Department of
Environment and Conservation
Our environment, our future

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3568/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Mervyn Louis Geier

1.3. Property details

Property: LOT 1194 ON PLAN 204417 (WARRACHUPPIN 6423)
Local Government Area:
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
252		Burning	Cropping

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard Vegetation Association: 435 - Shrublands; Acacia neurophylla, A. bequverdiana and A. resinomarninea thicket (Shepherd, 2007). Beard Vegetation Association: 511 - Medium woodland; salmon gum and morrel (Shepherd, 2007).	The native vegetation under application is for 252 hectares for the purpose of agriculture. Between 2003 and 2004 Landsat images indicates a decline in vegetation cover, as a result of a disturbance event. Landsat images between 2006 and 2008 show an increase in vegetation cover over the area under application due to regeneration of the disturbed vegetation. Landsat information indicates this vegetation was disturbed again between 2008 and 2009. Vegetation on site consists but is not limited to predominantly Eucalyptus salmonophloia, Eucalyptus spp, Eromophila granitica, Philotheca brucei, Melaleuca spp, Acacia spp, Waitzia acuminata, Acacia acuminata and Melaleuca species (DEC, 2010a). The assessment of the vegetation within the application area is based on the extrapolated pre-disturbance vegetation condition as DEC considers that if left to regenerate the area under application would recover, over time, to near pre-disturbance condition.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The description and condition of the vegetation under application was determined via the use of aerial mappings systems and a DEC site inspection (DEC, 2010g). For the purpose of this assessment, the vegetation is considered to be in pre-disturbance condition. Vegetation comparative to the pre-disturbance condition was observed in retained bush strips adjacent to the area under application (DEC, 2010g), and based on this, the majority of the vegetation under application is considered to be in very good (Keighery, 1994) condition (DEC, 2010a). Noting that the condition of the vegetation ranged from very good to excellent (Keighery, 1994) condition (DEC, 2010a).

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposal is at variance to this Principle

This assessment will consider the environmental values of the vegetation under application as pre-clearing based on information collected during the compliance site inspection undertaken by DEC in November (2009). Vegetation comparative to the pre-cleared condition was observed in retained bush strips adjacent to the area under application (DEC, 2010g), and based on this, the majority of the vegetation under application is considered to be in very good (Keighery, 1994) condition (DEC, 2010a). Noting that the condition of the vegetation ranged from very good to excellent (Keighery, 1994) condition (DEC, 2010a).

Whilst the area under application has recently been subject to impacts through clearing (that is the subject of an investigation), if appropriately managed its environmental values are expected to recover.

The area under application is located within the western boundary of the Great Western Woodlands (16 million ha) (DEC, 2010b). The Great Western Woodlands is considered to be an internationally significant area of high biological diversity and is the largest and most intact eucalypt woodland left in southern Australia (DEC, 2010c) with the woodland communities recognised as being the most vulnerable of the broad vegetation types in this area (DEC, 2010d). In addition, Lot 1194 forms part of a contiguous remnant (~19,225 ha) and is located on the ecotone boundary of two different IBRA regions identified as the Avon Wheatbelt and Coolgardie, which is likely to have higher biodiversity values in terms of habitat and species diversity in the local context (DEC, 2010b).

There are 17 priority flora species which have been recorded within the local area (15km radius), with the closest being located approximately 4.5km southwest of the area under application. Given the large number of priority taxa found in the local area and the size of the applied area (252ha), DEC (2010e) advise that there is potential for priority flora to occur on site (DEC, 2010a). In addition, the vegetation under application is considered likely to provide suitable habitat for the rare declared flora species Eremophila viscida (DEC, 2010f).

Given that the area under application is located within the ecologically significant Great Western Woodlands and that the vegetation, if appropriately managed, has the potential to provide suitable habitat for rare and priority flora, it is considered that the area under application comprises a high level of biological diversity and is at variance to this principle.

Methodology

Refereneces:
- DEC (2010a)
- DEC (2010b)
- DEC (2010c)
- DEC (2010d)
- DEC (2010e)
- DEC (2010f)
- DEC (2010g)
- Keighery (1994)
- Shepherd (2007)

GIS Databases:
- SAC Bio datasets - accessed 22/02/2010
- Walyahmoning 1.4m Orthomosaic - Landgate 2001

(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.

Comments

Proposal may be at variance to this Principle

The vegetation under application includes 252 hectares of native vegetation in very good (Keighery, 1994) condition (DEC, 2010a) comprising Eucalyptus salmonophloia, Eucalyptus spp, Eremophila granitica, Acacia acuminata, Acacia spp., Waitzia acuminata, Melaleuca spp. and Philotheca species, with areas of dense understorey vegetation likely to provide suitable habitat for a range of ground dwelling fauna species.

Whilst the area under application has recently been subject to impacts through clearing (that is the subject of an investigation), if appropriately managed its environmental values are expected to recover.

There is one fauna species of conservation significance which has been recorded within the local area (15km radius), identified as the Crested Bellbird (Oreoica gutturalis (southern), P4) which is located approximately 12km southwest of the applied area. The Crested Bellbird inhabits low, dry woodland and scrub (Simpson & Day, 2004) and the area under application comprises this type of vegetation and may provide suitable foraging habitat this bird species. The applicant has advised that in over 60 years of residing in the Wheatbelt region, no Crested Bellbird's have been observed (Submission 2010b).

The area under application is located within the distribution range of the Red-tailed black-cockatoo (Calyptorhynchus banksii samueli) which inhabit Eucalypt woodlands, including partially cleared farmlands and

adjacent Acacia scrubs, foraging on the seeds of Banksia and Grevillea species and also on the seeds of Double-Gees (Emex australis) (Johnstone & Storr, 1998). During the compliance site inspection (DEC, 2010g) a flock of 50 Red-tailed black-cockatoos was observed approximately 2km south of the applied area, within Gimlet trees on the road verge (DEC, 2010g). The vegetation under application includes some of these species, which could be utilised by foraging red-tailed black-cockatoos and provide habitat for a range of local bird species, ranging from small insectivores through to larger bird species.

Given the size of the area proposed to be cleared (252ha) and that the vegetation, if appropriately managed, has the potential to provide suitable habitat for a range of fauna species, including species of conservation significance, it is considered that the proposed clearing may be at variance to this principle.

Methodology

References:
- DEC (2010a)
- Johnstone & Storr (1998)
- Keighery (1994)
- Simpson & Day (2004)
- Submission (2010b)

GIS Databases:
- DEC Tenure
- SAC Bio datasets - accesed on 22/2/2010
- Walyahmoning 1.4m Orthomosaic - Landgate 2001

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments

Proposal may be at variance to this Principle

Three declared rare flora species have been recorded within the local area (15km radius) including Acacia lobulata, Eremophila viscida and Melaleuca sciotostyla, the closest of which A. lobulata is located approximately 9.7km northwest of the applied area. The only rare flora species which is likely to occur in the same vegetation complex and soil type to that found on site is Eremophila viscida. Eremophila viscida is an erect shrub which grows in light brown sandy loam or red-brown clay loam soils in open woodland and scrubland or on disturbed grassy road reserves (Brown et al, 1998).

Whilst the area under application has recently been subject to impacts through clearing (that is the subject of an investigation), if appropriately managed its environmental values are expected to recover.

The applicant has advised that Eremophila viscida prefers areas that are associated with granite and salt lake systems and this is not found within Yilgarn Loc 1194 (Submission, 2010b). DEC remains of the view that Eremophila viscida, known from a variety of soil types and often in proximity to non perennial drainage lines may be within the area under application (DEC, 2010f).

Given the above and that the vegetation, if appropriately managed, has the potential to provide suitable habitat for rare flora it is considered that the vegetation under application may include, or be necessary for the maintenance of, rare flora.

Methodology

References:
- Brown et al (1998)
- DEC (2010a)
- DEC (2010f)
- Submission (2010b)

GIS Databases:
- Pre European Vegetation
- SAC Bio datasets - accessed 22/02/2010
- Soils, Statewide

(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.

Comments

Proposal is not likely to be at variance to this Principle

There are no records of Threatened Ecological Communities (TEC's) within the local area (10km radius). The closest TEC is located approximately 238km southwest of the area under application.

Given the above, the assessment recommendation is that the clearing as proposed is not likely to be at variance to this principle.

Methodology

GIS Database:
- SAC Bio datasets accessed 22/02/2010
- Walyahmoning 1.4m Orthomosaic - Landgate 2001

(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.

Comments

Proposal may be at variance to this Principle

The vegetation under application is described as Beard vegetation associations 435 (40.5ha) and 511 (211.5ha) of which there is 98.92% and 93.84% respectively of pre-European extent remaining (Shepherd 2007). Within the Shire of Westonia, there is 35.20% of pre-European extent of native vegetation remaining.

Whilst the area under application has recently been subject to impacts through clearing (that is the subject of an investigation), if appropriately managed its environmental values are expected to recover.

Aerial imagery indicates that the local area (15km radius) is well vegetated with approximately 60% native cover remaining also the vegetation on Lot 1194 forms part of a contiguous remnant (~19,225 ha) (DEC, 2010f).

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).

Although the Beard Vegetation associations mapped within the vegetation under application are above the 30% biodiversity conservation target, the area under application is located within the Intensive Land-use Zone (Shepherd et al. 2001) and is located in the area defined in EPA Position Statement No. 2 (EPA, 2000). Significant clearing of native vegetation has already occurred in this area and any further reduction through clearing for agriculture is not generally supported (EPA 2000).

The application area is located within the western boundary of the Great Western Woodlands (16 million ha) (DEC, 2010b). The Great Western Woodlands is considered to be an internationally significant area of high biological diversity and is the largest and most intact eucalypts woodland left in southern Australia (DEC, 2010c) with the woodland communities recognised as being most vulnerable of the broad vegetation types in this area (DEC, 2010d). In addition Lot 1194 is located on the ecotone boundary of two different IBRA regions identified as the Avon Wheatbelt and Coolgardie, which is likely to have higher biodiversity values in terms of habitat and species diversity in the local context (DEC, 2010b).

Additionally the area proposed to be cleared is located within the eastern part of the Central Wheatbelt District (CWD) and close to the edge of the traditional native vegetation clearing line. The areas within the eastern part of the CWD are thought to be more ecologically viable and possibly more resilient to climate change impacts, amongst others, than traditionally highly fragmented and cleared western and central portions of the CWD. Conversely, the eastern parts of the CWD are largely uncleared and hold potentially enhanced ecological refuges for biota in terms of access, habitat size and condition, amongst others (DEC, 2010b).

Both Beard vegetation associations are reasonably well represented within the COO2 Southern Cross sub-IBRA DEC managed conservation estate (141, 800ha or 19.5% and 98,465ha or 18.2% respectively for Beard vegetation associations 435 and 511 respectively). Within the local landscape (15km radius) Beard vegetation association 435 occurs in three DEC managed nature reserves totalling 4.38% of the total remaining 31135.47ha of this vegetation association. Similarly Beard vegetation association 511 occurs within three DEC managed nature reserves totalling 6.94% of the total remaining 1467.88ha of this vegetation association within a 15km landscape context (DEC, 2010b). Therefore, although the two Beard vegetation associations are well represented within a sub-IBRA scale the formal protection of the woodland and shrubland Beard vegetation associations are significantly under represented within DEC managed conservation estate in the local landscape context (DEC, 2010b).

Both Beard vegetation associations 435 and 511 also occur in 6 and 5 other sub-IBRA regions respectively in the south west of WA. The outcome of an expert workshop held in 2007 for the Wheatbelt NRM region indicates that both Beard vegetation associations have a relatively lower priority for protection within the Wheatbelt NRM boundary (rating 4 and 5 respectively out of a 1-5 scale) (Richardson, 2007).

The lack of survey effort in the general area makes it difficult to adequately assess the onsite impact of the clearing of 252ha of remnant habitat. However it appears that, based on the surrounding landscape values, the 252ha of remnant habitat on Lot 1194 has the potential to possess a number of significant conservation values at the species, remnant, community and landscape scale (DEC, 2010b).

Therefore, given that the vegetation, if appropriately managed, will recover, it is considered that the vegetation under application may be a significant remnant within an area that has been extensively cleared.

Methodology

References:
- DEC (2010b)
- EPA (2000)
- Commonwealth of Australia (2001)
- Richardson (2007)
- Shepherd et al (2007)

GIS Databases:
- Pre-European Vegetation

- SAC Bio datasets accessed
- Walyahmoning 1.4m Orthomosaic - Landgate 2001

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments

Proposal may be at variance to this Principle

There are no wetlands or watercourses mapped within the vegetation under application, with the closest hydrological feature Lake Baladjie being located approximately 13km southeast of the applied area. However, there are numerous non-perennial watercourses within the local area (15km radius), the closest being located approximately 1.4km south of the area under application.

Although there are no mapped wetlands or watercourses within the area under application, a watercourse is depicted on the plan attached to the Notice of Intention to Clear (NOIC) dated 22 November 1990 (Commissioner of Soil and Land Conservation, 1990).

Given the above, the clearing as proposed may be at variance to this clearing principle.

Methodology

References:
- Commissioner of Soil (2010)

GIS Databases:
- Hydrography, linear_1
- Hydrography, linear (hierarchy)
- Walyahmoning 1.4m Orthomosaic - Landgate 2001

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments

Proposal may be at variance to this Principle

The chief soils within the area under application are described as hard alkaline red soils (Northcote et al, 1968). The main land degradation risk associated with the removal of vegetation on the identified soils is generally considered to be wind erosion. However, the risk of wind erosion could be managed and minimised by windbreaks and by maintaining a vegetated buffer zone around the site to reduce wind velocity (Commissioner of Soil and Land Conservation, 1990).

Advice from The Commissioner of Soil and Land Conservation (2010) indicates that the proposed clearing of 252 ha of land within Lot 1194 is unlikely to cause appreciable land degradation, however salinity risk mapping has identified areas (~17ha) of high salinity risk running diagonally from the northwestern portion down to the southeastern corner of the applied area. This mapped high salinity risk in the western portion appears to be in association with an area of poor drainage highlighted in the Notice of Intention to Clear (Commissioner of Soil and Land Conservation, 1990).

A watercourse is depicted on the plan attached to the Notice of Intention to Clear (NOIC) dated 22 November 1990 (Commissioner of Soil and Land Conservation, 1990). The NOIC stipulates that 50ha of low scrub located in the western portion of the applied area should be retained as it appears to be an area of poor drainage and is likely to become waterlogged.

In addition, groundwater salinity for the area under application has been mapped at 14000-35000mgL.

Given the above there may be a risk of land degradation in the form of salinity and waterlogging and therefore the proposed clearing may be at variance to this principle.

Methodology

References:
- Commissioner of Soil and Land Conservation (1990)
- Commissioner of Soil and Land Conservation (2010)
- Northcote et al (1968)

GIS Databases:
- Groundwater Salinity, Statewide
- Salinity Risk LM 25m
- Soils, Statewide
- Walyahmoning 1.4m Orthomosaic - Landgate 2001

(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.

Comments

Proposal is not likely to be at variance to this Principle

There are four areas reserved for conservation purposes within a 15km radius of the areas under application, identified as Chiddarcooping Nature Reserve (on the register of national estate), Walyahmoning Rock Nature Reserve (on the register of national estate and system 5 area), Baladjie Lake Nature Reserve and an un-named

reserve, the closest Chiddarcooping Nature Reserve is located approximately 6km southwest of the applied area.

Although the area under application is located at the eastern edge of the central portion of a large remnant of native vegetation, given that there is approximately 60% of native vegetation remaining in the local area (15km radius), it is considered that the proposed clearing is not likely to have a significant impact on the environmental values of any adjacent or nearby conservation area.

Methodology GIS Databases:
- DEC Tenure
- Register of National Estate
- System 1 to 5 and 7 to 12 Areas

(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.

Comments

Proposal may be at variance to this Principle

Lot 1194 is located approximately 13.5km northeast of a proposed recovery catchment (DEC, 2010b) and is subject to an average annual rainfall of 270mm. The closest watercourses are Lake Baladjie and a non-perennial watercourse which are respectively located approximately 13km southeast and 1.4km south of the applied area.

An area of poor drainage has been identified in a Notice of Intention to Clear (NOIC) lodged for this property (Commissioner of Soil and Land Conservation, 1990). The NOIC stipulates that the 50ha area of low scrub in the western portion of the applied area should be retained as it appears to be an area of poor drainage and is likely to become waterlogged. Furthermore, salinity risk mapping has identified portions of the area under application as having a high salinity risk (~17ha) with groundwater salinity mapped on site at 14000-35000mgL.

Whilst the area under application has recently been subject to impacts through clearing (that is the subject of an investigation), if appropriately managed its environmental values are expected to recover.

Given the above, it is considered that the proposed clearing of deep rooted perennial vegetation may cause a deterioration in the quality of underground water; and that the removal of the low scrub in the western portion of the applied area may cause a temporary deterioration in the quality of surface water through waterlogging.

It is therefore considered that the proposed clearing may be at variance to this principle.

Methodology References:
- Commissioner of Soils and Land Conservation (1990)
- DEC (2010b)

GIS Databases:
- Groundwater Salinity, Statewide
- Hydrography, linear_1
- Hydrography, linear (hierarchy) - DOW
- Salinity Risk LM 25m
- Soils, Statewide

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments

Proposal may be at variance to this Principle

The applied area is located approximately 13km northwest of Lake Baladjie and 1.4km north of a non-perennial watercourse in the lower section of the catchment (Commissioner of Soils and Land Conservation, 2010).

In the Notice of Intention to Clear (Commissioner of Soils and Land Conservation, 1990) it was requested that the area of low scrub in the western portion of the applied area should not be cleared as it appears to be an area of poor drainage and is likely to become waterlogged.

Whilst the area under application has recently been subject to impacts through clearing (that is the subject of an investigation), if appropriately managed its environmental values are expected to recover.

Given the above, it is considered that the proposed clearing may cause, or exacerbate, the incidence or intensity of flooding.

It is therefore considered that the proposed clearing may be at variance to this principle.

Methodology References:
- Commissioner of Soils and Land Conservation (1990)
- Commissioner of Soils and Land Conservation (2010)

GIS Databases:
- Hydrography, linear_1
- Hydrography, linear (hierarchy) - DOW
- Soils, Statewide

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

An application was received on 1 February 2010 to clear 252 hectares for cropping. The application area is currently under investigation (ICMS 16825) as clearing has occurred over the 252 hectares under application..

The area under application falls within the agricultural area defined in EPA Position Statement No. 2 (EPA 2000). EPA Position Statement No. 2 (EPA 2000) states that significant clearing of native vegetation has already occurred on agricultural land, leading to a reduction in biodiversity and increase in land salinisation, and therefore any further reduction in native vegetation through clearing for agriculture cannot be supported. The EPA (2000) recommends that all existing native vegetation be protected from passive clearing through, for example, grazing by stock or clearing by other means.

In exceptional circumstances the EPA would consider supporting clearing for agriculture within this region if:
(a)There are alternative mechanisms for protecting biodiversity.
(b)The area to be cleared is relatively small, depending on the scale at which biodiversity changes over the area, including extent of vegetation in the surrounding area and recognising that values will vary for different ecosystems.
(c)The proponent demonstrates that the elements set out in Section 4.3 of this Position Statement are being met. This will require extensive local and regional biodiversity work.
(d)Land degradation, including aquatic environments and threatening processes, such as dieback, salinisation or disruption of catchment processes, on-site and off-site would not be exacerbated.

A Notice of Intention to Clear (NOIC) dated 29 November 1990 stipulated that 250ha could be cleared. Condition 4 of the NOIC stipulates that the area of low scrub (50ha) should not cleared as it appears to be an area of poor drainage and is likely to become waterlogged. (Commissioner of Soils and Land Conservation, 1990) The Agreement to Reserve associated with the NOIC was never finalised and is not an encumbrance on the current certificate of title for Lot 1194 on Plan 204417.

The Commissioner of Soils and Land Conservation has advised that the Notice of Intention to Clear expired on 8 July 2006. (Commissioner of Soils and Land Conservation, 2010).

One public submission was received opposing the proposed clearing on the basis that clearing in this area is unnecessary (Submission, 2010a). The comments made were considered during the assessment of the clearing application and addressed under the clearing principles.

In a submission, the Shire of Westonia advise that the council has no objection to the proposed clearing of 252 ha in accordance with the Environmental Protection Act 1986 (Shire of Westonia, 2010).

In a submission received by the applicant, the following relevant information was supplied and has also been included within the assessment report where appropriate (Submission 2010):

Fauna
- Crested Bell Birds have not been observed (personally) in over 60 years of residence in the Wheatbelt region.
- The Crested Bell Bird is endemic to mainland Australia and is relatively common west of the Great Dividing Range, in the south of tropical Northern Australia and through South Australia to the west coast of Western Australia they are found in acacia particularly Mulga shrublands Eucalypt spinifex and chenopod (salt bush) plains or dunes.
- Personal observations would suggest that the Red-tailed cockatoo is a migratory species and at the present time they can be seen along Great Eastern Highway. Most summers these birds arrive first in the district at paddocks near Warralakin bin (CBH recieval point).
- A water trough, situated in a farm paddock in close proximity to the trees where the Forest red-tailed cockatoo's were observed during the DEC site visit could explain there occurrence of this species.
- In Western Australia the inland Red-tailed black cockatoo (Calyptorhynchus banksii samueli) is increasing its distribution mainly because of the abundance of the introduced double gee weed.
- If the Red-tailed black cockatoo were to nest in remnant vegetation on Yilgarn Loc 1194 they would have protection against any interference.

Biodiversity
- There will be only low, minimal or minor impacts on biodiversity, including seed bank as Yilgarn Loc 1194 sits inside already cleared land.
- Areas to the north of vegetation to be cleared, contains some of the best stands of forest country observed (personally opinion).
- As the Great Western Woodlands has an area of 16 million ha it is reasonable to think that there area large areas of the same type of vegetation within its boundaries for seed collection.

- If required, seed can be obtained from remnant vegetation on Yilgarn Locations 1194 and 1196.
- Remaining woodland areas will provide enough seed to satisfy any seed requirements
- North of Yilgarn locations 1194 and 1444, in crown land reserve, there are some of the best stands of Salmon Gum.
- 35% of the Westonia Shire is still native vegetation.
- The property has been subjected to past disturbances. Timber was historically cut from Yilgarn Loc 1194 as evident by regrowth on stumps of salmon gums.

Flora of Significance
- Eremophila viscida prefers areas that are associated with granite and salt lake systems and this is not found within Yilgarn Loc 1194.

Methodology

References:
- Commissioner of Soil and Land Conservation (1990)
- Commissioner of Soil and Land Conservation (2010)
- Submission (2010a)
- Submission (2010b)
- Shire of Westonia (2010)

4. References

DEC (2010f) Biodiversity Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, received 22/03/2010. Department of Environment and Conservation, Western Australia (TRM DOC123721).

Brown A., Thomson-Dans C. and Marchant N.(1998). Western Australia's Threatened Flora, Department of Conservation and Land Management, Western Australia.

Commissioner of Soil and Land Conservation (2010) Advice. Department of Agriculture and Food, Western Australia (TRIM DOC122928).

Commissioner Soils and Land Conservation (1990) Notice of Intention to Clear, Commissioner Soils and Land Conservation, Western Australia (TRIM DOC121886).

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

DEC (2010a) Biodiversity Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, received 17/03/2010. Department of Environment and Conservation, Western Australia (TRM DOC123220).

DEC (2010b) Advice received in relation to CPS 3568/1 on 16/03/2010. Wheatbelt Region, Department of Environment and Conservation, Western Australia (TRIM DOC123000).

DEC (2010c) Biodiversity Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, received 19/03/2010. Department of Environment and Conservation, Western Australia (TRIM DOC123512).

DEC (2010d) Biodiversity Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, received 19/03/2010. Department of Environment and Conservation, Western Australia (TRM DOC123711).

DEC (2010e) Biodiversity Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, received 22/03/2010. Department of Environment and Conservation, Western Australia (TRM DOC123715).

DEC (2010f) Biodiversity Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, received 22/03/2010. Department of Environment and Conservation, Western Australia (TRM DOC123721).

DEC (2010g) Site Inspection Report for Clearing Permit Application CPS 3568/1, Lot 1194 on Plan 204417, Duncan Road, Warrachuppin. Site inspection undertaken 11 November 2009. Department of Environment and Conservation, Western Australia (TRIM Ref: DOC124114).

EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.

Johnstone, C., Storr, G.M. (1998). Handbook of Western Australian Birds Volume I - Non-passerines (Emu to Dollarbird). Western Australian Museum.

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.

Richardson, J (2007) Ecosystem prioritization workshop, Avon Natural Diversity Alliance. Department of Environment and Conservation, Perth.

Shepherd, D.P. (2007). Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

Shire of Westonia (2010) submission received providing comments on proposed clearing. (TRIM DOC123970).

Simpson & Day (2004) Field Guide to the Birds of Australia, 7th edition, penguin Publishers, Australia.

Submission (2010a) public submission received providing comments on proposed clearing. (TRIM ref: DOC120440).

Submission (2010b) applicant submission received providing comments on issues of proposed clearing (DEC Ref: A323086)

5. Glossary

Term	Meaning
CALM	Department of Conservation and Land Management (now DEC)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment (now DEC)
DoW	Department of Water
DMP	Department of Mines and Petroleum (ex DoIR)
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)