ND001 Avon Baselining – wetland component
Brief report on progress January 2007

This document provides a brief overview of progress to date on the wetland component of the Avon Natural Diversity Alliance project ND001.

Project scope and aims

On behalf on the Avon Catchment Council (ACC) and as part of the Avon Natural Diversity Alliance (ANDA), the Department of Environment and Conservation (DEC) is 'baselining' the natural diversity of the Avon Natural Resource Management (NRM) region. This process involves the collation of existing data and knowledge about terrestrial and aquatic biodiversity within the region, with the aim of identifying important species and ecological communities, including wetlands.

The main objectives of the wetland component of ND001 are:

- To identify high, intermediate and low conservation value wetlands within the Avon region, using three 'value' categories from 'A' high value, to 'C' degraded. *NB: wetlands of <1 hectare in area will not be assessed.*
- To provide information about high value wetlands for conservation planning in the catchment.
- To identify impacts of drainage on Avon region wetlands by quantifying the effect of changes in wetland water quality on biological values.
- To populate a 'table of assessment' for drainage specifying which wetlands fall into each of the three value categories, A, B or C.

Explanation of value categories

Category A
Wetlands, including stream sections, which have significant biological values and can be regarded as healthy wetlands. They are usually fringed by live vegetation.

Category B
Wetlands, including stream sections, which substantially fulfil the definition of a healthy wetland. The extent to which the water regime, biotic features and ecological processes have been altered determines whether conservation value is high or low and whether there are opportunities for the disposal of drainage water.

Category C
Wetlands, including stream sections, which have been altered by salinisation to the extent that their values have been permanently reduced to a low level. In most

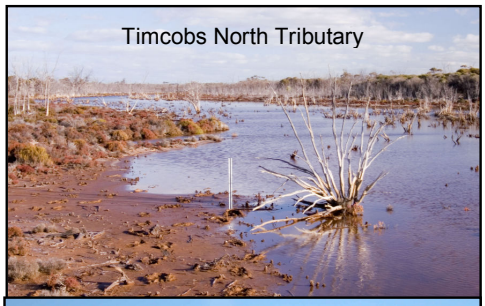
situations, these waterbodies will be able to receive drainage water, subject to downstream effects being evaluated.

Timetable for ND001 wetland component

Task/Date	Jul-Sept 2006	Oct-Dec 2006	Jan-Mar 2007	Apr-Jun 2007	Jul-Sept 2007	Oct-Dec 2007	Jan-Mar 2008	Apr-Jun 2008
Stage one wetland survey and sampling								
Draft wetland classification and evaluation								
Stage two wetland survey and sampling								
Final wetland classification and evaluation								
Table of assessment for drainage								

Stage one wetland survey and sampling (spring 2006)

The biological values of wetlands previously examined by the Engineering Evaluation Initiative (EEI) were measured in spring 2006. Relationships between changes in water chemistry in EEI wetlands and changes in the occurrence of animals and plants will be examined so that the impacts of drainage are can be quantified. The studies will also enable the threshold water quality values that trigger substantial changes in lake ecology to be identified. These thresholds provide a framework for meaningful environmental assessment of drainage proposals.


Timcobs North Tributary


Lake Yenyening

Acidification is one of the major threats associated with groundwater drainage. Baselining will review existing survey information about the relationship between animal occurrence and pH as well doing fieldwork at EEI sites where water chemistryl history as a result of drainage is known.

Spring fieldwork in 2006 resulted in a comprehensive assessment of the biological values of 29 wetlands (most of these EEI sites). Water chemistry (including acidity and heavy metals), diversity and abundance of aquatic invertebrates, aquatic macrophyte diversity, waterbird diversity, some microbial measures and riparian vegetation were assessed. The dryness of the 2006 prevented more widespread fieldwork.

Avon region wetlands for which data already exists

A map is attached showing the AUSLIG 1:250 000 topographic waterbodies layer and all sites sampled in spring 2006, as well as sites studied by DEC (CALM) in the wheatbelt biological survey undertaken in the late 1990s, and those where annual

waterbird counts occurred in the late 1980s and early 1990s (Map 1). This is a total of over 200 sites.

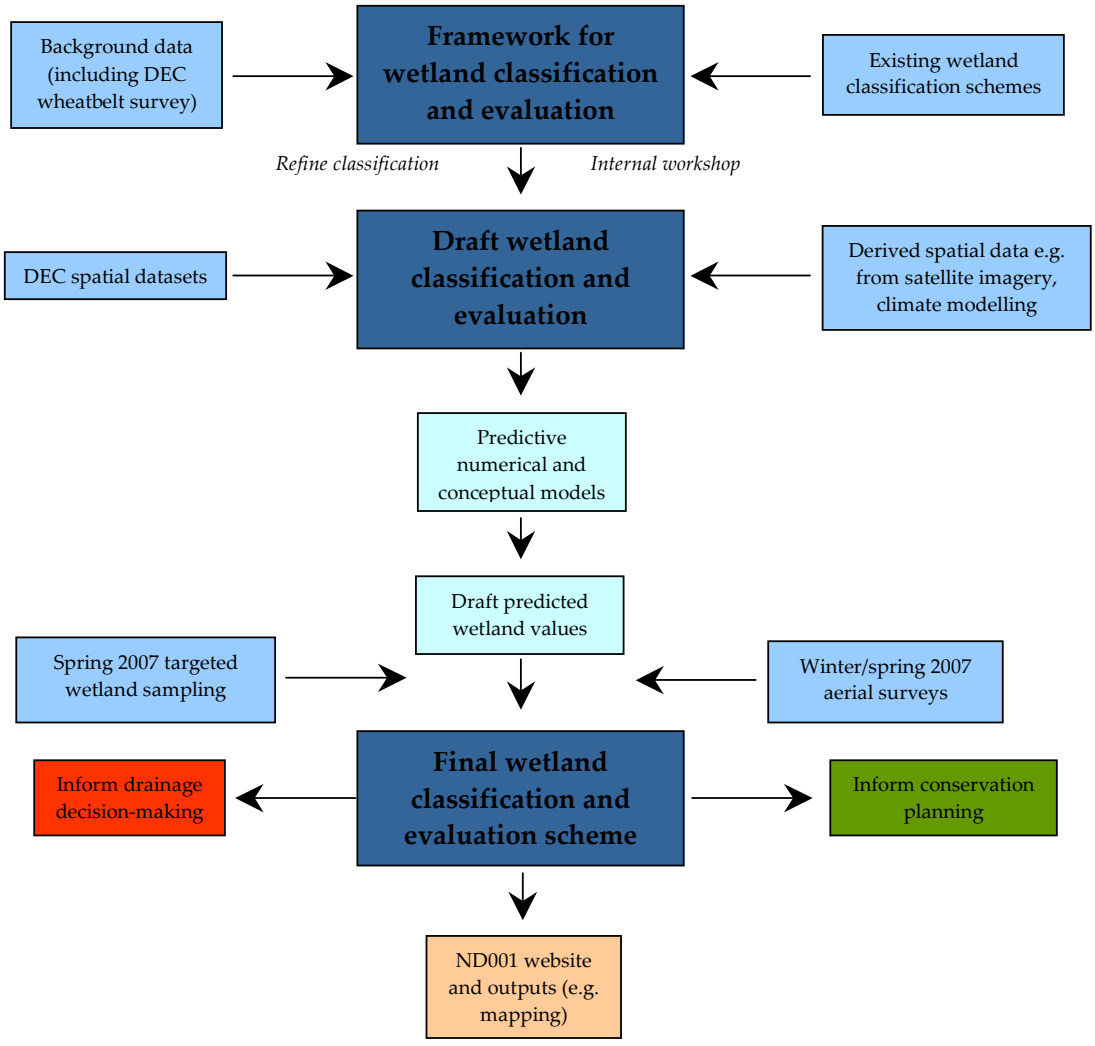
Types of spatial (remote-sensing) data to be used

All wetlands in the Avon will be assigned to a wetland category using a combination of remote sensing and existing information. The accuracy of this evaluation will be checked by low-level surveys by light plane, quick ground inspections and detailed data collection at about 80 sites in spring 2006 and 2007. There is already information about values for over 200 Avon wetlands and this is being used to inform remote sensing methods.

Two examples of remote sensing data that will be used in the project are attached as maps:

- Waterbodies in the Avon, based on extent of flooding after big rain events (Map 2); and
- Vegetation cover change between1988-2006 (Map 3).

The process for developing the wetland classification and evaluation



Facilitating assessment of selected areas

The wetland evaluations and categorisations provided by Baselining will become increasingly accurate over time as more data become available and methodology is refined. In the early stages of the project the trade-off between reliability of assessments and speed of delivery across a very large area will be obvious. Thus, early versions of the table of assessment, value categories may contain some errors. Areas that the ACC see as an immediate priority for assessment but where detailed survey data are not available may need to be addressed through ground survey by Baselining.

For further information, please contact.

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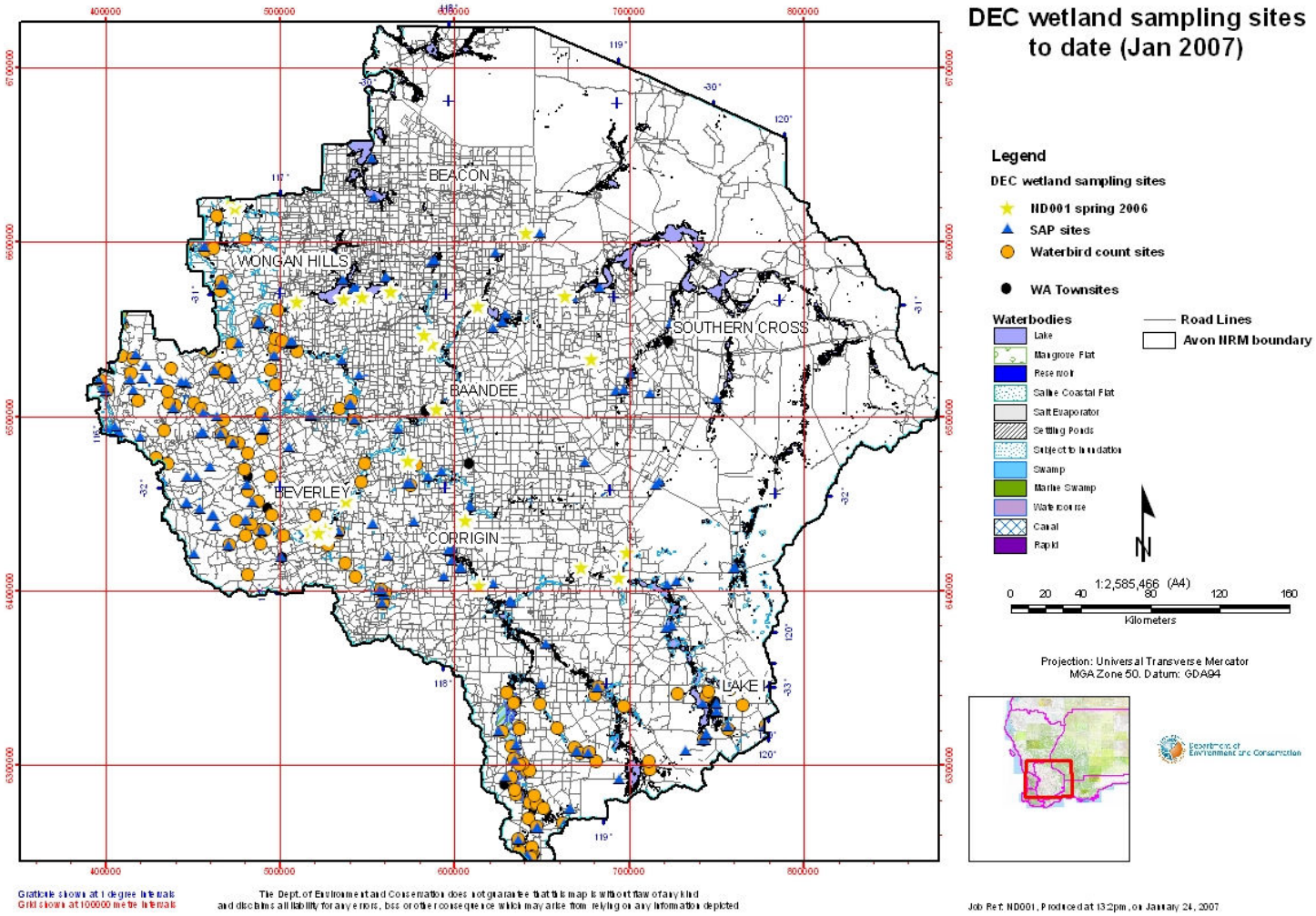
Woodvale Research Centre
9405 5100

Map 1


DEC wetland sampling sites to date (Jan 2007)
Legend
DEC wetland sampling sites
ND001 spring 2006
SAP sites
Waterbird count sites
WA Townsites
Waterbodies
Lake
Mangrove Flat
Reservoir
Saline Coastal Flat
Salt Evaporator
Settling Ponds
Subject to Inundation
Swamp
Marine Swamp
Watercourse
Canal
Rapid
Road Lines
Avon NRM boundary
N
1:2,585,466 (A4)
0 20 40 80 120 160
Kilometers
Projection: Universal Transverse Mercator
MGA Zone 50. Datum: GDA94
BEACON
WONGAN HILLS
SOUTHERN CROSS
BAANDEE
BEVERLEY
CORRIGIN
LAKE H
Graticule shown at 1 degree intervals
Grid shown at 100000 metre intervals
The Dept. of Environment and Conservation does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted
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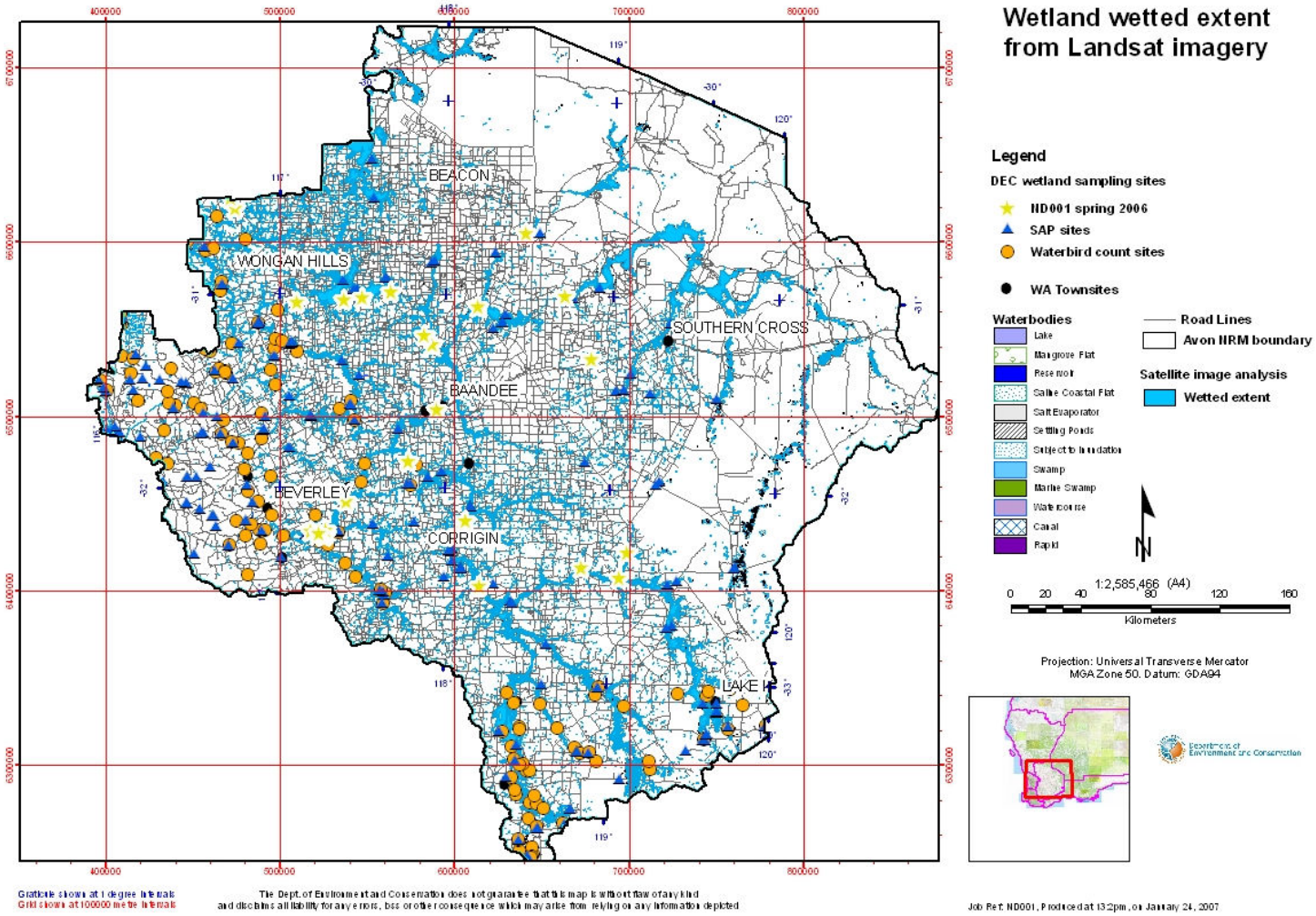
Map 2


Wetland wetted extent from Landsat imagery
Legend
DEC wetland sampling sites
ND001 spring 2006
SAP sites
Waterbird count sites
WA Townsites
Waterbodies
Lake
Mangrove Flat
Reservoir
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Avon NRM boundary
Satellite image analysis
Wetted extent
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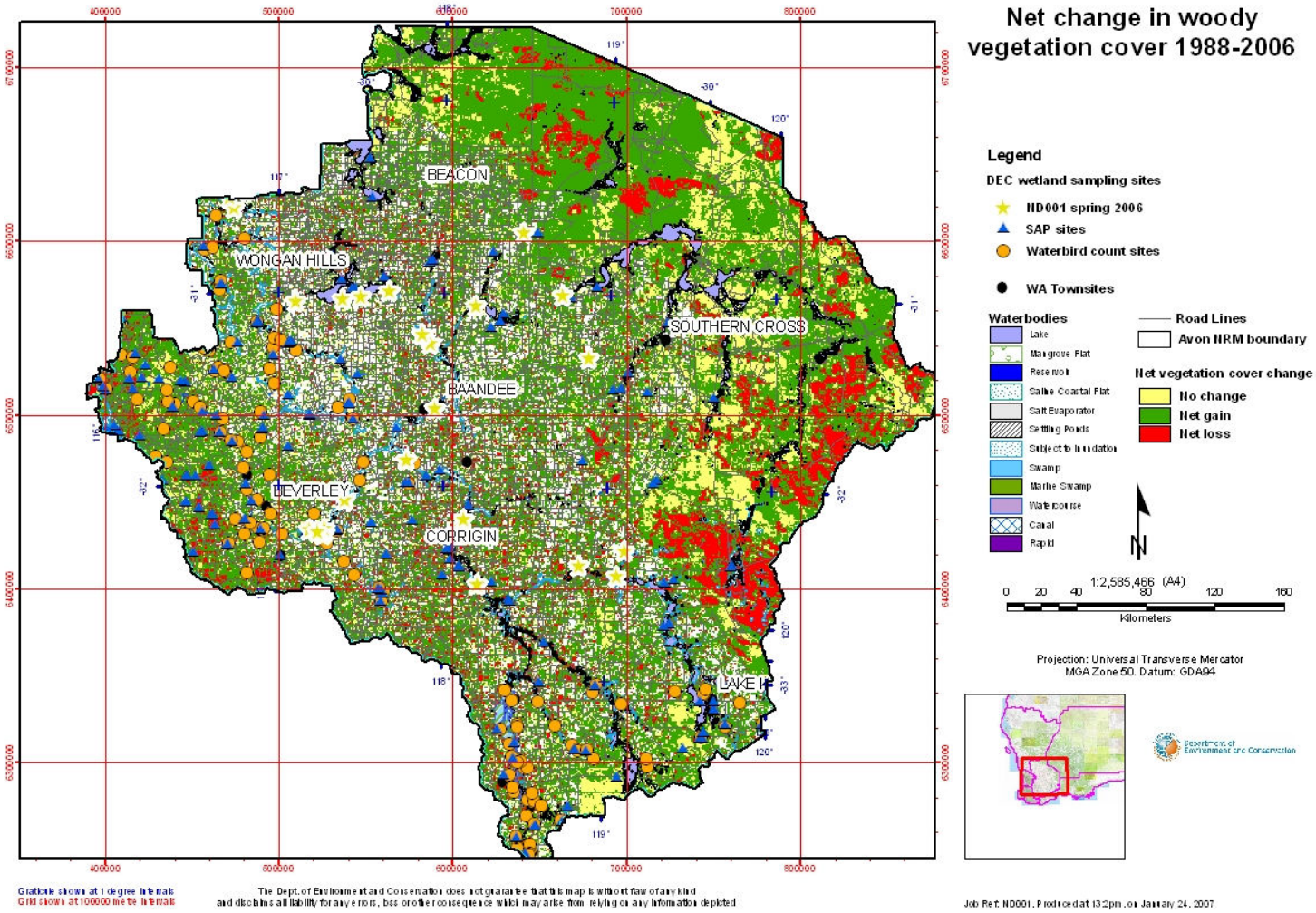
Map 3


Net change in woody vegetation cover 1988-2006
Legend
DEC wetland sampling sites
ND001 spring 2006
SAP sites
Waterbird count sites
WA Townsites
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Marine Swamp
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Avon NRM boundary
Net vegetation cover change
No change
Net gain
Net loss
N
1:2,585,466 (A4)
0 20 40 80 120 160
Kilometers
Projection: Universal Transverse Mercator
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