

Appendix A: Natural Area Initial Assessment (NAIA) Templates & Ecological Prioritisation of Bushland Reserves

1.0 The NAIA Templates

The following section explains the NAIA Templates.

The NAIA Templates have four components: an initial Desktop Assessment, two Field Assessments (A and B) and a Summary Template. The NAIA Templates can be found in the Local Government Biodiversity Planning Guidelines (Del Marco *et al*, 2004), Part C (pp133-153) or on the Western Australian Local Government Association (WALGA), *Perth Region Plant Biodiversity Project* website: <http://www.walga.asn.au/about/policy/pbp/prpbp>

1.1 Desktop Assessment

The Desktop Assessment of each reserve is undertaken before commencement of any field component. The desktop assessment collates all existing information on the ecology, management and status of the bushland sites. Known information on vegetation complexes, ecological linkages, threatened communities, flora and fauna, fire history, existing management plans and involvement of the community are documented here. Maps are produced indicating the information spatially, and aerial photographs located to provide an additional visual tool to use in interpreting the site.

1.2 Field Assessments

The Field Assessment Part A provides a broad indication of the location and condition of ecological communities present; visible threats such as weeds, erosion or rubbish dumping; faunal habitat features; vegetation health and condition; management infrastructure such as fences; surrounding land uses and confirmation of mapped boundaries. All floristic communities present in a reserve are described using a standard 10x10m quadrat.

Field Assessment Part B is undertaken to determine the presence or absence of significant species or communities. If the presence of significant species or Threatened Ecological Communities is confirmed, they are described using 10x10m quadrats listing all species present. Structural parameters are also noted. Declared Rare, Priority or other significant flora as well as Specially Protected, Priority or other significant fauna are identified and mapped.

1.3 Limitations of Assessments using the NAIA Templates

- The information collected using the NAIA Templates does not replace comprehensive surveys of plant or fungi species present; or organised survey of fauna; or full interpretation of *Phytophthora* dieback.
- The criteria used to ecologically prioritise reserves according to their connectivity do not take into account bushland protected by covenants on private land.

- The location of 'special' geomorphological features e.g. granite outcrops or similar, are not included as NAIA ecological criteria used to prioritise reserves.
- Due to the prioritisation process being geared towards protection and retention of LSNAs (meeting Priority 1A criteria based on government legislation and policy), the NAIA ranking may not represent the most appropriate prioritisation of natural areas for management purposes. For example, a coastal, floodplain or riverine site (Priority 1A) in degraded or completely degraded condition will rank higher than an area of locally significant natural area in good or better condition (Priority 2 or Priority 3). Prioritisation of natural areas for management should therefore be scrutinised to account for this limitation.

2.0 Ecological Prioritisation of Bushland Reserves (NAIA Summary Template)

The following section describes the ecological criteria and viability estimate categories used to prioritise reserves using the NAIA Templates.

Each reserve is assessed according to a set of ecological criteria, having reference to regional and local statistics provided by the PBP and the SWBP. These include parameters of regional and local representation, diversity, rarity, connectivity and inclusion of important wetland, lake, riparian or coastal vegetation.

In addition, the likely ecological viability of each site is estimated according to factors of size, shape, perimeter to area ratio, vegetation condition and connectivity. Size and shape are an important factor in determining the long-term viability of a natural area. The bigger the area, the greater its capacity to retain biodiversity, maintain ecological function and resist disturbance factors and threatening processes. For example, a reserve, linear in shape, will have a high edge to area ratio, effectively allowing weed encroachment from road verges to quickly infest an entire reserve.

The Summary Template is completed after both the desktop and field assessments have been completed as it requires information from both templates. The Summary Template shows whether a site is locally (or regionally) significant by answering a series of yes/no questions to a set of ecological criteria. Depending on which Local Significance Criteria are met by a natural area, and the natural area's viability estimate score; the natural areas are able to be ranked in terms of ecological priority.

An example of the NAIA Summary Template is provided in Appendix B. Additionally, Table 10. 'Priority 1, 2 and 3 Locally Significant Natural Areas and subsequent ranking of value within each prioritisation grouping' and Table 11 – 'Summary of Local Significance Criteria to identify Priority 1, 2 & 3 Locally Significant Natural Areas', taken from the *Local Government Biodiversity Planning Guidelines* (Del Marco *et al*, 2004) is also included for your information within Appendix C.

2.1 Ecological Criteria

The standard ecological criteria used to identify LSNAs in the Perth Metropolitan Region (PMR) are an adaptation of the Bush Forever ecological criteria plus the original local significance criteria proposed in the *Urban Bushland Strategy* (Government of Western Australia, 1995).

The following section describing the ecological criteria is adapted from the *Local government Biodiversity Planning Guidelines* (Del Marco *et al*, 2004). The ecological criteria used for assessing the biodiversity conservation value of natural areas have been designated a level of priority, either Essential or Desirable criteria, consistent with existing legislation and policies. Criteria are designated as Essential where a 10 per cent threshold target for retention or protection exists. Where a 30 per cent threshold exists, the criteria are designated as Desirable. Threshold targets exist for the representation (ecological communities/vegetation complexes) and rarity ecological criteria.

The ecological criteria used to assess the biodiversity conservation values of natural areas are grouped under the following themes:

2.1.1. Representation of Ecological Communities

The most common way to interpret ecological communities for quantitative targets based on area are the vegetation complexes and their major landform elements as defined and mapped by Heddle *et al* (1980) for the Swan Coastal Plain (SCP) and by Mattiske and Havel (1998) for the Jarrah Forest.

1a. Regional Representation

1b. Local Representation

2. Diversity

3. Rarity

4. Maintaining Ecological Processes or Natural Systems – Connectivity

5. Protection of Wetland, Streamline and Estuarine Fringing Vegetation and Coastal Vegetation

1a. Regional Representation

Regionally significant site criteria include:

Criterion 1a) i) natural areas with recognised international, national, state or regional conservation value (outside Bush Forever Sites and Department of Environment and Conservation Managed Estate) that is not yet protected and/or managed for conservation;

Criterion 1a) ii) natural areas of an ecological community with only 1500ha or 30 per cent or less (whichever is the greater) of their pre-European extent remaining in the IBRA sub-region (Essential – Jarrah forest, Desirable – Swan Coastal Plain);

Criterion 1a) iii) large (greater than 20ha), viable natural areas in good or better condition of an ecological community with over 30 per cent of its pre-European extent remaining in the IBRA sub region (Desirable);

Criteria 1a) iv) natural areas of an ecological community with only 1500ha or 15 per cent or less (whichever is greater) protected for conservation in the Jarrah forest IBRA sub-region (Desirable); and

Criterion 1a) v) Natural area of an ecological community with only 400ha or 10 per cent or less (whichever is the greater) protected for conservation in the Bush Forever Study Area (Essential).

1b. Local Representation

Locally significant site criteria include:

Criterion 1b) i) natural area of an ecological community with 10 per cent or less of its pre-European extent remaining within the local government area (Essential);

Criterion 1b) ii) natural area of an ecological community with 30 per cent or less of its pre-European extent remaining within the local government area (Essential – Jarrah forest, Desirable – SCP; and

Criterion 1b) iii) large (greater than 10 ha), viable natural areas in good or better condition of an ecological community with more than 30 per cent of its pre-European extent remaining within the local government area (Desirable).

2.1.2. Diversity

The only criterion relating to the diversity of ecological communities within a natural area is Criteria 2 i) natural areas in good or better condition that contain both upland and wetland structural plant communities (Essential).

Upland and wetland communities are quite different at an ecological level and contain a range of species and habitats that are complementary. The transitional habitats between these communities are also particularly diverse. Therefore, any natural area still in good or better condition that contains both upland and wetland communities will have a high diversity of living organisms.

2.1.3. Rarity

Under these criteria, rarity refers to the scarcity or lack of abundance of ecological communities measured at the vegetation complex level or the floristic community level (e.g. TECs) or at the individual species level. Rarity criteria include:

Criterion 3 i) natural areas of an ecological community with only 1500ha or 10 per cent or less (whichever is the greater) of their pre-European extent remaining in the IBRA sub region (Essential) - see Table 5, Pat A, Section 5.1.3. (Del Marco *et al*, 2004);

Criterion 3 ii) Natural areas of an ecological community with only 400ha or 10 per cent or less (whichever is the greater) of their pre-European extent remaining in the Bush Forever Study Area (Essential);

Criterion 3 iii) natural areas classified by DEC as containing TECs;

Criterion 3 iv) natural areas containing DRF, Specially Protected Fauna (SPF) or significant habitat for SPF (Essential); and

Criterion 3 v) natural areas containing Priority or other significant flora or fauna or significant habitat for these fauna (Essential).

State and Australian policy also recognises the value of rare species. In Western Australia there are Government gazetted lists of 'Declared Rare' Flora and 'Specially Protected Fauna' that receive legislative protection through the Wildlife Conservation Act 1950. Further to this, the DEC creates lists of priority flora and fauna according to level of threat or knowledge of their ecology. These species are also of significance for the local government's management of reserves, and thus are recognised as being of high value in the prioritisation process.

Threatened Ecological Communities

The Department of Environment and Conservation (DEC) provides lists of Threatened Ecological Communities (TECs).

For more information visit: <http://www.naturebase.net/content/view/849/1210/>

Or contact Mia Podesta – Threatened Ecological Communities Database, DEC mia.podesta@dec.wa.gov.au or Ph: (08) 93340116

Declared Rare Flora

While natural values recognised in reserves are primarily reflected and protected in state-level policy and legislation, there is also some national and international recognition of these values. The Environment Protection and Biodiversity Conservation Act 1989 provides protection by controlling impacts on matters considered to be of National Environmental Significance. This reflects international obligations derived through agreements such as the Convention on Biological Diversity. Among matters of National Environmental Significance is the security of threatened species and communities.

For more information on flora species visit the Florabase website:

<http://florabase.dec.wa.gov.au/>

For more information on threatened species see:

<http://www.dec.wa.gov.au/management-and-protection/threatened-species/listing-of-species-subspecies-and-communities.html>

For information about threatened species recovery plans visit:

<http://www.dec.wa.gov.au/management-and-protection/threatened-species/recovery-planning-and-implementation.html> or contact Jill Pryde, Ecologist - Threatened Flora and Communities, DEC jill.pryde@dec.wa.gov.au or ph: (08) 9334 0263.

2.1.4. Maintaining Ecological Processes or Natural Systems – Connectivity

While reserves in local government are managed individually, ecologically they form part of a larger network. Flora and fauna exchange genetic material and gather resources throughout the landscape utilising extensive ranges for feeding and breeding, or by pollination and seed transfer. Species vary greatly in their ability to move across the landscape. For some, it is necessary to have near contiguous natural areas for shelter, food or substrates, and these species may be unwilling or unable to cross hostile urban environments. For this reason, it is important to consider the conservation of reserves as part of a network across the landscape. The identification of reserves that form part of small and larger scale networks can influence the priority that is given to their protection and management.

Connectivity criteria include:

Criterion 4 i) natural areas acting as stepping stones within a Regional Ecological Linkage (Essential); and

Criterion 4 ii) natural areas acting as stepping stones within a local ecological linkage determined by a Local Government (Essential).

2.1.5. Protection of Wetland, Streamline and Estuarine Fringing Vegetation and Coastal Vegetation

Conservation of the biodiversity characteristics of this category of natural areas is covered by the following criteria:

Criterion 5 i) Wetlands meeting the criteria for listing as Conservation Category or Resource Enhancement Wetlands plus an appropriate buffer (minimum 50m) in addition to the wetland dependant vegetation (Essential);

Criterion 5 ii) Wetlands listed under the Environmental Protection (Swan Coastal Plain Lakes) Policy (EPP Lakes) plus an appropriate buffer (Essential);

Criterion 5 iii) Riparian vegetation along rivers, creek lines and other channel wetlands plus an appropriate buffer (minimum 50m) in addition to the riparian (wetland dependant) vegetation (Essential);

Criterion 5 iv) floodplains delineated on the basis of ecological and geomorphic features plus an appropriate buffer (minimum 50 m) in addition to the floodplain area (Essential).

Criterion 5 v) estuarine fringing vegetation plus appropriate buffer (minimum 50m) of non-estuarine vegetation (Essential); and

Criterion 5 vi) coastal vegetation on the foredunes and secondary dunes (Essential).

On the basis of the ecological criteria described, reserves are assigned to priority groups and ranked according to their relative importance for protection and management. For instance, Priority 1A areas are recognised as LSNAs that are of high value, in a regional (or greater) context, for their ecological values. For more information on these criteria, please see Section 5.1 (p.38-50) of the *Local Government Biodiversity Planning Guidelines* (Del Marco *et al*, 2004).

3.0 The NAIA Database

The NAIA Database is a Microsoft Access database designed to collate, analyse and interpret selected contents of the four components of the NAIA Templates:

1. the Natural Area Desktop Assessment Template;
2. the Natural Area Initial Field Assessment A Template;
3. the Natural Area Field Assessment B Template – Significant Species and Communities Template; and
4. the Natural Area Initial Assessment Summary Template.

Once information from the NAIA Templates has been entered into the NAIA database, users can then rank natural areas in order of conservation priority (as well as Report, Search and Export the Data).

For more information on the NAIA Database, or its use, contact PBP in the Perth Metropolitan Region and the SWBP in the South-West.