

Appendix I – Data standards for mapping the location of NRM projects and outputs in Western Australia.

1. Introduction

As part of the monitoring and evaluation of regional NRM strategies there is a growing need for regional groups to have available spatial information on the location of projects and their associated outputs. This information will:

- enable regional groups to identify the 'spatial footprint' of current investment in NRM and to help plan for future investment
- potentially be a valuable information resource for broader NRM stakeholders to determine what type of NRM activities have occurred in a particular location
- contribute to a statewide dataset that will contain location information of past and current investment in NRM across all funding programs (NHT 1 and 2, NAP, Envirofund and the Strategic Reserve).

Since the mapping of projects and outputs will be approached in different ways within each NRM region and will likely be undertaken by a range of people using different software, it is necessary to set some data standards so that the capture of this information meets an agreed minimum standard.

Note the following definitions.

Output – tangible outputs delivered from investment activity, these include; capacity building, on-ground activities, planning and resource assessments.

Project – an undertaking of specific outputs that are to achieve management action and resource condition targets.

2. Purpose

This data standard has been developed for the mapping of project extents and outputs for NRM projects funded through NHT 1 and 2, NAP, Envirofund and the Strategic Reserve. It could also be used for mapping NRM projects funded through other means.

3. Data capture

What essential information should be captured?

1. The mapping of project outputs is essential. Points, lines or polygons can be used to best represent the output spatially. The mapping of project extents is optional. One or more points, lines or polygons can be used to represent the extent of a single project or output.
2. Attribute information should also be recorded for each output and project that is mapped. Section 6 below sets out what fields are mandatory for mapping outputs and projects respectively.

Methods to capture data

The capture of project extents and outputs can be done using one of the following methods:

1. Locating the area on aerial photograph and digitising the extents using GIS software
2. Using the online web project mapping tool in NRM Info (developed by SLIP NRM)
3. Extracting existing spatial data that represents the extent of the project or output. This existing project data could be project data (for example polygons showing areas where weed control has occurred) or could be from state agency spatial datasets (for example cadastral data showing the boundaries of a reserve).

Coordinate system

The coordinate system and datum that the data was captured in should be recorded in a metadata statement that is to be stored with the output and project GIS data files (see section 4).

4. Metadata

Metadata information should be recorded according to the WALIS metadata policy (<http://www.walis.wa.gov.au/policies/metadata/>) which sets out the standard for recording metadata on land information in Western Australia. A copy of the metadata statements should be saved in the same directory as the GIS dataset. Appendix B contains a sample metadata statement to provide an example of the type and level of metadata information that should be recorded.

5. Resources

Resources that are available to support the mapping of project extents and outputs include:

- The project mapping tool on the online mapping interface NRM Info. This can be accessed through <http://spatial.agric.wa.gov.au/slip>. Select 'Select NRM products', then 'View information products' and then 'Record regional NRM information' towards the bottom of the screen. Prior to accessing the project mapping tool a plug-in (Adobe SVG Viewer) will need to be installed on your computer. Please see the above website for more information on installing the plug-in
- The project mapping tool user guide. Please contact your regional SLIP NRM project officer to obtain a copy
- Geomedia Access Warehouse and ArcView shapefiles set up to capture the attribute information for mapping projects and outputs that are listed in section 6 below. Please contact your regional SLIP NRM project officer to obtain a copy. Filenames of these GIS files are listed below. All GIS files are referenced to Geocentric Datum of Australia 1994 (GDA94) geographic coordinates
 - Geomedia Access Warehouse: SLIPNRM_Projects_Outputs_Mapping.mdb.
 - Map outputs in the PROJECT_OUTPUTS feature class
 - Map projects in the PROJECT feature class
 - Various lookup tables with information related to the attributes (see tables in section 6) are also stored in the Access file.
 - ArcView Shapefiles
 - Map outputs in: SLIPNRM_PROJECT_OUTPUTS_Poly.shp
SLIPNRM_PROJECT_OUTPUTS_Point.shp
SLIPNRM_PROJECT_OUTPUTS_Line.shp
 - Map projects in: SLIPNRM_PROJECT_Poly.shp
SLIPNRM_PROJECT_Point.shp
SLIPNRM_PROJECT_Line.shp

6. Mandatory and optional attributes

The below tables outline what attributes should be captured when mapping projects and outputs. Some attributes have been designated as mandatory so the data can be compiled into one dataset for each NRM region and across the state of Western Australia.

The tables below state the data type for each field, and provide a description of the information that should be entered into the attribute field. In some cases lists are provided. Some fields only apply to NHT1 and Landcare projects.

Field name (some names are truncated in the shapefiles listed under resources)	Type	Description
OUTPUT_ID	Numeric (long integer) mandatory field	Unique identifier. This could be auto-generated.
FUND	Text mandatory field	Funding program (source of NRM funding). If federal NRM funding was not the only source of project funding please list the other funding sources in the comments field below. Possible values are: <ul style="list-style-type: none"> • Land Care • NHT1 • NHT2 • NAP • Envirofund • Strategic Reserve • other (please specify) (refer to LU_Fund table)
PROPONENT	Text mandatory field	Delivery organisation (refer to LU_Landcare_Projects and LU_NHT1_Projects for a list of proponents for the Landcare and NHT1 funding programs)
PROJECT_CODE	Text	Project code. Contact your NRM regional group for a standard list of NHT2 projects and their associated codes.
PROJECT_NAME	Text mandatory field	Name of project. Contact your NRM regional group for a standard list of NHT2 projects
OUTPUT_CODE	Text mandatory field	NHT output code. Refer to table below for a list of output types, standard outputs and descriptions and their associated output codes.
REPORTING_PERIOD	Text	Year. If the work on the output spanned a number of years put in the final year.
COMMENTS	Text (255 characters)	Any other relevant details on the outputs.

Field name (some names are truncated in the shapefiles listed under re-sources)	Type	Description
PROGRAM	Text	<p>NHT1 Program name (only required for Landcare and NHT1 projects) Possible values are: <u>Landcare</u> (from NHT1 – 1997 to 2001) Landcare</p> <p>(refer to LU_Landcare_Projects) <u>NHT1</u> (1997 through 2001)</p> <ul style="list-style-type: none"> • Bushcare • Coastal and Marine • Coastcare • DPIE/EA Joint projects • Endangered Species • Farm Forestry • Fisheries Action • Indigenous Land Management Facilitator • Marine Protected Areas • Marine Species Protection • National Feral Animal Control • Rivercare • Waterwatch • Weeds • Wetlands • World Heritage Management and Upkeep • National Rivercare Program • National Weeds Program (EA) • National Wetlands Program • Farm Business Improvement Program: FarmBis • National Forest Inventory • National River Health • World Heritage Area Management & Upkeep • Endangered Species Program • Farm Forestry Program • Fisheries Action Program • National Feral Animal Control Program (EA) <p>(refer to LU_NHT1_Projects table for a list of projects and programs)</p>

Field name (some names are truncated in the shapefiles listed under re-sources)	Type	Description
YEAR	Text mandatory field	Year project undertaken. For the Landcare and NHT1 funding programs the possible values are: <u>Landcare</u> <ul style="list-style-type: none"> • 1996/1997 • 1997/1998 • 1998/1999 • 1999/2000 • 2000/2001 (refer to LU_Landcare_Projects for a list of projects and dates) <u>NHT1</u> <ul style="list-style-type: none"> • 1997/1998 • 1998/1999 • 1999/2000 • 2000/2001 (refer to LU_NHT1_Projects for a list of projects and dates)

Projects

Field name (some names are truncated in the shapefiles listed under re-sources)	Type	Description
PROJECT_ID	Numeric (long integer) mandatory field	Unique identifier. This could be auto-generated.
FUND	Text mandatory field	Funding program (source of NRM funding). If federal NRM funding was not the only source of project funding please list the other funding sources in the comments field below. Possible values are: <ul style="list-style-type: none"> • Land Care • NHT1 • NHT2 • NAP • Envirofund • Strategic Reserve • other (please specify) (refer to LU_Fund table)
PROPONENT	Text mandatory field	Delivery organisation (refer to LU_Landcare_Projects and LU_NHT1_Projects for a list of proponents for the Landcare and NHT1 funding programs)

Field name (some names are truncated in the shapefiles listed under re-sources)	Type	Description
PROGRAM	Text	<p>NHT1 Program name (only required for Landcare and NHT1 projects) Possible values are: <u>Landcare</u> (from NHT1 – 1997 to 2001) Landcare</p> <p>(refer to LU_Landcare_Projects) <u>NHT1</u> (1997 through 2001)</p> <ul style="list-style-type: none"> • Bushcare • Coastal and Marine • Coastcare • DPIE /EA Joint projects • Endangered Species • Farm Forestry • Fisheries Action • Indigenous Land Management Facilitator • Marine Protected Areas • Marine Species Protection • National Feral Animal Control • Rivercare • Waterwatch • Weeds • Wetlands • World Heritage Management and Upkeep • National Rivercare Program • National Weeds Program (EA) • National Wetlands Program • Farm Business Improvement Program: FarmBis • National Forest Inventory • National River Health • World Heritage Area Management & Upkeep • Endangered Species Program • Farm Forestry Program • Fisheries Action Program • National Feral Animal Control Program (EA) <p>(refer to LU_NHT1_Projects table for a list of projects and programs)</p>
PROJECT_CODE	Text	Project code. Contact your NRM regional group for a standard list of NHT2 projects and their associated codes
PROJECT_NAME	Text mandatory field	Name of project. Contact your NRM regional group for a standard list of NHT2 projects
Subregional project	Text	Subregional project name if different to project name listed above

Field name (some names are truncated in the shapefiles listed under re-sources)	Type	Description
YEAR	Text mandatory field	Year project undertaken. For the Landcare and NHT1 funding programs the possible values are: <u>Landcare</u> <ul style="list-style-type: none"> • 1996/1997 • 1997/1998 • 1998/1999 • 1999/2000 • 2000/2001 (refer to LU_Landcare_Projects for a list of projects and dates) <u>NHT1</u> <ul style="list-style-type: none"> • 1997/1998 • 1998/1999 • 1999/2000 • 2000/2001 (refer to LU_NHT1_Projects for a list of projects and dates)
CON-TACT_DETAILS	Text (255 characters) mandatory field	Contact name and details of project manager/officer
COMMENTS	Text (255 characters)	Any other relevant details on the project or the mapping of the project extents

Contact details for NRM regional groups

Region	City/Town	Phone
Avon Catchment Council	Northam	(08) 9690 2250
Northern Agricultural Catchments Council	Moora	(08) 9651 0548
Rangelands NRM Co-ordinating Group (Northern)	Kununurra	(08) 9166 4012
Rangelands NRM Co-ordinating Group (Southern)	Kalgoorlie	(08) 9088 6021
South Coast Natural Resource Management Inc.	Albany	(08) 9845 8537
South West Catchment Council	Bunbury	(08) 9780 6268
Swan Catchment Council	Midland	(08) 9374 3311

Standard NHT outputs and codes

OUTPUT CODE	Output type	Standard output	Description
CB1.1	Capacity building	Awareness raising activities	Awareness raising events such as demonstrations, field days, study tours
CB1.2	Capacity building	Awareness raising activities	Written products developed such as brochures, newsletters, posters and fact sheets
CB1.3	Capacity building	Awareness raising activities	Displays developed for use at events such as regional meetings
CB1.4	Capacity building	Awareness raising activities	Media opportunities leading to articles in newspapers or on radio or television
CB1.5	Capacity building	Awareness raising activities	Websites developed or significantly enhanced
CB2.1	Capacity building	Skills and training activities	Training sessions, workshops, seminars and other skills and training events held
CB2.2	Capacity building	Skills and training activities	Workbooks, course notes and other key materials developed
CB3.1	Capacity building	Establishing new institutional arrangements	Key organisational documents produced
CB3.2	Capacity building	Establishing new institutional arrangements	Formally documented collaborative arrangements
CB3.3	Capacity building	Establishing new institutional arrangements	Arrangements for collaboration agreed after significant negotiation where a formal agreement does not exist
CB4.1	Capacity building	Organisational learning	Governance tools developed
CB4.2	Capacity building	Organisational learning	Events held for significant knowledge evaluation
CB4.3	Capacity building	Organisational learning	Organisational learning reviews
CB4.4	Capacity building	Organisational learning	New databases developed
CB5.1	Capacity building	Development of new projects	Community groups assisted
OG1.1	On-ground works	Conservation by agreements	Legal conservation covenants and other legal agreements
OG1.2	On-ground works	Conservation by agreements	Voluntary conservation agreements protecting coastal vegetation
OG10.1	On-ground works	Engineering works related to the improved management of surface or groundwater	Land treated through surface drainage
OG10.2	On-ground works	Engineering works related to the improved management of surface or groundwater	Land treated through sub-surface drainage

OUTPUT_CODE	Output type	Standard output	Description
OG10.3	On-ground works	Engineering works related to the improved management of surface or groundwater	Land treated through improvements to existing drainage systems
OG10.4	On-ground works	Engineering works related to the improved management of surface or groundwater	Land treated for rising groundwater through groundwater pumping
OG11.1	On-ground works	Engineering works for improving waterway health	Stream bank stabilised with engineering works
OG11.2	On-ground works	Engineering works for improving waterway health	Stream bed stabilised
OG11.3	On-ground works	Engineering works for improving waterway health	Off-stream (alternative) watering sites installed
OG11.4	On-ground works	Engineering works for improving waterway health	In-stream habitat established
OG11.5	On-ground works	Engineering works for improving waterway health	Fish barriers addressed
OG12.1	On-ground works	Engineering works for improving water quality	New sewage plants constructed
OG12.2	On-ground works	Engineering works for improving water quality	Sewage plants with improved treatment processes
OG12.3	On-ground works	Engineering works for improving water quality	Human effluent disposal sites other than sewage plant
OG12.4	On-ground works	Engineering works for improving water quality	Properties with effluent control works for animal waste
OG12.5	On-ground works	Engineering works for improving water quality	Properties with other effluent control works
OG12.6	On-ground works	Engineering works for improving water quality	Stormwater quality control devices
OG12.7	On-ground works	Engineering works for improving water quality	Constructed wetlands
OG13.1	On-ground works	Engineering works related to improving water use efficiency	Land using improved irrigation practices
OG13.2	On-ground works	Engineering works related to improving water use efficiency	On-farms reuse systems
OG13.3	On-ground works	Engineering works related to improving water use efficiency	Land managers using on-farm water saving practice by drainage diversion

OUTPUT_CODE	Output type	Standard output	Description
OG13.4	On-ground works	Engineering works related to improving water use efficiency	Channel improved or piped if applicable
OG13.5	On-ground works	Engineering works related to improving water use efficiency	Groundwater bores capped
OG13.6	On-ground works	Engineering works related to improving water use efficiency	New stormwater reuse systems
OG2.1	On-ground works	Native vegetation protected by fencing	Coastal native vegetation protected by fencing
OG2.2	On-ground works	Native vegetation protected by fencing	Wetland native vegetation protected by fencing
OG2.3	On-ground works	Native vegetation protected by fencing	Riparian native vegetation protected by fencing
OG2.4	On-ground works	Native vegetation protected by fencing	Terrestrial native vegetation protected by fencing
OG3.1	On-ground works	Native vegetation enhanced/rehabilitated	Coastal native vegetation enhanced/rehabilitated
OG3.2	On-ground works	Native vegetation enhanced/rehabilitated	Wetland native vegetation enhanced/rehabilitated
OG3.3	On-ground works	Native vegetation enhanced/rehabilitated	Riparian native vegetation enhanced/rehabilitated
OG3.4	On-ground works	Native vegetation enhanced/rehabilitated	Terrestrial native vegetation enhanced/rehabilitated
OG4.1	On-ground works	Revegetation with native vegetation	Native plantation
OG4.2	On-ground works	Revegetation with native vegetation	Planted to coastal native species
OG4.3	On-ground works	Revegetation with native vegetation	Planted to wetland native species
OG4.4	On-ground works	Revegetation with native vegetation	Planted to riparian native species
OG4.5	On-ground works	Revegetation with native vegetation	Riparian vegetation enhanced/rehabilitated
OG4.6	On-ground works	Revegetation with native vegetation	Planted to terrestrial native species
OG5.1	On-ground works	Revegetation with exotic vegetation	Exotic plantation
OG5.2	On-ground works	Revegetation with exotic vegetation	Exotic vegetation
OG5.3	On-ground works	Revegetation with exotic vegetation	Exotic perennial pastures
OG5.4	On-ground works	Revegetation with exotic vegetation	Exotic, non-perennial special purpose pastures
OG6.1	On-ground works	Wetlands health protected or enhanced	Wetlands with reinstated connectivity
OG7.1	On-ground works	Management of significant species or ecological communities	Protected by fencing to exclude feral predators specifically for significant species/community protection
OG7.2	On-ground works	Management of significant species or ecological communities	Breeding programs
OG7.3	On-ground works	Management of significant species or ecological communities	Translocation programs

OUTPUT_CODE	Output type	Standard output	Description
OG7.4	On-ground works	Management of significant species or ecological communities	Seed banks managed
OG8.1	On-ground works	Significant pest plant, animal and disease control	Pest plant control
OG8.2	On-ground works	Significant pest plant, animal and disease control	Weed seed wash down facilities established or renovated
OG8.3	On-ground works	Significant pest plant, animal and disease control	Pest animal control (vertebrates)
OG8.4	On-ground works	Significant pest plant, animal and disease control	Pest control (invertebrates)
OG8.5	On-ground works	Significant pest plant, animal and disease control	Area of plant disease control
OG9.1	On-ground works	Engineering works related to soil management and other soil treatments	Land treated for or protected from soil erosion through engineering works
OG9.2	On-ground works	Engineering works related to soil management and other soil treatments	Land treated for soil erosion through exclusion fencing
OG9.3	On-ground works	Engineering works related to soil management and other soil treatments	Acid sulphate soils identified and treated/protected
OG9.4	On-ground works	Engineering works related to soil management and other soil treatments	Soil treatment for other than erosion or acid sulphate soils
P1.1	Planning	Improved codes of practice or guidelines	Best management practice codes or guidelines developed
P2.1	Planning	Regional plans	Regional strategies/ investment plans accredited
P2.2	Planning	Regional plans	Regional strategies/ investment plans reviewed/ revised
P3.1	Planning	Sub-regional plans	Catchment or sub-catchment plans or strategies developed
P3.2	Planning	Sub-regional plans	Property or reserve management plans completed
P4.1	Planning	Resource management plans	Recovery or management plans developed for threatened species or ecological communities
P4.2	Planning	Resource management plans	Other resource management plans
P5.1	Planning	Other plans	Other plans
RA1.1	Resource assessment	Setting or monitoring resource condition targets	Studies
RA1.2	Resource assessment	Setting or monitoring resource condition targets	New monitoring programs established

OUTPUT CODE	Output type	Standard output	Description
RA1.3	Resource assessment	Setting or monitoring resource condition targets	Existing monitoring programs enhanced
RA2.1	Resource assessment	Investigations (survey, inventory and mapping, and data analysis)	Biophysical studies
RA2.2	Resource assessment	Investigations (survey, inventory and mapping, and data analysis)	Social studies
RA2.3	Resource assessment	Investigations (survey, inventory and mapping, and data analysis)	Reports produced to provide a synthesis of previous studies or meta-analysis of previous studies
RA3.1	Resource assessment	Decision support tools	Models developed
RA3.2	Resource assessment	Decision support tools	Information management systems developed
RA3.3	Resource assessment	Decision support tools	Other decision support tools developed
RA4.1	Resource assessment	Research and development studies	Research and development studies undertaken