the action proposed adversely affects extent or modifies the community	Not applicable as not an ecological community

7-part test for Fan flower *Scaevola collaris*	
Part	**Answer**
Test 4 (d) In relation to the habitat of a threatened species, population or ecological community: (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	(i) Fenceline construction will disturb 46.3 ha of the project area. However, this species was not recorded within this disturbance corridor or from anywhere within the project site or any site in NSW. (ii) The fencelines will not fragment areas of habitat as the species has not been recorded at the site. (iii) The species has not been detected at the project site and therefore is not likely to be affected in any way.
Test 5 (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).	No. The species has not recorded within the project area and the project activities intersect no known habitat.
Test 6 (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.	Yes. The proposed action is consistent with the NSW threat management strategies listed above which focus on undertaking surveys to try to understand the distribution and ecological requirements of this species further. Annual vegetation surveys in the project area may detect colonising populations following removal of threatening processes. There is not an accepted recovery plan for the species.
Test 7 (g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.	The proposed action will remove rabbits and other introduced grazers from the project area. This will remove potential threatening processes for this species.

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