

Guidelines checklist for preparing a wetland management plan

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Department of
Environment and
Conservation



Our environment, our future

For development, subdivision or scheme amendment approvals, or local government development applications

When do these guidelines apply and who should use them?

These guidelines are to be used by developers and their consultants in situations where they have been required to prepare a wetland management plan to the satisfaction of the Department of Environment and Conservation (DEC) as a condition of development approval, subdivision or scheme amendment approvals or local government development applications. A requirement to prepare a wetland management plan may also be made a condition of environmental approval under the *Environmental Protection Act 1986*.

DEC encourages the development and implementation of a wetland management plan (herein 'plan') for all wetlands considered worthy of protection. The aim is to ensure that management under such a plan will maintain, if not improve, the values of the wetland. Decision-making authorities (for example, Western Australian Planning Commission (WAPC), Minister for the Environment, Environmental Protection Authority (EPA) and local government authorities) will frequently require the preparation of a plan as a condition of approval of a development, subdivision or scheme amendment, that is in close proximity to, or incorporates, a wetland. In such situations, the plan is generally required to be prepared and implemented to the satisfaction of DEC. Where a plan is being prepared for an area that is classified as a waterway, estuarine or floodplain wetland, this would normally be prepared to the requirements of the Department of Water.

DEC recognises that the content of plans can vary depending on the specific values of the wetland and the complexity of the issues involved. To expedite DEC's review and endorsement of plans, a recommended format and content is provided with these guidelines. This can be varied to meet specific circumstances, where changes can be justified. This document has been prepared including a self assessment checklist so that those preparing the plan can ensure that they have dealt with all of the relevant issues in the proposed plan. A completed checklist should be attached to plans submitted to DEC for review to demonstrate that all relevant matters have been taken into account in the proposed plan.

EPA Guidance Statement No. 33 *Environmental Guidance for Planning and Development* (EPA 2008) is a useful consolidated reference document for additional information on wetland protection and management, as well as fauna and flora survey requirements. These DEC guidelines however, supersede the EPA guidelines in Attachment B4-5 of EPA Guidance Statement 33 in relation to DEC assessment of wetland management plans.

Why are wetlands important?

Wetlands are often significant for their ecological, hydrological, social and economical values. Functioning wetlands can be a critical part of the environment as they support a high level of biological productivity and diversity, provide habitat for flora and fauna including rare and threatened communities and species, maintain local and regional hydrological regimes, remove nutrients and pollutants, act as stores for rain and flood waters and support human activities and values. The *Wetlands Conservation Policy for Western Australia* (Government of Western Australia 1997) identifies the State Government's commitment 'to prevent the further loss or degradation of valuable wetlands and wetland types, and promote wetland conservation, creation and restoration'.

NB. The included checklist does not apply to waterways, estuarine or floodplain wetlands or artificial wetlands.

Checklist for a wetland management plan for submission to DEC

Title of the wetland management plan

This should clearly identify the wetland to be managed.

Table of contents

This section should list the section headings appearing within the plan, together with relevant subsection headings and their page locations.

A standard approach would be to include the following:

1. Introduction
2. Summary of management commitments
3. Existing natural environment
4. Existing cultural and social value and use
5. Potential impacts and threats
6. Management and monitoring commitments
7. Implementation and review
8. Appendices.

Further details on the suggested headings and subheadings for a plan is provided below.

Introduction

This section should provide a succinct description of the physical management area to which the plan applies, its key values, contextual information and the purpose of the plan (normally to conserve the focal wetland). The management area should include the wetland, wetland buffer and any surrounding public open space. The introduction should be preceded by a table of contents.

- location, name and description of the wetland*
- management area of the plan*
- current tenure, ownership, vesting, purpose and management arrangements, including adjacent reserves and properties
- zoning and use (existing and proposed) within and adjacent to the management area*
- infrastructure (existing and proposed) within and adjacent to the management area*
- subdivision and/or development plans*
- wetland boundary, classification (wetland type) and, if available, the assigned wetland management category and unique feature identifier number (UFI)*
- summary of the significance of the wetland and surrounds based on environmental, economic and social values. Outline of the history and sense of place associated with the wetland, as applicable
- regional, sub-regional and catchment plans which provide context for the plan
- legislation and government policies that apply to the management area
- requirement for the plan (e.g. WAPC subdivision condition)
- community, stakeholder and adjacent landowner consultation in developing the plan.

*This information should be represented on a map

Summary of management commitments

This section should outline the specific vision, objectives, strategies, timings and priorities, responsible management authorities and performance criteria. This information may be provided in a table format.

- vision: overarching intent of the plan (e.g. to ensure the wetland's values, attributes and functions are conserved)
- objectives: broad statements (e.g. to conserve native vegetation in the wetland and wetland buffer)
- strategies: specific actions (short and long-term) designed to achieve the objectives (e.g. monitoring of the percentage cover and distribution of weed species in the management area)
- timings and priorities relative to the strategies with regard to other planning constraints (e.g. conduct flora and vegetation surveys following the season which normally contributes to the most rainfall; install fencing around the management area prior to site works). Start and completion dates should be stated. Note: management strategies to be implemented prior to DEC's clearance of the condition should be clearly outlined
- management agency or group responsible for each strategy
- performance criteria: measurable targets which indicate the effectiveness of the management plan (e.g. an X% decrease by area in the distribution of weed species in the wetland and wetland buffer in X years).

It is recommended that the **SMART** principle is applied to the management commitments:

Specific: what will be achieved is clearly defined.

Measurable: is there a way of measuring what will be achieved?

Achievable: is the objective realistic given the resources available?

Relevant: is the objective relevant to the vision for the wetland?

Time-bound: is there a realistic and feasible time by which the objective is to be met?

Existing natural environment

This section should describe the management area's[†] existing natural environment and values. Background knowledge and information including results collated during other studies relevant to the management area should also be discussed where relevant.

Climate

- briefly describe the current and historic climate patterns (relevant rainfall and evaporation measurements for the period over which the hydrological data has been collected should be discussed here)
- potential implications of climate change.

Regional context

- representation of the wetland within an international, national, regional and local context
- bioregion values (e.g. Interim Biogeographic Regionalisation for Australia; biodiversity hotspot)*
- natural wetland group (e.g. consanguineous suite)*.

[†]When management area does not include the wetland but is adjacent to it, the wetland's values should also be described.

*This information should be represented on a map

Geology, geomorphology and soils

- landforms and geomorphology (e.g. Bassendean dunes)*
- topography*
- geology and soil profile*
- existing soil impacts within and adjacent to the management area (e.g. excavation; dredging; filling; mining; contamination; acid sulphate soils; soil amendment)*.

Hydrology

- site-specific wetland hydrology including information on surface water and groundwater and their interactions (baseline studies of hydrological regime including depth to groundwater can be discussed here)*
- key catchment characteristics, processes and existing issues (e.g. salinity)
- existing stormwater and drainage management, including location of infrastructure*
- existing water quality management including nutrients, algae, heavy metals and other pollutants (baseline studies of water quality can be discussed here)*
- existing hydrological modifications within and adjacent to the management area (e.g. drainage lines; groundwater bores)*.

Vegetation and flora

- flora survey methodology and results, including vegetation units and condition (see Guidance Statement No. 51 (EPA 2004a) and *Bush Forever* (Government of WA 2000))*
- significant, priority and declared rare flora, priority and threatened ecological communities (TEC – flora based)*
- weeds, including declared plants (see *Agriculture and Related Resources Protection Act 1976*), their distribution and vectors*
- existing impacts to the vegetation and flora within the management area (e.g. clearing; trampling; fragmentation).

Fauna

- fauna survey methodology and results (see Guidance Statement No. 56 (EPA 2004b))*
- significant, priority and threatened fauna, priority and threatened ecological communities (TEC – fauna based)*
- pests, including declared animals (see *Agriculture and Related Resources Protection Act 1976*) their distribution and vectors
- fauna habitat/s and their significance*
- existing impacts to fauna within the management area (e.g. habitat disturbance; competition with pests).

Ecological linkages

- existing ecological linkages within and adjacent to the management area*
- ecological linkage value.

*This information should be represented on a map

Disease

- disease presence and distribution (e.g. dieback; amphibian chytrid fungus)*
- existing impacts caused by disease.

Fire

- existing and historic fire regimes, including location of existing firebreaks*
- existing impacts caused by fire.

Existing cultural and social value and use

This section should describe the existing cultural and social values and use of the management area and its surrounds.

Cultural heritage

- indigenous heritage
- non-indigenous heritage.

Community use and appreciation

- existing management
- existing and previous uses including: recreation (passive and active, trends in use), education, scientific, resource-based, landscape amenity/aesthetics
- existing community involvement (e.g. friends groups)
- existing access within and adjacent to the management area
- existing facilities within and adjacent to the management area
- existing impacts within and adjacent to the management area (e.g. rubbish dumping; prohibited access tracks).

Potential impacts and threats

The potential impacts and threats to the values, attributes and functions of the management area and its surrounds **during** and **post** construction and development should be described here. The discussion should include an assessment of risk. Beneficial impacts may be discussed here.

- geology, geomorphology and soils (e.g. erosion; sedimentation; acid sulphate soils)
- hydrology (e.g. decrease or increase in natural surface and/or groundwater levels; increase in nutrients)
- vegetation and flora (e.g. clearing of native vegetation; introduction of weeds)
- fauna (e.g. habitat disturbance caused by noise and/or vibration of construction; introduction of pests or predators)
- ecological linkages (e.g. fragmentation)
- disease (e.g. spread in location of disease)
- fire (e.g. increase in human induced fires; altered fire regimes)
- cultural heritage (e.g. disturbance to the indigenous values of the wetland)
- community use and appreciation (e.g. threats to the conservation values of the wetland; risk of anti-social behaviour).

*This information should be represented on a map

Management and monitoring commitments

The management and monitoring strategies proposed for the management area **pre, during** and **post** construction and development should be described here. They should complement the potential impacts and threats to the existing natural environment and cultural and social values and uses, as previously described.

Geology, geomorphology and soils

- objectives
- management strategies (e.g. erect fencing prior to site works)
- monitoring (e.g. monitor the affects of erosion within and adjacent to the management area)
- contingency measures
- performance criteria.

Hydrology

- objectives
- management strategies
 - proposed stormwater and drainage management, including location of infrastructure*
 - proposed water quality management including nutrient levels, algae, heavy metals and other pollutants*
 - proposed water quantity management including surface and groundwater levels of the wetland and management area
- monitoring (e.g. monitor the surface and groundwater levels upstream, downstream and within the wetland; monitor the quality of surface and groundwater upstream, downstream and within the wetland)
- contingency measures
- performance criteria.

Vegetation and flora

- objectives
- management strategies (e.g. implement the rehabilitation plan; implement the weed management plan)
- monitoring (e.g. monitor the survival rate of rehabilitation plantings; monitor the distribution of weeds in the management area)
- contingency measures
- performance criteria.

Fauna

- objectives
- management strategies (e.g. restrict access to breeding site; erect signs displaying locations of fauna crossings)
- monitoring (e.g. monitor specific fauna population size)
- contingency measures
- performance criteria.

*This information should be represented on a map

Ecological linkages

- objectives
- management strategies (e.g. propose additional ecological linkages; rehabilitate the adjacent ecological linkage)
- monitoring (e.g. monitor the rehabilitation success of plantings in the ecological linkage)
- contingency measures
- performance criteria.

Disease

- objectives
- management strategies (e.g. implement hygiene practices; erect signage informing of disease presence)
- monitoring (e.g. monitor the distribution of dieback within and adjacent to the management area)
- contingency measures
- performance criteria.

Fire

- objectives
- management strategies (e.g. fire management plan; provide a copy of the fire management plan to relevant authorities)
- monitoring (e.g. monitor fire frequency and suitability of fire management plan)
- contingency measures
- performance criteria.

Cultural heritage

- objectives
- management strategies (e.g. erect signage to inform of the wetland's indigenous value, restrict access to high value sites)
- monitoring (e.g. monitor the impacts of construction and development on the indigenous values)
- contingency measures
- performance criteria.

Community use and appreciation

- objectives
- management strategies
 - management: recreation (passive and active), education, scientific and landscape amenity/aesthetics showing consideration of the natural and cultural environment*
 - community and stakeholder involvement and management (e.g. develop a 'friends' group)
 - access management (e.g. emergency and utility vehicle access; dual use paths) showing consideration of the natural and cultural environment*
 - facilities within and adjacent to the management area (e.g. rubbish bins; interpretative signage; seating) showing consideration of the natural and cultural environment*

*This information should be represented on a map

- monitoring (e.g. monitor the impacts of increased visitor use on the biodiversity of the wetland; monitor the condition of access tracks)
- contingency measures
- performance criteria.

Implementation and review

This section should detail the implementation and evaluation of the management commitments and review of the plan.

- agency or group responsible for the plan
- community, key stakeholder and adjacent landowner consultation in implementing and reviewing the plan
- schedule of strategies to be implemented prior to a clearance of the condition
- risk assessment for implementation of management and monitoring commitments; and management responses to address identified risk/s (e.g. early appointment of botanist to conduct flora survey to ensure availability in peak season)
- performance reporting and audit procedures
- review of the plan
- funding
- term of the plan
- handover arrangements for the plan and management area
- glossary
- acronyms
- references.

Appendices

- aerial photographs
- on-site photographs
- list of key stakeholders
- WAPC 'Approval Subject to Conditions' statement with date stamped plan
- maps and spatial data
- management action calendar
- additional relevant management plans.

References to these guidelines

Environmental Protection Authority 2004a, *Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia*, Guidance Statement 51, Environmental Protection Authority, Perth.

Environmental Protection Authority 2004b, *Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia*, Guidance Statement 56, Environmental Protection Authority, Perth.

Environmental Protection Authority 2008, *Environmental Guidance for Planning and Development*, Guidance Statement No. 33, Environmental Protection Authority, Perth.

Government of Western Australia 1997, *Wetlands Conservation Policy for Western Australia*, Government of Western Australia, Perth.

Government of Western Australia 2000, *Bush Forever Volume 2: Directory of Bush Forever Sites*, Department of Environmental Protection, Perth.

More information on wetland management planning

Coote, M, Moller, S and Claymore, K 2002, *Monitoring and Evaluating Biodiversity Conservation Activities - A Guide for managers and technical advisers to planning and designing a monitoring and evaluation program for native vegetation and biodiversity management projects*, Bushcare, Department of Environment and Conservation, Perth.

Department of Environment and Swan River Trust 2005, *Decision Process for Stormwater Management in WA*, Department of Environment and Swan River Trust, Perth.

Department of Environment and Conservation 2007, *Protocol for proposing modifications to the 'Geomorphic Wetlands Swan Coastal Plain' dataset*, Department of Environment and Conservation, Perth.

Department of Water 2004-2007, *Stormwater Management Manual for Western Australia*, Department of Water, Western Australia.

Dieback Working Group 2000, *Managing Phytophthora Dieback: Guidelines for Local Government*, Dieback Working Group, Perth.

Dieback Working Group 2005, *Managing Phytophthora dieback in bushland: A guide for landholders and community conservation groups*, Edition 3, Dieback Working Group, Perth.

Environmental Protection Authority 2000, *Guidance Statement for the Management of Mosquitoes by Land Developers*, Guidance Statement 40, Environmental Protection Authority, Perth.

Environmental Protection Authority 2004, *Environmental Protection of Wetlands*, Position Statement No. 4, Environmental Protection Authority, Perth.

Environmental Protection Authority 2006, *Rehabilitation of Terrestrial Ecosystems*, Guidance Statement No. 6, Environmental Protection Authority, Perth.

Fire and Emergency Services Authority 2000, *Fire Management Planning for Urban Bushland: A Guide for Landowners*, Fire Officers and Bushland 'Friends' Groups, FESA, Perth.

Seddon, G 1972, *Sense of Place: A Response to an Environment, the Swan Coastal Plain Western Australia*, University of Western Australia Press, Nedlands.

Tizard, B 2000, *Reality, Dreams and Pathways: A Manual for Preparing and Implementing Management Plans*, Armadale Settlers' Common Field Study Centre and Ecoplan, Perth.

Water and Rivers Commission 2001, *Water Note: Herbicide use in wetlands*, Water and Rivers Commission, East Perth.

Additional DEC management plans are available from: www.dec.wa.gov.au > Management and Protection > Land > Land management planning > Approved management plans

This document was produced by the Department of Environment and Conservation, Wetlands Section. The recommended reference is: *Department of Environment and Conservation 2008, Guidelines checklist for preparing a wetland management plan*, Department of Environment and Conservation, Perth.

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Feedback

This guideline is a dynamic document and may be changed at the discretion of DEC as more information becomes available. Please ensure that you are using the most up-to-date version of the guideline, which is available at www.dec.wa.gov.au > Management and protection > Wetlands > Publications and www.dec.wa.gov.au > Management and protection > Land > Land use planning.

Your feedback on the guideline is valuable to ensure that it is applicable and user friendly. Please forward comments to the Principal Coordinator, Wetlands Section at DEC Head Office for consideration.



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