Attachment A – DECC's Environmental Assessment Requirements

Section 1: Environmental impacts of the project
The following environmental impacts of the project need to be assessed, quantified and reported on:

- Water quality
- Air quality
- Noise
- Aboriginal cultural heritage
- High conservation value lands
- Threatened species, Endangered Ecological Communities, Endangered Populations; and their habitats

The Environmental Assessment (EA) should address how the required environmental goals will be met for each potential impact.

These should be assessed in accordance with the relevant guidelines listed in Attachment B.

Details are required on the location of the proposed forestry activities, including the affected environment, to place the proposal in its local and regional environmental context including surrounding landuses, planning zonings and potential sensitive receptors.

Describe mitigation and management options that will be used to prevent, control, abate, mitigate or compensate for identified environmental impacts associated with the project and to reduce risks to human health and prevent the degradation of the environment.

This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

Climate Change must be adequately considered in the EA. It is anticipated that watering of River Red Gum forests and Black Box woodlands will become increasingly difficult and as a consequence health, sustainable yield and regeneration will decline. Reduced rainfall and increased temperatures will exacerbate this and result in similar outcomes for Cypress Pine forests, mallee woodlands and Broombush sandplains.

Section 2: Water quality
The environmental outcomes for the project in relation to water should be:

- There is no pollution of waters (including surface and groundwater) during or following the conduct of forestry activities (unless undertaken in accordance with relevant regulations);
- There is no inconsistency with any relevant Statement of Joint Intent established by the Healthy Rivers Commission; and
- It is acceptable in terms of the achievement or protection of the River Flow Objectives and Water Quality Objectives.
- The EA should document the measures that will achieve the above outcomes.

The EA must outline erosion and sediment control measures directed at minimising disturbance of land, minimising water flow through the site(s) and filtering, trapping or detaining sediment. This should include measures to maintain and monitor controls as well as rehabilitation strategies.

The EA needs to identify the proposed type, quantity and location of chemicals to be stored on site(s). Spill management measures, including items such as bunding, and emergency procedures should be clearly outlined.

The EA should document the measures that will achieve the above goals.

Section 3: Air quality
The goals of the project in relation to air quality should include mitigation of potential air quality impacts such that potential impacts on sensitive receptors are minimised in accordance with DECC particulate matter and deposited dust criteria.

Dust is a concern with potential emissions including but not necessarily limited to vehicle and machinery movements. Details would need to be provided on the proposed measures to manage dust from these activities and their performance.

The proponent must accurately account for the greenhouse gas emissions from the project. The full life-cycle greenhouse gas emissions must be calculated, and it must be demonstrated how greenhouse gas emissions have been minimised over the life-cycle.

Section 4: Noise
The goal of the project should be to ensure operations are conducted in a manner that causes no adverse impacts from noise. The EA must clearly outline measures that will be used to mitigate impacts at any residential or noise sensitive premises likely to be affected by the project. Any assessment of potential noise sources should be undertaken in accordance with the NSW Industrial Noise Policy (DECC, 2000).

There may be an increase in traffic movements associated with the proposed project. Any projected increase in traffic movements should be quantified and potential noise impacts associated with these traffic movements need to be assessed in accordance with the Environmental Criteria for Road Traffic Noise (DECC, 1999).

Section 5: Impacts of the project on Aboriginal cultural heritage values
The EA should address and document the information requirements set out in the attached "Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation" involving surveys and consultation with the Aboriginal community.

The EA must identify the nature and extent of impacts on Aboriginal cultural heritage values across the project area.

Should sites be found to have Aboriginal cultural heritage values, the EA must describe the actions that will be taken to avoid or mitigate impacts or compensate to prevent unavoidable impacts of the project on Aboriginal cultural heritage values. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

The EA needs to clearly demonstrate that effective community consultation with Aboriginal communities has been undertaken in determining and assessing impacts, developing options and making final recommendations

Section 6: High conservation value lands
The 3A Guidelines (see Section 7) require the identification and protection of areas having high conservation values. This should be a major component of the EA. The identification of these areas needs to take into account present values, past management history and long term viability. Of necessity, it would include an analysis across the region of logging history, fire history, water regimes, grazing history, stand structure, fauna and flora values and management issues (e.g. capacity to water redgum forests in the future).

High conservation value lands include:
- Major colonial waterbird breeding sites;
- stands of highly cleared vegetation types or forests remaining in highly-cleared landscapes;
- stands of vegetation under-represented within conservation reserves;

- important refuges for wildlife during drought or under projected climate change scenarios;
- localities where there are high fauna or flora population densities, high diversity of fauna habitats or high species diversity;
- stands with concentrations of hollow-bearing trees or large mature trees (important for other resources like nectar);
- riparian fringes (that is land within 20 m of permanent / semi-permanent water): and
- known Superb and Regent Parrot nesting aggregations.

SECTION 7: ASSESSING THREATENED SPECIES IMPACTS

1 INTRODUCTION

The following recommendations are formulated to allow the assessment to meet the requirements specified in Section 110 (Content of species impact statement) of the *Threatened Species Conservation Act* (TSCA) 1995.

They are also based on the Part 3A Draft Guidelines for Threatened Species Assessment which provide a framework for assessing the impacts on threatened species. These guidelines establish the principle of maintain or improve and highlight the need to avoid, mitigate and offset any impacts.

The following requirements consider entities listed as threatened under the NSW *Threatened Species Conservation Act* and species of interest to the Australian Government in accordance with the Commonwealth/New South Wales assessment bilateral agreement.

Definitions

The definitions given below are relevant to these requirements:

- ***proposal*** is the development, activity or action proposed
- ***subject site*** means the area directly affected by the proposal
- ***study area*** is the subject site and any additional areas that are likely to be affected by the proposal, either directly or indirectly.
- ***locality*** is the area within a five (5) kilometre radius of the subject site
- ***subject entities*** means those threatened species, Endangered Ecological Communities and Endangered Populations that are known or considered likely to occur in the study area

2 CONTEXTUAL INFORMATION

2.1 Description of proposal, subject site and study area

The proposal must be fully described both in terms of where it will be carried out and what activities are proposed. The lands to which the proposal applies need to be listed. Each State Forest is to be identified and each portion of Crown Timber Land must be identified with Lot and DP number.

In describing the proposal, the proportion and area of the *subject site* and the *study area* that will be affected provided, including details of the location of any auxiliary infrastructure and all component parts of the proposal such as (i) permanent and temporary roading, (ii) new quarries or other sites of major earthworks, and (iii) any other or actions necessary for fire management.

A comprehensive biological audit must be undertaken of each of the State Forests and other Crown Timber Lands that will subject to the proposed activities. The audit is to include the results of a flora and fauna assessment (see Section 4), lists of threatened entities known or likely to occur, vegetation types and their structure, and identified high conservation value areas.

<u>The audit must also have regard to the context of the areas in a landscape sense including conservation reserves, State Forests and Crown Lands in Victoria.</u>

2.2 Provision of relevant plans and maps

Detailed maps of the subject area shall be provided. These maps shall show the location and activities proposed and the type of vegetation communities present within the subject area. If feasible, this plan should also show the broad location of any key habitat resources for threatened species (e.g. stands with high proportion of hollow-bearing trees, threatened frog breeding sites, wetland refuge areas, areas likely to be of particular importance for nectarivorous species). Where the general habitat of each subject entity within the study area can be clearly delineated,

this habitat shall be represented on a map. Any locally significant sites for threatened species or other sites of high conservation value should also be shown.

The location of the subject entities recorded during the assessment shall be represented on maps of the study area (at the finest scale available). All available historical records are to be included.

2.3 Vegetation mapping and landscape descriptions

The vegetation present within the proposal area (including harvesting, roading and reserved areas) needs to be mapped and described. Ideally the vegetation classification system developed by the Botanic Gardens Trust should be used, however there may be alternative approaches that could be used as long as they allow adequate analysis of the adequacy and representativeness of "reserves" which will not be logged (e.g. streamside reserves, Flora reserves, and areas set aside for the specific purposes of offsetting), to identify any rare vegetation types and to identify those of limited distribution.

For further information on the vegetation classification system developed by the Botanic Gardens Trust see: http://www.rbgsyd.nsw.gov.au/science/hot_science_topics/vegetation_of_nsw

The growth stages of the forests in the proposal area also needs to be mapped using techniques to be agreed between Forests NSW and DECC.

Broad descriptions of all habitats present shall be provided. Descriptions should include such components as the frequency of tree hollows, the presence of wetlands, the density of understorey vegetation, the composition of the ground cover, the soil type and the presence of heath and permanent or ephemeral swamps. The condition of the habitat within the study area shall be discussed, including the prevalence of introduced species.

In describing the study area, consideration shall be given to the previous land uses and the effect of these land-uses on the study area. Relevant historical events may include fire, clearing, logging, silviculture, grazing, slashing, recreational use and agricultural activities.

Any areas which may act as corridors/habitat interconections within and between the study area and adjacent areas of likely habitat for subject entities shall be identified, described and mapped. Consideration should be given to links with forests in Victoria and the contribution that the subject forests in NSW make to the conservation of biodiversity of the Riverina and Murray Darling Depression Biogeographic Regions.

2.3 Land tenure information

The land tenure across the study area is to be described and any limitations to sampling across the study area resulting from this tenure (e.g. denied access to private land) shall be noted.

3 INITIAL ASSESSMENT

3.1 Identifying subject entities

A general description of the threatened species, endangered ecological communities or endangered populations known or likely to be present in the areas that are the subject of the action and in any area that is likely to be affected by the action must be provided.

In determining these species (the subject entities), consideration shall be given to the habitat types present within the study area, recent records of threatened species or populations in the locality and the known distribution of threatened entities.

Databases such as the DECC Atlas of NSW Wildlife, the Australian Government's Protected Matters Search Tool (http://www.environment.gov.au/erin/ert/epbc/index.html), Australian Museum and Royal Botanic Gardens should be consulted to assist in compiling the list.

The entities to be considered for inclusion in the list of subject entities are listed in Table 1. **This list is not exhaustive and does not include communities other than Red Gum or White Cypress forests.** One of the roles of the assessment is to determine which entities may be utilising the proposal area. DECC will provide a target list for other communities should the assessment be expanded for other forest activities such as mallee and Broombush harvesting.

The assessment must also consider species of interest to the Australian Government. This requirement is in accordance with the Commonwealth/New South Wales assessment bilateral agreement. The matters of interest can be obtained from the above-mentioned Australian Government's Protected Matters Search Tool.

Table 1 List of subject species and ecological communities for Red Gum and White Cypress forests

SCIENTIFIC NAME	COMMON NAME	NSW Status	EPBC Status
FAUNA			
Botaurus poiciloptilus	Australasian Bittern	V	
Burhinus grallarius	Bush Stone-curlew	E1	
Cacatua leadbeateri	Major Mitchell's Cockatoo	V	
Calyptorhynchus lathami	Glossy Black-cockatoo	V	
Cinclosoma castanotus	Chestnut Quail-thrush	V	
Climacteris picumnus victoriae	Brown Treecreeper (eastern subsp.)	V	
Crinia sloanei	Sloane's Froglet	V	
Falco hypoleucos	Grey Falcon	V	
Glossopsitta porphyrocephala	Purple-crowned Lorikeet	V	
Glossy Black-cockatoo population in the Riverina		Endangered Population	
Grantiella picta	Painted Honeyeater	V	
Grus rubicunda	Brolga	V	
Hamirostra melanosternon	Black-breasted Buzzard	V	
Hylacola cauta	Shy Heathwren	V	
Lathamus discolor	Swift Parrot	E1	E
Leipoa ocellata	Malleefowl	E1	V
Litoria raniformis	Southern Bell Frog	E1	V
Lophoictinia isura	Square-tailed Kite	V	
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	V	
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V	
Myotis adversus	Large-footed Myotis	V	
Neobatrachus pictus	Painted Burrowing Frog	E1	
Neophema pulchella	Turquoise Parrot	V	
Ninox connivens	Barking Owl	V	
Nyctophilus timoriensis	Greater Long-eared Bat (south eastern form)	V	V
Oxyura australis	Blue-billed Duck	V	
Pachycephala inornata	Gilbert's Whistler	V	
Pedionomus torquatus	Plains-wanderer	E1	V
Petaurus norfolcensis	Squirrel Glider	V	
Petroica rodinogaster	Pink Robin	V	
Phascogale tapoatafa	Brush-tailed Phascogale	V	
Phascolarctos cinereus	Koala	V	
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	E1	V

Polytelis swainsonii	Superb Parrot	V	
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V	
Pyrrholaemus sagittatus	Speckled Warbler	V	
Squirrel Glider population in the Wagga Wagga LGA		Endangered Population	
Stagonopleura guttata	Diamond Firetail	V	
Stictonetta naevosa	Freckled Duck	V	
Tiliqua occipitalis	Western Blue-tongued Lizard	V	
Tyto novaehollandiae	Masked Owl	V	
Vespadelus baverstocki	Inland Forest Bat	V	
White-browed Treecreeper population in the Carrathool LGA south of the Lachlan River and Griffith LGA		Endangered Population	
Xanthomyza phrygia	Regent Honeyeater	E1	E
FLORA			
Acacia curranii	Curly-bark Wattle	V	V
Amphibromus fluitans	Floating Swamp Wallaby-grass	V	V
Austrostipa metatoris	A spear-grass	V	V
Austrostipa wakoolica	A spear-grass	E1	E
Brachyscome muelleroides	Claypan Daisy	V	V
Brachyscome papillose	Mossgiel Daisy	V	V
Caladenia arenaria	Sand-hill Spider Orchid	E1	E
Casuarina obesa	Swamp Sheoak	E1	
Diuris pedunculata	Small Snake Orchid	E1	E
Diuris tricolor	Pine Donkey Orchid	V	V
Eucalyptus leucoxylon subsp. *pruinosa*	Yellow Gum	V	
Kippistia suaedifolia	Fleshy Minuria	E1	
Maireana cheelii	Chariot Wheels	V	V
Philotheca ericifolia		V	V
Pilularia novae-hollandiae	Austral Pilwort	E1	
Pultenaea humilis		V	
ENDANGERED ECOLOGICAL COMMUNITIES			
Acacia loderi (Nelia) shrublands	Nelia	EEC	
Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions - endangered ecological community	Yarran	EEC	
Allocasuarina luehmannii Woodland in the Riverina and Murray-Darling Depression bioregions	Bulloak	EEC	EEC
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	Western Grey Box	EEC	
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South western Slopes bioregions	Weeping Myall, Boree	EEC	
Sandhill Pine Woodland in the Riverina, Murray-Darling Depression	White Cypress Pine	EEC	

and NSW South Western Slopes bioregions			
White Box Yellow Box Blakely's Red Gum Woodland	Yellow Box	EEC	

4 SURVEY

4.1 Requirement to survey

A fauna and flora survey is to be conducted in each of the State Forests and Crown Timber Lands subject to the proposed activities. Targeted surveys shall be conducted for all subject entities determined in accordance with Section 3.1.

The surveys for the subject entities can be conducted in three stages:

1. *Prior to completion of Environmental Assessment:*

   There are several species threatened by forestry and/or associated management activities that, in addition to harvest plan and local landscape prescriptions (see below), may also require the establishment of reserves to adequately offset the impacts of forestry operations. To facilitate this process, it is essential that important areas for these species are identified at the land-use planning stage. Similarly EECs should also be identified at the land-use planning stage. These species and EECs are listed in Table 2. Please note that these species may also require survey at the landscape and harvest plan scales.

   It should also be noted that surveys for some of these species will not be necessary should Forests NSW predetermine to set aside known important areas for them.

Table 2. List of species requiring surveys at EIA stage

Scientific Name	Common Name	Legal status
Petaurus norfolcensis	Squirrel Glider	V
Phascolarctos cinereus	Koala	V
Nyctophilus timoriensis	Greater Long-eared Bat	V & EPBC
Calyptorhynchus lathami	Glossy Black- Cockatoo	V
Grantiella picta	Painted Honeyeater	V
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	V
Ninox connivens	Barking Owl	V
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	E1 & EPBC
Polytelis swainsonii	Superb Parrot	V & EPBC
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V
Pyrrholaemus sagittatus	Speckled Warbler	V
Stagonopleura guttata	Diamond Firetail	V
Tyto novaehollandiae	Masked Owl	V
Crinia sloanei	Sloane's Froglet	V
Litoria raniformis	Southern Bell Frog	E1 & EPBC
Climacteris affinis	White-browed Treecreeper population in the Carrathool LGA south of the Lachlan River and Griffith LGA	E2
Caladenia arenaria	Sand-hill Spider Orchid	E1 & EPBC
Diuris pedunculata	Small Snake Orchid	E1 & EPBC
Diuris tricolor	Pine Donkey Orchid	V & EPBC
Eucalyptus leucoxylon subsp. *pruinosa*	Yellow Gum	V
All EECS		E

2. *Post Assessment at landscape scale:*

   There is a small group of species threatened by forestry operations that, in addition to harvest plan prescriptions, may also require the preparation of local landscape prescriptions in order to adequately mitigate and offset the impacts of forestry operations. Data will need to be collected over an extended period of time and in a strategic manner to

allow the preparation of local landscape management plans. These species are listed in Table 3:

Table 3. List of species requiring landscape surveys post-EIA stage

Scientific Name	Common Name	Legal status
Myotis adversus	Large-footed Myotis	V
Burhinus grallarius	Bush Stone-curlew	E1
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V
Lathamus discolor	Swift Parrot	E1 & EPBC
Leipoa ocellata	Malleefowl	E1 & EPBC
Xanthomyza phrygia	Regent Honeyeater	E1 & EPBC

3. *Post Assessment as part of harvest planning:*
   The remainder of the species likely to be impacted by forestry operations have the potential to be effectively managed by the application of prescriptions when they, or their habitat, is detected. Thus survey is not required until the harvest planning stage. Please note that species falling within the above two categories may also require survey at this stage.

Selection and sampling of sites should be based on stratifying the full range of forest types soils and geomorphology. Sites should be replicated and potential habitat of all subject entities must be adequately sampled.

Data obtained from previous surveys and assessments may be used to assist in addressing this requirement. However, the efficacy of such previous assessments in meeting this requirement must be described in full. The previous survey methods and effort must be at least as effective as those described in the minimum survey standards to be provided by DECC in a separate document.

Particular attention shall be paid to the timing and climatic conditions for conducting fauna surveys, as many of the subject entities will only be present or detectable for a few months each year or during certain climatic conditions. Additional advice on these matters should be sought from DECC if needed.

Identification of all species is essential. Identification to genus only is not acceptable. Species of taxonomic uncertainty shall be confirmed by a recognised authority such as the Australian Museum or National Herbarium at the Royal Botanic Gardens, Sydney.

4.2 Documentation of survey effort and technique

4.2.1 Description of survey techniques and survey sites

Survey technique(s) should be described and a reference given, where available, outlining the survey technique employed.

Survey site(s) should be identified on a clearly keyed map. The size, orientation and dimensions of quadrat or length of transect should be clearly noted for each type of survey technique undertaken. Full AMG grid references for the survey site(s) shall be provided.

4.2.2 Documenting survey effort and results

DECC survey proformas are to be used by field staff when applying a range of standard fauna survey techniques. Digital copies of these proformas can be requested from the nominated contact officer (Mr Michael Saxon 02 62297107). These proformas shall be used by field staff when undertaking fauna surveys and completed data sheets are to be included as an appendix to the assessment.

The time invested in each survey technique shall be summarised in the assessment, based on completed proformas, e.g. - number of person hours / transect, duration of call playback, number of nights traps set.

It is not sufficient to aggregate all time spent on all survey techniques. Effort must be expressed each time a particular survey technique is applied.

Personnel details including name of surveyor(s) and contact phone number must be included. The person who identified records (e.g., anabat, hair tubes, scat analysis) shall also be identified.

Environmental conditions during the survey shall be noted at the commencement of each survey technique. These conditions must be documented in the assessment. Surveys shall be undertaken during seasons and climatic conditions during which the subject entities are most likely to be detected.

An assessment of the efficacy of each survey regime in detecting each species under the intensity utilised by the study is to be provided. The effect of the season and weather at the time of the field survey shall be considered with respect to the adequacy of survey results. An assessment will also be made of the adequacy of the survey and background information used to assess the likely area of use (home range) for each species. Any areas which may act as corridors between the study area and adjacent areas of likely habitat for subject entities shall be identified and described.

A full list of all fauna, threatened flora and EECs found during the course of surveys shall be included. Completed Atlas of NSW Wildlife cards are to be provided for each threatened species record in any survey conducted for the purposes of the assessment.

5 ASSESSMENT OF LIKELY IMPACTS ON THREATENED SPECIES AND POPULATIONS

The assessment shall describe the following:

- the location, nature and extent of habitat removal or modification which will result from the proposed action;
- the likely and potential impact of the removal of habitat. Attention is to be given to the likelihood of and extent of loss of trees utilised for roosting or denning by threatened fauna. Similarly, attention is to be given to the likelihood of and extent of loss of food resources and the impact this may have on the subject entities;
- any indirect impacts of the proposal including;
    1. the fragmentation or isolation of populations, increased distance required for movement between habitat patches,
    2. change in vegetation floristics and structure resulting from edge effects,
    3. altered hydrology regimes (including increased runoff and raising or lowering of the water table), soil erosion, pollution,
    4. direct and indirect disturbance to feeding or nesting/breeding of species,
    5. trampling or other impacts due to increased use of the area by humans,
    6. increased mortality rates due to road deaths,
    7. disruption of wildlife movement corridors,
    8. increased ingress of predators,
    9. altered light and noise regimes,

10. the likely contribution of the proposed action to the threatening processes already acting on populations of those species in the locality,
11. cumulative impact of the various activities being undertaken in the proposal areas,
12. any increases in fire hazard resulting from logging slash and harvesting practices.

For each species likely to be affected by any of the Key Threatening Processes, the assessment shall address whether the proposed activity will increase this threat, and shall describe proposed measures to ameliorate such threats.

All of the above contextual information will then be able to assist in the assessment of cumulative impacts on the subject entities.

5.1 Assessment of subject entities likely to be affected

The list of subject entities is to be refined (given the outcome of survey and analysis of likely impacts) in order to identify which entities species may be affected and the nature of the impact.

The remaining requirements in this section need only be addressed for those entities that are likely to be affected by the proposal in some way (note that this does not necessary equate to a significant impact which is addressed in Section 7).

5.2 Assessment of habitat

The assessment is to include a full description of the type, location, size and condition of the habitat of those species, EECs and populations likely to be affected, and details of the distribution and condition of similar habitats in the region.

Specific habitat features shall be described (e.g. frequency and location of stags, hollow bearing trees, culverts, rock shelters, rock outcrops, crevices, caves, drainage lines, soaks etc) and the density of understorey vegetation and groundcover.

The condition of the habitat within the study area shall be discussed, including the prevalence of introduced species, species of weeds present and an estimate of the total weed cover as a percentage of each vegetation community, whether trampling or grazing is apparent, effects of erosion, prevalence of rubbish dumping, history of resource extraction or logging and proximity to roads.

Details of the subject site's fire history (e.g. frequency, time since last fire, intensity) and the source of fire history (e.g. observation, local records), shall be provided.

Habitat critical to the survival of subject entities known or likely to occur in the areas to be affected by the proposed forestry operations is to be identified and discussed. The following are examples of the type of relevant information to be considered:

- routine perennial and seasonal living areas;
- locations for life cycle events (nesting, breeding etc.);
- refuge locations for 'environmental - cycle' events (drought, flood, fire etc.);
- buffer areas necessary to maintain habitat characteristics for the survival of endangered fauna;
- and the resource available for tree hollow and large log dependent species (i.e. a consideration of the size, types, density, spatial pattern and rate of formation of tree hollows and large logs).

5.3 Discussion of local and regional abundance

5.3.1 Discussion of other known local populations

The local and regional abundance of those species, EECs or populations likely to be affected by the proposal is to be provided.

A discussion of other known populations in the locality shall be provided. The long-term security of other habitats shall be examined as part of this discussion. The relative significance of the subject site for threatened species in the locality shall be discussed.

5.3.2 Discussion of habitat utilisation

An estimate of the numbers of individuals utilising the area and how these individuals use the area (eg residents, transients, adults, juveniles, nesting, foraging) and discussion of the significance of these individuals to the viability of the threatened species in the locality is to be provided.

5.3.3 Discussion of corridors and habitat interconnections

Movement corridors and habitat interconnections for threatened species within the subject site must be identified. The impact of the proposal on these corridors and habitat interconnections and the resulting impact on the resident threatened species shall be discussed.

5.4 Discussion of conservation status

The details of the local, regional and State-wide conservation status of each species, EEC or endangered population likely to be affected by the action is to be provided.

Assessment should include reference to the threatening processes that are generally accepted by the scientific community as affecting the species or population and are likely to be caused or exacerbated by the proposal. Assessment should also include reference to any approved or draft recovery plans which may be relevant to the proposal.

6. DESCRIPTION OF AMELIORATIVE MEASURES

A full description and justification of the measures proposed to mitigate any adverse effect of the action on the species and populations and ecological community including a compilation (in a single section of the statement) of those measures must be provided.

6.1 Long term management strategies

Approved and draft Recovery plans or threat abatement plans may exist for taxa known or likely to occur in the study area. The assessment must have regard to the recommendations and advice of; (i) all relevant threat abatement plans, (ii) all relevant recovery plans.

The assessment must address all relevant listed key threatening processes. The following key threatening processes are potentially relevant to this proposal:

- Invasion of native plant communities by exotic perennial grasses
- Competition and grazing by the feral European rabbit
- Competition and habitat degradation by feral goats
- Competition from feral honeybees
- Herbivory and environmental degradation caused by feral deer
- Predation by feral cats
- Predation by the European Red Fox
- Predation, habitat degradation, competition and disease transmission by Feral Pigs (*Sus scrofa*)
- Alteration to the natural flow regimes of rivers, streams, floodplains & wetlands.
- Bushrock Removal

- Clearing of native vegetation
- Ecological consequences of high frequency fires
- Human-caused Climate Change
- Loss of Hollow-bearing Trees - key threatening process
- Removal of dead wood and dead trees
- Infection of frogs by amphibian chytrid fungus causing the disease chytridiomycosis
- Infection of native plants by *Phytophthora cinnamomi*

Consideration shall be given to developing long term management strategies to protect areas within the study area which are of particular importance for the threatened species likely to be affected. This may include proposals to restore or improve habitat on site where possible. If mitigation is to include rehabilitation of the site then the rehabilitation strategy shall be detailed.

Any measures proposed to mitigate the effect of the proposal on local populations of threatened species shall be described. The potential effectiveness of any such amelioration in maintaining a viable local population in the short, medium and long term is to be discussed.

The environmental assessment needs to include a detailed proposed regime for maintaining a perpetual supply of hollow-bearing trees at a level capable of maintaining viable populations of all hollow-dependant fauna known to utilise the forests of South West NSW.

6.2 Compensatory strategies

Where significant modification of the proposal to minimise impacts on threatened species or endangered communities is not possible, then compensatory strategies should be considered. These may include other offsite or local area proposals that contribute to long term improvement or maintenance of the threatened species, population or endangered ecological community.

The areas proposed to be used for compensatory strategies must be described in full including a detailed description of their biodiversity. The proposed reserved areas need to be described in terms of their area, vegetation types and structure, condition, habitat types, and known or likely to occur threatened entities. The selection of forest reserves also needs to be justified in terms of both how they contribute to achieving the maintenance or improvement of environmental values and how they contribute to a comprehensive, adequate and representative reserve system. The future management of such offsets needs to be detailed with particular attention given to providing for their environmental water requirements.

6.3 Ongoing monitoring

Any proposed pre-construction monitoring plans or on-going monitoring of flora and fauna populations (particularly those likely to be sensitive to forestry operations) and the effectiveness of the mitigation measures shall be outlined in detail, including the objectives of the monitoring program, method of monitoring, reporting framework, duration and frequency. Generally, ameliorative strategies that have not been proved effective should be undertaken under experimental design conditions and appropriately monitored.

7. ASSESSMENT OF SIGNIFICANCE OF LIKELY EFFECT OF PROPOSED ACTION

An assessment of significance (Section 5A of the *Environmental Planning and Assessment Act 1979*) is to be provided for each of the affected species (threatened species, populations or ecological communities) identified in the assessment, incorporating relevant information from sections 5.1 to 7 of the assessment. This assessment is to be undertaken in accordance with the ”Threatened species assessment guidelines (DECC 2007)”.

On the basis of these assessments a conclusion is to be provided concerning whether, based on more detailed assessment through the assessment process and consideration of alternatives and/or ameliorative measures proposed in the assessment, the proposal is still considered likely

to have a significant effect on threatened species, populations or ecological communities or their habitats.

8. LICENSING MATTERS RELATING TO THE SURVEY

Persons conducting flora and fauna surveys must have appropriate licences or approvals under relevant legislation. The relevant legislation and associated licences and approvals that may be required are listed below:

National Parks and Wildlife Act 1974:

- General Licence (Section 120) to harm or obtain protected fauna (this may include threatened fauna).
- Licence to pick protected native plants (Section 131).
- Scientific Licence (Section 132C) to authorise the carrying out of actions for scientific, educational or conservation purposes.

Threatened Species Conservation Act 1995:

- Licence to harm threatened animal species, and/or pick threatened plants and/or damage the habitat of a threatened species (Section 91).

Animal Research Act 1985:

- Animal Research Authority to undertake fauna surveys.

Attachment B - Guidance Material
Assessing Environmental Impacts

Water quality

- National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000)
- NWQMS Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC 2000)
- Healthy Rivers Commission Report into Coastal Lakes and Statement of Joint Intent
- NSW Government Interim Water Quality and River Flow Environmental Objectives for Clyde River and Jervis Bay
- The relevant targets within the State Water Management Outcomes Plan
- *NSW Guidelines for Urban & Residential Use of Reclaimed Water* (NSW Water Recycling Coordination Committee, 1993).

Wastewater

- National Water Quality Management Strategy: Guidelines for Sewerage Systems - Effluent Management (ARMCANZ/ANZECC 1997)
- National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC 2000)
- Environmental Guidelines for the Utilisation of Treated Effluent by Irrigation (NSW DECC 2004)
- Environment and Health Protection Guidelines: 'Onsite Sewage Management for Single Households', February 1998 (Silver Book)

Stormwater

- Managing Urban Stormwater: Soils and Construction (NSW Landcom, 2004)
- Managing Urban Stormwater: Source Control (EPA 1998)
- Managing Urban Stormwater: Treatment Techniques (EPA 1998)
  (Note: some of these documents will be revised in 2006)

Contaminated Land

- Managing Land Contamination: Planning Guidelines - SEPP55 - Remediation of Land, Department of Urban Affairs and Planning and NSW EPA, 1998
- Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites (Environment Protection Authority (EPA) 1997)
- Contaminated Sites – Guidelines on Significant Risk of Harm and Duty to Report (EPA, 1999)

Noise and vibration

- NSW Industrial Noise Policy (DECC, 2000)
- NSW Environmental Criteria for Road Traffic Noise (EPA, 1999)
- Chapter 171 Noise Control Guideline, *Construction Site Noise, Environmental Noise Control Manual, 1994*

Assessing Aboriginal Cultural Heritage Impacts

- Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation – Copy attached
- Aboriginal Cultural Heritage Standards and Guidelines Kit - Available shortly on-line through DECC's webpage

Assessing Threatened Species Impacts

- NSW Department of Environment & Conservation, Department of Primary Industries (Jul 2005), Draft Part 3A Guidelines for Threatened Species Assessment
- Threatened species assessment guidelines (DECC 2007) – For conducting Tests of Significance. Available from:
  http://www.environment.nsw.gov.au/threatenedspecies/tsaguide.htm