

Annual Report

2012 - 2013



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PART 4 – STATE OF THE ENVIRONMENT REPORT

Introduction

Section 428A (1) of the Local Government Act 1993 requires Councils to prepare a comprehensive State of the Environment Report during the year ending of Council elections. Any other year an annual supplementary State of the Environment Report is required.

The supplementary report merely provides updates on existing issues, as well as outlining new issues that have arisen since the previous State of the Environment Report.

Content of comprehensive State of the Environment Reports

A comprehensive State of the Environment Report meets the requirements of Sect 428A of the Local Government Act 1993 and the guidelines as specified in Sect 406 of the Local Government Act 1993:

1. The annual report of a council in the year in which an ordinary election of councillors is to be held must include a report (a "state of the environment report") as to the state of the environment in the local government area in relation to such environmental issues as may be relevant to the objectives for the environment established by the community strategic plan (the "environmental objectives").
2. The state of the environment report is to:
 - (a) establish relevant environmental indicators for each environmental objective, and
 - (b) report on, and update trends in, each such environmental indicator, and
 - (c) identify all major environmental impacts (being events and activities that have a major impact on environmental objectives).

What is an “Environmental Indicator”?

An **environmental indicator** is an aspect of the natural world or built environment that can be monitored to provide information on environmental conditions and trends.

Environmental indicators include physical, chemical, biological and socio-economic measures of the environment (such as measurements of contaminants in soil, of the health of fish species and of the number of motor vehicles per household) that can be used to assess natural resources and environmental quality.

Note. This elucidation of the term “environmental indicator” is based on the definition contained in the Glossary to the Report called *Australia: State of the Environment 1996* issued by the Commonwealth.

The following “environmental indicators” will be discussed in this report:

- (a) a report as to the state of the environment in the area, and in particular in relation to the following environmental sectors:
 - (i) land
 - (ii) air
 - (iii) water
 - (iv) biodiversity
 - (v) waste
 - (vi) noise

- (vii) Aboriginal heritage
- (viii) Non-Aboriginal heritage

Reference will also be made in regards to:

- (i) Management plans relating to the environment
- (ii) Special council projects relating to the environment
- (iii) The environmental impact of council activities

Background on Brewarrina Shire Council

History

In earlier times Brewarrina was one of the great inter-tribal meeting places of eastern Australia, with the fishing traps, known in the Aboriginal language as Ngunnhu, sustaining thousands of Aboriginal people during tribal gatherings that were held prior to European settlement. The fisheries are estimated to be at least 40,000 years old and could be the oldest man-made structure on earth. Brewarrina is well known for its fishing. Other towns and villages in the Brewarrina district include; Goodooga, Gongolgon, Weilmoringle and Angledool.

The Present

The district is well serviced by an extensive network of road transport, linking the surrounding areas with six major seaports in Eastern Australia. Brewarrina is circuitously linked by two major highways; being the Mitchell Highway which runs from Bathurst through to north western Queensland; and the Kidman Way which links Melbourne to the horticultural belt of NSW. The sealing of the Kamilaroi Highway to the east through to Brisbane is providing significant opportunities to export further to international markets.

A significant area of Brewarrina Shire is utilised for pastoral activities. Over 2,900 hectares is cultivated for cotton most of which is irrigated, when water allocations are available. Brewarrina Shire is considered a marginal area where winter croppings such as wheat, chick peas and faber beans are grown when climatic conditions are favourable.

Irrigation has made feasible the production of vegetables, forage sorghum, winter cereals, citrus and other horticultural crops such as grapes, pumpkins and rockmelons which could be targeted to niche markets nationally and internationally.

Merino sheep for wool production on native pastures is the most important and enduring livestock enterprise in the Shire.

The capture of feral goats for export has increased within the Brewarrina shire, as has the practice of farming goats, particularly as a result of the increasing dry seasons, and the goats' ability to do well in harsher conditions.

Landform

A number of rivers pass through the shire, these include the Barwon, Bogan, Narran, Bokhara, Culgoa and Birrie as well as a number of creeks such as the Marra and Cato. The dominant landform consist of floodplains with the average elevation being 115 metres above sea level.

Climate

Average temperatures

The climate of the region is semi-arid with peak monthly rainfall usually occurring in summer and a smaller peak from May to July. The average daily temperatures, considered on a monthly basis, show an average minimum of 5° C in winter and an average maximum of 35° C in the summer months.

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Temperature														
Mean maximum temperature (°C)	36.1	34.9	32.3	27.5	22.4	18.6	18.1	20.6	24.8	28.8	32.4	35.0	27.6	1911 - 2012
Mean minimum temperature (°C)	20.7	20.4	17.4	12.6	8.5	5.6	4.4	5.7	9.0	12.9	16.2	18.9	12.7	1911 - 2012

Source: Australian Bureau of meteorology

Average rainfall

The rainfall totals for the calendar years 2007 to 2013 improved tremendously from the

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2001	37.0	10.6	16.4	2.2	4.4	39.0	22.0	3.2	13.8	32.0	36.2	1.6	218.4
2002	4.4	36.2	12.8	30.2	0.4	4.8	0.6	23.0	21.4	7.2	0.8	19.3	161.1
2003	12.2	31.6	22.8	68.6	27.0	20.4	20.8	44.4	1.0	13.4	5.2	11.8	279.2
2004	29.2	85.4	17.8	68.3	15.8	15.2	17.2	14.2	6.8	15.8	33.0	37.4	356.1
2005	2.6	7.6	2.8	0.0	13.8	74.4	2.1	21.2	48.2	23.2	26.8	7.0	229.7
2006	38.2	5.2	18.4	1.8	0.0	38.6	49.7	2.0	9.6	0.4	27.0	11.2	202.1
2007	76.0	29.0	51.2	21.8	71.4	9.2	0.6	0.8	1.0	43.0	72.0	221.6	597.6
2008	88.2	144.4	105.2	0.0	10.2	23.2	16.8	17.4	16.2	44.8	63.2	33.4	563.0
2009	47.5	116.2	0.8	22.6	59.0	61.4	11.9	3.0	41.1	25.8	7.5	161.6	558.4
2010	54.2	53.2	96.4	51.4	13.0	10.2	52.9	24.0	32.3	66.8	128.2	139.4	722.0
2011	38.0	18.4	19.7	11.2	16.2	28.2	26.0	10.4	45.2	10.1	74.4	119.3	417.1
2012	115.3	89.4	110.2	4.8	38.2	31.0	36.9	0.4	18.4	3.4	37.6	17.4	503.0
2013	29.8	4.6	84.6	0.0	13.6	38.8							



preceding seven years with 2011 showing a slight decline in the total annual rainfall.

Source: Australian Bureau of meteorology


Community Profile

Population Figures

Below find the latest statistics for the Brewarrina shire area according to the 2011 census which became available on 21 June 2012.

PERSON CHARACTERISTICS 	Brewarrina Shire	% of total persons in Region	Australia 	% of total persons in Australia
Total persons (excluding overseas visitors)	1,766	-	21,507,717	-
Males	884	50.1%	10,634,013	49.4%
Females	882	49.9%	10,873,704	50.6%
Indigenous persons (comprises Aboriginal and Torres Strait Islander)	1,043	59.1%	548,369	2.5%

In the 2011 Census, there were 1,766 persons usually resident in Brewarrina (A) (Statistical Local Area): 50.1% were males and 49.9% were females. Of the total population in Brewarrina (A) (Statistical Local Area) 59.1% were Indigenous persons, compared with 2.5% Indigenous persons in Australia.

AGE 	Brewarrina Shire	% of total persons in Region	Australia	% of total persons in Australia
Age groups:				
0-4 years	179	10.1%	1,421,050	6.6%
5-14 years	268	15.2%	2,722,975	12.7%
15-24 years	258	14.6%	2,866,471	13.3%
25-54 years	700	39.6%	8,981,547	41.8%
55-64 years	184	10.4%	2,503,360	11.6%
65 years and over	177	10.0%	3,012,289	14.0%
Median age of persons	33	-	37	-

In the 2011 Census the median age of persons in Brewarrina (A) (Statistical Local Area) was 33 years, compared with 37 years for persons in Australia.

Employment

There were 710 people who reported being in the labour force in the week before Census night 2011 in the Brewarrina local government area. Of these 58.3% were employed full time, 22.5% were employed part-time and 12.5% were unemployed.

INDUSTRY OF EMPLOYMENT (Employed persons aged 15 years and over)

MAIN RESPONSES IN SELECTED REGION	Brewarrina Shire	% of employed persons aged 15 years and over in Region	Australia	% of employed persons aged 15 years and over in Australia
Sheep, Beef Cattle and Grain Farming	143	21.9%	133,275	1.2%
School Education	84	13.6%	138,795	4.6%
Local Government Administration	58	9.4%	136,792	1.4%
Hospitals	30	4.8%	361,011	3.6%
Public Order and Safety Services	24	3.9%	156,404	1.6%

Of the employed people in Brewarrina shire during the 2011 census, 19.5% worked in sheep, beef cattle and grain farming. Other major industries of employment included school education 13.6%, Local Government administration 9.4%, hospitals 4.8% and public order and safety services 3.9%.

(Data provided by the Australian Bureau of Statistics)

Development applications

The table below illustrates the number of development applications received for calendar years 2006 – 2011 as well as the gross value of the development.

Calendar Year	Number of DA applications	Gross value of the development
2006	8	\$ 1,171,500
2007	12	\$ 1,974,520
2008	26	\$ 8,063,185
2009	13	\$1,983,824
2010	20	\$2,716,993
2011	14	\$4,657,139
2012	18	\$2,332,790

Land

Introduction

Land is a primary natural resource that underpins the environment, the economy and society.

A significant area of Brewarrina shire is utilised for pastoral activities. Over 2,900 hectares are cultivated, with cotton being the predominant crop, occupying less than 10% of the improved area, most of which is irrigated, when water allocations are available.

Irrigation has made feasible the production of vegetables, forage sorghum, winter cereals, citrus and other horticultural crops such as grapes, pumpkins and rockmelons which could be targeted to niche markets nationally and internationally. However, the prevailing drought had a negative effect on the farmers relying on high water levels to qualify for irrigation quotas.

Merino sheep for wool production on native pastures is the most important and enduring livestock enterprise in the Shire.

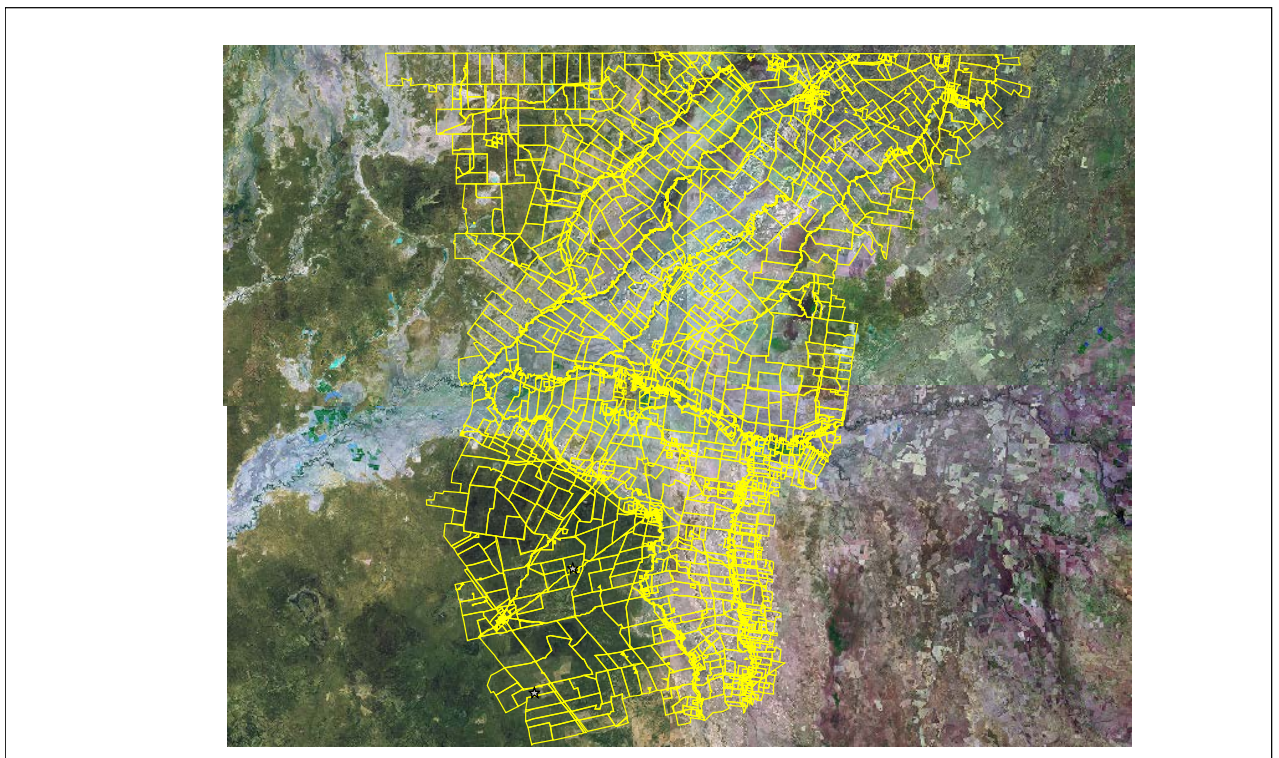


Figure 1 – Aerial imagery of Brewarrina Shire Area

Images, such as figure 1, can be used to show changes in land use over time. Images like this are also useful to provide a snapshot of vegetated areas, major waterways and other larger landscape features. This image indicates the agriculture nature of the Brewarrina shire area and the variation in vegetation type as indicated by the different shades of vegetation. Imagery software such as MapInfo can be utilised to create many different layers to indicate different land use zones, bushfire prone land, council infrastructure etc which are crucial in responsible land use planning.

Brewarrina Shire Council adopted their Local Environmental Plan on 7th December 2012.

Pressure

As a population grows, the demands for infrastructure such as housing, energy, water, transport and waste disposal increases. Councils are responsible for effective and efficient land use planning and this can include the use of Local Environmental Plans (LEP's) rural/urban strategies and State planning policies.

State

Brewarrina Shire Council's draft LEP was placed on exhibition during May and June 2012 and was adopted at the December 2012 meeting.

Response

Brewarrina Shire Council applied for grant funds under round 5 of the Planning Reform Fund to develop a new LEP. The latest round of funding applications with Bourke and Central Darling Shire Councils was successful.

The application was in the form of a joint application and the three councils worked together to develop the new LEP's for each council respectively. Brewarrina Shire Council commenced with the project in early 2009 and a revised draft LEP was on exhibition in June 2012.

The specific objectives in the development of the new LEP are –

- To develop a modern effective planning instrument for the local government area, including mapping, in line with the Standard Instrument Order 2006.
- To identify the specific issues relevant to the LGA and to provide long term goals and outcomes to address these issues in terms of land use planning.

Reclassification of Land

Pressure

It was reported in the previous SoE report 2006/7 that Brewarrina Shire Council has to reclassify land as anomalies existed in the classification of land and this was recognised by the recent public inquiry. Operational land was incorrectly classified as community land e.g. a sewerage treatment plant must be classified as operational land as it used for every day operations of council. On the other hand; a park will be classified as community land as it is land for use and enjoyment by the general public. All council land must be classified either as community land or operational land.

The classification will generally be achieved by a local environmental plan (LEP) but may, in some circumstances, be achieved by resolution of the council (see sections 31, 32 and 33 of the Local Government Act, 1993).

The purpose of classification is to identify clearly which land should be kept for use by the general public (community) and which land need not (operational). The major consequence of classification is that it determines the ease or difficulty with which land may be alienated by sale, leasing or some other means.

Community land must not be sold (except in the limited circumstances referred to in section 45 (4)). Community land must not be leased or licensed for more than 21 years and may only be leased or licensed for more than 5 years if public notice of the proposed lease or

licence is given and, in the event that an objection is made to the proposed lease or licence, the Minister's consent is obtained. No such restrictions apply to operational land.

Classification or reclassification of land does not affect any estate or interest a council has in the land.

The use and management of community land is to be regulated by a plan of management. Until a plan of management is adopted, the nature and use of the land must not change.

The reclassification of land from community land to operational land was successful and was gazetted on the 20 March 2008.

Road building projects

Pressure

Local government is responsible for the construction and maintenance of many roads and related infrastructure such as bridges, footpaths and stormwater channels. Councils are often involved in maintenance activities such as patching, regrading and street sweeping.

Councils must keep existing roads to a standard acceptable to the community, whilst in outer urban and growing regional areas they must provide new infrastructure to meet the demands of developing areas.

Due to the above pressures by the community council has to build new roads, maintain existing ones and undertake future planning in this regard to address future demands.

State

Road building projects were undertaken by Brewarrina Shire Council.

Some of the advantages of sealed roads over dirt roads are the following:

- Dust suppression – Goodooga is a very dry area of NSW and dust generation is a major problem as a nuisance and environmentally.
- Black dirt roads are basically not accessible during any wet seasons or after just a few millimetres of rain.
- Bitumen roads are improving the rendering of other services like health and emergency services, transport and overall accessibility of the area.
- All weather linkage between towns.

Response

Council is continually busy improving existing road infrastructure and replacing dirt roads with bitumen roads in order to deal with community demands and to render better services to its community.

Atmosphere

Introduction

The earth's atmosphere is a layer of gases surrounding the planet earth that is retained by earth's gravity. The atmosphere protects life on earth by absorbing ultraviolet solar radiation, warming the surface through heat retention (greenhouse effect), and reducing temperature extremes between day and night. Dry air contains roughly (by volume) 78.08%

nitrogen, 20.95% oxygen, 0.93% argon, 0.038% carbon dioxide, and trace amounts of other gases. Air also contains a variable amount of water vapor, on average around 1%.

The atmosphere has a mass of about five quadrillion (5×10^{15}) tonnes, three quarters of which is within about 11 km (6.8 mi; 36,000 ft) of the surface. The atmosphere becomes thinner and thinner with increasing altitude, with no definite boundary between the atmosphere and outer space. An altitude of 120 km (75 mi) is where atmospheric effects become noticeable during atmospheric re-entry of spacecraft. The Kármán line, at 100 km (62 mi), also is often regarded as the boundary between atmosphere and outer space.

The atmosphere and air quality has a critical role to play in regulating global weather and climate. Human activity impacts significantly on the atmosphere, largely through production of greenhouse gases from motor vehicles, industry emissions and residential activities. Greenhouse gases are not the only concern with regard to air quality, with others including wood smoke pollution, backyard burning and offensive odours.

General Air Quality

Current Situation, Pressures and State

Due to the local area's small population, very low density settlement, the lack of any heavy polluting industry and the area's characteristic air movements and geographical topography, contributions to air pollution are not considered a major problem within Brewarrina Shire LGA.

The drought of the past few years had a detrimental effect on the socio-economic status of the shire as a whole. In the current economic situation very little development took place and the pressures on the air quality of the shire is very minimal and insignificant. Activities like aerial spraying and local industries such as sand blasting activities caused some air pollution in the past, but with the current economic situation this problem is non-existent.

The air quality within Brewarrina Shire LGA is very good especially when compared to many of the suburbs of Sydney and the number of times their areas have a High Regional Pollution Index.

Response

Council officers respond to a range of complaints or "customer requests" from the community regarding a wide range of issues, including air and odour complaints.

Council will attend to any complaints regarding air pollution in accordance with legislative guidelines. Currently no pressures exist in this regard demanding a response from Council.

Pressure and State

Brewarrina Shire Council is responsible for management of a large number of facilities and assets within the shire, including the Visitor Information Centre, Library, Council offices, Water and Sewerage Treatment Plant, streetlights and the community hall.

As such, it is in an ideal position to not only reduce energy consumption in its own operations, but also encourage energy efficiency principles and design to the community.

Other activities of council such as the operation of waste management facilities also contribute green house gases to the atmosphere through landfill emissions. Please see clause 4.4.

Response

Council has identified areas where energy consumption can be reduced and implemented energy efficiency measures where possible.

In 2007/2008 alone, Council abated 540,890 kg of greenhouse gases, largely through:

- replacing all lighting with energy efficient light bulbs;
- replacing old star-delta switch gear on the pumping stations with soft starters;
- Diversion of green waste and recycling (steel) from landfill;
- Tree plantings;
- Good rain season with a large reduction in pump running times.

Landfill Emissions

Pressure

Brewarrina Shire Council recently participated in a NetWaste project to assess landfill emissions from council owned waste management facilities.

NetWaste contracted Hyder Consulting Property Limited to perform a general assessment and to submit a report on landfill emissions. The report was prepared to include all the participating councils in the project.

Methane emissions from landfills are included under the Australian National Greenhouse and Energy Reporting (NGER) Act 2007, and are likely to be included under the Government's Carbon Pollution Reduction Scheme (CPRS), which is currently being debated in Parliament (although emissions from waste deposited prior to the commencement of CPRS are likely to be excluded).

Landfill owners are in a unique situation as they could be liable for emissions originating from the decomposition of organic waste over an extended period of time. In the form presently being considered by Parliament, from 2011/2012 the CPRS will require landfills generating more than 25,000 tonnes of CO₂-equivalent (CO₂-e) (or 10,000 tonnes CO₂-e if a proximity rule applies – see below for more detail) to acquire emissions permits. Hyder understands that under the NGER scheme, the Commonwealth will require landfills to report emissions which exceed the same thresholds. The NGER Act applies to 'controlling corporations', which creates some ambiguity with respect to councils, as discussed below.

Waste contains organic material, such as food, paper, wood and garden trimmings. Once waste is deposited in a landfill, microbes begin to consume the carbon in organic material, which causes decomposition. Under the anaerobic conditions prevalent in landfills, the microbial communities contain methane-producing bacteria. As the microbes gradually decompose organic matter over time, methane (approximately 50%), carbon dioxide (approximately 50%), and other trace amounts of gaseous compounds (< 1%) are generated and form landfill gas.

The gradual decay of the carbon stock in a landfill generates emissions even after waste disposal has ceased. This is because the chemical and biochemical reactions take time to progress and only a small amount of the carbon contained in waste is emitted in the year this waste is disposed. Most is emitted gradually over a period of years.

Methane and carbon dioxide (CO₂) are greenhouse gases (GHG), whose presence in the atmosphere contribute to global warming and climate change. Methane is a particularly

potent GHG, and is considered to have a global warming potential (GWP) at least 21 times that of CO₂. In terms of reporting landfill emissions, the Intergovernmental Panel on Climate Change (IPCC) has set an international convention to ignore CO₂ released due to the decomposition or incineration of biogenic sources of carbon (i.e. organic waste). Therefore, only methane emissions from landfill are measured and reported, expressed as tonnes of CO₂ equivalent (i.e. 1 tonne of methane is expressed as 21 tonnes of CO₂-e).

State

Brewarrina Landfill began operation in 1996, and is due to close in 2012/13. The site serves a population of around 1,100. Estimated annual waste tonnages are based on records kept by the contracted landfill operator. Currently, approximately 1000 tonnes of waste are deposited annually, of which an estimated 90% is Municipal Solid Waste (MSW), 5% is Commercial and Industrial Waste (C&I), and 5% is Commercial and Demolition Waste (C&D) waste (estimated by Council, based on records of vehicle loads arriving at the site).

Future waste arising is estimated assuming a 1% growth. For calculations, the NGER default values for the composition of the MSW, C&I and C&D waste streams were used, in the absence of waste audit data for Brewarrina Landfill.

Methane emissions from Brewarrina Landfill do not approach the lower NGER or CPRS threshold of 10 kt CO₂-e. Based on estimates using the FOD-based model, maximum emissions are 726 tonnes CO₂-e, reached in 2012.

Response

The majority of methane emissions are 'legacy emissions', generated by waste already buried at the site; therefore, there is little scope for Brewarrina Shire Council to reduce emissions through waste diversion programmes (i.e. diverting organic matter, such as paper, cardboard, wood, food, and green waste).

Landfill gas capture for flaring would reduce future emissions; however an assessment of the potential impact of flaring is beyond the scope of the present report. There is certainly no economic incentive for emissions reduction at Brewarrina landfill.

Water

URBAN WATER SUPPLIES

Pressure

Brewarrina Shire Council supplies water to numerous residential and commercial residences within urban areas as outlined in the table below. The 'sites' figure represents the number of properties on which Brewarrina Shire Council levies water rates (includes some vacant lots).

TOWN/VILLAGE SOURCE SUPPLY TREATMENT SITES

Town/Village	Source	Supply	Treatment	Sites
Brewarrina	Weir-Barwon river	Raw & Treated	Filtration & Chlorination	482
Goodooga	Artesian bore, Bokhara river	Treated – Bore Raw water- Bokhara River	Bore water: Cooling tower & chlorination	94
Angledool	Private supply	Carted 180KL Oct –Dec 07		13
Weilmoringle	Private supply			0
Gongolgon	Private supply			0
TOTAL				576

Above figures are the same as for the preceding five years. Council has an obligation to ensure that water supplies are suitable for their intended uses. The Australian Drinking Water Guidelines 2004 (ADWG) are the key standards against which NSW Health and local councils assess drinking water quality. The guidelines specify thresholds for drinking water quality amongst other things.

The quality of water supplied by council may vary for a number of reasons, including:

- Environmental changes affect raw water quality, for example river water consistently has an increased sediment load during flood periods.
- Human activities also affect raw water quality, for example river water can carry pesticide residues.
- The types and effectiveness of water treatment processes that are applied to raw water prior to its distribution within urban areas.
- The age and condition of water mains and storage reservoirs. For example periodic cleaning of reservoirs is required to remove sediment.

State

Brewarrina Shire Council assesses potable water quality via a number of sampling programs as detailed within the table below

Monitoring programs associated with urban potable water.

PROGRAM	PURPOSE	FREQUENCY
Potable urban – microbiological	Samples submitted to NSW Health Division of Analytical Laboratories in Sydney to test all Council’s potable urban supplies for contamination by <i>E.coli</i> . Data is also provided on total <i>coliform</i> counts, which are not normally of concern provided samples are free of <i>E. coli</i> .	Permanent basis Brewarrina – Weekly Goodooga – Bi-weekly
Potable urban – chemical	Samples submitted to NSW Health Division of Analytical Laboratories in Sydney to test all Council’s urban	Permanent, twice yearly

supplies for compliance with chemical thresholds specified in the ADWG.

Each sample is analysed for pH, turbidity, Total Dissolved Solids (TDS), aluminium, antimony, arsenic, barium, boron, cadmium, calcium, chloride, chromium, copper, cyanide, fluoride, iodine, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, nitrate, nitrite, selenium, silver, sodium, sulfate, total hardness as CaCO₃, true colour, zinc.

Below are the average results for bacteriological sampling of potable water for Brewarrina and Goodooga for 2012/13:

Results for Brewarrina

Summary Display											
Parameter	Guideline Value	Mean	Median	Standard deviation	Min.	Max.	Number of samples	Number of exceptions	95th percentile	5th percentile	% meeting guideline values
Total Coliforms	0.0000 cfu/100 mL	1.2558	0.0000	4.5622	0.0000	19.0000	43	4	8.7379	0.9500	91
E. coli	0.0000 cfu/100 mL	0.0233	0.0000	0.1525	0.0000	1.0000	43	1	0.2734	0.0500	98

Results for Goodooga

Summary Display											
Parameter	Guideline Value	Mean	Median	Standard deviation	Min.	Max.	Number of samples	Number of exceptions	95th percentile	5th percentile	% meeting guideline values
Total Coliforms	0.0000 cfu/100 mL	1.6522	0.0000	5.9819	0.0000	27.0000	23	2	11.4624	1.3500	91
E. coli	0.0000 cfu/100 mL	0.0000	0.0000	0.0000	0.0000	0.0000	23	0	0.0000	0.0000	100

Summary of results

Town/Village	Issue
Brewarrina	Compliance with guidelines are the following: E-Coli – 98% compliance with guidelines Coli forms- 91% compliance with guidelines
Goodooga	Compliance with guidelines are the following: E-Coli – 100% compliance with guidelines Coli forms- 91% compliance with guidelines

Response

From table 5.3 above it is apparent that total coliforms were found on a number of occasions in the various potable water supplies. The Australian Drinking Water Guidelines indicate that coliforms can be present in drinking water as a result of:

- faecal contamination
- the presence of biofilms on pipes and fixtures
- contact with soil as a result of leaks, fractures or repair works.

Due to their widespread occurrence in soil and water environments, total coliforms (in the absence of *E. coli*) are not regarded as a specific indicator of faecal contamination. The relative abundance of coliforms makes them useful in monitoring the efficiency of water treatment and disinfection processes, sampling techniques etc.

Brewarrina had one water sample with *E-coli* contamination, but the repeat sample proved to be clean. It is suspected that a poor sampling technique and/or external contamination of the sampling jar could have resulted in a positive analysis for *E-coli*.

RIVERS – FLOW AND SALINITY

Pressure

River water is used in a number of ways within the shire, including cotton irrigation, rural domestic water supplies, watering domestic livestock and for urban water supply in town such as Brewarrina.

The shire is located in a semi-arid environment downstream of numerous other water users, including cotton irrigators. Such circumstances contribute to variations in the volume and quality of river water flowing through the shire.

State

Water quality can be assessed in many ways and one of the most common methods within Australia is by salinity. The electrical conductivity of water is generally indicative of the levels of total dissolved solids (TDS), and one of the most common dissolved solids is salt.

The Department of Water and Energy operates a number of river monitoring stations that provide data on electrical conductivity, water levels and volumes. Data derived from a station on the Barwon River at Brewarrina is illustrated in the graph below.

The Australian Drinking Water Guidelines 2004 (ADWG) indicate that the TDS in water should not exceed 500mg/L due to taste considerations. An equivalent figure in electrical conductivity units can be roughly determined by doubling this figure, which is 1,000 us/cm.

High salinity levels are a normal phenomenon in dry months with very minimal flow in the river. Ideally water with a high salinity of above 1000us/cm should not be used for human consumption for periods of longer than 6 months.

Water with a high salinity has a negative impact on the environment, infrastructure bio-diversity etc.

Response

Salinity levels are influenced both by natural processes and the activities of man. In this context it is important to consider medium and long term salinity trends to determine whether river water quality is declining or improving. Electrical conductivity has been monitored for about ten years, but there is probably insufficient data available to conclusively determine at this stage whether salinity is rising or falling.

Ongoing operation of river monitoring stations by the Department of Water and Energy within the shire provides essential data for understanding variations in river water quality. The data is also important for providing an indication of whether actions being taken by Catchment Management Authorities and the community are improving river water quality.

The salinity levels in the Barwon River were fairly low compared with previous years, mainly due to the constant and frequent river flows experienced.

RIVERS – ALGAE

Pressure

Periodic blue green algae blooms within local rivers can degrade water quality within the shire and in the most severe cases make water toxic to the extent that it is unsafe for consumption by people or livestock. Causes of blue-green algal blooms include:

- High water temperature (20-30°C).
- High pH (8-10) and low CO₂ concentration.
- Abundant zooplankton (microscopic animals).
- Low nitrogen to phosphorous ratios (less than 29:1).
- High phosphorous levels.
- Calm water conditions.
- Low light intensity.

In 1991 and 1992 water quality in the Barwon-Darling River system received substantial media and community attention when contamination by blue-green algal blooms made the water toxic and unsuitable for consumption by livestock and people. As a result, a State of Emergency was declared for numerous shires, including Moree, Walgett, Brewarrina, Bourke and Cobar.

State

River water samples are collected by Brewarrina Shire Council staff and analysed by the Department of Water and Energy in Sydney.

Depending on the result of the samples a green, amber or red alert is issued.

Below find an explanation for the different alerts:

Algal Alert Definitions

High Alert (>15,000 cells/ml) – Very high alert (>50, 000 cells/ml):

Algae may be toxic to humans and animals. People should avoid areas where algae can be seen or which have a strong odour and not drink untreated water from the storage because of the risk of eye and skin irritations and stomach upsets. Boiling is not a suitable way of treating water containing blue-green algae and in fact may release more toxins. Dogs and stock are particularly at risk. Owners should keep dogs away from high alert areas and provide alternative watering points for stock. At the high alert level blue-green algae is usually very obvious, appearing as clumps or making the water appear dirty, green or discoloured.

Medium Alert (2000-15, 000 cells/ml):

Blue-green algae may be multiplying in numbers. The water may have a green tinge and musty or organic taste and odours. Alternative drinking supplies should be sought. The water is suitable for recreational use, however people should be cautious as algal concentrations can increase rapidly.

Low Alert (<2000 cells/ml):

Blue-green algae occur naturally at low numbers. At this concentration, algae do not pose a threat for recreational, stock or domestic use. The algae alerts identified through this Riverwatch program are used by Council to warn residents of the health risks to humans and stock. A summary of Brewarrina's three sampling sites for the past seven months forms the basis of the Blue-Green Algae Alert Indicator (State) below.

Response

The town water supply for Brewarrina is drawn from the Barwon River. As a result, during periods when there are medium or higher algae alerts current for the river, activated carbon is used in the water treatment plant to reduce the toxins in the town's filtered water supply.

Brewarrina Shire Council notifies the community in the local newspaper on a monthly basis, during the hot summer months, on the alert status in order to keep them updated on the situation. No alerts were recorded for the reporting period, mainly due to the constant flow in the Barwon River.

WHAT IS COUNCIL DOING TO PROTECT THE BARWON RIVER FROM POLLUTION?

The provision of a storm water system is just one of Council's many responsibilities.

During a rain event thousands of liters of storm water have to be diverted out of town to prevent flooding and property damage. Being a river town all storm water ends up in the river system and unfortunately carries garbage (plastic bags, cans, plastic bottles etc) with it.

During the 2007/8 financial year council in collaboration with the Western Catchment Management Authority engaged the services of a consultant to carry out a review of the Storm Water Management Plan for the Brewarrina urban area.

The review of the Storm Water Management Plan (SMP) was designed to assess the plans, with particular regard to environmental and water quality issues.

The consultant submitted a review of the SMP and made the following key recommendations:

- Installation of Gross Pollutant Traps at key Storm water outlet points. Priority discharge points to be identified by Brewarrina Shire Council and Western CMA.
- Develop and implement a monitoring program for water and storm water; and
- Implement education and awareness programs for industry and the community addressing Storm water issues, water quality issues and litter.

Based on above recommendations council installed nine Gross Pollutant Traps (GPT's) in the storm water system in order to prevent environmental pollution as a result of the town's storm water system.

Below is an example of the GPT's that was installed in Weir Park near the Brewarrina Fish Traps. During the 2009 Clean up Australia Day more than 15 large garbage bags were filled with garbage in this area.

The majority of the garbage was transported to this location through the storm water system. The GPT's will remove 99% of the garbage from the storm water system and achieve excellent environmental outcomes. Council staff will periodically service and maintain the GPT's to ensure maximum performance.



Gross Pollutant Trap in Weir Park near the Brewarrina Fish Traps.

Biodiversity

Biodiversity is defined as: "The variety of life forms, the different plants, animals and micro-organisms, the genes they contain, and the ecosystems they form. Biodiversity includes genetic diversity, species diversity and ecosystem diversity."
NSW Government, 2008

Biodiversity is essential to functioning ecosystems which maintain important processes on which all life depends. Biodiversity indicators have been selected to measure and gauge local and regional issues of noxious weeds and pests, Landcare and related activities and the condition of threatened species and ecological communities.

Weeds

Pressure

A wide range of agricultural and environmental weeds exist within Brewarrina Shire Council. Council is a local control authority under the Noxious Weeds Act 1993.

A local control authority has the following noxious weed control functions in relation to the area for which it is the local control authority (the **local area**):

- (a) Responsibility for the control of noxious weeds by occupiers of land (other than public authorities or local control authorities),
- (b) Control of noxious weeds on land owned or occupied by the local control authority and on certain roads and watercourses, rivers or inland waters as provided by this Act,
- (c) To ensure, so far as practicable, that owners and occupiers of land (other than public authorities or other local control authorities) carry out obligations to control noxious weeds imposed under this Act,
- (d) To develop, implement, co-ordinate and review noxious weed control policies and noxious weed control programs,
- (e) Inspection of land within the local area in connection with its noxious weed control functions,
- (f) To report, at the request of the Minister, on the carrying out of the local control authority's functions under this Act,
- (g) To co-operate with local control authorities of adjoining areas to control noxious weeds, where appropriate,
- (h) Any other functions that are conferred or imposed on the local control authority by or under this Act.

State and Response

The following weeds are present in the shire area or form part of council's weeds control responsibilities.

Class 1 Noxious Weeds

Parthenium Weed

All known areas of Parthenium Weed were inspected during the past twelve months with no infestations occurring from the original infestations. No new infestations were discovered during the past 12 months.

Bathurst/ Noogoora Burrs

OBJECTIVE	They are here to stay.
INFESTATIONS	Found in 95% of the shire.
NEW OUTBREAKS	Nil. Already there.
POLICY/ PLANNING	To continue treatment as time permits.
MAPPING	As per council's weed map.
REGULATION	Noxious Weeds Act 1993.
FACILITATION	Carry out inspections throughout the year.
COUNCIL CONTROL	Council sprays own areas.
FUTURE	To encourage land owners/ occupiers to control these weeds.

Spiny Burr Grass

OBJECTIVE	To further reduce known infestations and continually be aware of the possibility of new outbreaks.
INFESTATION	1% of council area has Spiny Burr Grass.
NEW OUTBREAKS	Two new infestations in the north west of the shire.
POLICY/ PLANNING	As per regional plan and council policy.
MAPPING	Known areas are on council's weeds maps.
REGULATION	Noxious Weeds Act 1993 and property inspections.
PUBLICITY	Local media and noxious weeds brochure.
FACILITATION	Inspections, hire of contractor.
COUNCIL CONTROL	Council sprays all land under its control.
FUTURE	As per regional weed plan.

Common and Tiger Pears

OBJECTIVE	Continue the spread of biological agents.
INFESTATION	Castlereagh Highway and Old Park.
NEW OUTBREAKS	Nil.
POLICY/ PLANNING	As per Regional Weed Plans.
MAPPING	Infestations are mapped on council's weeds maps.
REGULATION	Noxious Weeds Act 1993 and property inspections.
PUBLICITY	Ag Fact Sheets and noxious weeds brochures.
FACILITATION	Carry out inspections throughout council's area.
COUNCIL CONTROL	Noxious Weeds Officer removes and burns it from council land.
FUTURE	Continue with biological control.

Golden Dodder

OBJECTIVE	To eradicate known infestations.
INFESTATION	1% infested.
NEW OUTBREAKS	New outbreaks are continually found, mainly on road transport routes.
POLICY/ PLANNING	Covered under council's noxious weeds policy.
MAPPING	Mapped on council's weeds maps.
REGULATION	Continued property and roadside inspections.
PUBLICITY	Noxious weeds guide and Agfacts.
FACILITATION	Meet occupiers/ owners where new infestations have been discovered.
COUNCIL CONTROL	Council carries out its own spray program.
FUTURE	As per weed control plan.

African Boxthorn

OBJECTIVE	To eradicate isolated plants and continually suppress numbers around towns and villages.
INFESTATION	3% of Council area.
NEW OUTBREAKS	Only isolated plants.
POLICY/ PLANNING	Covered council's and regional weed plans.
MAPPING	Known areas are on council's weeds maps.
REGULATION	Noxious Weeds Act 1993 and property inspections.
PUBLICITY	Agfacts and noxious weeds guides.
FACILITATION	Consulting with stakeholders and hire of contractor.
COUNCIL CONTROL	Council carries out its own spray program.
FUTURE	As per weed control plan.

Green Cestrum

OBJECTIVE	To continually suppress and destroy infestations of Green Cestrum.
INFESTATION	Less than 1% of area.
NEW OUTBREAKS	Nil.
POLICY/ PLANNING	As per council's and regional weed plans.
MAPPING	Known infestations are on council's weeds maps.
REGULATION	Implement regional weed control plans and continue inspections.
PUBLICITY	Noxious weed guide, Agfacts and local media.
FACILITATION	Close working with landholders of known infestations.
COUNCIL CONTROL	Council carries out its own spraying program.
FUTURE	As per regional weed control program.

Johnson Grass

OBJECTIVE	All new outbreaks are to be treated in the year in which they are discovered on private and public lands.
INFESTATION	Less than 0.5%.
NEW OUTBREAKS	Two new infestations found.
POLICY/ PLANNING	As per council's noxious weeds plan.
MAPPING	Any known infestations are recorded on council's weeds maps.
REGULATION	Property Inspections and noxious Weeds Act 1993.
PUBLICITY	Local media and mail out with quarterly rates notices.
FACILITATION	Cooperation between landholders and council in spray programs.
COUNCIL CONTROL	Council carries out its own spray program.
FUTURE	Implementation of the regional weed control plan.

Parkinsonia

OBJECTIVE	To fully control infestation.
INFESTATION	Less than 1% of area infested.
NEW OUTBREAKS	Only isolated plants.
POLICY/ PLANNING	Covered under council's noxious weed policy.
MAPPING	Known infestations are mapped on council's weeds maps.
REGULATION	Continued property and roadside inspections.
PUBLICITY	Noxious weed guide and Agfacts.

FACILITATION	Co-operation between landholders and council in spraying program.
COUNCIL CONTROL	Council carries out its own spraying program.
FUTURE	As per Parkinsonia Control Plan.

Response

Control plans

Council has the following following control plans in place;

- Pear Species (Goodooga and surrounding areas)
- Parkinsonia
- Parthenium Weed
- Spiny Burr Grass
- African Boxthorn
- Mimosa Bush

Council will continue to develop local control plans as time and funds permit. Our operational program also ties in with weed planning at a local level. All planning is linked to the regional weed plans. Brewarrina Shire Council has accepted that weed planning is now an important part of weed management and will be there in the future years.

Inspectorial

Brewarrina Shire Council endeavors to gain the cooperation of landholders and government agencies in the control of noxious weeds, believing cooperation is better than confrontation and by demonstrating benefits to be obtained by returning the land to beneficial production, most landholders are cooperative with Council's Weeds Officer, creating a comfortable liaison between the two. In the past twelve months, Council has increased the number of property inspections carried out. If Council's Weeds Officer finds a problem, he is to issue an official warning notice requesting works to be carried out. If landholders fail to comply with the notice's request, a Section 18 Notice will be issued. If landholders fail to comply with the Section 18 Notice, an Infringement Notice may be issued.

Mapping

Council developed last year Noxious Weeds Inspection Reports. Council has for the first time recorded W1 weeds using GPS and has recorded these infestations on maps.

New Weeds

Any new weed found is recorded and mapped, and if it is a W1 Weed, it reported to NSW Agriculture.

Land Clearing

Pressures and state

Council is not currently asked to comment on tree clearing applications in the region. However, it does place strict conditions on certain developments with regard to the areas which can be cleared and the mitigation measures which must be in place prior to clearing and earth works. The Indicator shows that there is very little clearing occurring in Brewarrina Shire, therefore is not considered a major impact on land-use in the region.

The entire LGA was drought declared and the majority of clearing, which is occurring, is “pushing scrub” for stock fodder in these dry times. This practice is currently exempt under the drought declarations and the Native Vegetation Conservation Act 1997.

Response

There has been ongoing regulatory reform of native vegetation legislation in NSW in recent years. The Native Vegetation Act 2003 has the stated aims of changing laws relating to the management of native vegetation in NSW by:

- ending broad scale clearing unless it improves or maintains environmental outcomes;
- encouraging revegetation and rehabilitation of land with native vegetation; and
- rewarding farmers for good land management.

Although a new ‘Public Register of Approved Clearing PVPs and Development Applications’ was established during 2006, contemporary information on development consents or Clearing PVPs issued by the various Catchment Management Authorities within the Brewarrina Shire is not readily available. This represents a gap in the information available on clearing.

ENDANGERED ECOLOGICAL COMMUNITIES

Pressure

A number of types of woodlands that exist within the shire have been extensively cleared and modified since the arrival of European man. Fragmentation, overgrazing, weed invasion and alteration of flood regimes, amongst other things, can pose a threat to the long term viability of such ecological communities.

State

Data on the extent and viability of the various ecological communities within the shire is incomplete.

Response

The NSW Threatened Species Conservation Act establishes an independent scientific committee, not subject to the control and direction of the Government, to determine which species, populations and communities are to be listed as threatened. That committee has determined that a number of ecological communities which are known to exist within the Shire should be regarded as endangered ecological communities.

They include:

Scientific name Prefer <u>common name</u> ?	Type of species	Level of threat	Priority actions Show only: <u>high</u> <u>medium</u> <u>low priority</u>
<u>Anomalopus mackayi</u>	Reptiles	Endangered	1. Study movement patterns and habitat use through mark-recapture techniques. (Medium priority) See <u>all priority actions</u> for this species.
<u>Brigalow within the Brigalow Belt South, Nandewar and Darling</u>	Threatened Ecological Communities	Endangered Ecological Community	1. Determine optimal management regimes for management of high quality remnants (e.g. fire regimes). (High

<u>Riverine Plains Bioregions</u>			priority) See <u>all priority actions for this species.</u>
<u>Brigalow-Gidgee woodland/shrubland in the Mulga Lands and Darling Riverine Plains Bioregions</u>	Threatened Ecological Communities	Endangered Ecological Community	1. Determine optimal management regimes for management of high quality remnants (e.g. fire regimes). (High priority) See <u>all priority actions for this species.</u>
<u>Chalinolobus picatus</u>	Bats	Vulnerable	1. Determine the effectiveness of PVP assessment, offsets and actions for bats. (Medium priority) 2. Identify the effects of fragmentation on the species in a range of fragmented landscapes. (For example from cropping & cotton areas, grazing lands of high and low intensity to large remnants). (High priority) 3. Identify the importance of artificial water sources and potential impact of capping of bores/ bore drains and decommissioning of ground tanks & dams. (Medium priority) 4. Research the effect of different burning regimes. (For example in Mulga, Mallee and "invasive native scrub" associations). (High priority) See <u>all priority actions for this species.</u>
<u>Cinclosoma castanotus</u>	Birds	Vulnerable	1. Undertake studies into the life history and effect of threatening processes on the species. (High priority) See <u>all priority actions for this species.</u>
<u>Ctenotus pantherinus ocellifer</u>	Reptiles	Endangered	1. Annually monitor ecological parameters to determine population viability (e.g. breeding success, demography, diet etc). (Medium priority) 2. Research the ecology, life history and habitat requirements of this little-known species. (Medium priority) See <u>all priority actions for this species.</u>
<u>Dasyurus maculatus</u>	Marsupials	Vulnerable	1. Collect genetic samples from all Spotted-tailed Quoll populations during field surveys and regular monitoring activities. (Low priority) See <u>all priority actions for this species.</u>

<u>Ipomoea diamantinensis</u>	Herbs and Forbs	Endangered	<p>1. Conduct experimental research into the effects of grazing and flooding disturbances. (High priority)</p> <p>2. Undertake field studies to monitor seedling establishment and survivorship. (High priority)</p> <p>See <u>all priority actions for this species.</u></p>
<u>Nyctophilus timoriensis</u>	Bats	Vulnerable	<p>1. Research the roosting ecology of this species. For example, to identify the attributes of key roosts. . (High priority)</p> <p>2. Study the biology, ecology and habitat requirements of the species in different western environments, such as mallee and ironbark-cypress forest. (Medium priority)</p> <p>See <u>all priority actions for this species.</u></p>
<u>Oxyura australis</u>	Birds	Vulnerable	<p>1. Assess wetland health and threats, including frequency of inundation, condition of and threats to key plant species such as lignum, degree of alteration to water flows and appropriate flow regimes (frequency & extent) to sustain breeding. (Medium priority)</p> <p>See <u>all priority actions for this species.</u></p>
<u>Pachycephala inornata</u>	Birds	Vulnerable	<p>1. Undertake studies into the life history and effect of threatening processes on the species. (Medium priority)</p> <p>See <u>all priority actions for this species.</u></p>
<u>Phaps histrionica</u>	Birds	Endangered	<p>1. Monitor WildCountry research program on this species to determine management strategies. (High priority)</p> <p>See <u>all priority actions for this species.</u></p>
<u>Phascolarctos cinereus</u>	Marsupials	Vulnerable	<p>1. Conduct research on the relative impacts of different levels of habitat loss and fragmentation on koala populations, and on the ability of koalas to move between patches, relating to both daily movements and long-term dispersal. (Medium priority)</p> <p>See <u>all priority actions for this species.</u></p>
<u>Saccolaimus flaviventris</u>	Bats	Vulnerable	<p>1. Identify the effects of fragmentation on the species in a range of fragmented landscapes. . (Low priority)</p>

			2. Undertake long-term monitoring of populations cross tenure in conjunction with other bat species to document changes. (Medium priority)
			See <u>all priority actions for this species.</u>
<u>Stictonetta naevosa</u>	Birds	Vulnerable	1. Assess wetland health and threats, including frequency of inundation, condition of and threats to key plant species such as lignum, degree of alteration to water flows and appropriate flow regimes (frequency & extent) to sustain breeding. (Medium priority)
			See <u>all priority actions for this species.</u>
<u>Swainsona murrayana</u>	Herbs and Forbs	Vulnerable	1. Conduct experimental studies into the effects of fire, grazing, flooding and other disturbances. (Medium priority)

Waste

URBAN WASTE DISPOSAL

Pressure

The main waste depots within the shire are located near the two largest towns, Brewarrina and Goodooga. Both these facilities will come to the end of their useful life in the short to medium term. A small facility is operated at Angledool. Substantial expenses are incurred by Brewarrina Shire Council to establish, operate and maintain the waste depots.

Brewarrina tip received approximately 950 - 1000 tonnes of waste, while Goodooga received 450 tonnes. Angledool is a village tip and received only 5 tonnes of domestic waste for the last financial year. As there is no weighbridge installed at the landfill sites, the figures are based on the amount of space in the landfill consumed for the year in cubic meters, and then converted to tonnes using the NSW EPA calculator model.

State

Birrange Training Enterprise Pty Ltd provides a free recycling service to Brewarrina residents and businesses. The collection takes place on Tuesday mornings and on an as-needs basis for business. Birrange sells recycled waste to assist with operating costs. This program has been successful however there is an opportunity for increased community participation.

When it comes to the protection of the environment one can always reason that every bit helps. Brewarrina Shire Council was fortunate enough to receive grants from the Western CMA to establish a technology park at the Brewarrina depot.

The purpose of the technology park is to educate the community on waste minimisation techniques, worm farming, recycling and green shopping. This project commenced in the 2007/08 financial year. Currently due to staff shortages this initiative has come to a halt. Brewarrina Shire Council has restructured and a position was created for an environmental support officer. One of the responsibilities of this employee will be to educate community members/school kids etc about the environment, waste minimisation techniques and the like.

Response

Opportunistic recycling is undertaken at Brewarrina waste depot. Approximately 100 tonnes of scrap metal was recycled in the last financial year as part of a NETWASTE initiative. The recovery of waste metal over the last three years substantially added extra space to the landfill and extended the useful lifespan of the facility.

Brewarrina Shire Council has completed the development of a new cell at the Brewarrina landfill site which is currently being utilised. Planning for a new cell at Goodooga will occur in the 2012/13 financial year along with a revised layout of the site which will include separation of materials.

Brewarrina Shire Council despite the current constraints regarding recycling; recycles scrap metal, lead acid batteries and old automotive oil. A private operator has commenced a recycling service in the Shire which is expected to divert valuable material from land fill.

Brewarrina Shire Council installed two waste oil recycling depots. Depots are installed at the Goodooga and Brewarrina Council depots and are available to any person who desires to dispose of old motor oil. 4500 litres of used automotive oil was recycled in 2008/9 which significantly reduced environmental pollution and promoted the reuse of this waste product.

Noise

Domestic noise

Noise is reported as an individual environmental sector in the SoE report as it is becoming an increasingly important issue in urban areas. Noise can be defined as "undesirable sound", while noise pollution can be defined as "unwanted or offensive sounds that unreasonably intrude into our daily activities" (EPA, 1997). Noise can have a number of undesirable effects depending upon its intensity, frequency, duration and the time of day when it occurs. Noise can affect our wellbeing in a number of ways, including annoyance reaction, sleep disturbance, interference with communication, performance effects, effects on social behaviour and hearing loss (EPA, 1997).

Pressure

Noise is rarely regarded as a significant issue within the shire as there is few substantial noise generating developments. Most problems arise in a domestic context with issues such as a barking dog or noisy neighbours.

State

Council received sporadic complaints about noisy neighbours or loud music. This is very limited and is mostly dealt with by the NSW Police as most of the complaints are after hours.

The main source of noise in urban areas is road traffic however; domestic animals, music and so on can be important sources of local disturbance. Aircraft noise, and industry, can also have a regional impact. Many complaints regarding noise nuisance are made to Councils, the NSW EPA and the Police every year.

Noise in the community comes from a variety of sources. Under the Protection of the Environment Operations Act 1997 and associated Regulations, noise is controlled by the EPA, Council and by the Police.

Council issues noise abatement notices in accordance with the regulations, where appropriate. Council does not have any noise abatement notices in effect during this financial year.

Council received only three complaints in the last financial year. Complaints were mostly about loud music.

Response

Council followed up complaints and dealt with them in accordance with the provisions of the Protection of the Environment Act.

The NSW Police Services issued a few Noise Abatement Notices and directions and it seemed to have resolved the problem. Council will keep a close eye on noise related complaints and deal with them accordingly.

Aboriginal and Non-Aboriginal Heritage

Pressure and State

Many places in Brewarrina shire have both natural and cultural heritage values. Heritage items identified in the Shire include properties, monuments, town and farm buildings and miscellaneous structures.

There are a number of levels of significance recognised for heritage items. These include national, state, regional and local heritage. The Brewarrina shire area contains many items of state, regional and local heritage significance.

State and regional heritage items are determined as significant at the state and regional level by the Heritage Council of NSW, Department of Environment and Climate Change (DECC), Planning NSW, other government agencies and the National Trust of Australia (NSW).

Local heritage items have been determined as such, based on local government heritage studies, and include those items identified by the local community as being of social or historic interest. The Brewarrina Shire Aboriginal Heritage Study was completed in the 2012/13 year by Council's Heritage advisor Dr Laila Hugland and adopted by council.

A full list of heritage items in the Brewarrina Shire Local Government Area (LGA) can be found in the Shire Council's Local Environment Plan (2000).

Heritage places are well recognised as a finite, scarce and non-renewable resource. They can quickly fall into decay, sometimes accelerated by unintentional human activity. While newer sites are constantly being added to a historical record, they cannot replace the values, meanings or information content of earlier places that precede them. Because of the limited number of earlier natural and cultural heritage resources in the Brewarrina Shire they are therefore considered of irreplaceable value.

Pressures on Brewarrina Shire's heritage items have been identified as authorised modifications, lack of maintenance, reclassification of heritage significance, unauthorised modifications and fire.

Response

Aboriginal heritage: Brewarrina first with the second heritage listing in NSW

The Minister for Aboriginal Affairs, Milton Orkopoulos (2006), announced that the NSW Government has listed the Brewarrina Aboriginal reserve mission on the State Heritage Register.

This listing makes Brewarrina the only town in New South Wales with two State Heritage Register listings of Aboriginal significance.

Brewarrina's importance in the history of Aboriginal New South Wales is evident and this decision recognises the cultural, spiritual, social and historical importance of the mission to Aboriginal people from NSW and south-western Queensland.

Brewarrina Aboriginal Mission, located in the traditional country of the Ngemba people, was the longest-running mission in NSW, operating from 1886 to 1966.

Over the years, the Brewarrina Mission housed Aboriginal people from as far away as Tibooburra, Angledool, Goodooga and Culgoa, as well as the Brewarrina district. Today, only the cemetery remains and the last burial there took place in 1971.

The other site is Ngunnhu, the ancient stone fish trap complex located on the Barwon River which was developed an estimated 40,000 years ago.

Facts – Aboriginal Reserve Mission

The Brewarrina Aboriginal Mission was the oldest institutional-type community in the state that was still managed in 1965. Brewarrina Mission was the first institution formally established by the Aborigines Protection Board as part of its policy to segregate Aboriginal people. Over the years, the Brewarrina Mission was used to house other Aboriginal people from Tibooburra, Angledool, Goodooga and Culgoa to form the reserve which operated between 1886 - 1966 and was one of the longest running reserve stations in NSW.

During the reserve period many Aboriginal people died and were buried in the reserve cemetery. The cemetery is no longer used by the community its integrity is held high within the values of the Aboriginal people. The entire site of Brewarrina Mission including its cemetery is a significant place to the many Aboriginal tribes including Ngemba and Murrawarri tribe as a 'place of belonging'.

The place retains its high integrity in its cultural, spiritual, social and historical values to many Aboriginal people across NSW.

Date Significance Updated: 21 Aug 2006 (*Date of listing as State Significant Heritage Site*)

Assessment of Significance

Assessment of Significance

SHR Criteria a) The Brewarrina Mission is the oldest institutional type community in the state. It is associated with the significant historical phase as being the first institution formally established by the Aboriginal Protection Board in 1886. While there are no remaining buildings left, the original cemetery remains within the mission site which maintains the continuity of the historical activity of an Aboriginal settlement.

SHR Criteria b) The site of the Brewarrina mission and the cemetery is evidence of the occupation of Aboriginal people. The station was the oldest institutional-type community in the state that was still managed as such in 1965. Established in 1886, Aboriginal people were relocated 10 miles east of the town on the opposite bank of the Barwon River. The mission is associated with the removal of many Aboriginal people from their 'homes' from as far as Tibooburra, Angledool, Walgett, Goodooga and Collenanebri and relocating them to the Brewarrina Mission during the 1930's. The girls dormitory was also significant as it was utilised by the Aboriginal Protection Board to house young girls who were forcibly removed from their families to be educated in domestic work and then sent out in NSW to work.

SHR Criteria d) Brewarrina Mission has a strong and special association for many Aboriginal people

[Social Significance] for its historical, social and cultural values and is a place of belonging to those of the Ngemba and Murwarri tribes. While many Aboriginal people were removed from their traditional home lands and forcibly removed to the mission, Brewarrina Mission remains an important part to the community's sense of place.

SHR Criteria g) Brewarrina Mission is highly significant to many Aboriginal people within NSW to [Representitiveness] their cultural heritage values. The area is able to demonstrate the principal characteristics of the many Aboriginal people who lived at the mission during 1886 - 1966. Being the site of the first Aboriginal Protection Board institutionised community the area has the attributes to demonstrate the way of life and customs of those who lived and died on the mission. Although there are no physical buildings remaining, the original cemetery is all the remains and it is maintained by members of the community.

Local Heritage Fund

The Local Heritage Fund is provided by the State Heritage Fund to provide small grants to encourage local heritage projects in conjunction with Council.

A grant of \$3,250 was approved by the Heritage Fund for 2012/13, on a \$1 for \$3 basis to retain the Heritage Advisor.

The Local Heritage Fund during 2012/13 payed out a total of \$12,080 to two heritage projects and reimbursement of \$4,026 was received by the State Heritage Fund.

Based on the funding program approved by Heritage Fund, heritage project are funded on the following basis:

Heritage fund	- 17%
Council	- 33%
Owner of Property	- 50%

This funding applies only to heritage listed properties in Brewarrina Shire that is approved by Council's Heritage Advisor and the Heritage Fund.

Brewarrina Shire Community Based Heritage Study

Council decided that a crucial element in managing the heritage of the shire is knowing what actually existed in the community. Council's Heritage Advisor was contracted to compile this study over a number of years. It was completed in 2008.

This document identifies the heritage items, buildings and areas within the shire. It gives a brief description of each item complete with photographs, local significance and associated history and stories where known.

It focuses largely on the non-European heritage of the region and notes that although very thorough there are still items and areas which can be investigated in the future.

Additional Information

For more information on the environmental matters covered in this report the following government agencies, and their web sites, will be of interest.

- Status of coolibah black box woodlands as an Endangered Ecological Community
http://www.nationalparks.nsw.gov.au/npws.nsf/Content/coolibah_black_box_woodland
- Data on threatened species, populations and ecological communities
<http://threatenedspecies.environment.nsw.gov.au/tsprofile/index.aspx>
- NSW Natural Resources Atlas, <http://www.nratlas.nsw.gov.au/wmc/savedapps/nratlas>
- Ecologically Sustainable Development, <http://www.deh.gov.au/esd/>
- NSW Government State of the Environment indicators,
<http://soedirect.nsw.gov.au/app/index.jsp>
- Murray–Darling Basin Commission, <http://www.mdbc.gov.au/>
- Aquatic Ecological Community of the lower Darling River
http://www.fisheries.nsw.gov.au/threatened_species/general/content/darling_river
- NSW State Heritage Inventory and State Heritage Register,
http://www.heritage.nsw.gov.au/07_subnav_02.cfm
- Register of the National Estate, <http://www.ahc.gov.au/register/index.html>
- Public register under the Protection of the Environment Operations Act 1997
<http://www.epa.nsw.gov.au/prpoeo/index.htm>
- River water quality indicators <http://www.waterinfo.nsw.gov.au/>
- Public Register of Approved Clearing PVPs and Development Applications
<http://www.nativevegetation.nsw.gov.au/pams/PublicRegisterSearch.jsp>

For more information on specific issues covered in this report please contact Kim Talbert, Acting Manager Environmental Health and Building at Brewarrina Shire Council.