

GUIDELINES FOR NATURAL VALUES SURVEYS - TERRESTRIAL DEVELOPMENT PROPOSALS



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Definitions

Threatened flora	Species of flora listed on Schedules 3 to 5 of the <i>Threatened Species Protection Act 1995</i> (TSPA)
Threatened native vegetation communities	Native vegetation communities listed on Schedule 3A of the <i>Nature Conservation Act 2002</i>
Threatened fauna	Species of fauna listed on Schedules 3 to 5 of the TSPA

Abbreviations and Acronyms

DPIPWE	Department of Primary Industries, Parks, Water and Environment
LISTmap	Land Information System Tasmania map
NCA	<i>Nature Conservation Act 2002</i>
NCH	Natural and Cultural Heritage Division, DPIPWE
NVA	Natural Values Atlas
PAG	Property Assessment Group
PASS	Potential acid sulfate soils
PCAB	Policy and Conservation Advice Branch, NCH, DPIPWE
PID	Property Identification
RMPS	Resource Management and Planning System
TSPA	<i>Threatened Species Protection Act 1995</i>
TVMMP	Tasmanian Vegetation Monitoring and Mapping Program, DPIPWE

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1. INTRODUCTION

These guidelines have been prepared by the Natural and Cultural Heritage Division (NCH), Department of Primary Industries, Parks, Water and Environment (DPIPWE) for proponents and consultants who are required to survey and report on the impact of proposed developments on terrestrial natural values within Tasmania (for aquatic natural values refer to the companion document titled *Guidelines for Natural Values Surveys - Estuarine & Marine Development Proposals*).

The size and scale of development proposals that may require a natural values survey report can range from the construction of a single dwelling on a bush block, through to large scale developments such as mines, quarries, windfarms, irrigation schemes and subdivisions, which extend over a wide area and impact on a diverse range of natural values. In order to assess a development application, NCH needs to know what natural values are present at the proposed site, and what impact the proposed development is likely to have on those values.

Matters of National Environmental Significance as listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBCA) should also be considered to determine if the proposal will need to be assessed under that Act. Requirements for Commonwealth assessments are not considered further in this document, and proponents and consultants are encouraged to make themselves aware of their responsibilities under Commonwealth legislation. Further information is provided at the Australian Government Department of the Environment and Energy website (<http://www.environment.gov.au/epbc>).

2. PURPOSE OF THE GUIDELINES

The primary goal of these guidelines is to assist proponents and their representatives to meet the needs of regulators assessing the impacts of proposed developments on natural values. Use of the guidelines will help to ensure that surveys and reports are completed to a standard that enables regulators to perform their roles efficiently and achieve the conservation objectives under relevant legislation. It is recommended that the guidelines are referred to and the suggested approaches are adopted as a minimum standard.

Where species-specific survey guidelines exist, these must be used, unless an alternative methodology has been agreed to in writing by the Policy and Conservation Advice Branch (PCAB) of NCH.

This document and any related methodologies are subject to regular review by NCH. Updates and additional information will be provided on the DPIPWE website as they become available. Consultants, development proponents and their representatives are advised to check the site regularly for new material that may have a bearing on their proposals and the assessments required.

3. ASSESSMENTS FOR NATURAL VALUES

The scale, location and nature of the proposed development will all influence its impact and therefore the information needed to assess it. This section outlines some of the factors relevant to planning, timing and selection of personnel to undertake natural values surveys.

'Natural values' in this case refers to biological and geodiversity values of conservation significance, being those species, vegetation communities and other values that have significance and/or statutory protection under the *Tasmanian Threatened Species Protection Act 1995* (TSPA), *Nature Conservation Act 2002* (NCA) and other relevant policies and regulations.

Currency of surveys

Survey reports are generally regarded as current for up to two years from the date of the field survey, provided no significant changes have occurred on or around the survey area and no new, relevant information has become available. Beyond two years, the information provided may be out of date and will usually need to be re-verified on the site.

Personnel and preparation

The proponent or their representative must ensure that the personnel undertaking surveys and preparing reports have appropriate skills, qualifications and experience in identification and documentation of all natural values of interest, including a knowledge of Tasmanian species, their habitat and other ecological requirements, and vegetation communities.

In addition, consultants undertaking surveys should ensure they have the necessary equipment on hand and that sufficient time has been allocated to

identify and document all the natural values that are likely to be encountered at the site. The surveyor must also ensure that any necessary permits to 'take' listed species for identification purposes, and access authorisations, have been obtained prior to going on site. Appropriate biosecurity procedures need to be implemented as required.

Further information on permits is available on the DPIPWE website at [https://dPIPWE.tas.gov.au/conservation/development-planning-conservation-assessment/permit-to-take-threatened-species-\(for-consultants-development-related-activities\)](https://dPIPWE.tas.gov.au/conservation/development-planning-conservation-assessment/permit-to-take-threatened-species-(for-consultants-development-related-activities))

Survey area and context

The survey area must include the development footprint, including associated developments such as access roads and tracks, parking and material storage areas. It also includes those areas that are likely to experience off-site or downstream impacts, such as noise and water quality. If the footprint is not defined adequately, additional surveys may be required to cover areas missed. It is therefore important to overestimate rather than underestimate the footprint.

The context of the development is an important consideration in assessing overall impact, and for consideration of alternative sites, amended designs and offsets if required. It is therefore often most efficient to assess areas beyond the development footprint during the initial survey, as this information will provide broader contextual information to regulators, and may give flexibility in terms of options for avoiding and mitigating impacts to natural values.

Survey timing and method

Survey reports must include information regarding timing of surveys, survey method and effort/intensity. These elements must be consistent with NCH standard guidelines where these exist. The NCH will be developing species-specific survey guidelines for a number of threatened fauna. As these are finalised they will be made available on the DPIPWE website:

<https://dPIPWE.tas.gov.au/conservation/development-planning-conservation-assessment/survey-guidelines-for-development-assessments>. These may be subject to change as further information becomes available, so it is recommended that you check for specific guidelines (and updates to guidelines) as part of the planning process for field surveys.

If a desktop assessment indicates that there are listed species that can only be identified at certain times of the year, and the field survey confirms the presence of potential habitat, it is likely that a follow up survey will be required during the appropriate season, if this has not been done.

DPIPWE's Threatened Species Link provides information on the best times of year to survey for some different threatened species.

Survey methods should be consistently applied across the survey area and must be documented and reported in sufficient detail to allow replication if necessary. Where the entire area cannot be surveyed, details of the area

surveyed should be mapped and provided in the report. However, surveys should not preferentially target the more readily accessible areas, as effort should primarily be based on known and potential habitat value.

Survey requirements

This section provides guidance regarding minimum requirements for surveys. Additional information regarding methodology etc. is provided in Appendix 1. A survey checklist, which may assist to ensure completeness, is provided at Appendix 3.

When surveying for natural values, the following minimum general information must be recorded and reported. It is also expected that maps and photos will be provided, as appropriate.

- Site details including location, tenure and land title number and/or PID number (and mining lease number if applicable).
- Surveyor(s) name, contact details and the date and time of the survey/s.
- Description of the survey methods used.
- Description of the survey area including a GPS track-log and/or map/s.
- Description of the basic underlying geology and soil types of the survey area.
- Description of all natural values as well as a full species list for vascular flora (identifying non-threatened species, threatened species, endemics and declared and environmental weeds).
- Identification of areas within the footprint that could potentially avoid, reduce or mitigate impacts to natural values from the development proposal.
- Potential offset sites/areas (if likely to be required).
- Any other information or data considered relevant.

Specific survey information will be required for the following attributes of a site.

Natural Values (see Appendix 1, page 10 for further detail):

- Vegetation community(s).
- Threatened flora.
- Threatened fauna.
- Non-threatened fauna (where it has been identified that a development is likely to have a significant impact on a species listed under the *Wildlife (General) Regulations 2010*).
- Geoconservation sites and geomorphic features and processes.

Potential threats (see Appendix 1, page 13 for further detail):

- Weeds.

- Pests.
- Disease.
- Potential acid sulfate soils.

Additional or follow up (targeted) surveys

Additional or follow up surveys may be required if initial survey work highlights the need for more information. For example the initial survey may identify threatened fauna habitat, which may then require a targeted threatened fauna survey to be undertaken, depending on likely impacts. Additional surveys may also be required when identifying and documenting offset proposals.

4. KNOWLEDGE MANAGEMENT

All records of threatened flora, listed fauna (and products thereof), weeds, pests and diseases which are compiled during the field survey/s should be submitted to the Natural Values Atlas (NVA) within three months of survey using the online standard proforma and data entry facility. Consultants will first need to apply to DPIPWE for access via the NVA website and will then need to request the creation of a project to lodge their data under. It is a condition of most permits issued to consultants that this information be submitted to the NVA.

Data collected on the location and extent of vegetation communities as ground-truthed during the survey/s may also be provided to DPIPWE, particularly when it differs significantly from that mapped on TASVEG. This assists to maintain the currency of publicly available datasets and mapping products, and improves the accuracy of assessments. Data may be submitted to DPIPWE's Tasmanian Vegetation Monitoring and Mapping Program (TVMMMP). Further information on the current submission process may be obtained by contacting the TVMM Program Coordinator via email at TVMMPSupport@dpiuwe.tas.gov.au.

5. MITIGATION AND OFFSETS

Actions that may be required based on the outcomes of surveys include 'no action', 'avoidance', 'mitigation' and/or 'offset'. It is important that, when required, the survey report includes due consideration of avoidance and mitigation measures to reduce the potential impacts of a proposal (on natural values) as much as practicable. This information will assist the regulator/s to assess the risks and to determine if these risks are acceptable.

Offsets operate within a mitigation hierarchy, where the first consideration is whether the likely impacts can be avoided or minimised, followed by remedying impacts on site, followed by mitigation options within the footprint area of the development, followed by offsetting some or all of the residual impacts.

Mitigation measures are intended to reduce the impact of a proposed development on natural values. Various approaches can be applied depending on the proposal.

When avoidance is not practicable and there is likely to be a residual impact/s on natural values after mitigation measures are put in place, an offset/s may be required. Offsets are actions that contribute to the conservation of natural values outside the development footprint, and can include reservation, active management, and other actions that demonstrate a conservation benefit for a particular natural value.

If protection (through reservation) of equivalent natural values is required or proposed as part of a development proposal, DPIPWE's *General Offset Principles* must be followed. Proposed offsets will be assessed against these principles, which are located at Appendix 4. Further information regarding offset covenants is provided at Appendix 5.

More information on appropriate mitigation and offset measures for particular threatened fauna species is provided in species-specific survey guidelines and management advice documents where available. For the current list of available documents go to

<https://dpiuwe.tas.gov.au/conservation/development-planning-conservation-assessment>.

6. REPORTING

Reports for assessment purposes should be concise and contain sufficient information (such as tables, maps, photographs etc.) to clearly describe the natural values and communicate the impact of the proposal on them, as well as actions taken and options available to avoid or mitigate negative impacts. Consistency with these suggested reporting formats and standards will assist regulators and assessment officers to process applications efficiently.

All maps should be presented in colour and geo-referenced to GDA94 using GIS software. Photos should be presented in colour and captioned (description, location, date and aspect/direction). The report should be provided as either a searchable PDF or an MS Word document. Where possible, shapefiles of mapping should also be provided.

The report should follow a standard scientific reporting format such as:

- Executive Summary
- Introduction
- Methods
- Results
- Discussion and Recommendations
- References
- Appendices

Suggested report content using these headings is at Appendix 6 as a guide.

7. APPENDICES

APPENDIX 1: ADDITIONAL SURVEY DETAIL

SURVEY OF NATURAL VALUES

Survey of Vegetation Community(s)

- The primary objectives for surveying the vegetation community(s) are: to determine if any listed threatened native vegetation communities occur onsite, and if so, their extent and condition, and to assess the potential direct or indirect impact on them from the proposal. A secondary objective is to determine if the vegetation communities on site represent potential habitat for any listed species.
- A desktop assessment may be undertaken to indicate which vegetation communities are likely to occur in the area. It is recommended that the TASVEG layer on the NVA or Land Information System Tasmania map (LISTmap) be used, but it should be noted that TASVEG mapping provides an indication only and needs to be ground-truthed for accuracy.
- A field survey is required to ground-truth the findings of the desktop assessment. The field survey should use standard survey methods and reference to descriptions of vegetation community types according to TASVEG mapping units as described in Kitchener and Harris (2013). The survey should also determine whether there is any potential habitat value for threatened species, including signs of critical habitat features such as dens and tree hollows. Vegetation descriptions must include enough information to enable identification using the keys mentioned above.
- For any threatened communities, information should be collected on the current extent and condition (including spatial context, relative species diversity, canopy health, signs of weeds or disease and previous disturbance, age structure and evidence of recruitment etc.). Representative photographs of each community should also be taken and provided in the report.
- Based on the findings of the survey/s consideration must be given to potential avoidance and mitigation actions to minimise impact on native vegetation, in particular any high conservation value communities (such as threatened vegetation communities, streamside vegetation, vegetation corridors etc.). If some impact is unavoidable the report should indicate the proportion of the identified high conservation value community that would be impacted by the proposal.

Survey of Threatened Flora and Fauna

- The primary objectives for surveying for threatened flora and fauna are: to determine if any listed threatened species, dens or nests of threatened fauna species, or potential habitat for these species occurs onsite, and if so, the

extent and condition of the values and any potential direct or indirect impact from the proposal.

- A desktop assessment must be undertaken to indicate which threatened species are likely to occur in the area. A NVA, Natural Values Report (using buffers of 500 m and 5 km around the potential direct and indirect impact area) must be generated and other relevant desktop tools interrogated (e.g. listing statements, Threatened Species Link, soil mapping etc.). The results of the desktop assessment should assist with the planning and direction for the field survey work.
- A field survey is required to ground-truth the findings of the desktop assessment (using standard survey methods) and to record information on the current extent and condition.
- For threatened species, provide a list of species that occur, or have the potential to occur, within 5 km of the site alongside a comment on whether the species was recorded, and if not, a brief assessment of the risk of having overlooked it giving particular regard to the suitability of habitat at the site and the timing of the survey.
- For threatened flora surveys the following information is to be collected and recorded:
 - Location, number and condition of individuals
 - Spatial context
 - Location, extent and condition of any known or potential habitat.
 - For threatened flora observed during the field survey/s, the following information must also be recorded
 - Location (including GPS coordinates) and population size (or estimate based on approved field sampling techniques where a count of the entire population is not possible)
 - Age structure of the population if possible including any evidence of a viable reproducing population, as well as evidence of recruitment
 - Condition of the population and any potential threats
 - Any distinguishing or unusual features of the species / population including differentiation or evidence of hybridisation and introgression.
- For threatened fauna surveys the following information is to be collected and recorded:
 - Spatial context
 - Location, extent and condition of any known or potential habitat

- Any sightings or indications of habitat use (including GPS coordinates), for example the presence of tracks, scats, or scratchings
- Location (including GPS coordinates), number, extent and condition of any wildlife products of threatened or special interest fauna (e.g. nests, dens)
- It may also be useful to provide photographs in the report to depict spatial context and condition of natural values of interest.
- Based on the findings of the survey/s consideration should be given to potential avoidance and mitigation actions to minimise impact on threatened and special interest species and their products. If some impact is unavoidable, information should be provided on what proportion of the identified value/s would be impacted by the proposal and what would be retained.

Survey of Non-Threatened Fauna

- Surveying for non-threatened fauna (and/or products thereof) is only required where it has been identified that a development is likely to have a significant impact on a species listed under the *Wildlife (General) Regulations 2010*. Further advice can be sought from PCAB during the planning stage if required to determine the need for such a survey.

Survey of Geoconservation Sites and Geomorphic Features and Processes

- The primary objective for surveying for geoconservation sites and geomorphic features and processes is to determine if any geoconservation sites or features and processes exist on or near to the proposal area, and if so, their extent, condition, and any potential direct or indirect impact from the proposal.
- The following should be completed, based on both desk top analysis and field surveys of the proposed development site and the surrounding area:
 - Broadly characterise the geodiversity (geology, geomorphology, soils and hydrology) of the area within the vicinity of the proposal.
 - Review available data and existing reports on geodiversity values and geomorphic process within the vicinity of the proposal.
 - Assess the site for geodiversity values in the vicinity of the proposal. The Tasmanian Geoconservation Database is a source of information about geodiversity features, systems and processes of conservation significance and is available as part of the Natural Values Atlas (<https://www.naturalvaluesatlas.tas.gov.au/>). However, the absence of identified values at a location may reflect gaps in the database and should not be taken as conclusive evidence that geodiversity values

are not present. In that situation, an appropriate site-based assessment may be required.

- Identify and document the existing condition and sensitivity of geodiversity values and any existing threats to those values within the vicinity of the proposal.
- Identify any current geomorphic process (e.g. karst, fluvial, coastal or soil, including acid sulfate) which could be affected by the proposed development, both on- and off-site.
- Assess potential impacts of the proposal – provide an assessment of the likely impacts of the construction and operation of the proposed development on the geodiversity values and geomorphic processes identified.
- Propose avoidance and mitigation strategies - provide advice on practicable strategies to avoid, minimise and mitigate the assessed impacts of the construction and operation of the proposed development on the identified geodiversity values and geomorphic processes.
- Propose offset strategies - where there are no practicable measures to avoid or mitigate the assessed impacts of elements of the proposed development on identified values or processes, provide advice on potential opportunities to offset the residual impacts, as guided by DPIPWE's *General Offset Principles*.
- Monitoring success of avoidance, mitigation and offset strategies – suggest appropriate monitoring methods to measure the success of proposed avoidance, mitigation and offset strategies.
- In addition to prepared maps, relevant spatial data should be supplied (e.g. as shapefiles, geopackage or *.kml files).

SURVEY OF POTENTIAL THREATS

Survey of Weeds, Pests and Diseases

- Please note that it is an offence under Section 56 of the *Weed Management Act 1999* to grow, propagate, scatter or transport a declared weed or anything containing a declared weed (such as soil, gravel etc.). It is therefore important that the presence of any declared weed at the site to be developed is identified and appropriate measures put in place to prevent its spread.
- The primary objective for surveying for weeds, pests and diseases is to determine if any declared or environmental weeds, pests or diseases occur within or near to the proposal area, and if so, their location and extent and any potential for further degradation on or offsite due to the proposal.

- For sites where weeds, pests or diseases are an issue, each proposal also needs to be assessed for the risk of introducing, spreading or exporting weeds, pests or diseases and planned mitigation actions developed (usually in the form of a weeds and diseases management plan including, but not limited to, training and induction protocols and washdown procedures).
- For sites where weeds, pests or diseases are not currently an issue, each proposal should address what mitigation actions will be put in place to maintain the weeds, pests and diseases-free status of the site.
- A desktop assessment must be undertaken to determine if any declared weed species or diseases have been recorded on or near to the proposal area. This can be done through the NVA (or LISTmap for weed records). Depending on the location and vegetation communities onsite, these may include *Phytophthora cinnamomi* or chytrid (frog disease). If any occurrences are recorded, further information can be accessed on the weed / disease of concern using the DPIPWE website.
- A field survey is required to ground-truth the findings of the desktop assessment (using standard survey methods) and to record information on the current location and extent of any declared or environmental weeds, pests or diseases.
- Based on the findings of the survey/s proposed avoidance and mitigation actions to minimise the introduction, spread or export of these threats must be developed and detailed in the report. Where sites are determined to be 'clean', the report should detail the proposed actions that would be undertaken to maintain the clean status of the site.

Survey of Potential Acid Sulfate Soils

- To determine the risk of disturbing potential acid sulfate soils (PASS), proponents or their representatives should undertake a search for known risk sites using LISTmap. A guide to searching LISTmap for known risk sites is available from <https://dpiipwe.tas.gov.au/agriculture/land-management-and-soils/soil-management/acid-sulfate-soils>.
- When planning for activities that may disturb PASS, the *Tasmanian Acid Sulfate Soil Management Guidelines* must be used. The guidelines are designed for consultants, earthmoving contractors, developers, agricultural and aquaculture producers, sand and gravel extraction operators, community groups and administering authorities from state and local government. While the guidelines focus on developments below 20 m above sea-level, the requirement for a management plan are recommended wherever significant disturbance of PASS may occur. The guidelines are available from the DPIPWE website at: <https://dpiipwe.tas.gov.au/agriculture/land-management-and-soils/soil-management/acid-sulfate-soils>.

APPENDIX 2: RESOURCES

DPIPWE has a range of publicly available information that will assist consultants when planning to undertake a natural values survey. Some of the main information sources that should be consulted before undertaking a field survey are noted below, with some explanatory notes.

NCH may also need to be consulted for advice when planning a survey. If advice is required, it is requested that you contact PCAB in the first instance.

- The Natural Values Atlas (NVA) is the most authoritative repository of information on natural values in Tasmania. A Natural Values Report can be requested on the NVA website to obtain a map as well as lists of TASVEG vegetation communities, geoconservation sites listed on the Tasmanian Geoconservation Database, threatened flora and fauna species and species of conservation significance, for any site or area within the State. Whilst the NVA will not contain an exhaustive list of natural values with the potential to occur in a given area it will reflect the current level of knowledge of values and their distribution.

Note whilst the NVA is a valuable tool, care must be taken when interpreting information from the NVA (e.g. age of the record, accuracy level of the record, whether there has already been a take under permit at the site of the record etc.); it is not sufficient to simply add up the number of records (etc.) that are in the NVA and use this as the sole justification to support (or otherwise) an action.

www.naturalvaluesatlas.tas.gov.au

- The Land Information System Tasmania (LIST) is a web based repository of the State's comprehensive spatial data resources including property and land title information, satellite imagery, topographic maps, geological maps and natural values data.

LISTmap (State aerial photo basemap layer or Google Satellite basemap layer) can also be used to access the latest satellite imagery for the State.

<https://www.thelist.tas.gov.au/app/content/home/>

- The Threatened Species Link website contains management and conservation advice on Tasmania's threatened species, including species-specific information on survey periods, habitat, activities most likely to cause an impact, and links to DPIPWE notesheets and species recovery plans.

<https://www.threatenedspecieslink.tas.gov.au>

- The Department of Primary Industries, Parks, Water and Environment (DPIPWE) website contains links to biological and ecological information on many of the State's threatened species as well as biosecurity and invasive species information. This information is contained in documents such as notesheets (for most threatened flora species), Listing Statements and Recovery Plans (for selected threatened flora and fauna species) and guidelines (for biosecurity management).

Note that some of the notesheets available on the DPIPWE website may be dated, so care needs to be taken depending on what they are being referred to for. Generally it is recommended that the notesheets are not referred to as the only source of information; rather that they be referred to along with more updated information sources such as the NVA (species search), recent published papers and the Threatened Species Link.

The Natural and Cultural Heritage Division will be developing survey guidelines for particular threatened fauna species. As these are finalised they will be made available on the DPIPWE website. These will be subject to change as further information becomes available, so it is recommended that you check for specific guidelines (and updates to guidelines) as part of the planning process for field surveys.

Useful webpages include:

- Threatened species listing statements, notesheets and recovery plans:

<https://dPIPWE.tas.gov.au/conservation/threatened-species-and-communities/lists-of-threatened-species>

- Biosecurity information:

<https://dPIPWE.tas.gov.au/invasive-species>

- Potential acid sulfate soils information:

<https://dPIPWE.tas.gov.au/agriculture/land-management-and-soils/soil-management/acid-sulfate-soils>

- The Water Information System of Tasmania website provides access to the Conservation of Freshwater Ecosystem Values Database which contains information on the conservation value of all the State's freshwater and estuarine systems.

<https://dPIPWE.tas.gov.au/water>

- Special species timbers information:

https://www.stategrowth.tas.gov.au/energy_and_resources/forestry/specialspecies/timber

- Utilise relevant published reports and papers on natural values and potential threats.

APPENDIX 3: COMPLETED SURVEY CHECKLIST

- Development proposal material that is available reviewed, so that a clear understanding of the size, scope and potential impacts may be formed.
- Desktop survey (utilising relevant databases, tools, recovery and management plans, literature review etc.) undertaken to help inform focus area and focus species/values for field survey.
- DPIPWE website visited to check latest version of (consultants and species-specific) guidelines are being used.
- Reconnaissance field survey undertaken, if required.
- Appropriate survey boundary determined encompassing any areas which might be directly or indirectly impacted by the proposal.
- Potential biosecurity risks identified and appropriate control procedures developed for the survey/s.
- Valid permit/s held for field survey(s), if required.
- Field survey(s) undertaken consistent with these guidelines or in consultation with PCAB.
- Standard survey methods used and all different habitats of the survey area were surveyed or sampled with survey intensity greatest in areas of known or potential habitat.
- Where safe to do so, survey effort was not biased towards the most easily accessible parts of the survey area.
- Tracklogs and/or maps taken of the survey route(s) and provided in the report.
- Report written up following the general layout outlined in this document with adequate descriptions of the methods and results, appropriate mapping and photographs.
- Shapefiles (e.g. survey track-logs, site boundaries etc.) provided with the report, where appropriate.
- Ground-truthed vegetation mapping (where different to that shown on TASVEG (current release) submitted to the DPIPWE via the TASVEG notifications service, or where a more substantial revision of TASVEG is identified, by submission of revised mapping with the support of TVMMP staff.
- Data on natural values and threats (weeds, pests and diseases) recorded during the field survey(s) submitted to DPIPWE (via the NVA).

APPENDIX 4: GENERAL OFFSET PRINCIPLES

How do offsets apply under the Resource Management and Planning System?

An objective of the Resource Management and Planning System for Tasmania (RMPS) is to promote 'sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity'. The RMPS definition of sustainable development includes 'avoiding, remedying or mitigating any adverse effects of activities on the environment'.

Offsets are one form of mitigation of the potential impacts of proposed activities on natural values. They are actions that contribute to the conservation of natural values outside of the development footprint, and can include reservation, active management, and other actions that demonstrate a conservation benefit for a particular natural value.

Offsets operate within a "mitigation hierarchy", where the first consideration is whether impacts can be avoided or minimised, followed by remedying of the impacts on site, followed by mitigation options within the footprint area of the development, followed by offsetting some or all of the residual impacts, as appropriate.

Where offsets are identified as being required for a particular proposal, the proponent should propose offsets that aim to meet the following policy principles. Proposed offsets should be assessed against these principles, and must meet these principles in order to be approved.

PRINCIPLES

Mitigation hierarchy

Offsets can act as a form of mitigation for the residual impacts of a development proposal on natural values. Alternatives and options to avoid, minimise and remedy the impacts of the proposal must be adequately addressed prior to the consideration of offsets.

Staged developments

For staged developments, such as a staged subdivision proposal, proponents should provide details of the whole proposal early in the process to allow for a single assessment wherever possible. This will normally provide better conservation outcomes and greater certainty for the proponent. Any offsets that are required can be implemented either up-front, or in a staged manner in accordance with approvals for each stage of the development.

Conservation outcomes

Proposed offsets should aim to maintain or improve conservation outcomes. Offsets should generally be for the same species, native vegetation community (in comparable condition), or other natural value that is to be adversely impacted by the proposal.

A greater magnitude of offset is generally required for impacts on natural values on sites that are protected or managed for nature conservation, including reserves and public lands that are managed for natural values. Impacts on these sites may decrease the protection or reservation status of those natural values. For impacts in public reserves, wherever possible the offset should provide outcomes within the reserve system.

LOCATION OF OFFSETS

On-property offsets

- Where offsets will occur on the same property as the development, overall conservation outcomes for natural values on the property may be considered in determining appropriate offsets, including existing reservation and formal management arrangements.
- Offsets should contribute to well-designed proposals and property management planning that takes account of impacts on natural values and the potential for achieving genuine conservation gains at a property or landscape level. This includes providing for the recognition of land management practices which provide positive environmental outcomes.
- In general, conservation actions (such as a covenant) that have received substantial funding from other sources will not be considered as an offset for a development proposal.

Off-site offsets

- Where it is not practical for offsets to be provided on the site or property where the impact will occur, consideration may be given to other proposed locations. Preference should be given to locating the offset where the greatest conservation gains can be made at a bioregional or State level.
- In cases where the proposed offset is not on land currently owned by the proponent, the proposal will need to demonstrate how the proponent intends to ensure that the offset is effectively implemented and maintained.
- Offsets can be used to reserve and manage sites of high conservation value, and provide opportunities to achieve genuine conservation gains in areas that are more viable than the impacted site or are identified as strategic priorities.
- For reservation of sites that are identified as a priority in a planning tool such as a recovery plan, the whole site should be reserved wherever possible. This is because assessments of viability and management are implicit in identifying these sites, and a smaller area is less likely to be viable in the long-term.

OFFSET MECHANISMS

- Offsets must be designed to meet conservation priorities or to address known threats for specific natural values. Flexibility will be incorporated into the

appropriate offset mechanism/s to the extent that the offset principles are met.

- A package of individual offsets may be approved where this will achieve conservation outcomes that are consistent with this principle.
- In general terms, offsets can include:
 - improved protection of a site, such as through conservation covenants, transfer of land to the Crown for reservation, Part 5 Agreements, or formal management agreements
 - management actions that aim to benefit specific natural values at an existing site
 - restoration or revegetation of sites to provide a direct conservation benefit, such as the creation of foraging habitat for a threatened species or actions facilitating the recovery of areas with the potential to revegetate naturally
 - where lack of knowledge is considered a threat to a specific natural value, or as part of an offset package, agreed actions to increase knowledge regarding that natural value may constitute an offset if the actions aim to increase protection or viability.

Reservation

- For offsets involving reservation, the size, condition, context and viability of the impacted site and the offset site should be compared. The assessment should consider the management requirements of the natural values involved and the expected outcomes of any management actions that form part of the offset.
- For threatened species and threatened native vegetation communities, the 'size' is the number of individuals in the population to be lost (or protected through an offset), or the area of habitat or native vegetation community that will be lost (or protected through an offset).
- Where reservation forms the major part of the offset, the offset site should protect natural values of a magnitude at least as large as that lost, and maintain or improve the condition and/or context of the site.
- Offsets should generally last for the duration of the impact. Where reservation is required as part of an offset, and the proposal results in the loss of the natural values in perpetuity, the offset must protect the site in perpetuity.
- Restoration and revegetation:
 - Revegetation of complex ecosystems or threatened species populations through planting or translocation are generally unsuitable as offsets, however there may be exceptions where a genuine conservation gain can be demonstrated and the level of risk associated with the success of the actions is considered to be acceptable.

- Where restoration and revegetation of complex ecosystems or threatened species populations through planting or translocation is accepted as an offset, it should be carried out in advance of the development where feasible to demonstrate success of the actions.
- Restoration or revegetation should include a performance-based measure.
- Where restoration or revegetation is used as an offset and there will be a significant time lag between the impacts of the proposal and the creation or improvement in condition of the site, the offsets should wherever possible include actions with short-term results.

Management actions

- Where specific management actions are likely to be required to ensure the viability of an offset site in the long-term, the offset should include the necessary management actions.
- Where appropriate, adaptive management can be agreed, with monitoring used to review the required management actions at appropriate intervals.
- Management actions that form part of a development approval should require reporting at appropriate intervals. The nature, frequency and responsibility for management actions and reporting should be clearly specified in the permit or other legal mechanism established as a condition of approval.
- Where a third party will be carrying out management actions as part of an offset, any required funding for management should be provided by the proponent up-front or at agreed intervals, as part of the offset.
- Knowledge-based actions:
 - Knowledge-based actions are appropriate for some threatened species, geodiversity and other natural values, where knowledge gaps are recognised as a conservation priority for those values.
 - Knowledge-based actions should only be used in conjunction with other actions as offsets for vegetation communities.
 - Actions for the purposes of increasing knowledge may include research that addresses conservation priorities for the natural values. Examples may include research that is identified as a priority in a recovery plan, or surveys to determine the likely extent of a value where there are significant knowledge gaps that lead to difficulties for the protection and management of that value.

Threatened species

- Where loss of threatened species populations is likely to be unavoidable and there are substantial residual impacts identified, the offset should, where possible, include outcomes for threatened species populations, rather than for potential habitat only.

Threatened native vegetation communities

- Offsets for threatened native vegetation communities should be based on the reservation and management of threatened native vegetation communities elsewhere.
- The offset may include some regeneration of adjacent areas to be protected within the reserved area where it is likely that a viable extension to the native vegetation community will result (e.g. fencing to exclude grazing). This aims to account for the loss of extent of the native vegetation community due to the proposal.

RELATIONSHIP TO OTHER APPROVALS AND LEGAL MECHANISMS

Legal mechanisms

- Offsets must be legally enforceable through permit conditions or some other legal mechanism established as a condition of approval. Offsets should be designed so as to have outcomes that are certain.
- Offsets that form part of a development approval should be linked to a legally enforceable mechanism prior to the impacts on natural values commencing, such as through tenure, management agreement or consent conditions. The approval should include a time frame for implementing the offset/s.

Previous approvals

- Where offset-like actions have been required under a regulatory process, these will not be considered as an offset for any future development proposal. However, additional offset actions may occur on the same site if it can be demonstrated that an environmental benefit will occur, such as additional active management of the area.
- If a subsequent development proposal will impact on an existing offset, the values that were protected under the offset may not be further impacted upon without additional offsetting. Additional offsets will need to adequately address the impacts of the current proposal and the impacts on the offset provided under the original proposal.

INFORMATION REQUIREMENTS FOR ASSESSMENT OF DEVELOPMENT APPLICATIONS

- The best available information should be used in determining the potential impacts of a proposal on natural values and the determination of appropriate mitigation actions and offsets, as required. As such, proponents (or their representatives) should ensure that the most current tools and resources are used during the assessment process.

- Proposals should include adequate information on the natural values at the impacted site and at any proposed offset site.
- Proposals must clearly define the impacts that are being offset. Where the impacts on natural values cannot be fully described or quantified, a risk assessment should be undertaken and provided.
- Proposals should specify the conservation requirements of the natural values (e.g. breeding and foraging habitat or management requirements for threatened species), to aid in determining appropriate offsets.
- Information derived through the application and assessment process that adds to the records of natural values on a site will form part of the assessment of the proposal. Provision of this new information is not considered to be an offset. However, other research may be used as an offset in some cases.
- If a proposal is modified and additional impacts will occur, the proposal should be reassessed.

APPENDIX 5: COVENANT POLICY STATEMENT

(DPIPWE - Resource Management and Conservation, November 2012)

The policy applies to the establishment of conservation covenants through the *Tasmanian Nature Conservation Act 2002* (NCA). It is relevant to State and Commonwealth Government agencies, statutory authorities, private developers and consultants that may be involved in the use of offset covenants to mitigate the potential impact of proposed activities on natural values.

On 15th November, 2012, the Tasmanian Minister for Environment, Parks and Heritage approved a Conservation Covenant Policy (below) that applies to all covenants established under the NCA. The policy outlines principles and criteria under which the Minister may wish to enter into a covenant, including minimum size and viability criteria for covenants.

The policy applies to covenants including:

- Voluntary conservation covenants
- Covenants required by external Regulators under offset arrangements
- Covenants used for compliance purposes under a range of Acts

COVENANTING PROCESS

All proposals for covenants under the NCA will be submitted to the Property Assessment Group (PAG), via the Conservation Partnerships Section of DPIPWE, which will provide technical review of all covenant proposals.

The principle role of the PAG is to recommend properties for inclusion in the private reserve system via covenanting under the NCA. PAG membership comprises a range of internal and external experts in Tasmanian flora, fauna, threatened species, vegetation communities, reserve design, production and management of natural values. Members of PAG will be guided by the new covenant policy in determining the suitability of a proposed area for recommendation to the Minister for covenanting under the NCA.

BACKGROUND

Under Section 34 of the NCA:

The Minister on behalf of the Crown may enter into a conservation covenant with a landowner if the Minister considers it necessary or desirable to do so for a conservation purpose. A conservation covenant may contain such covenants and other provisions as the Minister and the landowner agree.

Covenants made under this Act may be a restrictive covenant or a positive covenant. Such a covenant

- a) runs with the servient land as if it were a covenant to which Section 102(2) of the *Land Titles Act 1980* applies; and

b) is enforceable between the parties to it, and any person deriving title under any such party, as if the covenant were entered into by a fee simple owner of land for the benefit of adjacent land held by the Crown in fee simple that was capable of being benefited by the covenant and as if that adjacent land continued to be so held by the Crown.

This policy specifies principles and criteria under which the Minister may wish to enter into a covenant under the NCA for a conservation purpose.

This policy applies for all covenants under the NCA excluding covenants required under Divisions 3 or 4 of the NCA.

This policy applies to covenants including:

- voluntary conservation covenants
- covenants required by external Regulators under offset arrangements
- covenants used for compliance purposes under a range of Acts

POLICY

Properties will be considered for covenanting where the Minister is satisfied that the following principles are met:

- The target natural features are viable to the extent that they are likely to persist without significant management intervention;
- The shape and size of a proposed covenant is adequate and practicable to protect and maintain the target natural features; and
- Natural features within a proposed covenant contribute to the comprehensiveness, adequacy, representativeness and/or resilience of the Tasmanian reserve estate.

In determining whether the above principles are met for a particular covenant proposal, consideration will be given to the following criteria:

- a) The condition of the natural features including their likely long-term viability;
- b) The practicality of any management requirements necessary to maintain the natural features;
- c) The area of the covenant is of an acceptable size;
- d) The context of the covenant such as shape, connectivity, adjacent land tenures, land uses and edge effects; and
- e) The contribution to the comprehensiveness, adequacy representativeness and / or resilience of the Tasmanian reserve estate.

DEFINITIONS

Acceptable size:

- a) Minimum 10 hectares; or
- b) Any area of target natural features that is deemed by the Minister to be of a size that:
 - is viable for those features; and
 - can be practicably protected by a covenant under the NCA.

Natural features include:

- Populations of flora and/or fauna species listed under the *Tasmanian Threatened Species Protection Act 1995* or the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*;
- Habitat for fauna species or cryptic flora species listed under the TSPA or the EPBCA, where that habitat is either critical to the survival of the species; is itself threatened, contains important habitat features for the survival of the species or the protection of additional habitat has been identified as a priority for that species (e.g. in a Listing Statement or Recovery Plan);
- Threatened vegetation communities listed under the NCA;
- Old growth or mature forest;
- Native vegetation communities identified by DPIPWE as under-reserved at the bioregional level;
- Sites listed on the Geoconservation Database or identified as having national, state or regional geoconservation significance;
- Other natural features identified as a priority for conservation or considered Matters of National Environmental Significance under the EPBCA (e.g. Ramsar sites, locations important for migratory species covered by CAMBA, JAMBA etc.) or in State and Commonwealth government agreements and commitments;
- Geographically or otherwise distinct groups or locations of species of flora and fauna;
- Sites important for the protection of landscape connectivity;
- Sites of evolutionary significance (e.g. hybrid swarms, clines);
- Sites displaying unusually high biodiversity levels;
- Sites identified as focal landscapes under DPIPWE's Conservation Information System;
- Sites important for the protection of past or contemporary refugia.

APPENDIX 6: SUGGESTED SURVEY REPORT CONTENT

EXECUTIVE SUMMARY

- Summarise the scope and findings of the survey and the key recommendations.

INTRODUCTION

- Introduce the survey report including where, why, when and for whom the survey is being conducted.
- Provide a location map and a description of the development proposal.
- Provide a site map showing the development footprint and any associated offsite impacts.
- State the aim of the survey.
- Provide the surveyor(s) name, contact details and the date and time of the survey.
- Provide details of any permits or authorisations issued to the surveyor (e.g. for collection permits provide the permit number, date of expiry, and a statement of compliance with permit conditions).

METHODS

- Indicate the background research and information sources consulted prior to the field survey.
- Describe the field survey methods (e.g. random meander technique, quadrats, plots, transects, call playback, expert opinion).
- Describe the field survey effort (e.g. extent of areas surveyed, number of person hours spent searching, indicate those areas surveyed intensively or less intensively, provide GPS tracklogs or map).
- Discuss any limitations of the survey (e.g. the timing of the survey, the methods used, the weather, difficult vegetation or terrain, the knowledge and experience of the surveyor(s)).
- State which geographic datum has been used when providing spatial data. It is recommended to use the currently accepted standard in Tasmania which is the GDA94 Zone 55 with coordinates expressed in eastings (6 digits) and northings (7 digits).
- Specify which taxonomic nomenclature and vegetation classification systems have been used. It is recommended to be consistent with the latest *Census of Vascular Plants of Tasmania* by the Tasmanian Herbarium (e.g. Baker & de Salas) for flora and Kitchener and Harris (2013) for vegetation communities.

RESULTS

- Use tables, maps and photographs to summarise and illustrate the survey results. In addition to the written report format, provide any data in electronic format (e.g. shapefiles, spreadsheets etc.).
- Provide a map of the local vegetation community types alongside a table indicating the TASVEG 3.0 descriptions and codes, their conservation status, the extent or size of the communities in hectares, an indication of the condition of the communities, how much will be impacted by the development and how much will be retained.
- For threatened or other species of interest recorded during the survey, provide their location(s), local population size or extent (include confidence intervals when appropriate), and for threatened flora species also note the age structure and condition of the population and any unusual features observed. Indicate how much of the local population will be impacted by the development and how much will be retained.
- For threatened fauna habitat specify the type of habitat (e.g. foraging, nesting, migratory bird habitat) and provide a map of its local extent, an indication of its condition and any evidence of use by the species. Indicate how much of the habitat will be impacted by the development and how much will be retained.
- Include a description of the broader context around the site/habitats.
- Include detail of potential offsite impacts (e.g. roadkill, noise, dust etc.)
- For potential habitat of threatened flora species, especially threatened ephemeral species, indicate the location, extent and condition of habitat, when appropriate.
- For geoconservation sites, features and processes details on the type, size and significance of the site(s) or feature(s) should be provided. For large or complex sites, geology, soil and landform maps should be provided, or at a minimum a detailed description of these attributes. Describe the nature and extent of anticipated impacts to geoconservation values.
- Provide a map clearly showing the location and extent of all the natural values identified relative to the development footprint.
- Provide a list and map of any weeds, pests or diseases observed on the site.

DISCUSSION AND RECOMMENDATIONS

- Discuss the quality and condition of the natural values that have been identified and the significance of the impact of the proposal on these values at the local, regional and State-wide level.

- Discuss the context of the site, its location and condition, the proximity to areas already reserved for conservation, or other nearby areas of unreserved habitat.
- Discuss the potential for the spread of weeds, pests and plant and animal diseases. Identify whether a hygiene plan is required (e.g. DPIWE *et al.*, 2004). Recommend any other measures to prevent the spread of those weeds, pests or diseases either elsewhere on the site or to areas offsite and any mitigation strategies where contamination has occurred.
- Discuss the risk of erosion, landslip, potential acid sulfate soil or other geohazards, and the potential for these to impact on karst, groundwater or other natural values.
- Where relevant, identify the legislative implications of the proposal particularly with regard to the requirements for any permits or approvals.
- Discuss and detail the options for avoiding, minimising, or mitigating the impact(s) including the potential for offsetting any residual impacts (after all practicable avoidance and mitigation measures have been considered).
- Make recommendations in this regard and indicate whether these recommendations have been made in consultation with the client. Refer to the General Offset Principles at Appendix 4 for all forms of developments other than dams.
- Where a conservation covenant is being considered as an offset option also refer to Appendix 5.
- If an offset is likely to be required, outline the location and details of the proposed offset/s.

RESERVATION OFFSETS

In circumstances where impacts on natural values cannot be avoided and a reservation offset is being proposed, it is strongly recommended that PCAB and the relevant regulator/s are consulted upfront prior to any reservation offset proposal being developed. Any proposed offset area must meet the criteria outlined in Appendix 5. The following information should be provided (including in digital form if possible) for any proposed offset area:

- Name and contact details of the landowner.
- A map showing the proposed offset boundaries.
- All vegetation community type(s) encountered, their name, distribution on the site (mapped), and condition.
- All recorded threatened species: names, locations, extent of populations; as well as potential habitat for any threatened species.
- Any listed or potentially significant geoconservation features.

- Details of any recorded weed species including the extent of each weed (mapped), clumped or scattered etc., and any weed control activities underway or proposed.
- Details on the condition of the site (e.g. whether there are any erosion issues, diseases, evidence of past or current firewood collection, grazing etc.).
- Details of existing or proposed tracks and fences and provide indications of whether they are to be maintained, upgraded or rehabilitated.
- Details of any other existing or proposed infrastructure on the land (e.g. pipelines, dams/waterholes, sheds etc.).
- Details of any current or proposed land use.
- Any other information or data considered relevant.

If the offset proposed is land protected by a conservation covenant under the NCA the following steps will need to be met:

1. In principle agreement by the regulator that the proposal is a suitable offset for residual impacts;
2. In principle agreement by DPIPWE that the proposal meets their guidelines;
3. Proposed offset is then made a condition (subject to approval of the Minister administering the NCA) of approval by the regulator;
4. The proponent (or their representative) will then liaise with DPIPWE's PCAB and Natural Values Conservation Branch regarding the process, costs and any further information required (which may necessitate a further survey/s).

REFERENCES

Provide a list of references using a standard scientific reporting format.

APPENDICES

The following information must be provided either in the body of the report or as an appendix to the report (depending on the quantity of information which needs to be reported on).

- For flora surveys provide a species list for vascular flora, indicating threatened, endemic and introduced species (noting if a declared or environmental weed species).
- For vegetation communities not able to be assigned to a TASVEG mapping community: provide a percent cover; a flora species list for each structural vegetation strata (e.g. trees, tall shrubs, low shrubs, graminoids, grasses, herbs); and accompanying photographs.

8. REFERENCES

- Assessment Committee for Dam Construction (ACDC) (2007) *Guidelines for Establishing Offsets for Impacts on Natural Values within the Dam Assessment Framework*. Self-published by the author. Tasmania. (Available online)
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- DPIWE, Forestry Tasmania & Agricultural Contractors (2004) *Tasmanian Washdown Guidelines for Weed and Disease Control, Edition 1*. Self-published by the authors. Tasmania. (Available online)
- Kitchener, A and Harris, S. (2013) *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation. Edition 2*. Department of Primary Industries, Parks, Water and Environment. Hobart. (Available online)
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