



**KYOGLÉ COUNCIL**

**STATE  
OF  
THE  
ENVIRONMENT**

**COMPREHENSIVE  
REPORT**

**2009**

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# 1.0 INTRODUCTION

## 1.1 Purpose of the Report

This Report forms the comprehensive 2009 SoE report for Kyogle Council. Councils in NSW are required to produce comprehensive SoE reports every four (4) years and between that period annual supplementary reports, in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation.

The first comprehensive SoE report undertaken by Kyogle Council was in 1994. SoE reports are produced to record environmental trends and conditions at National, State, Regional and Local levels.

Local government plays a significant role in environmental management through:

- activities such as waste management and minimisation, development control of the built and natural environments, sewage and wastewater management, drainage management and community education;
- control over planning and development processes which can influence environmental outcomes; and
- involvement in regional programs and strategies, such as catchment management.

The integration of SoE reporting with relevant environmental management strategies and frameworks can:

- provide regular, scientifically sound information about the current condition of the environment;
- evaluate the effectiveness of policies and programs developed to address environmental pressures;
- assess progress towards achieving environmental targets, standards and ecological sustainability;
- integrate environmental information into policy and planning processes;
- identify current and emerging environmental issues and important gaps in knowledge or data collection; and
- raise community awareness about the local environment and understanding of environmental impacts and responses to address these impacts.

One of the main values of SoE reporting is the provision of up-to-date and accurate information on the state of the local environment and an assessment of current human activities and impacts. This information can form a guide for decision making and management of activities across all community sectors so that adverse environmental impacts can be avoided or addressed.

A wide range of approaches can be taken for SoE reporting, and these include:

- general descriptions of key environmental issues, or programs and approaches being undertaken to address such issues;
- identification of data gaps;
- environmental education, or promotion of environmental programs;
- summaries of results of environmental monitoring programs (eg water quality);

- using environmental data to show trends in time or space;
- presentation of data bases; and
- developing research priorities around questions that need to be answered.

Section 1.6 describes the reporting approaches adopted in this SoE report.

## 1.2 Legislative Requirements and Ecologically Sustainable Development

### 1.2.1 Legislative Requirements

In accordance with the requirements of the Local Government Act Council has prepared this comprehensive SoE report in relation to the following environmental 'sectors'

**Table 1: SoE Environmental Sectors**

<b>ENVIRONMENTAL SECTOR / ISSUE</b>	<b>INDICATOR/S</b>
<b>LAND</b>	number of Development Consents
	changes in rural landuse
	noxious weed cover
	number of identified contaminated sites
	number of remediated sites
<b>AIR</b>	number of premises with DECC(EPA) licenses
	number of complaints to Council
<b>WATER Drinking water</b>	compliance of water with NHMRC guidelines and recording variation
	volume and consumption
<b>WATER Freshwater and estuarine</b>	number of existing septic systems and new approvals per year
	length of riparian vegetation
	number of point source discharges to creeks and watercourses
<b>WATER Groundwater</b>	location and types of groundwater bores, wells etc.
<b>BIO-DIVERSITY</b>	extent and degree of change to native vegetation
	Threatened species, populations and ecological communities listed under the Threatened Species Conservation Act
	control of noxious animals and weeds
<b>WASTE</b>	total waste disposed
	total waste to landfill
	waste recycling
	components of domestic waste
	capacity and projected life of landfill sites
<b>NOISE</b>	number of EPA licensed premises
	number of noise complaints to Council
<b>HERITAGE Aboriginal</b>	heritage listings (items and sites)
	heritage studies
<b>HERITAGE Non-aboriginal</b>	heritage listings (items and areas)
	heritage studies

The Act requires that particular reference, with regard to each of these environmental sectors, is required in Council's:

- management plans relating to the environment,
- special council projects relating to the environment, and
- the environmental impact of council activities.

The Local Government (General) Regulation 1999 establishes the content requirements for comprehensive SoE reports. The Regulation states that a report meets the requirements if in relation to each environmental sector it:

- provides as a basis for comparison in subsequent reports, a statement outlining the condition (as at the date of the report) of the sector,
- makes the relevant comparison with the equivalent statement contained in the last report,
- includes (or refers to) all relevant background information,
- specifies the relevant environmental indicators,
- reports of all major environmental and related activities,
- identifies any gaps in relevant information and indicates the way in which the missing information is to be obtained (or, if it cannot be obtained, why it cannot be obtained).

This report is considered to satisfy those requirements.

## **1.2.2 Ecologically Sustainable Development**

In 1997 the Local Government Act 1993 was amended by the Local Government Amendment (Ecologically Sustainable Development) Act 1997 to make specific reference to the application of ecologically sustainable development (ESD) principles in SoE reporting and the application of ESD principles through council's management planning processes. The principles of ESD are defined in the amended Act and can be achieved through implementation of the following principles and programs.

(a) the precautionary principle namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by:

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii) an assessment of the risk-weighted consequences of various options,

(b) inter-generational equity namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations,

(c) conservation of biological diversity and ecological integrity namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms namely, that environmental factors should be included in the valuation of assets and services, such as:

(i) polluter pays that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

The Local Government Act makes specific reference to the application of ESD in the following matters relating to local government roles and responsibilities:

- requiring Councils, Councillors and Council employees to have regard to the principles of ecologically sustainable development in carrying out their responsibilities. (s. 7 LG Act)
- to properly manage, develop, protect, restore, enhance and conserve the environment of the area for which it is responsible, in a manner that is consistent with and promotes the principles of ecologically sustainable development. (s. 8 LG. Act)
- taking into consideration the principles of ecologically sustainable development in determining applications for approval by:
- taking into consideration, in addition to the principles of ecologically sustainable development, all matters relevant to the application, and
- seeking to give effect of the applicant's objectives to the extent to which they are compatible with the public interest. (s 89 LG Act)
- when preparing the draft management plan in respect to Council's work and activities the council must consider activities to properly manage, develop, protect, restore, enhance and conserve the environment in a manner that is consistent with and promotes the principles of ecologically sustainable development. (s 403(2) LG Act)

### **1.3 Framework**

The framework, which is generally supported and adopted for SoE reporting, at all levels of government in Australia, is based on:

- the pressure-state-response model (developed by the Organisation for Economic Co-operation and Development);
- environmental indicators, which are used to assess pressures, states and responses; and
- environmental sectors that determine key environmental issues for reporting.

The following briefly outlines the 'key' aspects of the PSR reporting model:

The PSR model is based on the use of indicators to show the effect of human pressure on the environment. Three main types of indicators are used - pressure, state/condition and response indicators.



**Pressure indicators:**

Highlight the positive or negative effects (pressures) placed on a given environment. Pressures are often defined as human induced. It needs to be recognised that lack of responsive action can also be a pressure.

**State (or condition) indicators:**

Describe the condition of the environment. They register changes in the environment, reflecting the impact of the pressures and/or the effectiveness of responses.

**Response indicators:**

Detail the actions taken by Government Agencies, Councils, Industries, Communities and Individuals in response to recorded, perceived or potential environmental problems and issues. Responses can be aimed at both pressures and states/conditions, and appropriate responses will help reduce the impact of pressures.

The PSR model is a simplistic representation of a complex system. The implied cycle of cause and effect (between pressures, states/conditions and responses) provides a useful way to examine the impacts and linkages between human activities and the environment.

However, there is not always clear evidence linking pressures with changes in environmental states or conditions (Dept. of Local Government, 1998).

The PSR model tends to simplify this relationship by suggesting in some cases a simple linear relationship between cause and effect. The complexity of ecological and environmental relationships and the difficulty in determining environmental variability should not be understated.

**1.4 Previous SOE Reports**

The following table briefly describes the scope of Council's previous SoE reports:

**Table 2: Summary of Previous SoE Reports**

Report Year	Report
2000	Comprehensive SoE report.
2001 - 2003	Supplementary SoE reports.
2004	Comprehensive SoE report.
2005 - 2008	Supplementary SoE report.

This report identifies:

- the 2004 SoE report recommendations, and
- the 2009 SoE report outcomes.

By providing this information the linkages between the key issues and recommendations of the SoE reports are shown. An assessment can also be made as to whether the **recommendation** have either been actioned, not achieved or are no longer relevant to SoE reporting.

## 1.5 Comparing SOE Reports

### 1.5.1 Environmental Theme Sectors

The Dept of Local Government guidelines recommends a range of 'core indicators' for local government to address within each of the environmental 'sectors'.

**Table 3: 2009 SoE Report**

2009 SoE Report
Environmental sector
Background
Land
Air
Water
Biodiversity
Waste
Noise
Aboriginal heritage
Non- Aboriginal heritage

### 1.5.2 2009 SoE Report Environmental Sectors and Indicators

The environmental indicators are considered to:

- be applicable to the local government area of Kyogle Council and relate to the Council's sphere of interest as required by its regulatory and operational responsibilities and own environmental performances in carrying out its activities,
- show and be able to detect changes in the environment over time;
- be capable of being monitored at a reasonable cost;
- be able to be statistically shown with verifiable and reproducible data showing the changes to the environment,
- consistent with indicators recommended by the Dept of Local Government and Regional SoE project and
- be readily interpretable and understood by the general community and useful in educating the community about environmental conditions and trends.

The indicators will provide baseline information from and on which subsequent SoE reports can build and record trends. It is envisaged that subsequent SoE reports may review, change or delete indicators and that data inputs will become more sophisticated.

**Table 5: 2009 SoE Report Indicators for Environmental Sectors**

<b>ENVIRONMENTAL SECTOR / ISSUE</b>	<b>INDICATOR/S</b>
<b>BACKGROUND</b>	changes in landuse and population
	population growth rates
	daily and extreme rainfall
	average max. and min. temperatures
	planning provisions to protect sensitive areas and areas in environmental protection zones
<b>LAND</b>	number of Development Consents
	changes in rural landuse
	noxious weed cover
	number of identified contaminated sites
	number of remediated sites
<b>AIR</b>	number of premises with EPA licenses
	number of complaints to Council
<b>WATER Drinking water</b>	compliance of water with NHMRC guidelines and recording variation
	volume and consumption
<b>WATER Freshwater and estuarine</b>	number of existing septic systems and new approvals per year
	length of riparian vegetation
	number of 'point' source discharges to creeks and watercourses
<b>WATER Groundwater</b>	location and types of groundwater bores, wells etc.

<b>ENVIRONMENTAL SECTOR / ISSUE</b>	<b>INDICATOR/S</b>
<b>BIO-DIVERSITY</b>	extent of protected areas (National Parks etc) within Council area
	flora and fauna species listed under the Threatened Species Conservation Act
	control of noxious animals and weeds
<b>WASTE</b>	total waste disposed
	total waste to landfill
	waste recycling
	components of domestic waste
	capacity and projected life of landfill sites
<b>NOISE</b>	number of EPA licensed premises
	number of noise complaints to Council
<b>HERITAGE Aboriginal</b>	heritage listings (items and sites)
	heritage studies
<b>HERITAGE Non-Aboriginal</b>	heritage listings (items and sites)
	heritage studies

The following table identifies the indicators, which are compatible with those selected in the "Final Report - Regional State of the Environment for Local Government Areas reporting on the North Coast of NSW - An Agreed and Consistent Set of Indicators".

**Table 6: 2004 SoE Report and Comparative Regional Indicators for Environmental Sectors**

<b>ENVIRONMENTAL SECTOR / ISSUE</b>	<b>2004 SoE REPORT INDICATOR/S</b>	<b>REGIONAL INDICATOR</b>
<b>BACKGROUND</b>	population growth rates	population growth rates and population numbers
<b>LAND</b>	noxious weed cover	number of introduced species and declared noxious weeds
	number of identified contaminated sites	number and or area of identified contaminated sites, nature and remediation
	number of remediated sites	
<b>AIR</b>	number of premises with EPA licenses	number of EPA licensed premises
	number of complaints to Council	number and type of air quality complaints to EPA
<b>WATER Drinking water</b>	compliance of water with NHMRC guidelines and recording variation	% exceedences with ANZECC water quality guidelines for recreation, aquatic systems, irrigation and stock watering
	volume and consumption	Annual total volume, % and per capita use for % of population connected to reticulated water
<b>WATER Freshwater and estuarine</b>	number of new septic approvals per year and % of population serviced by 'septic' systems	number of existing septic systems and new approvals per year
	number of 'point' source discharges to creeks and watercourses	point source discharges - no., location and type of point source discharges
<b>BIO-DIVERSITY</b>	flora and fauna species listed under the Threatened Species Conservation Act	number and distribution of endangered and threatened species, populations and ecological communities (TSC Act)
<b>WASTE</b>	total waste disposed	volume and % of municipal waste
	total waste to landfill	disposed to landfill and volume / % of
	waste recycling	municipal waste recycled
	components of domestic waste	
	capacity and projected life of landfill sites	
<b>NOISE</b>	number of noise complaints to Council	number of noise complaints to Council and issues raised

<b>ENVIRONMENTAL SECTOR / ISSUE</b>	<b>2004 SoE REPORT INDICATOR/S</b>	<b>REGIONAL INDICATOR</b>
<b>HERITAGE Aboriginal</b>	heritage listings (items and sites)	number and nature of heritage sites, structures and landscapes.
	heritage studies	number of heritage items, altered/destroyed/demolished
<b>HERITAGE Non-aboriginal</b>	heritage listings (items and areas)	number and nature of heritage sites, structures and landscapes.
	heritage studies	number of heritage items, altered/destroyed/demolished

## 1.6 Format of the 2009 Report

The report provides 'key' background information and reports on each of the above environmental 'sectors' following the general format outlined below.

The environmental sector / key issue is identified followed by a table setting out the environmental indicators to be addressed.

Where information relating to an environmental 'sector', 'key issue' or 'indicator' can be shown by illustration or a map/s, the map/s are identified.

The reporting on the environmental 'sector' and 'indicators' is generally set out in the following manner.

The indicator is identified as either a pressure - state - response indicator.

A general description of the environmental 'sector', 'issues' and 'indicators' is prepared. Reference and information may be made presented from previous SoE reports.

Information relating to the 'indicator' is presented in a manner, usually comparative tables, which describes or quantifies it the time of preparing this report. This information can be progressively up-dated and compared in subsequent SoE reports.

The 'key' actions taken by Council, industry (where known), communities and individuals, in response to recorded, perceived or potential environmental problems and issues of the 2004 - 2009 SoE reports are commented on within Appendix 1 – Recommendations and Actions. Recent environmental education programs and monitoring programs are also identified, where applicable and known.

Data and information sources and gaps are identified.

The baseline information, which will show trends in the reported environmental sector over time, is identified. Subsequent supplementary or comprehensive SoE reports should provide current information at the time of preparation to enable comparative assessment.

This report presents a description of the required environmental sectors and indicators. Council and the management of Council will through the process of preparing the annual Plan of Management consider funding and actioning of the recommendations.

Where environmental data gaps are identified as significant or current environmental management practices are identified as requiring change, Council will need to consider these issues and assess the need for funding. It is intended that Council will consider funding through the management plan process.

Appendix Three will set out a framework to enable direct SoE linkages to the preparation of the Plan of Management. This is also be a summary of the recommendations together with an outline of responsibility, timing, funding and reporting of the recommendations.

Kyogle Council is not directly responsible for the management of activities in all of the environmental 'sectors' that are required to be addressed in SoE reports.

Council has limited resources and must be realistic in adopting the environmental indicators it uses to establish baseline information from which it can determine trends. It is intended that in each subsequent comprehensive SoE report progressively up-date the quantitative data presented in this report.

This report addresses all the environmental sectors recognising a key principle of ESD that all environmental 'sectors' are integrated and inter-related. Council, subject to resource availability, has a role to play in integration of information disclosure and undertaking monitoring of the various environmental sectors. This report achieves that disclosure of information.

Appendix Two is an overview of the key State government legislation and agencies and community programs that have involvement in environmental decision making, management and monitoring.

## **1.7 Consultation**

As part of the preparation of this report Council consulted with:

- Department of Environment and Conservation,
- Department of Infrastructure Planning and Natural Resources,
- Far North Coast County Council.

and received data for a core set of consistent environmental indicators for the local government area.

The draft SoE Report will be placed on public exhibition.

## 2.0 BACKGROUND

- [2.1 Introduction](#)
- [2.2 Settlement](#)
- [2.3 Climate](#)
- [2.4 Planning](#)
- [2.5 Recommendations](#)

### 2.1 Introduction

This section provides background environmental information on the Kyogle Council area. The location, climate, population, land usage and planning controls of environmentally sensitive areas are reported using the following indicators.

<b>INDICATOR/S</b>
<b>Changes in landuse and population</b>
<b>Population growth rates</b>
<b>Daily and extreme rainfall</b>
<b>Average max. and min. temperatures</b>
<b>Planning provisions to protect sensitive areas and areas in environmental protection zones</b>

#### **MAPS**

[No 1 Kyogle Local Government Area](#)

[No 2 Kyogle Council Local Government Area](#)

[No 3 Kyogle Council Planning Zones](#)



## 2.2 Settlement

2.2	ISSUES	INDICATORS
	Settlement	Changes in land use and population
		Population growth rates

### Introduction

The local government area and urban settlements in Kyogle Council area is shown on Map No 1.

Kyogle Council is located in the North Coast Region of New South Wales adjoining Lismore City and Tweed Councils (to the east), Richmond Valley and Clarence Valley Councils (to the south), Tenterfield Council (to the west) and the Queensland State border (to the north).

The township of Kyogle is located:

- 32 km north of Casino, along the Summerland Way (Main Road 83),
- 45 km west of Lismore, along the Kyogle - Lismore Road (Main Road 544), and Summerland Way and
- 67 km southwest from Murwillumbah, along the Murwillumbah Road (Main Road 144).

Kyogle is approximately 850 km road distance from Sydney and 200 km from Brisbane.

The Kyogle Council area is approximately 3589 km<sup>2</sup> and predominantly rural in character, comprising lands cleared and used for agriculture (2512 km<sup>2</sup> - 70.15%) and lands used for forestry and nature conservation (1071.5 km<sup>2</sup> - 29.85%).

At the time of the 2001 Australian Bureau of Statistics Population and Housing Census the Kyogle Council area had a population of 9169, compared to 9256 at the 2006 Census, resulting in a slight increase of 87 people in that 5 year period. Conversely, the trend has been significantly upward from that time with the Figures published by the Australian Bureau of Statistics on 31 March, 2008 indicating an estimated resident population of 9686 for the Kyogle LGA at 30 June, 2007, which represents a 4.64% growth rate in the year following the Census Count.

### Urban Settlement

Landuse and population growth rates are pressure indicators.

Growing populations can place additional pressures on the environment through increased development and human activity.

Urban settlement comprises the Town of Kyogle and Villages of Bonalbo, Mummulgum, Cawongla, Old Bonalbo, Geneva, Wiangarie, Woodenbong, Mallanganee and Tabulam.

The following tables show the number of people living in the above town and village settlements in Kyogle Council area at the time of the 2001 and 2006 Censes.

**Table 7: Town Population - Kyogle**

Year	Number of people	% of total population	Area of land (ha)	% of total land area
2001	2737	29%	407.6	0.11%
2006	2798	30%	407.6	0.11%

**Table 8: Rural Village Population**

Village	Year	Number of people	% of total population	Area of land (ha)	% of total land area
Bonalbo	2001	337	3.7%	61.35	0.02%
	2006	313	3.38%	61.35	0.02%
Cawongla	2006	statistically included in a rural population census collector district			
Geneva	2006	statistically included with Kyogle population census collector districts			
Old Bonalbo	2006	statistically included in a rural population census collector district			
Mallanganee	2001	102	1.1%	19.09	0.005%
	2006	120	1.3%	19.09	0.005%
Mummulgum	2006	statistically included in a rural population census collector district			
Tabulam	2006	statistically included in a rural population census collector district			
Wiangarie	2001	135	1.5%	20.73	0.006%
	2006	129	1.39%	20.73	0.006%
Woodenbong	2001	326	3.5%	46.27	0.013%

	2006	333	3.59%	46.27	0.013%
Total in 2001		900	9.82%	147.44	0.044 %
Total in 2006		895	9.67%	147.44	0.044%

### Rural Settlement

The following table shows the number of persons living in the rural areas of Kyogle Council.

**Table 9: Rural Population**

Year	Number of people	% of total population	Area of land (ha)	% of total land area
2001	5532	60.3%	251200	70%
2006	5563	60.1%	251200	70%

### Population growth rates

The Kyogle Council area population growth rate between the 1996 and 2006 Population and Housing Censes (10 years) was -4.7%. The State average was 5 %.

The following table shows the population growth rate between the 1991, 1996 and 2001 Population and Housing Censes (10 years). The Council area has had an overall 5.6% population decline during the period 1996 – 2001 and this has occurred in both urban and rural areas.

**Table 10: Population Growth**

Geographic Area	1996	2001	% change 1996 - 2001	2006	% Change 2001 - 2006
Kyogle	2847	2737	- 3.86%	2798	2.23%
Village settlement areas	1010	900	- 10.89%	895	- 0.55%
Rural areas	5779	5532	- 4.27%	5563	0.56%
Total	9714	9169	- 5.6%	9256	0.94%

The following table shows the population projections for Kyogle provided in the Kyogle Local Growth Management Strategy, with the projections based on the housing requirements as planned by the State Government and as outlined in its Far North Coast Regional Strategy, 2006-2031.

**Table 11: Population Projections – Planning NSW**

Year	Projected Population	Number of New Residents
2006	9256	0
2011	10194	938
2016	11227	1033
2021	12365	1138
2026	13618	1253
2031	15056	1438

### **Response**

Council and related ESD activities

1. 1999 Kyogle Community Profile - lists projects in the Kyogle area funded by the North Coast Area Assistance Scheme.
2. 1999 - 2004 Kyogle Social Plan- makes recommendations in respect of children, youth, older persons, Aboriginal and Torres Strait Islander people, people with disabilities, women, men and families.

### **Environmental education programs**

Kyogle Social Plan

Kyogle Community Profile

### **Monitoring programs**

Kyogle Social Plan

Kyogle Community Profile

## **2.2.1 Data**

### **Data sources**

1999 Kyogle Community Profile

Kyogle Social Plan

2001 - 2006 Australian Bureau of Statistics Population and Housing Census

### **Data gaps**

Not applicable.

## **2.2.2 Trends to Measure**

Tables 7, 8, 9, 10 & 11 provide baseline information from which either, subsequent supplementary or comprehensive SoE reports following the most recent Population and Housing Census will provide information to enable comparative assessment of population changes.

## **2.2.3 Actions since 2004 SoE**

See Appendix 1 – Recommendations and Actions

## 2.3 Climate

### Introduction

These are state indicators.

Kyogle Council is in the Bureau of Meteorology Region 1 - Richmond Tweed Climatic Survey Area. This area is climatically classified as humid sub-tropical. The relatively warm ocean along the eastern boundary causes a general east to west variation in climatic parameters. The variation is modified by the prominent natural features of the region in particular the Tweed, Richmond and McPherson Ranges.

Rainfall over the region varies from 1650 mm on the coast to less than 1025 mm over the western boundary (Kyogle Council area). Annual averages of greater than 2050 mm are found in places on the McPherson Ranges. On average 65% of the rain falls in the warmer months November to March.

Summer air temperatures may range from 27 C to 32 C and may be associated with high water vapour content. Winter temperatures range from 16 C to 11 C across the region. Frosts may occur from May to mid October, the frequency and severity dependent on the physical features of each site. Severe frosts are generally confined to June to August.

Over the northwest corner of the region (Kyogle Council area) thunder days average more than 60 days per year. This decreases east and southwards to less than 20 days per year near the coast. In the areas most prone to thunder storms hail occurs at any one point on an average of about 2 days per year. Floods are more likely to occur in the months January to April with the greatest expectancy in February.

Local winds in the mornings, particularly in the cooler months, are dependent on the local topography. Winds blow most frequently from the northeast to southeast during the months November to April and from the northwest to southwest in the months June to August. The remaining months are transitional periods from one wind regime to the other.

### Rainfall

The Bureau of Meteorology has taken rainfall recordings at Kyogle Post Office since 1905. The following table summarises rainfall characteristics.

**Table 12: Rainfall**

Month	Mean monthly (mm)	Median (mm)	Highest monthly (mm)	Lowest monthly (mm)
Jan.	160.5	145.1	537.6	21.9
Feb.	167.4	131.6	693.2	9.6
March	160.6	134.6	522.7	7.7
April	101.0	82.8	476.0	6.6
May	91.6	72.4	386.0	0.0
June	77.3	43.8	510.9	0.0
July	64.7	40.2	460.4	0.0
August	40.0	30.5	169.3	0.0
Sept.	44.1	31.7	160.6	0.0
Oct.	73.5	59.9	353.6	0.0
Nov.	93.7	82.0	275.5	11.9
Dec.	134.0	112.8	395.1	11.6
Annual	1205.3	1191.9	2021.0	465.8

Source: Bureau of Meteorology, 2009

### **Temperatures**

The data is not at present available.

### **Response**

#### **Council and community ESD activities**

Not applicable to Council.

### **Environmental education programs**

Not applicable to Council.

### **Monitoring programs**

Not applicable to Council.

## **2.3.1 Data**

### **Data sources**

1. Dept of the Interior, Bureau of Meteorology, Climatic Survey Richmond Tweed Region 1 New South Wales, Aust Govt Publishing Service, Canberra 1972.
2. Coffs Harbour Office of the Bureau of Meteorology, August 2000, Total Monthly Precipitation.

### **Data gaps**

Information on temperature parameters.

## **2.3.2 Trends to Measure**

Table 12 provides baseline information from which either, subsequent supplementary or comprehensive SoE reports will provide information to enable comparative assessment of climatic changes.

## **2.3.3 Actions since 2004 SoE**

Not applicable.

## **2.4 Planning**

2.4	ISSUES	INDICATORS
	<b>Planning</b>	<b>Planning provisions to protect sensitive areas and areas in environmental protection zones</b>

### **Introduction**

This is response indicator.

The principle local environmental planning controls currently applying in the Kyogle Council area are:

Interim Development Order No 1 - Shire of Kyogle, 1976 and Interim Development Order No 1 - Shire of Terania, 1974.

Kyogle Local Environmental Plan No 2 amended the zoning provisions of Interim Development Order No 1 - Shire of Kyogle to permit the development of certain lands for rural residential purposes. Kyogle Local Environmental Plan No. 19 amended the zoning provisions of Interim Development Order No. 1 – Shire of Kyogle and Interim Development Order No. 1 – Shire of Terania to permit the development of lands outlined in twelve preferred areas for rural residential purposes.

The Interim Development Orders comprise 3 landuse zones:

Non-urban "A" - generally all rural lands  
Non-urban "B" - generally rural lands within 400 m of a Main Road  
Village or township "V" - Kyogle and the zoned villages.

Kyogle Local Environmental Plan No 2 introduced a new zone Non-urban "1C" into Interim Development Order No 1 - Shire of Kyogle for the purposes of rezoning specific lands for rural residential development.

There are currently no local environmental protection zones or provisions or lands identified as environmentally sensitive in the principle planning controls applying in the Kyogle Council area.

The current land use plans do not recognise the existence of the National Parks, other nature reserves or locally important or environmentally sensitive areas that now exist in the Council area. The National Parks and Wildlife Service have advised that there are approximately 72555 ha of formally reserved National Parks and purchased reserved areas in the Council area.

### **Response**

Council and community ESD activities Council is preparing a comprehensive local environmental plan.

### **Environmental education programs**

Not applicable to this SoE report.

### **Monitoring programs**

Not applicable to this SoE report.

## **2.4.1 Data**

### **Sources**

Interim Development Order No 1 - Shire of Kyogle, 1976 and  
Interim Development Order No 1 - Shire of Terania, 1974.  
Kyogle Local Environmental Plan No 2  
Kyogle Local Environmental Plan No. 19

### **Gaps**

## **2.4.2 Trends to Measure**

Subsequent supplementary or comprehensive SoE reports can show lands either specifically reserved or zoned for National Parks and other conservation reserves and environmentally sensitive lands.

## **2.4.3 Actions since 2004 SoE**

See Appendix 1 – Recommendations and Actions.

## **2.5 Recommendations**

### **Changes in landuse and population and population growth rates**

1. That Council continues to review population growth rates through Community Profiles and Social Plans after each Population and Housing Census.

### **Climate**

2. Council liaise with NSW Agriculture and Bureau of Meteorology to develop a monitoring regime to ensure consistent measurement of climatic parameters for rainfall and temperature.

### **Planning**

3. That in the preparation of the draft Local Environmental Plan consideration be given to identifying environmentally sensitive lands and providing protection by providing appropriate environmental protection zoning and provisions.
4. That the Catchment Management process encourage responsible land management on privately owned lands by identifying areas requiring environmental improvement and management and assist landowners where possible to adopt effective management practices that minimises potential soil erosion and water pollution.



## 3.0 LAND

- [3.1 Introduction](#)
- [3.2 Land Development](#)
- [3.3 Rural Landuse](#)
- [3.4 Noxious Weeds](#)
- [3.5 Contaminated Land](#)
- [3.6 Recommendations](#)

### 3.1 Introduction

This section reports on the land environmental sector and provides information on the following indicators.

<b>INDICATOR/S</b>
<b>Number of Development Consents</b>
<b>Changes in rural land use</b>
<b>Noxious weed cover</b>
<b>Number of identified contaminated and remediated land sites</b>

#### **MAPS**

[No 4 Rural Land Use](#)

[No 5 Rural Residential & Rural Landsharing Communities](#)

[No 6 Slopes](#)

[No 7 Terrain](#)

[No 8 Land Degradation](#)

[No 9 Soil Types](#)

[No 10 Floodprone Land & Drainage](#)

[No 11 Areas of High & Medium Bush Fire Risk](#)

[No 12 Location of Cattle Tick Dip Sites](#)

### 3.2 Land Development

3.2	ISSUES	INDICATORS
	Land Development	Number of Development Consents

#### Introduction

The number of development consents issued by Council provides an indication of the physical development in the environment that may and usually will occur in the area.

The following table shows the number of development consents issued and refused by Kyogle Council in the period 1994 to 2004.

**Table 13: Development Consents 2004 to 2009**

	2004	2009
Development Consents	267	177

Kyogle Council since 2000 has introduced a number and range of local planning provisions and initiatives that have sought to improve, enable and control development of a number of landuse types.

#### Response

##### Council ESD related activities

Since the 1994 SoE Council has prepared the following strategies and plans:

##### 1. Development Control Plans:

- No 1 - Subdivision, 2000
- No 2 - Development in Rural Areas, 1994 (amd 1996 & 1997)
- No 3 - Industrial Development, 1995
- No 4 - Bed and Breakfast Establishments and Farmstay Accommodation, 1995
- No 5 - Kyogle Commercial Area Off-street Carparking, 1995
- No 6 - Outdoor Advertising, 1996
- No 7 - Ecotourism, 1996
- No 9 - Public Notifications of Development Applications, 1999
- No 10 - Management of Contaminated Lands, 1999.

## 2. Planning Strategies:

- Closer Rural Settlement and Urban Expansion Strategy, 2005
- Agricultural Lands Study
- Tourism Strategy
- Kyogle Heritage Study, 1996
- Local Growth Management Strategy, 2008

### **Environmental education programs**

Stormwater Environmental Assessment Program.

### **Monitoring programs**

Kyogle Council Development and Building Register & development audit program.

### **Data sources**

Kyogle Council Development Register

### **Data gaps**

Not applicable

## **3.2.2 TRENDS TO MEASURE**

Table 13 provides baseline information from which either, subsequent supplementary or comprehensive SoE reports can provide current information to enable comparative assessment.

## **3.2.3 ACTIONS SINCE 2004 SoE**

See Appendix 1 – Recommendations and Actions

## **3.3 Rural Land Use**

<b>3.3</b>	<b>ISSUES</b>	<b>INDICATORS</b>
	<b>Rural landuse</b>	<b>Changes in rural landuse</b>

### **Introduction**

This is a pressure indicator.

As Geographical Information Systems and satellite imagery and mapping become more sophisticated Council and others will be in a position to map and record changes in rural land use with higher degrees of accuracy. Rural landuse can be monitored at a fixed time prior to preparing comprehensive SoE reports.

Changes in landuse can then be measured and monitored in relation to fixed land attributes such environmentally sensitive areas and constraints such as steep slopes, flood prone lands and high hazard or risk areas.

The Dept of Infrastructure Planning and Natural Resources providing information in the form of a 'broadhectare' multi attribute maps to Councils in the North Coast region on availability.

### Rural landuse

Subject to the future availability of appropriate information the following table is presented in order to generally define broad rural landuse categories and show the area of the use in the Councils rural area. Multi attribute maps are not completed for the entire LGA. This table will be completed on the mapping becoming available.

**Table 14: Rural Landuse (data gap)**

Land Attribute	Area (ha)	Percent
Cropping	-	-
Horticulture	-	-
Grazing or grasslands	-	-
Mining or quarrying	-	-
Waterbodies	-	-
Timbered areas	-	-
Urban areas	-	-
Utilities	-	-
No classification	-	-
TOTAL	-	-

- Note: Cropping includes farming of rural land. Horticulture includes the growing of macadamia, low chill stone, tropical and citrus fruits etc. Grazing or grasslands includes use of rural land for dairying, beef cattle etc.
- The following table further describes the nature of rural land use in the Council's area.

**Table 15: Rural Landuse - holdings and rural residential areas – 2004 (considered unchanged)**

<b>Rural Land Holding</b>	<b>Number</b>	<b>Area (ha)</b>	<b>Percent</b>
40+ ha lots	2031	227786	88.9 %
5 - 40 ha lots	1405	23353	9.1 %
< 5 ha lots	1720	2355	0.9 %
<b>Rural Residential Uses</b>			
Rural residential areas (zoned 1(c))	1	23	0.01 %
Rural landsharing / multiple occupancy	28	2075	0.8 %
<b>TOTAL</b>		<b>256674</b>	<b>100 %</b>

Generally, changes in land use, which also includes the erection of buildings for residential use requires the prior consent of Council. Council has recently adopted and placed on exhibition a 'Draft Strategy for Closer Rural Settlement and Urban expansion (August 2004). The objectives of the draft strategy include:

- Locate new urban lands and lands potentially suitable for closer rural settlement in areas physically suitable for development free of natural hazards and risks and which is not environmentally sensitive.
- Ensure that urban development and development for closer rural settlement protects native flora and fauna, protects and improves native vegetation and remnant wildlife corridors and minimises potential for adverse environmental impacts on natural systems.
- Develop assessment criteria to guide future urban development and closer rural settlement.

Council is also finalising the preparation of a comprehensive local environmental plan, which will provide the local planning framework for development within the LGA.

Significant changes in the agricultural use of large areas of rural land can occur without the consent of Council. For example, grazing land changed horticulture or forest plantations. A range of significant environmental issues may occur as a consequence of changes in rural land use, particularly where these changes occur on constrained lands.

The following lists typical issues that may arise with changes in rural land uses:

- a new agricultural activity may generate noise, dust, soot or other impacts that may be associated with the activity,

- an agricultural use, eg. plantations located on steep land maybe prone or subject to erosion, particularly if the land is part of an erosional landscape,
- large amounts of nitrogen fertiliser potentially introduced to a catchment comprising krasnozem soils may induce acidity or high levels of nutrient rich run-off,
- an intensive horticultural enterprise may generate chemical spray drift and
- a change of agricultural activities occurs in close proximity to already existing residences.

Council does not have any formal planning provisions in place (Development Control Plan) to ensure no new residences are built in close proximity to existing agricultural activities, or are any provisions are in place to manage the development of agricultural activities in close proximity to existing settlement and residences, however Council does utilise best practice guidelines developed by state and other local government authorities where development applications are considered.

## **Response**

### **Council and related ESD activities**

Not applicable to Council for purposes of this report.

### **Environmental education programs**

Not applicable to Council for purposes of this report.

### **Monitoring programs**

Not applicable to Council for purposes of this report.

## **3.3.1 Data**

### **Data sources**

Kyogle Council Geographic Information System.

### **Data gaps**

GIS Multi Attribute Mapping.

## **3.3.2 Trends to Measure**

Tables 14 & 15 provides baseline information from which either, subsequent supplementary or comprehensive SoE reports can provide current information to enable comparative assessment.

## **3.3.3 Actions since 2004 SoE**

See Appendix 1 – Recommendations and Actions

### 3.4 Noxious Weeds

<b>3.4</b>	<b>ISSUES</b>	<b>INDICATORS</b>
	<b>Noxious weeds</b>	<b>Noxious weed cover</b>

#### Introduction

This is a pressure indicator.

The National Strategy for the Conservation of Australia's Biological Diversity lists alien (exotic) species and genetically modified organisms as a threat to biodiversity. Colonisation by exotic plant species without their natural competitors or predators etc has affected biodiversity in a number of ways, for example competition for space and crowding restricting native and preferred exotic vegetation.

The Far North Coast Weeds (FNCW) made a preliminary submission and contribution to the SoE report. The FNCW is the noxious weed control authority for the local government areas within the region.

Environmental weeds are a major issue for biodiversity on the north coast generally and in particular in the Kyogle area.

The following table presents activities undertaken by FNCW within the Kyogle area for the control and management of noxious weeds during the 2003-2004 period.

	<b>Spray Hours</b>	<b>Inspection Hours</b>
<b>Private land</b>	35	
<b>Public land</b>	262	
<b>Total</b>	297	792

#### Identified weeds

The following list identifies the environmental weeds declared noxious under the Noxious Weeds Act 1993 in the FNCW administrative and Kyogle area.

**Table 16: List of Environmental Weeds Declared Noxious**

<b>Common name</b>	<b>Category</b>
Alligator weed	1
Black Knapweed	1
Hawksweeds	1
Horsetail	1
Karoo Thorn	1
Kochia (a)	1
Lagarosiphon	1
Miconia	1
Parthenium weed	1
Senegal Tea Plant	1
Siam weed	1
Spotted Knapweed	1
Water lettuce	1
Blackberry	2
Broadleaf Pepper	2
Burrs – Bathurst, Californian, Cockle & Noogoora	2
Celtis	2



<b>Common name</b>	<b>Category</b>
Giants Rats Tail grass	2
Green Cestrum	2
Groundsel bush	2
Johnson grass	2
Nodding thistle	2
Pampus grass	2
Rhus tree	2
Salvinia	2
Scotch / English broom	2
Spiny Burrgrass	2
St Johns Wort	2
Giant Parramatta grass	2/3
Bitou bush	3
Crofton weed	3
Lantana – except Pink Lantana	3
Mistflower	3
Water hyacinth	3

Common name	Category
Harrisa Cactus	4(f)
Prickly Pears	4(f)
Cabomba – except Pink Cabomba	4(g)
Willows	4(g)

The FNCW have identified that a number of weeds have become apparent in the last 3 to 5 years which have a great potential to adversely impact on native vegetation.

The following table identifies those weeds and localities in which they have recently been observed by FNCW.

**Table 17: Other Environmental Weeds**

Environmental Weed	Observation	Localities observed
Madeira vine <i>Anredera cordifolia</i>	Present for many years, but has not spread until recently – vine smothers tree canopy killing tree	Deep Creek in and below Mallanganee Nature Reserve – other areas Kyogle, Cawongla, Iron Pot Creek, Bean Creek & Old Bonalbo
Cat's Claw Creeper <i>Macfadyena unguis-cati</i>	Widespread in the whole Clarence catchment. Similar impact to Maderia Vine	Bad along Clarence River near Tabulam Race Course, Upper Duck Creek, Urbenville, Paddy's Flat, Afterlee & Yate's Crossing
Balloon vine <i>Cardiospermum grandiflorum</i>	Quite widespread but not as quickly as Maderia Vine or Cat's Claw Creeper	
Camphor Laurel <i>Cinnamomum camphora</i> Declared a noxious weed	Has been problem in the area bounded by Cawongla, Wiangaree, Toonumbar, Etrick & Bentley	In past 5 years spreading at an alarming rate in the Woodenbong, Urbenville, Upper Duck Creek, Old Bonalbo and Bonalbo areas.

<b>Environmental Weed</b>	<b>Observation</b>	<b>Localities observed</b>
Winter Senna <i>Senna pendula var glabrata</i>	Spreading at the rate of 40 to 50% per year.	
Green leaf Desmodium <i>Desmodium intortum</i>	Spreading at the rate of 30% per year. Climbing pasture species. Potential to kill large tracts of native vegetation as it will grown up trees to 20m+.	Bad occurrence on the hill out of Cawongla on the Kyogle Road.
Silver leafed Desmodium <i>Desmodium uncinatum</i>	Sometimes called Velcro Weed because of its clinging nature. Smothers low plants and shrubs. Spreading at the rate of 50% per year.	
Yellow Elder <i>Tecoma stans</i>	Not recognised as a potential problem until 2 years ago. Spreading rapidly.	Casino to Kyogle Road, Kyogle to Wiangaree Road around Kilgra
Mile-a-minute (Five leafed Morning Glory) <i>Ipomoea cairica</i>	Tree smothering vine – usually shrubs and small trees.	More common in the southern and eastern areas of the Council area.
Blue Morning Glory <i>Ipomoea indica</i>	Common creepr and climber.	Common along Deep Creek and Bentley areas.
Lantana <i>Lantana camara</i>	Changes in land use practices have resulted in dramatic build up. Red flowering plant declared noxious. Biological control research underway.	
Groundsel bush	Declared noxious weed	

Environmental Weed	Observation	Localities observed
Giant Parramatta Grass <i>Sporobolus fertilis</i> & Giant Rats Tail Grass <i>Sporobolus pyramidalis</i>	Council controls the weeds in the roadside – cost of control to private landholders high / prohibitive. Many specialists believe that the weeds may reach their ecological range in 15 years – therefore control is a waste of money.	Spreading rapidly in the Ettrick, Edenville, Eden Creek and Aft areas, over Mount Brown and in the Ewingar, Tabulam, Bottle Creek, Tunglebung, Bonalbo and Urbenville areas. Some properties in these areas may have 30% weed cover.
Broadleaf Pepper		Old Dyraaba Station precinct.

### Response

Council and community ESD activities  
Council members are represented on the FNCW.  
Council makes a financial contribution to the FNCW.

### Environmental education programs

NSW North East Noxious Weeds Plants Advisory Committee brochure "Noxious Weeds Guide 1997"

### Monitoring programs

Responsibility of the FNCW.

## 3.4.1 Data

### Data sources

1. Far North Coast Weeds

### Data gaps

Not applicable to Council.

## 3.4.2 Trends to Measure

Tables 16 & 17 provide baseline information from which either, subsequent supplementary or comprehensive SoE reports can provide current information on noxious weeds to enable comparative assessment.

## 3.4.3 Actions since 2000 SoE

See Appendix 1 – Recommendations and Actions

### 3.5 Contaminated Land

3.5	ISSUES	INDICATORS
	Contaminated land	Number of identified contaminated and remediated sites

#### Introduction

This is a state, pressure and response indicator.

Contaminated sites are areas containing substances potentially toxic or hazardous to humans or other parts of the ecosystem.

Contaminated sites not properly managed or identified may result in an increased risk to health and safety of people on or adjacent to the site. They may also result in detrimental effects to the environment as a result of the disturbance of pollutants, causing a possible impact on the natural and built environment, which creates unanticipated cost to the community, developers and a potential liability to Council.

Contaminated sites are expensive to rehabilitate and are often managed through containing the contamination by "capping" and controlling the risk to the natural environment and human health. This does not remediate the site, rather it manages the contaminants to allow an on-going use of the natural and / or built resource.

The NSW Department of Environment and Conservation (DEC) classifies the number of sites in NSW that have been contaminated by former or ongoing uses as:

Contaminated Land Management Act sites,  
 Environmentally Hazardous Chemicals Act sites (section 35 & 36 sites),  
 Unhealthy building land,  
 Cattle Tick dip sites and  
 Unexploded ordnance sites.

Sites regulated under the Contaminated Land Management Act 1997 (CLM Act) by DEC may be:

Land declared to be an investigation area "if it has reasonable grounds to believe that the land is contaminated with a substance in such a way as to present a significant risk of harm"(s15 CLM Act); or

A remediation site "where the land has been found to be contaminated in such a way as to present a significant risk of harm"(s21 CLM Act).

DEC may issue investigation orders (s17 CLM Act) or remediation orders (s23 CLM Act) or enter into voluntary investigation (s19 CLM Act) or remediation agreements (s26 CLM Act).

The former EPA (now DEC) formerly issued notices under ss 35 & 36 of the Environmentally Hazardous Chemicals Act 1985 on sites which were considered to be environmentally degraded and required formal regulation.

Unhealthy building land are sites that have been gazetted under the Unhealthy Building Land Act 1990 (or previously Public Health Act 1901) because the EPA believes it would be prejudicial to health if a building were erected on that land. Examples include closed landfills, some lands affected by nightsoil (faecal waste), chemical contaminants, sawdust, asbestos or radioactivity. Low lying land that may be subject to inundation / water ponding and mosquito infestation may also be known as unhealthy building land.

The DECCW SoE direct report 'web-site' for contaminated land in the Kyogle area shows the following types and number of contaminated sites.

**Table 18: DECCW and Council Listed Contaminated Sites**

<b>DECCW Status</b>	<b>No. Sites 2004</b>	<b>No. Sites 2009</b>
Under investigation	5	
Cattle Tick Dip Sites	359	359
Unexploded Ordnances	1	
<b>Council Status</b>		
Potentially Contaminated	48	
<b>TOTAL</b>		

Table 1 of the guidelines for managing contaminated land produced by the then NSW Dept of Urban Affairs and Planning (now DIPNAR) and NSW Environment Protection Authority (now DEC) lists the range of activities that may cause contamination.

Within the Kyogle Council area there is a variety of sites that may potentially be contaminated due to possible chemical or other hazardous materials deposited as a consequence of a previous or current use. These sites may include:

- agricultural / horticultural activities,
- chemicals manufacture,
- cattle tick dip sites,
- dry cleaning establishments,
- engine works,
- gas works,
- land fill sites,

- mining and extractive industries,
- power stations,
- railway yards,
- scrap yards,
- service stations,
- sewerage treatment plants,
- sites where lead based paints have been used,
- tanning and associated trades
- waste storage and treatment and
- wood preservation.

The contaminated site with the highest 'profile' in the North Coast Region is the cattle tick dip site. NSW Agriculture (DIPNAR) (October 2004) have advised that there are 359 cattle tick dips sites in Kyogle Council area. NSW Agriculture also advised that no dip sites have had contaminated soil remediated under their direction.

The following table describes the number and status of cattle tick dip sites in Kyogle Council area.

**Table 19: Number of Cattle Tick Dip Sites**

<b>Status</b>	<b>Number - 2004</b>	<b>Number - 2009</b>
Standing Active	100	100
Standing inactive (closed & lapsed)	179	154
<b>Total standing</b>	<b>279</b>	<b>254</b>
Dismantled demolished		
Dismantled decommissioned	80	105
<b>Total dismantled</b>	<b>80</b>	<b>105</b>
<b>TOTAL</b>	<b>359</b>	<b>359</b>

## **Response**

### **Council and related ESD activities**

NSW Agriculture (DIPNAR) Cattle Tick Dip Site Management and site data base.  
DIPMAC Guidelines for Assessing Developments Within 200m of Cattle Tick Dip Sites  
Kyogle Council Development Control Plan No 10 - Management of Contaminated Land

### **Environmental education programs**

Not directly applicable to Kyogle Council.

### **Monitoring programs**

The Environment Protection Authority (DEC) and NSW Agriculture (DIPNAR) have implemented an on-going monitoring process of the use and remediation of cattle tick dip sites.

## **3.5.1 Data**

### **Data sources**

1. NSW Agriculture dip site data base (October 2004).
2. The EPA SoE direct report 'web-site' for contaminated land in the Kyogle area (October 2004).

### **Data gaps**

On-going audit of potentially contaminated land.

## **3.5.2 Trends to Measure**

Tables 18 & 19 provides baseline information from which either, subsequent supplementary or comprehensive SoE reports can provide current information to enable comparative assessment of contaminated sites.

## **3.5.3 Actions Since 2004 SoE**

See Appendix 1 – Recommendations and Actions

## **3.6 Recommendations**

### **Number of development consents**

1. Council continue to review type and number of development consents through the Consents Register and where appropriate map.

### **Changes in rural landuse, noxious weed cover, number of identified contaminated and remediated sites**

2. Council liaise with DIPNAR and DEC to develop a spatial land Geographic Information System that is able to monitor changes in rural landuse to provide consistent measurement of changes.
3. The spatial land Geographic Information System to be capable of recognising the following information layers:
  - location of the range of rural agricultural land uses including grazing, dairying, cropping, horticulture, intensive animal establishments (cattle feed lots, piggeries, poultry farms), cattle tick dip sites, location of significant noxious weed infestation, and



- location of rural holdings - 40+ ha, 5 - 40 ha, < 5 ha, rural residential developments and rural landsharing communities, and
  - Changes in native riparian vegetation, and
  - Existing native and exotic flora,
  - Other multi-attribute layers.
4. Council in conjunction with DIPNAR continue to monitor the number and status of cattle tick dip sites in the Kyogle Council area.
  5. Council investigate and implement the use of weed control methods that will minimise the use of chemicals, especially in areas adjacent stormwater drains and/or local waterways.
  6. Council in liaison with the NSW Environment Protection Authority (DEC) commence a programme which identifies contaminated sites (eg dip sites, former banana lands etc) and unhealthy building lands on Council and private properties.
  7. Council liaise with NSW Rural Bushfire Services and DIPNAR to develop a spatial land Geographic Information System that shows lands subject to high and medium bushfire risk and the location and type of bushfires.

## 4.0 Air

- [4.1 Introduction](#)
- [4.2 Air Quality](#)
- [4.3 Recommendations](#)

### 4.1 Introduction

This section reports on the air environmental sector and will provide information on the following indicator.

<b>INDICATOR/S</b>
<b>Number of premises with EPA licenses</b>
<b>Complaints to EPA</b>

### 4.2 Air Quality

4.2	ISSUES	INDICATORS
	Air quality	Number of premises with EPA licenses Complaints to EPA

#### Introduction

This is a pressure indicator.

There is no air quality monitoring in the North Coast region so a data gap remains.

The Environment Protection Authority (DEP) licenses premises and activities permitting certain types and levels of emissions to air, land or water. These activities that are of a scale and nature that have a potential to produce emissions that maybe detrimental to the environment at a more local level.

The following table generally describes the type and number of licensed premises in Kyogle Council area as advised through the EPA SoE direct information line October 2009.

**Table 20: Licensed Premises in Kyogle Council Area**

Premises or activity type	Number of Licences 2000	Number of Licences 2004	Number of Licences 2009
Sewage Treatment Works	3	3	3
Agricultural – Pig Production	8	4	2
Concreting Batching	1	0	0
Institutions (Country Energy)	1	0	0
Wood/Timber Milling	4	2	1
Landfill	0	1	2
Licence Surrender		(9)	3
<b>TOTAL</b>	<b>17</b>	<b>10</b>	<b>8</b>

**Note: October 2004**

The Protection of the Environment Operations Act 1997 (POEO Act) consolidated previous key pollution statutes for NSW under a single Act. The POEO Act replaced the:

- Clean Air Act 1961,
- Clean Waters Act 1970,
- Pollution Control Act 1970,
- Noise Control Act 1975, and
- Environment Offences and Penalties Act 1989.
- Waste Minimisation and Management Act 1995

Since the introduction of the POEO Act the 'threshold' for licensing activities has been generally increased. The following table shows the number of premises and activities licensed by the EPA.

**Table 21: EPA Licensed Premises in Kyogle Council Area**

<b>Premises or Activity Type</b>	<b>Locality</b>
Dam access	Toonumbar Dam
Pig Production	Sextonville
Pig Production	Jackson Flat
Wood/Timber Milling	Summerland Way
Landfill	Woodenbong
Landfill	Runnymede Road
Sewage Plant - Small	Highfield Road
Sewage Plant - Small	Woodenbong
Sewage Plant - Small	Bonalbo

**Note:** October 2009

The following environmental statutes and guideline documents address air quality:

- Protection of the Environment Operations Act 1997
- The Pesticides Act 1999.
- NSW Industrial Noise Policy.
- Is your wood going up in smoke?
- Waste Avoidance and resource recovery Act 2001
- Solid waste Landfill Guidelines

For the majority of land use activities (excluding pesticide management) within the Council area, Council is the appropriate regulatory authority. Therefore Council through its Planning Environmental and Community Services section manages and monitors air and noise emissions through the utilization of statutes and guideline documents.

Recording trends in complaints and reason for the complaints enables a better understanding of the concerns about air quality.

The following table describes the number and nature of air quality, noise and other complaints made to the EPA's 24 hour 'Pollution Line Information Service' in the Kyogle Council area.

**Table 22: Incident Calls to EPA**

<b>Category</b>	<b>Number of complaints - 2000</b>	<b>Number of complaints - 2004</b>	<b>Number of complaints - 2009</b>
Contaminated Land	0	0	0
Chemicals	2	2	3
Pesticides	0	6	6
Radiation	0	0	0
Air	1	8	1
Noise	0	3	0
Water		6	8
<b>TOTAL</b>	<b>3</b>	<b>25</b>	<b>18</b>

Note: October 2009

The following table describes the number and nature of air quality, noise and other information calls made to the EPA's 24 hour 'Pollution Line Information Service' in the Kyogle Council area.

**Table 23: Information Calls to EPA**

<b>Category</b>	<b>Number of calls 2000</b>	<b>Number of calls 2004</b>	<b>Number of calls 2009</b>
Recycling	0	0	0
Other	1	0	0
Water	4	6	0
Waste	2	2	0
Legal	0	0	0
Corporate	2	1	0
Chemical	1	1	0
Lead	0	0	0
Stormwater	2	2	0
Pesticide	6	1	0
Radiation	0	0	0
Air	2	3	0
Noise	3	2	1
Land	1	1	0
Noise	0	2	1
<b>TOTAL</b>	<b>24</b>	<b>21</b>	<b>1</b>

**Note:** Year 2009

## **Response**

### **Council and community ESD activities**

Council responds to complaints on as notified and required as an appropriate regulatory authority.

### **Environmental education programs**

Not applicable to Council.

### **Monitoring programs**

As stated there is no air quality monitoring activities undertaken and therefore data generation within the region. Monitoring is very much limited to compliance and auditing land use activities as a consequence of complaint/licence review.

## **4.2.1 Data**

### **Data sources**

The EPA (DECW) SoE complaints information line for public calls to pollution line in the Kyogle area (October 2004).

### **Data gaps**

Regional issue beyond resources of Kyogle Council.

## **4.2.2 Trends to Measure**

Tables 21, 22 & 23 provide baseline information on air and noise issues to enable future assessment.

## **4.2.3 Actions since 2004 SoE**

See Appendix 1 – Recommendations and Actions

## **4.3 Recommendations**

### **Number of air and noise complaints to Council**

1. Council continue to encourage and where required enforce responsible air pollution management.

## SECTION FIVE – WATER

### 5.1 Introduction

This section reports on the water environmental sector and will provide information on the following indicators.

SECTOR / ISSUE	INDICATOR/S
<b>WATER</b> Drinking water	Compliance of water with NHMRC guidelines and recording variations
	Volume and consumption
<b>WATER</b> Freshwater and estuarine	Number of existing septic systems and new approvals per year
	Length of riparian vegetation
	Number of 'point' source discharges to creeks and watercourses
<b>WATER</b> Groundwater	Location and type of groundwater bores, wells etc.

Australia is recognised as the driest inhabited continent on earth, with highly variable streamflows.

The annual flow variability of Australian streams is 2 to 3 times that of north-west Europe and North America (McMahon & Finlayson 1991).

River flow regimes are dependent on a combination of the catchment characteristics (including area, soil type, vegetation, geomorphology, slope) and climate (eg rainfall and evapo-transpiration).

The natural wetting and drying cycles of our rivers produce a diversity of habitats, which, in turn, leads to a high diversity of plant and animal species. High flows, or floods, are important for the productivity and rejuvenation of river ecosystems, particularly floodplains and wetlands.

It is becoming increasingly clear that the more the flow regimes of rivers and streams differ from natural conditions, the greater the stress that is placed on their dependent ecosystems.

Water extraction is the main cause of the modified flow regime in the Upper North Coast region however non-extractive impacts such as pollution can also contribute to changes.

In general, the dominant pressures, states and responses on the water resources of the Upper North Coast region are:



Pressure	State	Response by NSW Government
<p>The past clearing of vegetation.</p> <p>The extensive system of flood mitigation works and other structures.</p> <p>Water use and diversions Other urban and rural residential pressures.</p> <p>The grazing of stock and cultivation of land near rivers.</p>	<p>The low flow regime in many of the region's streams has been altered.</p> <p>Some of the region's groundwater systems may be fully allocated.</p> <p>Much of the riverside and floodplain vegetation in the region has been degraded or cleared.</p> <p>Water quality is poor and some trend data indicates that it is continuing to decline.</p> <p>Introduced fish and plant species are common and populations of native aquatic biota species are declining</p>	<p>NSW water reform package.</p> <p>All catchments in the region are embargoed and no new water licences will be issued.</p> <p>Government – the State Groundwater Policy Framework Document and the State Groundwater Quality Protection policy.</p> <p>Floodplain initiatives.</p> <p>Understanding river styles.</p> <p>Vegetation initiatives.</p> <p>Upgrades of sewerage systems and further investigations of problem areas.</p> <p>Effective management of aquatic habitat.</p>

## 5.2 Drinking water

5.2.1	ISSUE	INDICATOR
	Drinking water	Compliance of water with NHMRC guidelines and recording variations

### Introduction

This is a state indicator.

Water has many environmental values, including human health, recreation, irrigation, stock watering, and protection of aquatic ecosystems. Standard water quality guidelines and monitoring methods are used to measure these various water quality parameters.

The parameters selected to be used to measure water quality and comparison with National Health and Medical research Council (NHMRC) guidelines are turbidity, dissolved oxygen, salinity, pH, water temperature and faecal coliforms.

The following table shows those parameters, NHMRC standards and results at Councils monitoring stations.

**Table 24: Water Quality Monitoring – Kyogle Supply**

Parameters	NHMRC standards	Monitoring results (av annual)	Monitoring period
Turbidity	5 NTU	100 % pass	daily
Dissolved oxygen	85 %	-	-
Salinity	-	-	-
pH	6.5 – 8.5	100 % pass	daily
Water temperature	20 °C	-	-
Faecal coliforms	0	95 % pass	fortnightly

## Response

### Council and related ESD activities

Water quality monitoring undertaken by Council.

### Environmental education programs

NSW Government Water Reform Publications, Water wise etc.

### Monitoring programs

Monitoring regime described above

## 5.2.1.1 Data

### Data sources

1. Kyogle Council.
2. NSW Premiers Dept. March 2000. Final Report - Regional State of the Environment for Local Government Areas reporting on the North Coast of NSW – An Agreed and Consistent Set of Indicators.

### Data gaps

GIS Multi attribute mapping

## 5.2.1.2 Trends to Measure

Table 24 provides baseline information from which either, subsequent supplementary or comprehensive SoE reports can provide current information to enable comparative assessment of the results of water quality monitoring.

5.2.2	ISSUE	INDICATOR
	Drinking water	Volume and consumption

### Introduction

This is a pressure / state indicator.

This indicator provides a measure of some of the pressures on water extraction. The data is only applied to reticulated urban supplies and compared to the percentage of population connected to a reticulated supply.

The following tables describe the volume of reticulated drinking quality water supplied annually to Kyogle and relevant villages.

**Table 25: Reticulated Water Supplied – to Town of Kyogle and Villages**

Town/Village	2004/05	2005/06	2006/07	2007/08	2008/09
<b>Kyogle</b>	343	325	317	290	297
<b>Bonalbo</b>	34	36	35	33	35
<b>Woodenbong/Mul i Muli</b>	64	61	63	52	53
<b>Volume Total (ML)</b>	441	422	415	375	385
<b>Average per capita usage (KI)</b>	120	115	113	102	105

## Response

### Council and related ESD activities

Water quality monitoring program.

### Environmental education programs

Not applicable.

### Monitoring programs

Not applicable.

## 5.2.2.1 Data

### Data sources

1. Kyogle Council.
2. NSW Premiers Dept. March 2000. Final Report - Regional State of the Environment for Local Government Areas reporting on the North Coast of NSW – An Agreed and Consistent Set of Indicators.
3. Dept of Land and Water Conservation. Submission dated Sept 16 2000 and data relating to the environmental sector of land and water.

### Data gaps

## 5.2.2.2 Trends to Measure

Table 25 provides baseline information from which either, subsequent supplementary or comprehensive SoE reports can provide current information to enable comparative assessment of urban water usage.

## 5.3 Freshwater and estuarine

5.3.1	ISSUE	INDICATOR
	Freshwater and estuarine	Number of existing septic systems and new approvals per year

### Introduction

This is a pressure indicator.

Septic systems and tanks are a common feature of rural and rural residential in the North Coast region and Kyogle local government area. Septic systems have been identified as a potential contributor to water pollution, particularly where they may be inappropriately located or not

properly designed or installed. They are a 'non-point' source type of pollution, but tend to have a cumulative impact on the catchment water quality.

The indicator assists in the identification of potential pressures placed on the environment as a result of these types of systems. Mapping of data enable Council to determine areas where systems maybe either inappropriately located or concentrated in relation to environmentally sensitive lands. This information can then be used to develop water quality testing and monitoring programs.

The following table describes the number of on-site sewage management systems in the Kyogle Council rural planning catchments.

**Table 26: Number of On-site Sewage Management Systems**

<b>Catchment name</b>	<b>Number</b>
Afterlee	291
Back Creek	112
Cawongla	284
Collins Creek	120
Doubtful Creek	126
Edenville	75
Ettrick	64
Findon	47
Gradys Creek	103
Green Pigeon	130
Grevillia	147
Homeleigh	59
Lower Bottle	119
Lynches Creek	43
Lower Duck Creek	61
Pagans	95
Theresa Creek	108
Tooloom	33
Upper Duck	150
Woodenbong	89
<b>TOTAL</b>	<b>2258</b>

#### **Response**

As a consequence of the Local Government (Approvals) Amendment (Sewage Management) Regulation 1998 Council is required to register and inspect on-site sewage management systems such as septic tanks, aerated wastewater treatment systems, composting toilets and cesspits.

Councils is currently preparing an on site sewage management strategy.

#### **Council and community ESD activities**

Draft On site Sewage Management Strategy.

#### **Environmental education programs**

Draft On site Sewage Management Strategy.

#### **Monitoring programs**

Draft On site Sewage Management Strategy.

### 5.3.1.1 Data

#### Data sources

1. Kyogle Council
2. NSW Premiers Dept. March 2000. Final Report - Regional State of the Environment for Local Government Areas reporting on the North Coast of NSW – An Agreed and Consistent Set of Indicators.

#### Data gaps

### 5.3.1.2 Trends to Measure

Table 26 provide baseline information from which either, subsequent supplementary or comprehensive SoE reports can provide current information to enable comparative assessment of the number of on-site sewage management systems.

5.3.2	ISSUE	INDICATOR
	Freshwater and estuarine	Length of riparian vegetation

#### Introduction

This is a state and pressure indicator.

Vegetation along rivers and streams (riparian vegetation) plays an important part in maintaining and improving the quality of our rivers and streams.

The type, density and width of riparian vegetation can affect a number of factors, including.

#### Streambank Erosion

Rivers and streams are dynamic systems, and normally change course over time in response to changes in flow. When these forces are exaggerated, however, streambank erosion occurs, resulting in an estimated loss of 500 hectares of agricultural land in NSW each year (Raine 1994). Clearing, overgrazing, and trampling by stock, sand or gravel extraction, and the use of powerboats can all exacerbate stream bank erosion. As the banks of the streams wash away, soil and sand is carried in the stream until it is deposited on the insides of bends downstream, or into waterholes. This process dramatically alters the size, depth and course of many streams, and is by far the major source of sedimentation in the Richmond River system. Most creeks when depleted of their riparian vegetation will nearly double in width and become significantly more shallow.

Appropriate riverine vegetation prevents this from occurring by strengthening the banks with their binding root systems. These root systems also provide a path for water to flow through the soil, which prevents the soil becoming saturated. This is important as saturated soil is very heavy and far more prone to slumping. Vegetation also helps to increase the "roughness" of the banks, which causes the water to slow and be less erosive, thereby helping to maintain narrow but deep streams. It has also been found that resilient vegetation such as *Callistemon viminalis*, *Leptospermum brachyandrum* and *Tristaniopsis laurina* on the North Coast of NSW, is forced into erosion resistant matting during flood flows, thus protecting the bank far more than non-native species.

## **Habitat**

The majority of streams in the Richmond Catchment were originally found in areas of bushland, where trees and other plants hung over the water from both banks. Over the years many streambanks have been cleared of most of this vegetation, thus altering the riverine environment. Overhanging trees provide shade, which cools the water, reduces evaporation and increases its oxygen holding ability. Leaves and insects falling into the water supply nutrients and organic matter, and the roots and fallen branches make ideal habitats for a wide variety of aquatic animals. Vegetation acts as a filter for nutrients, sediment and other contaminants for adjacent land. When a river is well vegetated, it also acts as a wildlife corridor, allowing free movement to native birds and animals.

A number of plants are only found in riparian areas, including *Waterhousea floribunda* (Weeping Myrtle), *Potamophila parviflora* (River Grass), *Tristaniopsis laurina* (Water Gum) and *Callistemon viminalis* (Weeping Bottlebrush) in the Richmond Catchment. On the northern NSW coast, riparian corridors also commonly contain fruit bearing species not found in the surrounding eucalypt dominated open forests, and as such provide a vital food source to many animals, including fruit-doves. Many riparian corridors also support rare plant species or vegetation associations. Further, the narrow dimensions of remaining riparian vegetation makes it particularly vulnerable to invasion by exotic weeds.

## **Buffers**

Runoff from surrounding land can contain sediments and a number of pollutants, which flow into our waterways. A pollutant can be defined as a substance that does not occur naturally in a body of water, or excessive quantities of anything that occurs naturally.

These may include:

- **Nutrients:** Excessive nutrients, particularly phosphorous and nitrogen, in water can result in algal blooms and can cause excessive growth in aquatic weeds.
- **Turbidity:** Turbidity refers to the discolouration and cloudiness of the water mostly caused by suspended material such as clay particles and organic matter.
- **Microbiological Contamination:** A wide variety of microbiological contaminants, including disease carrying bacteria, can be found in poor quality water. Sewage treatment plants treat wastewater to remove microbiological contaminants, but effluent from intensive animal production (e.g. feedlots and piggeries) which are not treated may be a major source of this form of pollutant. Septic systems which are not properly maintained or that are built on inappropriate soils can also be significant contributors.
- **Chemicals, Oils and Other Pollutants:** Agricultural chemicals, oils and industrial chemicals can reach waterways in runoff, and if concentrations are high enough, they can cause serious damage to aquatic ecosystems. While modern agricultural pesticides are less of a problem than those used in the past, careful use is the key to minimising these impacts.

Well vegetated riparian zones can function as a buffer between the watercourse and the adjacent land. Water running off surrounding land is slowed down significantly as it passes through the buffer, reducing the chance of gullies forming and increasing the likelihood of the nutrients in the run-off being utilised by the plants. The reduced water velocity in the buffer may also allow the deposition and trapping of sediment and the attached and dissolved pollutants.

## **Response**

### **Council and related ESD activities**

Not applicable to Council.

### Environmental education programs

Not applicable to Council.

### Monitoring programs

Not applicable to Council.

## 5.3.2.1 Data

### Sources

Dept of Land and Water Conservation. Submission dated Sept 16 2000 and data relating to the environmental sector of land and water.

### Gaps

Location and extent of native riparian vegetation.

## 5.3.2.2 Trends to Measure

Not applicable to this SoE report

5.3.3	ISSUE	INDICATOR
	Freshwater and estuarine	Number of 'point' source discharges to creeks and watercourses

### Introduction

This is a pressure indicator.

It is important to identify and evaluate the types and sources of pollution that may adversely affect water quality. 'Point' source discharges are relatively easily to identify and manage.

'Point' source discharge types may include sewage outfalls, urban stormwater drains and industrial outfalls. The following tables identifies the types, numbers and where relevant volume of discharge materials.

**Table 27: Type and Number of 'Point' Source Discharges**

Type	Number	Volume (kl pa)
Sewage outfalls	1	600 ML
Industrial outfalls	0	0

**Table 28: Level of Treatment and Number of Urban Stormwater to Creek Discharges**

Type	Number	% of total
Untreated	5	100 %
<b>TOTAL</b>	<b>5</b>	<b>100 %</b>

### Response

#### Council and related ESD activities

Participation in 'Water Week'  
Identified stormwater discharge points for stormwater  
Urban Stormwater Management Plan



## Environmental education programs

Nil

## Monitoring programs

Nil

### 5.3.5.1 Data

#### Data sources

1. Kyogle Council.
2. NSW Premiers Dept. March 2000. Final Report - Regional State of the Environment for Local Government Areas reporting on the North Coast of NSW – An Agreed and Consistent Set of Indicators.
3. Dept of Land and Water Conservation. Submission dated Sept 16 2000 and data relating to the environmental sector of land and water.

#### Data gaps

### 5.3.5.2 Trends to Measure

Tables 27 & 28 provides baseline information from which either, subsequent supplementary or comprehensive SoE reports can provide current information to enable comparative assessment of the number and nature of stormwater discharge points.

## 5.4 Groundwater

5.4.1	ISSUE	INDICATOR
	Groundwater	Location and type of groundwater bores, wells etc

### Introduction

Groundwater plays an important role in maintaining wetlands (Bish & Gates 1995), and providing water for riverine vegetation and river base flows. Groundwater is also an important resource for agriculture, town water supply and industry.

Groundwater is the single largest source of water in NSW (NSW Government 1994). There are estimated to be 3,669 active licensed bores in the Upper North Coast region, most of which are used for stock and domestic purposes (DLWC 1999). The Richmond catchment has the highest groundwater usage of all the coastal basins in NSW, with approximately 2,300 licensed bores.

Groundwater resources can be subject to a number of pressures including over extraction, salinisation, and pollution. Over pumping of groundwater systems can lead to a general decline in watertable levels and depletion of the resource. Waste products generated from a range of catchment activities and industries have the potential to contaminate groundwater resources. High nitrate levels in groundwater can be due to the impact of dairies or piggeries. Sewage disposal by land application can also affect groundwater.

The extraction of groundwater is regulated by Part V of the NSW Water Act (1912). All bores, including test bores, are required to be licensed prior to commencement of drilling. ). Licence conditions specify the annual quantity of water, which can be extracted.

Groundwater use has historically been monitored through information voluntarily submitted by water users on an annual basis. Studies to determine the connectivity between groundwater and surface water flows have not been undertaken in the Upper North Coast region. No maps are currently available to determine groundwater resources on the North Coast however this information will be available within the next 2 to 3 years.

Subject to the future availability of appropriate information the following table is presented in order to describe groundwater extraction types and number in the Councils rural area.

**Table 29: Groundwater Extraction – number and type**

Type	Number	Percent
Battery spear	-	-
Bore	-	-
Bore open through rock	-	-
Excavation	-	-
Spear	-	-
Well	-	-
Well and bore	-	-
Other	-	-
Unknown	-	-
TOTAL	-	-

## Response

### Council and related ESD activities

Not applicable to Council.

### Environmental education programs

Not applicable to Council.

### Monitoring programs

Not applicable to Council.

## 5.4.1.1 Data

### Data sources

1. Dept of Land & Water Conservation, *“State of Rivers and Estuaries, Upper North Coast Report”* (2000)
2. Bish, S. & Gates, G 1995, Wetland Management Technical Manual: Groundwater, DL&WC, Parramatta.
3. DL&WC 1999c (in press), Richmond Catchment Stressed Rivers Assessment Report.
4. NSW Government 1994, *Our Water - A review of the current status of the water resources of NSW and the key issues relevant to their future development*. 2nd ed, Government Printer, NSW.

### Data gaps

Number, location and type of groundwater sources not as yet available to Council.

## 5.4.1.2 Trends to Measure

Table 29 will provide baseline information for subsequent supplementary or comprehensive SoE reports to provide current information to on the number of types of groundwater extraction.

## 5.5 Actions since 2004 SoE

<b>2004 SoE Data gaps</b>	<b>2008 What has been Achieved</b>
<b>Water pollution</b>	
Streamwatch programme data	Participation and liaison with Richmond River Water Users Group
Assessment of water quality on creek systems against recognised quality and health guidelines	Not applicable to Council. Responsibility of Dept of Land & Water Conservation.
Inventory of industrial run-off through environmental audits	Not applicable to Council. Responsibility of Environment Protection Authority and licensing systems under PoEO Act..
<b>Creek systems</b>	
Status of creek systems in regard to environmental sensitivity	Not applicable to Council. Responsibility of Dept of Land & Water Conservation.
Effect of human activities on those creek systems	Preparation of draft on-site sewage management strategy.
<b>Wetlands</b>	
Inventory of wetlands including conditions, size and species support	No significant wetlands in Council area. Not applicable to Council. Responsibility of Dept of Land & Water Conservation.
Effects if any of human activities on those wetlands	-

<b>2004 SoE Key Concerns</b>	<b>2004 SoE Recommendations</b>	<b>2008 What has been Achieved</b>
<b>Areas of environmental sensitivity - Water quality</b>		
Pollution – point source – diffuse source – stormwater - sedimentation	Stormwater impact evaluation program	Preparation of Stormwater Management Plan
Reduced water quality	Liaison with Richmond & Clarence TCM Committees	Continued liaison with Richmond River Water Users Group
Agricultural impacts	Liaison with Streamwatch group	Richmond River Water Users Group
Commercial / industrial impacts	Enforcement of siltation control measures for developments	On-going – take of development control process
	Maintain public water supply monitoring	Undertaken by Council
	Develop monitoring program for recreational waters	Not applicable to Council. Responsibility of Dept of Land & Water Conservation.

## 5.6 Recommendations

### **Drinking water - compliance of water with NHMRC guidelines and recording variations**

Council continue to monitor quality of drinking water in accordance with standards developed by NSW Health.

### **Drinking water - volume and consumption**

1. Council continue to monitor volume of water consumed from its reticulated water supplies.
2. Council pursue water conservation within an Energy Efficiency DCP and develop a program to educate and encourage residents to reduce their water consumption and wastage, including promotion of costs benefits, appliances with good water conservation rating, installation of raintanks, indigenous gardens that need little watering, dip sprinklers instead of fixed and mulching and assist and encourage industrial and commercial businesses to undertake voluntary environmental water conservation audits.
3. Council undertake a water conservation audit of all Council buildings, facilities, maintenance and water practices, including cleaning techniques, lawn watering practices and cleaning of machinery and vehicles aimed at reducing Council's use of water and water wastage.

### **Freshwater - number of existing septic systems and new approvals per year**

4. Council record the number and location of approved new rural and unsewered village on-site sewage management systems and show this information on a map.
5. Council in liaison with Dept of Land & Water Conservation develop a river quality monitoring program that includes stations located on the Richmond, Tweed and Clarence Rivers.

### **Number of 'point' source discharges to creeks and watercourses**

6. Council implement the urban stormwater management plan to provide at least primary treatment of stormwater prior to discharge to rivers and streams.
7. Council seek to raise awareness of practices that pollute waterways by encouraging and educating the community to:
  - dispose of rubbish responsibly,
  - wash cars on lawns or at commercial "green" car washes instead of on the street,
  - report pollution incidents such as illegal chemical, oil and waste dumping to EPA and Council and poor development site erosion control measures to Council,
  - become involved in community Streamwatch, and
  - develop an educational kit for developers and the broader community.
8. Council require new developments to indicate how stormwater will be managed on the site both during and after construction, addressing the concerns of minimising runoff, collecting rainwater for secondary use, and minimising the velocity of runoff.
9. That in the preparation of the draft Local Environmental Plan consideration be given to making provisions for riparian buffers of major rivers and creeks.

### **Location and type of groundwater bores, wells etc.**

10. Council liaise with Dept of Land & Water Conservation to develop a spatial land Geographic Information System that is able to show the type and location of groundwater extraction points.

## 6.0 Biodiversity

### *Introduction*

Biological diversity (or biodiversity) is the variety of all life forms. It is the sum total of all species of plants and animals, their inherent genetic makeup, and the ecosystems that support the communities of inter-dependant species. The conservation of biological diversity is a core component of ecologically sustainable development and the challenge for the Kyogle Shire is to balance the exploitation with the preservation of biological resources so that the natural processes that sustain our biodiversity are not impaired.

Biodiversity is a resource essential for our health and well-being, providing social benefits such as ecotourism, bushwalking and nature study, as well as affording a source of identity, cultural enrichment and aesthetic value. It also maintains air and water quality, regulates the climate, recycles nutrients, maintains soil fertility and decomposes wastes. Protected areas serve to maintain a range of different ecological conditions and different aspects of biodiversity for future generations and provide significant cultural, economic, educational and scientific benefits for all Australians.

This section reports on the biodiversity environmental sector and provides information on the indicators below plus those which have regard to fish and aquatic habitat.

Environmental Sector	Indicators
Biodiversity	extent and degree of change to native vegetation
	Threatened species, populations and ecological communities listed under the Threatened Species Conservation Act

### *Maps*

**No. <>: Fish Passage Barriers in Kyogle Shire**

### **Indicator No. 7 – Extent and degree of change to native vegetation**

The extent and degree of change to native vegetation is categorised here in broad terms of reference to reserved land with both statutory and non-statutory status. These lands help to achieve the goals and principles of both Federal and State strategies and initiatives.

The global *Convention on Biological Diversity* was ratified by Australia on 18 June 1993, but there are also many other international agreements which have preservation of biological diversity obligations (e.g. *World Heritage Convention*, migratory birds agreements with China and Japan, Ramsar convention on the preservation of wetlands, and the *Convention on the International Trade of Endangered Species*). To meet these obligations there are a number of national initiatives and strategies, including the *International Convention on Biological Diversity*, the *National Strategy for the Conservation of Australia's Biological Diversity* and the *National Biodiversity and Climate Change Action Plan*. Many of these strategies, policies and plans are reflected by programs and initiatives at the state level, including the *State Plan, Biodiversity Strategy*, *Northern Rivers CMA Catchment Action Plan*, *Threatened Species Priorities Action Statement*, and other threat abatement plans and statements of intent.

As an example of these, the *National Strategy for the Conservation of Australia's Biological Diversity*, signed by the Commonwealth and all state and territory governments, adopts specific principles to aid its implementation:

1. Biological diversity is best preserved in situ.
2. Although all levels of government have clear responsibility, the cooperation of conservation groups, resource users, indigenous peoples, and the community in general is critical to the conservation of biological diversity.
3. It is vital to anticipate, prevent and attack at source, the causes of significant reduction or loss of biological diversity.
4. Processes for and decisions about the allocation and use of Australia's resources should be efficient, equitable and transparent.
5. Lack of full knowledge should not be an excuse for postponing action to conserve biological diversity.
6. The conservation of Australia's biological diversity is affected by international activities and requires actions extending beyond Australia's jurisdiction.
7. Australians operating beyond our national jurisdiction should respect the principles of conservation and ecologically sustainable use of biological diversity and act in accordance with any relevant national or international laws.
8. Central to the conservation of Australia's biological diversity is the establishment of a comprehensive, representative and adequate system of ecologically viable protected areas integrated with the sympathetic management of all other areas, including agricultural and other resource production systems.
9. The close, traditional association of Australia's indigenous peoples with components of biological diversity should be recognised, as should the desirability of sharing equitable benefits arising from the innovative use of traditional knowledge of biological knowledge.

Certain reserves in the Kyogle Local Government Area, such as the Moore Park Nature Reserve, are managed to preserve biodiversity as part of the State's commitment to the national biological diversity strategy. However, while reservation is a key means of conservation of biological diversity, it does not provide absolute protection, nor is it the only means of conservation. Even reserves are susceptible to wildfires and disease outbreaks such as *Phytophthora*. Off-reserve conservation is being recognised as having an important role in the conservation of biological diversity, as many significant elements of biodiversity occur on private land. It is especially important where the reserve network does not adequately conserve native plant and animal communities and habitat.

Crucial to biodiversity conservation within the Kyogle Local Government Area are appropriate management regimes on all land tenures. Education in this matter, as through programs such as Land for Wildlife, is increasing and management tools such as geographic information systems and comprehensive inventories are being used more widely. All these features must be coordinated to ensure that the conservation of Kyogle's biodiversity is maintained.

### **Measurement 1: Area of Land Subject to and Number of Conservation Agreements**

Type	2004 SoE Total	2009 SoE Total
Wildlife Refuge	12	13
<b>Area Total (Ha)</b>	<b>17280.7</b>	<b>2443.83</b>

### **Changes in number and area of land under Conservation Agreements, Wildlife Refuges and Land for Wildlife between 2007-08 and 2008-09**

Program	Number	Total Area (ha)
Conservation Agreement	Nil	Nil
Wildlife Refuge	Nil	Nil
Land for Wildlife	Nil	Nil

**Note:** Source is the Department of Environment and Climate Change's Conservation Partners Programs.

## **Measurement 2: Changes in status of protected lands, and area of land affected**

### **Name and additional area of land gazetted as National Park Estate in 2008-09**

<b>Name</b>	<b>Number</b>	<b>Area (ha)</b>
Aboriginal Area	Nil	Nil
Historic Site	Nil	Nil
National Park	Nil	Nil
Nature Reserve	Nil	Nil
Regional Park	Nil	Nil
State Conservation Area	Nil	Nil

## **Measurement 3: Status of protected lands, and area of land affected**

<b>Name</b>	<b>Type</b>	<b>Area (Ha)</b>
Jubullum Flat Camp Aboriginal Area	Aboriginal Area	6.60
	<b>Aboriginal Area Total</b>	<b>6.60</b>
Border Ranges National Park	National Park	30264.81
Mallanganee National Park	National Park	659.76
Mebbin National Park	National Park	0.20
Mount Nothofagus National Park	National Park	2089.10
Mount Pikapene National Park	National Park	951.22
Richmond Range National Park	National Park	15708.50
Toonumbar National Park	National Park	14940.92
Yabbra National Park	National Park	8865.70
	<b>National Park Total</b>	<b>73480.21</b>
Moore Park Nature Reserve	Nature Reserve	12.85
	<b>Nature Reserve Total</b>	<b>12.85</b>
Toonumbar State Conservation Area	State Conservation Area	127.40
	<b>State Conservation Area Total</b>	<b>127.40</b>

**Note:** Reserve information has been generated from the National Parks and Wildlife Service Estate GIS layers and includes the National Parks and Wildlife Service Estate as at 30 June 2009. Where a reserve is entirely within an LGA the "total" area is the gazetted area. Where only part of a reserve falls within an LGA the "total" area provided is the GIS calculated area and is approximate only.

Since the 2004 comprehensive State of the Environment Report, newly protected lands comprise the Jubullum Flat Camp Aboriginal Area and Mebbin National Park. Despite the inclusion of Mebbin National Park into the National Park inventory, the sum of National Park within the Kyogle Local Government Area has declined in the inter-report period by 66.29 hectares (this may be in part due to the input of approximate total areas as described in the notes). Similarly, one (1) additional wildlife refuge has been recorded in the inter-report period despite a loss of 14,836.87 hectares of sum Wildlife Refuges.

Although the data described above reports on the extent of reserved lands, it does not report on the diversity and condition of native vegetation and geomorphology reserved therein, and is substantially incomplete as a record of ecosystem biodiversity and ecological conditions. Species diversity has two components: species richness and heterogeneity. Species richness is simply a measure of the number of species, whereas heterogeneity measures both the number of species (richness) and their relative abundance. Reporting on species diversity requires measures of abundance for each species, which are not readily available.

The Border Ranges National Park, Mebbin National Park, Mount Nothofagus National Park, Richmond Range National Park and Moore Park Nature Reserve all include high conservation value old growth forest. As such they are recorded on the State Heritage Register as being significant under the historic themes of environment (tracing the evolution of a continent's special environments) and economy (the role of forestry in developing local, regional and national economies).

In addition to the listings on the State Heritage Register, the Border Ranges Region and Mount Nothofagus Flora Reserve are registered on the Register of the National Estate (Commonwealth), while Gondwana Rainforests of Australia appear as both listed and indicative places on the same register.

**Indicator No. 11 – Number of threatened species, populations and ecological communities (as specified in the Threatened Species Conservation Act (1995))**

In NSW the *Threatened Species Conservation Act 1995* lists endangered or vulnerable species, populations and ecosystems. The positive identification of these species, populations and ecological communities highlights plants and animals which may need special management systems in the Shire. This assists in the preparation and implementation of sustainable management systems.

The following tables list endangered and vulnerable flora species in the Kyogle Local Government Area as supplied by the Department of Environment and Climate Change. The tables show the conservation status of the particular species as specified in the *Threatened Species Conservation Act 1995*.

**Note:** The *Threatened Species Conservation Act 1995* defines 'endangered' as a species, population or ecological community that is likely to become extinct or is in immediate danger of extinction. A 'vulnerable' species is likely to become endangered unless the circumstances and factors threatening its survival or evolutionary development cease to operate.

**Measurement 1: No. of endangered and threatened species, populations and ecological communities**

**Fauna**

Albert's Lyrebird	V
Barking Owl	V
Barred Cuckoo-shrike	V
Beccari's Freetail-bat	V
Black Bittern	V
Black-breasted Button-quail	E1
Black-necked Stork	E1
Black-striped Wallaby	E1
Black-winged Petrel	V
Blue-billed Duck	V



Brown Treecreeper (eastern subspecies)	V
Brush-tailed Phascogale	V
Brush-tailed Rock-wallaby	E1
Bush Stone-curlew	E1
Bush-hen	V
Comb-crested Jacana	V
Common Blossom-bat	V
Common Planigale	V
Double-eyed Fig-parrot	E1
Eastern Bentwing-bat	V
Eastern Bristlebird	E1
Eastern Cave Bat	V
Eastern Chestnut Mouse	V
Eastern False Pipistrelle	V
Eastern Freetail-bat	V
Eastern Long-eared Bat	V
Eastern Pygmy-possum	V
Eastern Tube-nosed Bat	V
Fleay's Barred Frog	E1
Giant Barred Frog	E1
Glossy Black-Cockatoo	V
Golden-tipped Bat	V
Grass Owl	V
Greater Broad-nosed Bat	V
Green-thighed Frog	V
Grey-crowned Babbler	V
Grey-headed Flying-fox	V
Hastings River Mouse	E1
Hoary Wattled Bat	V
Koala	V
Large-eared Pied Bat	V
Large-footed Myotis	V
Little Bentwing-bat	V
Long-nosed Potoroo	V
Loveridge's Frog	E1
Magpie Goose	V
Marbled Frogmouth	V
Masked Owl	V
Mountain Frog	E1
Olive Whistler	V
Pale-headed Snake	V
Parma Wallaby	V
Pouched Frog	V
Powerful Owl	V
Pugh's Frog	E1
Red Goshawk	E1
Red-backed Button-quail	V
Red-legged Pademelon	V
Red-tailed Black-Cockatoo	V
Regent Honeyeater	E1

Richmond Range Frog	E1
Rose-crowned Fruit-Dove	V
Rufous Bettong	V
Rufous Scrub-bird	V
Sooty Owl	V
Speckled Warbler	V
Spotted-tailed Quoll	V
Squirrel Glider	V
Stephens' Banded Snake	V
Superb Fruit-Dove	V
Swift Parrot	E1
Three-toed Snake-tooth Skink	V
White-crowned Snake	V
White-eared Monarch	V
Wompoo Fruit-Dove	V
Yellow-bellied Glider	V

### **Invertebrates**

Giant Dragonfly	E1
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### **Flora**

<i>Arthraxon hispidus</i>	V
<i>Brachyscome ascendens</i>	E1
<i>Bulbophyllum globuliforme</i>	V
<i>Callitris baileyi</i>	E1
<i>Capparis canescens</i>	E1
<i>Cassia brewsteri</i> var. <i>marksiana</i>	E1
<i>Clematis fawcettii</i>	V
<i>Corchorus cunninghamii</i>	E1
<i>Cupaniopsis serrata</i>	E1
<i>Cynanchum elegans</i>	E1
<i>Desmodium acanthocladum</i>	V
<i>Endiandra muelleri</i> subsp. <i>bracteata</i>	E1
<i>Eucalyptus glaucina</i>	V
<i>Eucalyptus microcodon</i>	E1
<i>Grevillea masonii</i>	E1
<i>Indigofera baileyi</i>	E1
<i>Macrozamia johnsonii</i>	E1
<i>Marsdenia longiloba</i>	E1
<i>Ochrosia moorei</i>	E1
<i>Owenia cepiodora</i>	V
<i>Persicaria elatior</i>	V
<i>Plectranthus nitidus</i>	E1
<i>Polygala linariifolia</i>	E1
<i>Pterostylis nigricans</i>	V
<i>Rapanea</i> sp. 'Richmond River'	E1
<i>Rhynchosia acuminatissima</i>	V
<i>Sarcochilus hartmannii</i>	V
<i>Sarcochilus weinthalii</i>	V
<i>Senna acclinis</i>	E1
<i>Solanum limitare</i>	E1

Sophora fraseri	V
Syzygium paniculatum	V
Tinospora smilacina	E1
Tinospora tinosporoides	V
Typhonium sp. aff. brownii	E1
Wahlenbergia scopulicola	E1

In the inter-report period from 2004 to 2009 the Black flying fox (V), Common Bentwing-bat (V), Nurus brevis beetle (E1) and Stuttering frog (E1) have been removed from the Fauna and Invertebrates tables respectively for the Kyogle Local Government Area. However, new additions to the Fauna table have also been made: the Black-winged Petrel (V), Eastern Bentwing-bat (V), Hastings River Mouse (E1), Pugh's Frog (E1), Red-backed Button-quail (V), Regent Honeyeater (E1) and the Richmond Range Frog (E1). Changes in classification have also been cited as the Brush-tailed Rock-wallaby, Loveridge's Frog and Mountain Frog have improved from a previous 'endangered' categorisation in 2004 to 'vulnerable' in 2009.

Of the flora, there are now 36 vascular and non-vascular plants identified in the Kyogle Local Government Area as being endangered or vulnerable. This is a 58 percent increase from the 21 previously listed in 2004. Only one (1) entry has been struck from the Flora table in the inter-report period, notably the bothriochloa biloba (V), while no other changes in classification of previously listed fauna have been recorded.

One (1) invertebrate fauna is recognised as being endangered in the Kyogle Local Government Area. This is down from the two (2) recorded in 2004.

### **Threatened Ecological Communities**

White Gum Moist Forest in the NSW North Coast Bioregion

Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion

White Box Yellow Box Blakely's Red Gum Woodland

Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion

Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions

White Gum Moist Forest in the NSW North Coast Bioregion

Groups of species that occupy a common environment are called communities and the number of communities occurring in an area represents the simplest measure of ecosystem diversity. The *Threatened Species Conservation Act 1995* describes where these communities are under threat (see 'Threatened Ecological Communities' above). Since the 2004 State of the Environment Report, threatened ecological communities have expanded from one (1) community (White Box Yellow Box Blakely's Red Gum Woodland) to six (6). This represents a 600 percent increase in threatened ecological communities determined in the Kyogle Local Government Area.

No change in endangered populations under the *Threatened Species Conservation Act 1995* has been registered in the inter-report period.

### **Endangered Populations**

Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area

The key threatening processes to endangered and threatened species, populations and ecological communities specified in the *Threatened Species Conservation Act 1995* are described in the table below. Since the 2004 State of the Environment Report the NSW Scientific Committee has determined there to be an additional ten (10) key threatening processes operating in the Kyogle Local Government Area. No key threatening processes recognised in 2004 have been removed from the list and these subsequently pose an ongoing threat to native plants and animals. In addition to the key threatening processes described below, feral dogs have been recognised by Northern Landcare Support Services as posing a threat within the Local Government Area.

**Note:** The NSW Scientific Committee is an independent committee of scientists established under the *Threatened Species Conservation Act 1995*. The committee's main functions include:

- deciding which species should be listed as critically endangered, endangered, vulnerable or presumed extinct in NSW
- deciding which populations should be listed as endangered in NSW
- deciding which ecological communities should be listed as critically endangered, endangered or vulnerable
- deciding which threats to native plants and animals should be declared key threatening processes under the Act
- reviewing and updating the lists of threatened species, populations and communities and key threatening processes in the schedules of the Act.

Key Threatening Process	2004 SoE	2009 SoE
Forest eucalypt dieback associated with over-abundant Bell Miners and psyllids	-	Yes
Loss of Hollow-bearing Trees	-	Yes
Invasion and establishment of exotic vines and scramblers	-	Yes
Invasion and establishment of the Cane Toad	-	Yes
Invasion, establishment and spread of Lantana	-	Yes
Invasion of the Yellow Crazy Ant	-	Yes
Competition and habitat degradation by Feral Goats	-	Yes
Herbivory and environmental degradation caused by feral deer	-	Yes
Predation, habitat degradation, competition and disease transmission by Feral Pigs	-	Yes
Infection of frogs by amphibian chytrid	Yes	Yes
Introduction of the Large Earth Bumblebee	Yes	Yes
Invasion of native plant communities by exotic perennial grasses	Yes	Yes
Removal of dead wood and dead trees	Yes	Yes
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	Yes	Yes
Competition and grazing by the feral European Rabbit	Yes	Yes
Competition from feral honey bees	Yes	Yes
Importation of Red Imported Fire Ants	Yes	Yes
Infection by Psittacine Circoviral (beak and feather) Disease	Yes	Yes
Infection of native plants by <i>Phytophthora cinnamomi</i>	Yes	Yes
Clearing of native vegetation	Yes	Yes
Loss or degradation (or both) of sites used for hill-topping by butterflies	Yes	Yes
Anthropogenic Climate Change	Yes	Yes
High frequency fire	Yes	Yes

Predation by Gambusia holbrooki	-	Yes
Bushrock removal	Yes	Yes
Predation by the Feral Cat	Yes	Yes
Predation by the European Red Fox	Yes	Yes

**Note:** The information provided includes a list of threatened fauna (by common name) and flora (by scientific name) species known (recorded) to occur within the LGA, the classification of the threatened species ('E1' for endangered and 'V' for vulnerable) and details on endangered ecological communities, populations and key threatening processes. If spatial information from the Wildlife Atlas is required, please contact the Data Exchange Officer, NPWS, PO Box 1967 Hurstville, NSW 2220 for a data sharing agreement.

**Changes in the list of threatened flora and fauna, endangered populations, endangered ecological communities, and key threatening processes under the Threatened Species Conservation Act 1995 between 2007-08 and 2008-09**

**Threatened Species Listing:**

Scientific Name	Common Name	TSC Act Status
Nil	Nil	

**Endangered Population:**

Scientific Name	Common Name	TSC Act Status
Nil	Nil	

**Threatened Ecological Community:**

Scientific Name	Common Name	TSC Act Status
	White Gum Moist Forest in the NSW North Coast Bioregion	Final

**Key Threatening Processes:**

Scientific Name	Common Name	TSC Act Status
	Forest eucalypt dieback associated with over-abundant Bell Miners and psyllids	Final

While the indicators documented above show the number of plant and animal species listed as either endangered or vulnerable, and the changes to these over time, care must be taken with interpretation. The number of species presumed endangered or threatened may either increase or decrease because more species are in fact at risk or because of a better understanding of species that were already at risk.

### Sources

All indicators and measurements are derived from *Environmental Signposts: A Leading Step Towards Regional SoE reporting for North Coast Local Government Authorities* and the Kyogle Council *State of the Environment Report 2004*.

Australian Heritage Database, <<http://www.environment.gov.au/heritage/ahdb/>>, accessed 24 September 2009

Department of Environment, Climate Change and Water

<<http://www.environment.nsw.gov.au/committee/AboutTheNSWScientificCommittee.htm>> accessed 30 September 2009

Heritage Branch, Statutory Listed Items, <[http://www.heritage.nsw.gov.au/07\\_subnav\\_04\\_1.cfm](http://www.heritage.nsw.gov.au/07_subnav_04_1.cfm)>, accessed 24 September 2009.

## Biodiversity issues under the Fisheries Management Act 1994

In addition to the list of threatened species, populations and ecological communities identified in Schedules 1, 1A and 2 of the Threatened Species Conservation Act 1995, endangered, critically endangered and vulnerable aquatic species, populations and ecological communities are recorded in Schedules 4, 4A and 5 of the Fisheries Management Act 1994. Data pertaining to this Act is described in the tables below.

### Species Listing (*Fisheries Management Act 1994*):

Scientific Name	Common Name	FM Act Status
<i>Maccullochella ikei</i>	Eastern freshwater cod	Threatened
<i>Mogurnda adspersa</i>	Purple spotted gudgeon	Threatened

### Key Threatening Processes:

Key Threatening Process according to Schedule 6 of the Fisheries Management Act 1994
Degradation of native riparian vegetation along New South Wales water courses
Hook and line fishing in areas important for the survival of threatened fish species
Installation and operation of instream structures and other mechanisms that alter natural flow regimes of rivers and streams
Introduction of fish to waters within a river catchment outside their natural range
Introduction of non-indigenous fish and marine vegetation to the coastal waters of New South Wales
Removal of large woody debris from New South Wales rivers and streams
The current shark meshing program in New South Wales waters

The NSW Department of Primary Industries ('DPI') is responsible for, amongst other things, managing fish (including aquatic invertebrates) and fish habitat throughout NSW. According to the DPI in correspondence to Kyogle Council dated 24 June 2009, 'fish populations have and continue to suffer serious decline.' The following tables represent the most recent information on the status of fisheries ecosystem issues within the Kyogle Local Government Area.

### **Ecological Community Listings (*Fisheries Management Act 1994*):**

<b>Ecological Community</b>	<b>Number Recorded (2008/2009)</b>
Saltmarsh	0
Mangroves	0
Seagrass	0

### **Permits and leases processed under the *Fisheries Management Act 1994*:**

	<b>Number (2008/2009)</b>
Permits issued	2
Permits refused	0
Proposals significantly modified to reduce impact on fish habitat	1
Priority Oyster Leases	0

### **Constructs:**

	<b>Number</b>
Road crossings	28 (2 high priority)
Weirs	11
Floodgates	N/A

### **Recorded instances of fish kills:**

	<b>Number</b>
Fish Kills	1

### **NSW Department of Primary Industries Rehabilitation Projects:**

	<b>Number</b>
Rehabilitation projects	-

### *Sources*

All tabulated data is derived from the *Fisheries Management Act 1994* and the NSW Department of Primary Industries correspondence to Kyogle Council dated 24 June 2009.

### **Gaps**

The following gaps are noted:

- An independent inventory of flora and fauna in the Local Government Area;
- Sustainable partnerships and knowledge dissemination between agencies, organisations, communities and individuals;
- Resources to implement studies and action that mitigate the impacts of threats acting on threatened species, populations and ecological communities;
- A Shire-level database to catalogue botanical and zoological studies conducted on land within the Local Government Area; and,
- A shire-wide Koala Plan of Management pursuant to State Environmental Planning Policy 44.

## **Trends to measure**

The tables included in this Environmental Sector provide a growing body of information from which subsequent supplementary and comprehensive State of the Environment reports can derive comparative assessments.

## **Actions since 2004 Report**

A memorandum of understanding was executed between Kyogle Council and Northern Landcare Support Services in September 2009 for a three (3) year term.

## **Recommendations**

That Council consult with the Northern Rivers Catchment Management Authority and Northern Landcare Support Services in the compilation of the Biodiversity sector of all State of the Environment Reports.

That Council, in consultation with the Department of Primary Industries, the Catchment Management Authority, the Department of Environment, Climate Change and Water, and Northern Landcare Support Services undertake environmental and land use research, desktop studies, register searches, fieldwork and predictive modelling to create a database showing areas of biological potential on private land within the Local Government Area.

That Council contributes to the targets, priority actions and outcomes of the Draft Northern Rivers Regional Biodiversity Management Plan and the Border Ranges Rainforest Biodiversity Management Plan (DECC in prep.), particularly in the creation of a Standard Instrument Local Environmental Plan. This would be consistent with the Far North Coast Regional Strategy which directs that "Local environmental plans will include provisions to encourage habitat and corridor establishment in future zoning of Environmental Assets and Rural Land area" and the Northern Rivers Catchment Action Plan.

That Council rigorously apply State Environmental Planning Policy No. 44 - Koala Habitat Protection and seek the submission of botanical and zoological studies where development may adversely impact on native vegetation. This will identify flora and fauna habitats, mitigate adverse impacts at the development application stage and facilitate off-reserve conservation.

That Council seek to allocate funding to realise a Koala Plan of Management for the Local Government Area pursuant to the State Environmental Planning Policy No. 44 - Koala Habitat Protection.

That Council support the ongoing training of planning and other staff so that relevant biodiversity information is adequately considered, processed and communicated. This will benefit the community and Council and address the emerging jurisprudence in the case *Garrett and Carter v Port Macquarie-Hastings Council*; *Garrett v Freeman*, on criminal environmental offences.

## **Chapter 6: Aboriginal Heritage**

### *Introduction*

Aboriginal heritage consists of places and items that are significant to Aboriginal people because of their traditions, observances, lore, customs, beliefs and history (DECC 2009:3). It provides crucial links between the past and present and represents an essential part of the identities of Aboriginal people and all Australians (DECC 2009:3).

This section reports on the Aboriginal heritage environmental sector and provides information on the following indicators:



Environmental Sector	Indicators
Aboriginal Heritage	Heritage listings (items and sites)
	Heritage studies

#### Maps

**No. < >: Local Aboriginal Land Council boundaries in relation to the Kyogle Local Government Area**

#### Heritage Listings

In the Kyogle Local Government Area there is a varied and expanding register of known Aboriginal cultural heritage values as kept by the NSW Department of Environment and Climate Change. This register is not definitive and may be augmented in the future through the knowledge of the Indigenous custodians such as the Gugin Gudduba, Muli Muli, Jubulum and Casino-Boolangle Local Aboriginal Land Councils and the Githubal people, and further identification of places of historic, social, spiritual and/or cultural Indigenous significance.

The following table is a breakdown of known Aboriginal sites within the Kyogle Local Government Area, as recorded and entered onto the Department of Environment and Conservation's Aboriginal Heritage Information Management System.

#### Measurement 1: Total Number and Nature of Aboriginal Sites recorded

Site Feature	Number (2000 SoE)	Number (2004 SoE)	Number (2009 SoE)
Aboriginal Ceremony and Dreaming		25	29
Aboriginal Resource & Gathering		4	6
Art (Pigment or Engraved)		7	7
Artefact		44	44
Burial		13	13
Ceremonial Ring (Stone or Earth)		7	7
Conflict		-	0
Earth Mound		1	1
Fish Trap		-	0
Grinding Groove		2	2
Habitation Structure		-	1
Hearth		-	0
Non-Human Bone & Organic Material		-	0
Ochre Quarry		1	1
Potential Archaeological Deposit		-	0
Shell		1	1
Stone Arrangement		1	1
Stone Quarry		1	1
Modified Tree (Carved or Scarred)		5	9
Water Hole		3	3
<b>Total</b>	<b>98</b>	<b>115</b>	<b>126</b>

#### Notes:

1. These figures are for Aboriginal Sites/Places that have been recorded and entered onto Department of Environment and Conservation's Aboriginal Heritage Information Management System (AHIMS) till 2008/2009. Some Aboriginal Sites/Places may contain more than one site feature.

2. SoE 2000 presented Table 40 with alternative site feature descriptors as then provided by the Department of Environment and Climate Change and as such it is difficult to provide a comparison other than by total numbers recorded.

From the data recorded it is evident that the gradual increase in Aboriginal Heritage sites within the Kyogle Local Government Area previously recorded in the 2004 State of the Environment Report remains an ongoing trend. In 2009 new inputs have been ascribed to the site features of Aboriginal Ceremony and Dreaming, Aboriginal Resource and Gathering, and Habitation Structure and Modified Tree (Carved or Scarred).

The Department of Environment and Climate Change NSW is responsible for protecting and conserving Aboriginal objects and Aboriginal places in New South Wales under the *National Parks and Wildlife Act 1974* (NSW) (DECC 2009:1). A further onus for protection and conservation is also placed on the NSW Aboriginal Land Council and Local Aboriginal Land Councils established under the *Aboriginal Land Rights Act 1983* (NSW), as well as local government and the NSW Department of Planning in land use planning and development consent processes under the *Environmental Planning and Assessment Act 1979*.

Under the provisions of the *National Parks and Wildlife Act 1974* licences are required for works which could impact on Aboriginal Heritage either positively or negatively. Licences are required not only for activities which may destroy or damage objects or places, but for conservation works or the relocation of Aboriginal heritage objects. As identified in the below table, no licences have been issued by the Department of Environment and Climate Change and no records exist of illicit activity involving those places recorded and entered into the Aboriginal Heritage Information Management System.

## Measurement 2: Number of sites altered, destroyed, damaged between 2004-05 and 2008-09

Site Feature	Number (2004 SoE)	Number (2009 SoE)
Aboriginal Ceremony and Dreaming	0	0
Aboriginal Resource and Gathering	0	0
Art (Pigment or Engraved)	0	0
Artefact	0	0
Burial	0	0
Ceremonial Ring (Stone or Earth)	0	0
Conflict	0	0
Earth Mound	0	0
Fish Trap	0	0
Grinding Groove	0	0
Habitation Structure	0	0
Hearth	0	0
Non-Human Bone and Organic Material	0	0
Ochre Quarry	0	0
Potential Archaeological Deposit (PAD)	0	0
Shell	0	0
Stone Arrangement	0	0
Stone Quarry	0	0
Modified Tree (Carved or Scarred)	0	0
Water Hole	0	0
<b>Total</b>	<b>0</b>	<b>0</b>

In addition to the legislative protection afforded by the *National Parks and Wildlife Act 1974*, certain places in the Kyogle Local Government Area have been listed on the Federal Register of the National Estate. Indigenous places within this register are protected by the *Australian Heritage Council Act 2003* (Cth) and are identified in the table below.

#### **Aboriginal Sites recorded on the Register of the National Estate**

<b>Organisation</b>	<b>Indigenous Place(s)</b>	<b>Suburb</b>	<b>Listing</b>
Australian Heritage Commission	2	Woodenbong	Register of the National Estate
Australian Heritage Commission	1	Bonalbo	Register of the National Estate
Australian Heritage Commission	1	Kyogle	Register of the National Estate

#### *Local Planning Instruments*

Kyogle planning instruments, including Local Environmental Plans and Development Control Plans, omit specific provisions protecting Aboriginal Heritage in the Local Government Area. Aboriginal heritage is therefore protected through the development assessment process by section 79C of the *Environmental Planning and Assessment Act 1979* which requires that matters involving Aboriginal heritage significance are taken into consideration in determining a development application.

Kyogle Council is currently working on a shire-wide Standard Instrument Local Environmental Plan and Kyogle Local Environmental Plan 18, each of which are required to include heritage items, heritage conservation areas and archaeological sites in a Heritage Map and Schedule. The development of either of these plans without Aboriginal heritage items, areas and sites would be inconsistent with section 117 Direction 2.3 *Heritage Conservation* as directed by the Minister for Planning on 19 July 2007, and would require the consent of the Director-General of the Department of Planning. This consent was obtained for Kyogle Local Environmental Plan 18 on 28 August 2009 and authorises Council to prepare the draft legislative framework recommended by the Kyogle Shire Heritage Study 1996 and the Kyogle Heritage Review 2009.

#### *Heritage Studies*

Kyogle Council has an obligation to consider the potential for harm to Aboriginal cultural heritage values in its role as a proponent and contractor in public civil works and as a consent authority. Observance of this obligation is necessary to ensure compliance under section 79C of the *Environmental Planning and Assessment Act 1979* and the *National Parks and Wildlife Act 1974* respectively.

Kyogle Council recognises that there is a need to improve the management of this obligation to avoid instances of harm to Aboriginal sites in association with development activity. To facilitate this, on 12 December 2008 Council made application for funding under round six (6) of the NSW Planning Reform Fund and on 20 February 2009 made further application for funding from the Federal Government Department of the Environment, Water, Heritage and the Arts under the 2009-2010 Indigenous Heritage Program. Both of these applications were to fund professional consultants to develop a comprehensive Aboriginal Cultural Heritage Management Plan and consultation protocol for the Local Government Area. The outsourcing of the project was considered appropriate to obtain the relevant expertise capable of delivering an agreed plan and protocol in consultation with the local Aboriginal communities.

On 17 August 2009 Council was informed by the NSW Department of Planning that its expression of interest for funding for the Kyogle Shire Indigenous Heritage Study project under the NSW Planning Reform Fund had not been successful. Council now awaits the determination of its expression of interest under the Indigenous Heritage Program.

*Sources*

"Aboriginal Cultural Heritage Draft Community Consultation Requirements for Proponents, Part 6 *National Parks and Wildlife Act 1974*," Department of Environment and Climate Change NSW, Goulburn Street, May 2009.

Department of Environment and Climate Change, *Provision of Information for State of the Environment Report, 2008-2009, Kyogle Shire Council*.

*Gaps*

Large areas of the Local Government Area have not been the subject of systematic survey or the comprehensive recording and documentation of Aboriginal history.

VOIDS in consultation and protocol are also extant between Aboriginal groups that have interests in the Shire and the Council.

*Trends to Measure*

The tables included in this Environmental Sector provide a growing body of information from which subsequent supplementary and comprehensive State of the Environment reports can derive comparative assessments.

*Actions Since 2004 Report*

Since 2004 two (2) expressions of interest to fund the Kyogle Shire Indigenous Heritage Study project have been made. The project aims to establish baseline information, reveal the amount of spatial patterns of Aboriginal sites in the Shire, and disclose the Council's capacity to identify cultural landscapes and places of Aboriginal significance within local planning instruments. The project aspires to build the platform for the delivery of section 117 directions and to address the February 2007 recommendation of the Department of Environment and Climate Change that Council create an agreed Aboriginal Cultural Heritage Management Plan and consultation protocol with the local Aboriginal communities for Local Environmental Plan and Development Application matters.

*Recommendations*

Given the complexity of Indigenous interests in Kyogle Shire and the responsibilities of the Kyogle Council it would be a considerable benefit to establish workable relationships, protocols and procedures between Council and the Aboriginal groups that have interests in the Shire. In addition, areas and sites of Indigenous significance within the Shire should be sensitively identified and an Aboriginal Cultural Heritage Management Plan prepared.

**Environmental Sector 7: Non-Aboriginal Heritage**

*Introduction*

The Kyogle Local Government Area has a rich and interesting heritage which is revealed in the place names and built fabric that has survived from earlier times. This heritage is important to us because it tells us about who we are, and the past that has formed us.

This section reports on the Non-Aboriginal heritage environmental sector and provides information on the following indicators:

<b>Environmental Sector</b>	<b>Indicators</b>
<b>Non-aboriginal Heritage</b>	Heritage listings (items and areas)
	Heritage studies

*Maps*

**No. <>: Location of protected Non-Aboriginal Heritage Items & Conservation Areas**

### *Heritage Listings*

Heritage is essentially what we would like to pass on to future generations, and in order to facilitate this both Federal and State legislation has been enacted to protect places important to the country, state and region. This legislation includes the *Australian Heritage Council Act 2003* (Cth), the *Heritage Act 1977* (NSW) and the deemed State Environmental Planning Policy *North Coast Regional Environmental Plan 1998* (NSW).

Other bodies, such as the community-based conservation charity National Trust and the Royal Australian Institute of Architects, retain registers that perform an advisory and educational role. Classification in such registers has no legal bearing, but provides an authoritative statement on the cultural significance of an item or place.

The below table identifies heritage organisations and lists the number of heritage items, places and areas recognised by those organisations as pertaining to non-Aboriginal heritage within the Kyogle Local Government Area. The table has been compiled in sympathy to 'Table 39: Heritage Listings', State of the Environment Report 2004.

### **Non-Aboriginal Heritage Listings**

<b>Organisation</b>	<b>Buildings &amp; Structures</b>	<b>Places</b>	<b>Conservation areas</b>
Australian Heritage Commission Register of the National Estate	1	1	0
NSW Heritage Council State Heritage Register	1	1	0
Department of Planning, <i>North Coast Regional Environmental Plan 1988</i> (Deemed State Environmental Planning Policy)	3	3	1
National Trust of NSW	?	?	?
Royal Australian Institute of Architects	37	0	0
National Parks and Wildlife Service, <i>National Parks and Wildlife Act 1974</i>	?	?	?
Other State Government Agencies & NSW Government Gazette	2	1	0
Local Environmental Plans and Development Control Plans	0	0	0

It is evident that the data assembled in the above table is not readily comparable to that recorded in *Table 39: Heritage Listings* in the 2004 State of the Environment Report. This is in part due to the undefined classifications of 'buildings and structures', 'places' and 'conservation areas', as well as the undocumented methodology for inputting data into the 2004 table. For example, in 2009 the Australian Heritage Commission Register records eighteen (18) items in the Kyogle Local Government Area, of which seven (7) are registered. Of those registered, only two (2) relate to non-Indigenous heritage or non-geomorphic features. How this data is collated and interpreted may account for the significant discrepancies in this Register between 2004 and 2009, which saw the sum of structures, places and areas decline from fourteen (14) to two (2).

Discrepancies in data in the tables between the years 2004 and 2009 may be the result of translation, the research and recognition of new items or places, or the demolition, deterioration or unsympathetic alteration of existing historical sites. Similarly, identical data entries such as that recorded for the Royal Australian Institute of Architects may be the result of records not being updated in the inter-report period. It should be noted that additions to the table, although new statistically, may also have been recognised in *Table 39: Heritage Listings* in the 2004 State of the Environment Report under alternative organisations. The 'Clarence River Road Bridge,' classified in the NSW State Heritage Register, may be one such example considering its listing in the Register of the National Estate and the *North Coast Regional Environmental Plan 1988*.

For future clarification, the following table is provided.

**Protected Non-Aboriginal Heritage Items & Conservation Areas (excluding geomorphic features)**

Heritage Item	Street Address	Suburb	Listing
Border Loop railway formation and landscape	North Coast Railway, Richmond Gap, Lions Road	Cougal	State Heritage Register, Register of the National Estate
Clarence River Road Bridge	Bruxner Highway (over Clarence River)	Tabulam	State Heritage Register
Dyraaba Station and Outbuildings	755 Dyraaba Road	Dyraaba	NSW Government Gazette, Register of the National Estate, North Coast Regional Environmental Plan 1988
Kyogle Station Group	North Coast Railway, Etrick Street	Kyogle	State Government Agency
The Risk Water Facilities	Risk Road	The Risk	State Government Agency
Mallanganee Public School Residence	52 Tooloom Street	Mallanganee	North Coast Regional Environmental Plan 1988
Sandilands Homestead site	7689 Bruxner Highway	Sandilands	North Coast Regional Environmental Plan 1988
Bundock family private cemetery	Apple Tree Stud, Summerland Way	Kilgra	North Coast Regional Environmental Plan 1988
Wyangarie Homestead	124 Homestead Road	Kilgra	North Coast Regional Environmental Plan 1988

*Local Planning Instruments*

Places which have a special value to a local community or group are subject to a Ministerial direction of 1985 which required heritage places to be identified and protected in Local Environmental Plans. In 2004 the State of the Environment Report for the Kyogle Local Government Area recorded nil (0) heritage resources of non-Aboriginal heritage contained by Kyogle planning instruments. This statistic has not altered in the inter-report period to 2009. This has occurred despite Council's proposal to amend its planning instruments at its ordinary meeting of 15 August 2005 to incorporate specific heritage provisions into its interim development orders and the terms of the 2006 Far North Coast Regional Strategy requiring the preparation of "a new local environmental plan by 2009."

On 4 September 2009 Kyogle Council received confirmation from the Director General, NSW Government Department of Planning, to continue with the preparation of a draft local environmental plan incorporating specific heritage provisions. It is anticipated that this process will identify, protect and appropriately manage non-Aboriginal places which have special value to the Local Government Area.

### *Heritage Studies*

A decline in recognised heritage items in the Local Government Area is documented in the draft *Kyogle Local Government Area Heritage Review 2009*. This document has been prepared through joint funding from the Heritage Branch of the Department of Planning and Kyogle Council and was instigated in May 2008 "because of the passage of time and the need to correctly identify heritage items and make practical recommendations for their conservation and management in the new Kyogle Local Environmental Plan" (Gardiner 2009:7).

In 1996 the comprehensive Godden Mackay *Kyogle Shire Heritage Study* identified a sum of 205 individual items as contributing to the environmental heritage of the Kyogle Local Government Area. According to the contemporary review of that study,

"over the past 12 years 16 items have been demolished and a further 2 approved by Council for demolition. This is a 9% decrease in the number of heritage items since the study was presented to Council" (Gardiner 2009:13).

As described in the 2004 State of the Environment Report, any "loss of heritage items indicates a loss of cultural heritage."

In addition to the above, the review has recommended the removal of a further three (3) items from the 1996 study inventory list due to deterioration or unsympathetic alteration, while new research and community consultation has recommended the addition of 34 heritage items. This results in a recommendation of 216 items, cultural landscapes and conservation areas for statutory listing in local planning instruments.

### *Sources*

Gardiner, J. "Kyogle Local Government Area Heritage Review 2009."

Australian Heritage Database, <<http://www.environment.gov.au/heritage/ahdb/>>, accessed 24 September 2009

Heritage Branch, Statutory Listed Items, <[http://www.heritage.nsw.gov.au/07\\_subnav\\_04\\_1.cfm](http://www.heritage.nsw.gov.au/07_subnav_04_1.cfm)>, accessed 24 September 2009.

### *Gaps*

The local legislation void recognised in the 2004 State of the Environment Report remains unaddressed.

There is a gap in public and Council education on local heritage.

### *Trends to Measure*

The tables included in this Environmental Sector provide a growing body of information from which subsequent supplementary and comprehensive State of the Environment reports can derive comparative assessments.

### *Actions since 2004 Report*

On 15 August 2005 Kyogle Council resolved to prepare a Draft Local Environmental Plan amendment to insert heritage provisions into the interim development orders for the shires of Terania and Kyogle. This was consistent with recommendation 2 of the State of the Environment Report 2004 which advised "that the comprehensive Local Environmental Plan for the Council area include the items of environmental heritage identified in the Kyogle Heritage Study 1996."

A review of the Kyogle Heritage Study was commissioned in 2008 and has resulted in both a draft Kyogle Local Government Area Heritage Review 2009 and draft electronic data entries into the State Heritage Inventory. These products will facilitate Draft Local Environmental Plan 18 and the comprehensive Standard Instrument Local Environmental Plan.

Council has not established a heritage advisory service pursuant to recommendation 3 of the State of the Environment Report 2004.

*Recommendations*

That Council provide statutory controls in a Local Environmental Plan for recognised heritage items and precincts. This will alleviate pressure generated by a lack of response to the Ministerial direction of 1985 and the recommendations proffered in the Kyogle Heritage Study 1996 and previous funding agreements.

That Council make publicly available through Council's web site the software package known as the State Heritage Inventory upon the gazettal of a local planning instrument concerning heritage. This will serve as an educational, cultural and economic tool for the use of the public.

That a chapter in a future Development Control Plan for the Local Government Area be devoted to design guidelines for development associated with and adjoining heritage items, including advice on how to manage and conserve heritage buildings and places.

That Council consider the appointment of a Heritage Adviser to promote local heritage and provide pro-active assistance to owners of heritage items, including grant information and conservation methods, techniques and materials.

That Council introduce a Heritage Assistance Fund upon gazettal of a local planning instrument concerning heritage and apply to the Heritage Branch of the Department of Planning to support that fund. Such a fund would assist property owners to maintain and improve local heritage values.

That Council adopts a leadership role where the conservation and management of its own properties are concerned.



## 7.0 Waste

- [7.1 Introduction](#)
- [7.2 Waste](#)
- [7.3 Recommendations](#)

### 7.1 Introduction

This section provides background environmental information on the Kyogle Council area. The location, climate, population, landusage and planning controls of environmentally sensitive areas are reported using the following indicators.

<b>INDICATOR/S</b>
<b>Total waste disposed</b>
<b>Total waste to landfill</b>
<b>Waste recycling</b>
<b>Components of domestic waste</b>
<b>Capacity and projected life of landfill sites</b>

#### MAPS

[No 20 Location of Waste Facility Centres](#)

### 7.2 Waste

7.2	ISSUES	INDICATORS
	Waste	<b>Total waste disposed</b> <b>Total waste to landfill</b> <b>Waste recycling</b> <b>Components of domestic waste</b> <b>Capacity and projected life of landfill sites</b>

## **Introduction**

These are generally pressure and response indicators.

If not managed properly waste can pollute the land, air or water. When examined in terms of the total amount of waste generated it is possible to determine the total pressure, which is placed on landfill space.

Kyogle Council operates 2 waste landfill sites in the Council area. These are located at Kyogle, Woodenbong. Landfill sites at Bonalbo and Mallanganee have been closed for landfilling activities and now operate as transfer stations with collected waste being transported to Kyogle landfill for disposal.

Both Kyogle and Woodenbong landfills are currently licensed with DECW as solid waste landfills and operated under a formal landfill environmental management plan. All sites have active resource recovery systems in place to ensure materials can be diverted from the disposal stream where possible. The following materials are recovered for further reprocessing off-site by third parties:

- Paper and cardboard
- Glass
- Aluminum
- Waste oil
- Green waste
- Scrap metal
- Batteries
- Tyres

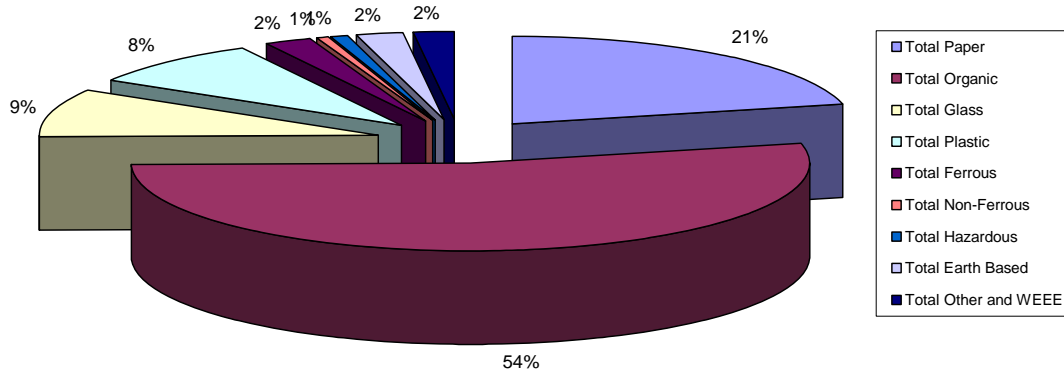
## **Waste collection**

Kyogle Council currently provides a kerb side domestic waste service (240 litre mobile bins) to approximately 1307 properties in Kyogle, 295 properties in Woodenbong and 333 properties in Bonalbo.

A recycling service (solid marketable recyclables) is provided on a whole of community basis through self haul to landfill and transfer stations.

A waste audit was conducted in March 2009 of the kerb side service in Kyogle, Woodenbong and Bonalbo. The following graph indicates the composition of the waste stream.

**Kyogle Council  
Domestic Kerbside Audit  
All Waste Components  
11, 12, 13 March 2009**



**Waste Volume**

The following table shows the estimated volume of waste deposited per year at the 4 landfill sites since 1998.

**Table 35: Waste Volume**

Waste Facility	Municipal Waste (t/year)		Commercial/Industrial Waste (t/year)		Total Waste Land filled (t/year)	
	2001	2004	2001	2004	2001	2004
Kyogle	1395	2583	613	572	2891	3429
Woodenbong	N/a	360	N/a	N/a	N/a	360
Bonalbo	N/a	65	N/a	N/a	N/a	N/a
Mallanganee	N/a	65	N/a	N/a	N/a	N/a
<b>Total</b>	1395	3073	613	572	2891	3789

Note: Waste from Bonalbo (65/t) and Mallanganee (65/t) is transferred to Kyogle landfill and is included in the total volume for Kyogle landfill.

Waste Facility	Municipal Waste (t/year)		Commercial/Industrial Waste (t/year)		Total Waste Land filled (t/year)	
	2004	2009	2004	2009	2004	2009
Kyogle	2583	3100.62	572	292.75	3429	3572.77
Woodenbong	360	283.4	N/a	N/a	360	283.4
Bonalbo	65	89.7	N/a	N/a	N/a	N/a
Mallanganee	65	89.7	N/a	N/a	N/a	N/a
<b>Total</b>	<b>3073</b>	<b>3384.02</b>	<b>572</b>	<b>292.75</b>	<b>3789</b>	<b>3856.17</b>

Note: waste from Bonalbo (89.7) and Mallanganee (89.7) is transferred to Kyogle landfill and is included in the total volume for the Kyogle landfill.

Note: waste deposited to Kyogle landfill expected to increase as waste from transfer stations Mallanganee and Bonalbo prior to January 2009 was being transferred to Namoonna landfill Casino. An increase of waste approximately 20% is expected to be deposited to the landfill during the financial year 2009/2010.

### Waste Recycling

The following table shows the estimated volume of waste recycled per year.

**Table 36: Waste Recycled – Solid Recyclables**

Waste Facility	Year 2000 (t/year)	Year 2004 (t/year)	Year 2009 (t/year)
Kyogle	N/a	655	683.201
Woodenbong	N/a	N/a	40.64
Bonalbo	N/a	40	92.78
Mallanganee	N/a	40	72.7
Total		695	889.321

**Note:** Table 36 excludes the reprocessing of green waste which equates to approximately 250/t year/2004 and 328.5/t year 2009.

## Capacity and projected life of landfill sites

Waste is defined as anything solid, liquid or gas that is no longer of use, has no value or is a resource in the wrong place at the wrong time. Waste treatment and disposal is the primary method for the management of waste. Of primary concern to natural resource managers and the community in relation to land filling are the following environmental issues:

1. Discharges to ground and surface waters;
2. Emissions to the atmosphere;
3. Land management and conservation; and
4. Hazards and loss of amenity.

To avoid waste being diverted to landfill, waste managers are under increasing pressure from regulators and the community to implement strategies that recognize the waste hierarchy and emphasis on waste avoidance, recovery and reprocessing activities. It is this pressure that is driving the evolution of ecologically sustainable waste minimization and management practices. Council's Kyogle and Woodenbong landfills operate under an Environmental Licenses issued by DECCW. Both facilities are classed as schedule one activities, with Kyogle having it own Local Environmental Management Plan.

The following table shows the capacity and projected life of the approved landfill sites in the Council area.

**Table 37: Capacity and Projected Life of Landfill sites**

Landfill site	Capacity (M3 )	Capacity T/M3	Anticipated life
Kyogle	100,000	60,000	20 years
Woodenbong	12,000	7,200	8 years
Total	120,000	67,200	28

**Note:** The projected life of the Kyogle landfill will be determined through the pending determination from DECCW to construct a new commercial and domestic cell in the existing borrow pit, and ongoing of environmental monitoring.

### Response

#### Council and related ESD activities

##### Landfill Management

With amendments to the Protection of the Environment Operations Act, landfill management is guided by a site specific Landfill Environmental Management Plan (LEMP) and Environmental Protection License to ensure land fill activities are undertaken to recognize environmental best practice standards. Council's Kyogle landfill now operates under a draft landfill environmental management plan which has been prepared to support the Environment Protection License. The LEMP provides a framework for:

- Landfill structure and operations review (including general operating philosophy and the nature and quantity of waste received and recycling to be conducted,
- Discharges to water,

- Atmospheric emissions,
- Land management and conservation (including detailed measures adopted to assist in meeting waste reduction goals), and
- Prevention of hazards and lifestyle of amenity.

#### **Environmental education programs**

Nil

#### **Monitoring programs**

Environmental Protection license requirements, LEMP and environmental guide lines for solid waste landfills.

### **7.2.1 Data**

#### **Sources**

Kyogle Council.

#### **Gaps**

Waste tonnage can not be accurately determined due to not having the ability to weight waste entering the facilities at Kyogle and Woodenbong.

### **7.2.1 Trends to Measure**

Tables 35, 36 & 37 provide baseline information from which either, subsequent supplementary or comprehensive SoE reports can provide current information to enable comparative assessment of waste volume, waste recycling and capacity of existing landfills.

### **7.2.3 Action since 2004 SoE**

See Appendix 1 – Recommendations and Actions.

## **7.3 Recommendations**

#### **Total waste disposed, total waste to landfill, waste recycling components of domestic waste**

1. Council liaise with the NSW Environmental Protection Authority (DECCW) and neighboring Councils to undertake kerb side recycling and prepare a waste minimization strategy that seek to minimize and manage waste to landfill.
2. Landfill Environmental Management Plans (LEMP) be prepared for, Woodenbong landfill.

## 8.0 Noise

- [8.1 Introduction](#)
- [8.2 Noise Pollution](#)
- [8.3 Recommendations](#)

### 8.1 Introduction

This section reports on the noise environmental sector and will provide information on the following indicators.

<b>INDICATOR/S</b>
<b>Number of EPA licensed premises</b>
<b>Number of noise complaints to Council</b>

### 8.2 Noise Pollution

8.2	ISSUES	INDICATORS
	<b>Noise pollution</b>	<b>Number of EPA licensed premises Number of noise complaints to Council</b>

#### Introduction

This is a pressure indicator.

Recording trends in complaints and reasons for the complaints enable a better understanding of the concerns about noise.

Tables 20 and 21 describe the number of licensed premises (activities) in the Council area.

The following table describes the number and nature of noise complaints referred to the DEC Pollution Information Line.

**Table 38: Noise Complaints to Kyogle Council – 2000 , 2004 & 2009**

Category	Information calls			Incident Calls		
	2000	2004	2009	2000	2004	2009
Rural	0	0	0	0	0	0
Urban	0	0	0	0	0	0
Industrial / commercial	0	0	0	0	0	0
Noise	0	3	1	0	2	0
<b>TOTAL</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>

Note: Rural complaints may include - machinery, scare guns, pumps generators etc.  
 Urban complaints may include - dogs, roosters, pumps, music etc  
 Industrial / commercial complaints may include - entertainment venues, delivery vehicles, aircraft etc. At this stage the DEC information is not broken down into category and council has not developed an environmental complaints database.

### **Response**

#### **Council and related ESD activities**

Not applicable to Council.

#### **Environmental education programs**

Not applicable to Council.

#### **Monitoring programs**

Council will monitor noise as a consequence of complaint.

### **8.2.1 Data**

#### **Data sources**

1. DECW Pollution Line Information – SoE info.

#### **Data gaps**

Environmental complaints (by category) database.

### **8.2.2 Trends to Measure**

Tables 20, 21 & 38 provide baseline information for future assessment of air and noise related issues.



### **8.2.3 Actions since 2000 SoE**

See Appendix 1 – Recommendations and Actions

### **8.3 Recommendations**

Refer to Section 4.3.1 & 4.3.2

**APPENDIX 1**  
**RECOMMENDATIONS & ACTIONS SUMMARY CHART**

Ref	Recommended Action	Responsibility	Timing		Outcomes
			Time frame	Priority	
	<b>Background sector</b>				
2.5.1	<p><b>Changes in landuse and population and population growth rates</b> That Council continues to review population growth rates through Community Profiles and Social Plans after each Population and Housing Census.</p>	<p>P&amp;ES CCS</p>	M / O	H	A comprehensive review of Community Profiles and Social Plan has been completed in 2009. Current SoE report has incorporated Census data.
2.5.2	<p><b>Climate</b> Council liaise with NSW Agriculture and Bureau of Meteorology to develop a monitoring regime to ensure consistent measurement of climatic parameters for rainfall and temperature.</p>	P&ES	M	L	Implementation has not commenced.
2.5.3	<p><b>Planning</b> That in the preparation of the draft Local Environmental Plan consideration be given to identifying environmentally sensitive lands and providing protection by providing appropriate environmental protection zoning and provisions.</p>	<p>P&amp;ES Clrs</p>	S	H	Two platform documents for the Local Environment Plan, the Agland Study and the 'Closer Rural Settlement and Urban Expansion Strategy', have been adopted by Council. A third document being the Heritage Study is in draft format and will be incorporated into the Comprehensive Local Environmental Plan currently being prepared.
2.5.4	<p>Council liaise with local Landcare and Rivercare groups, NSW Agriculture and Dept of Land and Water Conservation to encourage responsible land management on privately owned lands by identifying areas requiring environmental improvement and management and assist landowners where possible to adopt effective management practices that minimises potential soil erosion and water pollution.</p>	<p>P&amp;ES Clrs</p>	L / O	L	<p>Council has been an active participant of the Catchment Management process and more recently in the establishment of the Northern Rivers Catchment Management Authority and their investment priorities for 2004-2007.</p> <p>Council participated in the pilot program 'Land for Wildlife' supporting an extension officer for a six month period and has recently signed a Memorandum of Understanding with the Northern Landcare Group.</p>

Ref	Recommended Action	Responsibility	Timing		
			Time frame	Priority	
	<b>Land sector</b>				
3.6.1	<p><b>Number of development consents</b> Council continue to review type and number of development consents through the Consents Register and show the location of the consents, particularly land subdivisions on a map.</p>	P&ES	O	H	Council continues to maintain the Consents Register. There has been an increase in the number of development applications in comparison to the previous reporting period. Council has also produced quarterly reports on Development Consents for the purpose of periodic Management Plan Reviews.
3.6.2	<p><b>Changes in rural landuse, noxious weed cover, number of identified contaminated and remediated sites</b> Council liaise with NSW Agriculture, PP Board, Far North Coast County Council and Dept of Land &amp; Water Conservation to develop a spatial land Geographic Information System that is able to monitor changes in rural landuse to provide consistent measurement of changes.</p>	P&ES	L	M	Council continues to develop and maintain a GIS system that monitors changes in rural land use through the utilization of information supplied by DIPNAR (multi-attribute mapping program). Significant mapping has been prepared as part of Council's Closer Rural Settlement and Urban Expansion Strategy.
3.6.3	<p>The a spatial land Geographic Information System to be capable of recognising the following information layers:</p> <ul style="list-style-type: none"> <li>• locational of the range of rural agricultural land uses including grazing, dairying, cropping, horticulture, intensive animal establishments (cattle feed lots, piggeries, poultry farms), cattle tick dip sites, location of significant noxious weed infestation, and</li> <li>• location of rural holdings – 40+ ha, 5 – 40 ha, &lt; 5 ha, rural residential developments and rural landsharing communities.</li> </ul>	P&ES	L	M	<p>Council continues to develop and maintain a GIS system. At present many of the recommended features have been included as information layers such as:</p> <ul style="list-style-type: none"> <li>• Multi-attribute mapping</li> <li>• Intensive animal establishments</li> <li>• Contaminated Sites</li> <li>• Rural Settlement</li> </ul> <p>which have contributed significantly to Council's land use planning activities. Significant mapping has been prepared as part of Council's Closer Rural Settlement and Urban Expansion Strategy.</p>

Ref.	Recommended Action	Responsibility	Timing		
			Time frame	Priority	
3.6.4	Council in conjunction with the NSW EPA and NSW Agriculture determine the number and status of cattle tick dip sites in the Kyogle Council area.	P&ES	M / L	H	In partnership with NSW Agriculture and its DIPMAC program, Council has identified the number and status of dip sites in the Kyogle Council area. Since 2004 the number of cattle dip sites in use has decreased with an increase in the number of decommissioned sites.
3.6.5	Council investigate and implement the use of weed control methods that will minimise the use of chemicals, especially in areas adjacent stormwater drains and/or local waterways.	TS	M	M	Council conducts weed control through an eight Council partnership, the Far North Coast Weeds. Non-chemical controls methods are always investigated as an option. The 2004 report has identified the number of control hours (spraying) committed to noxious weed management for future comparisons.
3.6.6	<b>Land – 1994 report data gaps</b> Council liaise with NSW Fire Brigade to establish a common inventory of compounds and chemical contained on commercial and industrial sites.	P&ES	M / O	M	Implementation has commenced through Council's involvement in the Stormwater Education & Assessment Program which enabled the environmental auditing (initial information/education) of all commercial & industrial premises. This has provided the foundation for a formal audit program on completion of council's trade waste policy. NSW Fire Brigade will not be an active player in this program.
3.6.7	Council in liaison with the NSW Environment Protection Authority commence a program which identifies contaminated (eg dip sites, former banana lands etc) and unhealthy building lands on Council and private properties and establish a data base and show the location of these lands on a map.	P&ES	M / O	M	Council has developed a Development Control Plan for Contaminated Lands. Council has produced a property listing of contaminated urban lands, the information being communicated through formal 149 Certificates. Subdivision develops require consideration of past land use practices and the potential of soil contamination – (site soil assessments).

Ref.	Recommended Action	Responsibility	Timing		
			Time frame	Priority	
3.6.8	<p><b>Land – outcomes of 1996 report recommendations</b></p> <p>Council liaise with Dept of Land &amp; Water Conservation to develop a spatial land Geographic Information System that is able to monitor changes in riverbank condition in particular existence of native riparian vegetation.</p>	P&ES	L	M	<p>Spatial information (multi-attribute) is prepared by DIPNAR. The Department has advised that there is no available data on the presence or absence of riparian vegetation for the preparation of this report. Council has completed it's Roadside Vegetation Management Plan.</p>
3.6.9	<p>Council liaise with National Parks and Wildlife Service to develop a spatial land Geographic Information System that is able to show existing native and exotic flora characteristics of the Council area.</p>	P&ES	L	M	<p>National Parks and Wildlife Service (DEC) have provided the following information:</p> <ul style="list-style-type: none"> <li>• Forest ecosystems and their conservation status</li> <li>• Number of introduced species in the National Park Estate</li> <li>• Number of threatened species, populations and ecological communities.</li> </ul> <p>To assist in the preparation of this comprehensive report. GIS information layers are currently not available</p>
3.6.10	<p>Council liaise with NSW Rural Bushfire Services and Dept of Land &amp; Water Conservation to develop a spatial land Geographic Information System that shows lands subject to high and medium bushfire risk and the location and type of bushfires.</p>	<p>P&amp;ES</p> <p>TS</p>	M	M	<p>A spatial land Geographic Information System that shows lands subject to high and medium bushfire risk and the location and type of bushfires has been developed.</p>
3.6.11	<p>Council liaise with Dept of Land &amp; Water Conservation to develop a spatial land Geographic Information System that is able to show steep lands and lands with medium to high potential for erosion.</p>	P&ES	L	M	<p>The multi-attribute mapping component of Council's GIS has the ability to show steep lands and lands with medium to high potential for erosion.</p>

Ref.	Recommended Action	Responsibility	Timing		
			Time frame	Priority	
	<b>Air sector</b>				
4.3.1	<b>Number of air and noise complaints to Council</b> Council continues to enforce and police air pollution legislation.	P&ES	O	M	Council continues to fulfil its statutory obligations under the Protection of the Environment Operations Act and its Regulations.
4.3.2	Council establish a formal register of air and noise pollution complaints.	P&ES	S/O	M	Complaints are formally registered and responses tracked as part of council's data management system. Tracking/reporting of complaints by type has not been activated at this time.
	<b>Water sector</b>				
5.6.1	<b>Drinking water - compliance of water with NHMRC guidelines and recording variations</b> Council continue to monitor quality of drinking water in accordance with standards developed by NSW Health.	P&ES  TS	O	H	Kyogle Council continues to monitor reticulated water supplies in accordance with NHMRC Drinking Water Quality Guidelines and NSW Department of Health program. Comparative water quality results are reported to NSW Health and the Department of Energy Utilities and Sustainability (DEUS).
5.6.2	<b>Drinking water - volume and consumption</b> Council continue to monitor volume of water consumed from its reticulated water supplies.	P&ES  TS	O	M	Council continues to monitor the volume of potable water delivered and consumption rates as part of annual returns to DEUS. water used at each residence Comparative results are included within the report.
5.6.3	Council pursue water conservation within an Energy Efficiency DCP and develop a program to educate and encourage residents to reduce their water consumption and wastage, including promotion of costs benefits, appliances with good water conservation rating, installation of raintanks, indigenous gardens that need little watering, dip sprinklers instead of fixed and mulching and assist and encourage industrial and commercial businesses to undertake voluntary environmental water conservation audits.	P&ES	M	M	Council has started to liaise with the Sustainable Energy Development Authority to initiate a program to incorporate energy efficient savings for residents. Council also is currently involved with DEUS to undertake and integrated water cycle management study to address all urban water issues including water supply, sewerage and stormwater. Stage 1 – Concepts Study has been completed.

Ref.	Recommended Action	Responsibility	Timing		
			Time frame	Priority	
5.6.4	Council undertake a water conservation audit of all Council buildings, facilities, maintenance and water practices, including cleaning techniques, lawn watering practices and cleaning of machinery and vehicles aimed at reducing Council's use of water and water wastage.	P&ES  TS	S / O	M	Implementation commenced with auditing activities completed for council water and sewage activities.
5.6.5	<b>Freshwater - number of existing septic systems and new approvals per year</b> Council record the number and location of approved new rural and unsewered village on-site sewage management systems and show this information on a map.	P&ES	O	H	Council has developed and maintains a database of on-site sewage management systems and their approval status and performance following owner audit information or council inspection. Properties serviced by on-site sewage management systems are mapped as part of council's GIS.
5.6.6	Council in liaison with Dept of Land & Water Conservation develop a river quality monitoring program that includes stations located on the Richmond, Tweed and Clarence Rivers.	P&ES	L	M	Council participated in the monitoring program – 'Target Pesticides Monitoring Program' a project jointly funded by the NSW Department of Health, Kyogle Council and Richmond Valley Council. No significant pollution incidents recorded. No other monitoring program has been pursued.
5.6.7	<b>Number of 'point' source discharges to creeks and watercourses</b> Council implement the urban stormwater management plan to provide at least primary treatment of stormwater prior to discharge to rivers and streams.	TS	M	M	Council's Urban Stormwater Management Strategy is to be developed as part of the Integrated Water Cycle Management Study. Implementation will be guided by future Management Plans.



Ref.	Recommended Action	Responsibility	Timing		
			Time frame	Priority	
5.6.8	<p>Council seek to raise awareness of practices that pollute waterways by encouraging and educating the community to:</p> <ul style="list-style-type: none"> <li>dispose of rubbish responsibly,</li> <li>wash cars on lawns or at commercial "green" car washes instead of on the street,</li> <li>report pollution incidents such as illegal chemical, oil and waste dumping to EPA and Council and poor development site erosion control measures to Council,</li> <li>become involved in community Streamwatch, and</li> <li>develop an educational kit for developers and the broader community.</li> </ul>	P&ES	M	M	<p>Council's involvement in the Stormwater Education Assessment Project (funded by the EPA's Stage 4 Stormwater Trust Grant) has achieved the following outcomes:</p> <ul style="list-style-type: none"> <li>voluntary stormwater audits for all industrial and commercial premises.</li> <li>Environmental training to Council operational staff.</li> <li>Implementation of internal environmental auditing activities.</li> </ul> <p>Initiation of integrated environmental management system.</p>
5.6.9	<p>Council require new developments to indicate how stormwater will be managed on the site both during and after construction, addressing the concerns of minimising runoff, collecting rainwater for secondary use, and minimising the velocity of runoff.</p>	<p>P&amp;ES</p> <p>TS</p>	S	H	<p>Council has a construction manual for guidance of development activities.</p> <p>Council has participated in the regional Water Sensitive Urban Design (WSUD) group who are currently undertaking the preparation of a DCP for WSUD.</p>
5.6.10	<p>That in the preparation of the draft Local Environmental Plan consideration be given to making provisions for riparian buffers of major rivers and creeks.</p>	P&ES	S	H	<p>The third land use pillar dealing with rural settlement has been adopted by council for public exhibition. On adoption preparation of the LEP will commence.</p>
5.6.11	<p><b>Location and type of groundwater bores, wells etc.</b></p> <p>Council liaise with Dept of Land &amp; Water Conservation to develop a spatial land Geographic Information System that is able to show the type and location of groundwater extraction points.</p>	P&ES	L	M	<ul style="list-style-type: none"> <li>Mapping is now incorporated into this report and groundwater and surface water extraction points are identified.</li> </ul>

Ref.	Recommended Action	Responsibility	Timing		
			Time frame	Priority	
	<b>Biodiversity sector</b>				
6.6.1	<p><b>Extent of protected areas (National Parks etc) within Council area &amp; significant areas of remnant vegetation</b></p> <p>Council liaise with National Parks and Wildlife Service to develop a spatial land Geographic Information System that is able to show existing reserved forest ecosystems.</p>	P&ES	L	M	<p>National Parks and Wildlife Service (DEC) have provided the following information:</p> <ul style="list-style-type: none"> <li>• Forest ecosystems and their conservation status</li> <li>• Number of introduced species in the National Park Estate</li> <li>• Number of threatened species, populations and ecological communities.</li> </ul> <p>to assist in the preparation of this report. Council has been provided with the following information layers for its own GIS system:</p> <ul style="list-style-type: none"> <li>• Regional vegetation mapping</li> <li>• LGA flora &amp; Fauna mapping</li> <li>• LGA habitat corridors</li> </ul>
6.6.2	Council considers undertaking an area wide flora study to show significant areas of native vegetation and wildlife and habitat corridors.	<p>Clrs</p> <p>P&amp;ES</p>	L	L	Council has completed it's Roadside Vegetation Management Plan. National Parks and Wildlife Service (DEC) have the primary role to action this recommendation.
6.6.3	Council liaise with the Regional Vegetation Management Committee to determine funding possibilities to assist to undertake an area wide flora study.	<p>Clrs</p> <p>P&amp;ES</p>	L	M	Council is continuing participation within the Catchment Management Authority planning process.
	<b>Waste</b>				
7.3.1	<p><b>Total waste disposed, total waste to landfill, waste recycling components of domestic waste</b></p> <p>Council liaise with the NSW Environmental Protection Authority and undertake a waste characterisation study of existing landfill sites and prepare a waste minimisation strategy that seek to minimise and manage waste to landfill.</p>	P&ES	S	M	<p>Yearly report for non-licensed landfill sites completed in accordance with the POEO Act. The report identifies waste composition, disposal quantities and materials recovered.</p> <p>Volumetric data is generated by the EPA vehicle category classification.</p> <p>A Landfill Environmental Management Plan completed for the Runnymede Waste Facility as part of the licensing program.</p>

Ref.	Recommended Action	Responsibility	Timing		
			Time frame	Priority	
7.3.2	Landfill Environmental Management Plan (LEMP) be prepared for Kyogle, Woodenbong and Bonalbo landfills.	P&ES	S/O	M	Landfill Environmental Management Plan completed for the Runnymede Waste Facility as part of the licensing program. Operational plans for other landfills and transfer stations have commenced and are anticipated to be completed for the next reporting year.
7.3.3	Develop a program to establish the category and composition of waste generated in Kyogle Council area.	P&ES	S	M	Council has implemented a monitoring program to categorize waste type and quantity entering landfill sites. Information and educational signage program has commenced to improve overall site operations. It is not Council's intention to undertake a comprehensive waste categorization study, rather utilize information from comparable studies within the region to assist in the development of the Waste Minimisation and Management Strategy.
	<b>Noise</b>				
8.3	Refer to 4.3.1 & 4.3.2	P&ES			Refer to 4.3.1 & 4.3.2
	<b>Heritage</b>				
9.5.1	<b>Aboriginal heritage - heritage listings (items and sites)</b> Council liaise with NSW National Parks and Wildlife Service to undertake an Aboriginal Archaeological Study to objectively and professionally document and identify the Aboriginal heritage of the local government area.	P&ES	L	H	National Parks and Wildlife Service (NPWS) have developed GIS information layers showing both Indigenous sites of importance for the Kyogle region which has been incorporated into broad mapping for community reporting purposes.
9.5.2	<b>Non Aboriginal heritage - heritage listings (items and sites)</b> That the comprehensive Local Environmental Plan for the Council area include the items of environmental heritage identified in the Kyogle Heritage study 1996.	P&ES	S	H	Heritage items in the Heritage Study have not been incorporated into the Local Environment Plan and/or DCP. This recommendation will be considered as part of the LEP development process.
9.5.3	Council liaise with the NSW Heritage Council to explore funding to establish a heritage advisory service.	P&ES	M	M	This has been achieved with NSW Heritage Office providing 50% funding for preparation of the Heritage Study recently completed.

**Appendix 2**  
**Key Environmental Management Responsibilities**

2004 SoE REPORT	State Government		Local Government	Community
ENVIRONMENTAL 'SECTORS'	Authority	Relevant legislation		
<b>LAND</b>	Environment Protection Authority	Protection of the Environment Protection Act 1997 Environmentally Hazardous Chemicals Act 1985 Environmental Offences and Penalties Act 1989 Environmental Education Trust Act 1990 Environmental Research Trust Act 1990 Unhealthy Building Land Act 1990 Environmental Restoration and Rehabilitation Trust Act 1990	Environmental Planning and Assessment Act 1979 Local Government Act 1993 Roads Act 1993	Land Care Program Catchment Management Richmond River Water Users Group DIPMAC
	Dept. of Land & Water Conservation	Soil Conservation Act 1938 Catchment Management Act 1989 Crown Lands Act 1989 Crown Lands (Tenures) Act 1989 Native Vegetation Conservation Act 1997		
	Mineral Resources	Mining Act 1992 Mines Inspection Act 1901		
	NSW Agriculture	Agricultural Holdings Act 1941 Dairy Industry Act 1979 Fertilisers Act 1985 Pesticides Act 1978 Rural Lands Protection Act 1989 Stock (Chemical Residues) Act 1975		
	Roads and Traffic Authority	Roads Act 1993		

	State Forests	Forestry Act		
	Dept. of Urban Affairs & Planning	Environmental Planning and Assessment Act 1979		
	Dept of Local Government	Local Government Act 1993		
<b>ATMOSPHERE (AIR AND NOISE)</b>	Environment Protection Authority	Protection of the Environment Operations Act 1997		
<b>WATER</b>	Environment Protection Authority	Protection of the Environment Operations Act 1997	Environmental Planning and Assessment Act 1979 Local Government Act 1993 Roads Act 1993	River Care Richmond River Water Users Group
	Dept. of Land & Water Conservation	Water Administration Act 1986 Water Act 1912 Rivers and Foreshores Act 1984 Farm Water Supplies Act 1946 Drainage Act 1939 Water Supplies Authorities Act 1987 Native Vegetation Conservation Act 1997		
	NSW Fisheries	Fisheries Management Act 1994		
	Dept. of Urban Affairs & Planning	Environmental Planning and Assessment Act 1979		

<b>BIODIVERSITY</b>	National Parks and Wildlife Service	National Parks and Wildlife Act 1974 Wilderness Act 1987 Threatened Species Conservation Act 1995	Environmental Planning and Assessment Act 1979	Big Scrub Environment Centre North East Forest Alliance
	Dept. of Land & Water Conservation	Native Vegetation Conservation Act 1997		
	NSW Fisheries	Fisheries Management Act 1994		
	State Forests	Forestry Act		
	Dept. of Urban Affairs & Planning	Environmental Planning and Assessment Act 1979		
<b>WASTE</b>	Environment Protection Authority	Environmentally Hazardous Chemicals Act 1985 Waste Disposal Act 1970 Unhealthy Building Land Act 1990	Environmental Planning and Assessment Act 1979 Local Government Act 1993	
<b>HERITAGE (ABORIGINAL &amp; NON-ABORIGINAL HERITAGE)</b>	National Parks and Wildlife Service	National Parks and Wildlife Act 1974	Environmental Planning and Assessment Act 1979 Local Government Act 1993	Local Aboriginal Land Councils National Trust of Australia (NSW)
	NSW Heritage Council	Heritage Act 1977		
	Dept. of Urban Affairs & Planning	Environmental Planning and Assessment Act 1979		

**Note:** During this reporting period NSW state government agencies have undergone significant restructure resulting in name changes. The following provides a simple directory to assist in the recognition of appropriate agencies.

**The Department of Infrastructure Planning and Natural Resources (DIPNAR) consists of:**

Department of Land and Water Conservation (DLWC)  
Department of Urban Affairs and Planning (DUAP)  
State Forests

**The Department of Environment and Conservation (DEC) consists of:**

Environment Protection Authority (EPA)  
National Parks and Wildlife Service (NPWS)  
Resource NSW

**The Department of Primary Industries (DPI) consists of:**

NSW Fisheries  
Mineral Resources  
NSW Department of Agriculture  
State Forests

### Appendix 3 SoE Management Plan Linkages

The following describes the abbreviations used in the summary of recommendations document.

<b>Key</b>	
<b>Reference</b>	Reference code to corresponding action in main document
<b>Recommended Action</b>	What the action is
<b>Responsibility</b>	Who is to undertake action

Use the codes below to determine the abbreviation of the table

<b>Code</b>	<b>Responsibility</b>
<b>Clrs</b>	Councillors
<b>Council</b>	Whole of Council
<b>CCS</b>	Corporate and Community Services
<b>P&amp;ES</b>	Planning and Environmental Services
<b>TS</b>	Technical Services



### Timing and priority of recommendations

Time Frame	
<b>S</b>	Short (0-2 years);
<b>M</b>	Medium (3-5 years);
<b>L</b>	Long (6+ years)
<b>O</b>	Ongoing.
Priority	
<b>H</b>	High priority
<b>M</b>	Medium priority
<b>L</b>	Low priority

### Implications

The following table shows the type of recommendation and whether it is:

Type	Definition
<b>O</b>	<b>Ongoing</b> – involves no change to policy, practice, procedure or controls
<b>N</b>	<b>New</b> – involves a new policy, practice, procedure or control
<b>C</b>	<b>Change</b> – involves a change required to policy, practice, procedure or control
<b>D</b>	<b>Declare</b> – involves advocacy or influence by Council to government or other agencies, authorities or committees.
<b>I</b>	<b>Involvement</b> – involves education programs and community, business, commerce or industry involvement.

**Funding opportunity (y)** indicates whether the action is appropriate for grant funding application.

**Benefit/s** (summary) of implementing action are indicated.

**Reporting** mechanism is identified in the SoE report and Management Plan

Ref	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of SoE report
			Time frame	Priority	Type	Funds		
	<b>Background sector</b>							
2.5.1	<p><b>Changes in landuse and population and population growth rates</b></p> <p>That Council continues to review population growth rates through Community Profiles and Social Plans after each Population and Housing Census.</p>	P&ES & CCS	M / O	H	O	Y	Mechanism to monitor population changes and areas in which that change occurs.	Background (population)
2.5.2	<p><b>Climate</b></p> <p>Council liaise with NSW Agriculture and Bureau of Meteorology to develop a monitoring regime to ensure consistent measurement of climatic parameters for rainfall and temperature.</p>	P&ES	M	L	N	-	Provide community with improved climatic (temperature) information.	Background (climate)
2.5.3	<p><b>Planning</b></p> <p>That in the preparation of the draft Local Environmental Plan consideration be given to identifying environmentally sensitive lands and providing protection by providing appropriate environmental protection zoning and provisions.</p>	P&ES Clrs	S	H	N	-	Local identification and protection of environmentally sensitive lands.	Background (planning)

Ref	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
	<b>Land sector</b>							
2.5.4	Council liaise with local Landcare and Rivercare groups, NSW Agriculture and Dept of Land and Water Conservation to encourage responsible land management on privately owned lands by identifying areas requiring environmental improvement and management and assist landowners where possible to adopt effective management practices that minimises potential soil erosion and water pollution.	P&ES  Clrs	L / O	L	N / I	Y	Improvement and protection of key environmental and economic resources.	Background  (planning)
3.6.1	<b>Number of development consents</b>  Council continue to review type and number of development consents through the Consents Register and show the location of the consents, particularly land subdivisions on a map.	P&ES	O	H	O	-	Improved monitoring of the location of different types of development.  Potential to correlate information with Ref. 3.6.2.	Land

Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
3.6.2	<p><b>Changes in rural landuse, noxious weed cover, number of identified contaminated and remediated sites</b></p> <p>Council liaise with NSW Agriculture, PP Board, Far North Coast County Council and Dept of Land &amp; Water Conservation to develop a spatial land Geographic Information System that is able to monitor changes in rural landuse to provide consistent measurement of changes.</p>	P&ES	L	M	N / I	-	Improved monitoring of changing patterns of land use, development in relation to environmental constraints and opportunities. Potential to correlate information with Ref. 3.6.1, 3.6.3, 3.6.4, 3.6.7, 3.6.8, 3.6.9, 3.6.10, 3.6.11, 5.6.5, 5.6.6, 5.6.11, 6.6.1, 6.6.2.	Land

Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
3.6.3	<p>The a spatial land Geographic Information System to be capable of recognising the following information layers:</p> <ul style="list-style-type: none"> <li>• locational of the range of rural agricultural land uses including grazing, dairying, cropping, horticulture, intensive animal establishments (cattle feed lots, piggeries, poultry farms), cattle tick dip sites, location of significant noxious weed infestation, and</li> <li>• location of rural holdings – 40+ ha, 5 – 40 ha, &lt; 5 ha, rural residential developments and rural landsharing communities.</li> </ul>	P&ES	L	M	N / I	-	<p>As above.</p> <p>Potential to correlate information with Ref. 3.6.2.</p>	Land

Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		
3.6.4	Council in conjunction with the NSW EPA and NSW Agriculture determine the number and status of cattle tick dip sites in the Kyogle Council area.	P&ES	M / L	H	O	-	Clarify the number of cattle tick dips sites and status.  Potential to correlate information with Ref. 3.6.2.	Land
3.6.5	Council investigate and implement the use of weed control methods that will minimise the use of chemicals, especially in areas adjacent stormwater drains and/or local waterways.	TS	M	M	C	-	Reduced use of chemicals in the environment and reduced potential for environmental harm.	Land
3.6.6	<b>Land – 1994 report data gaps</b>  Council liaise with NSW Fire Brigade to establish a common inventory of compounds and chemical contained on commercial and industrial sites.	P&ES	M / O	M	N	-	Improved risk management and co-ordination between regulatory and emergency agencies.	Land

Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
3.6.7	Council in liaison with the NSW Environment Protection Authority commence a programme which identifies contaminated (eg dip sites, former banana lands etc) and unhealthy building lands on Council and private properties and establish a data base and show the location of these lands on a map.	P&ES	M / O	M	N / I	-	Improved risk management and co-ordination between regulatory and emergency agencies.  Potential to correlate information with Ref. 3.6.2.	Land
3.6.8	<b>Land – outcomes of 1996 report recommendations</b>  Council liaise with Dept of Land & Water Conservation to develop a spatial land Geographic Information System that is able to monitor changes in riverbank condition in particular existence of native riparian vegetation.	P&ES	L	M	N / I	-	Improved monitoring of land use and changes in environmental esp river systems.  Potential to correlate information with Ref. 3.6.2.	Land

Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
3.6.9	Council liaise with National Parks and Wildlife Service to develop a spatial land Geographic Information System that is able to show existing native and exotic flora characteristics of the Council area.	P&ES	L	M	N / I	-	Improved monitoring of environmental systems.  Potential to correlate information with Ref. 3.6.2.	Land & Biodiversity
3.6.10	Council liaise with NSW Rural Bushfire Services and Dept of Land & Water Conservation to develop a spatial land Geographic Information System that shows lands subject to high and medium bushfire risk and the location and type of bushfires.	P&ES TS	M	M	N / I	-	Improved monitoring of environmental risks and land use.  Potential to correlate information with Ref. 3.6.2.	Land
3.6.11	Council liaise with Dept of Land & Water Conservation to develop a spatial land Geographic Information System that is able to show steep lands and lands with medium to high potential for erosion.	P&ES	L	M	N	-	Improved monitoring of environmental risks and land use.  Potential to correlate information with Ref. 3.6.1, 3.6.3, 3.6.8, 3.6.9, 3.6.11, 5.6.5. .	Land



Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
	<b>Air sector</b>							
4.3.1	<p><b>Number of air and noise complaints to Council</b></p> <p>Council continues to enforce and police air pollution legislation, such as banned incinerator use.</p>	P&ES	O	M	O	-	Improved monitoring of environmental impact.	Air & Noise
4.3.2	Council establish a formal register of air and noise pollution complaints.	P&ES	S	M	O	-	Improved monitoring of environmental impact.	Air & Noise
	<b>Water sector</b>							
5.6.1	<p><b>Drinking water - compliance of water with NHMRC guidelines and recording variations</b></p> <p>Council continue to monitor quality of drinking water in accordance with standards developed by NSW Health.</p>	P&ES TS	O	H	O	-	Continued monitoring of drinking water quality.	Water

Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
5.6.2	<p><b>Drinking water - volume and consumption</b></p> <p>Council continue to monitor volume of water consumed from its reticulated water supplies.</p>	<p>P&amp;ES</p> <p>TS</p>	O	M	O	-	<p>Continued monitoring of water use.</p> <p>Ref 5.6.3.</p>	Water
5.6.3	<p>Council pursue water conservation within an Energy Efficiency DCP and develop a program to educate and encourage residents to reduce their water consumption and wastage, including promotion of costs benefits, appliances with good water conservation rating, installation of raintanks, indigenous gardens that need little watering, dip sprinklers instead of fixed and mulching and assist and encourage industrial and commercial businesses to undertake voluntary environmental water conservation audits.</p>	P&ES	M	M	N	-	<p>Encourage community water conservation and water use reduction.</p>	<p>Water &amp; Background (planning)</p>

Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		
5.6.4	Council undertake a water conservation audit of all Council buildings, facilities, maintenance and water practices, including cleaning techniques, lawn watering practices and cleaning of machinery and vehicles aimed at reducing Council's use of water and water wastage.	P&ES TS	S / O	M	N	-	Council reduction of use and conservation of water.	Water
5.6.5	<b>Freshwater - number of existing septic systems and new approvals per year</b>  Council record the number and location of approved new rural and unsewered village on-site sewage management systems and show this information on a map.	P&ES	O	H	O	Y	Continuation of monitoring of on-site sewage management systems.  Potential to correlate information with Ref. 3.6.2.	Water & Land

Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
5.6.6	Council in liaison with Dept of Land & Water Conservation develop a river quality monitoring program that includes stations located on the Richmond, Tweed and Clarence Rivers.	P&ES	L	M	N	Y	Improved monitoring of the state of the environment esp river systems.	Water
5.6.7	<b>Number of 'point' source discharges to creeks and watercourses</b>  Council implement the urban stormwater management plan to provide at least primary treatment of stormwater prior to discharge to rivers and streams.	TS	M	M	N / O	Y	Improve quality of stormwater to discharge rivers and streams.	Water & Land

Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
5.6.1 0	That in the preparation of the draft Local Environmental Plan consideration be given to making provisions for riparian buffers of major rivers and creeks.	P&ES	S	H	N	-	Improve environmental planning systems to reduce potential for water pollution.	Water & Background (planning)
5.6.1 1	<b>Location and type of groundwater bores, wells etc.</b>  Council liaise with Dept of Land & Water Conservation to develop a spatial land Geographic Information System that is able to show the type and location of groundwater extraction points.	P&ES	L	M	N / I	-	Improved monitoring of land use.  Potential to correlate information with Ref. 3.6.2.	Water & Land

Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
6.6.2	Council considers undertaking an area wide flora study to show significant areas of native vegetation and wildlife and habitat corridors.	Clrs P&ES	L	L	N / I	-	Improved monitoring of environmental systems and land use.  Potential to correlate information with Ref. 3.6.2.	Biodiversity
6.6.3	Council liaise with the Regional Vegetation Management Committee to determine funding possibilities to assist to undertake an area wide flora study.	Clrs P&ES	L	M	N / I	Y	Improved monitoring of environmental systems.	Biodiversity
	<b>Waste</b>							
7.3.1	<b>Total waste disposed, total waste to landfill, waste recycling components of domestic waste</b>  Council liaise with the NSW Environmental Protection Authority and undertake a waste characterisation study of existing landfill sites and prepare a waste minimisation strategy that seek to minimise and	P&ES	S	M	N	Y	Improved waste minimisation and reduce the potential for environmental impacts of landfill.	Waste

	manage waste to landfill.							
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Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
7.3.2	Landfill Environmental Management Plan (LEMP) be prepared for Kyogle and Woodenbong .		S	M	O	Y	Improved monitoring and management of environmental impacts.	Waste & Land
7.3.3	Develop a program to establish the category and composition of waste generated in Kyogle Council area.	P&ES	S	M	N	Y	Improved waste minimisation.	Waste
	<b>Noise</b>							
8.3	Refer to 4.3.1 & 4.3.2	P&ES						
	<b>Heritage</b>							
9.5.1	<b>Aboriginal heritage - heritage listings (items and sites)</b>  Council liaise with NSW National Parks and Wildlife Service to undertake an Aboriginal Archaeological Study to objectively and professionally document and identify the Aboriginal heritage of the local government area.	P&ES	L	H	N	Y	Improved environmental planning systems to recognise and conserve the Aboriginal heritage of Kyogle.	Heritage



Ref.	Recommended Action	Responsibility	Timing		Implications		Benefits	Section of
			Time frame	Priority	Type	Funds		SoE
9.5.2	<p><b>Non Aboriginal heritage - heritage listings (items and sites)</b></p> <p>That the comprehensive Local Environmental Plan for the Council area include the items of environmental heritage identified in the Kyogle Heritage study 1996.</p>	P&ES	S	H	N	-	Improved environmental planning systems to conserve the identified environmental heritage of Kyogle.	Heritage
9.5.3	Council liaise with the NSW Heritage Council to explore funding to establish a heritage advisory service.	P&ES	M	M	N	Y	Support and encourage the conservation of the environmental heritage of Kyogle.	Heritage