

Flora, vegetation and targeted fauna assessment



176 Saunders Road,
Cowaramup

15 November 2024

Nicole Siemon and Associates PL



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EXECUTIVE SUMMARY

Nicole Siemon and Associates Pty Ltd (NSA) were commissioned by the owners of 176 Saunders Road, Cowaramup to undertake a flora, vegetation and targeted fauna assessment of the remnant vegetation around two existing dams. The owners propose to expand the water storage capacity.

This report has been prepared to inform government of the implications of vegetation clearing on fauna and vegetation communities and is particularly focused on determining the likely impact on Black cockatoo and Western ringtail possums.

The vegetation pockets assessed are regeneration following the original construction of the dams. The area is included in cattle paddock and has been heavily grazed for an extended period with the ground heavily pugged. The dominant shrub layer is *Taxandria linearifolia* (Common teatree) which is heavily infected with sooty mould and borers, over a weed assemblage dominated by Kikuyu (*Cenchrus clandestinus*), Pennyroyal (*Mentha pulegium*), *Isolepis prolifera* and *Juncus microcephalus* including an extensive stand of Blackberry (*Rubus fruticosus*). Occasional *Juncus pauciflorus* (Loose flowered rush) and *J. pallidus* (Pale rush) persist.

Because of the high level of degradation by grazing of most of the remnant vegetation, there are very few native understorey species present. Therefore, vegetation units cannot be identified as the plant communities are no longer recognisable due to species loss. The remnant vegetation appears to belong to floristic community types that are not threatened or priority ecological communities. There are isolated WA peppermint in the north-eastern corner of the main dam that offers limited suitable habitat for Western ringtail possum. There is a stand of juvenile planted Karri which may offer foraging and resting areas for species of Black cockatoos. There was no evidence of Black cockatoos roosting.

In summary, in the opinion of NSA PL, there is no significant impediment to clearing the remaining remnant vegetation. Rehabilitation and revegetation following dam construction offer the best opportunity to create viable habitat, reduce stock access directly to the water which will improve the filtration and reduce nutrient export from the property and increase biodiversity values around the two dams.

1.0 INTRODUCTION

1.1 *Background*

Nicole Siemon and Associates Pty Ltd (NSA) has been contracted by the owners of 176 Saunders Road, Cowaramup to review the existing remnant vegetation around the large dam in the north of the property to determine its ecological values. The owners are seeking to expand the dam's storage capacity. The dam design is yet to be developed however, the intention is to reconstruct the dam walls to include benching to facilitate revegetation and offer greater habitat diversity to support more fauna. Water quality improvement through exclusion of stock from direct access is also planned.

A limited flora, vegetation and targeted fauna survey was done to determine the vegetation condition, dominant species and to determine whether or not suitable habitat exists for threatened or endangered fauna, in particular Western ringtail possum and Black cockatoos. This report is provided to inform the clearing permit application.

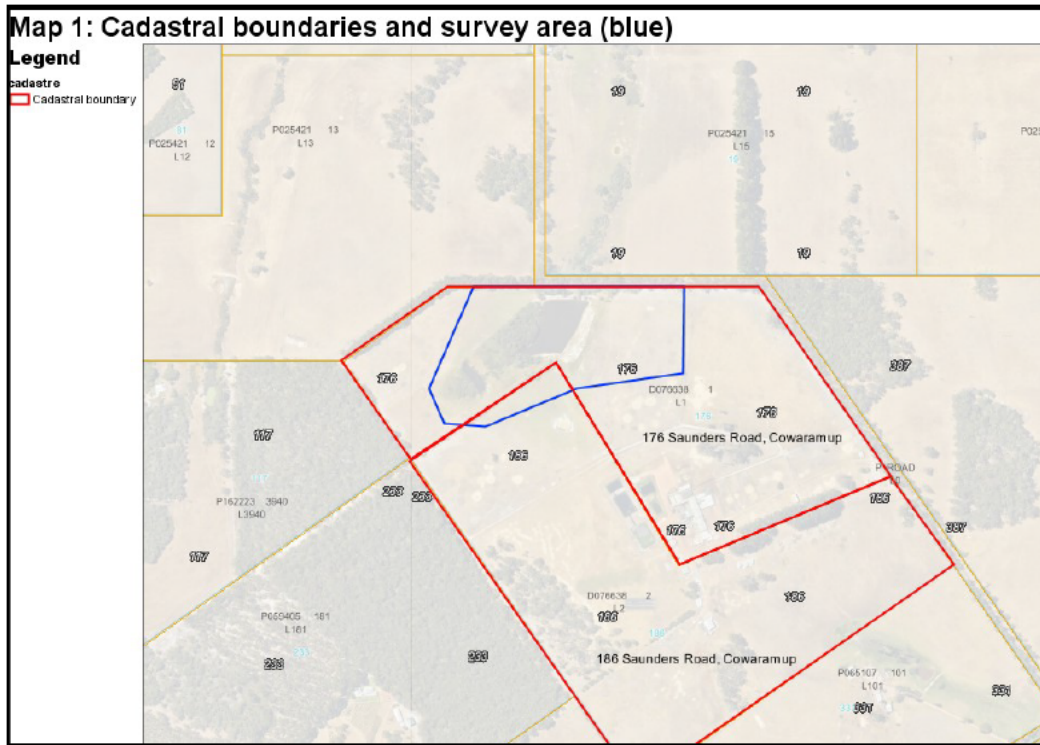
1.2 *Purpose*

The scope of this report is to document flora and vegetation associations and search for targeted fauna. This includes assessing the remnant vegetation condition and taking observations of fauna activity.

1.3 *Study area*

The area of 176 Saunders Road is approximately 26.87 ha. A small portion of the survey area identified on the map is paddock within the adjacent property (186 Saunders Road) (Map 1). The focus of the survey was the 1.3 ha area of remnant vegetation around the dam on 176 Saunders Road. The only other vegetation on the property is planted shelterbelts of assorted eucalyptus species. It is a functioning cattle facility.

The third order waterway cuts from west to east through the northern end of the property. It is a portion of this tributary that is the subject of this study.



2.0 SITE DETAILS

The property, 176 Saunders Road, Cowaramup (Parcel ID D076638; Lot 1), is located approximately 3.6 km NE of the township of Cowaramup. The headwaters of the waterway on which the dams are sited are approximately 170 m upstream of the structures. The surrounding land slopes to the north. There is 1.3 ha of riparian vegetation with the balance of the property used for cattle grazing and the Western Meat Processing facility.

These fragments of vegetation (combined total of 1.3 ha) are the subject of this investigation.

It is assumed that other consultants have provided detailed background into the landscape, soils and soil subsystems therefore this information is not reproduced here.

3.0 FLORA AND FAUNA

3.1 Desktop analysis

The site is a narrow riparian corridor linking medium forest, mainly jarrah and marri to the north and east, to the riparian vegetation along the waterway on the west. The vegetation mapping of Havel and Mattiske (2000) identifies the site as retaining vegetation complexes on the uplands and valleys of the Blackwood Plateau and Plain, Treeton (T) and Treeton (Tw). The Government of Western Australia (2019) defines these vegetation complexes as:

- Treeton (T) Woodland of *Eucalyptus marginata subsp. marginata-Corymbia calophylla* with some *Allocasuarina fraseriana* on mild slopes in the perhumid zone.
- Treeton (Tw) This complex is described as “open forest of *Eucalyptus patens*, *Corymbia calophylla*, *Eucalyptus marginata* on lower slopes and on floors of minor valleys in the perhumid zone”.

A literature review was performed to see if the remnant bushland had been identified previously as having significant ecological value. The available vegetation mapping and topography mapping were overlaid using a geographic information system (GIS) to determine general characteristics of the area. The Department of Primary Industries and Resource Development Native Vegetation Extent (2020) did not identify the survey area as remnant vegetation (Map 2).

An environmental considerations report was prepared based on relevant state government datasets based on a 10 km radius of the site.

Environmental Matters Requiring Further Investigation	Status
Environmentally Sensitive Area *	No data
Native vegetation **	Yes
Threatened ecological communities - Commonwealth listed	No data
Threatened ecological communities - State listed	No data
Priority ecological communities	No data
Threatened Flora - within the selected area	No data
Threatened Flora - within 10 km buffer of selected area	Yes
Commonwealth Listed Threatened Flora - within the selected area	No data
Commonwealth Listed Threatened Flora - within 10 km buffer of selected area	Yes
Threatened Fauna - within the selected area	No data

Environmental Policy and other relevant matters	Status
Threatened Fauna - within the buffer of selected area	Yes
Commonwealth Listed Threatened Fauna - within the selected area	No data
Commonwealth Listed Threatened Fauna - within the 10 km buffer of selected area	Yes
Priority Flora or Fauna - within the selected area	No data
Priority Flora or Fauna - within the 10 km buffer of selected area	Yes
Mapped as potential fauna habitat	Yes
Wetlands	No data
Ecological linkages	No
Adjoining a conservation area	Yes
Acid Sulfate Soils	Yes
EPA Policy Area	No
Public Drinking Water Source Area	No
PDWSA Protection Zone	No
Waterways Conservation Act Management Areas	No
CAWSA Part II Clearing Control Catchments	No
RIWI Groundwater Areas	Yes
RIWI Surface Water Areas	No
Swan River Trust Development Control Area	No
Bush Forever	No
Regional Park	No
Department of Aboriginal Affairs Sites and Other Heritage Places	No data
Contaminated sites	No data
Bushfire Prone Area	Yes
Local Government Specific Information	Status
Local Biodiversity Strategy	No

* No exemptions for clearing of native vegetation apply.

** Note vegetation extent mapping does not show small patches, some wetlands and native trees. Confirm presence/absence via aerial photography or site visit.

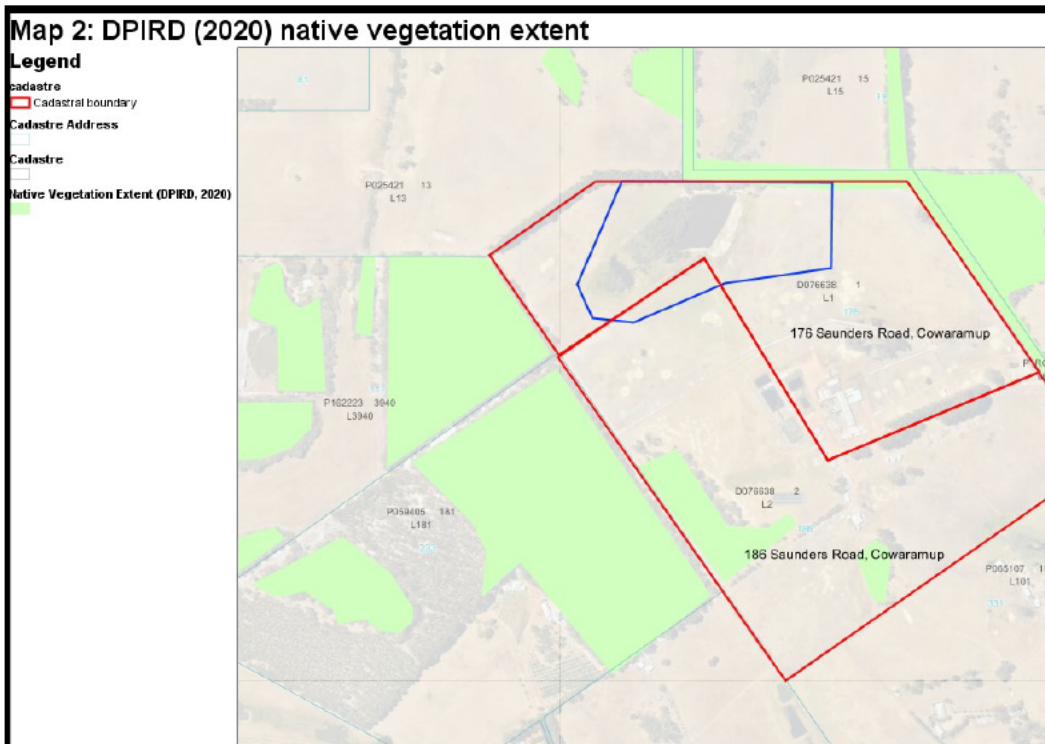
As a result of the preliminary review, information was sought from existing databases and Dandjoo relating to known populations of Declared Rare Flora, Priority Species and Threatened Ecological Communities. Full definitions of conservation status pursuant to the Acts are not included in this document.

There are 19 EPBA Act listed flora and 21 State listed threatened flora within a 10 km radius of the site and none listed within the site boundaries. Threatened fauna occur within a 10 km radius of the site with over 223 records of EPBC Act listed and 297 records of Threatened or specially protected fauna within 10 km. There are also 78

records of priority listed fauna species. There are no records within the assessed property. Those with the greatest chance of being found were Western Ringtail possum and Carnaby's cockatoo.

There is a forest area west of the property which is identified as potentially providing feeding habitat for Carnaby's cockatoo. This is well outside the proposed future clearing area.

Map 2: Native vegetation extent and the survey area shown in blue (DPIRD, 2020)



3.2 Field survey

The field survey process was based on an observational survey methodology. A senior ecologist walked through the site on the 3rd October 2024 for three hours on a single occasion. The intensity of the ground truthing was deemed adequate for the remnant vegetation quality. Mapping and recording of vegetation condition, structure and floristics were undertaken using a Garmin GPS and a remote GIS mapping program.

The survey area is identified by the blue line within Map 2.

The assessment was undertaken in accordance with the Environmental Protection Authority (EPA) Guidance Statement 51, “Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia” (EPA, 2018).

During the visit to the study area, a list of native and non-native vascular flora was compiled (Appendices 2 and 3). There were no taxa that could not be identified with certainty in the field.

All vegetation was assessed for evidence of wildlife nesting, resting or foraging.

3.3 *Vegetation description*

Vegetation communities were described and mapped based on floristic and structural characteristics in accordance with the classes of Muir (1977) and Aplin (1979) shown in Table 1 below.

Table 1. Vegetation structural classification (adapted from Muir 1977 and Aplin 1979)

Strata	Canopy cover				
	<2%	2 – 10%	10 – 30%	30 – 70%	70-100%
Trees over 30 m	Scattered Tall Trees	Tall Open Woodland	Tall Woodland	Tall Open Forest	Tall Closed Forest
Trees 10 – 30 m	Scattered Trees	Open Woodland	Woodland	Open Forest	Closed Forest
Trees under 10 m	Scattered Low Trees	Open Woodland	Woodland	Low Open Forest	Low Closed Forest
Shrubs over 2 m	Scattered Tall Shrubs	Tall Open Shrubland	Tall Shrubland	Tall Open Scrub	Tall Closed Scrub
Shrubs 1 – 2 m	Scattered Low Shrubs	Open Shrubland	Shrubland	Open heath	Closed heath
Shrubs under 1 m	Scattered Low Shrubs	Low Open Shrubland	Low Shrubland	Low Open Heath	Low Closed heath
Grasses	Scattered Grasses	Very Open Grassland	Open Grassland	Grassland	Closed Grassland
Herbs and Sedges	Scattered Sedges/Herbs	Very Open Sedgeland/Herbland	Open Sedgeland/Herbland	Sedgeland/Herbland	Closed Sedgeland/Herbland

3.4 *Vegetation condition*

Vegetation condition classifications were assigned in accordance with Bush Forever Vegetation Condition Rating System (Government of Western Australia, 2000). The characteristics of each rating are provided below (Table 4).

Table 4: Vegetation condition assessment (Government of Western Australia, 2000)

Scale	Criteria
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very good	Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or the ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.
Poor	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

3.5 Survey limitations

Table 1: Limitations with regard to assessment adequacy and accuracy

Aspect	Constraint	Comment
Scope	No	The survey scope was based on information provided by the hydrologist and was designed to comply with DWER requirements.
Proportion of flora identified	Negligible	The survey was carried out during prime flowering time for flora in high rainfall areas of the south west of the WA. It is estimated that 90 – 95% of species in the highly degraded remnant vegetation were identified.
Proportion of fauna identified	Minor	The survey was carried out on an intermittently showery day and birds were still active. All vegetation was assessed for the presence of hollows or wildlife, and calls were recorded.
Availability of contextual information	Negligible	Comprehensive regional and local surveys of remnant vegetation have been carried out and this vegetation is in a long-grazed paddock.
Completeness of survey	Minor	All areas of remnant vegetation were visited including those outside of the potential future clearing area. Spring season assessment is unlikely to affect the conclusions presented.
Climate	Minor	While the survey was undertaken in early October, there was germination of many annual weeds and native flora. It is considered that the lack of rainfall had a negligible effect on flowering in the survey area.
Access problems	Negligible	Long term grazing rendered the site readily accessible for all parts of the survey.
Competency and experience of consultants	Negligible	The Senior Ecologist, Nicole Siemon, has over 30 years' experience of vegetation, fauna and flora surveys in the south west of WA.

4.0 Results

4.1 Flora and vegetation findings

The characteristic flora of the 1.38 ha site was a mosaic of Open forest adjacent pockets of Tall Open Scrub over a Very open Sedgeland/Herbland. The Open Forest comprises a narrow band of *Eucalyptus diversicolor* (Karri), which would not have

occurred locally in the pre-European vegetation communities. It is a reasonable assumption that they are planted stock. The Karri are all a similar age and are about 300 mm Diameter at Chest Height and a few WA peppermint in the northern zone. There are some fallen trees, as a result of growing in waterlogged soil, that offer habitat to ground dwelling fauna. The middlestorey, where present, is dominated by Wonnich (*Callistachyus lanceolata*), *Astartea scoparia* and occasional *Acacia divergens*. The understorey in this area is dominated by Blackberry (*Rubus fruticosus*).

As the remnant vegetation is highly degraded, it is difficult to ascribe it to a particular floristic community type.

The riparian remnant upstream of the upper dam and between the upper and lower dams is highly degraded Tall Open Scrub with relatively homogeneous *Taxandria linearifolia* (Common teatree) over Open Sedgeland/Herbland. There are isolated individual *Lepidosperma tetraquetrum* (Angled sword sedge) with seedling *Taxandria linearifolia* (Common teatree), *Callistachyus lanceolata* (Wonnich) and *Astartea* sp. with a chaotic weed assemblage. Occasional tussocks of *Juncus pallidus* (Pale rush) and *J. pauciflorus* (Loose-flowered rush) persist (Plates; Appendix 1). The dominant understorey species are Kikuyu (*Cenchrus clandestinus*), *Juncus microcephalus*, Pennyroyal (*Mentha pulegium*), Inkweed (*Phytolacca octandra*) and the serious environmental weed Blackberry (*Rubus* spp.) forming extensive stands in the lower 30% of the vegetation. Other weeds include Spear thistle (*Cirsium vulgare*), Yorkshire fog (*Holcus lanatus*) and assorted pasture weeds are widespread.

Ten native plant species (Appendix 2) and 17 weed species (Appendix 3) were identified.

No Declared Rare, Priority Flora (*Wildlife Conservation Act*) or flora listed under the *EPBC Act* or species otherwise of conservation significance were found in the survey area.

The remnant vegetation is too degraded to be identified as representative of Treeton (Tw) which is a poorly represented vegetation complex in the conservation estate.

4.2 Vegetation condition

The vegetation ranges from Poor to Highly Degraded with extensive pugging resulting from cattle movement. It is evident that the area has been grazed extensively over a long period of time (Map 3). A series of photographs is supplied in Appendix 1 from photopoints shown in Map 4.

4.3 Fauna findings

The search included looking for:

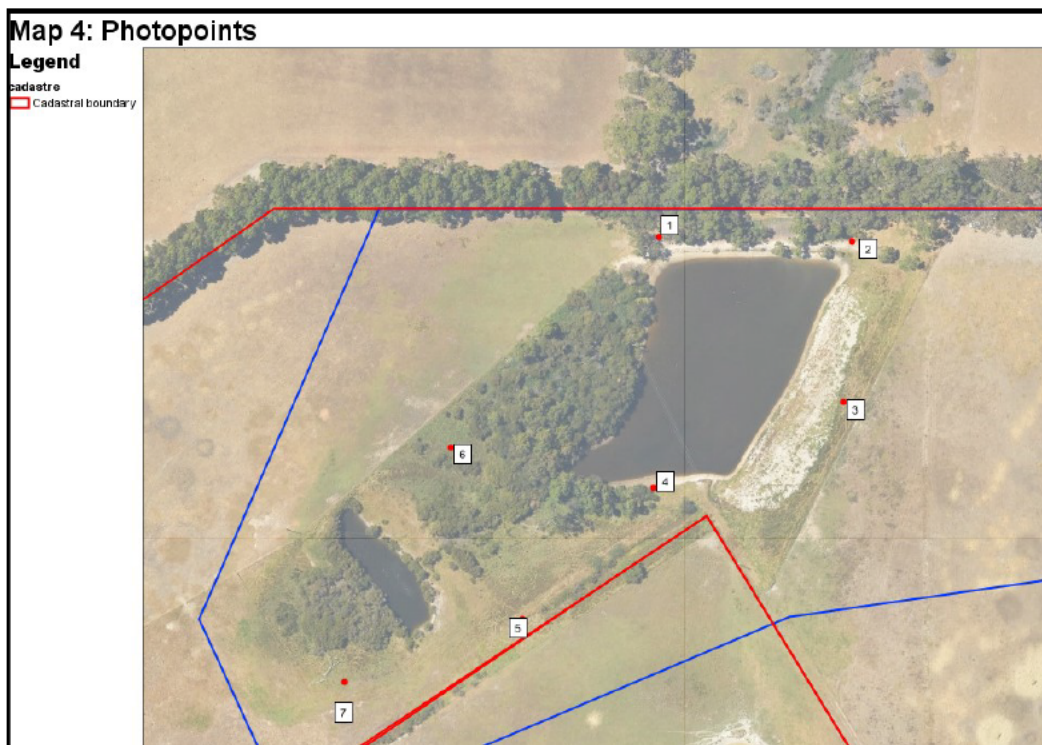
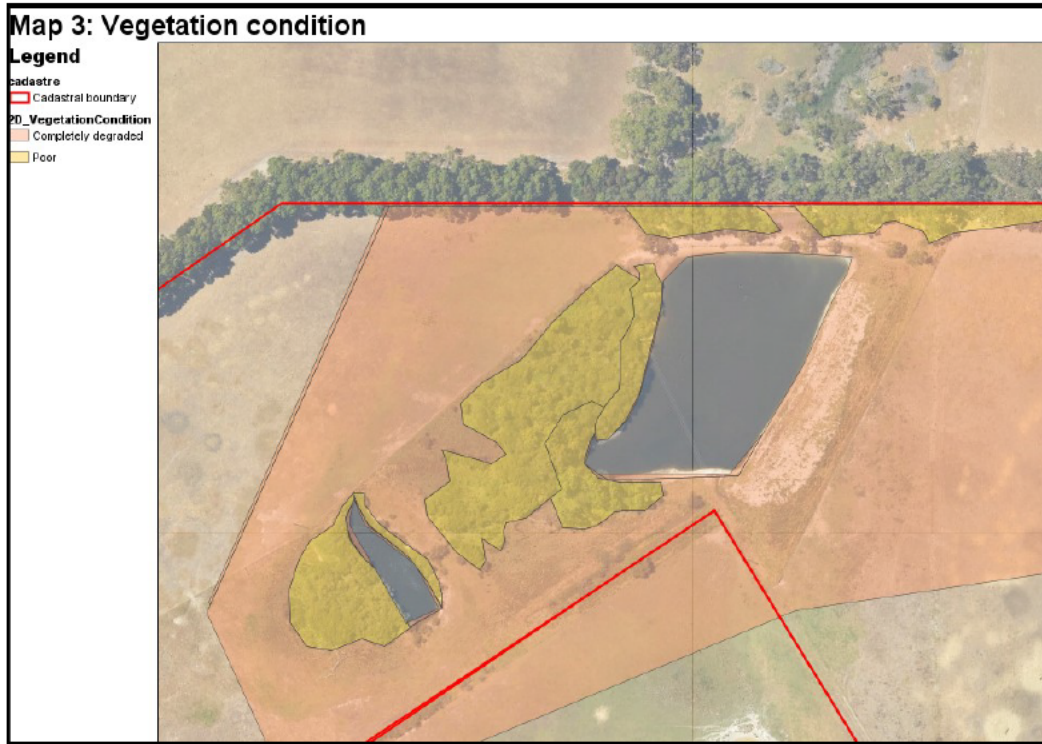
- Burrows in the dam walls,
- Footprints in the silt for waterbirds and quenda (*Isodon obesulus fusciventer*),
- Shrubs for resting/nesting animals including (*Pseudocheirus occidentalis*)
- Scats beneath roosts in trees and
- Listening opportunistically for birds, frogs and other wildlife.

Observations

- Red-tailed black cockatoos (*Calyptorhynchus banksii*) were heard and observed flying over the site. Seasonal foraging in the Marri upstream of the proposed clearing area is likely.
- No birds were sighted on the dam or the banks at the time of survey.
- No burrows were identified due to trampling by cattle.
- There were no nests or dreys in the Common teatree, the dominant vegetation within the survey area.
- There was no significant guano/droppings accumulation beneath any Karri or *Taxandria* indicating there are no roosting /resting fauna using the area on a regular basis.
- There are isolated *Agonis flexuosa* (WA Peppermint) in the potential clearing area which is the preferred habitat of Western ringtail possum.

The survey was undertaken in the middle of the day so frog calls were not heard. The site is well outside the known range of the Critically endangered White bellied frog (*Geocrinia alba*) and it is highly unlikely that any suitable habitat for this frog species remains, due to the lack of dense vegetation and long-term cattle access.

The intensity of the search was adequate for the site and the conclusion is that there



5.0 Consideration against clearing principles

The landowners are applying for an area permit to clear up to 1.3 ha. NSA PL opinion of variance against the clearing principles is provided below (Table 3).

Table 3: Clearing principles for native vegetation under Schedule 5 of the EP Act

Principle	Findings
<i>Principle (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.</i>	Not at variance
<i>Principle (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.</i>	Not at variance
<i>Principle (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.</i>	Not at variance
<i>Principle (d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.</i>	Not at variance
<i>Principle (e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.</i>	Not at variance
<i>Principle (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.</i>	At variance
<i>Principle (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.</i>	Not at variance
<i>Principle (h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.</i>	Not at variance
<i>Principle (i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.</i>	Not at variance
<i>Principle (j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.</i>	Not at variance

5.1 Mitigation of Principle (f)

The landowners will undertake the following actions to mitigate any negative impact on flora and fauna associated with clearing the riparian remnant vegetation:

1. Ensure an experienced fauna observer is onsite throughout dam construction.
2. Excavate any sword sedge within the clearing area and transplant to re-created dam banks.
3. Revegetate a portion of the dam margins using locally indigenous plants to improve habitat values.
4. Modify fence arrangements to exclude cattle and thereby improve water quality downstream.
5. Undertake regular weed control to eradicate Blackberry and serious environmental weeds from all waterways within the property.

6.0 CONCLUSION

The remnant riparian vegetation assessed within 176 Saunders Road is highly degraded and incorporated into a regularly used cattle paddock. There was no evidence of declared rare, threatened or priority flora or fauna within the proposed clearing area.

NSA PL opinion is that there is no impediment to the clearing of the 1.3 ha of native vegetation to enable expansion of the water holding capacity of the dam in this farm.

Biodiversity values are likely to be improved over time through the planned revegetation and weed control actions of the landowners.

7.0 REFERENCES

DataWA

Environmental Protection Authority (2004) Guidance Statement 51, "Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia"

Government of Western Australia (2019) Full descriptions of WA vegetation complexes.

Mattiske EM, Havel JJ (2000) Vegetation mapping in the south west of Western Australia and Regional Forest Agreement vegetation complexes.

APPENDIX 1: Plates showing remnant vegetation



Plate 1: Example of planted juvenile Karri with a solo WA Peppermint over chaotic weed assemblage looking east along the northern boundary.



Plate 2: Paddock looking west along the northern boundary.



Plate 3: Paddock adjacent dam wall.



Plate 4a: Dam wall from south-west side looking east.



Plate 4b: Dam wall from south-west edge looking west.



Plate 5: South-west fenceline looking east.



Plate 6: Common teatree (Taxandria linearifolia) over chaotic weed assemblage.



Plate 7: Common teatree (Taxandria linearifolia) over chaotic weed assemblage western end.

APPENDIX 2: VASCULAR PLANTS AND FAUNA IDENTIFIED IN THE RIPARIAN ZONE

Scientific name	Common name	Within the proposed clearing area
<i>Agonis flexuosa</i>	WA peppermint	Northern fenceline
<i>Astartea sp.</i>	Astartea	Yes
<i>Callistachyus lanceolata</i>	Wonnich	No
<i>Eucalyptus diversicolor</i>	Karri	No
<i>Juncus pallidus</i>	Pale rush	yes
<i>Juncus pauciflorus</i>	Loose flowered rush	Yes
<i>Taxandria linearifolia</i>	Common teatree	Yes
<i>Histiopteris incisa</i>	Batwing fern	Yes
<i>Acacia divergens</i>		Yes
<i>Tremandra stelligera</i>		Possibly
<i>Mirbelia dilatata</i>		Possibly

NATIVE FAUNA OBSERVED AND HEARD ON-SITE

Common name	Latin name	
Grey fantail		
Willy wagtail		
Australian black duck		
Greater wattlebird		
New Holland honeyeater		

APPENDIX 3: WEED SPECIES IDENTIFIED IN THE STUDY AREA

Scientific name	Common name
<i>Arctotheca calendula</i>	Cape weed
<i>Cenchrus clandestinus</i>	Kikuyu
<i>Cirsium vulgare</i>	Spear thistle
<i>Holcus lanatus</i>	Yorkshire fog grass
<i>Hypochaeris glabra</i>	Flat weed
<i>Isolepis prolifera</i>	
<i>Juncus microcephalus</i>	
<i>Lotus angustissimus</i>	Slender birdsfoot trefoil
<i>Mentha pulegium</i>	Pennyroyal
<i>Phytolacca octandra</i>	Inkweed
<i>Romulea rosea</i>	Guildford grass
<i>Rubus fruticosus</i>	Blackberry
<i>Rumex conglomeratus</i>	Clustered dock
<i>Rumex crispus</i>	Curled dock
<i>Salix babylonica</i>	Willow
<i>Solanum nigrum</i>	Blackberry nightshade
<i>Trifolium spp.</i>	Clover

