



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 8017/1
File Number: DER2018/000406
Duration of Permit: From 23 June 2018 to 23 June 2020

PERMIT HOLDER

Murdoch University

LAND ON WHICH CLEARING IS TO BE DONE

Lot 820 on Deposited Plan 404596, Murdoch

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 0.4 hectares of native vegetation and 15 native trees within the area shaded yellow on attached Plan 8017/1.

CONDITIONS

1. Avoid, minimise and reduce the impacts and extent of clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

1. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

3. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date that the area was cleared;
- (c) the size of the area cleared (in hectares);
- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit; and
- (e) actions taken to minimise the risk of the introduction and spread of dieback and weeds in accordance with condition 2 of this Permit.

3. Reporting

The Permit Holder must provide to the *CEO* the records required under condition 3 of this Permit, when requested by the *CEO*.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

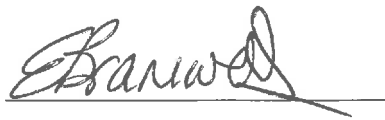
dieback means the effect of *Phytophthora* species on native vegetation;

fill means material used to increase the ground level, or fill a hollow;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*;
or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Emma Bramwell
A/MANAGER
CLEARING REGULATION

Officer delegated under Section 20 of the Environmental Protection Act 1986

22 May 2018

Plan 8017/1



Legend

- Areas approved to clear
- Roads
- Local Government Authority
cadastre
- Cadastre
- WANow_Imagery



0 50 100 m

A 94
Geocentric Datum of Australia 1994

Emma Bramwell Date: 22/05/18
Emma Bramwell

Officer with delegated authority under Section 20
of the Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details

1.1. Permit application details

Permit application No.: CPS 8017/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Murdoch University

1.3. Property details

Property: Lot 820 on Deposited Plan 404596, MURDOCH
Local Government Authority: City of Melville
DBCA Region: Swan
Localities: MURDOCH

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.4	15	Mechanical Removal	Building or structure

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 22 May 2018
Reasons for Decision: The clearing permit application was received on 7 March 2018 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*, and it has been concluded that the proposed clearing may be at variance to clearing principle (a), and is not likely to be at variance to the remaining clearing principles.

The Delegated Officer determined that the proposed clearing may impact on four species of priority-listed fungi. In granting a clearing permit subject to conditions, the Delegated Officer determined that the proposed clearing is not likely to have any unacceptable environmental impacts.

2. Site Information

Clearing Description: The application is for the proposed clearing of 0.4 hectares of native vegetation and 15 native trees within Lot 820 on Deposited Plan 404596, Murdoch, for the purposes of developing a research facility.

Vegetation Description: The vegetation within the application area is mapped as:

- Karrakatta Complex-Central And\South (approximately 30 per cent of the application area): open forest and woodland: predominantly open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri) and woodland of *Eucalyptus marginata* - *Banksia* species; and
- Bassendean Complex-Central And\South (approximately 70 per cent of the application area): woodland to low woodland and sedgelands: vegetation ranges from woodland of *Eucalyptus marginata* - *Allocasuarina fraseriana* (Sheoak) - *Banksia* species to low woodland of *Melaleuca* species, and sedgelands on the moister sites; this area includes the transition of *Eucalyptus marginata* to *Eucalyptus tottiana* (Pricklybark) in the vicinity of Perth (Government of Western Australia, 2018).

A flora, vegetation and fauna survey was conducted by Stategen on 30 November 2017. The flora, vegetation and fauna survey recorded a total of 16 vascular native flora taxa, and identified that the application area comprises two vegetation types (VT):

- VT1: open woodland of *Pinus* sp. and *Eucalyptus camaldulensis* over mixed native and introduced species (approximately 86 per cent of the application area); and
- VT2: closed grassland of planted pasture grasses with scattered *Pinus* sp., *Eucalyptus camaldulensis* (River Red Gum), *Eucalyptus gomphocephala* and *Corymbia calophylla* (approximately 14 per cent of the application area along the southern boundary); (Stategen, 2018).

Vegetation Condition: The condition of the vegetation within the application area was determined based on applicants supporting information (Stategen, 2018) and available aerial imagery:

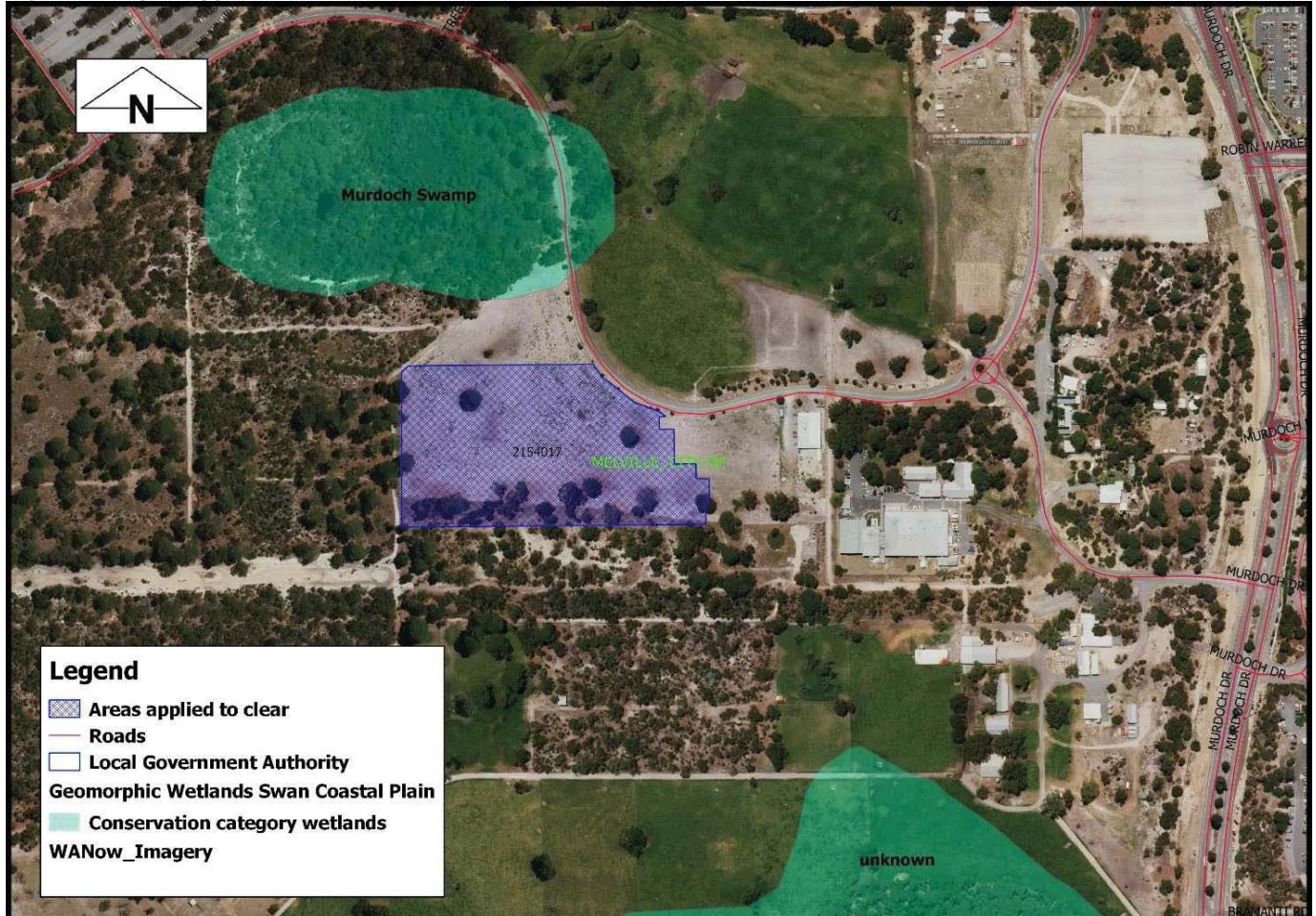
- Degraded: Basic vegetation structure severely impacted by disturbance, scope for regeneration but not to a state approaching good condition without intensive management (approximately 14 per cent of the application area along the southern boundary, corresponding with VT2); to
- Completely Degraded: The structure of the vegetation is no longer intact and the area is completely or almost completely without native species (approximately 86 per cent of the application area, corresponding with VT1) (Keighery, 1994).

Soil and Landform Type: The application area is mapped as Mapping unit: 212Bs_S8, described as very light grey at surface, yellow at depth, fine to medium-grained, sub-rounded quartz, moderately well sorted of eolian origin (Schoknecht et al., 2004).

The soil within the application area is described subdued dune-swale terrain: chief soils are leached sands on low dunes; associated are small areas of other sand soils (Northcote et al. 1960 - 1968).

Comments: The local area referred to in the assessment of this application is defined as a 10 kilometre radius measured from the perimeter of the application area.

Figure 1: Map of application area (cross-hatched blue)



3. Assessment of application against clearing principles

According to available databases, three rare flora species and 21 priority flora species have been recorded within the local area. The flora, vegetation and fauna survey did not record any vascular threatened or priority flora species within the application area (Strategen, 2018). Noting the habitat requirements of the rare flora species, and the condition of the vegetation within the application area, the application area is not likely to include, or be necessary for the continued existence of, rare flora. Of the priority flora, the application area may comprise suitable habitat for three Priority 3 (being species that are known from several locations and do not appear to be under imminent threat (Jones, 2015)) and one Priority 2 (being species that are known from a few populations, some occurring within conservation lands such as nature reserves or national parks (Jones, 2015)) Basidiomycetes fungal species:

- *Amanita wadulawitu* (Priority 2) is known from a total of 23 records between Yanchep and Albany, generally found growing in deep sand in nearby *Corymbia calophylla* associated woodlands (Western Australian Herbarium, 1998-). The nearest record of this species is approximately 10 meters south of the application area, with several records within 50 meters of the application area. On the basis of proximity to these records, the application area is likely to contain suitable habitat for this species. Noting the number of records and distribution of this species, the proposed clearing is not likely to impact the conservation status of this species should any individuals occur within the application area.
- *Amanita wadjukiorum* (Priority 3) is known from a total of 25 records in the Melville, Cockburn and Jarrahdale area, at sites generally associated with sand covered with wood chips near degraded jarrah/marri/banksia woodlands (Western Australian Herbarium, 1998-). The nearest record of this species is approximately 100 meters southeast of the application area. Noting the number of records of this species, the proposed clearing is not likely to impact the conservation status of this species should any individuals occur within the application area.
- *Amanita carneiphylla* (Pink-gilled Amanita; Priority 3) is known from a total of 28 records between Yanchep to Albany, at sites generally associated with deep yellow/white sand and *Banksia* species woodland with *Eucalyptus marginata* and *Pinus pinaster* (Western Australian Herbarium, 1998-). The nearest record of this species is approximately 140 meters southwest of the application area. Noting the distribution of this species, the proposed clearing is not likely to impact the conservation status of this species should any individuals occur within the application area.

- *Amanita drummondii* (Priority 3) is known from a total of nine records between Murdoch and Albany, at sites generally associated with sandy soils with *Eucalyptus* species woodlands (Western Australian Herbarium, 1998-). The nearest record of this species is approximately 770 meters south of the application area. Noting the distance to this record and the type and condition of the vegetation within the application area, this species is not likely to occur within the application area.

According to available databases, 10 threatened fauna species, 12 priority fauna species, one other specially protected fauna species and 18 fauna species protected under international agreement have been recorded within the local area (DBCA, 2007-). Noting the type and condition of the vegetation within the application area, and the habitat requirements and current known range extents of these species, the application area may comprise suitable habitat for threatened fauna species Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Baudin's Cockatoo (*Calyptorhynchus baudinii*) and Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp. *naso*), and Quenda / Southern Brown Bandicoot (*Isodon obesulus* subsp. *fusciventer*). The application area is within the buffer to a confirmed roost area for Carnaby's Cockatoo. The fauna, flora and vegetation survey identified three potential black cockatoo nesting habitat trees with diameter at breast height greater than 500 millimeters, however no hollows were observed in any of these trees (Strategen, 2018). The fauna, flora and vegetation survey rated the vegetation within the application area as very poor quality habitat for Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo, as a result of previous disturbance (Strategen, 2018). Noting the extent of the proposed clearing (Figure 1) and the condition of the vegetation, the application area is unlikely to comprise suitable habitat for ground dwelling fauna including the Quenda / Southern Brown Bandicoot. On this basis, the application area is not likely to comprise significant habitat for indigenous fauna, including species of conservation significance.

According to available databases, two threatened ecological communities (TEC) and one priority ecological community (PEC) have been recorded in the local area. The Commonwealth-listed TEC 'Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region' (listed as endangered) occurs adjacent to the application area, the Commonwealth-listed TEC 'Subtropical and Temperate Coastal Saltmarsh' (listed as vulnerable) occurs approximately 3.6 kilometres northeast of the application area, and the Priority 2 PEC 'Wooded Wetlands which Support Colonial Waterbird Nesting Areas' occurs approximately three kilometres from the application area. Noting the species composition of these TECs, the mapped vegetation type within the application area, and the extent of the proposed clearing, the application area is not likely to comprise these TECs or PEC. The application area is not likely to comprise the whole or part of, or be necessary for the maintenance of, a TEC.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). The Environmental Protection Authority (EPA) recognises the Perth Metropolitan Region to be a constrained area, within which a minimum 10 per cent representation threshold for ecological communities is recommended (EPA, 2008). The application area is located within the mapped extent of the Perth Metropolitan Region Scheme. Noting that the EPA considers a constrained area to be an area where there is an expectation that development will proceed, and that the cleared area is zoned 'Urban' in the Perth Metropolitan Region Scheme, the 10 per cent threshold applies in this instance. The application area is mapped as Heddle Vegetation Complex Karrakatta Complex-Central And\South and as Bassendean Complex-Central And\South, which retains approximately 12 465 hectares (23 per cent) and 23 533 hectares (26 per cent) respectively of its pre-European extent within the Swan Coastal Plain IBRA Bioregion (Government of Western Australia, 2018). On this basis, and noting the extent of the proposed clearing and that the application area is not likely to include flora or ecological communities of conservation significance or comprise significant habitat for indigenous fauna, the application area is unlikely to be significant as a remnant of native vegetation in an area that has been extensively cleared.

According to available databases, no watercourses or wetlands are mapped within the application area. The Murdoch Swamp, a 'conservation category' wetland (CCW), is mapped approximately 60 metres north of the application area, and an unnamed CCW sumpland occurs 294 metres southeast of the application area (Figure 1). Noting the type and condition of the vegetation within the application area, the extent of the proposed clearing, and the presence of cleared land and remnant vegetation between the application area and these CCWs, the proposed clearing is not likely to impact on vegetation growing in association with a wetland.

According to available databases, the nearest conservation areas include two privately-managed conservation areas occurring within 400 metres of the application area. Bush Forever site 244 is located approximately 650 metres south of the application area. Bush Forever sites within the local area form ecological linkages across the landscape. Noting the size of the application area and the distance to these conservation areas, the proposed clearing is not likely to impact on the environmental values of nearby conservation areas.

According to available databases, the application area has relatively flat topography, an average rainfall of 800 millimetres per annum, and non-saline groundwater mapped at less than 500 total dissolved solids (milligrams per litre). Noting this, the extent of the proposed clearing, and the condition of the vegetation within the application area, the proposed clearing is unlikely to cause appreciable land degradation, or cause deterioration in the quality of surface or underground water, or cause or exacerbate the incidence or intensity of flooding.

Given the above, the proposed clearing may be at variance to clearing principle (a), and is not likely to be at variance to the remaining clearing principles.

Planning instruments and other relevant matters

The City of Melville (City) advised that it has no environmental issues with the proposed clearing, and that there are no planning consideration in relation to the application (City of Melville, 2018). The City suggested that, dependant on the species, any cleared vegetation could be used for revegetation purposes elsewhere within the university grounds, such as for brush-mattressing and mulching (City of Melville, 2018). The City noted that its policy to replace any trees that are removed from City-managed land with at least two replacement trees, and recommended that this also be considered by the applicant (City of Melville, 2018).

The application was advertised on the Department's website on 20 March 2018, inviting submissions from the public within a fourteen day period. No submissions were received in relation to this application.

No Aboriginal sites of significance have been recorded within the application area.

4. References

- City of Melville (2018) Advice received in relation to clearing permit application CPS 8017/1 received 23 March 2018. City of Melville (DWER Ref: A1646540).
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Department of Biodiversity, Conservation and Attractions (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed April 2018.
- Government of Western Australia. (2018) 2017 South West Vegetation Complex Statistics. Current as of October 2017. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>
- Jones, A. (2015) Threatened and Priority Flora List, 11 November 2015. Department of Parks and Wildlife: Kensington, WA.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Northcote, K.H. with Beckmann, G.G., Bettenay, E., Churchward, H.M., van Dijk, D.C., Dimmock, G.M., Hubble, G.D., Isbell, R.F., McArthur, W.M., Murtha, G.G., Nicolls, K.D., Paton, T.R., Thompson, C.H., Webb, A.A. and Wright, M.J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Schoknecht, N., Tille, P. and Purdie, B. (2004) Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs' Resource Management Technical Report No. 280. Department of Agriculture.
- Strategen (2018) South Metropolitan Crop Research Hub - Flora, vegetation and fauna habitat survey. Prepared for Murdoch University by Strategen Environmental Consultants Pty Ltd.
- Western Australian Herbarium (1998-). FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/> Accessed May 2018

GIS Databases:

- Aboriginal Sites of Significance
- Bush Forever Sites
- Clearing Regulations - Environmentally Sensitive Areas
- Carnaby's Cockatoo: breeding, roosting, feeding
- Department of Biodiversity Conservation and Attractions, Tenure
- Geomorphic Wetlands, Swan Coastal Plain
- Groundwater salinity, statewide
- Heddle Vegetation
- Hydrology, linear
- IBRA Australia
- Land for Wildlife
- PDWSA, CAWSA, RIWI Act Areas
- Remnant vegetation
- SAC Biodatasets (accessed May 2018)
- Soils, statewide
- Town Planning Scheme Zones