



## Guide to the Threatened Species Data Fields used in Assessments for Property Vegetation Plans

### What are the Threatened Species Data Fields used in Assessments for Property Vegetation Plans?

In NSW, legislation affords protection to Critically Endangered, Endangered and Vulnerable species, Endangered Populations and Endangered Ecological Communities (Threatened Species) which are listed under the *Threatened Species Conservation Act 1995*. The impact of proposed clearing on threatened species occurring on land zoned rural and rural-residential is assessed using one of the Native Vegetation Assessment Tools (NVAT) operated in PADACS in accordance with the *Native Vegetation Regulation 2005 Environmental Outcomes Assessment Methodology (EOAM)*. PADACS (PVPs, agreements, data and customer service) is a customer relationship management software tool used to capture information relating to either PVPs or development applications. The Threatened Species Assessment Tool is a component of NVAT and is an objective, computer-based, decision-support program. It helps Catchment Management Authorities (CMAs) to assess whether clearing proposals meet the requirements of the *Native Vegetation Act 2003*. More information on PADACS and the assessment tools<sup>1</sup> and details of the EOAM<sup>2</sup> can be found on the OEH website

Where the proposed clearing can meet the Improve or Maintain Environmental Outcomes Objective of the EOAM an approved proposal is formalised in the development of a Property Vegetation Plan (PVP). The data used in the Threatened Species Tool comes from the Threatened Species Profiles Database (TSPD) which is maintained by the Office of Environment and Heritage (OEH). The *Native Vegetation Regulation 2005* requires that the data used in the EOAM be made publicly available. The data accompanying this text is provided in accordance with this requirement. Some of these data are also made available in the information provided on each listed Threatened Species in the OEH Threatened Species website.<sup>3</sup>

The TSPD contains a range of data fields for all listed threatened species, including habitat details, ability to withstand any further loss of habitat or individuals, distribution within CMA subregions, landscape requirements for species presence and response to management actions. This information is used in the assessment methodology to determine the likely presence of any threatened species on site and to predict responses to proposals to improve local biodiversity values on offset areas through the application of agreed management actions.

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<sup>1</sup> [www.environment.nsw.gov.au/vegetation/nvat.htm](http://www.environment.nsw.gov.au/vegetation/nvat.htm)

<sup>2</sup> [www.environment.nsw.gov.au/resources/vegetation/110157eoam.pdf](http://www.environment.nsw.gov.au/resources/vegetation/110157eoam.pdf)

<sup>3</sup> [www.threatenedspecies.environment.nsw.gov.au/tsprofile/index.aspx](http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/index.aspx)

## **How were the PVP Threatened Species data fields developed?**

The TSPD was originally developed to support the Environmental Outcomes Assessment Methodology developed for the *Native Vegetation Act 2003*. The TSPD expanded on information that was first compiled by the NSW National Parks and Wildlife Service to create a website providing basic information on listed threatened species in NSW. The TSPD was expanded in 2007 to include additional information needed for assessment of impacts and offset requirements undertaken under the BioBanking Scheme. Information in the TSPD is being refined as more information becomes available.

The data have been compiled using the knowledge of relevant ecologists and other species and vegetation community experts, both within OEH and external to the organisation. Both published and unpublished literature has been sourced, including information provided by the NSW Scientific Committee in its Final Determinations for listed entities. In 2006 several panels of experts on groups of species were convened to review some of the data contained in the TSPD. This review focused on management actions likely to lead to an increase in populations on offset areas and the likely level of response to each relevant management action. Based on the advice of the expert panels, OEH has refined formulas for fauna and flora that were developed to calculate the likely response of listed entities to relevant management actions. These formulas ensure criteria based on species biological attributes and the ability to control threats on offset areas are applied in a consistent manner across all entities.

## **How is the threatened species data used in PVP assessments?**

The following five main steps are undertaken when assessing for PVPs whether a clearing proposal will achieve an Improve or Maintain outcome for all affected threatened species.

- 1 A series of primary filters is applied to the data-set in the Threatened Species Tool to generate a preliminary list of species likely to be present.  
Data used to filter the list at Stage 1 are:
  - Distribution by CMA Sub-region (data sources include museum/herbarium records, NSW Wildlife Atlas)
  - Occupation of Vegetation Type (data sources include expert advice and literature)
  - Vegetation condition – options are paddock trees, low condition, moderate to good condition (data sources include expert advice and literature)
  - Patch Size – not applied to paddock trees condition (data sources include expert advice)
  - Extent of landscape fragmentation (data sources include expert advice)
  - Specific geographic constraints (data sources include literature, NSW Wildlife Atlas records and expert advice).
- 2 More detailed habitat attribute filters are applied to generate a final list of species likely to be present, for example, the presence of shrub layer, trees with hollows over prescribed diameters (data sources include literature, expert advice). This

information is contained within the following fields:- Essential habitat, Breeding habitat, Foraging habitat and Shelter/roosting habitat.

During the site inspection a search is made to determine if any potential flora are confirmed to be present. Fauna are assumed to be present if all filter conditions are met.

### 3 Assessment of loss

Assess whether the proposal is likely to cause loss of individuals or loss of habitat, and if so, how much ?

- If there is no loss then no further assessment is required.
- If there is loss, the extent of loss is measured as:
  - number of individuals (plants)
  - habitat area (for moderate to good condition vegetation in the offset)
  - number of habitat features (for low condition vegetation in offsets and for paddock trees).

### 4 Is the temporary loss sustainable?

- The data prescribes what level of loss of the local population or Breeding/Foraging habitat can be sustained.
- If all predicted species can sustain some loss then offsets can be considered.

### 5 Proposed offset

An offset area must:

- contain suitable habitat for affected species, or a population of affected flora
- be subject to positive management actions – appropriate management actions for each species are recorded in the data and each action is allocated a percentage increase in the population size that is expected to result from applying that action
- be maintained in perpetuity (impacts are in perpetuity).

An offset must be of sufficient size such that:

- the total gain expected on an offset area from all agreed management actions is greater than or equal to the total loss of the species resulting from clearing.

A description and the purpose of each TSPD field used in assessments of clearing applications seeking approval through a PVP agreement are given below.

<b>Animals</b>	
<p><b>Breeding habitat</b> <i>Fauna only</i></p>	<p>Describes key features of a species' breeding habitat. If feature is present then species is likely to use the site. An example is minimum entrance diameters of hollows and minimum heights of hollow entrances above ground for fauna dependent on hollows.</p>
<p><b>Foraging habitat</b> <i>Fauna only</i></p>	<p>Describes key features of a species' foraging habitat. If feature is present then species likely to use the site. An example is species of trees that provide important nectar sources for honeyeaters.</p>
<p><b>Shelter, roosting, refuge habitat</b> <i>Fauna only</i></p>	<p>Describes key features of a species' shelter, roosting and/or refuge habitat. If a feature is present then the species is likely to use the site. Examples include hollow logs, large rock crevices, tall dense shrubs.</p>
<p><b>Patch size</b> <i>Fauna only</i></p>	<p>Patch size is the minimum area of continuous (as defined in the next paragraph) native vegetation required by for a given species to be regularly or periodically present. It includes the area to be cleared or offset plus any connecting native vegetation.</p> <p>Woody vegetation is regarded as continuous so long as the nearest trees are no more than 100 m apart. Non-woody vegetation is regarded as continuous so long as the gap between each patch is no more than 30 m.</p> <p>Patch size is calculated using four area categories:</p> <ul style="list-style-type: none"> <li>• &lt;5 ha</li> <li>• 5–25 ha</li> <li>• 25–100 ha</li> <li>• &gt;100 ha.</li> </ul>
<p><b>Surrounding vegetation cover threshold</b> <i>Fauna only</i></p>	<p>Identifies the minimum 'surrounding vegetation cover' in the landscape for a given species to be regularly or periodically present.</p> <p>Surrounding vegetation cover is the percentage of native vegetation cover (the overstorey in naturally woody vegetation and areas with more than 50% naïve grass in non-woody landscapes) relative to the benchmark cover within a 1.75 km radius (1000 ha circle) centred on the subject site. Where the woody cover has been thinned by past clearing the assessment of the remaining percentage cover requires an appropriate reduction based on the degree of canopy thinning.</p> <p>Surrounding native vegetation cover is identified as one of four classes:</p> <ol style="list-style-type: none"> <li>1 Intact (&gt;70% natural habitat retained)</li> <li>2 Variegated (31–70% habitat retained)</li> <li>3 Fragmented (11–30% habitat retained)</li> <li>4 Relictual (10% or less habitat retained).</li> </ol>

<b>Plants</b>	
<b>Essential habitat</b> <i>Flora only</i>	Identifies essential habitat features associated with some plant species. It is not possible to identify Essential Habitat features for most plants. 'As per Vegetation Type' is the default entry where no essential habitat features are identified.  Examples include limestone substrate, rhyolite rock outcrops.
<b>Time of the year identifiable</b> <i>Flora</i>	Records the time of year a plant species can be reliably identified.

<b>Animals, plants and endangered ecological communities</b>	
<b>Ability to sustain loss within CMA</b> <i>Flora and fauna</i>	Identifies whether a fauna species can sustain a temporary local loss of habitat, or whether flora species can sustain loss of individuals within a CMA (until the agreed management actions are likely to result in the predicted gain in habitat quality and/or increase in population on the required offset area).  Where no temporary loss can be sustained, a clearing proposal will be red-lighted.  Factors determining a species' ability to sustain loss include total abundance, number of populations and sizes of populations, ability to colonise or migrate, and ability to respond to improved management of offset areas.
<b>Able to occupy low condition vegetation?</b> <i>Fauna and flora</i>	Identifies whether a species regularly occupies or uses vegetation in low condition.
<b>Occupy paddock trees</b> <i>Fauna</i>	Identifies whether paddock trees are likely to be important for meeting the habitat needs of a species and identifies any factors that are required for the trees to be important.  OEH policy is that Endangered Ecological Communities (EECs) do not occur as paddock trees.
<b>Ability to sustain loss in paddock trees</b> <i>Flora and fauna</i>	Identifies a species' ability to sustain loss in paddock trees.  A species' ability to sustain loss will inform the choice of offset ratio, generally 1:1, 1:5 or 1:10 depending on CMA subregion, geographic area or presence of important habitat features such as breeding hollows. Specific offset requirements apply, for example trees in offsets must have the same or larger hollows and have a diameter at breast height (dbh) of 80% or more for each of the trees that are to be offset.
<b>Are there any caveats or requirements in loss of paddock trees?</b> <i>Flora and fauna</i> <i>Offset filter</i>	Provides additional details for special circumstances where additional protection or offset requirements are needed.

<p><b>Number of sites in the CMA</b> <i>Flora and fauna</i></p>	<p>Indicates the number of known sites of a species in each CMA: Categories are &gt;3 or ≤3.</p>
<p><b>Total population size within CMA</b> <i>Flora and fauna</i></p>	<p>This field indicates the estimated population size–class of a species within the CMA. This field is used as part of the scoring system for the PVP Threatened Species Incentive Tool. The size classes are:</p> <ul style="list-style-type: none"> <li>• &lt;100</li> <li>• &gt;5000</li> <li>• 100–2000</li> <li>• 2000–5000</li> <li>• unknown but expected to be large</li> <li>• unknown but expected to be small.</li> </ul>
<p><b>Monotypic genus</b> <i>Flora and fauna</i></p>	<p>Identifies a species which is the sole representative of its genus. This field is used as part of the scoring system for the PVP Threatened Species Incentive Tool.</p>
<p><b>Endemic to NSW</b> <i>Flora, fauna and EECs</i></p>	<p>Identifies whether a species is known to occur only in NSW. This field is used as part of the scoring system for the PVP Threatened Species Incentive Tool.</p>
<p><b>Total habitat size scale</b></p>	<p>Identifies the appropriate scale for assessing extent of local habitat present.</p> <p>Required where there is a cap on the proportion of habitat that may be cleared at any individual clearing site in the ‘Ability to sustain loss’ field. The intent of capping is to ensure local populations can persist after clearing and while the management actions are leading to an increase in the amount and condition of habitat on the offset.</p> <p>The size of the area over which the amount of remaining habitat should be assessed is determined by the home range and mobility of the subject species.</p> <p>The four scales for assessments are:</p> <ul style="list-style-type: none"> <li>• a 200 m radius/10 ha area around the site</li> <li>• a 550 m area radius/100 ha around the site</li> <li>• a 1.74 km radius/1000 ha area around the site</li> <li>• a 5.64 km radius/10000 ha area around the site.</li> </ul>
<p><b>Tg value (Threatened species gain value)</b> <i>Flora, fauna and EECs</i></p>	<p>The Tg value estimates how well a species will respond to specific management actions compared to the predicted level of response of the vegetation that provides habitat.</p> <p>It is based on which of the following has the lowest value:</p> <ul style="list-style-type: none"> <li>• effectiveness of management actions</li> <li>• species life history characteristics</li> <li>• naturally very rare species</li> <li>• ecologically poorly known species.</li> </ul> <p>A low Tg value means a species is expected to respond slowly to management actions and may require a larger offset area if affected by clearing.</p> <p>In some cases, fauna species may have two Tg values – one for breeding habitat and one for foraging and shelter habitat. Breeding habitat may have a lower Tg value where that habitat is effectively irreplaceable, for example bats that are dependent on a few maternity caves for breeding success.</p>

<b>RTM</b> <b>(Response to management actions)</b> <i>Flora, fauna and EECs</i>	The percent increase in the species' population size or habitat carrying capacity expected to result from the application of specified management actions. The value for this field is calculated using the Tg value, the predicted response of the vegetation, and the relative importance of each management action.
<b>CMA sub-region</b> <i>Fauna and flora</i> <i>Primary filter to predict which species are likely to use a particular site</i>	Identifies the CMA subregion(s) in which a species is known (K) or predicted (P) to occur.  K indicates confirmed records, specimens or otherwise verified sightings.  P indicates a high expectation by relevant experts that a species is likely to be present in the subregion, based on the known presence of suitable habitat and occurrence within adjoining subregions.
<b>Geographic Constraints</b> <i>Flora and fauna</i>	Used to define any confidently known limits to the distribution of a species within a CMA subregion.  Practical boundaries used to define geographic constraints include major roads, topographic features, longitude or latitude, and local council boundaries.
<b>Species association with vegetation type</b> <i>Flora and fauna</i> <i>Primary filter</i>	This field associates a threatened species with the vegetation types it is known or expected to use within each CMA.

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59–61 Goulburn Street, PO Box A290 Sydney South 1232

Phone: (02) 9995 5000 (switchboard)

131 555 (environment information and publications requests)

1300 361 967 (national parks, climate change and energy efficiency information and publications requests)

Fax: (02) 9995 5999 TTY: (02) 9211 4723

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