Appendix 6. Matters of National Environmental Significance Impact Assessment

The EPBC Protected Matters Search Tool was used for the project area (see Appendix 5). The report identified the following Matters of National Environmental Significance within the project area:

- 1 Wetland of international importance
- 5 threatened species
- 4 migratory species.

Each of these matters was assessed against the relevant significance impact criteria to determine the likely significance of the proposed activity.

In addition, the proposed activity plans to reintroduce seven EPBC listed species:

Western barred bandicoot *Perameles bougainville* (Endangered)
Burrowing Bettong *Bettongia lesueur* (Vulnerable)
Greater Bilby *Macrotis lagotis* (Vulnerable)
Golden bandicoot *Isoodon auratus* (Vulnerable)
Greater stick-nest rat *Leporillus conditor* (Vulnerable)
Crest-tailed mulgara *Dasycercus cristicauda* (Vulnerable)
Western Quoll *Dasyurus geoffroii* (Vulnerable)

Each of these species was also assessed against the relevant significance impact criteria to determine the likely significance of the proposed activity.

It was concluded that the proposed activity would not impact significantly on any listed matters of national environmental significance and therefore does not require referral to the Australian Government Department of the Environment, Water, Heritage and the Arts (the department) for a decision by the Australian Government Environment Minister (the minister) on whether assessment and approval is required under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1. Wetlands of International Importance

Significance Impact Assessment for Lake Pinaroo	
Is there a real chance or possibility that the proposed action will result in:	**Answer**
areas of the wetland being destroyed or substantially modified	No. The area where the fences will be constructed for the proposed activity is 13 km to the west of Lake Pinaroo. The lake's main catchment is to the east, encompassing the Frome Creek. The proposed activity will not modify or impact the Lake in any way.
a substantial and measurable change in the hydrological regime of the wetland, for example, a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland	No. The catchment area for Lake Pinaroo lies to its east. The project activity is 13 km to the west of Lake Pinaroo. The proposed activity will not result in any chance to the hydrological regime of the wetland.
the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the wetland being seriously affected	No. The proposed activity is 13 km to the west of the Lake and will not impact on the habitat or lifecycle of any species dependent on the wetland.
a substantial and measurable change in the	No. The proposed activity will not result in any

water quality of the wetland – for example, a substantial change in the level of salinity, pollutants, or nutrients in the wetland, or water temperature which may adversely impact on biodiversity, ecological integrity, social amenity or human health, or	change to the water quality of the wetland. The construction area is 13 km to the west of Lake Pinaroo and will have no impact on it.
an invasive species that is harmful to the ecological character of the wetland being established (or an existing invasive species being spread) in the wetland.	No. No works will take place near Lake Pinnaroo. The proposed activity will also implement extensive measures to prevent, detect invasive species in the surrounding area which will limit the opportunities for the establishment of an invasive species harmful to the wetland.
Determination: no significant impact	

2. Critically Endangered or endangered species

Significance Impact Assessment for Curlew Sandpiper *Calidris* ferruginea Critically Endangered	
Is there a real chance or possibility that the proposed action will:	Answer
lead to a long-term decrease in the size of a population	No. The migratory Curlew Sandpiper may use wetland sites adjacent to the project area (>10 km), but is not found in the sandy desert dunefields of the proposed project site. The project is not expected to impact on this species in any way.
reduce the area of occupancy of the species	No. The project is not expected to impact on this species in any way.
fragment an existing population into two or more populations	No. The project is not expected to impact on this species in any way.
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The project will not impact on any known or potential habitat for this species.
result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	No. The proposed activity will implement extensive measures to detect invasive species in the surrounding area which will limit the opportunities for the establishment of any invasive species.
introduce disease that may cause the species to decline, or	No. The project is not expected to impact on this species in any way.
interfere with the recovery of the species.	No. The project is not expected to impact on this species in any way.
Determination: no significant impact	

Significance Impact Assessment for Night Parrot *Pezoporus occidentalis* Endangered	
Is there a real chance or possibility that the proposed action will:	**Answer**
lead to a long-term decrease in the size of a population	No. No records of the Night Parrot exist from NSW and the species is listed as Extinct. The recent rediscovery of the species in Queensland has determined new information on habitat preferences, highlighting dense *Triodia* hummocks roost sites, within proximity to feeding areas (Murphy *et al.* 2017). Insufficient

Significance Impact Assessment for Night Parrot *Pezoporus occidentalis* Endangered	
	Triodia or other dense roost habitat (e.g. Samphire) occurs at the project site and thus the species is very unlikely to be present or to be affected in any way.
reduce the area of occupancy of the species	No. The project is not expected to impact on this species in any way.
fragment an existing population into two or more populations	No. The project is not expected to impact on this species in any way.
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The project is not expected to impact on this species in any way.
result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	No. The proposed activity will implement extensive measures to detect invasive species in the surrounding area which will limit the opportunities for the establishment of any invasive species.
introduce disease that may cause the species to decline, or	No. The project is not expected to impact on this species in any way.
interfere with the recovery of the species.	No. The project is not expected to impact on this species in any way.
Determination: no significant impact	

Significance Impact Assessment for Australian Painted Snipe *Rostratula australis* Endangered	
Is there a real chance or possibility that the proposed action will:	**Answer**
lead to a long-term decrease in the size of a population	No. There are no records of the Painted Snipe from the project area, the species may use large wetland sites 10-15 km distant. In addition, it may at times visit some of the smaller ephemeral interdunal claypans and swamps within the proposed project site. These sites represent temporary habitat only and moreover; the proposed activities will not impact on these sites. Thus, the project is not expected to impact on this species in any way.
reduce the area of occupancy of the species	No. The project is not expected to impact on this species in any way.
fragment an existing population into two or more populations	No. The project is not expected to impact on this species in any way.
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The project will not impact on any known or potential habitat for this species.
result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	No. The proposed activity will implement extensive measures to detect invasive species in the surrounding area which will limit the opportunities for the establishment of any invasive species.
introduce disease that may cause the species to decline, or	No. The project is not expected to impact on this species in any way.
interfere with the recovery of the species.	No. The project is not expected to impact on this species in any way.
Determination: no significant impact	

Significance Impact Assessment for *Frankenia plicata* Endangered	
Is there a real chance or possibility that the proposed action will:	**Answer**
lead to a long-term decrease in the size of a population	No. This species is not known in the project area. *Frankenia plicata* grows on a range of clay-based soils, with most records of the species several hundred kilometres to the west of the project area in South Australia, at sites in the Simpson Desert and periphery. The main potential threats to this species are trampling and grazing by livestock (Leigh *et al.* 1984).The construction of the fenced exclosures is therefore likely to remove threatening processes relevant to this species, if indeed it occurs locally.
reduce the area of occupancy of the species	No. Most records of the species occur several hundred kilometres to the west of the project area in South Australia, at sites in the Simpson Desert and periphery. Its area of occupancy does not currently include the project area
fragment an existing population into two or more populations	No. the proposed action will not interfere with existing populations of the species
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The proposed action will disturb 43.6 ha of the project area; however, the species is not currently known to occur in the area so will not be disturbed by this process. The proposed action will also likely increase the quality of potential habitat for the species by removing the main threatening processes of trampling and grazing by livestock.
result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	No. The activities of the proposed project are unlikely to introduce invasive species. The only likely way would be transportation in via vehicle. The proposed activity will implement extensive measures to detect invasive species in the surrounding area which will limit the opportunities for the establishment of any invasive species.
introduce disease that may cause the species to decline, or	No. The project is not expected to impact on this species in any way.
interfere with the recovery of the species.	No. The main potential threats to this species are trampling and grazing by livestock. The proposed action will address these threatening processes in the project area, potentially assisting the recovery of the species.
Determination: no significant impact	

Significance Impact Assessment for Western barred bandicoot *Perameles bougainville* Critically Endangered	
Is there a real chance or possibility that the proposed action will:	Answer
lead to a long-term decrease in the size of a population	No. All source population sizes will be assessed to ensure that the number of individuals removed for reintroduction for the proposed activity does not result in any long term impacts. Arid Recovery, South Australia, has been identified as a potential source population for

	the western-barred bandicoot, which currently supports an estimated population of 1000 individuals.
reduce the area of occupancy of the species	No. The proposed activity will reintroduce the species to another area of its former range, therefore increasing the area of occupancy.
fragment an existing population into two or more populations	No. The proposed activity will not fragment an existing population.
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 40 km^2 of suitable habitat for this species by removing feral predators and herbivores, thus increasing the quality of the habitat.
result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	No. This project will eradicate invasive species (foxes, feral cats and rabbits) that are harmful to western barred bandicoots.
introduce disease that may cause the species to decline, or	No. Only source populations that have been screened or known to not contain any diseases will be used.
interfere with the recovery of the species.	No. The proposed activity will contribute significantly to the recovery of this species by addressing key threatening processes and contributing directly to recovery action 4 of the recovery plan for this species (Richards 2012) **Action 4:** Reintroduce western barred bandicoots, burrowing bettongs and banded hare-wallabies to additional mainland and island sites
Determination: no significant impact	

3. Vulnerable Species

Significance Impact Assessment for Dusky Hopping Mouse *Notomys fuscus* Vulnerable	
Is there a real chance or possibility that the proposed action will:	**Answer**
lead to a long-term decrease in the size of an important population of a species	No. Recovery actions recommend that the threat posed by cats and foxes should be reduced or eliminated and management of rabbits and domestic stock to prevent further destruction of perennial plant cover and to maintain dune stability. Thus, construction of the predator exclosures will directly address these recovery actions and it is expected that populations of *N. fuscus* will increase within the study area. Similar conservation results have been achieved for the Spinifex Hopping-mouse, *Notomys alexis* in South Australia within the Arid Recovery reserve. This species was at undetectable densities prior to the establishment of this 60 km^2 rabbit, cat and fox free exclosure, but now is one of the most common local mammals, with densities inside the exclosure 15 times that recorded outside (Moseby *et al.* 2009). Similarly, recent research into factors

Significance Impact Assessment for Dusky Hopping Mouse *Notomys fuscus* Vulnerable	
	surrounding the recovery of *N. fuscus* and *N. alexis* populations in South Australia suggest that a reduction in rabbit numbers and associated declines in cat and fox populations has had a dramatic positive impact on these hopping mouse species (Pedler *et al.* 2016).
reduce the area of occupancy of an important population	No. It is expected that the Dusky Hopping Mouse will directly benefit from the proposed actions to ameliorate threatening processes through the local eradication of rabbits, feral cats and foxes.
fragment an existing important population into two or more populations	No. It is expected that the Dusky Hopping Mouse will directly benefit from the proposed actions to ameliorate threatening processes through the local eradication of rabbits, feral cats and foxes.
adversely affect habitat critical to the survival of a species	No. It is expected that the Dusky Hopping Mouse will directly benefit from the proposed actions to ameliorate threatening processes through the local eradication of rabbits, feral cats and foxes.
disrupt the breeding cycle of an important population	No. It is expected that the Dusky Hopping Mouse will directly benefit from the proposed actions to ameliorate threatening processes through the local eradication of rabbits, feral cats and foxes.
modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The proposed action will disturb 43.6 ha of the project area to construct feral proof exclosures that will provide significant benefit to small mammals, including this species.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No. The proposed activity will implement extensive measures to detect invasive species in the surrounding area which will limit the opportunities for the establishment of any invasive species.
introduce disease that may cause the species to decline, or	No. It is expected that the Dusky Hopping Mouse will directly benefit from the proposed actions to ameliorate threatening processes through the local eradication of rabbits, feral cats and foxes.
interfere substantially with the recovery of the species.	No. Recovery actions recommend that the threat posed by cats and foxes should be reduced or eliminated and management of rabbits and domestic stock to prevent further destruction of perennial plant cover and to maintain dune stability. Thus construction of the predator exclosures will directly address these recovery actions and it is expected that populations of *N. fuscus* will increase within the study area. Similar conservation results have been achieved for the Spinifex Hopping-mouse, *Notomys alexis* in South Australia within the Arid Recovery reserve. This species was at undetectable densities prior to the establishment of this 60 km^2 rabbit, cat and fox free exclosure, but now is one of the most common local mammals, with densities inside the exclosure 15 times that recorded outside (Moseby *et al.*

Significance Impact Assessment for Dusky Hopping Mouse *Notomys fuscus* Vulnerable	
	2009). Similarly, recent research into factors surrounding the recovery of *N. fuscus* and *N. alexis* populations in South Australia suggest that a reduction in rabbit numbers and associated declines in cat and fox populations has had a dramatic positive impact on these hopping mouse species (Pedler *et al.* 2016).
Determination: no significant impact	

Significance Impact Assessment for Burrowing Bettong *Bettongia lesueur* Vulnerable	
Is there a real chance or possibility that the proposed action will:	**Answer**
lead to a long-term decrease in the size of an important population of a species	No. All source population sizes will be assessed to ensure that the number of individuals removed for reintroduction for the proposed activity does not result in a long-term decrease in the size of the source population. Arid Recovery, South Australia, has been identified as a potential source population for the burrowing bettong, which currently supports an estimated population size of at least 6000 individuals.
reduce the area of occupancy of an important population	No. The proposed activity will reintroduce the species to another area of its former range, therefore increasing the area of occupancy.
fragment an existing important population into two or more populations	No. The proposed activity will not fragment an existing population.
adversely affect habitat critical to the survival of a species	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 40 km^2 of suitable habitat for this species by removing feral predators and herbivores, thus increasing the quality of the habitat.
disrupt the breeding cycle of an important population	No. Burrowing bettongs breed opportunistically in response to good seasonal conditions. Females with large pouch young will not be translocated to avoid disrupting breeding of the source population. Previous translocations have shown the species to start breeding immediately after translocation.
modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 40 km^2 of suitable habitat for this species by removing feral predators and herbivores, thus increasing the quality of the habitat.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No. This project will eradicate invasive species (foxes, feral cats and rabbits) that are harmful to western barred bandicoots.
introduce disease that may cause the species to decline, or	No. Only source populations that have been screened or known to not contain any diseases will be used.
interfere substantially with the recovery of the species.	No. The proposed activity will contribute significantly to the recovery of this species by addressing key threatening processes and contributing directly to recovery action 4 of the

Significance Impact Assessment for Burrowing Bettong *Bettongia lesueur* Vulnerable	
	recovery plan for this species (Richards 2012) **Action 4:** Reintroduce western barred bandicoots, burrowing bettongs and banded hare-wallabies to additional mainland and island sites
Determination: no significant impact	

Significance Impact Assessment for Greater Bilby *Macrotis lagotis* Vulnerable	
Is there a real chance or possibility that the proposed action will:	**Answer**
lead to a long-term decrease in the size of an important population of a species	No. All source population sizes will be assessed to ensure that the number of individuals removed for reintroduction for the proposed activity does not result in a long-term decrease in the size of the source population. Arid Recovery, South Australia, has been identified as a potential source population for the greater bilby, which currently supports an estimated population size of at least 700 individuals.
reduce the area of occupancy of an important population	No. The proposed activity will reintroduce the species to another area of its former range, therefore increasing the area of occupancy.
fragment an existing important population into two or more populations	No. The proposed activity will not fragment an existing population.
adversely affect habitat critical to the survival of a species	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 40 km^2 of suitable habitat for this species by removing feral predators and herbivores, thus increasing the quality of the habitat.
disrupt the breeding cycle of an important population	No. Greater bilbies breed opportunistically in response to good seasonal conditions. Females with large pouch young will not be translocated to avoid disrupting breeding of the source population. Previous translocations have shown the species to start breeding immediately after translocation.
modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 40 km^2 of suitable habitat for this species by removing feral predators and herbivores, thus increasing the quality of the habitat.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No. This project will eradicate invasive species (foxes, feral cats and rabbits) that are harmful to greater bilbies.
introduce disease that may cause the species to decline, or	No. Only source populations that have been screened or known to not contain any diseases will be used.
interfere substantially with the recovery of the species.	No. The proposed activity will contribute significantly to the recovery of this species by addressing key threatening processes and contributing directly to recovery action 3a of the national recovery plan for this species (Pavey 2006) 3a. Continue to reintroduce the species to

Significance Impact Assessment for Greater Bilby *Macrotis lagotis* Vulnerable	
	predator-free or predator-controlled sites across its former range.
Determination: no significant impact	

Significance Impact Assessment for Golden Bandicoot *Isoodon auratus* Vulnerable	
Is there a real chance or possibility that the proposed action will:	**Answer**
lead to a long-term decrease in the size of an important population of a species	No. All source population sizes will be assessed to ensure that the number of individuals removed for reintroduction for the proposed activity does not result in a long-term decrease in the size of the source population. Lorna Glen, Western Australia, has been identified as a potential source population for the golden bandicoot, which currently supports an estimated population size of at least 250 individuals (Ottewell *et al.* 2014). Translocations may occur from multiple sites e.g. Barrow Island, to ensure that one population is not over-sourced.
reduce the area of occupancy of an important population	No. The proposed activity will reintroduce the species to another area of its former range, therefore increasing the area of occupancy.
fragment an existing important population into two or more populations	No. The proposed activity will not fragment an existing population.
adversely affect habitat critical to the survival of a species	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 40 km^2 of suitable habitat for this species by removing feral predators and herbivores, thus increasing the quality of the habitat.
disrupt the breeding cycle of an important population	No. Golden bandicoot breed opportunistically in response to good seasonal conditions e.g. after substantial rainfall. Females with large pouch young will not be translocated to avoid disrupting breeding of the source population. Previous translocations have shown the species to start breeding quickly after translocation.
modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 40 km^2 of suitable habitat for this species by removing feral predators and herbivores, thus increasing the quality of the habitat.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No. This project will eradicate invasive species (foxes, feral cats and rabbits) that are harmful to golden bandicoot
introduce disease that may cause the species to decline, or	No. Only source populations that have been screened or known to not contain any diseases will be used.
interfere substantially with the recovery of the species.	No. The proposed activity will contribute significantly to the recovery of this species by addressing key threatening processes and contributing directly to recovery actions for this species (Palmer *et al.* 2003).

Significance Impact Assessment for Golden Bandicoot *Isoodon auratus* Vulnerable
Determination: no significant impact

Significance Impact Assessment for Greater Stick-nest rat *Leporillus conditor* Vulnerable	
Is there a real chance or possibility that the proposed action will:	**Answer**
lead to a long-term decrease in the size of an important population of a species	No. All source population sizes will be assessed to ensure that the number of individuals removed for reintroduction for the proposed activity does not result in a long-term decrease in the size of the source population. Arid Recovery, South Australia has been identified as a potential source population for the greater stick-nest rat, which currently supports an estimated population size of 500. Rats could also be sourced a combination of sites, including from Reevesby Island SA, which has an estimated population of 1000.
reduce the area of occupancy of an important population	No. The proposed activity will reintroduce the species to another area of its former range, therefore increasing the area of occupancy.
fragment an existing important population into two or more populations	No. The proposed activity will not fragment an existing population.
adversely affect habitat critical to the survival of a species	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 40 km^2 of suitable habitat for this species by removing feral predators and herbivores, thus increasing the quality of the habitat.
disrupt the breeding cycle of an important population	No. Breeding can occur in any month of the year but at Arid Recovery (the potential source population) breeding usually occurs in the cooler winter months (April to September). Translocations will occur outside of the breeding season to ensure that the breeding cycle within the source population is not disrupted. Previous translocations found that stick-nest rats bred successfully in the first breeding season after translocation.
modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 40 km^2 of suitable habitat for this species by removing feral predators and herbivores, thus increasing the quality of the habitat.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No. This project will eradicate invasive species (foxes, feral cats and rabbits) that are harmful to stick-nest rats.
introduce disease that may cause the species to decline, or	No. Only source populations that have been screened or known to not contain any diseases will be used.
interfere substantially with the recovery of the species.	No. The proposed activity will contribute significantly to the recovery of this species by addressing key threatening processes and suggested recovery actions (Copley 1999). There is not a nationally adopted recovery plan for this species.

Significance Impact Assessment for Greater Stick-nest rat *Leporillus conditor* Vulnerable	
Determination: no significant impact	

Significance Impact Assessment for Western Quoll *Dasyurus geoffroii* Vulnerable	
Is there a real chance or possibility that the proposed action will:	**Answer**
lead to a long-term decrease in the size of an important population of a species	No. All source population sizes will be assessed to ensure that the number of individuals removed for reintroduction for the proposed activity does not result in a long-term decrease in the size of the source population. Previous translocations to South Australia from wild sites in western Australia have not led to a long-term decrease in the source population size by sourcing individuals from multiple sites. These same principles will therefore be applied to the proposed activity.
reduce the area of occupancy of an important population	No. The proposed activity will reintroduce the species to another area of its former range, therefore increasing the area of occupancy.
fragment an existing important population into two or more populations	No. The proposed activity will not fragment an existing population.
adversely affect habitat critical to the survival of a species	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 140 km^2 of suitable habitat for this species by reducing feral predators and herbivores, thus increasing the quality of the habitat.
disrupt the breeding cycle of an important population	No. Breeding occurs once each year in May. Translocations will occur outside of the breeding season to ensure that the breeding cycle within the source population is not disrupted. Previous translocations found that western quolls bred successfully in the first breeding season after translocation.
modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 40 km^2 of suitable habitat for this species by removing feral predators and herbivores, thus increasing the quality of the habitat.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No. This project will eradicate invasive species (foxes, feral cats) that are harmful to quolls
introduce disease that may cause the species to decline, or	No. Only source populations that have been screened or known to not contain any diseases will be used.
interfere substantially with the recovery of the species.	No. The proposed activity will contribute significantly to the recovery of this species by addressing key threatening processes and action 7 of the national recovery plan (Orell and Morris 1994) Action 7. Undertake and monitor translocations to increase the extent of occurrence
Determination: no significant impact	

Significance Impact Assessment for Crest-tailed mulgara *Dasycercus cristicauda* Vulnerable	
Is there a real chance or possibility that the proposed action will:	**Answer**
lead to a long-term decrease in the size of an important population of a species	No. All source population sizes will be assessed to ensure that the number of individuals removed for reintroduction for the proposed activity does not result in long-term negative impacts. Individuals will be sourced from wild populations in SA, which currently occur at multiple sites, having undergone a range expansion (Pedler *et al.* 2016), with an estimated metapopulation size of greater than 5000 individuals. Individuals may be taken from a number of source sites to avoid risk of impacting one population significantly.
reduce the area of occupancy of an important population	No. The proposed activity will reintroduce the species to another area of its former range, therefore increasing the area of occupancy.
fragment an existing important population into two or more populations	No. The proposed activity will not fragment an existing population.
adversely affect habitat critical to the survival of a species	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 140 km^2 of suitable habitat for this species by reducing feral predators and herbivores, thus increasing the quality of the habitat.
disrupt the breeding cycle of an important population	No. Breeding occurs in winter each year. Translocations will occur outside of the breeding season to ensure that the breeding cycle within the source population is not disrupted.
modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The proposed activity will not modify the habitat of the source population. The proposed activity will significantly improve 40 km^2 of suitable habitat for this species by removing feral predators and herbivores, thus increasing the quality of the habitat.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No. This project will eradicate invasive species (foxes, feral cats) that are harmful to mulgara
introduce disease that may cause the species to decline, or	No. Only source populations that have been screened or known to not contain any diseases will be used.
interfere substantially with the recovery of the species.	No. The proposed activity will contribute significantly to the recovery of this species by addressing key threatening processes and suggested recovery actions as per the draft recovery plan (Masters 2004).
Determination: no significant impact	

4. Migratory Species

Significance Impact Assessment for Grey Wagtail, *Motacilla cinerea* Threatened	
Is there a real chance or possibility that the proposed action will:	**Answer**
substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	No. The Grey Wagtail is a very rare vagrant to northern tropical Australia and has not been recorded from Sturt National Park. The project is not expected to impact on this species in any way.
result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or	No. The proposed activity will implement extensive measures to detect invasive species in the surrounding area which will limit the opportunities for the establishment of any invasive species.
seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	No. The Grey Wagtail is a very rare vagrant to northern tropical Australia and has not been recorded from Sturt National Park. The project is not expected to impact on this species in any way.
Determination: no significant impact	

Significance Impact Assessment for Yellow Wagtail, *Motacilla flava* Threatened	
Is there a real chance or possibility that the proposed action will:	**Answer**
substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	No. The Yellow Wagtail, is an uncommon migrant to marshes and wet grasslands of eastern and tropical Australia. It is highly unlikely to occur at the project site or to be impacted in any way by the project activities.
result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or	No. The proposed activity will implement extensive measures to detect invasive species in the surrounding area which will limit the opportunities for the establishment of any invasive species.
seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	No. The Yellow Wagtail, is an uncommon migrant to marshes and wet grasslands of eastern and tropical Australia. It is highly unlikely to occur at the project site or to be impacted in any way by the project activities.
Determination: no significant impact	

Significance Impact Assessment for Latham's Snipe, *Gallinago hardwickii* Critically Endangered	
Is there a real chance or possibility that the proposed action will:	**Answer**
substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	Latham's Snipe are highly unlikely to occur within the project area, but may visit other wetlands within 10-15 km as vagrants at times when intense rainfall floods local ephemeral lakes. Given the remoteness of project activities from these sites, it is not expected to have any impact on this species, should it use the area

Significance Impact Assessment for Latham's Snipe, *Gallinago hardwickii* Critically Endangered	
	following intense rainfall.
result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or	No. The proposed activity will implement extensive measures to detect invasive species in the surrounding area which will limit the opportunities for the establishment of any invasive species.
seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	No. Latham's Snipe are highly unlikely to occur within the project area or to be affected by the project activities in any way.
Determination: no significant impact	

The Curlew Sandpiper *Calidris ferruginea* is also a migratory species – see critically endangered section above.

5. Listed marine species

The report includes 8 listed marine species in "Other matters protected under the EPBC Act":

- Great Egret, *Ardea alba*
- Cattle Egret Ardea ibis
- Curlew Sandpiper, Calidris ferruginea *
- Latham's Snipe, Japanese Snipe Gallinago hardwickii *
- Rainbow Bee-eater Merops ornatus
- Grey Wagtail Motacilla cinerea *
- Yellow Wagtail Motacilla flava *
- Painted Snipe, *Rostratula australis* *

Species with a * have already undergone a significance impact assessment in the above sections. Significance impact assessments are reported below for the three remaining species.

Significance Impact Assessment for Great Egret, *Ardea alba* Marine	
Is there a real chance or possibility that the proposed action will:	**Answer**
substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	No. Great Egret are likely to occur near the project area at times when intense rainfall floods local ephemeral lakes. Given the remoteness of project activities from these sites, it is not expected to have any impact on any of these species, should they use the area following rainfall.
result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or	No. The proposed activity will implement extensive measures to detect invasive species in the surrounding area which will limit the opportunities for the establishment of any invasive species.
seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	No. Great Egret are likely to occur near the project area at times when intense rainfall floods local ephemeral lakes. Given the remoteness of project activities from these sites, it is not expected to have any impact on any of these species, should they use the area following

Significance Impact Assessment for Great Egret, *Ardea alba* Marine	
	rainfall.
Determination: no significant impact	

Significance Impact Assessment for Cattle Egret, *Ardea ibis* Marine	
Is there a real chance or possibility that the proposed action will:	**Answer**
substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	No. Cattle Egret are likely to occur near the project area at times when intense rainfall floods local ephemeral lakes. Given the remoteness of project activities from these sites, it is not expected to have any impact on any of these species, should they use the area following rainfall.
result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or	No. The proposed activity will implement extensive measures to detect invasive species in the surrounding area which will limit the opportunities for the establishment of any invasive species.
seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	No. Cattle Egret are likely to occur near the project area at times when intense rainfall floods local ephemeral lakes. Given the remoteness of project activities from these sites, it is not expected to have any impact on any of these species, should they use the area following rainfall.
Determination: no significant impact	

Significance Impact Assessment for Rainbow bee-eater, *Merops ornatus* Marine	
Is there a real chance or possibility that the proposed action will:	**Answer**
substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	No. The Rainbow Bee-eater was recorded in the project area during faunal surveys. This species is a common, widespread migrant to much of southern Australia during the Austral summer, where it breeds in small tunnels that it excavates in earthen faces such as creek banks and cuttings. None of the proposed project activities pose any threat to this insectivorous bird. Indeed, reductions in cat and fox populations and increased ground cover to the benefit of insect fauna which is likely to improve conditions for it.
result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or	No. The proposed activity will implement extensive measures to detect invasive species in the surrounding area which will limit the opportunities for the establishment of any invasive species.
seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	No. The Rainbow Bee-eater, *Merops ornatus* was recorded in the project area during faunal surveys. This species is a common, widespread migrant to much of southern Australia during the Austral summer, where it breeds in small tunnels that it excavates in earthen faces such as creek banks and cuttings. None of the

Significance Impact Assessment for Rainbow bee-eater, *Merops ornatus* Marine	
	proposed project activities pose any threat to this insectivorous bird. Indeed, reductions in cat and fox populations and increased ground cover to the benefit of insect fauna which is likely to improve conditions for it.
Determination: no significant impact	

The proposed action is outside a Commonwealth marine area and based on the results above, the action will not have a significant impact on the environment in a Commonwealth marine area as it will not have a substantial adverse effect on a population of a marine species or cetacean including its life cycle (for example, breeding, feeding, migration behaviour, life expectancy) and spatial distribution.

6. Extinct in the wild species

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