

Appendix E Species prioritisation and grouping methodology

EPBC Act Strategic Assessment

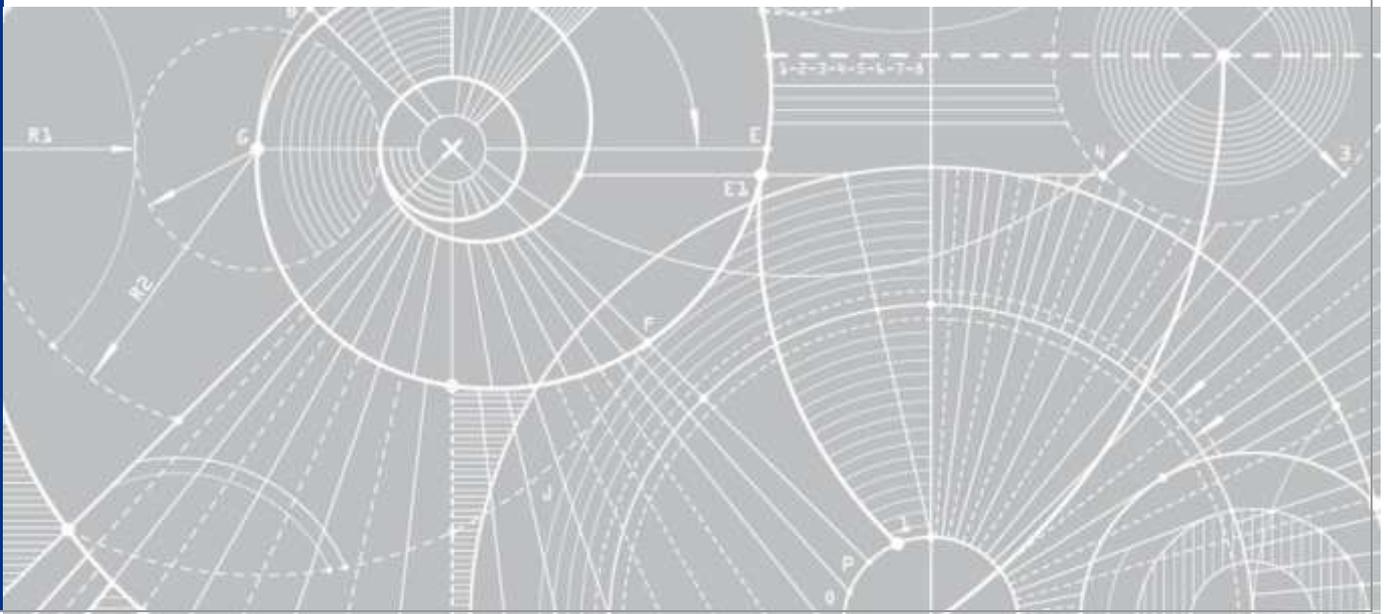
ROADS AND MARITIME SERVICES

Species grouping - methodology

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1. Species prioritisation and grouping method

1.1 Background

There are 615 species and 33 threatened ecological communities listed under the EPBC Act that are known from, or predicted to occur, in NSW.

For the purposes of the strategic assessment the 'priority' Specified Protected Matters (ie. those with potential to be impacted) have been grouped such that species and communities expected to exhibit similar responses to actions listed under the Program could be assessed together.

Those species, communities and migratory species likely to be impacted by the hazards resulting from implementing the Program were identified through a methodology as described below.

1.2 Methodology for species prioritisation

The methodology for prioritisation of species and communities is graphically displayed in the figure below. The figure shows the decision process for refining the list of species. Further description of the steps is provided in the following:

1.2.1 Step 1. Covered by the strategic assessment

Species that were identified as being primarily associated with marine habitats or that were listed as 'extinct' were removed as they are not subject to the impacts of actions in the Program. The list included marine mammals, fish, turtles, sharks and pelagic birds, 46 extinct plant species (total 114 species) and one ecological community (*Subtropical and Temperate Coastal Saltmarsh*).

1.2.2 Step 2. Geographic location

Identified as species whose distribution is in a geographic location considered outside of the focus area for the activities listed under the Program, this list included 68 species and was defined by the following criteria:

- Outside program area: a species whose distribution has been confirmed as south-eastern Queensland, Victoria or South Australia although was identified in the Predicted Matters Search Tool (PMST) for NSW due to low probability that this species may occur in adjoining borders of NSW. This included 26 species and one ecological community (*The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin*).
- Offshore Islands: a species whose distribution has been confirmed only from islands off the coast of NSW (e.g. Lord Howe Island), and this location will not be subject to activities listed under the Program (10 species)
- Arid bioregions: a species found only in an arid bioregion identified in the *Interim Biogeographic Regionalisation of Australia* (IBRA) (Thackway and Cresswell 1995) and not expected to be subject to activities listed under the Program. The relevant exclusions were identified in western NSW and include the Broken Hill Complex, Mulga Lands, Channel Country, and the Simpson-Strzelecki Dunefields. This included 24 species.
- Alpine bioregion: a species which is found only in the Australian Alpine bioregion identified in the IBRA (Thackway and Cresswell 1995) and therefore not subject to the impacts of actions in the Program (8 species).

1.2.3 Step 3. Distribution

Identified as a species with a known distribution that is within developed and populated regions however it is restricted to discrete areas considered outside of the focus for the activities listed under the Program. This list included 158 species identified according to the following criteria:

- Restricted distribution: the distribution of the species is restricted to a single discrete locality or habitat that presents a low likelihood of interaction with the activities in the Program (100 species).
- Population reserved: the distribution of the entire population(s) is present in a National Park or State Conservation Area and therefore not subject to interaction with the activities in the Program (31 species).
- 'Important habitat' for a migratory species: refers to an area in NSW identified as 'important habitat' for 25 migratory shorebird species known to occur in NSW and the likelihood that the activities in the Program would impact on 'important habitat' is low. In the event that an area of 'important habitat' is significantly impacted this would trigger the need for an SIS under the EP&A Act and a referral under the EPBC Act. A definition for 'important habitat' is provided in the EPBC Act policy statement 3.21 (excluding Latham's Snipe) and includes:
 - A site that has been identified as internationally important for a listed migratory species.
 - A site that supports at least 0.1 per cent of the flyway population of a single species, or at least 2000 migratory shorebirds, or at least 15 shorebird species.

1.2.4 Step 4. Habit and/or mobility of species

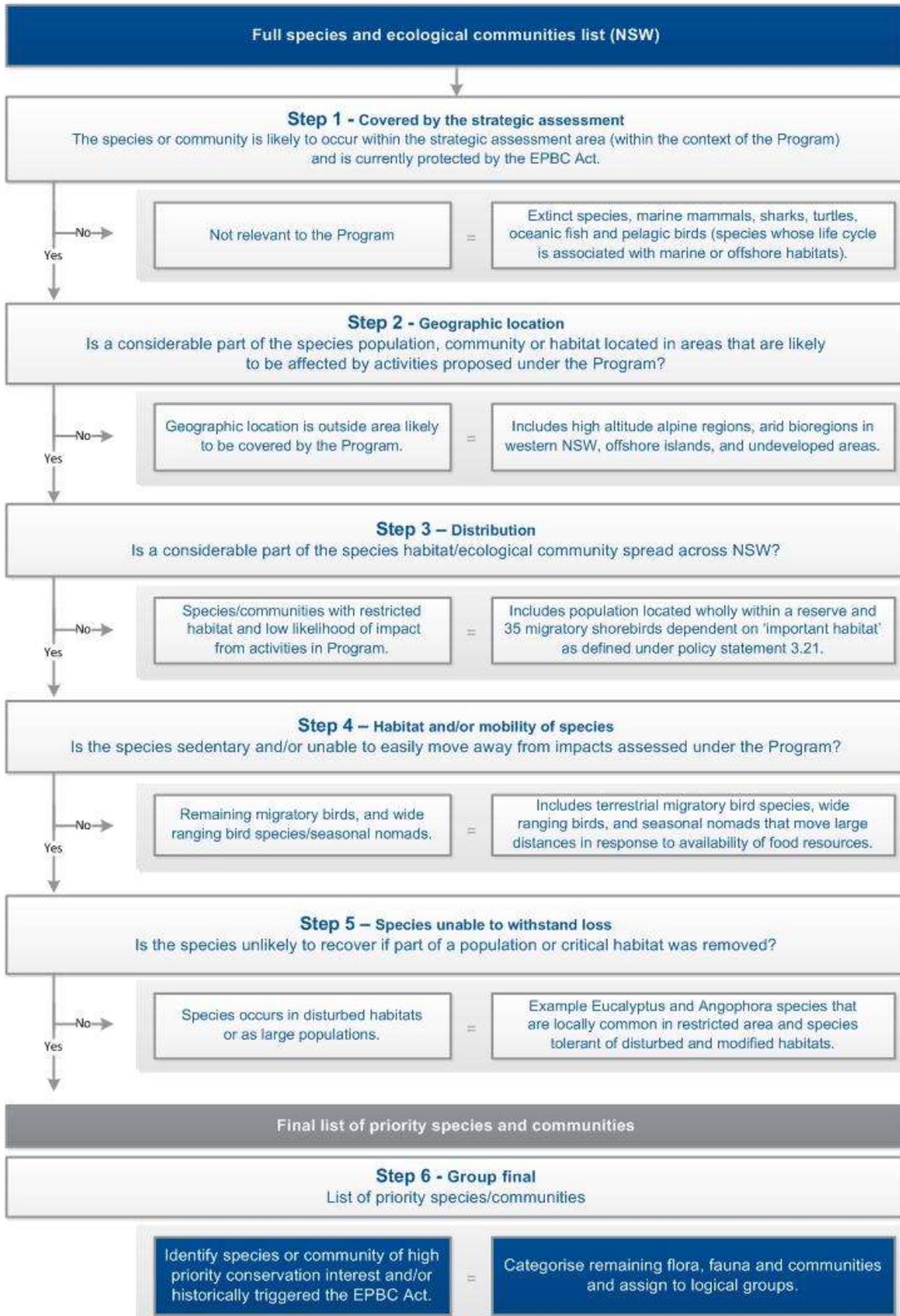
Identified as a wide-ranging species, that can occupy modified habitat or a seasonal nomad that moves large distances in response to the availability of food resources and therefore is highly mobile. This includes 12 terrestrial migratory bird species, for example the Rainbow Bee-eater (*Merops ornatus*), White-throated Needletail (*Hirundapus caudacutus*) and Cattle Egret (*Ardea ibis*) that move widely and can occupy modified habitats. These species are considered capable of moving away from potential impacts associated with the Program. The total list is 16 species.

1.2.5 Step 5. Species 'able to withstand loss'

Species considered 'able to withstand a loss' from the population is a category used in the *Biobanking Assessment Methodology and Credit Calculator Operational Methodology* BBAM (DECC 2009). The methodology adopted the same approach in assessing the remaining species. The BBAM identifies species that are able to withstand a loss of individuals or habitat with the CMA area. There are 12 CMA regions in NSW, and the criteria for a species that 'cannot' withstand further loss in a CMA region is considered to fit within one or more of the following:

- The species is naturally very rare, is critically endangered, or has fewer than 3 populations in that CMA region or a restricted distribution.
- The species or its habitat needs are poorly known.

This rationale was applied to the remaining species (n = 259) and considered all 12 CMA regions as potentially subject to the activities in the program. The method involved a review of the Threatened Species Profile Database (TSPD) to identify species confirmed as 'able to withstand a loss' and therefore entered as YES in the database. Where this species was also found in the remaining EPBC Act data being assessed it was also identified as 'able to withstand a loss' for consistency. In assigning this value care was taken to ensure that the species identified as YES was reported in the TSPD as being able to withstand a loss in all CMA regions. For example Button Wrinklewort (*Rutidosia leptorrhynchoidea*), has conflicting status from different CMA regions, and as a precautionary measure where this occurred, the subject species was considered 'unable' to withstand a loss. The total number of species identified as 'able to withstand a loss' equated to 31 and were filtered from the priority list.



2. Methodology for grouping remaining species and communities

Priority species and communities were grouped with a focus on the identification of habitat preferences and functional classifications which are predicted to show a similar response to impacts as a result of activities in the Program.

A.1.1 Step 1: Special interest groups

This group included a list of seven species and one ecological community that have more frequently required assessment as part of Roads and Maritime projects or that are considered to have a special public interest or greater focus of scientific research or conservation investment, and included:

- Koala (*Phascolarctos cinereus*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Green and Golden Bell Frog (*Litoria aurea*)
- Superb Parrot (*Polytelis swainsonii*)
- Leafless Tongue-orchid (*Cryptostylis hunteriana*)
- Seasonal nomadic birds - Regent Honeyeater (*Anthochaera phrygia*) and Swift Parrot (*Lathamus discolor*)
- White Box-Yellow Box-Blakelys Red Gum Grassy Woodland and Derived Native Grassland.

A.1.2 Step 2. Grouping plant species

The remaining priority flora species (180) were grouped according to habitat type and growth form. For consistency the habitat types are described according to the broad vegetation formations for NSW as described by Keith (2004). Where a species is known to potentially occur across a range of formations, preference was given to the most common preferred habitat based on expert opinion. The grouping of plants into their respective growth form used the following classes:

- Trees
- Shrubs
- Groundcovers (herbs and forbs, graminoids and terrestrial orchids)
- Epiphytes and climbers.

The 16 groups assigned using this approach is as follows:

- Dry sclerophyll shrubs – 65 species
- Dry sclerophyll groundcovers – 29 species
- Dry sclerophyll epiphytes and climbers – 2 species
- Dry sclerophyll trees – 17 species
- Forested wetland groundcovers – 5 species
- Forested wetland shrubs – 1 species
- Grassland groundcovers – 11 species
- Heathland groundcovers – 7 species
- Heathland shrubs – 3 species
- Rainforest epiphytes and climbers – 2 species
- Rainforest shrubs – 1 species

- Rainforest trees– 26 species
- Wet sclerophyll groundcovers – 3 species
- Wet sclerophyll shrubs – 5 species
- Wet sclerophyll epiphytes and climbers – 1 species
- Forested wetland trees – 2 species.

A.1.3 Step 3: Grouping animal species

The remaining priority fauna (35 species) were grouped firstly according to dominant habitat preference and where applicable microhabitat dependence. The 8 groups assigned using this approach is as follows:

- Wetland-dependent fauna (7 species)
- Riverine-dependent fauna (7 species)
- Stream-dependent fauna (4 species)
- Dry sclerophyll hollow-dependent fauna (1 species)
- Dry sclerophyll rock-dependent fauna (2 species)
- Dry sclerophyll groundcover-dependent fauna (6 species)
- Rainforest fauna (4 species)
- Grassland fauna (4 species).

A.1.4 Step 4: Grouping threatened ecological communities

The remaining threatened ecological communities (30) were categorised into seven groups according to broad vegetation formations. For consistency these categories are described according to the broad vegetation formations for NSW as described by Keith (2004), as follows.

- Dry sclerophyll communities (8)
- Wetland communities (5)
- Grassland communities (3)
- Grassy woodland communities (7)
- Rainforest communities (4)
- Wet sclerophyll communities (2)
- *Posidonia australis* seagrass meadows of the Manning-Hawkesbury ecoregion

3. Critical appraisal and revision of groupings

Following application of the species prioritisation and grouping methodology discussed above, a workshop was held with experienced biodiversity experts to obtain critical appraisal of the methods developed and applied.

Taking account of the expert opinions, a final review of the SPRAT database, relevant species recovery plans and conservation advice was then undertaken to re-confirm or revise the assignment of species and communities into their respective groups.

A.2 Final register of priority species and threatened communities

At the conclusion of the review process the final 'priority' list of Specified Protected Matters (and priority species groupings) totalled 39 groups and 254 species/communities, summarised as follows:

- Priority fauna (eight groups, 35 species)
- Priority flora (16 groups, 180 species)
- Priority vegetation communities (seven groups, 30 communities)
- 'Of interest' species and vegetation communities (eight groups, consisting of eight species and one vegetation community).

Appendix D of the Strategic Assessment Report provides the full list of Specified Protected Matters and also identifies prioritised Specified Protected Matters 'by group'.