GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose permit number:	CPS 1918/10
Permit holder:	Electricity Networks Corporation, trading as Western Power
Purpose of clearing:	Clearing for *project activities*
Duration of permit:	10 February 2008 – 10 February 2024

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A GUIDE TO THE ASSESSMENT OF APPLICATIONS TO CLEAR NATIVE VEGETATION UNDER PART V DIVISION 2 OF THE *ENVIRONMENTAL PROTECTION ACT 1986*

Purpose permit number:	CPS 1918/10
Permit holder:	Electricity Networks Corporation, trading as Western Power
Purpose of clearing:	Clearing for *project activities*
Duration of permit:	10 February 2008 – 10 February 2024

The permit holder is authorised to clear native vegetation for the above stated purpose, subject to the conditions of this Permit, including as amended or renewed.

PART I - TYPE OF CLEARING AUTHORISED

1. Type of clearing authorised

(a) In accordance with this Permit, the permit holder may clear native vegetation for *project activities*, which means any one or more of the following:
- (i) new underground distribution lines;
- (ii) new overhead distribution lines;
- (iii) new voltage regulator sites;
- (iv) new padmount transformer sites;
- (v) new ring main sites;
- (vi) new switching stations;
- (vii) radio towers and associated infrastructure;
- (viii) mono towers and associated infrastructure;
- (ix) new zone substation sites;
- (x) new terminal substation sites;
- (xi) new underground transmission lines;
- (xii) new overhead transmission lines
- (xiii) new infrastructure such as buildings, fences, gates, posts, boards, scaffolding, hurdles, other erections and structures to support the construction or operation of electricity infrastructure;
- (xiv) new sightline or centreline clearing;
- (xv) new storage, laydown or winch/brakes site areas;
- (xvi) new power generation and/or battery storage systems and associated infrastructure;
- (xvii) *project surveys* including surveying and geotechnical studies;
- (xviii) *pre-construction activities*;
- (xix) native vegetation clearing for the purposes of upgrading any of the above activities where such activities are not exempt from requiring a *clearing permit*;
- (xx) decommissioning (removal of redundant infrastructure);
- (xxi) fire protection / hazard reduction around new and existing infrastructure; and
- (xxii) access routes for existing and new assets.

(b) This Permit authorises the permit holder to clear native vegetation for *project activities* to the extent that the permit holder has the power to clear native vegetation for those *project activities* under the *Energy Operators (Powers) Act 1979* or any other *written law*.

2. Clearing not authorised

(a) This Permit does not authorise the permit holder to clear native vegetation for *project activities* where:
- (i) the clearing is likely to be seriously at variance with one or more of the *clearing principles*;
- (ii) the clearing and the associated effect on the environment would be inconsistent with any approved policy (as defined in section 3 of the *EP Act*);
- (iii) those *project activities* are incorporated in any *proposal* that is *referred* to and assessed under Part IV of the *EP Act* by the *EPA*; or
- (iv) the clearing may have a significant *impact* on a *matter of national environmental significance* under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

(b) If a *proposal* incorporating a *project activity* has been *referred* to the *EPA*, this Permit does not authorise any clearing for that *project activity* until:
  (i) the *EPA* has given notice under section 38G(1)(b) of the *EP Act* that it has decided not to assess the *proposal*; and
  (ii) either:
    (A) the period within which an appeal against the *EPA's* decision may be lodged has expired without an appeal being lodged; or
    (B) an appeal has been lodged against the *EPA's* decision not to assess the *proposal* and the appeal was dismissed.

(c) If the permit holder intends to clear native vegetation under this Permit for a *project activity* that is incorporated in a *proposal* referred to in condition 2(b), then the permit holder must have regard to any advice or recommendations made by the *EPA* under section 38G(7) of the *EP Act*.

3. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation authorised under this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

PART II - ASSESSMENT PROCEDURE

4. Avoid, minimise, and reduce extent and impact of clearing

In determining the amount of native vegetation to be cleared, 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.

5. Assessment of clearing impacts – desktop study

(a) Once the permit holder has complied with condition 4 of this Permit, if any native vegetation is to be cleared the Permit Holder must conduct a *desktop study* assessing the clearing to be undertaken against each of the *clearing principles* in accordance with the *Department*'s "*A guide to the assessment of applications to clear native vegetation under Part V Division 2 of the Environmental Protection Act 1986*" provided in Annexure 1.

(b) The *desktop study* must be conducted having regard to:
  (i) any approved policy (as defined in section 3 of the *EP Act*); and
  (ii) any planning instrument (as defined in section 51O of the *EP Act*), that applies to the area of native vegetation to be cleared.

(c) The *desktop study* must include production of a *PCIA Report* unless written advice to the contrary is provided by the CEO.

(d) The *PCIA Report* must set out:
  (i) the manner in which the Permit Holder had regard to the principles set out in condition 4 of this Permit;
  (ii) the manner in which the Permit Holder had regard to any approved policy and planning instrument in accordance with condition 5(b) of this Permit;
  (iii) a description of the land on which the clearing is to be done;
  (iv) the area (in hectares) of clearing required for the *project activities*;
  (v) the boundaries of clearing required for the *project activities* recorded on a map(s);
  (vi) how each of the *clearing principles* has been addressed through the *desktop study*;
  (vii) whether the outcome of the *desktop study* indicates that the clearing is likely to be seriously at variance, at variance, may be at variance, not likely to be at variance or not at variance with each of the *clearing principles*;
  (viii) whether the outcome of the *desktop study* indicates that the area to be cleared may be affected by *dieback;*

(ix) any *impacts* likely to occur as a result of the clearing, including a description of those *impacts* that are likely to be seriously at variance, at variance or may be at variance with one or more of the *clearing principles*;
(x) whether a *VMP* is likely to be required under condition 9 of this Permit;
(xi) whether *rehabilitation* and *revegetation* is likely to be required under condition 10 of this Permit;
(xii) whether a *dieback management plan* is likely to be required under condition 11 of this Permit; and
(xiii) whether an *offset* is likely to be required under condition 12 of this Permit.

(e) Where the outcome of the *desktop study* indicates that the clearing is likely to be seriously at variance, at variance or may be at variance with one or more of the *clearing principles*, the Permit Holder must undertake a *CIA* in accordance with condition 6 of this Permit unless written advice to the contrary is provided by the CEO.

(f) Where the outcome of the *desktop study* indicates that the clearing is likely to be seriously at variance, at variance or may be at variance with one or more of the *clearing principles*, the Permit Holder must seek submissions in accordance with condition 7 of this Permit unless written advice to the contrary is provided by the CEO.

(g) Without limiting condition 5(e) and 5(f) of this Permit, where the information available is insufficient to allow the Permit Holder to assess the proposed clearing against one or more of the *clearing principles* as part of the *desktop study*, the Permit Holder must undertake *CIA* in accordance with condition 6 of this Permit and seek submissions in accordance with condition 7 of this Permit.

6. Assessment of clearing impacts – CIA

(a) Where required pursuant to condition 5(e) of this Permit, the Permit Holder must conduct a *CIA* addressing those environmental values identified in the *desktop study* as likely to be affected by the clearing to an extent that is likely to be seriously at variance, at variance or may be at variance with one or more of the *clearing principles*.

(b) Where required pursuant to condition 5(g) of this Permit, the Permit Holder must conduct a *CIA* assessing each of those *clearing principles* for which there was insufficient information available to undertake a *desktop study*.

(c) A *CIA* must include:
(i) a *biological survey* if the clearing is likely to be seriously at variance, at variance or may be at variance with *clearing principles* (a), (b), (c), (d) or (f);
(ii) *vegetation condition mapping* and vegetation mapping by delineating on a map the *ecological communities* formed within a given area, and the nature and extent of each combination, within the area to be cleared at the scale of the best available mapping information, if the clearing is likely to be seriously at variance, at variance or may be at variance with *clearing principle* (e);
(iii) a *dieback survey* if the area to be cleared may be affected by *dieback*;
(iv) a *wetland field assessment* if the clearing may have a detrimental *impact* on the environmental values of a *defined wetland*; and
(v) any additional surveys and field assessments that are required to determine the *impacts* of the clearing on any environmental value protected by the *clearing principles*.

(d) Any survey or field assessment carried out pursuant to condition 6(c) must be conducted by an *environmental specialist*.

(e) Any survey or field assessment carried out pursuant to condition 6(c) that relates to flora must be conducted having regard to *EPA's Technical Guidance – Flora EIA*.

(f) Any survey or field assessment carried out pursuant to condition 6(c) that relates to fauna must be conducted having regard to *EPA's Technical Guidance – Terrestrial Fauna EIA*.

(g) The *CIA* must include production of a *CIA Report*.

(h) The *CIA Report* must set out:
  (i) all of the information required to be provided in a *PCIA Report*;
  (ii) copies of any submissions received pursuant to condition 7 of this Permit, and a response to submissions, noting where changes were made to the proposed clearing in response to matters raised in submissions;
  (iii) copies of any mapping and the methodology and results of any surveys or field assessments carried out pursuant to condition 6(c) of this Permit; and
  (iv) whether the outcome of the *CIA* indicates that the clearing is likely to be seriously at variance, at variance, may be at variance, not likely to be at variance or not at variance with each of the *clearing principles*.

(i) Where the outcome of the *CIA* indicates that the clearing is likely to be at variance or may be at variance with one or more of the *clearing principles*, the Permit Holder must invite a submission from the *Department* in accordance with condition 8 of this Permit.

(j) Where the outcome of the *CIA* indicates that the clearing is likely to be seriously at variance with one or more of the *clearing principles*, the Permit Holder must apply to the CEO of the *Department* for a *clearing permit* in respect of that clearing.

7. Submissions – interested parties

(a) Where required pursuant to conditions 5(f) and 5(g) of this Permit, the Permit Holder must invite submissions from the following parties about those *impacts* of the proposed clearing that are likely to be seriously at variance, at variance or may be at variance with one or more of the *clearing principles*:
  (i) the local government responsible for the area that is to be cleared;
  (ii) the owner (as defined in section 51A of the *EP Act*), or occupier (as defined in section 3 of the *EP Act*), of any land on which the clearing is proposed to be done;
  (iii) any environment or community groups that the Permit Holder reasonably considers may have an interest in the clearing that is proposed to be done; and
  (iv) any other party that the Permit Holder reasonably considers may have an interest in the clearing that is proposed to be done.

(b) The Permit Holder must invite submissions from the following parties:
  (i) the Office of the Commissioner of Soil and Land Conservation in the Department of Primary Industries and Regional Development about those *impacts* of the proposed clearing that are likely to be seriously at variance, at variance or may be at variance with *clearing principles* (g), (i) or (j); and
  (ii) the Department of Water and Environmental Regulation's Urban Water Branch about those *impacts* of the proposed clearing that are likely to be seriously at variance, at variance or may be at variance with *clearing principles* (f), (i) and (j).

(c) The Permit Holder must provide the following information to the parties from whom it invites submissions under conditions 7(a) and 7(b) of this Permit:
  (i) a description of the manner in which the Permit Holder has complied with condition 4 of this Permit;
  (ii) a description of the land on which the clearing is to be done;
  (iii) a description of the *project activities* for which the clearing is to be done;
  (iv) the area (in hectares) of clearing required for *project activities*;
  (v) the boundaries of clearing required for *project activities* recorded on a map;
  (vi) in what manner the Permit Holder considers that the clearing is likely to be seriously at variance, at variance, may be at variance, not likely to be at variance or not at variance with each of the *clearing principles*;
  (vii) an outline of any *VMP, rehabilitation, revegetation, dieback management plan*, or *offset proposal* proposed to be implemented in relation to the clearing;
  (viii) a full copy of *CIA Report* required under condition 6(g) of this Permit, including full reports of any biological surveys and/or field assessments carried out pursuant to condition 6(c) of

this Permit, if these surveys have been carried out at the time of seeking submissions (with location data for conservation significant species omitted where necessary to maintain confidentiality); and

(ix) the contact details of the person to whom submissions must be sent.

(d) The Permit Holder must allow a period of at least 21 days for submissions to be made.

8. Submissions – Department

(a) Where required pursuant to condition 6(i) of this Permit, the Permit Holder must invite a submission from the *Department*'s Functional Area responsible for the administration of clearing permits under the *EP Act*.

(b) The Permit Holder must provide the following information to the Department when inviting a submission:
(i) the *CIA Report*; and
(ii) the boundaries of clearing required for *project activities* recorded as a *shapefile*.

(c) In making a determination as to whether part or all of the clearing to be done is likely to be seriously at variance, at variance, may be at variance, not likely to be at variance or not at variance with each of the *clearing principles*, the Permit Holder must implement the levels of variance described in the *Department's* submission.

PART III – MANAGEMENT

9. Vegetation management

(a) If part or all of the clearing to be done is likely to be at variance or may be at variance with one or more of the *clearing principles*, the Permit Holder must prepare, implement and adhere to a *VMP* designed by an *environmental specialist*, with respect to that clearing, unless written advice to the contrary is provided by the CEO.

(b) The *VMP* must include the following:
(i) the scope of the *project activities* and of the *VMP*;
(ii) actions to be taken by the Permit Holder to avoid, mitigate or manage the *impacts*;
(iii) allocation of responsibilities for implementation of the *VMP*;
(iv) timeframes for completion of each action;
(v) a monitoring program for assessing the implementation of the *VMP*; and
(vi) actions to be taken in the event of non-compliance with the *VMP*.

(c) Actions to be taken by the Permit Holder pursuant to condition 9(b)(ii) to avoid, mitigate or manage *land degradation*, *water quality deterioration*, or flooding must be developed in consultation with the Commissioner of Soil and Land Conservation in the Department of Primary Industries and Regional Development.

(d) Once the Permit Holder has developed a *VMP*, the Permit Holder must provide that *VMP* to the CEO for the CEO's approval prior to undertaking any clearing of an area to which the *VMP* is related, and prior to implementing the *VMP*.

(e) If it is necessary to modify the *VMP* approved by the CEO, then the Permit Holder must provide that modified *VMP* to the CEO for the CEO's approval prior to implementing the modified *VMP*.

(f) The Permit Holder shall implement the latest version of the *VMP* approved by the CEO.

10. Revegetation and rehabilitation

(a) The Permit Holder must *revegetate* and *rehabilitate* areas cleared for *temporary works* as soon as possible, and within 24 months from when the area is no longer required for the purpose for which it was cleared.

(b) The Permit Holder is not required to *revegetate* and *rehabilitate* an area specified in condition 10(a) of this Permit if:
  (i) the CEO advises so in writing; or
  (ii) the Permit Holder has scheduled to use that cleared area for another project activity within 24 months of that area no longer being required for the purpose for which it was originally cleared under this Permit.

(c) The Permit Holder must prepare a *Revegetation Plan* if required to *revegetate* and *rehabilitate* an area specified in condition 10(a) of this Permit.

(d) A *Revegetation Plan* required under condition 10(c) must be designed by an *environmental specialist*.

(e) The *Revegetation Plan* must include the following:
  (i) a description of the land on which the *revegetation* and *rehabilitation* is required;
  (ii) the area (in hectares) of *revegetation* and *rehabilitation* required;
  (iii) the boundaries of *revegetation* and *rehabilitation* required recorded on a map(s);
  (iv) *site preparation*;
  (v) *weed* control;
  (vi) *regeneration, direct seeding* or *planting*, at an optimal time;
  (vii) a *vegetation establishment period*;
  (viii) *revegetation* success completion criteria;
  (ix) remedial actions to be undertaken if success completion criteria are not met;
  (x) ongoing maintenance and monitoring of the area to be *revegetated* and *rehabilitated*;
  (xi) timeframes for completion of the activities; and
  (xii) management commitments that will be achieved.

(f) Once the Permit Holder has developed a *Revegetation Plan*, the Permit Holder must provide that *Revegetation Plan* to the CEO for the CEO's approval, prior to clearing native vegetation from the area that is to be *revegetated* and *rehabilitated*.

(g) If it is necessary to modify the *Revegetation Plan* approved by the CEO, then the Permit Holder must provide that modified *Revegetation Plan* to the CEO for the CEO's approval prior to implementing the modified *Revegetation Plan*.

(h) The Permit Holder shall implement the latest version of the *Revegetation Plan* approved by the CEO.

(i) The Permit Holder is not required to comply with conditions 10(c) to 10(h) if the CEO advises so in writing, or if the area to be *revegetated* and *rehabilitated* is:
  (i) 0.5 hectares or less;
  (ii) not located in an *ESA*; and
  (iii) is either not or not likely to be at variance with all of the *clearing principles*.

11. Dieback, other pathogen and weed control

(a) When undertaking any clearing, *revegetation* and *rehabilitation*, or other activity pursuant to this Permit in an area that has an average annual rainfall of greater than 400 millimetres and is south of the 26th parallel of latitude, the Permit Holder must take the following steps to minimise the risk of introduction and spread of *dieback*:
  (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
  (ii) subject to condition 11(b) of this Permit, only move soils in *dry conditions*;
  (iii) ensure that no *dieback*-affected soil, *mulch, fill* or other material is brought into an area that is not affected by *dieback*; and
  (iv) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

(b) If movement of soil is necessary in conditions other than *dry conditions*, the Permit Holder must prepare, implement and adhere to a *dieback management plan* unless written advice to the contrary is provided by the CEO.

(c) Once the Permit Holder has developed a *dieback management plan*, the Permit Holder must provide that *dieback management plan* to the CEO for the CEO's approval, prior to undertaking any clearing of any area to which the *dieback management plan* is related, and prior to implementing the *dieback management plan*.

(d) If it is necessary to modify the *dieback management plan* approved by the CEO, then the Permit Holder must provide that modified *dieback management plan* to the CEO for the CEO's approval prior to implementing the modified *dieback management plan.*

(e) The Permit Holder shall implement the latest version of the *dieback management plan* approved by the CEO.

(f) Where the Permit Holder is notified by the *Department* or in a written report provided to the Permit Holder from an *environmental specialist*, that the area to be cleared may be susceptible to a pathogen other than *dieback*, the Permit Holder must:
   (i) obtain the advice of an *environmental specialist*; and
   (ii) take appropriate steps in accordance with that advice to minimise the risk of the introduction and spread of that pathogen.

(g) When undertaking any clearing, *revegetation* and *rehabilitation*, or other activity pursuant to this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:
   (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
   (ii) ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
   (iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

(h) At least once in each 12 month period for five years from the commencement of clearing for a *project activity*, the Permit Holder must remove or kill any *weeds* growing within areas cleared under this Permit, where those *weeds* are likely, on the advice of an *environmental specialist*, to spread to and result in environmental harm to adjacent areas of native vegetation that are in *good or better condition*.

PART IV – OFFSETS

12. Offsets

(a) If part or all of the clearing to be done is likely to be at variance with one or more of the *clearing principles*, then the Permit Holder must prepare an *offset proposal*, designed by an *environmental specialist*, with respect to that native vegetation, unless written advice to the contrary is provided by the CEO.

(b) In preparing an *offset proposal* with respect to a particular area of native vegetation proposed to be cleared under this Permit, the Permit Holder must comply with the principles in the Government of Western Australia, WA Environmental Offsets Policy, September 2011 and have regard to the WA Environmental Offsets Guidelines, August 2014.

(c) Once the Permit Holder has developed an *offset proposal*, the Permit Holder must provide that *offset proposal* to the CEO for the CEO's approval, prior to undertaking any clearing to which the *offset* is related, and prior to implementing the *offset*.

(d) If it is necessary to modify the *offset proposal* approved by the CEO, then the Permit Holder must provide that modified *offset proposal* to the CEO for the CEO's approval prior to implementing the modified *offset.*

(e) The Permit Holder must implement the latest version of the *offset proposal* approved by the CEO.

PART V – MONITORING, REPORTING & AUDITING

13. Monitoring

The Permit Holder must monitor:

(a) areas *revegetated* and *rehabilitated* under this Permit to determine compliance with the relevant *Revegetation Plan* and the conditions of this Permit; and

(b) areas that are the subject of an *offset* implemented under this Permit to determine compliance with the relevant approved *offset proposal* and the conditions of this Permit.

14. Recordkeeping

The Permit Holder must maintain the following records:

(a) In relation to the assessment of clearing impacts pursuant to conditions 5 and 6 of this Permit:
  (i) a copy of any *PCIA Report* and *CIA Report* produced; and
  (ii) the boundaries of clearing required for *project activities* as depicted in any *PCIA Report* and *CIA Report* recorded as a *shapefile*.

(b) In relation to the clearing of native vegetation pursuant to condition 1 of this Permit:
  (i) the *project activities* for which the clearing was done;
  (ii) the location where the clearing occurred for each of the *project activities* recorded as a *shapefile*;
  (iii) the size of the area cleared (in hectares) for each of the *project activities*;
  (iv) the date(s) on which the clearing was done for each of the *project activities*; and
  (v) the total amount of clearing done (in hectares) between 1 January and 31 December of each year.

(c) A copy of each *VMP* approved by the CEO in accordance with conditions 9(d) and 9(e) of this Permit.

(d) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 10 of this Permit:
  (i) a copy of each *Revegetation Plan* approved by the CEO in accordance with conditions 10(f) and 10(g) of this Permit;
  (ii) the boundaries of *revegetation* and *rehabilitation* required as depicted in each approved *Revegetation Plan* recorded as a *shapefile*;
  (iii) the location where *revegetation* and *rehabilitation* occurred for each of the *project activities* recorded as a *shapefile*;
  (iv) the size of the area *revegetated* and *rehabilitated* (in hectares) for each of the *project activities*;
  (v) the date(s) on which the *revegetation* and *rehabilitation* for each of the *project activities* commenced;
  (vi) the date the *revegetation* success completion criteria were achieved for each of the *project activities*, or if they have not been achieved, a description of the progress towards achievement; and
  (vii) the total amount of *revegetation* and *rehabilitation* commenced (in hectares) between 1 January and 31 December of each year.

(e) In relation to the control of *dieback,* other pathogens and *weeds* pursuant to condition 11 of this Permit:
  (i) a copy of each *dieback management plan* approved by the CEO in accordance with conditions 11(c) and 11(d) of this Permit;
  (ii) for any pathogen other than *dieback*, the appropriate steps taken in accordance with condition 11(f) of this Permit; and
  (iii) the date(s) on which *weed* control was undertaken in accordance with condition 11(h) of this Permit for each of the *project activities*.

(f) In relation to *offsets* implemented pursuant to condition 12 of this Permit:
   (i) a copy of each *offset proposal* approved by the CEO in accordance with conditions 12(c) and 12(d) of this Permit;
   (ii) the boundaries of each *offset* required as depicted in each approved *offset proposal* recorded as a *shapefile*;
   (iii) the location where each *offset* was implemented for each of the *project activities* recorded as a *shapefile*;
   (iv) the size of each *offset* (in hectares) for each of the *project activities*;
   (v) the date(s) on which implementation of each *offset* commenced for each of the *project activities*;
   (vi) the date implementation of each *offset* was completed for each of the *project activities*, or if the *offset* has not been completed, a description of the progress towards completion; and
   (vii) the total amount of *offsets* commenced (in hectares) between 1 January and 31 December of each year.

15. Reporting

(a) The Permit Holder must provide to the CEO, on or before 30 June of each year, a written report of records required to be maintained pursuant to condition 14 of this Permit, concerning those activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding calendar year.

(b) If no clearing authorised under this Permit was undertaken between 1 January and 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the CEO on or before 30 June of each year.

(c) Prior to 10 November 2023, the Permit Holder must provide to the CEO a written report of records required under condition 14 of this Permit where these records have not already been provided under condition 15(a) of this Permit.

16. Internal auditing

(a) The Permit Holder must engage an *internal auditor* to conduct *internal environmental audits* for areas specified in condition 16(c) of this Permit to determine the Permit Holder's compliance with the conditions of this Permit, with particular emphasis on:
   (i) the location and extent of native vegetation cleared;
   (ii) the implementation status of any *offsets* imposed;
   (iii) the effectiveness of any *VMP* implemented; and
   (iv) the implementation status of any *revegetation* or *rehabilitation* undertaken.

(b) The Permit Holder must conduct its first *internal environmental audit* within 6 months of the commencement date of this Permit. Subsequent *internal environmental audits* must be conducted annually for the *term* of this Permit.

(c) The areas to be audited under condition 16(a) must be selected by the auditor using a structured and documented risk-based selection framework, and must include at least one cleared area in each *bioregion* in which clearing has been done under this Permit within the previous 12 months.

(d) The Permit Holder must implement *corrective action* required to address any non-compliance with conditions of this Permit identified from the *internal environmental audits*.

(e) The Permit Holder must provide written reports of the *internal environmental audits* to the CEO on or before 30 December of each year for the *term* of this Permit. The reports must include details of *corrective action* taken by the Permit Holder to address any non-compliance with conditions of this Permit.

17. External auditing

(a) The Permit Holder must engage an external *lead environmental auditor* to undertake *external environmental audits* of the Permit Holder's compliance with the conditions of this Permit for each of the *bioregions* in which clearing is done under this Permit.

(b) The *external environmental audits* must be done on or before 30 November of every second year for the *term* of this Permit and/or as otherwise required by the CEO.

(c) Where the Permit is due to expire before the next *external environmental audits*, the Permit Holder must arrange for a final *external environmental audit* to be conducted prior to the expiry of the Permit.

(d) The Permit Holder must implement *corrective action* required to address any non-compliance with conditions of this Permit identified from the *external environmental audits*.

(e) The Permit Holder must provide the *lead environmental auditor's* written reports of the *external environmental audits* to the CEO on, or before 30 December of every second year for the *term* of this Permit. The reports must include details of *corrective action* taken by the Permit Holder to address any non-compliance with conditions of this Permit.

(f) Where a final *external environmental audit* is arranged for in accordance with condition 17(c) of this Permit, the Permit Holder must provide the *lead environmental auditor's* written reports of such an audit to the CEO on, or before 30 December of the year preceding the expiry date of the permit.

(g) The Permit Holder must make the *lead environmental auditor's* written reports of the *external environmental audits* publicly available within 30 days of the submission of the reports to the CEO.

PART VI – INTERPRETATION & DEFINITIONS

18. Interpretation

The following rules of interpretation apply to this Permit:

(a) a reference to any *written law* includes a reference to that *written law* as amended, repealed or replaced from time to time; and

(b) if a word or phrase is defined, other parts of speech and grammatical forms of that word or phrase have corresponding meanings.

19. Severance

It is the intent of these conditions that they shall operate so that, if a condition or part of a condition is beyond the CEO's power to impose, or is otherwise ultra vires or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the CEO's power to impose and are not otherwise ultra vires or invalid**.**

20. Inconsistency

(a) The *EP Act* prevails to the extent of any inconsistency between its provisions and the conditions of this Permit.

(b) Subject to condition 20(a), this Permit prevails to the extent of any inconsistency between its conditions, and the provisions of any other document referred to in this Permit.

21. DEFINITIONS

The following meanings are given to terms used in this Permit and the attached Advice:

authorised survey/s	has the meaning given to it in section 3 of the *Licensed Surveyors Act 1909*;
biological survey	means a site visit undertaken by an *environmental specialist* to: (a) verify *desktop study* information; (b) delineate key flora, fauna, soil, and groundwater and surface water values and potential sensitivity to impact; (c) undertake *vegetation condition mapping*; and (d) undertake vegetation mapping by delineating on a map the *ecological communities* formed within a given area, and the nature and extent of each combination, within the area to be cleared at the scale of the best available mapping information;
bioregion	has the meaning given to it in regulation 3 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*;
CIA	means clearing *impact* assessment, as described in condition 6 of this Permit;
CIA Report	means the document produced under condition 6(g) of this Permit as an outcome of conducting a *CIA*;
clearing permit	means a clearing permit under Part V Division 2 of the *EP Act*;
clearing principle/s	means the principles for clearing native vegetation listed in Schedule 5 of the *EP Act*;
corrective action	means action to eliminate the cause of non-conformity detected in an *internal environmental audit* or an *external environmental audit*;
defined wetland/s	has the meaning given to it in clause 3 of the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*;
Department	means the Western Australian government agency responsible for the implementation of the clearing provisions under Part V, Division 2 of the *EP Act*;
desktop study	means a literature review, including a map-based information search of all current and relevant literature sources and databases;
dieback	means the effect of *Phytophthora* species on native vegetation;
dieback management plan	means a management plan prepared in accordance with condition 11 of this Permit for the purpose of minimising the spread of *dieback*;
dieback survey	means a site visit undertaken by an *environmental specialist* to: (a) verify *desktop study* information; (b) identify indicator species; (c) carry out soil sampling in areas significantly affected by *dieback*; and (d) map areas of different *soil disease status*.

direct seeding	means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;
dry conditions	means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches;
ecological community/ies	means a naturally occurring biological assemblage that occurs in a particular type of habitat (English and Blythe, 1997, 1999). The scale at which ecological communities are defined will depend on the level of detail in the information source, therefore no particular scale is specified;
engineering survey/s	means any inspection or measurement taken by a surveyor engaged by the Permit Holder for the purpose of planning, investigating and design for a *project activity*;
environmental specialist	means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;
EP Act	means the *Environmental Protection Act 1986*;
EPA	means the Western Australian Environmental Protection Authority;
EPA's Technical Guidance – Flora EIA	means the publication "*Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*", Environmental Protection Authority (2016);
EPA's Technical Guidance – Terrestrial Fauna EIA	means the publication "*Technical Guidance – Terrestrial Fauna Surveys for Environmental Impact Assessments*", Environmental Protection Authority (2016);
ESA	means an environmentally sensitive area, as declared by regulation under section 51B of the *Environmental Protection Act 1986*;
external environmental audit/s	means an audit conducted by a *lead environmental auditor* in accordance with condition 17 of this Permit;
fill	means material used to increase the ground level, or fill a hollow;
geological survey/s	means a survey conducted in order to obtain information about the suitability of the ground for a *project activity*, and includes geotechnical surveys;
good or better condition	means that the vegetation is in either pristine, excellent, very good or good condition according to the *Keighery scale*;
impact/impacts	means any impact of clearing on environmental values;
internal auditor	means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of audit required under this Permit;

internal environmental audit/s	means an audit conducted by an *internal auditor* in accordance with condition 16 of this Permit;
Keighery scale	means the *vegetation condition* scale described in *Bushland Plant Survey: A Guide to Plant Community Survey for the Community (1994)* as developed by B.J. Keighery and published by the Wildflower Society of WA (Inc). Nedlands, Western Australia;
land degradation	includes salinity, erosion, nutrient export, soil acidity and waterlogging;
lead environmental auditor	means an individual certified as a lead environmental auditor by either: (a) RABQSA International; or (b) an organisation accredited to ISO/IEC 17024 by, or by a body recognised by, the Joint Accreditation System of Australia and New Zealand);
matter of national environmental significance	A matter of national environmental significance is any of the following: (a) a declared World Heritage property (b) a national Heritage place (c) a declared Ramsar site (d) a listed threatened species or endangered community (e) a listed migratory species (f) the marine environment These terms have the same meaning as they do in the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).
mulch/es	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;
offset/s	means a direct offset as described in the Government of Western Australia, WA Environmental Offsets Policy, September 2011;
offset proposal	means a documented plan that addresses the principles outlined in the Government of Western Australia, WA Environmental Offsets Policy, September 2011;
PCIA Report	means the document produced as an outcome of conducting a *desktop study* in accordance with conditions 5(a) and 5(d) of this Permit;
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;
pre-construction activities	means establishing storage, laydown and vehicle/machinery parking areas, erecting fences and doing similar activities that are required to be done prior to, and in association with, the carrying out of a project activity;
project activity/ies	means those activities described in condition 1(a) of this Permit;
project surveys	means *authorised surveys*, *engineering surveys* and *geological surveys*;
proposal	has the meaning given to it in section 3 of the *EP Act*;

referred	means referred to the Environmental Protection Authority under Part IV of the *EP Act*;
regenerate/ed/ion	means *revegetation* that can be established from in situ seed banks contained either within the topsoil or seed-bearing *mulch*;
rehabilitate/ed/ion	means actively managing an area containing native vegetation in order to improve the ecological function of that area;
revegetate/ed/ion	means the re-establishment of a cover of native vegetation in an area such that the species composition, structure and density is similar to pre-clearing vegetation types in that area, and can involve *regeneration*, *direct seeding* and/or *planting*;
revegetation plan	means a plan developed by the Permit Holder for the *revegetation* and *rehabilitation* of a site in accordance with condition 10 of this Permit;
shapefile	means a shapefile consisting of polygons using the Geocentric Datum of Australia (GDA) coordinate system.
soil disease status	means soil types either infested, not infested, uninterpretable or not interpreted with a pathogen.
site preparation	means management of existing site topsoil and preparation of the finished soil surface, for example by ripping or tilling the soil surface and respreading site topsoil and chipped native vegetation;
temporary works	means works associated with a *project activity* that are temporary in nature including, but not limited to, decommissioning, tracks, spoil areas, site offices, storage areas, laydown areas, *project surveys* and *pre-construction activities*;
term	means the duration of this Permit, including as amended or renewed;
vegetation condition	means the rating given to native vegetation using the *Keighery scale* and refers to the degree of change in the structure, density and species present in the particular vegetation in comparison to undisturbed vegetation of the same type;
vegetation condition mapping	means to delineate on a map the condition attributes of vegetation within an area, according to the *Keighery scale*;
vegetation establishment period	means a period of at least two summers after the *revegetation* during which time replacement and infill *revegetation* works may be required for areas in which *revegetation* has been unsuccessful, and involves regular inspections of *revegetation* sites to monitor the success of *revegetation*;
VMP	means vegetation management plan, as described in condition 9 of this Permit;
water quality deterioration	includes sedimentation, turbidity, eutrophication, salinity, or alteration of pH affecting surface water or groundwater;

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 species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.
wetland field assessment	means a site visit by an *environmental specialist* to: (a) verify *desktop study* information; and (b) delineate key flora and fauna values of *defined wetlands* and their potential sensitivity to *impact*.
written law	has the same meaning as it is given in section 5 of the *Interpretation Act 1984*.



Ryan Mincham
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

1 February 2022

ADVICE

1. Monitoring by the CEO

The CEO may monitor the implementation of clearing and other activities done under this Permit in order to determine whether the Permit Holder is complying with the conditions of this Permit. In the event that the CEO determines that the Permit Holder is not complying with one or more conditions of this Permit, the CEO may amend, suspend or revoke this Permit as the CEO considers necessary.

2. Reports

Reports provided by the Permit Holder to the CEO under Part V of this Permit may be made publicly available.

3. Clearing likely to have a significant impact on the environment

The Permit Holder must ensure that it complies with any obligation under section 38(4) of the *EP Act* to refer to the *EPA* a *proposal* that appears to the Permit Holder to be likely, if implemented, to have a significant effect on the environment.

4. Cumulative impacts of clearing

In accordance with the intent of the *clearing principles* in Schedule 5 of the *EP Act*, the Permit Holder must consider the cumulative *impacts* of clearing of native vegetation done under this Permit and other clearing done in that *bioregion*. The cumulative *impacts* of clearing done under this Permit will be considered by the CEO annually upon receipt of the Permit Holder's reports pursuant to Part V of this Permit, and this Permit may be amended as necessary.

5. Temporary clearing

The Permit Holder must ensure that, wherever possible, new *temporary works* are located in areas that have already been cleared of native vegetation.

6. External Audit

When conducting an *external environmental audit* under condition 17 of this Permit, the *lead environmental auditor* will determine which conditions of this Permit in respect of which he or she will conduct the audit.

Annexure 1 – A guide to the assessment of applications to clear native vegetation under Part V Division 2 of the *Environmental Protection Act 1986*

Government of **Western Australia**
Department of **Environment Regulation**

GUIDELINE

A guide to the assessment of applications to clear native vegetation

Under Part V Division 2 of the Environmental Protection Act 1986

December 2014

DER201412950

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Please note: *The following information provides a general guide to the assessment of applications to clear native vegetation under Part V Division 2 of the* Environmental Protection Act 1986*. Persons who intend to undertake activities that may involve clearing are advised to consult the actual legislation and seek advice, including legal advice, where necessary. Whilst* DER *has endeavoured to ensure the accuracy of the contents of this document, it accepts no responsibility for any inaccuracies and persons relying on this document do so at their own risk.*

Accessibility This document is available in alternative formats and languages on request.

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Purpose

This guide sets out the Department of Environment Regulation's (DER) approach for assessing an application to clear native vegetation under the *Environmental Protection Act 1986* (EP Act).

It also provides information on how native vegetation clearing applications are assessed under a bilateral agreement between the Commonwealth of Australia (Commonwealth) and the State of Western Australia (WA) under the *Environment Protection and Biodiversity Act 1999* (EPBC Act).

Introduction

This guide is intended to assist applicants for a clearing permit, including landowners, consultants, local government authorities, and State government agencies, to:

- understand the clearing permit assessment process under the EP Act; and
- plan to undertake appropriate studies and surveys for projects that involve clearing.

Where a word has a specific meaning in the context of this guideline, the first time it is used it is in italics, and it is explained in the glossary on page 43.

Further information

If you have any questions about this guide or are not sure if you can clear under a clearing exemption, you should contact DER on (08) 6467 5020.

For clearing permit assessments relating to mines or petroleum related activities under delegation, contact DMP on (08) 9222 3333.

More general information about clearing native vegetation is found at the DER website www.der.wa.gov.au/nvp.

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Legislation

Environmental Protection Act 1986

Under section 51C of the EP Act, clearing of native vegetation is an offence unless it is done under the authority of a clearing permit or an exemption applies.

Exemptions for clearing that is a requirement of another written law, or authorised under certain statutory processes are contained in Schedule 6 of the EP Act.

Exemptions for routine land management practices are prescribed in the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004.* These exemptions do not apply within environmentally sensitive areas (ESAs) declared by the Minister for Environment. ESAs can be viewed on Landgate's Shared Land Information Platform (SLIP) viewable through the WA Atlas, with instructions available at www.der.wa.gov.au/nvp.

Further information on exemptions is contained in Guide 1 – A Guide to the Exemptions and Regulations for Clearing Native Vegetation.

The CEO, in making a decision about a clearing permit application under section 51O of the EP Act, shall have regard to the clearing principles contained in Schedule 5 of the EP Act so far as they are relevant to the matter under consideration.

Under section 51O of the EP Act the CEO shall also have regard to any planning instrument or other matter that the CEO considers relevant (see the 'Planning Instruments and Other Relevant Matters section).

For more information on the EP Act and Clearing Regulations see DER's Factsheet 1 Legislation.

Environment Protection and Biodiversity Conservation Act 1999

An action requires approval from the Commonwealth Minister for the Environment if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance (NES) protected under the EPBC Act.

In accordance with Chapter 3, Part 5 of the EPBC Act, the Commonwealth and the State have entered into a bilateral agreement that provides for the accreditation of the clearing permit assessment process. This allows the Commonwealth Minister for the Environment to rely on the state's assessment in assessing the impact of certain actions that relate to clearing on matters of NES under the EPBC Act. The bilateral assessment agreement commences on 1 January 2015.

More information is provided in 'Bilateral Agreement' on page 46 and available in additional guidance documents at www.der.wa.gov.au/nvp. More information on the EPBC Act is available on the Commonwealth Department of the Environment website at www.environment.gov.au/epbc.

Assessment

The assessment considers the likely environmental impacts of an application in accordance with the requirements of the EP Act and bilateral agreement (where relevant). The guidelines and information sources are used by assessors in gathering the information required for objective assessment under each clearing principle. The

information sources assist applicants in determining the significance of the native vegetation in their application area.

This guide provides the basis for assessment and is not intended to be an exclusive or exhaustive list of relevant considerations and information. In addition, while this guide is based on the best available scientific information and ecological principles, it is recognised that scientific knowledge is constantly evolving and therefore this guide may be subject to change.

The timeframes to assess the application will depend on the complexity of the application and the significance of the native vegetation and surrounding environment. DER applies a risk-based assessment approach in the context of clearing permit applications. More information on risk based assessment is located in Fact sheet 16.

Clearing principles against which applications to clear are assessed are listed under Schedule 5 of the EP Act. The planning instruments and other relevant matters which applications to clear are also assessed are under section 51O of the EP Act.

Table 1 Clearing principles for native vegetation under Schedule 5 of the EP Act

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Assessment is a judgment in accordance with the requirements of the EP Act on whether or not a clearing permit application is likely to have a significant effect on the environment. The guidelines and tools assist assessors in making that judgment.

Site visits, surveys and gathering information

Once a valid application to clear native vegetation has been made, assessors undertake an initial desktop assessment. This includes a review of non-spatial databases, geographic information system (GIS) spatial data, and other relevant information and documents as available.

Surveys and information may be required from the applicant where the scale and nature of the clearing application is likely to have a moderate or high impact on the environment. Where applications are to be assessed under a bilateral agreement, these surveys, reports and information are required to be submitted as part of the initial application. For other applications, if after an initial assessment, the assessor identifies that insufficient information is available for the CEO to make an informed decision, further surveys or information may be required by the applicant.

It is the responsibility of the applicant to provide required information, which might include flora, vegetation or fauna surveys or detailed investigations of land degradation or water issues. Some key considerations include:

- the study and survey must be carried out by a *suitably qualified person*; and
- the methodology used should be consistent with the EPA's standards, policies and guidance, and with established standards for analysis. These methodologies and standards are referenced where relevant to a clearing principle.

In some circumstances a site visit is required to:

- verify information provided in the application or obtained during the initial desktop assessment;
- delineate key flora, fauna, soil, and groundwater and surface water values and potential sensitivity to impact; and
- undertake broad-scale vegetation and vegetation *condition* mapping based on selected sites.

A site visit may involve more than one government agency in order to identify the multiple *environmental values* of an area. These agencies could include:

- DER
- DMP
- Department of Parks and Wildlife (Parks and Wildlife)
- Department of Agriculture and Food WA (DAFWA)
- Department of Water (DoW)

Further guidance on surveys and gathering information is provided in Appendix A.

Assessment under a bilateral agreement

The clearing permit assessment process under Part V Division 2 of the EP Act has been accredited by the Commonwealth of Australia under the EPBC Act. If a clearing permit is required and the action has or is likely to have a significant impact on a matter of NES, under a bilateral agreement, DER can assess the clearing application on the Commonwealth's behalf.

The assessment bilateral agreement requires the applicant to submit application forms to DER, or DMP under delegation, for assessment after a controlled action decision has been made by Commonwealth Minister for the Environment.

Assessing officers must consider this application, as well as relevant guidelines, plans and policies (including those of the Commonwealth, where applicable), when undertaking the assessment of the application in accordance with the requirements of section 51O and 51P of the EP Act. Guidance on the information considered by DER when assessing an application under a bilateral agreement is provided under the applicable clearing principle and in the chapter Bilateral Agreement. For further information see Fact sheet 25 and *A guide to native vegetation clearing processes under the assessment bilateral agreement* at www.der.wa.gov.au.

Environmental offsets

Environmental offsets are actions that provide environmental benefits which counterbalance the significant residual environmental impacts or risks of a project[1] or activity.

Under section 51I(2)(b) of the EP Act, the CEO may grant a clearing permit that includes a condition to "establish and maintain vegetation on land other than land cleared under the permit in order to offset the loss of the cleared vegetation, or make monetary contributions to a fund maintained for the purpose of establishing or maintaining vegetation".

For applications assessed under the assessment bilateral agreement, DER and DMP will work with the Commonwealth to minimise duplication between offset requirements.

For more information on offsets see DER's Fact sheet 11 and Guideline - Clearing of native vegetation – offsets procedure.

[1] Project refers to a proposal under Part IV and an application under Part V of the EP Act.

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

Guidelines

This principle aims to protect areas of high *biodiversity*. This principle protects intact natural systems with naturally occurring high levels of *species diversity, ecosystem diversity* or *genetic diversity* and natural systems that may be degraded but contain high levels of diversity compared with the remaining native vegetation of that *ecological community*.

The Threatened Species Scientific Committee for the Australian Government has identified areas as Biodiversity Hotspots for priority action. Many of these areas of outstanding biodiversity occur within Western Australia. These hotspots in WA include:

- North Kimberley;
- Hamersley – Pilbara;
- Carnarvon Basin;
- Geraldton to Shark Bay sand plains;
- Mount Lesueur – Eneabba;
- Central and Eastern Avon Wheat Belt;
- Busselton Augusta; and
- Fitzgerald River Ravensthorpe.

Assessment of biodiversity is complex because of the huge number of species, genetic variation within species and associations of species that exist within Western Australian ecosystems. In general, there are only reasonable data on the diversity and distribution of vertebrates, limited data on the diversity and distribution of vascular plants, and little data on invertebrates and micro-organism diversity.

It is recognised that this principle may concentrate on vascular flora as information on vascular plant biodiversity is relatively easy to collect and there are sufficient regional datasets available to allow for the comparisons that are inherent in the principle. This focus does not exclude other measures of biological diversity.

Genetic diversity is poorly understood and adequate information to assess this criterion is difficult to obtain. Taxon diversity (species, subspecies, variety and forms) is an alternative approach to address this issue where genetic diversity data are not available.

The EPA has noted that ecosystem diversity is harder to measure than species or genetic diversity because the boundaries of communities (i.e. variety of unique assemblages of plants and animals and ecosystems) are hard to define. As long as a consistent set of criteria is used to define communities and ecosystems, their number and distribution can be measured. Even using a relatively simplified measure, any given area contributes to biodiversity in at least two different ways: through its richness in numbers of species and through the endemism (geographical uniqueness) of these species. The relative importance of these two factors changes at different geographical scales (*EPA Position Statement No.3*).

Priority flora and other *significant flora* such as uncommon or range-restricted species are another measure of biodiversity values and should be considered under this principle. *Priority fauna* refers to conservation significant animal species and are also a measure of biodiversity values. Similarly, *priority ecological communities* provide a

measure of biodiversity for ecological communities. The presence of significant flora or priority ecological communities is indicative of *environmental values* worthy of protection and a higher level of biological diversity than might typically be expected in an area.

Examples

Under this principle, clearing of 'degraded' condition vegetation with low comparable diversity where there are significant areas of that vegetation in 'good' condition elsewhere in the *bioregion* and *local area*, is unlikely to be at variance with this principle.

- However the following is likely to be at variance:
- clearing of native vegetation that is representative of an area of high biodiversity, such as the northern sandplains in the vicinity of Mount Lesueur;
- clearing of a diverse native vegetation remnant that supports the whole, or a part of, a significant population of priority flora;
- clearing of a diverse native vegetation remnant that comprises the whole, or a part of, a significant occurrence of a priority ecological community;
- clearing of native vegetation that has a higher diversity than other examples of an ecological community in a bioregion; and
- clearing of native vegetation that is in 'degraded' condition yet is in better condition than other vegetation of the same ecological community in the local area (for example, a largely degraded rangelands ecological community).

Steps

Adequate assessment of this principle as part of an initial assessment will rely on existing site and regional studies for comparative purposes. The assessor will need to have skills in assessing vegetation *condition*, flora species diversity and plant ecological community diversity generically to enable such comparisons to be made. In assessing vegetation condition, the assessor will determine the condition rating based on the disturbance to the vegetation related to human activities. When the vegetation has recently been disturbed due to a natural event such as a wildfire, the assessor will identify the condition of the vegetation prior to that natural event using current and past studies. More information on vegetation condition rating is located in Appendix B.

Where more information is needed the scope of the assessment will be determined on a case-by-case basis, but would be consistent with EPA Position Statement No. 3. Position Statement No. 3 outlines the EPA's principles for environmental impact assessment of biodiversity. The EPA requires that the assessor have an appropriate understanding of the requirements of adequate surveys. This is central to achieving a sound assessment of biodiversity.

Further EPA guidance on survey requirements is provided in the following documents:

- EPA Guidance Statement No 10, Level of assessment for proposals affecting natural areas within the System 6 region and Swan Coastal Plain portion of the System 1 region
- EPA Guidance Statement No 51, Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia
- EPA Guidance Statement No. 56, Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia

- EPA Technical Guide on Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment
- EPA Guidance Statement 20, Sampling of Short Range Endemic Invertebrate Fauna for Environmental Impact Assessment in Western Australia

Some key factors in using surveys to assess biodiversity include:

- The methodology used should be consistent with the approaches recommended in the EPA guidance statements. The methodology used, and any limitations of the surveys, should be outlined in the resulting report;
- The timing and time allocated should be determined by the natural cycles of the region (such as growth and flowering);
- The intensity of the sampling (number of sites; their spacing; and their area) should be based on the complexity of the flora, vegetation and faunal assemblages of the permit application area; and
- The level of effort should correspond with the existing data for that area, i.e. where less existing information is available, a greater survey effort would be required.

In undertaking an assessment specific measures of diversity include:

Plant species:

- total vascular plant taxa (species, subspecies and varieties) diversity; and
- vascular plant taxa diversity for each ecological community.

Fauna species:

- total vertebrate and invertebrate fauna taxa (genera, species and subspecies) diversity.

Ecosystem diversity:

- number of ecological communities (plant communities);
- number of ecological communities (fauna communities (assemblages));
- macrohabitat diversity;
- microhabitat diversity in each macrohabitat;
- a variety of soil types or geological formations; and
- micro-topographical diversity and edaphic variation.

Useful information sources for assessing principle (a)

- National Land and Water Resources Audit (NLWRA) – Current Extent of Native vegetation in Western Australia
- Pre-European vegetation / Mattiske vegetation / Heddle vegetation complexes
- Soil types
- Regional Flora, Vegetation or Biological Surveys (e.g. Geraldton Regional Flora and Vegetation Survey, Albany Regional Vegetation Survey, The Natural Values of the Whicher Scarp , Swan Bioplan – Peel Regionally Significant Natural Areas and the published Parks and Wildlife Biological Surveys)
- Conservation estate, Parks and Wildlife managed lands and waters
- Significant wetlands and watercourses (e.g. Ramsar wetlands, Directory of Important Wetlands, conservation category wetlands)
- Bush Forever sites
- Threatened and Priority Flora Database
- Specially protected, threatened and priority fauna lists and databases

- Threatened and Priority Ecological Community Database
- Ecological linkages and corridors (e.g. South West Regional Ecological Linkage, Bush Forever, Swan Bioplan – Peel Regionally Significant Natural Areas)
- Some spatial data are publicly available from Landgate's Shared Land Information Platform (SLIP).

Additional information sources for assessing applications under the bilateral agreement

Under the bilateral agreement additional Commonwealth policies, plans and guidelines may be considered in the assessment of the clearing application in relation to matters of NES. Such documents include the following where relevant and available:

- Recovery plans and interim recovery plans;
- Strategic assessments;
- Conservation agreements;
- Approved conservation advice under section 266B of the EPBC Act;
- Matters of National Environmental Significance, Significant Impact Guidelines 1.1;
- Ecological character descriptions for individual sites including Eighty Mile Beach, Forrestdale and Thomsons Lake, Lake Gore, Lake Warden System, Lakes Argyle, Kununurra, Muir-Byenup System, Ord River Floodplain, Peel-Yalgorup System, Roebuck Bay, Toolibin Lake and Vasse-Wonnerup System; and
- Department of the Environment Species of National Environmental Significance maps

Current copies may be available on the Commonwealth Department of the Environment's Species Profile and Threats Database.

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.

Guidelines

This principle aims to maintain indigenous fauna species and assemblages of species in their local natural habitat. This principle protects habitat for threatened fauna and *significant habitat* for *meta-populations* of fauna.

Fauna plays an important role in maintaining ecosystems and the life-supporting services provided by ecosystems by:

- cycling of material, through the browsing of flora, predation, digging, the consumption of organic matter generally, excretion, death and decay;
- the pollination, fertilisation and germination of plants; and
- maintaining the dynamic balance in ecosystems. The balance between assemblages of plants, animals and diseases, and environmental elements such as fire, soil structure and chemistry, can be destabilised by changes to any of the ecosystem components.

The ecological relationships between fauna, vegetation and their physical environment are affected by habitat decline and a consequent loss of ecological functions and processes. These may include:

- increasing edge to area ratios of native vegetation, which reduce the width of a remnant and increase its perimeter;
- loss of corridors, stepping stones (*ecological linkages*) and *buffering* vegetation;
- loss of large intact areas of native vegetation capable of supporting breeding populations of species with limited dispersal;
- loss of vegetation areas that support meta-populations;
- the loss of key habitat requirements, e.g. loss of tree hollows and fallen trees and branches that may be used for breeding or sheltering sites; the loss of proximity of the required combination of habitat types (for example Carnaby's cockatoo is threatened because it requires a combination of woodland for breeding and heath habitat for feeding, and both habitat types have been extensively cleared);
- increased probability of weed invasion due to external influences such as nutrient enrichment, drainage water or wind-blown material;
- increased risk of disease entry and subsequent reduction in habitat values; and
- adjacent land uses which may impact adversely on habitat values.

In extensively cleared *landscapes* fauna specialist species have declined as a result of habitat loss and in many cases are declining further as a result of natural attrition and an inability to recruit. For example, specialist bird species of heathlands and specialist bird species of woodlands in the wheatbelt and Swan Coastal Plain have declined at least in proportion to the loss of those habitats.

It may be necessary to identify, from the total pool of faunal species present, the species that would become (more) vulnerable if a habitat was lost. For example, in the fragmented habitats of the WA Wheatbelt, Lambeck (1997) found that birds were useful indicators of habitats.

To identify which species or communities may be vulnerable to local extinction, consideration should include whether:

- the breeding, sheltering and feeding sites within the subject land would be lost or reduced;
- the subject land provides an important linkage; or
- the habitat area would be reduced so that a breeding pair or functioning social group could not survive.

Examples

The following is likely to be at variance with this principle:

- clearing of native vegetation that is habitat for specially protected or threatened fauna;
- clearing of native vegetation that is habitat for meta-populations of fauna; and
- clearing of native vegetation that is necessary for the maintenance of habitat of priority, migratory, specially protected, threatened fauna or meta-populations of fauna.

Under this principle, a clearing proposal where only widespread fauna species are present, which are supported by the surrounding extensive, intact vegetation would not be at variance with this principle. An example could be common, widespread species of the Pilbara within extensive and intact Pilbara habitat.

Steps

To determine the likelihood of species or populations of *fauna that is otherwise significant*, ecological communities or their habitat within the site or its vicinity, an assessment should include the following considerations.

1. Consult fauna references and/or key agencies (Parks and Wildlife; WA Museum) to determine whether any specially protected or threatened fauna, *priority fauna* or otherwise significant fauna occurs within the geographic range of the land. Compile a field list of each of these species, and their habitat requirements.
2. Note the presence or absence of each of the specific habitat elements required by field list species. Identify relevant areas on the application area map.
3. Determine if any of the following habitats are present in the area where populations of fauna that is otherwise significant may exist:
   - foraging areas (food sources) – studies also need to record species that may only be present on a seasonal basis and rely on the vegetation in that season, e.g. nest hollows or an autumn food source;
   - trees with hollows;
   - abundance of ground cover and/or fallen trees;
   - caves, rock outcrops, overhangs or crevices;
   - permanent or intermittent waterways or water bodies; and
   - other (with a description).
4. Determine whether the habitat is part of either an ecological linkage or forms a large area of intact vegetation that may support meta-populations of fauna.
5. Note any signs of fauna presence, including distinctive scratches, nests, diggings, scats, pellets, calls, burrows, bones, etc. Record any sightings of fauna, including the habitat in which they were seen.

If the results of the assessment show the potential for significant fauna values, a

survey of fauna habitats and values may need to be undertaken. The scope of the survey will be determined on a case-by-case basis, but would be consistent with EPA Guidance Statement No.56. In marine environments, EPA Environmental Assessment Guidelines No.3 provides a set of principles to be applied when considering proposals that may result in removal or destruction of, or damage to, marine benthic primary producer communities or the habitats which support them.

Useful information sources for assessing principle (b)

- National Land and Water Resources Audit (NLWRA) – Current Extent of Native vegetation in Western Australia
- Pre-European vegetation / Mattiske vegetation / Heddle vegetation complexes;
- Regional Flora, Vegetation or Biological Surveys (e.g. Geraldton Regional Flora and Vegetation Survey, Albany Regional Vegetation Survey)
- Regional fauna surveys, assessments and habitat mapping (e.g. Summary of vertebrate fauna values of the area between Dawesville and Binningup, Southern Swan Coastal Plain (EPA), Parks and Wildlife Carnaby's cockatoo breeding and feeding areas or roosting sites dataset)
- Ecological linkages and corridors (e.g. South West Regional Ecological Linkage, Bush Forever, Swan Bioplan – Peel Regionally Significant Natural Areas)
- Significant wetlands and watercourses (e.g. Ramsar wetlands, Directory of Important Wetlands, conservation category wetlands)
- Specially protected, threatened and priority fauna lists and databases
- Recovery plans and interim recovery plans
- Aerial imagery
- Advice from Parks and Wildlife

Some spatial data are publicly available from Landgate's Shared Land Information Platform (SLIP). Parks and Wildlife's Naturemap also provides spatial data for flora and fauna distribution.

Additional information sources for applications assessed under the bilateral agreement

For assessments under the bilateral agreement, the following types of additional Commonwealth policies, plans and guidelines, where relevant and available should also be considered:

- bioregional plans;
- recovery plans and interim recovery plans (e.g. Chuditch (*Dasyurus geoffroii*) Recovery Plan 2012; Forest Black Cockatoo (Baudin's Cockatoo *Calyptorhynchus baudinii* and Forest Redtailed Black Cockatoo *Calyptorhynchus banksii naso*) Recovery Plan);
- threat abatement plans;
- strategic assessments;
- approved conservation advice under section 266B of the EPBC Act (e.g. Approved Conservation advice for *Calyptorhynchus banksii naso* (Forest Red-tailed Black Cockatoo; Approved Conservation Advice for *Myrmecobius fasciatus* (numbat); Approved Conservation advice for *Phascogale calura* (red-tailed phascogale));

- conservation agreements (e.g. Research and monitoring of the Western Ringtail Possum in urban development areas of Busselton and Bunbury (Satterley Property Group, Dalyellup Beach, The Housing Authority and Home Satterley Dalyellup));
- Matters of National Environmental Significance, Significant Impact Guidelines 1.1;
- Significant Impact Guidelines for 36 migratory shorebird species draft background paper;
- Western ringtail possum in the southern Swan Coastal Plain, WA 2009;
- Referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo, Baudin's cockatoo and Forest red-tailed black cockatoo;
- Referral guidelines for the northern quoll, *Dasyurus hallucatus*
- Commonwealth Department of the Environment Species of National Environmental Significance maps; and
- migratory species mapping.

Current copies of documents and datasets may be available on the Commonwealth Department of the Environment's website and the Species Profile and Threats Database.

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

Guidelines

Rare flora refers to flora that is declared as rare under section 23F of the *Wildlife Conservation Act* 1950 and gazetted from time to time in the *Wildlife Conservation (Rare Flora) Notice*.

This principle aims to provide for the continuing *in situ* existence of rare flora and protects habitat necessary for its maintenance. This principle also considers the buffer necessary to protect the rare flora from deleterious impacts by maintaining ecological processes and functions within the habitat of the surrounding vegetation.

Rare flora are protected under the *Wildlife Conservation Act 1950* and may not be taken except with the written consent of the Minister for Environment. The term "to take" includes "to gather, pluck, cut, pull up, destroy, dig up, remove or injure the flora or to cause or permit the same to be done by any means" and includes activities such as burning and grazing.

Areas within the buffer necessary to maintain ecological processes and functions for rare flora should not be cleared under this principle. The value of the subject land for the ongoing maintenance of rare flora should be determined. Buffer areas are measured from location of the flora, or in the case of more than one individual, from the outermost individual(s). The determination of a buffer as an ongoing and viable area to protect the rare flora and ecological processes and functions, should be made on a case-by-case basis, and is related to the characteristics of the species being protected and the surrounding land uses.

All studies must be undertaken by a suitably qualified person of a timing, duration and extent necessary for the adequate identification of rare flora.

Examples

The following is likely to be at variance with this principle:

- clearing of flora declared as rare or listed as threatened; and/or
- clearing of buffers or other areas necessary to maintain ecological processes and functions for rare flora.

Steps

To determine the likelihood of rare flora or habitat suitable for rare flora within the site or its vicinity, an assessment should be carried out which would ideally use the following approach:

1. Consult flora references and/or key agencies (Parks and Wildlife; WA Herbarium) for advice on the presence of known populations of rare flora, and site-specific studies for the presence of rare flora. This advice may attract a fee.
2. Refer to Parks and Wildlife's FloraBase and any appropriate regional or area-specific studies to determine whether habitats likely to support rare flora are present.

3. Compile a field list of each of the taxa that may occur within the geographic area and its habitat requirements. The appropriate geographic area for this should be determined on a case-by-case basis in consultation with Parks and Wildlife.
4. Note the presence or absence of each of the specific habitats recorded in the field list. Identify relevant areas on the property map.

Adequate assessment of this principle may not be possible as part of an assessment unless comprehensive and adequate site surveys to identify rare flora have been undertaken unless no habitat likely to be suitable for such species occurs.

The scope of a survey (if required) would be determined on a case-by-case basis, and should be consistent with EPA Guidance Statement No.51. Appropriate buffers would also need to be determined as part of this.

Useful information sources for assessing principle (c)

Threatened and priority flora database
- Declared Rare and Poorly Known Flora Wildlife Management Plans
- WA Herbarium Specimen Collection Database (FloraBase)
- Pre-European vegetation / Mattiske vegetation / Heddle vegetation complexes
- Regional Flora or Vegetation Surveys (e.g. Geraldton Regional Flora and Vegetation Survey, Albany Regional Vegetation Survey)
- Soil classification
- Advice from Parks and Wildlife

Some spatial data are publicly available from Landgate's Shared Land Information Platform (SLIP). Parks and Wildlife's Nature Map also provides spatial data for flora distribution.

Additional information sources for applications assessed under the bilateral agreement

For assessments under the bilateral agreement, assessments must have regard to relevant guidelines, policies and plans, including where available:
- bioregional plans;
- recovery plans and interim recovery plans (e.g. Badgingarra box (*Eucalyptus absita*); dwarf spider orchid (*Caladenia bryceana* subsp. *bryceana*); Dunsborough spider orchid (*Caladenia viridescens*));
- strategic assessments;
- approved conservation advice under section 266B of the EPBC Act (e.g. *Eucalyptus argutifolia, Grevillea flexuosa, Reedia spathacea, Scaevola macrophylla, Synaphea stenoloba*)
- survey guidelines (e.g. draft survey guidelines for Australia's threatened orchids)
- Matters of National Environmental Significance, Significant Impact Guidelines 1.1
- Commonwealth Department of the Environment Species of National Environmental Significance maps

Current copies of documents and datasets may be available on the Commonwealth Department of the Environment's website and the Species Profile and Threats Database.

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.

Guidelines

The aim of this principle is to provide for the continuing *in situ* existence of threatened ecological communities declared under section 51B of the EP Act to be environmentally sensitive areas and those listed under the *Environment Protection and Biodiversity Conservation Act 1999*. This principle also protects habitat necessary for the maintenance of these threatened ecological communities.

Vegetation that has a *bioregional conservation status* of *depleted* or worse (less than 50 per cent representation) is more likely to contain threatened or other significant ecological communities.

The principle also considers the buffer necessary to protect the ecological communities from deleterious impacts by maintaining ecological processes and functions within these habitats. Buffer areas are measured from outermost edge of the ecological community. To ensure an ongoing and viable area remains to protect the ecological communities and their ecological processes and functions, a buffer is recommended. This should be determined on a case-by-case basis and is related to the characteristics of the ecological communities being protected, and the surrounding land uses.

Examples

The following is likely to be at variance with this principle:

- clearing of native vegetation in which threatened ecological communities are present;
- clearing of native vegetation if habitat necessary for the maintenance of threatened ecological communities is present.

Steps

To determine the likelihood of occurrence of threatened ecological communities or their habitat within the site or its vicinity, an assessment should use the following approach:

1. Consult references and/or key agencies (Parks and Wildlife and the Commonwealth Department of the Environment Flora and Fauna databases)) for advice regarding known sites of threatened ecological communities declared by the Minister for Environment under section 51B or listed in the EPBC Act. This advice may attract a fee.
2. Refer to any appropriate regional or area-specific studies to determine whether areas are likely to support threatened ecological communities. These can be determined on a case-by-case basis in consultation with Parks and Wildlife.
3. Based on a site visit, determine whether habitats are present that may contain threatened ecological communities.

Adequate assessment of this principle may not be possible as part of an assessment unless comprehensive and adequate site surveys to identify threatened ecological communities have been undertaken or the habitat is unsuitable for such communities. The scope of a survey (if required) would be determined on a case-by-case basis, and should be consistent with EPA Guidance Statement No.51. Appropriate buffers would also need to be determined as part of this survey.

Useful information sources for assessing principle (d)

- Parks and Wildlife Threatened ecological communities data search
- Parks and Wildlife Threatened ecological community management plans, recovery plans or interim recovery plans
- Advice from Parks and Wildlife

Additional information sources for applications assessed under the bilateral agreement

Where threatened ecological communities listed under the EPBC Act or their likely habitat are found within the site or its vicinity, the assessment should also consider additional policies, plans and guidelines where relevant and available, including:

- bioregional plans;
- recovery plans and interim recovery plans (e.g. *Interim Recovery Plan for the Corymbia calophylla – Kingia australis* woodlands on heavy soil; Shrubland Association on Southern Swan Coastal Plain Ironstone (Busselton area));
- threat abatement plans;
- strategic assessments;
- approved conservation advice under section 266B of the EPBC Act (e.g. Approved Conservation Advice for Clay Pans of the Swan Coastal Plain; Approved Conservation Advice for Thrombolite Community of a Coastal Brackish Lake (Lake Clifton);
- conservation agreements;
- Matters of National Environmental Significance, Significant Impact Guidelines 1.1; and
- Stirling Range National Park Gazettal Notice, The West Kimberley Gazettal Notice.

Current copies of documents and datasets may be available under the relevant profile on the Commonwealth Department of the Environment's website and the Species Profile and Threats Database.

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.

Guidelines

This principle aims to maintain sufficient native vegetation in the landscape for the maintenance of ecological values. It also recognises the need to protect ecological communities that have been extensively cleared and to retain a representation of each ecological community in local areas throughout its pre-European range. It is in this principle that the cumulative impacts of clearing within a particular area should be considered.

The National Objectives and Targets for Biodiversity Conservation 2001–2005 recognise that the retention of 30 per cent or more of the pre-clearing extent of each ecological community is necessary if Australia's biological diversity is to be protected. This is the threshold level, below which species loss appears to accelerate exponentially and loss below this level should not be permitted. This level of recognition is in keeping with the targets recommended in the review of the National Strategy for the Conservation of Australia's Biological Diversity and in EPA Position Statement No.2 on Environmental Protection of Native Vegetation in Western Australia.

Ecological communities that are naturally rare or restricted may require substantially greater than 30 per cent of their pre-European extent to be retained for effective representation and ecological viability.

The level of 30 per cent representation within a bioregion does not consider the effect of habitat fragmentation and isolation. Studies have shown that larger areas of native vegetation generally support a greater number and diversity of species than smaller areas(e.g. Kitchener *et al*., 1980a; Kitchener *et al*. 1980b; Kitchener *et al*. 1982), and that smaller areas are more vulnerable to edge effects and other disturbances. Habitat fragmentation acts to reduce the area of available habitat. Representation levels may need to be increased considerably above 30 per cent in already fragmented landscapes in order to maintain biodiversity.

A typical pattern of vegetation clearing in highly fragmented landscapes (for example from analysis of vegetation in the Greater Bunbury Regional Scheme study area) shows that relatively few large remnants remain, and the vast majority of remnant areas are small, mostly less than five hectares. In these fragmented landscapes, larger remnants should be retained as a priority as they provide core habitat areas necessary to support populations of species that are unable to survive in smaller areas of native vegetation. Note that these areas should also be significant when assessed against Principle (a) and Principle (b).

In extensively cleared landscapes the task of mapping and classifying the extent of woody vegetation remaining becomes increasingly more complex as areas of native vegetation become smaller and more fragmented, and the quality of the vegetation more variable. Thus in fragmented landscapes the estimates of remaining native vegetation are less reliable. In these areas mapping is likely to incorporate aggregations of trees and degraded native vegetation with limited understorey component, as well as intact native bushland. There is also likely to have been some

further reduction in vegetated areas since the information was captured. Therefore the current area of intact native vegetation is likely to be significantly less than the indicated figure.

To perform some ecosystem services, retention of more than 30 per cent of some ecological communities may be necessary; for example, retention of riverine vegetation is necessary to assist in maintaining healthy river systems or to maintain hydrological balance in areas at risk of salinity.

In some areas there may be less than 30 per cent of pre-European extent of native vegetation in good condition if the systems are degraded for example in the rangelands. These areas may be significant despite an overall level of greater than 30 per cent of pre-European extent remaining.

EPA Guidance Statement No.10 includes criteria for the identification of regionally significant natural areas in the System 6 / part System 1 region (outside the Bush Forever study area). The criteria include representation of ecological communities, diversity, rarity, maintaining ecological processes or natural systems, scientific or evolutionary importance and general criteria for protection of wetland, streamline, and estuarine *fringing vegetation* and coastal vegetation. In applying the criteria, individual area attributes are considered including size and shape, vegetation condition and uplands and wetlands.

EPA Guidance Statement No. 33 provides information and advice on a range of environmental issues and their protection and management in the context of planning and development. It is of particular use in relation to *constrained areas*.

Examples

The following is likely to be at variance with this principle:

- clearing of native vegetation which contains habitat for a threatened fauna species and is below the national target and objective for biodiversity conservation;
- clearing of biologically diverse remnant vegetation within an extensively cleared landscape;
- clearing of remnant vegetation which is part of a significant ecological linkage and is located within an extensively cleared landscape; and/or
- clearing in landscapes where the existing vegetation is required to maintain ecosystem services (e.g. hydrological processes), or to compensate for a high degree of fragmentation.

Under this principle, clearing in areas with greater than 30 per cent native vegetation is not likely to be at variance if there is greater than 30 per cent of the total vegetation in the local area and within the bioregion in ‘good’ condition. A Jarrah-Marri forest that is in an area with significant forests on public land may be an example.

It is important to consider the context and condition of vegetation in assessing this principle.

Steps

Remnant vegetation data exist for the whole state, but reliable statistics are difficult to obtain. To determine whether there is significant remnant vegetation present, an assessment should be carried out using the following approach.

1. Determine the ecological communities within the application area. The best available knowledge should be used in determining the ecological communities in an area.

   Vegetation complexes, which are mapped for the extent of the Swan Coastal Plain in the System 6 and System 1 Region (Heddle *et al*., 1980; Mattiske & Havel, 1998) and the area covered by the Regional Forest Agreement, which includes the Jarrah Forest bioregion within System 6 (Havel *et al.,* 2000), are used as the base mapping of ecological communities.

   On the Swan Coastal Plain, this should be supplemented by information on floristic community types (Gibson *et al*., 1994), (Department of Environmental Protection, 1996). Where more detailed vegetation mapping in not available, *vegetation types* as defined by Beard (1990) are used as the base mapping of ecological communities.

2. Determine the percentage remaining of these types within the bioregion, subregion and local area. This can be determined using the *vegetation type* / vegetation complex and floristic community type at Interim Biogeographic Regionalisation for Australia (IBRA) region and subregion scale and the local area of that type.

3. Determine if the application area is a constrained area (including urban, urban deferred or industrial) within the constrained area of urban development.

   In recognition of past land use planning decisions, constrained areas have been identified on the Swan Coastal Plain of the Greater Bunbury Region Scheme, Peel Region Scheme and within the Bush Forever study area. Within these constrained areas, retention objectives may be varied to “at least 10%”. However, other principles do apply within these constrained areas, subject to exemptions for assessed schemes and deemed works of subdivisions. This includes the need to recognise locally significant bushland.

   Outside of these defined constrained areas of the Perth Metropolitan, Peel and Greater Bunbury Region Schemes, the target (noting that in many regions clearing has proceeded well beyond this point) to achieve at least 30 per cent representation applies.

4. Determine the degree of fragmentation of the local area, and consider that highly fragmented landscapes and naturally rare or restricted ecological species require a high level of representation to maintain a full suite of values for the long term.

5. Determine the significance of the remnant vegetation through review of biodiversity-related information sources, including flora, fauna and ecological community databases.

Useful information sources for assessing principle (e)

Interim Biogeographic Regionalisation for Australia (IBRA bioregions)
Pre-European vegetation / Mattiske vegetation / Heddle vegetation complexes

- Regional Flora or Vegetation Surveys (e.g. Geraldton Regional Flora and Vegetation Survey, Albany Regional Vegetation Survey),
- Region schemes (e.g. Metropolitan Region Scheme, Greater Bunbury Region Scheme, Peel Regional Scheme)
- Bush Forever
- State Planning Policy 2.8 Bushland Policy for the Perth Metropolitan Region
- EPA Position Statement No.2 Environmental Protection of Native Vegetation in Western Australia
- Aerial imagery
- Regional ecological linkages (e.g. South West Regional Ecological Linkages)
- National Land and Water Resources Audit (NLWRA) – Current Extent of Native vegetation in Western Australia

Many vegetation maps and vegetation statistic reports are publicly available from Landgate's Shared Land Information Platform (SLIP).

Additional information sources for applications assessed under the bilateral agreement

For applications assessed under the bilateral agreement the assessment should also consider additional policies, plans and guidelines where relevant and available, including:

- bioregional plans;
- recovery plans and interim recovery plans;
- threat abatement plans;
- strategic assessments;
- approved conservation advice under section 266B of the EPBC Act;
- conservation agreements; and
- Matters of National Environmental Significance, Significant Impact Guidelines 1.1.

Current copies of documents and datasets may be available under the relevant profile on the Commonwealth Department of the Environment's website and the Species Profile and Threats Database.

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.

Guidelines

This principle aims to conserve vegetated watercourses and wetlands and their buffers. In this principle, the word "association" refers to the buffer area. The criteria consider both the area identified as watercourse or wetland and an appropriate buffer required to maintain the hydrological and ecological values of the watercourse or wetland. The watercourse or wetland buffer generally commences from the outside edge of the native vegetation dependent on seasonally or intermittently waterlogged soil. Under this principle, vegetation dependent on seasonally or intermittently waterlogged soils is considered to be part of a wetland, watercourse or buffer (e.g. damplands and floodplains) and would be protected.

Watercourses and wetlands are an integral part of the environment, have diverse ecological functions and support a wide range of activities including agriculture and tourism. Watercourses provide important linkages between landforms in our predominantly dry landscape. Wetlands are widely recognised as important wildlife habitats and as being among the most biologically productive and diverse habitats on the planet. They directly and indirectly supply food to a broad range of animals and also serve important water purification functions. Both watercourses and wetlands support specialist plant assemblages and restricted plant species. However, as a result of human land use and inappropriate management, many have been degraded.

Buffers are designed to protect watercourse and wetland vegetation from potentially deleterious impacts caused by surrounding land uses. Buffers aid in safeguarding and maintaining the ecological processes and functions occurring directly within or adjacent to watercourses or wetlands and, wherever possible, promote these processes within the buffer itself. For wetland and watercourse ecosystems, the buffers are measured from the edge of the boundary, which encompasses both waterlogged and inundated areas and the wetland-dependent vegetation, to the outside edge of any proposed development or activity. For example rushes, melaleucas/paperbarks and flooded gums are included as part of the wetland or watercourse. The buffer may include dryland areas with dryland vegetation community types (e.g. certain banksia woodlands).

For watercourses the process for determining appropriate buffer areas should be based on biological and physical criteria. These criteria are summarised as, but not limited to, vegetation, hydrology, soil type, erosion, geology, climate, topography, function/uses, habitat, land use and heritage.

For wetlands, the Parks and Wildlife wetlands webpage, and Guideline for the Determination of Wetland Buffer Requirements provides recommended buffer widths for certain land uses. EPA Position Statement No. 4 has as a goal of "no net loss of wetland values and functions" and recognises the need for appropriate buffers to ensure adequate protection of these values.

Biological communities associated with groundwater-dependent ecosystems, such as wetlands, groundwater-dependent terrestrial vegetation, cave streams and springs, have adapted to existing water regimes. Clearing can alter these regimes and cause

degradation of existing biological communities. Degradation could result in local extinction of vegetation species, loss of diversity of fauna or loss of habitat diversity.

Where groundwater-dependent ecosystems are likely to be affected by changes in water table caused as a result of clearing, assessment of the ecological water requirements of groundwater-dependent ecosystems (generally by qualified ecologists) may be required. Hydrogeological modelling can then be used to ensure that the proposed clearing of native vegetation does not breach the water level criteria.

On the Swan Coastal Plain, groundwater-dependent ecosystems most likely to be affected by a rising water table are those in areas with a depth to groundwater of zero to six metres.

Examples

Under this principle, clearing of native vegetation that is watercourse or wetland dependent is likely to be at variance (e.g. damplands and floodplains).
Clearing of native vegetation that is growing within the identified or known buffer of a watercourse or wetland, is also likely to be at variance.

Steps

To determine whether vegetation is associated with a wetland or watercourse an assessment should be carried out to include the following.

1. Identify watercourses and wetlands including their associated riparian zones, wetland-dependent vegetation and appropriate buffers.

   Determine whether the watercourse or wetland is listed as significant. These include those listed as:
   - *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992;*
   - *Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998;*
   - *Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992;*
   - conservation category wetlands in the geomorphic wetland maps available from Parks and Wildlife;
   - significant wetlands of the South Coast Region;
   - wetlands listed under the Ramsar Convention;
   - wetlands in the *Directory of Important Wetlands in Australia* available from the Commonwealth Department of the Environment;
   - other wetlands and watercourses declared under section 51B of the EP Act as environmentally sensitive areas;
   - wild rivers identified by the DoW; and
   - watercourses and wetlands listed in EPA Redbook Recommended Conservation Reserves 1976-1991 (systems 1-12).

   Sources of information that will aid in the identification of significant watercourses and wetlands are listed below. This is not a definitive list. Parks and Wildlife (wetlands) and DoW (watercourses) offices should be contacted to ensure the most up to date information for the area is used. Information is limited for areas outside the south-west of Western Australia.

- Swan Coastal Plain wetland mapping is available in Hill *et al.,* (1996) *Wetlands of the Swan Coastal Plain Volume 2B: Wetland Mapping, Classification and Evaluation*. Wetland Atlas.
- Additional wetland mapping around the state is provided in the following reports:
  - V & C Semeniuk Research Group (2000) *Wetlands of the northwestern Great Sandy Desert in the LaGrange hydrological sub-basin.* Unpublished report for the Water and Rivers Commission.
  - V & C Semeniuk Research Group (2000) *Wetlands of the Pilbara Region: description, consanguineous suites, significance.* Unpublished report for the Water and Rivers Commission.
  - V & C Semeniuk Research Group (1994) *Ecological Assessment and Evaluation of Wetlands in the System 5 Region.* Report to the Australian Heritage Commission.
  - V & C Semeniuk Research Group (1998) *Evaluation of Wetlands on the Southern Swan Coastal Plain.* Unpublished report for the Water and Rivers Commission.
  - Pen, L. (1997) *A Systematic Overview of Environmental Values of the Wetlands, Rivers and Estuaries of the Busselton-Walpole Region.* WRC Report # WRAP 7.
  - V & C Semeniuk Research Group (1997) *Mapping and Classification of Wetlands from Augusta to Walpole in the South West of Western Australia.* WRC Report # WRT12.
  - V & C Semeniuk Research Group (1998) *Preliminary Delineation of Consanguineous Wetland Suites Between Walpole and Fitzgerald Inlet, Southern Western Australia.* Unpublished report for the Water and Rivers Commission.
  - V & C Semeniuk Research Group (1999) *Preliminary Delineation of Consanguineous Wetland Suites in the Pallinup-North Stirling Region, South Western Australia.* Unpublished report for the Water and Rivers Commission.
  - ecologia Environmental Consultants (2000) *A Preliminary Evaluation of Wetlands in the Esperance Water Resource Region.* Unpublished report for the Water and Rivers Commission.

2. Determine appropriate buffers (where necessary) for watercourses and wetlands. Additional information that may aid in the application of buffers to watercourses and wetlands:
   - Parks and Wildlife Wetlands webpage;
   - Water and Rivers Commission Restoration Report no. 16 *Determining Foreshore Reserves;*
   - Guide to Water and Rivers Commission Foreshore Policy 1: *Identifying the Foreshore Area;* and
   - DEC 2009 Soil and Water Conservation Guideline.

Watercourse and wetland buffers

In order to protect a watercourse or wetland and its associated vegetation, a *foreshore area* or buffer is determined based on an assessment of the biological and physical features associated with the watercourse or wetland, and its values and threatening processes associated with adjacent land use. The features to be used in the assessment are known as 'biophysical criteria'.

These criteria can be summarised as, but are not limited to, the following:

- vegetation – fringing vegetation and native vegetation associated with or influencing the watercourse or wetland, and its condition or value;
- hydrology – processes and changes in water levels and flow regimes; water quality; flood-prone land and areas subject to changes in channel location over time;
- soil type – soil types that influence the extent of fringing vegetation, active channel processes or wetland processes, and/or the fate of potential contaminants;
- erosion – soil types prone to erosion;
- geology – geological features which influence the watercourse or wetland;
- climate – climatic variations and resultant changes in flow regimes, vegetation etc
- topography – landscape features including slope, shape, relief and diversity that influence, or are influenced by, the watercourse or wetland;
- function/uses – the function of the watercourse or wetland and foreshore area or buffer area – flood protection, recreation or habitat conservation—and relative values;
- habitat – habitats such as river pools, woody debris, riffles and fringing vegetation and their condition and values;
- land use – land uses, activities and/or associated contaminants that influence, or are influenced by, the riparian area or fringing vegetation (i.e. how the pressure / contaminant may affect the buffer / watercourse / wetland and how the buffer / watercourse / wetland may affect the pressure / contaminant); management response to contamination; and
- heritage – archaeological and ethnographic sites.

The Department of Water's operational policy 4.3 Identifying and establishing waterways foreshore areas provides some guidance on compatible land or water activities for foreshore areas or buffers. However, within a buffer area there is a presumption against supporting any activity likely to degrade its protective function, including activities that are likely to require, cause, or result in the following: clearing, filling, mining, drainage into or out of, effluent discharge into, pollution of, or environmental harm.

Details of how to use biophysical criteria to determine the size or width of a foreshore area or watercourse buffer, including the underlying rationale, can be found in the

Department of Water Guidance Note 6—Identifying and establishing waterways foreshore areas.

Wetland buffers are determined using a similar, biophysical assessment process. For a guide to wetland buffer requirements refer to the Parks and Wildlife wetlands webpage.

Useful information sources for assessing principle (f)

- Wild Rivers
- Geomorphic Wetland Mapping and other wetland mapping where available
- Environmental Protection Policy wetland mapping
- Ramsar wetlands
- A Directory of Important Wetlands in Australia (ANCA)
- Hydrology (linear and hierarchy)
- Topographical contours, geology, soil and climate mapping
- Vegetation complex mapping
- Aerial photography

Some spatial data are publicly available from Landgate's Shared Land Information Platform (SLIP), Parks and Wildlife's WetlandBase and DoW's Geographic Data Atlas.

Additional information sources for applications assessed under the bilateral agreement

Where an application has been determined to have, or likely to have a significant impact on a matter of NES, such as a Ramsar wetland, the assessment must have regard to relevant polices, plans and guidelines including the following documents, as available and relevant:

bioregional plans;

- recovery and interim recovery plans;
- threat abatement plans;
- strategic assessments;
- approved conservation advice under section 266B of the EPBC Act;
- Significant Impact Guidelines 1.1; and
- ecological character descriptions for individual sites including Eighty Mile Beach, Forrestdale and Thomsons Lake, Lake Gore, Lake Warden System, Lakes Argyle, Kununurra, Muir-Byenup System, Ord River Floodplain, Peel-Yalgorup System, Roebuck Bay, Toolibin Lake and Vasse-Wonnerup System.

Current documents and datasets may be available on the Commonwealth Department of the Environment website.

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

Guidelines

This principle aims to maintain sufficient native vegetation in the landscape to prevent land degradation. Native vegetation should not be cleared if it is likely to cause land degradation. This includes soil erosion, salinity, nutrient export, acidification, waterlogging and flooding that affect the present or future use of land.

The assessment of land degradation risk takes into consideration a number of often interacting factors including soil type, landform and slopes, rainfall zone and intended land use.

Land capability

Generally land of low or very low capability for its intended use should not be cleared. Such land has severe physical limitations not usually overcome by standard development techniques and/or has a high risk of land degradation. For example, the clearing of sand dunes or areas of deep pale sands for crops and pasture production may result in increased ground water recharge, surface water runoff, soil erosion or nutrient export.

Soil erosion

Soil erosion generally occurs where there is insufficient vegetative cover to protect soils from high intensity winds and rainfall. In the south-west land division, the vulnerability of land to water erosion is dependent upon a combination of factors including rainfall intensity, soil properties (soil type, organic matter, structure and permeability), slope length and gradient, land use and soil conservation practices. In general, land with slopes greater than nine per cent should not be cleared.

In the arid tropics, high intensity rainfall is commonly experienced and severe soil erosion can occur on land with as little as one to two per cent slopes if it is cleared and/or cultivated. Land use systems that maintain greater than 2.5 tonnes/ha of standing dry matter are usually required to achieve soil stability on such land.

The rangelands comprise a diverse range of soils and land forms, including some that are particularly prone to wind and water erosion. Many potentially erodible soils are protected by stony mantles. Accelerated erosion usually occurs where the protective vegetation or stony mantles are removed or natural flow regime (often sheet flow) is altered. Once gullies have established, vegetation communities down gradient that are dependent upon receiving sheet flows can be seriously compromised.

Wind erosion risk is determined by a combination of soil strength, structure, particle size and landform. Thus fine loose sands on a dune or exposed flat plain are particularly prone to erode. Similarly fine textured kopi soils in and around salt lake systems are particularly prone to erode if cleared and can be difficult to stabilise and rehabilitate.

In the rangelands, loss of nutrient-rich top soil and leaf litter through wind and water erosion greatly reduces productivity and when severe can cause scalding. Scalds tend to become permanent landscape features. Alluvial plains adjacent to rivers are particularly prone to erosion.

Soil acidity

Soil acidification results in a lack of crop performance and can occur after clearing certain soil types. In the northern and central agricultural regions, yellow sand plain soils supporting wodgil vegetation should be tested for pH and risk of aluminium toxicity. Generally soils that show pH<4.0 in 1:5 0.5M KCl and >20 µM Al are unsuitable for crop and pasture production. Such land is a wind erosion risk as well as increased groundwater recharge causing salinity down gradient.

Localised soil acidity may also occur where pyritic material is exposed to air and rainfall. The resulting acid run off or drainage water will kill most vegetation and may have severe impacts on wetlands systems.

Salinity

Dryland salinity occurs where the hydrological balance has been altered by clearing and the subsequent land use. It is an intractable problem of the medium and low rainfall zones of the wheatbelt on soils developed over crystalline rock. Irrigation salinity is dependent upon soil type, water quality and water management practice.

Risk assessment is site-specific and takes into account average annual rainfall; catchment information including soil types, landform, underlying geology and hydrology; and the intended use of the land after clearing.

Examples

Under this principle, the following types of clearing are likely to be 'at variance':

- clearing of land that is likely to increase salinity either on site or off site;
- clearing of land that is likely to increase waterlogging either on site or off site;
- clearing of land that is likely to result in nutrient export;
- clearing of land that is likely to increase water and wind erosion on site or off site; and
- clearing of land that is likely to increase in soil acidity.

Steps

Advice on land degradation is available from the Commissioner of Soil and Land Conservation (at DAFWA).

Soil-landscape and land capability mapping is available on the Natural Resource Management Shared Land Information Platform. Land capability refers to the ability of land to support a type of land use without causing damage. The DAFWA *Technical Report 298: Land evaluation standards for land resource mapping: assessing land qualities and determining land capability in South-Western Australia* (van Gool, et al., 2005) provides further detail on land use capability assessment. Information is available from www.agric.wa.gov.au

The *Report card on sustainable natural resource use in agriculture—status and trend in the agricultural areas of the south-west of Western Australia* (Department of

Agriculture and Food WA, 2013) provides information on the condition (or risk to condition) and trend in condition of the natural resources that support agriculture.

GIS databases can highlight potential dry land salinity, groundwater salinity, and erosion risk using topographic contours to determine slope gradient.

Useful information for assessing principle (g)

- Salinity risk / mapping / monitoring
- Groundwater salinity, confined / superficial aquifers
- Soils, statewide
- Land System Mapping (Kimberley / Rangelands)
- Topographic contours
- Rainfall, Mean Annual
- Hydrology / hydrogeology
- Geomorphic Wetland Mapping and other wetland mapping, where available
- DAFWA Land Degradation Report and advice from the Commissioner of Soil and Land Conservation including Ag Maps, where available

Some spatial data are publicly available from Landgate's Shared Land Information Platform (SLIP) and DAFWA's Natural Resource Management Shared Land Information Platform.

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.

Guidelines

This principle aims to ensure that the conservation values of *conservation areas* are not reduced as a result of native vegetation clearing.

Habitat fragmentation poses one of the greatest threats to biodiversity. When core habitat reserves are isolated from one another by human land uses, the diversity of native species generally declines and the probability of species extinction increases. This process of ecosystem decay has been well-documented in fragmented landscapes throughout the world.

Ecological linkages and buffers in the context of this principle contribute to the functioning and viability of existing conservation estate by:

- establishing connectivity between conservation areas and other areas of native vegetation;
- contributing to the maintenance or restorability of one or more key ecological processes required to sustain the conservation areas; and
- expanding the functional size of an existing conservation area or partially compensating for less than ideal shape.

The basic ecological functions of smaller, remnant natural areas can only be maintained through connectivity with the broader natural landscape.

Native vegetation adjacent to or near conservation reserves improves the viability and conservation values of the reserve by providing larger core areas, buffering the reserve from edge effects, consolidating boundaries or adding plant communities and habitats not represented or under-represented in the reserve. The size of a buffer to be effective will depend on the vegetation types present and their resilience.

Ecological linkages of vegetation between larger areas of conservation value are important for enabling fauna to continue to move through the landscape and between reserves. This is vital both for species that are nomadic and for maintaining populations of less mobile species that may otherwise become locally extinct in individual reserves.

Remnant patches within the vicinity of large contiguous areas of native vegetation (outliers) are more likely to support wildlife than more isolated patches – with greater separation distances fewer species will have the mobility necessary to maintain access.

Steps

To determine whether native vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area an assessment should be carried out to include the following:

1. Determine if land held or managed for conservation is present (see information sources section below).

2. Determine whether the land provides a buffer, ecological linkage or outlier to a conservation area. These may include areas that provide large, regional connections to conservation areas and buffer the conservation area from adverse impacts. Alternatively, a narrow, disjunct, impacted, or otherwise tenuous habitat linkage connecting to conservation areas may exist. These are essential to maintain landscape-level connectivity, but are particularly in danger of losing connectivity function. An example is a narrow peninsula of habitat, surrounded by a human-dominated land uses, that connects larger habitat blocks, such as the South Coast Region Macro-corridor project.
3. Factors to consider in determining whether an area has a function as an ecological linkage or buffer, or contributes significantly to the environmental values of a conservation area include:
   - distance to the conservation area and between other possible ecological linkages;
   - size and shape of the ecological linkage or buffer;
   - types of habitats (riparian, coastal, woodland, etc.) present within the linkage or buffer and key focal species and ecological processes that may be present that would indicate connectivity;
   - types of land cover (e.g. natural vegetation, pastoral/grazing, cropland/irrigated agricultural, low density residential, etc.) within and immediately adjacent to the linkage;
   - primary barriers that are impediments to faunal movement, gene flow and ecological processes (dirt road, agriculture, urban areas); and features that facilitate these within a linkage (watercourses, riparian habitat, continual habitat coverage, underpasses,); and
   - any studies that exist to demonstrate the use and functions of the linkage or buffer, including any anecdotal evidence or field studies conducted on this particular linkage or buffer.
4. Determine if the land provides habitats not well represented on the conservation land. Less than 15 per cent representation in conservation reserves is a benchmark.

Useful information sources for assessing principle (h)

- Parks and Wildlife managed lands and waters spatial data
- Bush Forever
- Conservation covenants and agreements to reserve under the *Soil and Land Conservation Act 1945* (registered as a memorial on the Certificate of Title)
- Parks and Wildlife or other conservation covenants and binding agreements
- Significant wetlands and watercourses (e.g. Ramsar wetlands, Directory of Important Wetlands, conservation category wetlands)
- Ecological character descriptions for individual sites including Eighty Mile Beach, Forrestdale and Thomsons Lake, Lake Gore, Lake Warden System, Lakes Argyle, Kununurra, Muir-Byenup System, Ord River Floodplain, Peel-Yalgorup System, Roebuck Bay, Toolibin Lake and Vasse-Wonnerup System
- World or National Heritage areas or biosphere reserves
- WA Environmental Offsets Register

- Perth Biodiversity Project Local Biodiversity Guidelines and subsequent Local Biodiversity Plans for regional and local ecological linkages and Local Biodiversity Areas with high priority for retention and protection (i.e. Local Conservation Areas or shire reserves with a dual vesting purpose)
- Ecological linkages such as SWERL, Bush Forever
- Aerial imagery

Additional information sources for applications assessed under the bilateral agreement

Where an application has been determined to have, or likely to have a significant impact on a matter of NES, the assessment must have regard to relevant polices, plans and guidelines including the following documents, as available and relevant:

- bioregional plans;
- recovery plans and interim recovery plans;
- threat abatement plans;
- strategic assessments;
- Significant Impact Guidelines 1.1; and
- conservation advice and notices (e.g. Purnululu National Park Statement of Outstanding Universal Value, Shark Bay, Western Australia Statement of Outstanding Universal Value, The Ningaloo Coast Statement of Outstanding Universal Value Porongurup National Park Gazettal Notice, Purnululu National Park Gazettal Notice, Shark Bay Western Australia Gazettal Notice, Stirling Range National Park Gazettal Notice, The Ningaloo Coast Gazettal Notice, The West Kimberley Gazettal Notice.

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.

Guidelines

This principle considers biological, chemical and physical parameters, and water quantity as far as these affect overall environmental quality of surface and groundwater. This principle aims to ensure that the quality of water supplies is not reduced, that salinity, pH or levels of nutrients in water bodies and discharge water, are not significantly altered by clearing, and that water regimes and environmental water provisions are not adversely affected.

The assessment should consider both on-site and off-site impacts, so that problems are not transferred from the cleared site to another part of the catchment or aquifer.

Within Public Drinking Water Supply Catchments, the impacts of clearing must be compatible with the Public Drinking Water Supply Catchments guidelines and Water Source Protection Plans.

In certain controlled catchments reserves under the *Country Areas Water Supply Act 1947* (CAWS), clearing controls are in place to prevent salinity. If clearing is proposed within these areas, DER can advise the applicant whether a clearing permit and/or a CAWS licence are required. Clearing may be restricted through compensation payments or due to location in the catchment and salinity risk.

Consideration should be given to clearing that may be likely to significantly alter the salinity or pH of water tables. Consideration should also be given to the possibility that sedimentation, erosion, turbidity or *eutrophication* of water bodies on or off site is likely to be caused or increased.

It need to be noted that clearing of relatively substantial areas of vegetation can alter existing water regimes and cause degradation of groundwater-dependent ecosystems (discussed under Principle (f)). Degradation could result in local extinction of flora species or ecological communities, loss of diversity of fauna or loss of habitat diversity.

Examples

Under this principle, the following types of clearing are likely to be at variance:

- clearing of native vegetation where the clearing is likely to lead to adverse environmental impacts through sedimentation of water bodies;
- clearing of native vegetation where the impacts of the clearing are likely to contribute to increased nutrient levels in the catchment;
- clearing of native vegetation where there is potential for low pH waters and/or acid sulphate soils to form as a result of clearing;
- clearing of native vegetation where the impacts of the clearing are likely to contribute to increased salinity in catchments already affected by or likely to be affected by salinity; and

- clearing of native vegetation where the clearing is likely to lead to changes in water regimes of, or result in breaches of environmental water provisions for, groundwater-dependent ecosystems (GDEs) on or off site and subsequent degradation of the biological communities associated with these systems.

Steps

An assessment should include consideration of the following factors.

General

The Interactive Geological Map (DMP) is available online and identifies soil types and geomorphology.

Groundwater

1. Locate Water Information Network (WIN) sites, estimate depth to water table, and obtain existing water quality readings and drilling project reports from the Water Information Reporting website.
2. Consult salinity risk mapping series to identify if salinity (electrical conductivity) is rising in the area (south-west only). If it is, then obtain all water quality monitoring parameters from WIN and look at the long-term trend, focusing on pH and electrical conductivity.
3. Where clearing is likely to have a high impact on groundwater, advice should be sought from DoW. Hydrogeological modelling may be necessary to determine the likely spatial and temporal extent and magnitude of impact on the water table of clearing, particularly where large areas of vegetation are proposed to be cleared.

   Where GDEs are likely to be affected by water table rises, assessment of the ecological water requirements of GDEs (by qualified ecologists) may be required. Hydrogeological modelling can then be employed to ensure that the proposed clearing of native vegetation does not breach the water level criteria.

Surface water

1. Identify the nearest WIN surface water site and view historical pH, electrical conductivity and nitrogen and phosphorus readings. The Phosphorus Retention Index (PRI) may be useful to determine the nutrient capacity of the soils. If there is a trend, then obtain all WIN readings for the area and consider long term trends.
2. Determine nutrient trends for wetlands in the catchment where data exist. Determine soils in the catchment and their risk of erosion and nutrient holding capacity.
3. Determine soil types in the catchment and the risk of erosion of nutrient-rich soil particles and/or leaching. No increase in nutrient levels is acceptable in systems with a trend towards elevated nutrient levels.

4. In other areas, determine whether soil types have the potential to generate acid sulfate soils. Consult the Acid Sulfate Soils Guideline Series for information on this. Consider any previous studies carried out in the area.

   Within the north-west of the state, mangrove areas and tidal flats provide the main indicator of conditions that may potentially result in acid sulfate soils and low pH waters.

   In the southwest, the situation is more complex. The following geomorphic or site description criteria should be used to determine if acid sulfate soils are likely to be present within the south-west:

   - land with elevation less than five metres AHD;
   - soil and sediment of recent geological age (Holocene);
   - marine or estuarine sediments and tidal lakes;
   - low-lying coastal wetlands or back swamp areas, waterlogged or scalded areas, stranded beach ridges and adjacent swales, interdune swales or coastal sand dunes;
   - coastal alluvial valleys;
   - areas where the dominant vegetation is tolerant of salt, acid and/or waterlogging conditions e.g. mangroves, saltcouch, swamp-tolerant reeds, rushes, paperbarks (*Melaleuca* sp.) and swamp oak (*Casuarina* sp.); and
   - areas identified in geological descriptions or in maps as:
     - bearing sulfide minerals,
     - coal deposits or marine shales/sediments (geological maps and accompanying descriptions may need to be checked), and
     - deep older estuarine sediments below ground surface of either Holocene or pre-Holocene age.

   The Acid Sulfate Soils Guideline Series available from DER provides further information on this issue.

Useful information sources for assessing principle (i)

- Salinity risk / mapping / monitoring (Land Monitor)
- Public Drinking Water Source Areas (PDWSA)
- Acid sulfate soil risk mapping
- WIN groundwater sites (monitoring / Water Corporation / other)
- WIN surface water sites (stream gauging, other)
- WIN telemetry sites and uncatalogued sites
- Evaporation isopleths
- Isohyets
- Topographic contours
- Groundwater salinity, confined / superficial aquifers
- Hydrography, linear, catchments, sub-catchments
- Rainfall, mean annual
- Potential groundwater-dependent ecosystem areas
- Geodata, Lakes
- Surface water / groundwater areas, irrigation districts, rivers under the *Rights in Water and Irrigation Act 1914*
- *Country Area Water Supply Act 1947* Clearing Control Catchments
- Environmental Protection (Swan Coastal Plain Lakes) Policy 1992

- Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998
- Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992
- Geomorphic Wetland Mapping

DoW has published a variety of documents and databases which may assist with the collection of information relevant to this principle including the Geographic data atlas, Hydrogeological data atlas, Perth groundwater atlas, Proclaimed area maps, Water Quality Protection Notes and the Water Information Reporting website.

Some spatial data are publicly available from Landgate's Shared Land Information Platform (SLIP).

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

Guidelines

This principle aims to ensure that there is no increase in the frequency or intensity flooding resulting from native vegetation clearing.

Consideration of this principle may require extensive modelling of the whole catchment and should only be considered for large clearing proposals.

For smaller applications, clearing should not cause waterlogging (localised flooding). This is already considered under principle (g) (land degradation). Flooding and/or waterlogging may also exacerbate criteria under principle (i) such as salinity, sedimentation, low pH waters or eutrophication, or result in unacceptable changes in water regimes or environmental water provisions, both on and off site.

Steps

To determine if clearing the vegetation is likely to cause, or exacerbate the incidence of flooding an assessment should consider the following factors:

1. Determine possible waterlogging problems using the following indicators:
- soil compaction and infiltration,
- soil profile depth,
- soil drainage/recharge rates,
- perched water tables – groundwater contours and monitoring well water levels could be considered,
- waterlogging observed on adjacent properties, and
- catchment mapping.

2. Floodplain mapping for major towns (1 in 100 year flood levels).

3. Determine possible waterlogging problems using the following indicators:
- soil compaction and infiltration,
- soil profile depth,
- soil drainage/recharge rates,
- perched water tables – groundwater contours and monitoring well water levels could be considered, and
- waterlogging observed on adjacent properties.

4. Floodplain mapping for major towns (1 in 100 year flood levels).

Useful information sources for assessing principle (j)

- Evaporation Isopleths
- Hydrography, hydrographic linear and hydrographic catchments;
- Hydrogeology
- Aquifers
- Topographic contours
- Rainfall, mean annual
- Watercourse and wetland mapping

- Floodplain mapping
- Catchment mapping
- Soil classification
- Aerial imagery

To assist in the collection of data, the DoW Hydrogeological Atlas and Geographic Data Atlas contains a number of useful databases and spatial information. Some spatial data are publicly available from Landgate's Shared Land Information Platform.

To further determine the risk of flooding, hydrological modelling or hydrological advice maybe required as part of a secondary assessment.

Planning instruments and other relevant matters

Planning instruments

In considering a clearing matter under section 51O of the EP Act, the CEO shall have regard to any planning instrument and other relevant matters when making decisions as to clearing permits.

When assessing planning instruments, relevant local and regional level planning strategies, by-laws and policies should be considered as part of the recommendations to the CEO. Examples of these include local biodiversity guidelines and related local biodiversity plans prepared by local government, or regional planning strategies dealing with public infrastructure.

The EPA's Environmental Protection Bulletin No. 20 *Protection of naturally vegetated areas through planning and development* and Guidance Statement No. 33 *Environmental Guidance for Planning and Development* are useful resources in considering planning and development issues in the context of environmental impact.

In addition, the Western Australian Planning Commission's State Planning Policies including *2.8 Bushland Policy for the Perth Metropolitan Region* and *2 Environment and Natural Resources Policy* provides guidance on principles for good environmental planning.

Other relevant matters

In considering a permit application the CEO shall also have regard for any other relevant matter. 'Other matters' are not defined in the EP Act, and consequently are any matters the CEO considers relevant. Other matters are generally environmental issues not directly within the scope of the clearing principles, but within the object and principles of the Act.

Other matters typically include consideration of land use impacts, previous decisions related to the area, other legislative requirements related to the application and the necessity of the clearing.

Land use impacts

Environmental, economic and social impacts arising from land use is an 'other matter' the CEO would consider when making a decision regarding the clearing application.

Previous decisions

Any previous decisions related to the area should be considered in undertaking an assessment. These decisions could include whether the EPA has formally assessed the proposal and any advice given. It could also include any decisions under the previous Notice of Intent to Clear system under the *Soil and Land Conservation Act 1945*.

Legislative requirements

Legislative requirements under other written laws may be a consideration in assessing the clearing of native vegetation. These include whether the proposal requires a prescribed premise works approval or licence under the EP Act, a groundwater or surface water licence under the *Rights in Water and Irrigation Act 1914* and native title

requirements under Commonwealth *Native Title Act 1993*, Aboriginal Sites of Significance under the *Aboriginal Heritage Act 1972* and local government requirements such as extractive industry licences.

Necessity

Native vegetation clearing should only be considered after all other reasonable attempts to mitigate adverse impacts have been exhausted. Potential environmental impacts should be addressed using the impact mitigation sequence:

- avoid – avoid impact altogether;
- minimise – limit the severity of the impact;
- rehabilitate – restore maximum environmental value of the impact; and
- offset – offset significant residual impacts.

In determining the necessity of the clearing higher priority will be given to clearing for public use than private benefit or commercial gain.

Environmental protection policies (EPPs)

Under section 51P, the CEO shall refuse to grant a clearing permit if the CEO considers that the associated effect on the environment would be inconsistent with any approved policy. An approved policy is an environmental protection policy approved by the Minister for Environment under section 31(d) of the EP Act. Further information on these is available by contacting DER.

Approved policies for which clearing may be inconsistent include:

- *Environmental Protection (Gnangara Mound Crown Land) Policy 1992*;
- *Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992*;
- *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992*;
- *Environmental Protection (South West Agriculture Zone Wetlands) Policy 1998*;
- *Environmental Protection (Western Swamp Tortoise Habitat) Policy Approval Order 2002*.

Agreements to reserve, conservation covenants and soil conservation notices under the *Soil and Land Conservation Act 1945*

The CEO is prevented from making a decision to grant a clearing permit on land which is subject to an agreement to reserve under the *Soil and Land Conservation Act 1945* without the written approval of the Commissioner of Soil and Land Conservation. DER will contact the Commissioner to seek his written advice if the land under application is subject to an agreement to reserve.

The CEO is also prevented from making a decision to grant a clearing permit:

- on land which is the subject of a conservation covenant under section 30B(2) of the *Soil and Land Conservation Act 1945*; or
- in contravention of a soil conservation notice imposed under Part V of the *Soil and Land Conservation Act 1945*.

DER will advise any applicant affected by these instruments or requirements in writing.

Steps

Consideration of planning instruments and other relevant matters typically includes the following.

1. Determine whether the clearing is consistent with a region or local planning scheme, any relevant planning approvals, approved policy or local planning strategy.
2. Consider whether any previous decisions have been made related to the proposal or other legislative requirements need to be fulfilled for the proposal to proceed. These could include:
   - prescribed premise works approval or licence;
   - groundwater or surface water licence;
   - extractive industry licences;
   - native title requirements;
   - Aboriginal Sites of Significance; or
   - local government requirements.

Information sources for assessing planning and other matters

- Region schemes
- Town planning schemes
- Environmental impact assessment decisions
- State planning policies
- EPA position and guidance statements
- Environmental protection policies
- Native title claims
- Aboriginal sites of significance
- Environmentally sensitive areas
- Offset and conservation covenant mapping
- DoW proclaimed area maps displaying RIWI Areas or *Country Areas Water Supply Act 1947* areas
- Acid sulfate soil risk map
- Ag Maps and soil mapping
- DER's Incident Complaint Management System (ICMS)
- World and national heritage areas
- end land use

Some spatial data are publicly available from Landgate's Shared Land Information Platform.

Assessment bilateral agreement under the EPBC Act

All applications for a clearing permit which will be assessed under a bilateral agreement are assessed in accordance with the requirements under Part V Division 2 of the EP Act and Schedule 1 of the assessment bilateral agreement.

The information below describes some of the additional considerations for applications being assessed under this bilateral agreement.

Significant impact

According to the Commonwealth's Significant Impact Guidelines 1.1, a significant impact is *"an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts"*.

Each identified or potential impact to a matter of NES is required to be explicitly addressed in the assessment report. The significant impact guidelines are a useful resource that assessors consider when determining the significance of an impact of an action on matters of NES. The criteria also assist applicants in identifying whether their action will require approval under the EPBC Act.

Some of the relevant matters of NES under Part 3 of Division 1 of the EPBC Act include:

- World heritage properties;
- national heritage places;
- wetlands of international importance (Ramsar);
- nationally listed threatened species and ecological communities; and
- listed migratory species.

Under an assessment bilateral agreement, the Commonwealth will determine the matters of NES on which the proposed action may significantly impact (e.g. Ramsar wetlands or threatened species); these are known as the 'controlling provisions' for the action.

Aboriginal values

The applicant and assessors are encouraged to recognise the role and interests of Aboriginal peoples, as applicable, in promoting conservation and ecologically sustainable use of natural resources and promote the cooperative use of Aboriginal peoples' knowledge of biodiversity and Indigenous heritage.

The views of Aboriginal peoples are likely to be a primary source of information on Aboriginal cultural heritage that relates to matters of NES. The CEO will have due regard to relevant guidelines that address consultation with Aboriginal peoples including, but not limited to, DER Fact sheet 22—Assessment of Aboriginal heritage values for native vegetation clearing applications and WA's Aboriginal Heritage Due Diligence Guidelines.

Useful information sources on assessing Aboriginal heritage values

- Fact sheet 22 —Assessment of Aboriginal heritage values for native vegetation clearing applications
- Fact sheet 23 —Native Title and native vegetation clearing applications
- The National Native Title Tribunal website: www.nntt.gov.au
- WA Aboriginal Heritage Due Diligence Guidelines
- Aboriginal Heritage Inquiry System
- EPA Guidance Statement 41—Assessment of Aboriginal heritage

Application and public submissions

The information required in an application to clear native vegetation to be assessed under the assessment bilateral agreement is described in the application forms and checklists available at www.der.wa.gov.au/nvp.
The information to be provided by the applicant must include a description of:

- the proposed action;
- the likely relevant impacts on matter/s of NES (as prescribed through an EPBC Act controlled action decision, if made);
- feasible alternatives to the proposed action;
- possible mitigation measures; and
- an assessment of the relevant impacts of the clearing.

Under section 51E(4) of the EP Act, a validly made clearing permit application is advertised publicly in the prescribed manner, inviting any person to comment within the period specified in the advertisement. Applications to clear native vegetation which are assessed under the assessment bilateral agreement will also be publicly advertised.

The applicant will be provided the public submissions received and is required to respond to the matters raised by preparing additional information and/or a summary response. The response is to be provided to the CEO for consideration in the assessment and decision-making and will be made publicly available with the application, if applicable.

Assessment report and recommendations

Under the assessment bilateral agreement, the CEO will make a decision under the EP Act on the clearing permit application and may attach conditions relating to matters of NES to a granted clearing permit.

The CEO's decision report and where applicable supporting documentation is provided to the Commonwealth Minister for the Environment for an approval decision under the EPBC Act. The Commonwealth will use its best endeavours to ensure that conditions under the EPBC Act are limited to matters not already addressed, or not likely to be addressed by the CEO's conditions under the EP Act.

Under section 101A of the EP Act, the CEO's decision is subject to appeal. The Commonwealth must use its best endeavours to ensure its decision and conditions under the EPBC Act are consistent, where practicable, with any decision of the WA Minister for Environment after an appeal determination, where applicable.

For more guidance on the native vegetation clearing processes under the bilateral agreements, please refer to www.der.wa.gov.au/nvp.

Glossary

Biodiversity describes the variety of life forms: the different plants, animals and microorganisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: **genetic diversity**, **species diversity** and **ecosystem diversity** . Also referred to as **biological diversity**.

Bioregion means a bioregion of Western Australia as defined in *Revision of the Interim Biogeographic Regionalisation of Australia (IBRA) and the Development of Version 5.1 – Summary Report* (2000) published by the Commonwealth Commonwealth Department of the Environment and Heritage, Canberra. A bioregion represents an area with common ecological characteristics, including climate, geomorphology, landforms, lithology and characteristic flora and fauna. The IBRA regions represent a **landscape**-based approach to classifying the land surface. Specialist ecological knowledge combined with regional and continental scale data on ecological characteristics were interpreted to describe these patterns. The resulting integrated regions were ascribed the term biogeographic regions. The IBRA was developed in 1993–94 under the coordination of Environment Australia by the states and territories as a basis for developing priorities for the Commonwealth in funding additions to the reserve system under the National Reserve System Cooperative Program. It has been subsequently revised in the light of new knowledge.

Bioregional conservation status of ecological vegetation classes

Presumed extinct:	probably no longer present in the **bioregion**
Endangered*:	Less than 10 per cent of pre-European extent remains
Vulnerable*:	10–30 per cent of pre-European extent exists
Depleted*:	More than 30 per cent and up to 50 per cent of pre-European extent exists
Least concern:	More than 50 per cent pre-European extent exists and subject to little or no degradation over a majority of this area

*or a combination of depletion, loss of quality, current threats and rarity gives a comparable status (Department of Natural Resources and Environment, 2002).

Buffer means an area designed to protect significant **environmental values**, including **significant flora**, significant **ecological communities**, and wetlands and watercourses, from deleterious impacts by maintaining ecological processes and functions in the habitat. Refer also **watercourse or wetland buffer**.

Clearing means (a) the killing or destruction of; (b) the removal of; (c) the severing or ringbarking of trunks or stems of; or (d) the doing of any other substantial damage to, some or all of the native vegetation in an area; and includes the draining or flooding of land, the burning of vegetation, the grazing of stock, or any other act or activity that causes (e) the killing or destruction of; (f) the severing of trunks or stems of; or (g) any other substantial damage to, some or all of the native vegetation in the area.

Condition, in an environmental context, is a rating given to vegetation to categorise disturbance related to human activities. This rating refers to the degree of change in the structure, density and species present in vegetation in relation to undisturbed vegetation of the same type. The most widely used condition system is that defined by Keighery (1994):

1. Pristine: No obvious signs of disturbance.
2. Excellent: Vegetation structure intact; disturbance affecting individual species and weeds are non-aggressive.
3. Very Good: Vegetation structure altered; obvious signs of disturbance.
4. Good: Vegetation structure significantly altered by obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it.
5. Degraded: Basic vegetation structure severely impacted by disturbance. Scope for regeneration of vegetation structure, but not to a state approaching 'good' **condition** without intensive management.
6. Completely Degraded: The structure of the vegetation is no longer intact and the area is completely or almost completely without native species.

Other condition ratings commonly used are described in Bush Forever (Western Australian Planning Commission, 2000).

Conservation area is a term used in the *Environmental Protection Act 1986* to describe a conservation park, national park, nature reserve, marine nature reserve, marine park or marine management area within the meaning of the *Conservation and Land Management Act 1984* or any other land or waters reserved or managed for the purpose of, or purposes including, nature conservation.

Constrained areas, for the purpose of this document, are those defined within the:

- Perth Metropolitan Regional Scheme (and Bush Forever Study Area);
- Greater Bunbury Regional Scheme; and
- Peel Regional Scheme,

where there is a reasonable expectation that development will be able to proceed. This may include areas zoned urban, urban deferred or industrial zoned land. Regional schemes, town planning schemes and local planning strategies can be viewed on the Western Australian Planning Commission's website at http://www.wapc.wa.gov.au/Region+schemes.

Critical assets represent the most important environmental assets in the state that must be fully protected and conserved for the state to meet its statutory requirements and to remain sustainable in the longer term.

Declared rare flora refer to **rare flora**.

Depleted refer to **bioregional conservation status**.

Ecological community describes a naturally occurring biological assemblage that occurs in a particular type of habitat. Note: the scale at which ecological communities are defined will often depend on the level of detail in the information source, therefore no particular scale is specified (English and Blyth 1999).

Ecological linkage describes a network of native vegetation that maintain some ecological functions of natural areas and counter the effects of habitat fragmentation.

Ecological system diversity is the variety of habitats, biotic communities and ecological processes in a given area.

Ecological processes are the interactions, changes or evolutionary development processes of the ecosystem over time.

Ecosystem describes a dynamic complex of plant, animal, fungal, and microorganism communities and the associated non-living environment interacting as an ecological unit , including abiotic components, being partly determined by soil, parent material and climate.

Ecosystem diversity is the diversity of all living organisms and non-living components within a given area and their relationships.

Ecosystem services describes the processes by which the environment produces resources that provide benefits to humans e.g. flood and disease control, clean air.

Eutrophication is a natural process of accumulation of nutrients leading to increased or abnormal aquatic plant growth in lentic wetlands, rivers, harbours and estuaries. Human activities contributing fertilisers and other high nutrient wastes can speed up the process, leading to algal blooms and deterioration in water quality.

Environmental values are the particular values or uses of the environment that are important for a healthy ecosystem or for public benefit, welfare, safety or health and which requires protection from the effects of pollution and harm (ANZECC and ARMCANZ, 2000; see *Environmental Protection Act 1986*).

A **beneficial use**, in an environmental context, means the use of the environment which is:

(a) conducive to public health or aesthetic enjoyment and which requires the protection from the effects of emissions or environmental harm; or
(b) identified and declared within the *Environmental Protection Act 1986* to be a beneficial use to be protected under an approved policy.

An **ecosystem health condition** means a condition of the ecosystem that is:

(a) relevant to the maintenance of ecological structure, ecological function or ecological process and which requires the protection from the effects of emissions or of environmental harm; or
(b) identified and declared to be a beneficial use to be protected under an approved policy.

Fauna that is otherwise significant are defined as:

- Threatened / **specially protected fauna** as endorsed by the Minister;
- fauna species that are habitat specialists;
- wide-ranging fauna species with reduced populations in the **bioregion**;
- short-range endemic species;
- fauna species that have few populations in the **bioregion**;
- fauna species which have reduced ranges or few recent records in the **bioregion**; and/or
- internationally-listed migratory species.

Foreshore reserve means the foreshore area or watercourse **buffer** set aside as a reserve under planning legislation.

Fringing vegetation refers to the **riparian vegetation** adjacent to a water body and directly dependent on the proximity of a watercourse or wetland. **Riparian vegetation** may include both wetland and dryland vegetation. Wetland vegetation can tolerate some period of inundation and is typically found below the high water mark or within the floodway, for example flooded gums and paperbarks, and submerged and emergent species like rushes. Dryland vegetation is not tolerant of permanently or seasonally waterlogged conditions. **Riparian vegetation** provides many important functions including habitat for many aquatic and terrestrial species, stabilisation of the banks, energy dissipation, **ecological linkages**, and sediment and nutrient retention; it assists in maintaining the integrity of the watercourse or wetland in a number of ways.

Genetic diversity represents the heritable variation within and between populations of organisms. Variation of genes / genetic information contained in all individual plants, animals and micro-organisms both within and between populations of organisms that comprise individual species as well as between species. There are so many genes and different possible combinations of genes that for most types of organism every individual, population and species is genetically distinct.

High value asset/s represents those environmental assets that are in 'good' or better condition (refer to Appendix B for condition rating), are considered valuable by the community and/or government, but are not identified as 'critical'.

Landscape describes the physical environment made up of basic elements – climate, geology, topography, vegetation, fauna and humans – biophysical characteristics that can be used to identify differences between different **landscapes.**

Local area summarises the surrounding environment within a radius that varies with region and indicates the distance across which there is little change in a vegetation community. For example, in the mallee region of the south-west, a local area is typically a radius of 15 kilometres from the subject land. For **ecological communities** where there is rapid change over distance, such as the Lesueur and Fitzgerald River areas, a distance of five kilometres is more appropriate. In the Eremaean Province, a distance of 50 kilometres is recommended. This will need to be determined on a region and vegetation specific basis.

Meta-population describes a population of populations. A defined set of geographically separate populations with at least some exchange of individuals between the separate populations – in other words, systems of local populations connected by dispersing individuals.

Native vegetation means indigenous aquatic or terrestrial vegetation but does not include vegetation that was intentionally sown, planted or propagated unless (a) that vegetation was sown, planted or propagated as required under this Act or another written law; or (b) that vegetation is of a class declared by regulation to be included in this definition, and includes dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded. Note that this definition includes non-vascular plants (e.g. mosses, fungi, algae) and marine plants (seagrass, macroalgae / seaweed).

Offset: An environmental offset is an off-site action or actions to address significant residual environmental impacts of a development or activity (see WA Environmental Offsets Policy)

Planning instrument means:

(a) a scheme or a strategy, policy or plan made or adopted under a scheme;
(b) a State planning policy approved under section 29 of the *Planning and Development Act 2005* and published in the *Gazette;*, or
(c) a local planning strategy made under the *Planning and Development Act 2005*.

Plant association is a vegetation unit that considers plant associations that have a similar physiognomy (a combination of vegetation structure and growth-form) independent of specific floristic composition, and is the component species with particular dominants of a given area. If the vegetation of another area has the same dominants it is in the same association.

Plant formation is the basic unit of vegetation as determined by the component species with particular dominants of a given area to define the **vegetation association** that considers plant associations that have a similar physiognomy (a combination of vegetation structure and growth-form), independent of specific floristic composition.

Priority ecological community means an ecological community that does not meet survey criteria for 'threatened' status or that are not adequately defined. They are listed by Parks and Wildlife under one of five categories ranked in order of priority for survey and/or definition of the community, and evaluation of conservation status, so that consideration can be given to their declaration as threatened ecological communities.

Priority fauna refers to conservation significant animal species listed by the Threatened Species Consultative Committee, but which are not currently listed under Section 14(2)(ab) of the *Wildlife Conservation Act 1950* as **specially protected fauna**.

Priority flora refers to plant taxa that are either under consideration by the Environment Minister for recommendation as **rare flora** but are in need of further survey to adequately determine their status, are adequately known but require ongoing monitoring to ensure their security does not decline, or are conservation dependent and require active management to maintain their status.

Protected area/s describes an area of land especially dedicated to the protection and maintenance of biological diversity and managed through legal and other effective means. (ICUN 1994).

Rare flora refers to flora that is declared rare in the current *Wildlife Conservation (Rare Flora) Notice* under section 23F of the *Wildlife Conservation Act 1950*.

Representativeness describes the extent to which areas selected for inclusion in the national reserves system are capable of reflecting the known biological diversity and ecological patterns and processes of the **ecological community** or ecosystem concerned (Commonwealth of Australia 1996).

Riparian vegetation means the distinctive vegetation associated with a wetland or watercourse. This vegetation is influenced by the passage and storage of water.

Significant flora are defined as:

- species that are confined to a specific area (ie endemic to the **bioregion**) or otherwise geographically restricted;
- distinctive local forms that have not been recognised taxonomically (not a species, subspecies or variety);
- populations that are outside the main geographic range (ie disjunct populations);
- populations at the end of the plant's geographic range;
- populations that represent a significant number of the known individuals of the taxon in the **bioregion**; or
- **priority flora** of priority 1 to 4 as listed by Parks and Wildlife – taxa that are under consideration as **rare flora** but are in need of further survey or continued monitoring.

Significant habitat/s refers to habitat that provides resources (breeding, resting and feeding), connectivity or habitat area for a species or community that is critical for its survival.

Specially protected fauna refers to fauna that is declared in the current gazetted *Wildlife Conservation (Specially Protected Fauna) Notice* under the *Wildlife Conservation Act 1950*.

Species diversity can be considered as the variety of individual species within a given area, such as a region. While such diversity can be measured in many ways, the number of species (species richness) is most often used. A more precise measurement of taxonomic diversity also considers the relationship of species to each other. The greater the difference between one species and another species, the greater its contribution to any overall measure of biological diversity. The ecological importance of a species can have a direct effect on community structure and thus on overall **biodiversity**. The variety of species increases with genetic change and evolutionary processes.

Suitably qualified person means a person with specific training and/or experience in a field of interest relating to Western Australian ecosystems and/or landscapes, e.g. flora and/or fauna identification, ecology, threatening processes, hydrology and land degradation.

Threatened ecological community means an ecological community listed, designated or declared under a written law or a law of the Commonwealth as threatened, endangered or vulnerable. In practice, these are those declared under section 51B of the EP Act as an environmentally sensitive area, and those under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. Categories relating to the status of the threat to a particular community are determined following assessment, and are 'presumed totally destroyed', 'critically endangered', 'endangered' or 'vulnerable'.

Vegetation association / complex / type

Associations as defined by Beard (1980) are based on three principal characteristics of vegetation:

1. Floristic Composition: the species of plants, which comprise vegetation.
2. Vegetation Structure: the height of plants in layers, their shape and their spacing
3. Growth Form: the morphological characteristics of the component plants, such as woody or herbaceous, annual or perennial, thorny or succulent, evergreen or deciduous, and leaves of a certain texture, size and shape.

Complexes as defined by Heddle *et al* (1980) and Mattiske and Havel (1998) are based on the pattern of vegetation at a regional scale as it reflects the underlying key determining factors of landforms, soils and climate.

Types as defined by Beard (1980) are mapped principally at the level of **plant formation** and most often at the 1:250,000 scale with minor attention to **plant associations** where they could be readily distinguished.

Watercourse means:

(a) any river, creek, stream or brook in which water flows;
(b) any collection of water (including a reservoir) into, through or out of which any thing coming within paragraph (a) flows;
(c) any place where water flows that is prescribed by local by-laws to be a watercourse;

and includes the bed and banks of any thing referred to in paragraph (a), (b) or (c).

For the purposes of this definition:

(a) a 'flow' or 'collection' of water includes those that are intermittent or occasional;
(b) a river, creek, stream or brook includes a conduit that wholly or partially diverts it from its natural course and forms part of the river, creek, stream or brook; and
(c) it is immaterial that a river, creek, stream or brook or a natural collection of water may have been artificially improved or altered.

Watercourse or wetland buffer means land adjoining, or directly influencing a watercourse or wetland that is managed to protect watercourse and wetland values, including any riparian areas. It is basically an area outside a watercourse or wetland where clearing and certain activities are inappropriate. The size of the buffer area should take into account watercourse or wetland values, condition, pressures and responses to pressures.

Wetland means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary.

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Appendix A: Surveys and gathering additional information

During the preliminary assessment of a clearing application it may become apparent that insufficient information exists to make a confident determination of variance against one or more of the clearing principles. In this instance it will be necessary to obtain the additional information required by undertaking a survey and gathering additional information.

Where a site inspection, survey and gathering additional information is needed the scope of this will be determined on a case-by-case basis, but would be consistent with *EPA Position Statement No.3 Terrestrial Biological Surveys as an Element of Biodiversity Protection*. This document outlines the EPA's principles for environmental impact assessment of biodiversity. The EPA sees proper understanding of the requirements of adequate surveys as central to achieving a sound assessment of biodiversity.

EPA Guidance Statement No.10, *EPA Guidance Statement No.51*, and *EPA Guidance Statement No.56* also provide guidance as to survey requirements.

Some key factors in using surveys to assess biodiversity include:

- the methodology used should be consistent with the approaches recommended by the EPA Guidance Statements No's 10, 51 and 56 – the methodology used, and any limitations of the surveys, should be outlined in the resulting report;
- the timing and time allocated should be determined by the natural cycles of the region (such as growth and flowering);
- the intensity of the sampling (number of sites; their spacing; and their area) should be based on the complexity of the flora, vegetation and faunal assemblages of the permit application area; and
- the level of effort should correspond with the existing data for that area, i.e. where less existing information is available, a greater survey effort would be required.

In undertaking a survey and gathering additional information, specific measures of diversity include the following.

Plant species

- total vascular plant taxa (species, subspecies and varieties) diversity; and
- vascular plant taxa diversity for each ecological community.

Fauna species

- total vertebrate and invertebrate fauna taxa (genera, species and subspecies) diversity.

Ecosystem diversity

- number of ecological communities (plant communities; fauna communities/assemblages);
- macrohabitat diversity;
- microhabitat diversity in each macrohabitat;
- a variety of soil types or geological formations; and
- micro-topographical diversity and edaphic variation.

Other aspects

It may be necessary to gather more detailed information on the physical aspects of an application, such as the extent of land degradation and possible hydrological changes as a result of an incidence clearing.

Appendix B: Determining vegetation condition

Bush Forever Volume 2 defines vegetation condition:

“Condition is a rating given to bushland to categorise disturbance related to human activities. This rating refers to the degree of change in the structure, density and species present in the bushland in relation to undisturbed bushland of the same type. Different people have used a series of scales of disturbance. Condition ratings used commonly in the Perth Metropolitan Region are described in Bush Forever Volume 2 (2000) and Keighery (1994)”.

In assessing the vegetation condition for clearing permit applications, assessors require the current condition of the vegetation. This can be provided by the applicant or identified by the assessor through a desktop and/or site analysis. Vegetation condition is rated using the scale in Table 2.

Where the vegetation under assessment is likely to have been unlawfully cleared prior to an application for a clearing permit being submitted, or is part of an investigation, the condition rating is based on the pre-clearing vegetation if this can be assessed. The pre-clearing vegetation condition is identified using a combination of desktop analysis and comparison of the condition of the same vegetation type adjoining or nearby the site.

Vegetation communities have the ability to regenerate following natural disturbance events to which the ecosystem is adapted (e.g. fire or flood). Regeneration occurs through the recruitment of seeds from the soil seedbank and physiological adaptations such as lignotubers and epicormic buds which allow resprouting to occur. Methods of regeneration are species specific and may allow the vegetation at a disturbed site to regenerate following disturbance. In addition, habitat values can be retained through disturbance events and have the ability to return with time. To ensure the vegetation’s ability to regenerate is acknowledged in condition ratings, where a natural disturbance event has occurred, consideration is also given to the vegetation’s regenerative capacity and environmental values of the site which have the ability to return with time without intervention.

In some situations it may be more appropriate to identify a range of condition ratings to acknowledge the current disturbances and ability to regenerate (e.g. degraded to very good).

Table 2. Vegetation Condition Scale (Keighery, 1994)

Condition Scale **(Extract from Table 12 on page 48 of Bush Forever Volume 2 from Keighery B.J. (1994)2)**	
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 ability to regenerate. 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.
Degraded	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 areas is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora composing weed or crop species with isolated native trees or shrubs.

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1918/10
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Electricity Networks Corporation, trading as Western Power
Application received date: 25 January 2022

1.3. Property details

Property: The State of Western Australia
Localities: Statewide

1.4. Application

Clearing Area (ha)	Method of Clearing	Purpose category:
N/A	Mechanical Removal	Water/gas/cable/pipeline/power installation

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 1 February 2022
Reasons for Decision: The Delegated Officer amended Clearing Permit CPS 1918/9 to correct a typographical error in condition 15 of the permit. The condition required Western Power to provide the Chief Executive Officer of the Department of Water and Environmental Regulation (DWER) with records required under condition 14 of the clearing permit prior to 10 November 2021. Noting that this date was overdue, and that the purpose of the condition was to obtain all records three months prior to the clearing permit expiry date, the Delegated Officer amended the permit to require Western Power to provide all records prior to 10 November 2023.

2. Site Information

Clearing Description

The clearing permit allows Western Power to clear native vegetation, where certain conditions are met, for the purpose of project activities as described in condition 1(a) of the permit. The clearing may occur throughout the southwest of Western Australia for Western Power's 'South West Interconnected Network' (north to Kalbarri, east to Kalgoorlie and south to Ravensthorpe).

Vegetation Condition

As clearing is to occur state-wide, the condition of native vegetation to be cleared under this permit is likely to range from Completely Degraded to Excellent condition, described as (Keighery, 1994):

- Completely degraded: The structure of the vegetation is no longer intact and the area is completely or almost without native species.
- Degraded: Basic vegetation structure severely impacted but disturbance. Scope for regeneration but not to a state approaching good condition without intensive management.
- Good: Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retain basic vegetation structure or ability to regenerate to it.
- Very Good: Vegetation structure altered, obvious signs of disturbance.
- Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive.

3. Avoidance, minimisation and mitigation measures

In determining the amount of native vegetation required to be cleared for project activities, Western Power is required to have regard to three principles as outlined under condition 4 of the permit, being:

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

4. Assessment of application against clearing principles

The assessment against the clearing principles has not changed from the Clearing Permit Decision Report CPS 1918/2.

Planning instruments and other relevant matters.

The assessment against planning instruments and other matters has not changed since the assessment under CPS 1918/2.

5. References

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.