Esk Shire Natural Resource Management Plan

Esk Shire

27 July 2007

Prepared for:
Esk Shire Council
Craig Orchard
The Council of the Shire of Esk
POBOX117
Esk QLD 4312

Report by:
HLA-Envirosciences Pty Limited
ABN: 34 060 204 702
Level 1,57 Berwick StreetFortitude Valley QLD 4006
PO Box 720 Fortitude Valley QLD 4006
Ph: +61 7 3606 8900
Fax: +61 7 3606 8999

HLA Ref: B60179001_RPTFinal_27Jul07

“This page has been left blank intentionally”

DISTRIBUTION

Esk Shire Natural Resource Management Plan, Esk Shire
27 July 2007

Copies	Recipient	Copies	Recipient
5 + 1 CD	**Esk Shire Council** **Craig Orchard** The Council of the Shire of Esk PO Box 117 QLD 4312		
2	**HLA ENSR** Job File and Library Copy		

By

HLA-Envirosciences Pty Limited (HLA ENSR)
ABN: 34 060 204 702
Level 1, 57 Berwick Street Fortitude Valley QLD 4006
PO Box 720 Fortitude Valley QLD 4006

E Metcalfe

Erica Metcalfe
Senior Environmental Planner

JPMarshall

Janet Marshall
Principal Planner

Technical Peer Reviewer: **Date:**

for R. Janssen 27.07.07

Mark Imber
Workgroup Manager – Environmental Services

"This page has been left blank intentionally"

CONTENTS

1 INTRODUCTION 1
1.1 Background 1
1.2 Natural Resource Management 2
1.3 Purpose of and Guiding Principles for this NRMP 3
1.4 Indigenous Cultural Heritage 4
1.5 Overview of the European Landuse History of Esk Shire 4
1.6 Overview of Esk Shire Demographics and Land Use 6
1.6.1 Demographic Information 6
1.6.2 Landuse Information for Esk Shire 7
2 SCOPE AND FORMAT OF THE NRMP 9
2.1 Scope of the NRMP 9
2.2 Format of the NRMP 9
3 REGIONAL CONTEXT 11
3.1.1 Location 11
3.1.2 Regional NRM Values 11
3.1.3 Regional Trails 12
3.1.4 Recreation Proposals 12
3.1.5 Value of the Drinking Water Supply Catchments 13
3.1.6 The Western Corridor Recycled Water Project 14
4 ACTION PLAN FOR THE MANAGEMENT OF ESK SHIRE'S NRM ASSETS 15
4.1 Overview of the Action Plan 15
4.2 Explanation of Rankings within the Action Plan 17
4.3 NRM Action Plan 18
5 ASSESSMENT OF NRM ASSETS - WATER 28
5.1 Description of Major Catchments 28
5.2 Description of Water Storages 29
5.3 Upper Brisbane River and General Catchment Condition Information 31
5.4 Specific Mid Brisbane River Catchment Condition Information 32
5.5 Specific Stanley River Catchment Condition Information 33
5.6 General Threats to Surface Water and Catchment Values 33
5.7 Water Quality Information for Lake Somerset 34
5.8 Water Quality Information for Upper Brisbane and Lake Wivenhoe 35
5.9 Water Quality Information for the Mid Brisbane River 36
5.10 Groundwater Resources 37
5.11 Aquatic Ecosystems 38
5.12 Planning Scheme Information for Water Assets 39
6 ASSESSMENT OF NRM ASSETS - LAND 41
6.1 Description of Land Resources 41
6.2 Threats to Land Resources 42
6.3 Recreation Management Issues 43
6.4 Planning Scheme Information Relating to Land 45

7 ASSESSMENT OF NRM ASSETS - BIODIVERSITY AND OPEN SPACE 47
7.1 Overview of Biodiversity Values 47
7.1.1 Description of Vegetation Communities, Threatened Flora and Fauna 48
7.1.2 Location of Protected Areas, Forest Reserves and State Forests 50
7.1.3 Bioregional Wildlife Corridor 51
7.1.4 Areas of Special Biodiversity Significance 51
7.2 Open Space Values 52
7.3 Threats to Biodiversity and Open Space Values 52
7.4 Planning Scheme Information Relating to Biodiversity and Open Space 53
8 ASSESSMENT OF NRM ASSETS - ATMOSPHERE 55
8.1 Description of Atmospheric Values 55
8.2 Threats to Air Quality / Atmosphere 55
8.3 Regional Opportunities for Esk Shire 56
8.4 Planning and Management Responses Relating to Atmosphere 56
9 STATUTORY REQUIREMENTS FOR NRM 57
9.1 Relevant Statutory Requirements Imposed on ESC 57
9.2 Compliance with the Current Legislation by ESC 60
9.3 Linkages with a Local Nature Conservation Strategy for Esk Shire 64
9.4 Linkages with Proposed Regional Policies 65
9.5 Local Laws 66
9.6 Relevant Non-Statutory Policies and Guidelines 66
10 ESK SHIRE CORPORATE PLAN 69
10.1 Overview of the Esk Shire Corporate Plan 69
11 REVIEW OF EXISTING NRM PROGRAMS 73
11.1 ESC NRM Programs 73
11.2 SEQ Regional NRM Programs 81
11.2.1 Role of SEQWater 81
11.2.2 Relevant Publications by SEQWater 81
11.2.3 SEQWater NRM Programs in Esk Shire 82
11.2.4 Role of SEQ Catchments 83
11.2.5 NRM Programs Undertaken in Esk Shire by SEQ Catchments 84
11.3 Identification of Other NRM Programs of Relevance 89
12 IDENTIFICATION OF OTHER FUNDING OPPORTUNITIES 93
13 CONSULTATION UNDERTAKEN FOR THE DEVELOPMENT OF THE NRMP 95
13.1 Overview of Consultation Activities 95
13.2 Overview of Information Gained Through the Consultation Activities 95
14 GUIDELINE FOR THE PREPARATION OF OTHER NRM PLANS 97
15 RECOMMENDATIONS 99
15.1 Implementation of the NRMP 99
15.2 Ongoing role of SEQ Catchments and SEQWater 99

15.3 Resourcing of NRM actions 100
15.4 Continuation of the Environment Levy 100
15.5 Corporate and Operational Planning 100
15.6 Advocacy / Partnerships 101
15.7 Distribution / Promotion of this NRMP 101
15.8 Review of the NRMP 102
16 REFERENCES 103

TABLES

Body Report

Table 1: Esk Shire Population Figures for 2006 and 2026 (DLGPSR, 2007) 6
Table 2: Explanation of Priority Ranking Categories Used Within the Action Plan 17
Table 3: NRM Action Plan for ESC – High Priority Short-Term Actions for the Environment Levy 21
Table 4: Environment Levy Projects - Medium Priorities over the Medium to Longer Term 23
Table 5: Operational NRM Programs Recommended for Implementation by ESC 24
Table 6: Recommended Programs that Align with Draft Healthy Waterways Strategy Management Action Targets 27
Table 7: Management Issues and Actions for Key Recreation Areas in Esk Shire 44
Table 8: GQAL Class Descriptions 45
Table 9: Protected Areas, Forestry Reserves and State Forests Within Esk Shire. 50
Table 10: Relevant Statutory Requirements for NRM Imposed on ESC 57
Table 11: SEQRP Principles 60
Table 12: ESC's Level of Compliance with Relevant NRM Legislation and State Planning Policies 61
Table 13: LNCS Requirements and Information Available Currently or to be Prepared by ESC 64
Table 14: Corporate Plan Outcomes and Strategies Related to NRM 69
Table 15: Summary of Current NRM Programs and Initiatives Run by ESC 75
Table 16: SEQ WCG and SEQ Catchments Projects Undertaken or Underway in Esk Shire since 2005 85
Table 17: Other NRM Programs of Relevance to Esk Shire 89

Tables Section

Table T1: Regional Ecosystems as Defined by the Vegetation Management Act 1999 Known to Occur Within the Esk Shire.
Table T2: EVR-Listed Flora Species Recorded as Occurring Within Esk Shire.
Table T3: Flora Species Found Within Esk Shire
Table T4: Fauna Species Found Within Esk Shire
Table T5: EVR-listed Fauna Species Known to Occur Within the Esk Shire
Table T6: Migratory and / or Marine Listed Bird Species Known to Occur Within the Esk Shire
Table T7: Regionally Significant Fauna Species Known to Occur in Esk Shire
Table T8: Grants and Other Funding Opportunities Available for NRM Initiatives in Esk Shire
Table T9: Consultation Responses from the Esk Shire NRMP Consultation Workshops

FIGURES

Body Report

Figure 1: Age Distribution for Esk Shire in 2001 and 2026
Figure 2: Schematic of the Somerset / Wivenhoe System Showing Inflows and Outflows

Figures Section

Figure F1: Location of Esk Shire and Major Catchments.
Figure F2: Local Governments Surrounding Esk Shire.
Figure F3: Major Waterways and Water Storages.
Figure F4: 2006 SEQ Regional Landscape Assessment - Degradation Risk.
Figure F5: Good Quality Agricultural Land in Esk Shire.
Figure F6: Protected Areas, Forestry Reserves and State Forests Located in Esk Shire.
Figure F7: Biodiversity Significance.

PLATES

Plates Section

Plate P1: The Brisbane River, near Lowood.
Plate P2: Cattle Using the Upper Brisbane River.
Plate P3: Stanley River.
Plate P4: Rural Residential Areas Around Fernvale.
Plate P5: Hillslope Erosion Near Savage's Crossing.
Plate P6: Hill's Crossing.
Plate P7: Savage's Crossing.
Plate P8: Open Plains on the way to Kilcoy.
Plate P9: Benarkin State Forest.
Plate P10: Roadside Weed Invasion at Benarkin State Forest.
Plate P11: Extensive Weed Invasion in Wallably Creek.

APPENDICES

Appendix A: Guideline for the Preparation of an NRMP

GLOSSARY OF TERMS AND ACRNONYMS

Biodiversity – means the variability among living organisms from all sources (including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part) and includes:

- diversity within a species and between species; and
- diversity of ecosystems (ESC, 2005).

Catchment – A catchment is an area bounded by natural features, such as hills or mountains, from which all run-off water flows to a low point, which may be a river, creek or dam. Large catchment areas are made up of lots of smaller sub-catchments, bordered by low hills or ridges, and drained by a creek or gully. Every land management practice that is undertaken within a catchment will be reflected in the water quality of the associated waterways (McLeod, 2006).

DAFF – Commonwealth Department of Agriculture, Fisheries and Foresty.

DEWR – Commonwealth Department of Environment and Water Resources.

DNRW – Department of Natural Resources and Water.

DLGPSR – Department of Local Government, Planning, Sport and Recreation.

DOTARS – Commonwealth Department of Transport and Regional Services.

Ecosystem Services – are the benefits people obtain from ecosystems. These include provisioning services such as food, water, timber, and fibre; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling. The human species, while buffered against environmental changes by culture and technology, is fundamentally dependent on the flow of ecosystem services. (Millennium Ecosystem Assessment, 2005).

EPA – Environmental Protection Agency.

EPBC Act– *Environment Protection and Biodiversity Conservation Act 1999.*

ERA – Environmentally Relevant Activity.

Extractive Industry - means the use of premises for the purpose of carrying on an industry which involves dredging, excavating, quarrying, sluicing and any other mode of winning materials from the earth, and including any ancillary processing of that material. The term does not include mining within the meaning of the *Mineral Resources Act 1989* (Esk Shire Council, 2005).

EVR – Endangered, Vulnerable and Rare categories as used for the *Nature Conservation Act 1992*.

GQAL – Good Quality Agricultural Land as described in State Planning Policy 1/92.

Groundwater resources – includes all water within and beneath the ground, including aquifers (SEQ WCG, 2004).

Healthy Waterways – the Moreton Bay Waterways and Catchments Partnership.

HLOF – Healthy Land Our Future (the Regional Integrated NRM Plan produced for the Western Catchments of South-East Queensland).

LGAQ – Local Government Association of Queensland Inc

LNCS – Local Nature Conservation Strategy.

NCA – *Nature Conservation Act 1992.*

NRM – Natural Resource Management (as defined in **Section 1.2**).

OUM – Office of Urban Management (within the Queensland Department of Infrastructure).

QPWS – Queensland Parks and Wildlife Service

RIS – Regional Investment Strategy.

RLRP – Regional landscape and rural production area, as defined in the South East Queensland Regional Plan.

SEQ – Southeast Queensland.

SEQ WCG – South East Queensland Western Catchments Group (now part of SEQ Catchments).

SEQRP – South East Queensland Regional Plan.

Riparian corridor - means the land area immediately adjacent to a waterway, which directly influences waterway form and function (ESC, 2005).

Turbidity - is the measure of the light scattering properties of water. It is determined by the amount, size and composition of the suspended matter such as clay, silt, colloidal particles, plankton and other microscopic organisms. Water clarity or murkiness is often the most obvious characteristic of surface water quality to the casual observer (Australian Government, 2007)

Vegetation Management Act 1999 – VMA.

WCRW Project – Western Corridor Recycled Water Project

EXECUTIVE SUMMARY

Background

Esk Shire Council (ESC) acknowledges the increasing role of local government's in managing environmental / natural resource assets, as Councils are the main agency for delivering on-ground programs and ensuring healthy landscapes in their local areas. In response to its growing environmental challenges ESC introduced an Environment Levy in February 2007 to raise funds to undertake targeted programs to improve the condition of the Shire's NRM values. SEQWater and SEQ Catchments are important NRM partners for ESC and have jointly funded the development of this Natural Resource Management Plan (NRMP). ESC endorsed the final draft version of this NRMP at its ordinary meeting on 11 July 2007.

The condition of natural resource assets in Esk Shire is of significant local and regional importance, particularly due to Esk Shire's location within one hour from Brisbane. The broader Southeast Queensland (SEQ) region relies on the provision of drinking water from the water storages in Esk Shire including Wivenhoe and Somerset Dams. The land management activities undertaken in Esk Shire impact upon the quality of local waterways as well as the drinking water supply dams.

Effectively managing Esk Shire's natural resource management (NRM) assets is critical for ensuring productive landscapes, viable rural enterprises and desired community lifestyle values. Whilst several initiatives aimed at improving the condition of NRM assets have been undertaken across the Shire to date (bearing in mind the low rate base of Esk Shire in comparison to larger SEQ Councils), many of the current land use and management activities identified in this plan degrade the Shire's natural resources and are **unsustainable**. This is evidenced by the identification of **critical NRM issues** in the Shire such as poor water quality and riparian condition with consequential high susceptibility to erosion, fragmentation of native vegetation particularly on the lowland plains and significant and costly pest invasions. An overall indicator of NRM condition is not able to be provided due to the diversity of catchments and sub-catchments located in Esk Shire and the lack of baseline monitoring information. Where available quantative condition information is provided and qualitative condition descriptions are outlined to assist with identifying NRM priorities.

Purpose

The purpose of this NRMP is to provide a strategic overview of Esk Shire's current natural resource assets and their regional context. A comprehensive framework for the management of the natural resources assets / values of Esk Shire that is consistent with local and regional priorities and policies is outlined. The framework includes recommendations for the delivery of programs to protect and enhance the natural resource assets of Esk Shire, including those to be funded through the Environment Levy. This NRMP is designed to be a "living" document that can be reviewed as the NRM activities of Esk Shire increase and the recommendations of this plan are implemented.

Significant NRM data is included in this plan, which will be useful for planning NRM initiatives and to assist with demonstrating the range of NRM values when applying for funding assistance or undertaking community education programs. NRM information has been collected at a catchment and subcatchment level in most instances and the plan could be used to assist identifying what NRM assets may be affected by high intensity land use proposals at a sub catchment level. The plan does not have application at a site specific level, as this level of detail is not able to be outlined in a Shire-wide strategic NRMP.

Findings

There are a number of existing studies / catchment management plans that have been undertaken, which outline the NRM assets of Esk Shire and recommendations for NRM by various agencies. With the development of this locally specific NRMP, ESC and other agencies investing in NRM initiatives in Esk Shire can move from the planning phase towards the implementation of recommended NRM programs.

Due to the low level of expected population increase over the next twenty years, Esk Shire will experience less pressure for urban development than surrounding Shires. As the majority of the Shire is included within the South East Queensland Regional Plan (SEQRP) regional landscape and rural production (RLRP) area, the opportunity exists to focus on the proactive management of these areas that will be retained for rural and regional landscape pursuits over the longer term. Challenges exist for managing the NRM values in the rural residential / village areas of the Shire that are used for hobby farms as well as for areas with high numbers of absentee landholders.

This NRMP outlines the available condition information for water, land, biodiversity and atmosphere assets. Critical NRM issues exist including the high proportion of unstable banks in the Upper Brisbane and Mid Brisbane River Catchments and high levels of susceptibility to erosion particularly in the Ivory-Maronghi and Gregor Creek Sub-Catchments. There is considerable variability in the extent and quality of riparian vegetation throughout the Shire, with subsequent implications for water quality and creek bank stability.

The Stanley River Catchment is in better condition overall (although only a small proportion of this catchment exists within Esk Shire) than the Upper and Mid Brisbane Catchments, notwithstanding extensive areas with limited or no riparian vegetation.

Land resources support and are altered, by a variety of land uses within Esk Shire. Such landuses include nature conservation, forestry, grazing, cropping, mineral extraction, rural residential and urban uses. Agricultural production has focused on the fertile soils of the alluvial flood plains. Threats to the sustainability of land resources include erosion, salinity, overuse of agricultural areas, pest species invasions, pollutants and contaminants, soil health decline and inappropriate bushfire management.

Considerable NRM issues are caused by the inadequate management and inappropriate public use of several popular recreation areas throughout the Shire, with major impacts occurring for the Mid Brisbane River particularly around Fernvale and Lowood. These inappropriate and sometimes illegal activities degrade the land and water resources and open space and amenity values of these sites.

Nineteen state forests and reserves are located in the Shire. Relatively intact vegetation covers 38% of the Shire's area, with significant habitat modification occurring since European settlement. The current landscape consists of a matrix of Eucalyptus dominated open forests and woodlands, gallery rainforest, Araucarian dominated forests, vine thickets, Brigalow and swamps. Over 1 300 flora species and 577 vertebrate fauna species have been identified in the Shire, which represents considerable diversity for the remaining habitat areas. Two vegetation communities found in Esk Shire are listed as critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) of 36 Endandgered, Vulnerable or Rare (EVR) species four are listed under both the EPBC Act and the *Nature Conservation Act 1992* (NCA). 48 EVR fauna species are known to occur in the Shire including 23 birds and nine mammals, with 16 species listed under both the EPBC Act and NCA. 12 migratory bird species protected under the EPBC Act have been identified in Esk Shire.

A bioregional wildlife corridor of state conservation significance exists from the D'Aguilar Range (South) to Pine Mountain. The majority of the Shire is dominated by open grazing land. Little or no vegetation occurs on the flood plains where agricultural activities are concentrated. Habitat fragmentation, pest plant and animal invasion and vegetation clearing have the greatest impacts on the Shire's biodiversity values.

This NRMP outlines the statutory requirements for NRM imposed on ESC. Whilst general compliance with relevant legislation is occurring Council needs to continually ensure that Environmentally Relevant Activities (ERAs) are operated to meet licence conditions. Areas for improvement have been outlined including better protection of threatened species habitats and implementation of pest management plan initiatives. The ESC Corporate Plan contains outcomes and strategies related to NRM. Significant improvements could be made to the next version of the Corporate Plan to accurately promote the Shire's NRM responsibilities and initiatives.

Major barriers that exist for the implementation of Council NRM programs include a lack of funding, trained staff, time and project resources, with the key limiting factor being human resource capacity. Currently ESC's NRM initiatives focus on monitoring of Sewerage Treatment Plants, inspections of on-site septic systems, implementation of the Esk Shire Pest Management Plan and reactive management of recreation areas. SEQWater as a major landholder in the Shire and supplier of untreated water to SEQ works with landholders, community, industry and other stakeholders to improve land management and water quality outcomes in the Mid Brisbane River. SEQ Catchments as the NRM regional body for the area invests in varied NRM programs that benefit Esk Shire.

The key outcome of this NRMP is the development of an integrated action plan for programs that are recommended for implementation using Environment Levy funds. Operational programs for ESC staff to focus on over time, to improve the management of NRM values are also outlined. It is recommended that Environment Levy projects focus on strategic and on-ground initiatives rather than reactive management and operational tasks. Individual actions have been tailored to be appropriate to the resources and funding available to ESC; however, additional resources (including seeking funding through several of the grant opportunities outlined in this NRMP and focusing on obtaining regional funding) would greatly assist with accelerating NRM improvements. High priority programs such as riparian restoration, on-ground pest management and private landholder NRM grants will contribute to broad outcomes including increasing community awareness about land and riparian management practices. Partnership projects have been outlined where additional benefits can result from involving additional agencies and the potential for sourcing existing NRM resources.

Community consultation workshops were undertaken for the development of this NRMP, as well as liaison with the project partners SEQWater and SEQ Catchments. Although a minor level of attendance at the workshops occurred, the information gained helped to outline the NRM priorities for the Shire, as well as outlining significant issues and NRM information that will be useful for ESC.

The Way Forward

ESC can use this NRMP to outline to other government agencies and organisations the importance of protecting and enhancing the drinking water supply catchments for SEQ. Other regional benefits of investing in Esk Shire include that that water flowing from the Shire eventually ends up in Moreton Bay; the Shire's land resources provide a major source of food and fibre to interstate and international markets as well as other areas of SEQ. The open space and forested areas contribute to the air quality in SEQ and provide a bioregional wildlife corridor and a 140 km recreation trail is proposed for the Shire (the Brisbane Valley Rail Trail).

A significant opportunity exists for ESC to be a repository of carbon credits and green offsets for the region should these emerging policies be further developed. Involvement in these schemes will also provide a vehicle for ensuring that the ecosystem services provided by the Shire's NRM assets are appropriately valued.

ESC does not have a large enough ratebase to fund the necessary NRM improvements entirely through its Environment Levy or operational programs. Council's advocacy efforts should focus on seeking regional support for NRM efforts in priority areas. ESC is strongly encouraged to fund and implement the NRM Action Plan and the recommendations outlined in this NRMP.

1 INTRODUCTION

1.1 Background

Esk Shire is located approximately one hour north west of Brisbane. The main townships of the Shire include Lowood, Fernvale, Esk and Toogoolawah. Esk Shire occupies an area of 3 937 square kilometres (ESC, 2007a). Esk Shire has 1 425 kilometres of road and approximately 12 000 privately owned land parcels (ESC, 2006). SEQWater Corporation, which controls the Wivenhoe / Somerset dams and the buffer areas surrounding the dam, is a large landholder. The Environmental Protection Agency (EPA) / Queensland Parks and Wildlife Service (QPWS) and Forestry Plantations Queensland (formerly the Department of Primary Industries – Forestry) is also a large landholder as it controls an estate area of over 50 000 hectares which covers over 15% of the total Shire area and is mainly used for forestry (ESC, 2006).

Esk Shire is often referred to as the Valley of the Lakes (ESC, 2006), as it houses the Wivenhoe, Somerset, Cressbrook and Atkinson Dams, which are predominately fed by catchments that extends beyond the Shire. These dams are critical for supplying water to the rest of SEQ, thus the condition of NRM assets within Esk Shire is of importance to the whole SEQ region, in particular for ensuring appropriate levels of water quality.

The major waterway features of the Shire include the streams within the Upper Brisbane River and Stanley River around the Linville District, which are mainly regulated before they flow into Somerset Dam, which is located on the Stanley River upstream of the confluence with the Brisbane River. The Stanley River then flows into Wivenhoe Dam (Johnson, 2005). The Mid Brisbane River also flows through the south-eastern part of Esk Shire from the Wivenhoe Dam wall to the Mt Crosby Weir (Johnson, 2005).

Figure F1 , **Figure F2** and **Figure F3** outline the location of Esk Shire, the surrounding local governments and the major catchments, waterways and water storages. The major areas of land degradation risk within these catchments in outlined in **Figure F4.**

The water quality of the Mid Brisbane River is significantly affected by the upstream catchment processes that occur in the Upper Brisbane River Catchment. The strategies and actions for catchment planning in the SEQ Region need to recognise the interconnections between the two major Brisbane River catchments (B Lord, pers.comm. 2007).

Significant areas of Good Quality Agricultural Land (GQAL) are identified throughout the central and southern portions of the Shire and are important to maintain due to the reliance of the local economy on agricultural pursuits. **Figure F5** outlines the location of GQAL. Historically dominant land uses in Esk Shire have included pastoral, dairy farming, sawmilling, beef cattle grazing and horticulture.

Esk Shire also contributes to the outstanding biodiversity values of the SEQ Region. A wildlife corridor of state conservation significance is located on the D'Aguilar Range and includes areas of biodiversity significance on the Shire's eastern boundary (EPA, 2004). **Figure F7** outlines the areas of biodiversity significance.

For the National Action Plan for Salinity and Water Quality, Esk Shire is considered a priority investment area. A commitment to biodiversity conservation and management on the part of Esk Shire to assist in the implementation of that Action Plan will also have benefits to the Shire through improving or establishing:

- economic growth and development;
- a clean / green image to attract investors; and
- Shire landscape and promotional image (ESC, 2005).

In February 2007 ESC established an Environment Levy on all rateable properties across the Shire. Funds from the Environment Levy have been used to prepare this Natural Resource Management Plan (NRMP), so as to ensure that future NRM activities in the Shire are guided by an appropriate strategic framework. SEQ Catchments and SEQWater have partnered with ESC to support the development of this NRMP including the consultation processes undertaken.

1.2 Natural Resource Management

The following information outlines what is considered to be a natural resource and what is NRM:

> *A **natural resource** is land, water and atmosphere, their mineral, vegetable and other components, including flora and fauna on or in them. Our natural resources provide a multitude of valuable services, which support many aspects of our everyday life. Our growing population places extreme pressure on our natural resources to the point that they have been degraded and biodiversity has been lost. This is why it is important to ensure that they are managed appropriately. **NRM** seeks to protect our natural resources by managing threatening processes by making and implementing decisions to develop, maintain or protect land, water and the atmosphere to meet society's current and future needs and values. NRM has many inter-related elements, including people, groups, agencies, legislation, policy and planning tools, capacity-building activities, funds and information* (Queensland Department of Natural Resource and Mines and SEQ WCG, 2005 cited in Low Choy, Steiner and Maccheroni, 2006).

The SEQ Sustainable Landscape Project, undertaken by CSIRO Sustainable Ecosystems outlined that:

> *NRM is not easy, requires planning several years in advance and in peri-urbanising landscapes cooperative, targeted NRM effort between landholders across a sub-catchment is necessary if retention of current natural values is desired* (Kearney, 2006).

In 2004 the South-east Queensland Western Catchments Groups Inc (the forerunner to SEQ Catchments)[1] prepared the *Healthy Land – Our Future, an Integrated Regional Nature Resource Management Plan for the Western Catchments of South-east Queensland* (referred to as the HLOF Report). This plan provides significant NRM information for Esk Shire; however, at a regional scale (SEQ WCG, 2004) and has resulted in increased levels of investment in NRM activities in Esk Shire.

Catchment management is a part of NRM and catchment management and source water protection provide the first barrier for the protection of water quality. Catchment management usually involves a coordinated approach to develop short-term and long-term plans to enhance water quality and eliminate or control any potential sources of pollution (Australian National Health and Medical Research Council and Natural Resource Management Ministerial Council, 2004).

1.3 Purpose of and Guiding Principles for this NRMP

The purpose of this NRMP is to provide an overview of Esk Shire's current natural resource assets and their regional context, which has been used to develop a comprehensive framework for the management of the natural resources assets / values of Esk Shire. This NRMP contains baseline information on the condition of NRM assets that can be improved over time. Detailed results of the health of the Shire's NRM assets could be collated and promoted in future and assessed against this baseline information. The framework includes recommendations for the delivery of programs to protect and enhance the natural resource assets of Esk Shire, including those to be funded through the ESC Environment Levy. The plan can be used to support future funding opportunities for NRM initiatives. This plan has direct linkages to Esk Shire's Corporate Plan, the Esk Shire Planning Scheme and the HLOF report.

It is envisaged that the Esk NRMP is used to coordinate the NRM activities of ESC (including works programs and operational planning) and all other NRM stakeholders and community members. Sustainable NRM can only be achieved through the involvement of and commitment from community and industry organisations (Office of Urban Management (OUM), 2005). This NRMP is designed to be a "living" document that can be reviewed as the NRM activities of Esk Shire increase and the recommendations of this plan are implemented.

In order for other Shires to benefit from Esk's experience in developing an NRMP, a guideline has been included in **Section 14** that outlines the processes for preparing an NRMP.

[1] SEQ Catchments is the result of a merger between two former regional NRM bodies in SEQ, Natural Resource Management SEQ Inc (NRMSEQ) and SEQ Western Catchments Group Inc (SEQWCG). SEQ Catchments is the Regional NRM Body responsible for the planning and implementation of integrated natural resource management for SEQ. The vision of SEQ Catchments is to secure a sustainable future for our natural resources through community involvement, government and industry partnerships and innovative on-ground delivery (SEQ Catchments, 2007).

Guiding principles for NRM adopted in the HLOF Plan that are relevant for and have been used within the Esk NRMP include:

- NRM asset based approach;
- treating the cause not the symptoms;
- recognition of the past and existing NRM achievements;
- effective partnerships;
- continuous improvement;
- recognition of the capacity to undertake NRM activities;
- recognition of the benefits to the greater good; and
- equal importance placed on social, economic and environmental outcomes (SEQ WCG, 2004).

1.4 Indigenous Cultural Heritage

Indigenous cultural heritage is an important aspect of the environment which requires management to ensure its conservation. This report acknowledges the importance of inclusion of Indigenous cultural heritage in NRM planning for the Esk Shire.

However, this NRMP has not been able to address Indigenous cultural heritage issues in specific detail because there is an absence of Indigenous information for the Esk Shire area and the surrounding area. Needless to say, there is a need for further work to be undertaken to identify Indigenous cultural heritage resources in this part of the SEQ region and to determine appropriate management methods. In the meantime, the provisions of the *Aboriginal Cultural Heritage Act* outlined in **Table 10** and the Duty of Care Guidelines under that Act are applicable.

1.5 Overview of the European Landuse History of Esk Shire

The major themes of Esk Shire's development have been land development, livestock management, agricultural production and the construction of roads and bridges by ESC to service landholders. Dominant landuses have included pastoral, timber getting, dairy farming, mixed farming, grazing and land subdivisions (Kerr, 1998). The following overview of the Shire's history is presented to show the differences between the condition of the NRM assets of the Shire at first settlement and over time. It is important to highlight that the practices and policies that lead to the development of Esk Shire were supported politically and socially.

Early exploration of the Shire was undertaken by Matthew Flinders in 1799 and John Oxley in 1823. The most significant expedition was lead by Cunningham in 1829 which travelled up the Brisbane River to the Glamorgan Vale area. Upon travelling north-west the expedition was stopped due to what was described as the "impenetrable forests" in the area. Notwithstanding those challenges, Cunningham's group explored the Irwin Range at Esk and cut across the river at Mt Esk Pocket and travelled north through a lush plain that was traversed by Cressbrook Creek (Kerr, 1988).

When first observed nearly the entire Brisbane Valley was covered in dense forest except for areas of open forest of Queensland Blue Gum (*Eucalyptus tereticornis*), Moreton Bay Ash (*E. tessellaris*), Gum-topped Box (*E. moluccana*) and Swamp Box (*Lophostemon suaveolens*) predominately found on the alluvial flats (Kerr, 1988). The elevated areas were covered in closed vine forests which were dominated by Hoop Pine (*Araucaria cunninghami*) (Kerr, 1988). Blackbutt (*E. pilularis*) occurs on the hilly country south of Cressbrook Creek and west of Buaraba. Adjacent to the vine forest were the Scrub Box (*Lophostemon confertus*), Grey Gum (*E. punctata*); however, the area is dominated by Narrow leaved Ironbark (*E. crebra*). River Sheoaks (*Casuarina cunninghamiana*), Black Tea-tree (*Melaleuca bracteata*) and Weeping Bottlebrush (*Callistemon viminalis*) fringe the streams. The Brisbane Valley has been extensively harvested for cabinet timbers (Kerr, 1988).

Vegetation clearing occurred in the Upper Brisbane and Stanley Catchments from the 1840s with the low lying areas along the rivers cleared first (Johnson, 2005). Cressbrook and Wivenhoe settlements were established in 1841 (Kerr, 1988). German settlements were a feature in the Shire from the 1850s. During this time the Brisbane Valley was known to have the richest pastoral country in northern New South Wales due to the advantages of the river flats and the proximity to the Moreton Bay Settlement (Kerr, 1988). Settlements flourished after the 1870s when large numbers of Prussians settled in the areas known as Tarampa, Lowood, Minden, Marburg and Mount Beppo (Kerr, 1988). In the 1860s the Upper Brisbane and Stanley Catchments were converted from sheep to cattle grazing. In the Lockyer and Fernvale areas grazing was replaced with agriculture (SEQ WCG, 2004).

The 1870's saw a copper mining boom where leases were taken up around Esk in the areas of Biarra and Cressbrook Creeks (Kerr, 1988). In 1884 the railway link to Lowood was established. As a consequence of improved transport 66 000 tonnes of timber was removed over a 15 year period, which saw a consequent decline in native species throughout the region (SEQ WCG, 2004). The railway expanded to Toogoolawah in 1904 and all the towns north of Esk grew with the construction of the railway line (Kerr, 1988).

The construction of the railway line and the increasing population in Brisbane and Ipswich resulted in the increasing demand for timber supplies from the 1870's. Sawmills were located at Fernvale, Lowood, Esk, Toogoolawah, Moore, Linville, Harlin, Blackbutt and Monsildale (Kerr, 1988).

Over time around 1900 large grazing properties were subdivided for dairy farming in the Upper Brisbane. This lead to clearing of riparian vegetation, soil compaction and increases in the level of nutrients entering watercourses with a subsequent decline in native aquatic species (SEQ WCG, 2004).

During the 1970's significant rural residential subdivision occurred due to decline in productivity of larger dairy farms and the sawmilling industry (SEQ WCG, 2004).

The resumption of land for Wivenhoe Dam has completely altered the population and fortunes of the southern area of the Shire (Kerr, 1988). Construction of Wivenhoe Dam was completed in 1983 (SEQ WCG, 2004). Government land resumption policies have had a considerable impact on development in the Brisbane Valley (Kerr, 1988).

The proximity of the Shire to Brisbane and the range of recreational opportunities available has continued to advance the popularity of Esk Shire (Kerr, 1988).

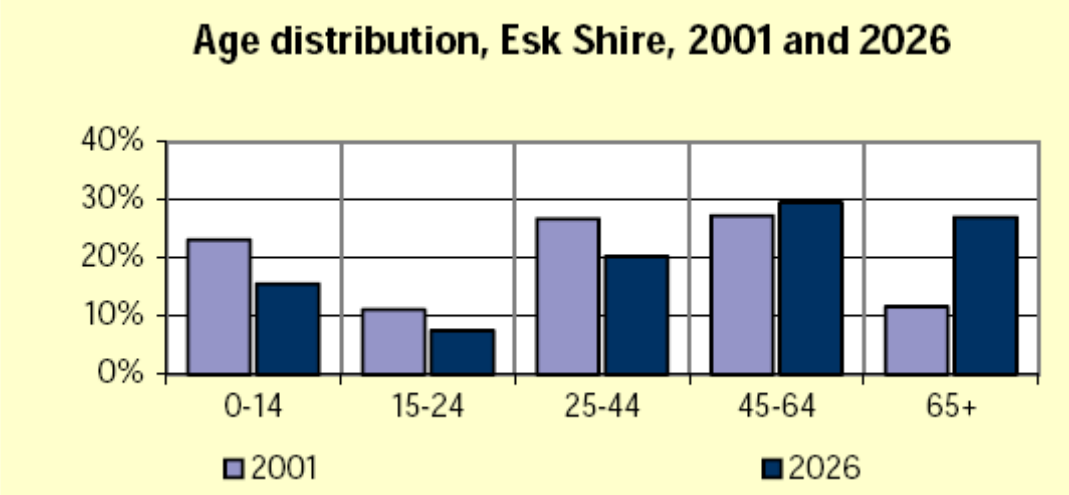
1.6 Overview of Esk Shire Demographics and Land Use

1.6.1 Demographic Information

The population of Esk Shire in 2006 was 15 686 people (Department of Local Government, Planning, Sport and Recreation (DLGPSR), 2007). This represented a growth rate of around 0.5% for the last twenty years (OUM, 2005). Esk's population is expected to grow to 19 652 people by 2026 (DLGPSR, 2007). **Table 1** outlines the population in 2006 and expected population for 2026. Esk Shire has a decentralised population base with approximately one third of its residents living in the main townships of Fernvale, Lowood, Esk and Toogoolawah (Strategic Leisure Group, 2006). **Figure 1** outlines the age distribution for Esk Shire in 2001 and 2026. The median age in Esk Shire in 2001 was 38 and is expected to be 50 in 2026 (DLGRPSR, 2006). There is a significant difference between the age profile for the southern and northern parts of the Shire. There is considerably higher proportions of young people aged 0-19 years in the southern end of the Shire, compared to Queensland as a whole. Alternatively higher proportions of adults aged 50 and over occur for the northern end of the Shire (Strategic Leisure Group, 2006).

Table 1: Esk Shire Population Figures for 2006 and 2026 (DLGPSR, 2007)

Area of the Shire	2006 population	Expected Population 2026
Esk Central	5 202	6 778
Esk North	618	729
Lowood - Fernvale	9 866	12 145



(DLGPSR, 2006)

Figure 1: Age Distribution for Esk Shire in 2001 and 2026

1.6.2 Landuse Information for Esk Shire

In the Esk Shire Planning Scheme (2005) town zones and associated urban precincts (e.g. town centre, residential) are located at Esk, Toogoolawah, Fernvale and Lowood. The major growth centres for the Shire are Fernvale and Lowood. Rural residential development is able to occur only in limited circumstances though (Strategic Leisure Group, 2006). Village areas with small areas of residential / rural residential development are located at Moore, Somerset Dam, Linville, Mindin, Harlin, Coominya, Glamorgan Vale and Tarampa.

The South East Queensland Regional Plan (SEQRP) outlines that the majority of Esk Shire is located within the regional landscape and rural production (RLRP) area. Key elements of the SEQRP include clearly identifying and protecting the RLRP areas from inappropriate development (including further rural residential development and urban development which has occurred at unsustainable levels) (OUM, 2005). Due to the low level of expected population increase over the next twenty years, Esk will experience less pressure for urban development than surrounding Shires.

The Esk Shire Planning Scheme outlines significant areas of the Shire within the Rural Zone (which accords with the RLRP area). The rural zone is divided into four main precinct types including:

- the Arable Agricultural Precinct and the Rural Pursuits Precinct in the southern area of the Shire;
- the catchment precinct in the south-western, central-western and northern areas; and
- the sub-catchment precinct in the western and central areas of the Shire (ESC, 2005).

Esk Shire has a significant number of absentee landholders or hobby farmers who predominately live on their properties on weekends, which makes it challenging to assist these landholders or provide NRM information that will be implemented for improving land management practices.

"This page has been left blank intentionally"

2 SCOPE AND FORMAT OF THE NRMP

2.1 Scope of the NRMP

This NRMP focuses on the most relevant NRM asset categories for Esk Shire, which are:

- water;
- land;
- biodiversity; and
- atmosphere.

Other NRM issues that are identified in Esk Shire; however; not addressed in detail in this plan include:

- indigenous cultural heritage;
- unexploded ordnance;
- toxic waste sites; and
- radio active waste facility.

2.2 Format of the NRMP

The plan has been designed to provide sufficient detail so that **Sections 5 to 8** to could be used as a referral document for the planning scheme and to assist with outlining the importance of the Shire's NRM values.

The most important component of this NRMP is the action plan for environmental levy and operational initiatives that is recommended to be implemented by ESC. Whilst this plan outlines important technical and NRM program implementation that has assisted with developing the priorities for the action plan, the action plan is outlined in **Section 4** to assist readers who may not need to refer to all the technical information first.

"This page has been left blank intentionally"

3 REGIONAL CONTEXT

3.1.1 Location

Esk Shire shares a local government boundary with the following Councils:

- Ipswich City;
- Brisbane City;
- Pine Rivers Shire;
- Caboolture Shire;
- Kilcoy Shire;
- Kilkivan Shire;
- Nanango Shire;
- Gatton Shire; and
- Laidley Shire.

Figure F2 outlines the surrounding local government areas.

3.1.2 Regional NRM Values

Esk Shire greatly contributes to the wider SEQ region's environmental, social and economic wellbeing through providing:

- the main potable water supply for the residents of South-east Queensland;
- a major contribution to the health of Moreton Bay;
- the presence of a bioregional wildlife corridor of state conservation significance across the D'Aguilar Range and south to the Pine Mountain area (EPA, 2004);
- several areas of remnant vegetation that could be used as vegetation management offsets (if offset programs are established at a regional scale);
- significant cleared areas capable of revegetation that could be used for farm forestry or the establishment of carbon credits.
- the major sources of food and fibre to interstate and international markets, as well as other areas of SEQ; and
- the location of a range of recreational and natural resource based tourism activities and open space and forested areas that enhance the air quality in SEQ (SEQ WCG, 2004);

3.1.3 Regional Trails

The rural and natural landscape areas of SEQ (SEQ) support many environmental, rural production, recreational, cultural and scenic features that are highly valued by the region's population. These natural environment and economic resources underpin the region's liveability and form a substantial component of the economy. As a community, it is important that these values are recognised and alternative strategies are taken to ensure they are protected in the future (OUM, 2007).

The Esk Shire Parkland Strategy highlights that there are some significant opportunities for the Shire to service the outdoor recreation needs of the broader SEQ region through river based open space trails and networks (Strategic Leisure Group, 2006). A major focus of the 2004 Mid-Brisbane River Recreation Management Plan is on achieving more sustainable recreation use of Twin Bridges, Savages Crossing and Hills Reserve to encourage legitimate uses and discourage inappropriate activities (Strategic Leisure Group, 2006). The impacts of recreational activities are discussed in **Section 6.3.**

Under the *Active Trails: A Strategy for Recreational Trails in South East Queensland*, one of the three highly ranked priority regional trails (the Brisbane Valley Rail Trail) is predominately located within Esk Shire. The Brisbane Valley Rail Trail (Ipswich to Blackbutt) proposal will provide a 140 km regional trail for walking, cycling and horse riding. This trail builds on the existing 10 km Fernvale to Lowood Rail Trail established and managed by Esk Shire. The trail passes through the Esk Shire townships of Fernvale, Lowood, Coominya, Esk, Toogoolawah, Harlin, Moore and Linville. The trails are located on publicly accessible land (not private land) and are outside of national or conservation parks (Queensland Outdoor Recreation Federation Inc, 2007).

The Strategy outlines that no financial burden should be imposed on Esk Shire and the trail should be funded by regional sources. Through partnership opportunities environmental benefits may result along this trail, including the restoration of currently cleared areas to improve the amenity and environmental condition of the trail. Additionally economic benefits may result from expenditure in the Shire due to increased tourism and use of the trail (Queensland Outdoor Recreation Federation, 2007).

3.1.4 Recreation Proposals

The values of the important water storages and associated catchments in Esk Shire are under pressure from significant recreation activities, including through proposals for white water rafting sites between the Wivenhoe Dam wall and Twin Bridges. In addition an International Bass Fishing Circuit has been proposed, which would result in a dramatic increase in recreational fishing within the Lake Wivenhoe area. It is recommended that ESC should consider the impact of these proposals in line with the existing levels of impacts from uncontrolled recreational activities prior to approval of any proposals.

3.1.5 Value of the Drinking Water Supply Catchments

ESC can use this NRM Plan to outline to other government agencies and organisations the importance of protecting and enhancing the drinking water supply catchments for SEQ. Esk Shire is in a strategic position to capitalise on providing ecosystem services to the rest of SEQ.

Wivenhoe and Somerset Dams supply water for an estimated 1.2 Million people located within Esk, the major urban centres of SEQ including Brisbane and the Gold Coast and rural centres such as Gatton, Laidley and Kilcoy. (SEQ WCG, 2004). Due to the high levels of urban growth currently being experienced in SEQ, there is an increasing demand for potable water for domestic and industrial water uses (SEQ WCG, 2004). This is occurring at a time when SEQ is experiencing significant drought conditions and Level 5 water restrictions.

NRM Values in Esk Shire are of regional significance. Esk Shire is one of the few local government areas outside of the Brisbane – Ipswich growth corridor and the rapidly developing coastal areas, thus the physical attributes of the Shire are largely undeveloped and require appropriate land management rather than protection of fragmented areas surrounding development as occurs in urbanising areas.

One of the most important outcomes of the *Mid-Brisbane River Recreation Management Plan* that was produced in 2004 was the recognition of the Mid-Brisbane River as regionally significant and the need for a coordinated approach to the management, maintenance and future development of this invaluable natural resource (ESC, 2007b). The water quality in the Mid-Brisbane River is better than the water that leaves Wivenhoe Dam, thus increasing its significance (Sinclair Knight Merz, 2004).

The Stanley River Catchment Action Plan has highlighted local concerns raised about the ability for the community and landholders to undertake catchment management works to address threatening processes including:

- riparian landholders in water supply catchment areas are increasingly being expected to bear most of the costs of management actions to protect water quality for the benefit of urban water consumers and management authorities; and
- insufficient financial incentives and labour support is available, as well as a lack of practical cost-effective measures for landholders to protect, manage and rehabilitate riparian areas (Stanley River Catchment Action Group, 2003).

Catchment management is seen as the first line of defence against cyanobacteria outbreaks within water supply areas, due to efforts to minimise nutrient inputs to waterways. Additionally turbidity levels increase when water flows from areas under intensive cultivation as compared to that from undisturbed or protected areas (Australian Government National Health and Medical Research Council and Natural Resource Management Ministerial Council, 2004).

Improved catchment management efforts would assist with decreasing contamination of the region's water supply, thus reducing the amount of water treatment and the quantity of chemicals needed for treatment. This may lead to health benefits through reducing the production of treatment by-products, and economic benefits through minimising operational costs (Australian Government National Health and Medical Research Council and Natural Resource Management Ministerial Council, 2004).

3.1.6 The Western Corridor Recycled Water Project

The Western Corridor Recycled Water (WCRW) Project is the largest recycled water scheme to be constructed in Australia. The WCRW Project involves building a pipeline from six wastewater treatment plants in Brisbane and Ipswich to three advanced water treatment plants for treatment before being transferred to end users. The pipeline is expected to mitigate drought conditions through providing an alternative water source to the existing drinking water supply storages. A significant amount of the 81 kilometre western pipeline is located in Esk Shire and runs from Bundamba to Caboonbah near the top of Lake Wivenhoe via the Esk Shire towns of Lowood, Coominya and Esk. The western pipeline is currently undergoing construction with completion expected in 2008 (WCRW, 2007).

4 ACTION PLAN FOR THE MANAGEMENT OF ESK SHIRE'S NRM ASSETS

4.1 Overview of the Action Plan

This action plan has been prepared to assist with the implementation of tailored NRM programs for ESC, which will also assist with meeting ESCs NRM responsibilities. The action plan is targeted at responding to the threatening processes that are impacting upon the NRM values of Esk Shire and has been designed to build upon the actions outlined in the HLOF report and the Catchment Action Plan for the Upper Brisbane River.

The action plan include programs that are prioritised for funding through the ESC Environment Levy, which currently raises $100 000 per annum. It is critical that funding from other agencies / NRM partners is sought to assist with other projects that are not able to be funded through the Environment Levy or other operational funding sources. These projects are of considerable importance for the protection of regionally significant biodiversity and waterway values, despite not being able to be immediately funded by ESC. The focus of the Environment Levy program is on strategic initiatives and not standard operational tasks required to be undertaken by Council. It is recommended that only programs outlined in this NRMP are funded during the first five years of the implementation of programs using Environment Levy funds.

This action plan addresses the Shire's NRM assets in an integrated manner, as most programs improve or maintain the condition of a range of NRM assets. For example riparian restoration programs will help improve water quality, land management and biodiversity values.

Potential projects proposed by SEQ Catchments have not been included in the action plan as they have not commenced yet. Esk Shire will benefit from these projects and efforts should be made to ensure that ongoing dialogue occurs between ESC and SEQ Catchments so that ESC is aware of the programs as they commence and opportunities for sharing of resources are discussed.

Where a program directly aligns with a strategy in the current ESC Corporate Plan this has been highlighted; however, projects have not been prioritised based on their alignment with the Corporate Plan as NRM issues are currently inadequately reflected in this Corporate Plan. Not all programs mentioned in **Section 11.3** have been recommended for implementation, following further discussions with ESC on what range of programs can realistically be implemented.

It is critical that ESC focuses on maintaining areas that are currently in good condition (e.g. the areas of high biodiversity significance on the eastern boundary of the Shire located within the bioregional wildlife corridor) and greater returns on NRM investments can result from protecting and maintaining areas against having to stabilised and / or fully rehabilitate degraded and weed infested areas (LGAQ, 2005).

The outcomes that require the most significant effort immediately by ESC include:

- investment in community education about appropriate land management and land and riparian rehabilitation practices (including property management planning assistance), this may be undertaken in partnership with other agencies and result in a more informed community and small but important improvements in the condition of high priority catchment areas;
- restoration projects for strategic public and private land areas; and
- partnership projects and need to strive for regional collaboration with adjoining local governments, SEQ Catchments, SEQWater and landcare and environmental groups.

The main priority is improvements to water and reduction of land degradation which will in turn assist with raising biodiversity values in the Shire.

Section 4.2 outlines how NRM programs have been prioritised for implementation including high, medium and low priorities and short, medium and longer term actions. The focus of this first NRM action plan for Esk Shire is on short to medium term strategic and on-ground actions. The highest priority programs that require funding have been recommended to be Environment Levy programs.

Cost-effective programs have been recommended, as the major constraint to expanding NRM initiatives in Esk Shire is the availability of funding and staff time to coordinate and implement the various NRM programs. Councils need to determine appropriate staffing arrangements for implementing priority programs such as the Land for Wildlife program. Potential exists to share resources for this program with adjoining Councils. The action plan is intended to complement the priority actions in the Esk Shire Pest Management Plan and not replace them.

In preparing this action plan it is difficult to determine the exact cost of individual programs as it is unknown when they may be implemented, to what extent and the level of community interest in particular programs. Thus the costs of particular programs have been outlined where possible to provide a guide for expenditure of Environment Levy funds. Programs to the value of $150 000 have been allocated to cover the next year and a half of the implementation of the Environment Levy (as funds from the first six months of the levy have been used for the development of this plan and other environmental activities).

As the Environment Levy is paid by all ratepayers, programs that are undertaken using levy funds need to be visible, promoted to all ratepayers and benefit the majority of the Shire's residents.

Operational programs recommended for implementation tend to have minimal budgets except for the requirement for staff time to coordinate them or assistance from other agencies. The action plan is not based on significant new funding allocations, thus success with external funding applications could result in further action plan initiatives commencing. ESC can then use this action plan as a guide for the preparation of an annual program of NRM works / initiatives using the Environment Levy or other funds.

Excellent NRM educational resources already exist throughout the SEQ region; the success of several programs will be enhanced by obtaining relevant material from other Councils, SEQ Catchments, Healthy Waterways, state government agencies and the LGAQ.

Inappropriate use of recreation areas is having a significant impact on the NRM values of Esk Shire as outlined throughout this plan. As Council now has funding to undertake master plans for these sites it is not recommended that Environment Levy funds be used for any further site planning activities; however, if short-term on-ground environmental management initiatives are required on the five major recreation sites (such as bank stabilisation, small scale riparian revegetation and weed management) this could be undertaken by Council using operational or Environment Levy funds, particularly as it could be up to five years before the site planning is undertaken and management works implemented; however, this needs to be balanced with the strategic approach outlined in the action plan that focuses on other significant NRM issues.

Significant challenges for implementing the programs outlined in the NRM Action Plan include:

- the need for greater community involvement in NRM programs to make a significant difference to the condition of the Shire's NRM assets;
- variability in funding from other agencies and reliance on external funding / grants and partnerships to implement a broader NRM program; and
- lack of assistance from state government agencies for managing state owned land that has significant NRM issues that often impact on adjoining areas.

Ongoing commitment will be required from Council to implement the NRM actions over the longer term. As more NRM information becomes available (such as updated priority mapping from SEQ Catchments), the action plans should be checked to determine if the recommended areas for investment are still the highest priority. At a minimum these action plans should be fully reviewed following the next version of an integrated NRM Plan for the SEQ Catchments region or at least within five years. A short-term review should be conducted after two years of implementing the action plans.

4.2 Explanation of Rankings within the Action Plan

Table 2 outlines the explanation of the priority rankings that are used within the action plan.

Table 2: Explanation of Priority Ranking Categories Used Within the Action Plan

Priority Ranking	Explanation
High priority	Very important for improving the condition of NRM values in ESC, will result in significant long-term improvements, makes a significant difference to addressing an NRM issue or improving education levels within the community and involvement with NRM activities.
Medium priority	Important for improving the condition of NRM values in Esk Shire and will result in considerable environmental improvements or education levels and involvement in NRM within the community.
Low priority	The program is of some value for improving the condition of NRM values in Esk Shire (mainly over the shorter term), the action may only partly address an NRM issue or have a low level improvement in increasing NRM knowledge and involvement within the community.

Priority Ranking	Explanation
Short-term action	Required to be undertaken over the next three years to make the largest difference to the NRM value(s) that the program is targeted at. Some short-term programs may be ongoing.
Medium-term action	Required to be undertaken over the next three to five years (and potentially beyond), once the short-term actions have commenced and are implemented.
Longer-term action	Recommended to be undertaken after the priority short and medium term actions are implemented. This program will assist with the development of the next version of the Esk Shire NRMP and provide future direction for community groups.

The programs within the action plan have been designed to provide a variety of outcomes. The following list outlines the outcomes and indicates the reference letter that is used in the action plan tables to refer to those outcomes:

- (A) education and community involvement;
- (B) protection of significant NRM values;
- (C) restoration of NRM values (including revegetation and pest management);
- (D) improved land management practices (which will lead to improvements in water quality);
- (E) improved strategic planning and development assessment outcomes; and
- (F) partnership(s) with another agency (ies).

The contribution of each proposed initiative to these outcomes is outlined in **Table 3** to **Table 5**.

These outcomes could be used as criteria for determining the suite of NRM actions sought. Each annual Environment Levy Program should include projects that result in the full range of A to F outcomes. Priority funding can also be directed towards those projects that provide a significant range of A to F outcomes.

4.3 NRM Action Plan

Table 3 outlines high priority short term actions to be implemented using Environment Levy funds. The total cost of implementing these programs is $150 000. The $100 000 collected per annum through the Environment Levy can be distributed based on the order of importance of the programs. Despite being a high priority, some programs will not be able to commence implementation until the second year of Environment Levy funding is available or when the initial programs are completed.

Table 4 outlines Environment Levy projects that are medium priorities to be implemented over the medium to longer term. The funding distribution for those projects is indicative only, as the success of the early programs will need to be reviewed and prioritised for further funding and compared to important new initiatives recommended for implementation. An annual program of Environment Levy programs will also need to be prepared and alignment with NRM programs being undertaken by other agencies such as SEQWater and SEQ Catchments outlined.

Operational programs recommended to be implemented by ESC are outlined in **Table 5**.

The Draft SEQ Healthy Waterways Strategy includes issue-focussed action plans for key issues such as non-urban diffuse pollution and protection and conservation, as well as area-focussed action plans (the most relevant to Esk is the Lockyer and Bremer Catchment plans). The enabling action plans include themes such as communication, education and motivation and the Ecosystem Health Monitoring Program. As ESC is currently not a financial member of the Moreton Bay Catchments and Waterways Partnership (Healthy Waterways) it may not be involved in the development of specific actions under the Draft Healthy Waterways Strategy. However recommended programs that align with the Draft Healthy Waterways Strategy Management Action Targets are outlined in **Table 6** and have been included to demonstrate how the NRM action plan aligns with this broader NRM / catchment management strategy.

"This page has been left blank intentionally"

Table 3: NRM Action Plan for ESC – High Priority Short-Term Actions for the Environment Levy

NRM Asset / Value	Action / Program	Priority Areas for Program Implementation	Program Focus, Linkage to Corporate Plan Strategy	Potential Resource Requirements	Level of Priority and when to be implemented.
Water and Biodiversity	Riparian Restoration Program. Small scale riparian rehabilitation programs in priority catchments (need to confirm restoration locations based on landholder interest and committed council resources for this program).[2]	Council has a preference to undertake restoration works at the high profile restoration sites such as Twin Bridges, Savage's Crossing, Hill's Crossing and Lowood Bend, this could be undertaken in the short-term and then move to other high priority sites across the catchment. Good quality areas that require enhancement within the Category A catchment areas include vegetated sections of the Cressbrook and Ivory –Maronghi Creek catchments. Over time (or depending on landholder interest) works could be undertaken in Category B catchments or in areas that are at higher risk of erosion that may require more small to medium scale restoration (e.g. Gregors and Monsolidale subcatchments). Alternative methods for prioritising areas for investment may be determined in conjunction with other agencies such as SEQ Catchments and SEQWater.	A, C, D and F. Strategy 5.1.	Materials and volunteer labour / ATCV or CJP workcrews. Council staff to organise the restoration projects. Potential to achieve cost savings through aligning with any existing catchment management projects in the area. $37 000 for restoration works at the high profile recreation sites. $32 000 for other high priority sites. NRM Coordination Officer time to coordinate these restoration projects (around one month a year). Funds for the ongoing maintenance of these sites will be required.	High priority, short-term implementation, ongoing program.
Water	On-site Septic and Home Sewerage Treatment Plant Education Program. Regional information is available through the Regional On-site Sewerage Education Toolkit developed by the former NORSROC Councils in SEQ. ESC in partnership with other surrounding Councils could purchase copies of this DVD or seek partnership funding from SEQWater to undertake this program.	Northern part of the Shire, particularly in Catchment A areas above Lake Wivenhoe or Catchment B areas, or for areas in the south that have on-site septics or Home Sewerage Treatment Plants.	A and D.	Negotiation with the contact for this DVD (Roslyn Potter from Maroochy Shire Council) to arrange purchase. $5 000 as a one-off initiative (or source funding from SEQWater).	High and short-term.
Water	NRM Awareness Program. This could involve distribution of educational information to Council staff as well as sediment and erosion control and pest management hygiene training for key staff members.	Areas where residential development or road construction or improvements is occurring adjacent to waterways.	D.	A breadth of information is available on Erosion and Sediment Control methods from other Councils across the SEQ region and from the Introductory Erosion and Sediment Control Guidelines for Queensland Councils provided to all Councils by the LGAQ. Training could be obtained for Council staff members for around $5 000 per annum for a two day training course. Supervisors or team leaders could be involved in the first round of training.	High priority, short-term.

[2] Ensure any weed removal activities that may occur as part of riparian restoration initiatives are staged to ensure levels of streambank erosion do not increase while replacement vegetation establishes.

NRM Asset / Value	Action / Program	Priority Areas for Program Implementation	Program Focus, Linkage to Corporate Plan Strategy	Potential Resource Requirements	Level of Priority and when to be implemented.
Water and Biodiversity	On-ground pest management initiatives. This program could use Environment Levy funds to supplement the existing operational funding for ongoing pest management initiatives to assist with the implementation of strategic actions outlined in the Pest Management Plan, particularly focused on the control of Class 2 and 3 weeds.	Environment Levy funds would need to be spent on Council or state land, or prioritised private land where management efforts will result in a benefit from decreased levels of weed invasion in surrounding areas. Priority sites will include those that have an abundance of high significance pests including Class 1, 2 and 3 pests identified in the Pest Management Plan. It is envisaged that some of these funds may be used for the management of the recreation sites throughout the Shire, if no other funding is available.	B and D. Strategy 4.5.	Weed control chemicals and equipment. Council staff time or CJP or ACTV crews. $20 000 in funding. Pest Management staff time required to coordinate where these initiatives will be undertaken.	High priority and short-term action, ongoing.
Biodiversity	Private Land Conservation - Land for Wildlife Program. Combined with Promotion of the Nature Refuge program for private landholders.	Private land with high biodiversity conservation values (e.g. those identified on the biodiversity significance overlay code or adjacent to an area of biodiversity significance). Plus working on improving connectivity in southern part of the Shire.	A, B, C, D and F.	Property inspections, information distribution and land management advice undertaken by a contractor supervised by the NRM Coordinator. Around 25 assessments could be undertaken per year and program materials provided (signage and information for landholders), deliver workshops to land for wildlife members and training provided by SEQC for a total program cost of $10 000 per annum.	High priority, short-term (ongoing program).
Water, Land Resources and Biodiversity.	Private Landholder NRM Grants Program. These grants would focus on priority NRM works such as fencing, establishment of off-stream water points, riparian revegetation, farm dam management, revegetation and pest management and result in improved property management planning. This initiative will assist with implementation of a locally significant pest awareness program that is a strategic action under the Pest Management Plan.	Catchment areas with high susceptibility to erosion such as the Ivory-Maronghi, Gregor and Monsildale Creeks, or other priority areas within the Upper and Mid Brisbane River where multiple benefits will result including improved biodiversity and waterway condition values. Properties the may be involved or become involved in the Land for Wildlife Program.	A, C, D.	Obtain information on how other local governments administer NRM grants, Council officer time required to organise, promote and assess grants, inspect properties that obtain grants and provide extension support. $20 000 for grant funding and around two months of NRM Coordinator time to establish and implement the grants per annum. SEQWater could be approached to determine if partnership funding is available to increase the size and effectiveness of the grants program. The assessment of grant applications could be undertaken by SEQ Catchments to reduce the amount of time required to be spent on the program by the NRM Coordinator.	High priority, short-term.
Water, Land Resources and Biodiversity.	Environmental Weed Control Rebate. This program could expand beyond the Mother of Millions chemical subsidy and run outside of the pest survey program timeframes. It would provide an overall subsidy for the control of all priority Class 2 and 3 weeds.	Private land with riparian weeds and areas with significant weed invasions in areas of high biodiversity values.	A, B C and D.	Administration and implementation of the Environmental Weed Control Rebate Program, including advertising the program and processing rebates. Extension advice on environmental weed control efforts. $15 000 per annum.	High priority, short-term

NRM Asset / Value	Action / Program	Priority Areas for Program Implementation	Program Focus, Linkage to Corporate Plan Strategy	Potential Resource Requirements	Level of Priority and when to be implemented.
Water, Land Resources and Biodiversity.	Community capacity building including short workshops for landholders on best practice land management. This program could assist with supporting NRM efforts undertaken by local community and catchment management groups and land for wildlife landholders.	Applies to environmental issues across the rural and rural residential areas of the Shire.	A and D.	Could be undertaken in conjunction with local catchment groups, SEQWater and SEQ Catchments, as part of a coordinated annual workshop program and providing community group support. This would result in reduced costs and improved coordination of workshops. Around three days of time required to organise and run each workshop. Two workshops could be run per annum. Environment Levy program, $6 000 per annum for two workshops and community group support.	High priority, short-term.

Table 4: Environment Levy Projects - Medium Priorities over the Medium to Longer Term

NRM Asset / Value	Action / Program	Priority Areas for Program Implementation	Program Focus and Linkage to Corporate Plan Strategy	Potential Resource Requirements	Level of Priority and when to be implemented.
Biodiversity	**Support for fauna surveys – Naturesearch.**	Fauna surveys within private land areas involved in the Nature Refuge or Land for Wildlife programs, or other sites within the Biodiversity Significance Overlay or Council reserves.	A and F.	Liaison with the Naturesearch program and minor involvement in Naturesearch events. Around $1 000 in Environment Levy funding could be used to assist with a Naturesearch event(s).	Medium priority, medium term.
All	**Rural Residential / Rural Living Kit.** Will include information from the Living in the Lockyer Brochure (where appropriate), the Living in the Upper Brisbane River Catchment booklet (where appropriate) and other information that will assist landholders to improve land management practices in the rural residential (peri-urban) and rural areas of the Shire.	Rural residential (peri-urban) and rural areas.	A and D.	Distribution of the kit to real estate agents, local shops and other relevant places where landholders can easily obtain a copy. Funding for printing of kit materials (including printing of Queensland Government factsheets that are no longer available in hard copy format), $10 000.	Medium priority over the medium term.

Table 5: Operational NRM Programs Recommended for Implementation by ESC

NRM Asset / Value	Action/Program	Priority Areas for Program Implementation	Program Focus and Linkage to Corporate Plan Strategy	Potential Resource Requirements	Level of Priority and when to be implemented.
Water, Land and Biodiversity	**Mt Esk Pocket to D'Aguilar Range Biodiversity Corridors Partnership Project** with the SEQWater, SEQ Catchments, DNRW and EPA, focusing on property planning on SEQWater leasehold land, fire, vegetation and erosion management initiatives, implementation of the vegetation incentives program, opportunities for the establishment of nature refuges and other landholders.	State bioregional corridor south - eastern to north - eastern parts of the Shire (D'Aguilar to Benarkin).	A, B, C, D and F.	Liaison with SEQ Catchments and SEQ Water regarding the program and council efforts that could be tailored to align with it. Stage one of this project will result in more than One Million Dollars in funding for the Esk area and significant improvements in local NRM values.	High priority and short-term.
Water, Land and Biodiversity	**Mapping priority pest species.** This is a strategic action outlined in the Pest Management Plan four year program which would have many NRM benefits and assist with targeting weed management efforts. A database of pest species locations has been started using Mapinfo software, with information currently collected for the Honey Locust eradication efforts and for some roadside weeds. It is intended that data will be added each year and the value of the information for assisting with outlining weed distribution will increase.	Whilst it is important to collect locational information for all weed infestations, overtime the priority areas will be those of high biodiversity significance on Council land subject to weed invasion. As well as private land areas where significant pest species are identified during annual pest survey programs.	A, B, E and F.	Environmental Health Officers responsible for pest management will work on this program over time. The majority of the workload will occur when a pest survey programme is undertaken.	High priority, short-term, ongoing.
All	**Environmental education programs for Councillors and Council staff.**	Applies to environmental issues across the whole Shire.	A.	Liaise with other local governments about their environmental induction and training programs (for example those undertaken at Caboolture and Maroochy Shires). This would only involve two days of an NRM Officer's time per year.	Commence this program over the short-term and establish it as an ongoing program, high priority (training to be conducted on all annual basis for new staff).
Biodiversity	**Encouraging investment in the Shire's conservation areas.** Environmental charities should be approached to determine the potential for purchasing sites of high biodiversity significance within Esk Shire.	Areas mapped on the Biodiversity Significance Overlay or adjacent areas with potential to have increased biodiversity values overtime (e.g. areas of regrowth vegetation).	B, D and F. Strategy 7.12.	Low – Liaison with Environmental Charities and provision of this plan and information on key sites in Esk Shire.	Medium priority, short-term action.
All	**NRM research by University students**. Whilst efforts have been made in the past to involve students in environmental research in the Shire and this has not been successful, if an important project can be undertaken this will greatly benefit Esk Shire to obtain improved environmental information at a low cost.	Applies to environmental issues across the whole Shire.	C and D.	NRM Coordinator to liaise with local and regional universities to identify any projects that could be undertaken by University students. As well as SEQWater who works closely with Griffith University students and SEQ Catchments who have a Science and Education Coordinator. Minor amount of time per year for project coordination and liaison.	Medium priority, short term action.

NRM Asset / Value	Action/Program	Priority Areas for Program Implementation	Program Focus and Linkage to Corporate Plan Strategy	Potential Resource Requirements	Level of Priority and when to be implemented.
Biodiversity and Water	**Vegetation Management Offset Provisions.** The provisions from the DNRW Vegetation Management Offsets Policy could be included in the next version of the Esk Shire Planning Scheme.	Offset could be provided for any unavoidable clearing of areas identified on the Biodiversity Significance Overlay.	B, C and E.	Other local governments are currently investigating rolling in vegetation offset provisions in their IPA planning schemes. Model code and policy provisions should be available from these local governments in the coming years.	Medium priority and medium-term action.
Atmosphere	**Involvement in the Cities for Climate Protection Program.** Initial greenhouse gas reduction efforts including scoping measures for Council to increase the energy efficiency levels of its operations and providing information to residents about cleaner technologies and practices. This program could assist with identifying opportunities for the establishment of forested areas for carbon credits and identifying existing "carbon sinks" for protection.	Whole Shire, in particular the urban areas.	A and F.	Skills in greenhouse gas and energy management issues. Reporting on current levels of energy use and measures to improve energy efficiency. Preparation of action plans with the community and implementation of energy management programs. This could take three to six months of NRM officer time depending on level of detail in the action plans (or assistance could be sought from a final year university / honours student).	Low priority and short to medium term. Operational program during planning phases and implementation programs could be funded through the Environment Levy.
Biodiversity	**Development of a LNCS for Esk Shire.** The preparation of an LNCS will assist with determining future directions for biodiversity conservation actions and assist with raising the profile of the conservation values within Esk Shire.	Whole Shire (particular focus on areas identified on the Biodiversity Significance Overlay).	A, B, C, D, E and F.	Environmental / NRM Staff or consultants to gather the information and prepare an LNCS in consultation with key stakeholders. This project could take around four months. Other SEQ local governments have prepared LNCS documents that can be used as a guide for Esk Shire. Information from this NRMP that can be used for the preparation of an LNCS is outlined in **Table 13**.	Medium priority, medium-term.
Biodiversity	**Identification of significant vegetation not currently protected and improvements to biodiversity mapping.** This program will include the identification of areas with vegetation cover that is not classified as remnant regional ecosystem or included within the current Biodiversity Significance Overlay. These areas could take on greater levels of biodiversity significance overtime and should be appropriately protected in future versions of the Esk Shire Planning Scheme. Improvements can also be made to the biodiversity overlay with amendments to regional ecosystem and biodiversity significance mapping overtime.	Examination of aerial photographs and existing mapping will identify areas not currently classified as remnant vegetation.	B and E.	This project will require input from a town and environmental planner, Geographic Information Systems professional and a botanist, to produce a new mapping layer and planning scheme provisions for this vegetation category. Timing allocated to this project could be determined in line with other planning scheme amendment activities.	Low priority, medium term.
Water, Land and Biodiversity	**Promotion of Farm Forestry.** This program could build upon the work undertaken by SEQ Catchments through the Regional Farm Forestry Extension Program and result in further facilitation of and support for farm forestry in appropriate locations within Esk Shire.	Degraded areas or areas of mixed vegetation where native forest plantations could provide benefits for erosion control and biodiversity values.	A, D and F.	Support for the extension of the SEQ Catchments Regional Program into broader areas within Esk Shire. Liaison with SEQWater and Queensland Plantations.	Low priority, long-term.

“This page has been left blank intentionally”

Table 6: Recommended Programs that Align with Draft Healthy Waterways Strategy Management Action Targets

Draft Healthy Waterways Strategy Management Action Targets	NRM Actions / Programs that align with each Management Action Target
Non-urban Diffuse Source Pollution Management.	• Riparian Restoration Program; • NRM Awareness Program; and • Private Land Conservation – Land for Wildlife Program.
Strategy for Water Sensitive Urban Design – Erosion and sediment are effectively controlled during the construction phase of urban development.	• NRM Awareness Program.
Protection and Conservation – Owners of land of ecological significance that contributes to waterway health are supported by voluntary schemes.	• Private Land Conservation – Land for Wildlife Program; and • Private Landholder NRM Grants Program.
Protection and Conservation – Degraded lands and waterways are rehabilitated and restored.	• On-ground pest management initiatives; • Environmental Weed Control Rebate; and • Mt Esk Pocket to D'Aguilar Range Biodiversity Corridors Partnership Project.
Protection and Conservation – Drinking water supply catchments are protected and conserved.	• Private Land Conservation – Land for Wildlife Program.
Communication, Education and Motivation – By 2009 widespread understanding exists of rural diffuse pollution sources, loads and possible remedies.	• NRM Awareness Program; • Community capacity building including short workshops for landholders on best practice land management; and • Rural Residential / Rural Living Kit.
Communication, Education and Motivation – By 2010, 50% of target audiences know how to protect, maintain and restore rural areas that affect waterways.	• Private Landholder NRM Grants Program; • Community capacity building including short workshops for landholders on best practice land management; and • Rural Residential / Rural Living Kit.
Communication, Education and Motivation – Increased protection and conservation of high quality waterways, including those of high ecological value, due to greater stakeholder understanding of their location and importance.	• Community capacity building including short workshops for landholders on best practice land management; • Rural Residential / Rural Living Kit; and • Mt Esk Pocket to D'Aguilar Range Biodiversity Corridors Partnership Project.

5 ASSESSMENT OF NRM ASSETS - WATER

Esk Shire belongs to the Western Catchments region of Southeast Queensland. Stretching 200 km from north to south and 120 km from west to east, the region comprises the Stanley and Upper Brisbane Catchments, the Lockyer Catchment, and the Bremer and Mid Brisbane Catchments (SEQWCG, 2004). The following sections on the NRM assets for Esk Shire outline the value of each NRM asset, its current condition or threats to its condition and any relevant Esk Shire Planning Scheme information for that asset. Information on each NRM asset has been obtained through a detailed literature review process, consultation with key stakeholders and field work observations.

5.1 Description of Major Catchments

The major catchment areas of the Shire include the Stanley River, the Upper Brisbane River, and the Mid Brisbane River. The twelve major sub-catchments in Esk Shire, Lake Wivenhoe, Lake Atkinson and the southern portion of Lake Somerset form major geographic features for the Shire (ESC, 2005). **Figure 2** outlines the inflows and outflows to the Wivenhoe and Somerset systems. **Figure F1** outlines the major catchments, waterways and water storages.

The major tributaries associated with the Shire's topographic features include the lower reaches of tributaries following from the Great Dividing Range include Cooyar, Emu, Maronghi, Ivory and Cressbrook Creeks. The main eastern tributaries draining the watershed of the Jimna Range include Avoca, Monsildale, Arababy, Neara and Gregors Creek, which flow in a south-westerly direction to join the Brisbane River above the confluence with the Stanley River. Esk Creek flows into the western side of Lake Wivenhoe with small streams such as Sandy, Middle and Northbrook Creeks drain the land from the watershed of the D'Aguilar Range to the east (McLeod, 2006).

The information on the condition of the major catchments outlined in **Section 5.3** to **5.5** is based on the State of the Rivers Assessment undertaken by D.P. Johnson in 2005 for the Upper Brisbane, Mid Brisbane and Stanley Rivers.

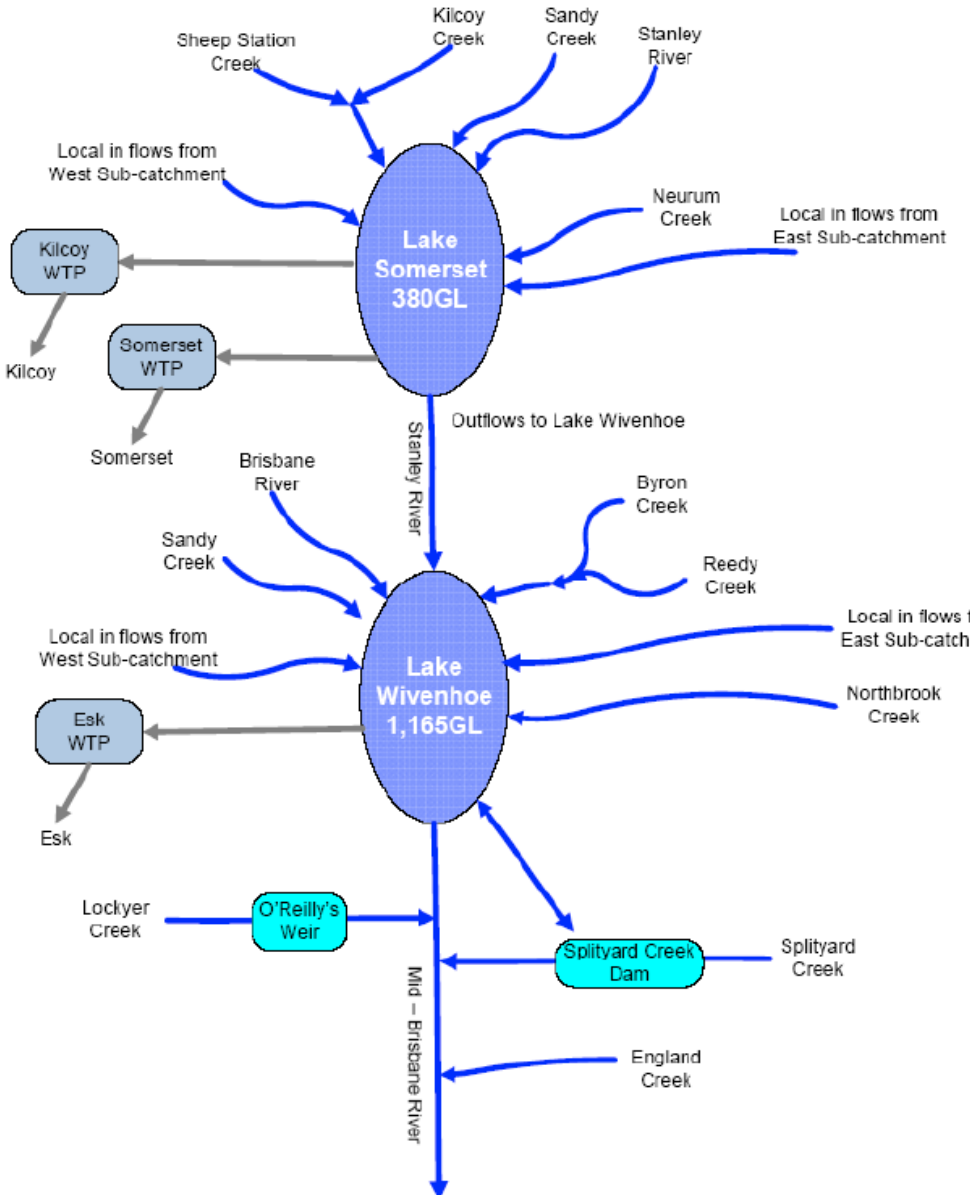


Figure 2: Schematic of the Somerset / Wivenhoe System Showing Inflows and Outflows

(SEQWater and Brisbane Water, 2006).

5.2 Description of Water Storages

The major waterways and water storages in Esk Shire are outlined in **Figure F3.** Somerset Dam is built on the Stanley River above the confluence of the Brisbane and Stanley Rivers and upstream of Lake Wivenhoe (**Figure 2**). The construction of Somerset Dam has inundated over 60 km of former river environment converting it an artificial lake system with a shoreline of 240 km (Stanley River Catchment Action Group, 2003).

Lake Somerset is a 380 GL (full supply) plus 524 GL (flood storage) reservoir that extends from just east of Watts Bridge in the south to Kilcoy in the north. It is used primarily as an on–river storage and in non-drought affected conditions releases water directly into Lake Wivenhoe via the Stanley River. The catchment drains a 1 503 km^2 area to the north and north – east of the upper reaches of the reservoir including the catchments of the Stanley River to the north - east.

Sheep Station Creek is located to the north – west, and Kilcoy and Sandy Creeks to the north. There are minor inflows from the sub-catchments to the east and west of the reservoir (SEQ Water and Brisbane Water, 2006).

Water is abstracted from Lake Somerset for both potable and agricultural supply, and the water is used directly for both agricultural and recreational use (SEQ Water and Brisbane Water, 2006). Water skiing and power boating are permitted at Lake Somerset.

Wivenhoe Dam is built across the Brisbane River and forms Lake Wivenhoe – a 1 165 GL (full supply) plus 1 450 GL (flood storage) reservoir. The dam is located about 150 kilometres upstream from the mouth of the Brisbane River, and about 60 km upstream from Mt Crosby Weir. Lake Wivenhoe is the largest water storage in SEQ. The catchment for Lake Wivenhoe drains a 5 554 km^2 area to north - west of the reservoir. Main inflows to Lake Wivenhoe are from the Brisbane River to the north - west, with minor inflows from the Byron, Reedy and Northbrook Creeks draining the sub–catchments to the east, and Sandy Creek draining the subcatchment to the west. Lake Wivenhoe also receives a substantial inflow from the Stanley River / Lake Somerset catchment to the north east (SEQ Water and Brisbane Water, 2006).

Water from Lake Wivenhoe discharges into the Mid Brisbane River (**Figure 3**). The confluence of Lockyer Creek with the Brisbane River is about 2.5 km downstream from the dam wall (SEQ Water and Brisbane Water, 2006).

ESC reports that there are approximately one million visitors a year to Lake Wivenhoe and Lake Somerset (ESC Corporate Plan, 2007).

Cressbrook Dam is located adjacent to the western boundary of Esk Shire and is the largest and newest of Toowoomba City Council's water supply dams. The dam is located on Cressbrook Creek approximately 10 km downstream from Perservance Dam. Construction of the dam was completed in 1983 and it covers a catchment area of 320 km^2 (including Perseverance) (Tooowoomba City Council, 2006).

Atkinson Dam, located at Coominya, was a natural lagoon prior to the construction of the dam wall in 1970. It has a surface area of 550 ha and holds some 30 500 ML of water for irrigation purposes (Atkinson Dam Waterfront Caravan Park, 2007). Currently this dam is not functioning as a water storage due to the extreme drought conditions.

The water storages within Esk Shire are highly valued because they provide:

- drinking water supply for urban consumers;
- industrial water supply;
- agricultural water supply for irrigation and stock water;
- flood mitigation;
- groundwater recharge; and
- recreational opportunities (SEQ WCG, 2004).

A small area around Wivenhoe Dam is a declared catchment area for the purposes of managing water supply and water quality; however the storages exist in an 'open' catchment (SEQ WCG, 2004). SEQWater undertakes water quality monitoring in the three major water storages in Esk Shire and its associated creeks and in the mid Brisbane River. The Moreton Bay Waterways and Catchments Partnership (referred to as Healthy Waterways) conducts its Ecosystem Health Monitoring Program throughout the region. The SEQ Catchments Community Water Quality Monitoring Program monitors physiochemical indicators at various sites within the catchment (B Lord, pers.comm. 2007). The results for the Western Catchment areas show that the water quality is generally poor in the lower reaches of the catchments (SEQ WCG, 2004).

5.3 Upper Brisbane River and General Catchment Condition Information

The following is a summary of the catchment condition information from the State of the Rivers Assessment undertaken in 2005:

- a high proportion of unstable banks were recorded in the Upper Brisbane River catchment areas;
- unstable river beds were recorded in the Monsildale Creek subcatchment;
- channel habitat diversity is highest in the Monsildale Creek subcatchment and the Upper Brisbane River subcatchment;
- impounded areas within Esk Shire have long deep runs or pools that provide low channel habitat diversity;
- the majority of very poor reaches for riparian condition ratings are located within the Monsildale Creek and Upper Brisbane River subcatchments including Ivory and Maronghi Creeks (Johnson, 2005). Due to the lack of riparian vegetation, high levels of aquatic vegetation occur in the above mentioned subcatchments, due to the ability to flourish in an unshaded environment;
- good to very good riparian condition was recorded for the upper reaches of the Emu and Cressbrook Creek subcatchments;
- several stream obstructions recorded in the Upper Brisbane River catchment such as waterfalls, cascades, rapids and log jams, individual logs and other low features. Some of these obstructions could be passed when flow was at 1/3 or 2/3 bank height; and
- in the Upper Brisbane River catchment banks with high susceptibility to erosion include those in Gregor Creek subcatchment (Johnson, 2005).

Within Esk Shire some of the middle reaches and most of the lower reaches of all catchments have limited riparian vegetation. There is considerable variability in riparian vegetation within the Upper Brisbane catchment (SEQ WCG, 2004).

The erosion potential of hotspot areas such as the Emu, Ivory, Maronghi, Redbank and Cressbrook Creek subcatchments has been highlighted during recent SEQ Catchments and SEQWater workshops.

5.4 Specific Mid Brisbane River Catchment Condition Information

The water quality of the Mid Brisbane River is significantly affected by the upstream catchment processes that occur in the Upper Brisbane River Catchment (B Lord, pers.comm. 2007).

Specific condition information from the State of the Rivers Assessment for the Mid Brisbane River Catchment includes:

- a high proportion of unstable banks were recorded in the Mid Brisbane River catchment areas. Banks with high susceptibility to erosion were recorded in the Black Snake, Spring and Sandy Creeks and Ferny Creek;
- bed stability was generally very good in the Mid Brisbane River catchment, with impacts on bed stability recorded through grazing and bank erosion; and
- there is considerable diversity in riparian vegetation condition throughout the catchment, only 3% of the stream length is completely bare (Johnson, 2005).

The Mid Brisbane is a sixty km long river channel that is used for unmanaged recreational activities that may adversely affect water quality. This is a significant risk to the region's water supply. The Mid Brisbane River is the premier canoe site in South-east Queensland due to the landscape setting, water quality, water quantity and long stretch of river for canoeing (Sinclair Knight Merz, 2004).

The Mid Brisbane River is home to the Australian Lungfish (*Neoceratodus forsteri*). This species has been listed as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and is protected under the *Queensland Fisheries Act 1994*. It is likely that Lungfish inhabit the Mid Brisbane, as anecdotal evidence suggests. There are also large colonies of Platypus (*Ornithorhynchus anatinus*) in the Mid Brisbane and although not a protected species in Queensland, they retain an iconic status due to their uniqueness (Sinclair Knight Merz, 2004).

A photograph showing the condition of riparian vegetation along the Brisbane River near Lowood is outlined in **Plate P1**.

5.5 Specific Stanley River Catchment Condition Information

Only a small amount of the Stanley River Catchment is located within Esk Shire, thus the catchment condition information presented here is generalised for the whole catchment and includes:

- bank stability is good and bed and bar condition is stable except for a few sites where sediment accumulation occurs (SEQ WCG, 2004);
- the middle to lower reaches of the Stanley Catchment contain sclerophyllous riparian vegetation in the middle and lower reaches of the Stanley (SEQ WCG, 2004); and
- for the 2006 Ecosystem Health Monotring Program Report Card for the Stanley River a score of B- (ranked out of A to F) was received for the Stanley Catchment. The streams were reported to be in good condition with a decline in the ecosystem processes indicator since 2005 (Healthy Waterways, 2006a).

5.6 General Threats to Surface Water and Catchment Values

Threats to surface water supplies and quality include:

- increased demand for already depleted water supples;
- salinity – particularly in the Mid Brisbane River Catchment (B Lord, pers. comm, 2007); and
- pollutants / contaminants;
    - urban and peri – urban development – including impacts from vegetation clearing, septic systems, sewage treatment plants and stormwater management;
    - intensive livestock industries;
    - cattle grazing in riparian areas and watercourses (refer to photograph of cattle grazing in the Upper Brisbane River in **Plate P2**);
    - industry – mining and quarrying, discharge of waste water, disposal of hazardous waste;
    - recreational activity on reservoirs (SEQ WCG, 2004);
    - runoff from unsealed rural roads, quarries and infrastructure pipelines and powerlines with limited erosion and sediment control measures (B Lord, pers.comm. 2007);
    - increased sediments and nutrients entering watercourses from natural erosion processes across the whole catchment (B Lord, pers. comm. 2007);
    - weed infested creeks with overgrowth of weeds limiting environmental flows e.g. Blackbutt Creek near Linville; and
    - denuded riparian zones (refer to photography of the lack of riparian vegetation along the Stanley River, outlined in **Plate P3**).

Ten sewerage treatment plants are located within the Wivenhoe and Somerset catchments; these are potential point sources of pollution (SEQWater, 2001b). The sewerage treatment plants in Esk Shire are located at Toogoolawah, Esk, Fernvale and Lowood. Around Esk unsewered areas and sewerage treatment plants are located close to streams (Kinhill, 2000).

SEQWater could assist with prioritising those plants that may require facility upgrade. As part of a Lake Wivenhoe and Somerset catchment investigation undertaken in 2000, it was outlined that the sewerage treatment plants do not appear to contribute significantly to the elevation of pollutant export rates other than the Toogoolawah Sewerage Treatment Plant (Kinhill, 2000). Pathogens that may cause concern are *Escherichia coli*, *Cryptosporidium parvum*, *C. hominis*, *Giardia lamblia* and *Clostridium perfringens* (SEQWater and Brisbane Water, 2006).

With respect to animal husbandry impacts, cattle generally have unrestricted access to streams flowing into both Wivenhoe and Somerset dams and to their shores, resulting in nutrient and sediment inputs into the lakes (SEQ WCG, 2004). Cryptosporidum from cows can move straight through the river system as it spreads through cattle faecal matter leading to increased water treatment costs (SEQWater, 2007c). Landuses such as pasture and cropping, which cover large areas of the Wivenhoe and Somerset catchments are significant contributors to pollutant levels (Kinhill, 2000). Toogoolawah is recognised as a hotspot for water quality issues due to the diaries, feed lots, sewerage treatment plant and cropping uses all located within close proximity to streams (Kinhill, 2000).

Excess nutrients provide a major threat to water quality in waterways and storages in Esk Shire. The majority of excess nutrients in the Western Catchments usually arise from particulate sources such as soil and riverbank erosion (SEQ WCG, 2004). Sediment modelling indicates that streambank erosion produced 55% of the total sediment supply to streams in the Western Catchments. In Esk Shire most of this originates in the Upper Brisbane catchment. High rates of erosion are produced from cropping lands; however grazing lands produce the greatest amount of total erosion. Most deposition of sediment occurs in the reservoirs in the Shire, with only 30% of the total deposition occurring within the floodplains of the Western Catchments.

Concerns have been raised by Esk Shire residents about the Coal Creek landfill site and the perceived water quality issues that it is creating. The condition of this landfill site and the release of any pollutants must be urgently reviewed by Council.

Further information is required on the number of farm dams in the Shire and on the impacts these dams are having on stream flow (W.T. Wong, pers comm in SEQ WCG, 2004), as well as the impacts of increasing numbers of bores being used on rural and rural residential properties (B Lord, pers.comm. 2007).

5.7 Water Quality Information for Lake Somerset

Lake Somerset acts as a large control area that helps to reduce water quality risks downstream. Adjoining landuses include diaries, cattle farming, pasture lands, forests and some peri – urban development. Significant feral pig and deer populations exist particularly around the catchment area above Lake Somerset (SEQWater, 2007c).

Dairying has significantly declined in the catchment (SEQWater, 2007c). The issue of old dairy waste dams still exists as water pumped onto pastures may eventually flow into adjoining creeks. There is an urgent need for more fencing and off-stream watering points to reduce water quality impacts resulting from on-farm dams. Some operators undertake water quality and environmental monitoring on their properties in accordance with EPA licence conditions for ERAs (SEQ Water, 2007c).

Additional land management issues are caused by the increasing number of hobby farmers in the area as the dairy industry has declined. It is perceived that these landholders in some cases have limited appropriate land management experience. Carcass dumping is an increasing problem for waterway management and turbidity issues result from extensive 4WD and mountain bike use within the catchment. There is also pressure existing for developing greater extractive industry areas in the catchment (however greater pressure exists in the southern area of Esk Shire) (SEQWater, 2007c). In addition, chemicals used in the northern part of the Shire are leading to downstream water quality issues.

The HLOF Plan identifies that there is a particular concern around Somerset Dam and in the mid Brisbane River regarding failing or inadequate septic systems, which may propose a health risk through the potential presence of pathogens in drinking water (SEQ WCG, 2004). Recent studies have reported that potentially 50 to 80% of those are failing (A Volders, pers. comm. 2007). Greater impacts result from failing septic systems when wet weather periods occur and the systems are affected by rainfall, particularly where those systems are located near to watercourses. Ancedotal evidence exists regarding illegal dumping of materials in the gullies of the Shire (SEQWater, 2007c).

Recreational use of Lake Somerset is significant, particularly during Christmas, Easter and Australia Day Holidays, when thousands of people use the Lake Somerset area on a daily basis (SEQWater, 2007c).

5.8 Water Quality Information for Upper Brisbane and Lake Wivenhoe

Water flows from the Upper Brisbane River into Lake Wivenhoe. Traditionally water has also flowed between Lake Somerset and Lake Wivenhoe.

In comparison to Lake Somerset and its catchment there are more landholdings within the Wivenhoe catchment. This has resulted in larger numbers of stock and soil erosion, leading to greater water quality impacts. There is also more recreation access points to the river and greater turbidity issues. Erosion around the shoreline is significant at Lake Wivenhoe, especially as the banks are highly exposed during the current drought conditions (SEQWater, 2007c).

The current condition and status of water quality within Lake Wivenhoe is directly related to the landuses within the catchment, the level of riparian vegetation modification and increased sediment loads entering waterways particularly from the township areas (SEQ WCG, 2004).

During high flow conditions, these sediments and nutrients are deposited in Wivenhoe Dam, which when combined with other factors contribute to algal blooms. A 1999 study undertaken by SEQWater found high tissue metal concentrations in fish at the northern end of Wivenhoe Dam. It was concluded that these metals might have been absorbed from contaminated sediments, deposited from sources in the Upper Brisbane River (SEQ WCG, 2004).

Other catchment uses that have the potential to impact water quality include:

- landfills located within the catchment with potential for leaching to groundwater systems (e.g. Coal Creek landfill);
- extractive industries (including riverine quarring) and resultant increases in turbidity; and
- failing septic systems and Home Sewerage Treatment Plants (SEQWater, 2007c).

The Ecosystem Health Monitoring Program 2006 Report Card noted that the Upper Brisbane Catchment received a D ranking as the streams were described as being in poor condition and there was a decline from the 2005 score of C- due to the poor scores for macroinvertebrates and fish indicators (Healthy Waterways, 2006a).

Water quality for the water supply storages is evaluated against National Guidelines (National Water Quality Management Guidelines, ANZECC 2001). Levels of chlorophyll, nutrients, sediment and coliforms entering the local waterways, Brisbane River and Lake Wivenhoe are periodically in excess of these National Guidelines. It is recognised that this is an issue for local governments in the Upper Brisbane River catchment including Esk Shire. There is a need for a "whole of catchment" approach by local government and key stakeholders to proactively addressing water quality issues particularly in areas of run-off from grazing, intensive animal industries, septic tanks and sewage treatment plants (ESC, 2005).

Risk assessments were recently undertaken by SEQWater and Brisbane Water to examine the impact of falling dam levels on water quality parameters. The assessment shows that for most water quality parameters examined, continued drought or slow filling rains are unlikely to present an increased risk to drinking water supply from decreased quality of source water. The greatest risks to adverse water quality outcomes relate to scenarios involving rapid refilling of the lakes due to rainstorms especially those that cause increased inflows into the Mid Brisbane River. All the risks to water quality parameters that were examined are considered manageable (SEQWater and Brisbane Water, 2006).

5.9 Water Quality Information for the Mid Brisbane River

The Mid Brisbane River Recreation Management Plan reported that all water quality parameters examined except for bacteriological parameters (Total Coliforms, Faecal Coliforms and *E.coli*) improve as water travels down the Mid Brisbane (Sinclair Knight Merz, 2004). This is a reflection of the critical ecosystem services that the Mid Brisbane provides.

The Ecosystem Health Monitoring Program 2006 Report Card gave the Mid Brisbane Catchment a score of C+ which was the same as the 2005 score. The water quality monitoring site in the Mid Brisbane showed the area was in fair condition, the scores for physical-chemical and aquatic macro invertebrate indicators were excellent for both seasons and the results for nutrient cycling were highly variable (Healthy Waterways, 2006a).

5.10 Groundwater Resources

There is very limited information available about the groundwater resources within Esk Shire or the broader region, although the groundwater studies, models and plans that have been developed include:

- groundwater studies and monitoring for the Lockyer and Cressbrook Creek areas have been conducted by DNRW;
- work has been undertaken by the Lockyer Water Users Forum to develop a self management model;
- the Moreton Water Resource Plan includes a Lockyer Valley Groundwater Management Area and Cressbrook Creek alluvial underground water management area; and
- the Clarence - Moreton Management Area is included under the Great Artesian Basin Water Resource Plan (Lord, pers.comm, 2007).

Limited data for the Brisbane River and Scrub Creek at Toogoolawah shows steady groundwater levels, however records are only from 1960 to 1990. Cressbrook Creek has an overall trend of falling groundwater levels (McLeod, 2006).

Dispute detailed information there is little doubt that groundwater resources are under pressure and in some cases running dry particularly during times of drought. Groundwater supplies are important for their significant contribution to the provision of water for irrigation and agriculture. ESC uses small volumes of groundwater for drinking water supplies (SEQ WCG, 2004). There is a threat during times of drought that the rate of extraction may exceed the rate of groundwater recharge (NR&M 2002 and Jones 2003 in SEQ WCG, 2004). Undertaking catchment management actions to improve the condition of surface water will also improve the condition of groundwater resources.

The threats to groundwater supply and condition include increased demand, pollutants and contaminants and salinity (SEQ WCG, 2004). Further information is required about the presence of groundwater dependent ecosystems in Esk Shire, to determine the impacts of water extraction on these ecosystems. A trend for increasing levels of salinity has been identified for groundwater supplies in the Upper Brisbane catchment (SEQ WCG, 2004).

Fieldwork undertaken for this project revealed that illegal pumps are being used and are visible around the Shire; however, no enforcement is occurring by DNRW to control the use of these pumps. The establishment of these pumps and consequent disturbance to creek banks impacts upon instream processes, with greater impacts expected during high flow conditions.

5.11 Aquatic Ecosystems

Further local information is required about aquatic ecosystems in Esk Shire. There are 17 aquatic species found in the Western Catchments region that are considered rare or threatened under state legislation. Under the State of the Rivers Assessment for the Mid Brisbane River Catchment aquatic vegetation rated very poor for the majority of the catchment (Johnson, 2005). Aquatic ecosystems are threatened by multiple threats including erosion, hydrological imbalances, pest species, salinity, pollutants and contaminants and landuse changes (SEQ WCG, 2004).

Healthy aquatic ecosystems are considered vital for the maintenance of good water quality, particularly in Esk Shire due its role in the provision of water supply for SEQ. In the Western Catchments region many habitat alterations can be attributed to human influences. Construction of major waterway barriers and removal of large woody debris alter in-stream habitat. The construction of Wivenhoe, Somerset and Atkinson dams has changed significant areas of riverine habitat into lake ecosystems (SEQ WCG, 2004). Weirs within waterways significantly alter the surrounding aquatic habitat; however, one area below Wivenhoe Dam has changed from a pool zone to a riffle zone with significant increases in macroinvertebrate diversity (SEQ WCG, 2004). The Healthy Waterways Ecosystem Health Monitoring Program 2006 Report Card for the Upper Brisbane Catchment highlighted declines in scores for macroinvertebrate and fish indicators (Healthy Waterways, 2006a).

Aquatic weeds present in the region include Water hyacincth (*Eichhornia crassipes*) and Anchored water hyacinth (*E. azurea*). Community members have raised concerns about the significant aquatic weed management issues that could result when drought breaking rain finally does occur, with significant impacts on water flow, snagging within individual reaches and transport of weed materials significant distances downstream predicted.

Fish species are reported to be poorly represented in the Upper Brisbane and Stanley River catchments, as the major barriers constructed along the length of these rivers have constrained fish movement. Poor water quality and degraded in-stream habitat and riparian vegetation has also impacted on levels of fish diversity (Udy *et.al*. 2002a in (SEQ WCG, 2004). Exotic fish species have been introduced into Lake Wivenhoe and Lake Somerset and the downstream reaches of the Brisbane River. Both lakes have been stocked with Australian Bass (*Macquarie novemaculeata),* Golden Perch (*Macquaria ambigua*), Silver Perch (*Bidyanus bidyanus*) and Saratoga (*Scleropages leichardti*), which are affecting native fish populations through competition, whilst other impacts are unknown (SEQ WCG, 2004).

Aquatic weed species of national significance that impact upon on aquatic ecosystems may include:

- Salvinia (*Salvinia molesta*);
- Caboomba (*Cabomba caroliniana*); and
- Hymenachne (*Hymenache amplexicaulis*).

5.12 Planning Scheme Information for Water Assets

The Catchment Management Overlay in the Esk Shire Planning Scheme consists of Category A areas in the south of the Shire that are higher risk areas for maintaining and or enhancing water quality. Category A areas include the:

- Mid Brisbane River;
- Upper Brisbane River and Lake Wivenhoe area (which is a declared catchment area);
- Cressbrook Creek;
- Buraraba Creek;
- Ivory Creek; and
- Lower Lockyer Creek (part) (ESC, 2005).

Category B areas are classified as a medium risk to the maintenance of local, Shire and regional waterbodies. The Upper Brisbane River – Linville District, Stanley River – Lake Somerset, Monsildale and Gregors Creeks are the major waterways in this category. Major catchment areas are identified in **Figure F1.**

Agriculture, animal husbandry and aquaculture uses are exempt from the provisions of the Catchment Management Overlay Code. When a material change of use is proposed for common uses such as houses, multiple dwellings, rural industry or stables within 100 m of a stream in a Category B subcatchment or 200 m from a stream in a Category A subcatchment, the application is to be assessed against the provisions of the Catchment Management Overlay Code. The same applies for reconfiguring a lot and operational works (filling and excavation) applications. The Catchment Management Overlay Code seeks to protect water quality and riparian vegetation (ESC, 2005).

Whilst these buffer provisions are useful for reducing impacts from development adjacent to watercourses, there are significant areas throughout the Shire that because of agricultural uses will not be subject to those provisions. Considerable gully areas and watercourses classified as stream orders one and two are inadequately protected and rely on landholders undertaking appropriate riparian management practices to ensure significant erosion and water quality impacts do not result. This issue should be monitored and discussed during any future reviews of the Catchment Management Overlay Code provisions.

Detailed information on water sensitive urban design measures is available through Healthy Waterways (Healthy Waterways, 2006b) and SEQWater. This information would greatly assist ESC and the community to implement water sensitive development.

"This page has been left blank intentionally"

6 ASSESSMENT OF NRM ASSETS - LAND

6.1 Description of Land Resources

Land resources include the living soil, regolith (unconsolidated rock) and bedrock that together comprise the landforms of Esk Shire. A range of ecosystem services are provided by land resources including groundwater recharge, nutrient cycling and supporting terrestrial ecosystems and a variety of plants and animals (SEQ WCG, 2004).

The major topographic features of the Shire include the D'Aguilar Range which runs along the eastern boundary of the Shire and includes Mount Mee State Forest. North of Lake Somerset is Mt Brisbane, Mt Pine View and Mt Miner which joins the Jimna Range.

Around Lake Somerset is Mt Moore, Mt Miner, Mt Pascoe, Mt Pine View, Mt Spencer and Mt Stanley which is the highest mountain in that region, being 522 m high. The Blackbutt Range forms the western Shire boundary of ESC and extends from Emu Creek north including Benarkin State Forest where it meets the Brisbane Range, which is the watershed for the headwaters of the Brisbane River.

The Balfour Range is located west of the township of Moore and is visible from the Brisbane Valley Highway. Mt Deongwar is located near Cressbrook Creek in the south-western part of the Shire, it stands at 548 m. The topography of the Shire has greatly influenced the settlement patterns including the location of the major townships and rural areas on the river plains surrounding the Brisbane River and the location of forestry areas on the Shire boundaries where the steepest slopes are located.

Land resources support and are altered by, a variety of land uses within Esk Shire, such as feedlots, dairy farms, poultry farms, aquaculture, piggeries, abattoirs, nature conservation, forestry, grazing, cropping, mineral extraction, rural residential and urban uses (SEQ WCG, 2004). Primary production is intended to maintain its dominance of the Shire's economy (ESC, 2005). Currently rural activities are diversifying into value adding industries through the development of "niche market" products and farm based tourism (ESC, 2005). Significant irrigation occurs in the Shire particularly for lucerne and vegetable crops and turf.

Within the major catchments there are intensive rural industries including cattle feedlots, piggeries, dairying and an abattoir. More recently there has been a move away from a predominance of dairy farms to beef cattle farming (SEQWater and Brisbane Water, 2006).

Throughout the Upper Brisbane River catchment common land uses include grazing on land where native vegetation has been thinned and grazing on cleared land (Johnson, 2005). Similar land uses exist in the Mid Brisbane River catchment; however, higher proportions of grazing on land that has been subject to thinning processes occurs (Johnson, 2005). There is evidence of crops being grown in the riparian zone areas throughout these catchments, with consequential impacts on water quality during periods of soil disturbance.

Agricultural production has focused on the fertile soils of the alluvial flood plains of the Brisbane River and the major tributaries of Cressbrook, Emu and Maronghi Creeks. Field crops grown predominately within the Upper Brisbane area include cereals, soyabeans, sorghum, lucerne and other fodder crops which make up the majority of the total cropping area. Other areas are devoted to vegetable crops such as potatoes, pumpkins, sweet corn and watermelon, with small areas of stonefruit, citrus, olives and avocados (McLeod, 2006).

SEQWater is responsible for the management of areas around their dams in conjunction with landholders who lease land from the corporation. Although SEQWater owns numerous parcels of land and manages them for water quality, the existence of long term leases around the edges of Wivenhoe and Somerset dams presents a challenge for the management of these foreshore zones, most of which are using for grazing and agricultural pursuits (SEQ WCG, 2004).

Peri - urban areas are common on the fringes of agricultural areas and urban centres including Esk and Toogoolawah, with rural residential living and hobby farming maintaining popularity. Lifestyle choices are causing a high demand for these types of houses, leading to a general intensification of land use (SEQWCG, 2004). **Plate P4** shows the rural residential areas currently around Fernvale. Intensification of land uses from rural to peri – urban uses has increased impacts on natural resource values, particularly through fragmentation of larger land parcels.

Within Esk Shire the potential for establishment of farm forestry plantations on private land is under realised currently and could be an effective land management tool for smaller lifestyle blocks and rural properties. The Forestry Code contained in the Esk Shire Planning Scheme includes provisions for notifying the public (using appropriate signage) of the private forestry use and the registration number of the forestry development (ESC, 2005).

6.2 Threats to Land Resources

Threats to the sustainability of land resources include:

- erosion (refer to **Plate P5** which shows an example of hillslope erosion near Savage's Crossing);
- salinity;
- land use change;
- inappropriate development / uses e.g. intensive agricultural, rural residential or recreational pursuits;
- pest species;
- inappropriate bushfire management regimes;
- pollutants and contaminants; and
- soil health decline.

Soil health decline can be caused through damage to the soil structure through one or a combination of the following factors:

- inappropriate tillage methods;
- poor irrigation methods; and
- burning, overgrazing or removal of organic matter (SEQWCG, 2004).

Salinity issues are becoming apparent at Lowood, particularly around Blacksnake Creek and Ipswich City Council has reported problems with saline creek systems, which results in upper catchment areas that flow into Ipswich City Council's area, potentially being affected.

Figure F4 shows the Confluence of Issues mapping for the 2006 SEQ Regional Landscape Assessment undertaken by SEQ Catchments. It highlights the areas of high and very high land degradation risk including very high areas concentrated around Harlin, Toogoolawah and north of Linville.

6.3 Recreation Management Issues

Significant NRM issues are occurring in Esk Shire, due to inadequate management and inappropriate public use of several popular recreation areas throughout the Shire, with major impacts occurring for popular sites on the Mid-Brisbane River around Fernvale and Lowood. The Mid-Brisbane River is set within an attractive rural, semi-natural landscape. This landscape is inviting to increasing numbers of recreational users who canoe, camp, swim and enjoy themselves in their thousands along the river beds and banks (ESC, 2007b).

The area has no recreational facilities, no management, fees or rules and consequently, attracts many users who see this as an opportunity to engage in many anti-social and inappropriate activities with little fear of reprisal or regulation. Visitors commonly trespass, damage private property, engage in drug-use and leave rubbish and effluent on or in the river; the region's water supply. Continued overuse of informal recreation areas, particularly those which provide access to the Mid Brisbane River is resulting in significant degradation of land and water resources and biodiversity and open space values (Sinclair Knight Merz, 2004). Examples include camping sites along the Brisbane River at Lowood (Lower Bend) where camping and trail bike riding is causing erosion and degradation.

Such landuses are unsustainable in the Mid Brisbane area (Sinclair Knight Merz, 2004), particularly as Council has limited funding to address these issues. These sites hold enormous potential for servicing the increasing outdoor recreation needs of not only local residents but also the populations outside of Esk Shire (ESC, 2007b).

In 2004 the Recreation Management Plan for the Mid-Brisbane River was prepared for ESC, Brisbane and Ipswich City Councils and SEQWater. This plan outlined actions for improved recreation management at key sites, including Twin Bridges and Savages Crossing. Due to lack of funding the majority of these actions have not been implemented to date.

Council is soon to commence a Master Plan Study for the Twin Bridges, Savages Crossing, Fielding Reserve, Lowood Bend and Hills Reserves. This project is outlined further in **Table 15**. **Table 7** outlines the management issues observed at the sites during field investigations and additional management actions that are recommended to be considered during the Master Plan Study that will improve NRM values. The management actions from the Recreation Management Plan still need to be referred to for the Master Plan Study, as it is not the intention of this NRMP to duplicate that plan.

With respect to Fielding Reserve, Council already has had to close off this reserve, due to public safety issues and high levels of land degradation and erosion. This site also accesses the Brisbane River and is subject to significant weed infestations that are currently not being managed.

Table 7: Management Issues and Actions for Key Recreation Areas in Esk Shire

Description of Area and Owner	Management Issues	Additional Proposed Management Actions
Hill's Crossing, land adjacent to the Brisbane River near the southern boundary of the Shire. This land is owned by DNRW. Refer to **Plate P6** which shows the Brisbane River adjacent to the Hill's Crossing land.	Significant weed infestations along the riverbank and reserve area including Cats Claw Creeper, Water Hyacinth and Annual Ragweed. Downstream impacts resulting for Ipswich City Council. Bollards have been constructed to keep out trailbike riders and people camping illegally.	Discussions to be held with DRNW regarding land management particularly of declared weeds under their control and opportunities for improving the condition of this site. Site based master plans to include revegetation plans to address erosion, weed management and riparian issues.
Rafting site on Brisbane River, off Pine Mountain Road.	Easy vehicle access to this area, therefore uncontrolled recreation is occurring leading to overuse of the area. Significant weed infestations along the riverbank, exacerbated by disturbance to the area. Pressure on Council to provide a formalised car park and boat ramp.	Investigate whether formalised access can be provided here and then determine management responses based on provision of infrastructure or not. Weed management efforts and revegetation would greatly assist with improving the condition of this site.
Savage's Crossing, Brisbane River (refer to **Plate P7** which shows the limited riparian buffer area).	Cattle grazing within the riparian area. Council has blocked off the riparian section in front of the car park, as vehicles were accessing the creek bank. Lack of riparian vegetation and encroachment by weed infestations. Water hyacinth observed to be spreading down the river. Significant potential for hillslope erosion in surrounding areas and poor erosion and sediment control measures undertaken during construction work on unsealed road that leads to Savage's Crossing.	Subject to the master plan provisions (to be determined). Management measures to improve the environmental condition of the site could include removing the cattle from the riparian area, revegetation of the most exposed and eroded parts of the riparian area and implement improved erosion and sediment control practices for Council operations.

Description of Area and Owner	Management Issues	Additional Proposed Management Actions
Twin Bridges, Lowood. Owned by DNRW who are not actively managing the land and parts of the reserve are road reserve owned by the Department of Main Roads.	Significant overuse of these areas is occurring. Bollards have been constructed to reduce access to sensitive sites. Cattle are present within the riparian buffer area. Illegal camping and firewood collection is occurring in the areas.	Council is currently providing more management input into this site than the DNRW. Discussions need to be held with DNRW regarding future land ownership. The master plan studies should determine appropriate access options and have revegetation and weed control zones elsewhere on the site.

As a general recommendation, Council could investigate the potential for:

- any road closures in highly impacted reserves; and
- Community Jobs Program or Australian Trust for Conservation Volunteers Programs that can be organised to be undertaken within the reserves.

6.4 Planning Scheme Information Relating to Land

Rural zone precincts in the southern part of the Shire include the arable agricultural precinct and rural pursuits precinct. The most productive (Class A) GQAL is located within the central portion of the Shire, particularly above Wivenhoe Dam and in the south - east corner of the Shire. Class B land is found around the perimeter of Class A land in the central portion of the Shire, with a major area in the south - western corner of the Shire. Class C GQAL is located around Wivenhoe Dam, with scattered sections to the north of that area.

Table 8 outlines the descriptions for each class of GQAL. **Figure F5** shows the GQAL mapped for Esk Shire.

Table 8: GQAL Class Descriptions

Class	Description
A	Crop land - Land that is suitable for current and potential crops with limitations to production, which range from none to moderate levels.
B	Limited crop land - Land that is marginal for current and potential crops due to severe limitations; and suitable for pastures. Engineering and / or agronomic improvements may be required before the land is considered suitable for cropping.
C	Pasture land - Land that is suitable only for improved or native pastures due to limitations which preclude continuous cultivation for crop production; but some areas may tolerate a short period of ground disturbance for pasture establishment.

(Department of Primary Industries and Department of Housing, Local Government and Planning, 1993).

A particular concern for GQAL is the increasing pressure on this resource created by proposals for large lot residential development and other rural subdivision (ESC, 2005).Since the introduction of the Esk Shire Planning Scheme the SEQRP has introduced new provisions for controlling urban and rural development, which should assist with the protection of GQAL in the RLRP areas.

Extractive resources are outlined on the southern boundary of the Shire and to the north-west of Lake Wivenhoe. These are areas with sand and gravel deposits located within the vicinity of the Brisbane River. The potential resources outlined in the Esk Shire Planning Scheme are hard rock deposits (B.Sully, pers. comm, 2007).

A further concern is the pressure on GQAL to be used for extractive industry purposes, in particular, the extraction of quarry material in the floodplain. The Esk Shire planning scheme states that the protection of GQAL is to take precedence in these circumstances. The position between the State Planning Policy 1/92 Development and Conservation of Agricultural Land and Draft State Planning Policy for the Protection of Extractive Resources, needs to be clarified when the State Planning Policy for the Protection of Extractive Resources is realised (DNRW, 2006c).

The Queensland Government has undertaken resource identification investigations within the alluvial terraces of the upper Brisbane River, Buaraba Creek and the Mid Brisbane River. Possible extractive deposits have been identified; however, these investigations are not intended to be definitive. The economic feasibility of these deposits is still to be determined as well as the environmental and social impacts or undertaking further extractive industry development in the Shire (ESC, 2005).

Bushfire hazard provisions are outlined in the Natural Hazard Management Areas Overlay Code, including the requirement to plan and design development to minimise risks to life and property. The Bushfire Hazard Overlay mapping outlines areas of bushfire hazard that mainly relate to the forestry and vegetated areas of the Shire that are outlined on the Biodiversity Significance Overlay mapping.

Indigenous Cultural Heritage whilst not specifically addressed in this report there is an Indigenous Cultural Heritage site listed for Esk Shire, which is the Mount Esk Pocket Bora Ground (Australian Government Department of Environment and Water Resources, 2007).

7 ASSESSMENT OF NRM ASSETS - BIODIVERSITY AND OPEN SPACE

7.1 Overview of Biodiversity Values

Esk Shire is made up of a matrix of remnant vegetation and open grazing land. Vegetation consists predominantly of open grassland with isolated pockets of remnant vegetation including eucalypt dominated open forest and woodlands, gallery rainforests, Araucarian dominated forests, vine thickets, Brigalow and swamps.

Remnant vegetation is concentrated in the south -east, south - west and north-west portions of the Shire and along waterway and drainage lines. The topographic diversity across the Shire results in a range of habitat types including upland, foothills and some lowland habitats (ESC, 2005). Vegetation is usually found on the steeper terrain with little or no presence of high density vegetation on the plains (SEQ WCG, 2004). Remnant trees are scattered throughout the Shire and are concentrated along roads and tracks and on crests of hills (i.e. land which is considered poor grazing land due to its inaccessibility).

Significant vegetation clearing in Esk Shire has resulted in the removal or significant modifications to 63% of the pre European settlement vegetation, including 49% cleared, 9% partially cleared, 3% lake and 2% plantation, with little remnant mid and understorey vegetation present. **Plate P8** shows the typical open pasture areas seen in the north of Esk Shire on the way to Kilcoy. Relatively intact vegetation covers 38% of the Shire on both private land, state forests and protected areas (ESC, 2005).

Native vegetation in the Upper Brisbane River Catchment consists of blue gum woodlands, ironbark open forests and softwood scrub. Remnant subtropical rainforest can also be found in protected valleys such as the D'Aguilar Range (Abal *et al*. 2002).

Young (1990) describes the vegetation of the middle and upper reaches of the Brisbane River: "The extensive blue gum flats of the middle reaches, the narrower floodplain communities of the upper reaches, and the low rolling hills of the Brisbane River valley upstream from the Ipswich area have been extensively modified for agriculture and grazing. Large areas have also been flooded by the Wivenhoe Dam; however, a narrow fringe of vegetation has been retained along most of the river. Weeping Bottlebrush forms a near-continuous fringe along the immediate bank, with scattered emergent Queensland Blue Gum, River Sheoak (*Casuarina cunninghamiana*) and broad-leaved apple. Higher on the banks, Queensland Blue Gum and Broad-leaved Apple (*Angophora subvelutina*) are predominant. There are also patches of Blackbean (*Castanospermum australe*), scattered rainforest species (e.g. Silky Oak, *Grevillea robusta*) and, unfortunately in some places Chinese Elm (*Celtis sinensis*).

Along tributaries and branches Black Tea-tree (*Melaleuca bracteata*) is sometimes common. Steeper hillsides remain forested throughout the middle and upper reaches. On metasediments east of Lake Wivenhoe there are forests of Spotted Gum (*Corymbia citriodora* and *C. henryi*.) and Ironbark (*E. fibrosa*). Sandstones to the west support similar communities, with Gum-topped Box and Swamp Mahogany (*Lophostemon suaveolens*) common on lower slopes. To north of Lake Wivenhoe, grassy woodlands of narrow and Silver-leaf Ironbark (*E. melanophloia*) are ubiquitous on both sedimentary and volcanic rocks.

Tall Grass Trees (*Xanthorrhoea glauca*) are prominent in the understorey of woodlands on hillsides in places throughout the middle and upper reaches. In moister elevated and / or sheltered habitats, the ironbark woodlands and / or sheltered habitats, the ironbark woodlands change to a mixed open forest of Queensland Blue Gum, Narrow-leaved Ironbark (*Eucalyptus. crebra*), Yellow Box (*E. melliodora*), Grey Gums (*E. propinqua var. propinqua*, *E. punctata var. didyma*), Stringybark (*E. umbra*, *E. acmenoides*), Broad-leaved Apple and Forest Sheoak (*Allocasuarina torulosa*). Patches of rainforest remain interspersed with the Eucalyptus communities, despite heavy logging of hoop pine and other species. An example of unlogged rainforest is contained within Cressbrook Nature Reserve near Toogoolawah. There are also some minor patches of heath or open forest with heath understorey on acid volcanic rocks in the Brisbane Valley (e.g. Mt Esk, Mt Byron). On similar rocks on the elevated summit of Mt Brisbane, there is also a small patch of New England Blackbutt (*E. andrewsii subsp. campanulate*).

Under the State of the Rivers Assessment in 2005 the area with the highest conservation values in the Upper Brisbane Catchment was the Emu Creek subcatchment (Johnson, 2005). The conservation value of the Mid Brisbane River Catchment was very good for 1% of the stream length, good for 38%, moderate for 27%, poor for 15% and very poor for 19% (Johnson, 2005).

7.1.1 Description of Vegetation Communities, Threatened Flora and Fauna

One EPBC Act listed ecological community has been recorded as occurring within Esk Shire. This community is Brigalow (*Acacia harpophylla* dominant and co-dominant) and is listed as Endangered. A further two Critically Endangered EPBC - listed communities have been recorded as likely to occur within the Esk Shire. These include the Swamp Tea-tree (*Melaleuca irybana*) Forests and White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grasslands.

Remnant vegetation within Esk Shire has been identified and classified by the Department of Natural Resources and Water (DNRW). Regional Ecosystems (REs) is the term used for these vegetation communities and are protected under the *Vegetation Management Act 1999 (*VMA*)*. A total of 60 RE communities have been mapped within the Esk Shire including 12 listed as Endangered 18 listed as Of Concern and 30 listed as Not of Concern. A complete list of REs and their location within Esk Shire is provided in **Table T1.**

Nineteen State Forest and Reserves have been identified within Esk Shire. These include 2 National Parks, 1 Conservation Park, 10 State Forests and 6 Forest Reserves as outlined in **Table 9**.

The Esk Shire is situated within the Moreton Bay Catchment, a recognised Ramsar (Wetlands of International Significance) site; however, no important wetlands were identified within the Esk Shire based on DNRW mapping.

Listed Endangered, Vulnerable and Rare (EVR) flora are defined as those taxa listed in the EPBC Act and / or the NCA as Extinct, Presumed Extinct, Critically Endangered, Endangered, Vulnerable or Rare. All other native flora has been designated as Common.

A review of flora databases identified 1 301 flora species have been recorded within the Esk Shire. Of these, 36 species were identified as EVR-listed flora including 13 listed under the EPBC Act only, 19 listed under the NCA only and four listed under both Acts (**Table T2**). A complete list of flora species recorded as occurring within the Esk Shire is presented in **Table T3.** This list covers over 1 300 species and can be used as a resource to identify native species suitable for revegetation and restoration projects.

Regionally Significant fauna are defined as those taxa identified by the EPA (EPA 2002) as non-EVR priority taxa for the South-east Bioregion. Also included in Regionally Significant fauna are those taxa that have not been listed as EVR fauna under the EPBC Act or NCA, but have been listed in the relevant Action Plan for their respective taxonomic group as Vulnerable, Rare, Near Threatened, Insufficiently Known or Data Deficient. Relevant Action Plans consulted to determine status were: Tyler (1997) for frogs, Cogger *et al*. (1993) for reptiles, Garnett and Crowley (2000) for birds, Maxwell et al. (1996) for monotremes and marsupials, Duncan et al. (1999) for bats and Lee (1995) for rodents.

All other native fauna have been designated as Common. This includes those species that have been given extra protection as Migratory and / or Marine Protected Species under the EPBC Act, but which are not EVR or Regionally Significant fauna.

A review of fauna databases identified a large number of fauna species that have been recorded within the Esk Shire. A total of 577 vertebrate fauna species were identified from the desktop study, comprising 28 invertebrates, 30 fishes, 35 amphibians, 78 reptiles, 322 birds and 84 mammals as outlined in **Table T4**.

Forty-eight listed EVR fauna species have been identified as recorded from Esk Shire or within geographic ranges that overlap Esk Shire (including three invertebrates, tow fishes, four amphibians, seven reptiles, 23 birds and nine mammals). Of these species, 16 are listed under both the EPBC Act and NCA, while four are listed under the EPBC Act only and 28 are listed under the NCA only as outlined in **Table** T5.

An additional 12 bird species listed under the EPBC Act as Migratory and / or Marine protected species were identified as previously recorded from Esk Shire, or with geographic ranges that overlap Esk Shire (not including EVR or other significant fauna also listed as Migratory and / or Marine). These include species listed under the Japan Australia Migratory Bird Agreement (JAMBA), China Australia Migratory Bird Agreement (CAMBA) and the Bonn Convention on the Conservation of Migratory Species. Eleven bird species were listed as both Migratory and Marine Protected species and one as Marine only. Whilst these are not EVR fauna, they are EPBC Act protected species that may utilise local habitats on a seasonal basis, or marine species that may overfly or otherwise utilise the wider area **Table T6**.

A further 91 fauna species of Regional Significance were identified from database searches, comprising two fishes, 10 amphibians, 17 reptiles, 24 birds and 38 mammals **Table T7**.

7.1.2 Location of Protected Areas, Forest Reserves and State Forests

Based on 2006 mapping from the EPA, ESC has 56 693 hectares of land that contributes to the EPA / QPWS estate. This estate covers 14.4% of the Shire. **Table 9** outlines the protected areas, forestry reserves and state forests located within Esk Shire and these areas are outlined on **Figure F6**.

State Forests are managed under the *Forestry Act 1959* and the National Parks and Conservation Parks are managed under the NCA. Ravensbourne National Park is also listed on the Register of the National Estate.

During 2006 the following former Forest Reserves that became National Parks under the South East Queensland Forests Agreement (SEQFA) were:

- Benarkin National Park (218ha transferred);
- Deer Reserve National Park (3 226ha transferred); and
- Esk National Park (362ha transferred).

These areas are protected in perpetuity due to their high biodiversity values. Under the SEQFA endorsed in 1999, timber harvesting has ceased on all areas classified as forest reserves. Between now and 2024 forest reserve sites will be progressively transferred to protected area tenures (EPA, 2006a).

Table 9: Protected Areas, Forestry Reserves and State Forests Within Esk Shire.

Protected Area, State Forest or Reserve	Area within Esk Shire	Locality within Esk Shire
Protected Areas		
D'Aguilar Range National Park.	South – east.	Split Yard Creek. Banks Creek.
Ravensbourne National Park.	South – west.	Buaraba.
Benarkin National Park.	Central.	Linville
Deer Reserve National Park.	Central.	Fulham.
Esk National Park.	South – west.	Redbank Creek.
Cressbrook Conservation Park.	Central.	Scrub Creek.
State Forests		
Benarkin State Forest.	Central.	Moore.
D'Aguilar State Forest.	South – east.	Dundas.
Deer Reserve State Forest.	Central.	Fulham.
Deongwar State Forest .	South – west.	Redbank Creek.
Diaper State Forest.	North.	Avoca Vale.
East Nanango State Forest.	North.	Mount Stanley.
Elgin Vale State Forest.	North.	Mount Stanley.
Esk State Forest.	South – west.	Redbank Creek.
Mount Stanley State Forest 1.	North.	Mount Stanley.

Protected Area, State Forest or Reserve	Area within Esk Shire	Locality within Esk Shire
Squirrel Creek State Forest.	North.	Avoca Vale.
Forest Reserves		
Benarkin Forest Reserve(refer to **Plate P9** and **P10** which show Benarkin State Forest and areas of roadside weed invasion).	Central.	Linville.
D'Aguilar Forest Reserve.	South – east.	Dundas.
Elgin Forest Reserve.	North.	Mount Stanley.
Mount Mee Forest Reserve.	South – east.	Mount Bryon.
Yabba Forest Reserve 2.	North.	Mount Stanley.

7.1.3 Bioregional Wildlife Corridor

For the SEQ Biodiversity Planning Assessment, the Landscape Expert Panel Report determined that the D'Aguilar Range contributes to a wildlife corridor of state conservation significance; this is referred to as bioregional corridor 15a and is outlined in **Figure F7**. Corridor 15b is mapped for the D'Aguilar South to Pine Mountain area, this corridor is of regional conservation significance (EPA, 2004a). Apart from this area, significant vegetation connections have been lost thoroughout the Shire (SEQ WCG, 2004). Detailed work is required to identify, prioritise and rehabilitate locally important corridors within Esk Shire (McAlpine, C. pers comm. in SEQ WCG, 2004).

7.1.4 Areas of Special Biodiversity Significance

The volcanic hills near Esk (Mt Esk and Crossdale) have been identified as an area having special biodiversity significance by the SEQ South Flora Expert Panel used for the SEQ Biodiversity Planning Assessment (EPA, 2004b). The area was classified as having regional conservation significance (outlined on **Figure F6**), due to the provision of habitat for EVR taxa *Plectranthus leiperi* and Yellow Kunzea (*Kunzea flavescens*), the area supports disjunct taxa including *Bertya opponens* and *Babingtonia collin*. Ecosystem variation has also been recorded for the hills on lower fertility volcanic rocks which are variable in species composition between localities. SEQ endemic taxa are also found in the area including *Eucalyptus dura*, Helidon Hills White Mahongany *(E. helidonica*), *Leptospermum oreophilum*, Yellow Kunzea *(Kunzea flavescens*), *Cryptandra* sp. *Ngungun* and *Plectranthus leiperi* (EPA, 2004b).

7.2 Open Space Values

The patterns of rural uses, mixed with the small townships in Esk Shire provide a unique landscape compared to the highly urbanised SEQ region. The open space values of Esk Shire offer a range of scenic amenity, recreation and cultural services to the community, popular with day visitors from the surrounding region and tourists. The rural and bushland images along the Brisbane Valley Highway are a significant attraction in their own right and form part of the Shire's tourism opportunities (ESC, 2005).

Under the subjective assessments undertaken for the State of the Rivers Assessment in 2005, the scenic and recreation values of the Upper Brisbane River Catchment were very good for 6% of the stream length, good for 46%, moderate for 47% and poor for 1%. The subcatchment that was considered to be the most scenic and provide the greatest recreational opportunities was The Emu Creek subcatchment. Potential recreational activities were identified for the Upper Brisbane River Catchment including nature appreciation, photography, bird watching, horse riding and shore fishing (Johnson, 2005).

The dominant recreation opportunity type in the Mid Brisbane River Catchment is undeveloped rural. The current recreational activities included canoeing / kayaking, dog exercising, fishing, horse riding, four-wheel driving, rowing and swimming. Other potential recreational activities were identified including barbecues / picnics, bushwalking, photography, bird watching and nature appreciation (Johnson, 2005).

7.3 Threats to Biodiversity and Open Space Values

The identified threats to the biodiversity values of Esk Shire include:

- vegetation clearing (including the considerable lack of understorey vegetation across the Shire's alluvial plains resulting in reduced ecosystem functions);
- effects of habitat fragmentation;
- pests (plant and animal) and pathogens (refer to **Plate P11** showing areas of extensive weed invasion in Wallaby Creek);
- land use change (grazing, forestry and urban / residential expansion);
- altered fire regimes;
- climate Change (SEQ WCG, 2004); and
- inappropriate land uses adjacent to open space areas, i.e. wandering of stock and illegal activities such as trail bike riding.

The Esk Shire Pest Management Plan for 2005-2009 recognises the importance of undertaking pest management initiatives within the Shire. This plan is discussed further in **Section 9.2**. Fauna pest species that cause impacts in Esk Shire include feral cats, rabbits, pigs, goats, deer, wild dogs, foxes and cane toads (SEQ WCG, 2004). Pest numbers are increasing, in particular rabbits have spread from the headwaters of the Brisbane River through to Linville, causing damage to pasture areas. Feral pigs cause soil erosion, spread of weeds, crop damage, habitat destruction, disease transmission and commonly impact upon intact riparian areas (McLeod, 2006).

Weed invasion is impacting upon high value biodiversity areas such as Cressbrook Creek. The Catchment Action Plan for the Upper Brisbane River outlined that Lantana causes the most serious weed management problems across the catchment. Chinese Celtis (elm) (*Celtis sinensis*), Cats Claw Creeper (*Macfadyena ungis-cati*) and Madeira Vine (*Anredera cordifolia*) are aggressively dominating riparian areas. Giant Rats Tail Grass (*Sporobolus pyramidalis and Sporobolus natalensis*), Parthenium Weed (*Parthenium hysterophorus*) and African Lovegrass (*Eragrostis curvula)* cause significant potential threats due to ability to spread rapidly (often undetected) and severely limit agricultural production. Annual Ragweed (*Ambrosia artemisiifolia),* Green Cestrum (*Cestrum parqui*), Honey Locust (*Eragrostis curvula*), Groundsel (*Bacchoris halimofolia*), Castor Oil Bush (*Ricinus communis*) and burrs and thistles continue to be a problem around watercourses, cultivated land and pastures (Lord, 2002).

Staged removal of any weed species needs to occur due to the potential to create further bank stability problems during weed removal in riparian areas or increased erosion in exposed pasture areas. Lantana undergrowth in some areas can become a bushfire management hazard.

Institutional issues that are believed to contribute to the poor management or protection of riparian and biodiversity values include:

- value of biodiversity is not considered in economic terms;
- lack of financial resources amongst state and local government agencies; and
- limited coordination within and between volunteer and stakeholder organisations (SEQ WCG, 2004).

The threats to the continuation of high levels of landscape amenity and appreciation in Esk Shire include:

- any reductions in access to recreation areas through changes in land tenure or ownership;
- uncoordinated planning of open space areas including impacts on landscape amenity from peri-urban developments (CSIRO, 2007);
- unmanaged access, unknown visitation rates of public areas; and
- lack of awareness of the significant open space values of the Shire (SEQ WCG, 2004);

7.4 Planning Scheme Information Relating to Biodiversity and Open Space

The greatest proportion of very high and high areas of biodiversity significance are located within the far northern portion of Esk Shire, as outlined in **Figure F7**. To assist with outlining local biodiversity values **Figure F6** outlines more detailed biodiversity information than what is included on Map 0M2A: Biodiversity Significance for the Esk Shire Planning Scheme. Areas of very high, high and medium significance are found along the eastern boundary of the Shire. There are areas of high significance around Lake Wivenhoe, interspersed with the areas of GAQL. The southern portion of the Shire where the urban townships are located are significantly cleared and contain small scattered sections of very high biodiversity values (ESC, 2005).

Material change of use application for agriculture, park and animal husbandry uses are exempt from assessment under the Esk Shire Planning Scheme, although other uses are subject to self or code assessable requirements. Reconfiguration of a Lot applications are code assessable if the development impacts upon a mapped area of biodiversity significance (ESC, 2005). The applicable code for assessing impacts of development proposals on biodiversity values is the Biodiversity and Scenic Amenity Overlay Code.

For scenic amenity, areas to south of Lake Wivenhoe have been mapped under the Lockyer study as being of state or regional scenic amenity significance. The areas are scattered around the southern area of the Shire that was the subject area for the Lockyer Valley Scenic Amenity Study and the areas mainly align with the areas of biodiversity significance (ESC, 2005).

The overall outcomes sought for the Biodiversity and Scenic Amenity Overlay Code include that the biodiversity values of the Shire are protected and enhanced; including remnant vegetation and wildlife corridors, as well as areas contributing to the landscape and visual character of the Shire are protected, in particular the Brisbane River corridor and major hilltops such as Mount Stradbroke and sections of the D'Aguilar Range (ESC, 2005).

ESC has prepared a Parkland Strategy (2006) for the purpose of formulating a parkland strategy for the future acquisition, retention and maintenance of open space that can be used as the basis for an Infrastructure Charges Schedule. This strategy also provides Council with a working document that can be reviewed in line with population growth and community needs (Strategic Leisure Group, 2006).

8 ASSESSMENT OF NRM ASSETS - ATMOSPHERE

8.1 Description of Atmospheric Values

Atmosphere as an NRM value, refers to air quality and its relationship to the preservation of aesthetic and amenity values of the air environment and the protection of human health (SEQ WCG, 2004). Whilst air pollution is not currently a significant issue with Esk Shire, indeed no EPA air monitoring station is situated in Esk Shire, the importance of the Shire's location within the SEQ airshed needs to be highlighted. The topography of the Western Catchments area, the meteorological influences and the land uses within the area, all impact in various ways on the overall air quality within SEQ.

Esk Shire is not located within the morning or afternoon pollutant flow areas within the SEQ airshed. Bushfires and hazard reduction burns during late winter and early spring are the main cause of reductions in air quality in Esk Shire, due to the limitation on dispersion of air during the cooler months. The use of solid fuel heaters also contributes to poor visibility levels locally. Hydrocarbons emitted from fuel storage and refuelling facilities also contribute to the formation of photochemical smog (McLeod, 2006).

The atmosphere is viewed as an important NRM asset due to essential functions it has in interacting with the biota.

8.2 Threats to Air Quality / Atmosphere

Threats to air quality include:

- vehicle emissions;
- solid fuel burning;
- controlled burns and wildfires;
- energy consumption;
- industrial emissions;
- waste disposal facilities; and
- intensive livestock production.

Air quality problems could increase in the southern part of Esk Shire where minor urban expansion is proposed and due to the proximity to the rapidly growing area of Ipswich, where pollutants tend to stagnate in the evening (SEQ WCG, 2004). Significant growth and change is expected to occur in Ipswich City over the life of the SEQRP. The current population of the area is 135 500 people and the forecast population is 318 000 people by 2026 (OUM, 2005).

These threats to air quality / atmosphere are a significant contributor to increased levels of greenhouse gases in the atmosphere (referred to as the 'enhanced greenhouse effect'). Coupled with climate change implications which is an issue of increasing importance at the local through to international level, atmospheric and greenhouse issues are becoming significant NRM challenges (EPA, 2006).

8.3 Regional Opportunities for Esk Shire

At the forefront of current environmental management / sustainability policy discussions is the importance of establishing carbon offsets and carbon emissions trading schemes. The cleared and regrowth areas within Esk Shire offer an excellent opportunity for the establishment of forested areas that could be used for obtaining carbon credits for future carbon sequestration programs or providing vegetation management offsets (should offsets be able to be implemented across local government boundaries).

In addition the existing forested areas provide a "carbon sink" for the SEQ region and the ecosystem services the Shire vegetated areas provide will be become increasingly more valued as methods of appropriately costing the provision of ecosystem services to the community are determined.

8.4 Planning and Management Responses Relating to Atmosphere

Management of airborne emissions to maintain air quality is listed as a specific outcome in relevant planning scheme codes and policies of the Esk Shire Planning Scheme (ESC, 2005).

There is a growing body of planning policy and information regarding how to reduce the air quality / greenhouse gas impacts from current land uses activities. Existing state government information includes the Climate State Adaptation Evaluation Report, the Queensland Greenhouse Strategy and the Queensland Greenhouse Framework. A wide range of sustainability and energy efficiency publications are available on the EPA's Climate change and Greenhouse website (EPA, 2006c). Through improving energy efficiency and land use practices Esk Shire residents can reduce greenhouse gas emissions (OUM, 2005).

Additionally planning approaches to deal with climate change considerations are currently being discussed at local, state and national levels. For the next review of the Esk Shire Planning Scheme more detailed information to appropriately address these considerations should be available for consideration by ESC.

9 STATUTORY REQUIREMENTS FOR NRM

9.1 Relevant Statutory Requirements Imposed on ESC

Table 10 outlines the relevant statutory requirements for NRM imposed on ESC.

Table 10: Relevant Statutory Requirements for NRM Imposed on ESC

Legislation	Description and Implications of the Legislation
EPBC Act 1999 (Commonwealth).	Outlines matters of national environmental significance that require protection including threatened species and ecological communities.
Vegetation Management Act 1999 (VMA)	The VMA regulates broad scale clearing of vegetation on freehold land and State land, including reserves, roads and leases. Through this regulatory role the legislation provides for prevention of land degradation, the maintenance of biodiversity and ecological processes. Specific focus is given to the conservation of areas classified as remnant *endangered* and remnant *of concern* regional ecosystems (REs) based on Queensland RE mapping undertaken by the Queensland Herbarium. Broad scale clearing was phased out across Queensland in December 2006; however, applications to clear remnant vegetation may be made for relevant purposes defined as: • for a significant project under the *State Development and Public Works Organisation Act 1971*, s. 26; • necessary to control non-native plants or declared pests to ensure public safety; • to establish a necessary fence, firebreak, road or other built infrastructure, if there is no suitable alternative site; • a natural and ordinary consequence of other assessable development for which a development approval as defined under the *Integrated Planning Act 1997* (IPA) was given, or a development application as defined under the IPA was made, before 16th May 2003; • for fodder harvesting; • for thinning; • for clearing of encroachment; • for an extractive industry; and • for clearing regrowth on leases issues under the *Land Act 1994* for agricultural purposes. Clearing applications for relevant purposes are assessed against the Regional Vegetation Management Code for the Southeast Queensland Bioregion. For clearing of vegetation proposed as part of a Material Change of Use or Reconfiguration of a Lot development application, NMRW is a concurrence agency for the assessment of vegetation clearing (DNRW, 2006a). An offset is a means of meeting relevant performance requirements of a Regional Vegetation Management Code (DNRW, 2006b). DNRW officers use the Vegetation Management Offsets Policy when assessing a development application, however some SEQ Councils are investigating incorporating vegetation offset policies into their local planning schemes. A vegetation management offset (offset) is an arrangement or agreement that guarantees to maintain the extent, structure and function of: • regional ecosystems; • essential habitat; and • vegetation associated with: - watercourses; - natural wetlands; and - natural significant wetlands (DNRW, 2006b).

Legislation	Description and Implications of the Legislation
The Code Applying to a Native Forest Practice on Freehold Land.	This code applies to native forest practices on freehold land for the purposes of the VMA and Schedule 8 Part 1 of the *Integrated Planning Act 1997* (IPA). To be exempt from requiring a development approval for vegetation clearing under the IPA, the forest practice must be conducted in the way required by this code. Whilst landholders undertaking forest practice operations will be the main users of this code, ESC needs to be aware of the provisions that landholders need to comply with for forest practice operations.
Land Protection (Pest and Stock Route Management) Act 2002.	Regulates activities to control pest species, including the preparation of local government pest management plans. Under this legislation a landowner must take reasonable steps to keep the bed, banks and water of a watercourse within the owner's land free of certain declared pests. A stock route management plan is not required to be prepared for Esk Shire.
Water Act 2000.	Provisions within the *Water Act 2000* allow for the protection of water quality by the regulating of land use within the catchment areas, if required (SEQWater, 2001b).This act aims to provide for the sustainable management of water and other resources and a regulatory framework for providing water services. The Moreton Water Resource Plan is being developed by the DNRW, which will provide a statutory basis for the licensing of flows and water allocation (SEQ WCG, 2004). ESC will need to be involved in contributing to and reviewing this plan. To ensure that water is used sustainably in irrigation practices, the *Water Act* specifies the circumstances in which landholders are required to develop a land and water management plan. Significant provisions for water management and use by local governments are outlined in the *Water Act*, including that water licences are required for taking or interfering with the flow of water.
Water Resource (Moreton) Plan 2007.	This plan is subordinate legislation prepared under the *Water Act 2000* and came into effect on 1st May 2007. The main purposes of the plan include: (a) to define the availability of water in the plan area; (b) to provide a framework for sustainably managing water and the taking of water; (c) to identify priorities and mechanisms for dealing with future water requirements; (d) to provide a framework for reversing, where practicable, degradation that has occurred in natural ecosystems; (e) to provide a framework for — (i) establishing water allocations to take surface water; and (ii) granting and amending water entitlements for groundwater; and (iii) granting water entitlements for overland flow water.
Environmental Protection Act 1994 (EP Act).	The EP Act is the core element of Queensland legislation for regulating development activity in a way that maintains ecological processes and the total quality of life, according to the merits of ecological sustainability. A range of statutory measures are provided for within the *Environmental Protection Regulation 1998* to ensure that environmental values are maintained and the objectives of the Act are achieved. Regulatory controls imposed by the Act are: • licensing and approval systems; • management mechanisms such as audits, environmental management plans / compliance strategies and environmental management systems; and • the EP Act places the responsibility for environmental protection on all persons during the conduct of all activities, guided by the 'duty of care' principle. The Act provides for the licensing of Environmentally Relevant Activities (ERAs) and the granting of development approvals and registration certificates for the operation of regulated activities. The EP Act is the primary environmental legislation in Queensland, with the following Environmental Protection Policies (EPPs) being proclaimed: • Environmental Protection (Water) Policy 1997; • Environmental Protection (Air) Policy 1997; • Environmental Protection (Noise) Policy 1997; and • Environmental Protection (Waste Management) Policy 2000. These policies prescribe standards for the protection and enhancement of the environment.
Nature Conservation Act 1992 (NCA).	The NCA provides for the protection and management of areas representative of the biological diversity, natural features and wilderness of Queensland and of native wildlife and its habitat. Recovery plans for threatened species are also prepared under this legislation.
Queensland Heritage Act 1992.	This act makes provision for the conservation of Queensland's cultural heritage including a register of significant heritage places.
Aboriginal Cultural Heritage Act 2003.	This act provides for the effective recognition, protection and conservation of Aboriginal cultural heritage, including provisions for the preparation of a cultural heritage management plan for managing the impact of activities on Aboriginal cultural heritage. Blanket protection is afforded to all areas and objects of traditional, customary, and archaeological significance. A cultural heritage duty of care is established which means that a person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage (DNRW, 2007).
River Improvement Trust Act 1940.	This act aims to improve the stability of streams and flood mitigation.
Integrated Planning Act 1997 (IPA).	IPA provides the legislative framework for land-use planning and seeks to achieve ecologically sustainable development by coordinating and integrating planning at local, regional and state levels, managing the process by which development occurs and managing the impacts of development on the environment. At the regional level this is achieved through the SEQRP and at the local level through the Esk Shire Planning Scheme. Planning schemes provide a vehicle to implement improved NRM planning outcomes.

The State Planning Policies / Statutory Plans that impact upon NRM outcomes include:

- **SPP 1/92 - Development and the Conservation of Agricultural Land**, which outlines the provisions for the protection of identified GQAL. The SPP (Policy Principle 2) identifies that GQAL has a special importance and should not be built on unless there is an overriding need for the development in terms of public benefit and no other site is suitable for the particular purpose (Department of Housing, Local Government and Planning, 1992);
- **SPP 1 / 03 - Mitigating the Adverse Impacts of Flood, Bushfire and Landslide**. This State Planning Policy (SPP) sets out the State's interest in ensuring that the natural hazards of flood, bushfire, and landslide are adequately considered when making decisions about development. Effective land use planning is an important means of reducing the community's vulnerability to natural hazards and promoting resilient communities (Department of Local Government and Planning and Department of Emergency Services, 2003);
- **The South-east Queensland Regional Coastal Plan** (SEQ Coastal Plan) produced in 2006 is a statutory instrument under the *Coastal Protection and Management Act 1995* and has the force and effect of a state planning policy under the IPA. The plan will ensure that special coastal places are looked after as the area continues to face pressures from growth. The plan builds on the State Coastal Plan and the SEQRP and will be used to guide council planning schemes and development assessment (EPA, 2006f); and
- **Draft State Planning Policy for the Protection of Extractive Resources.** This policy is in final draft form and may be realised in 2007. It seeks to maintain the long-term availability of major extractive resources through local government planning schemes and assessment of development near resources. This policy has affect in all Queensland local government areas with identified major extractive resources referred to for the purposes of this SPP as key resource areas (KRAs). ESC will need to ensure that its planning scheme appropriately protects the KRAs identified in Esk Shire which are located at:
  - Dinyarra;
  - Glen Arden;
  - Harris Terrace;
  - Hills Terrace;
  - Schmidt's Terrace;
  - Summerville and Sapling Pocket; and
  - Wiralee (DNRW, 2006c).
- **Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006 - 2016**[3]

  This plan and management program outlines a statutory and policy framework for the purpose of conserving Koalas in the wild in Queensland. Of most importance to ESC is that the plan establishes conditions for sequential clearing of Koala habitat trees (EPA, 2007b).

[3] The Koala Conservation Plan is subordinate legislation under the NCA and the SEQRP is the head of power for establishing koala habitat areas. The plan and management program is therefore not a State Planning Policy in its own right.

Overview of the SEQRP:

The SEQRP is prepared under the provisions of the IPA. The SEQRP addresses issues such as protecting the regional landscape, forests and waterways and maintaining open space including preserving agricultural lands. Thus the provisions of the SEQRP have strong links with the Esk Shire NRMP.

Table 11 outlines the principles from the SEQRP (OUM, 2005), that relate to the natural asset categories for the Esk Shire NRMP. The overall principle for NRM in the SEQRP is to:

> *Coordinate the management and use of natural resources to enhance community, economic and environmental values* (OUM, 2005).

Table 11: SEQRP Principles

Asset category	Principle
Biodiversity.	Conserve and manage the region's biodiversity values and maintain supporting ecological processes.
Atmosphere.	Manage urban settlement and the use of transport, industry, energy and natural resources to minimise adverse impacts on the atmosphere.
Water.	Protect, maintain and enhance the natural functions and environmental, social and economic values of the region's waterways, wetlands, riparian areas and floodplains.
Land (relating to the Regional Landscape and Rural Production Area).	Maintain and manage the values and functions of the Regional Landscape and Rural Production Area to enhance the environmental, economic, cultural and lifestyle benefits to the region.
Land (relating to Open Space).	Acknowledge, protect and manage significant scenic amenity areas and features. Provide a range of enjoyable outdoor recreation opportunities to meet the diverse needs of the community and enhance the liveability of the region.

The strategic direction and desired environmental outcomes provided in the Esk Shire Planning Scheme assist with advancing the SEQRP NRM principles.

9.2 Compliance with the Current Legislation by ESC

The relevant statutes and policies and ESC's response to these is outlined in **Table 12**. The Esk Shire Planning Scheme is a recently prepared document that is IPA compliant. Notes in **Table 7** refer to possible amendments which may assist in the implementation of this NRMP.

Table 12: ESC's Level of Compliance with Relevant NRM Legislation and State Planning Policies

Legislation / State Planning Policy	Level of Compliance
EPBC Act.	Protection for threatened species habitat is provided through the Biodiversity and Scenic Amenity Overlay Code; however, further work needs to be undertaken to ensure threatened species habitats are identified and protected across the Shire (particularly on Council owned and managed land).
VMA.	Areas of biodiversity significance are outlined in the Biodiversity Significance Overlay Map as part of the Biodiversity and Scenic Amenity Overlay Code, these areas accord with the regional ecosystem mapping for the Shire. In future versions of the Esk Shire Planning Scheme opportunities for the establishment of vegetation management offsets should be outlined. This would assist with implementing the provisions of the DNRW Vegetation Management Offsets Policy.
The Code Applying to Native Forest Practice on Freehold Land.	Whilst landholders undertaking forest practice operations are responsible for ensuring compliance with the provisions of this code, ESC needs to be aware of the provisions and how they relate to the Forestry Code in the Esk Shire Planning Scheme to ensure streamlined administration and assessment of forestry operations and best practice environmental management of forestry operations occurs.
Land Protection (Pest and Stock Route Management) Act 2002.	Esk Shire has a Local Government Area Pest Management Plan that has been prepared under this legislation. Council will need to ensure that this effectively implemented over time, particularly through the control of declared weeds on watercourses that run through Council land.
Environmental Protection Act 1994.	The most relevant provisions of the EP Act to be discussed for this NRM Plan include the EPP (Water) Policy 1997 and provisions relating to ERAs. ESC has ERAs for its four sewerage treatment works (Toogoolawah, Esk, Fernvale and Lowood), its regulated waste transport areas, water treatment plant areas, waste disposal facilities, animal housing, boiler making workshop, motor vehicle workshop and Coominya regulated waste storage facility. An Environmental Review was undertaken in February 2004 in order to identify changes in practices and procedures relating to the environmental management ERAs that have taken place since the initial Integrated Environmental Management System (IEMS) document was issued in September 1996.

Legislation / State Planning Policy	Level of Compliance
	As part of the environmental review, a Site Based Management Plan has been prepared for the sound environmental management of each ERA site. A Total Management Plan was also prepared in 2004. The following areas are to be considered as part of the environmental audits conducted for the IEMS: • Natural Resource Management; • Energy Efficiency; • Waste Management; • Environmental Management; • Sustainability Management; and • Continuous improvement in environmental performance of Council's operations. An environmental management review is to be completed annually in conjunction with the Annual Report to the EPA on ERAs (Connell Wagner, 2005). Council is undertaking actions to assist with the control of septic systems, which is outlined as a consideration in the EPP (Water) Policy. Part 7 of the EPP (Water) Policy provides for the development and implementation of environmental plans for water including plans for managing stormwater, sewage, trade waste, water conservation and for protection of surface and groundwaters. ESC has not yet prepared a specific plan addressing this provision. Ancedotal evidence exists that the Coal Creek Landfill Site is causing significant water quality impacts and is not meeting ERA licence conditions. Council needs to urgently review the environmental performance of this site.
NCA.	Protection for threatened species is provided through the Biodiversity and Scenic Amenity Overlay Code, however further work needs to be undertaken to ensure threatened species habitats are protected on Council land.
Water Act 2000.	Protection of some riparian vegetation and watercourses through the provisions of the Catchment Management Code. Increasing scrutiny by the state government of how local government is using funding from water supply changes. This funding is to be used to improve the management of water systems (Bates, 2007). ESC needs to ensure that it can outline how funding has been used.

Legislation / State Planning Policy	Level of Compliance
Water Resource (Moreton) Plan 2007.	As this Plan has been recently introduced ESC's level of compliance with the Plan cannot be assessed. ESC will need to ensure that it is aware of the provisions of this important water resource management plan including buffer zones adjacent to sections of the Brisbane and Stanley Rivers.
State Planning Policy 1/03 – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide.	The Natural Hazard Management Areas Overlay Code Map currently identifies bushfire prone areas and the Natural Hazard Management Areas Overlay Code contains provisions for ensuring appropriate intensity and design of development in bushfire prone areas and ensuring that any development is planned to minimise risks to life and property (ESC, 2005). The Natural Hazard Management Areas do not; however, include flood or landslide hazards currently due to the lack of current information. Council has stated that over time it will amend this overlay to incorporate relevant provisions for all identified natural hazards (ESC, 2005). These amendments will then achieve full compliance with SPP 1/03.
SPP 1/92 - Development and the Conservation of Agricultural Land	The provisions of this policy are reflected in the Esk Shire planning scheme through the identification and protection of GQAL in the Economic Resources Overlay Code Map and Code and the importance of protection of GQAL is outlined in the Scheme's Desired Environmental Outcomes.
The SEQ Coastal Plan	This plan was released in 2006, thus the Esk Shire Planning Scheme (2005) does not acknowledge the relevant provisions of this plan. The majority of provisions are; however, not applicable to Esk Shire due to its distance from the coastline. Important considerations outlined in the plan that impact upon the management and planning intent for the Brisbane-Moreton Catchment area include extractive industries, biodiversity (in particular riparian vegetation management and fish habitats and migratory pathways). The SEQ Coastal Plan should be consulted during the preparation of the next version of the Esk Shire Planning Scheme. The extractive industry provisions in the SEQ Coastal Plan call for an extractive industry development applications to include a post-operative management plan identifying the end use of the development site. This is beyond the current requirement for an Environmental Management Plan in the Esk Shire Planning Scheme.

Legislation / State Planning Policy	Level of Compliance
Nature Conservation (Koala) Conservation Plan 2006 and Management Plan 2006 - 2016	ESC is located within Koala District A (highest threat) areas. District A applies to the whole of SEQ. No koala habitat areas or koala living areas are mapped for the Esk Shire area; therefore currently Council is not obliged to include these provisions in its planning scheme (EPA, 2007b). With improvements in mapping of koala habitat and living areas over time, ESC will need to ensure any changes to the applicable mapping are considered for the review of its planning scheme or when assessing developments that may need to be assessed against the koala conservation criteria. ESC needs to ensure that operational workers are aware of koala habitat trees that may be impacted by Council operations. ESC must comply with Section 15 of the Koala Conservation Plan 2006 which outlines conditions to be complied with for the sequential clearing of koala habitat trees.

9.3 Linkages with a Local Nature Conservation Strategy for Esk Shire

The SEQRP outlines that importance of adopting a more formal approach to local nature conservation strategies (required to be developed under the SEQRP), which will assist in integrating regional and local conservation strategies. This NRMP has linkages with some of the requirements for an LNCS. The information provided in this NRMP will assist with some of the primary tasks to be undertaken for the LNCS.

Table 13 outlines the requirements for preparing an LNCS and identifies where information included in this NRMP can you utilised. The NRM Action Plan outlined in **Section 4** of this NRMP should also be referred to when preparing the LNCS.

Table 13: LNCS Requirements and Information Available Currently or to be Prepared by ESC

LNCS Requirements	Information Currently Available or to be Prepared
Identify local biodiversity values, including terrestrial and aquatic biodiversity values, ecological corridors and threatening processes.	This NRMP identifies most of those elements; however, specific information on aquatic biodiversity values may need to be obtained. Additional information may also be available by obtaining the EPA document - Conservation Values in Esk Shire and reviewing the HLOF Report.
Identify and prioritise implementation mechanisms for best practice protection, restoration and management of the identified values, including a range of voluntary measures.	The Action Plan contained within this NRMP assists with identifying priority actions for implementation that will maintain or improve biodiversity values. The success of implementation of the Action Plan could be reported on in the LNCS, with further implementation measures defined.

LNCS Requirements	Information Currently Available or to be Prepared
Develop management strategies for local government nature conservation reserves.	As ESC has not had an active land acquisition program there are no Council controlled nature conservation reserves (most council reserves are parkland). Council may wish to develop management strategies for the state government land that they informally manage or may seek to become trustee for. The most important provisions would be for ecological fire management and weed management.
Set local targets and performance indicators.	It will be easier to develop local targets and performance indicators as biodiversity initiatives and program contained in the NRM Action Plan are implemented and if more resources are directed towards biodiversity efforts overtime.
Develop and implement a local biodiversity monitoring regime with the capacity to be integrated with State of the Region reporting.	This will be a significant challenge for most Councils in SEQ to undertake, as local monitoring is very resource intensive. Esk Shire could support local community environmental groups to assist with identifying flora and fauna species or promote regional species identification initiatives undertaken by SEQ Catchments and other groups such as Naturesearch.
Be consistent with the SEQ Regional Nature Conservation Strategy, Regional Coastal Management Plans, the Vegetation Management Act and other relevant regional strategies.	This NRMP has been designed to be consistent with those strategies and the regional NRM Plans; by acting upon the recommendations outlined in **Table 12** this will assist ESC to improve its level of consistency with these important regional strategies.

9.4 Linkages with Proposed Regional Policies

The OUM is currently preparing a Rural Futures Strategy under the SEQRP. Unfortunately this is not available to be reviewed during the development of this NRMP. Therefore it is recommended that Council review the Rural Futures Strategy when available to determine if it has any impact on the recommendations of this plan. The OUM may also prepare an NRM Plan for the whole of SEQ in the coming years, which ESC may wish to contribute to.

At the time of preparation of this NRMP the Draft Healthy Waterways Strategy is also being prepared. **Table 6** outlines how the management action targets in this Strategy relate to the Esk Shire NRMP proposed programs / actions.

A revised NRM Plan for SEQ is also in preparation that will cover Esk Shire (B Lord, pers. comm, 2007) and ESC will need to contribute to and review the revised regional priorities outlined in this plan.

9.5 Local Laws

ESC currently has the following local laws that relate to NRM issues:

- Local Law Number 4 – Control of Pests;
- Local Law Number 8 – Extractive Industries;
- Local Law Number 14 – Parks and Reserves; and
- Local Law Number 15 – Control of Nuisances (overgrown vegetation sections).

Council has no Local Law relating to the protection of significant or regrowth vegetation. ESC has a regulatory officer employed to ensure these Local Laws are being effectively implemented and complied with.

9.6 Relevant Non-Statutory Policies and Guidelines

Also of importance to NRM in Esk Shire are the Queensland non-statutory policies and guiding documents that assist with the provision of information or guidance for NRM initiatives including the:

- Regional Nature Conservation Strategy for South East Queensland for 2003 – 2008. This strategy provides biodiversity management decision-support tools for the conservation and management of biodiversity values to assist agencies in the development and implementation of plans, strategies and planning schemes and to guide land-managers and development proponents in the planning and management of change or intensification of land-use. A wide range of actions for conserving, managing and rehabilitating biodiversity that are to be implemented by all sectors and levels of the community are also included in the Strategy (EPA, 2003).

- industry environmental codes are approved by the Environment Minister under the EP Act. Industries who want to improve their environmental performance propose to prepare a code. If the code is approved then the EPA can consider the code provisions when making certain decisions and a charge of unlawfully causing environmental harm can not result if actions were taken in accordance with the code. The following codes have been approved that are of relevance to industries in Esk Shire:
  - Environmental code of practice for agriculture;
  - Native Forest Timber Production 2002; and
  - Sustainable fruit and vegetation production in Queensland.
- the EPA website outlines where to obtain copies of these codes (EPA, 2007A); and
- as outlined in **Section 11.2.1** SEQWater has produced Development Guidelines for Water Quality Management that can be used by landholders, development applicants and ESC.

"This page has been left blank intentionally"

10 ESK SHIRE CORPORATE PLAN

10.1 Overview of the Esk Shire Corporate Plan

The Esk Shire Corporate Plan for 2007 -2011 outlines the strategic direction for the management of Esk Shire. The Corporate Plan states that Council will:

> *Exercise its jurisdiction to make local laws and policies and to provide infrastructure and services for the benefit of residents of Esk Shire.*

ESC has determined 14 outcomes for the community that express its strategic direction for the Council for 2007 – 2011. The outcomes and strategies related to NRM are outlined in **Table 14**.

Table 14: Corporate Plan Outcomes and Strategies Related to NRM

Outcome Theme	Outcome	Strategy
Health and Environment.	To maintain a clean, healthy environment for the residents of Esk Shire.	4.5 – Eradicate declared pests in accordance with the approved Pest Management Plan; and 4.7 - Encourage the state and federal government to support a range of environmental activities including reforestation, landcare and riverbank restoration.
Parks and Reserves.	To enhance the lifestyle of the Shire residents and visitors by preservation, maintenance and development of Shire open spaces under Council's control; and to influence other organisations in the preservation and maintenance of land under their control.	5.1 – Support for community groups in tree planting and streetscaping projects; 5.3 - Work to improve access to open spaces to facilitate use of picnic grounds, camping areas, cycle ways, boating facilities and hiking trails by Shire residents and visitors; and 5.5 – Preserve, maintain and develop land under Council's control.

Outcome Theme	Outcome	Strategy
Economic Development	To promote the Shire as an ideal location for ecologically sustainable development so that we can attract new businesses, residents and visitors, whilst ensuring that the diverse lifestyle choices of our Shire are maintained.	6.1 – Promote the lakes, valleys, mountains, rivers and heritage in the Shire's branding, marketing and development; and 6.6 – Protect and utilise our economic assets such as agricultural land, forests, extractive resources, heritage, rural landscapes, rural townships, water storages, natural environment, existing businesses and local people.
Organisational Management	To professionally manage the Council's operations so that they are cost effective and efficient and provide quality service to Council's customers.	7.12 – Aim to maximise grants and subsidies.
Planning and Development Management	To achieve ecologically sustainable development which balances economic development, local employment, service delivery, infrastructure efficiency, lifestyle choices and environmental quality.	8.1 – Maintain a regional approach to planning through active participation and liaison with state agencies and neighbouring local governments; and 8.2 – Extract and communicate those elements of regional, state and national plans and strategies which are relevant to Esk Shire.

Through preparing this NRMP, Esk Shire is undertaking Strategy 8.2 with respect to NRM.

As stated in the Corporate Plan there is significant scope for ongoing regional co-operation to respond to local and regional issues, particularly through participating in the Council of Mayors (SEQ) and Western Regional Organisation of Councils (WESROC) initiatives.

In terms of water storage issues Council outlines in its Corporate Plan that there has been a deficit in economic contribution by visitors to the Shire who go to the lakes relative to the Council services consumed by those visitors. Council is hoping to increase the economic contribution made to the Shire from the lakes / water storages.

The Local Government Association of Queensland (LGAQ) Guideline *Integrating Natural Resource Management into Local Government Corporate, Strategic and Operational Plans*, should be consulted to assist with improving the profile of NRM in ESC. Further effort is required to incorporate NRM issues into Council's Corporate and Operational Plans, including accurately stating the increased Council responsibilities for NRM and the range of initiatives undertaken through the Environment Levy and other operational programs.

The benefits of increased acknowledgement of NRM initiatives in Corporate and Operational Plans include helping to set NRM priorities and inform the community of them, as well as demonstrating Council's commitment to NRM actions to assist with obtaining partnership or grant funding. The LGAQ is available to assist with incorporating NRM initiatives into corporate and operational planning. In addition an NRM Manual for Operational Staff is currently being finalised by the LGAQ for distribution. It will outline information on general environmental duties, roadside vegetation management and freshwater and wetland monitoring (G Sinclair, pers.comm. 2007).

"This page has been left blank intentionally"

11 REVIEW OF EXISTING NRM PROGRAMS

11.1 ESC NRM Programs

The report *Bridging the Barriers: A Study of Local Government NRM Uptake Opportunities* outlined the main NRM programs undertaken within the Western Catchments of SEQ that are regionally funded, with support provided by local governments for organisation of regional projects. The major barriers to the uptake of NRM by smaller local governments such as Esk include lack of funding, trained staff, time and other resources. Human resource capacity is the key factor affecting the ability to provide successful NRM programs. The current NRM capacity of NRM Staff in ESC was described as limited (Low Choy, Steiner and Maccheroni, 2006).

The study outlines that many local governments face considerable limitations in accessing additional financial resources from internal sources to enable them to take on additional NRM responsibilities. It is acknowledged that through a process of rationalisation and improved coordination of existing Council environmental management and NRM initiatives, multiple benefits could result (Low Choy, Steiner and Maccheroni, 2006). Through its planning scheme Esk Shire regulates land use changes; however, it cannot regulate the management practices of existing uses (except for legislative provisions).

is a summary of the current NRM arrangements and initiative run by ESC. It has been complied from the Bridging the Barriers Report (Low Choy, Steiner and Maccheroni, 2006) and through personal communication conducted with ESC officers during the preparation of this plan.

"This page has been left blank intentionally"

Table 15: Summary of Current NRM Programs and Initiatives Run by ESC

NRM Program/Initiative	Description of Current Level of Effort / Implementation
Organisational and staffing information	
Organisational arrangements for NRM.	The Council Committee with responsibility for NRM policy and operational matters is the Works, Health and Environment Committee. The Planning and Development Department deals with NRM policy matters. The Operations Department deals with the on-ground NRM programs.
Staff with responsibility for NRM.	• Manager, Planning and Development (NRM Policy and Planning Focus); • NRM Coordinator (shared position with Gatton and Laidley Shire Councils), focused on obtaining funding for NRM projects and improving the profile of NRM. This position receives funding support from SEQ Catchments; • Coordinator Parks and Gardens (involved in restoration, weed management, feral animal control and delivery on-ground); • Declared Pest Inspector (regulatory function); • Environmental Health Officer (weeds focus); • Regulatory Officer who is responsible for ensuring compliance with Local Laws including Local Laws 4, 8, 14 and 15 as outlined in **Section 9.5.** • Assessment of development applications - all development applications are circulated amongst staff from various disciplines. Town planners review the environmental codes as part of their assessment, as well as the environmental officer who looks after the EP Act issues for Council; and • Inspector for the On-site Septic Program.
Ongoing professional development and training opportunities for Council staff.	Access to NRM Weed information and external training courses.

NRM Program/Initiative	Description of Current Level of Effort / Implementation
NRM programs / actions	
Water quality.	Not considered in detail (only for the monitoring of ERA licences at STPs).
Surface water.	Given an increasing focus during 2005-2006, particularly stormwater quality (not just quality). Improvements in policy including Water Sensitive Urban Design required in all new subdivisions.
Management of on-site septics.	Inspection regime undertaken as part of the on-site septic program, relatively high standard HSTPs, however a high proportion are still failing.
Groundwater.	No initiatives currently being undertaken.
Aquatic ecosystems.	Only initiative is a Vetiver Grass trial at the Toogoolawah Sewerage Treatment Plant to filter primary effluent through lagoons to better than secondary treatment quality.
Water quality monitoring.	Regular monitoring is only undertaken upstream and downstream of Sewerage Treatment Plants, as required for the ERA approvals. Water quality monitoring occurs across 13 sites in the Shire in conjunction with programs run by the Healthy Waterways (Ecosystem Health Monitoring Program) and SEQ Catchments. The standard indicators of Ph, conductivity, salinity, turbidity, dissolved oxygen and temperature are usually measured. Biological indicator monitoring is not undertaken. Currently over half of the Shire's streams are dry due to drought conditions, however some field observations are undertaken. Community groups throughout the Shire such as the Brisbane Valley Kilcoy Landcare group also assist with undertaking monitoring.
Water conservation.	Rainwater tank policy, but no rebate available. All new homes must have a 22 500L tank.
Terrestrial biodiversity (including native vegetation).	Limited initiatives use state government information only. Some limited biodiversity benefits achieved through small scale community revegetation activities.

NRM Program/Initiative	Description of Current Level of Effort / Implementation
Pest Management (weeds and feral animals).	Currently implementing the Local Government Area Pest Management Plan, prepared to meet the requirements of the *Land Protection (Pest and Stock Route Management Act) 2002.* Council mainly focus on the declared pest management issues due to limited resources. Private land inspections are undertaken through the Pest Survey Programme. In 2005/06 the focus of the three month survey periods was on Mother of Millions (*Bryophyllum spp.*) and Fireweed (*Senecio madagascariensis*), Honey Locust and water weeds, Annual Ragweed and Parkinsonia (*Parkinsonia aculeata*) and African Boxthorn (*Lycium ferocissimum*) respectively. A Mother of Millions chemical subsidy of $27.50 per ratepayer entity has been provided to encourage control of the poisonous plant. In recent times it has been fully taken up by residents and valuable public awareness and support for the control program has resulted. It is proposed that this subsidy be continued during the months when a Pest Survey Program for Mother of Millions is in place (ESC, 2006). A public area program is undertaken focusing on road reserves. ESC is waiting for the release of an approval biological control for Cats Claw Creeper and will then be involved in releasing this across the Shire. Management efforts for Class 1 plants such as the Honey Locust are undertaken in conjunction with DNRW. A helicopter survey has been undertaken to identify areas of honey locust infestations, which are mainly on state land. A grant was obtained from the National Landcare Program for the Rubber Vine (*Cryptostegia grandiflora*) Eradication Program (ESC, 2006). A grant from the Natural Heritage Trust for Weeds of National Significance has also been received and which is assisting with the control of Lantana in public areas in the Shire. Further Council funding is required to progress this work further.

NRM Program/Initiative	Description of Current Level of Effort / Implementation
Pest Management (weeds and feral animals) cont.	The Esk Shire Parthenium Management Control Program has been undertaken for several years and has received some funding assistance from SEQ Catchments. The program involves monthly monitoring of 21 small outbreaks across the Shire and treating of roadside areas if required. The funding from SEQ Catchments is used to supply weed control chemicals to affected landholders (D Phipps, pers. comm, 2007). Pest animal controls are implemented through coordinated efforts with the DNRW.
Land resources and GQAL.	Only addressed in the Planning Scheme.
Erosion and sedimentation issues.	Only addressed in the Planning Scheme.
Atmosphere.	Air pollution is perceived as a minor issue for the Shire, there is no initiatives for this.
Reactive management of recreation areas, with significant NRM issues.	Council's Sport, Recreation and Planning Officer is about to commence a Master Plan Study: Twin Bridges, Savages Crossing, Fielding Reserve, Lowood Bend and Hills Reserves. This project has been made possible through a $55 000 funding grant and a matching contribution from Council. This significant project will include: • the development of detailed master plans for a number of sites along the Mid-Brisbane River that provide Council with a coordinated and strategic approach to the development and management of the subject sites; • incorporate the recommendations of the master planning process into Council's corporate and operational plans by way of policy and strategy development; • demonstrate the outdoor recreational potential of these sites for the purpose of securing external funding and also guiding Council in future budget allocations; and • formulate a prioritised one and five year implementation plan for each site with respect to future development opportunities (ESC, 2007b). Through this project an appropriate level of planning and the cooperation of all key stakeholders, the specified public access points along the Mid-Brisbane River can be redeveloped to a standard that is not only more manageable, sustainable and user friendly, but also financially beneficial to the surrounding community (ESC, 2007b). This project will build upon existing works undertaken by ESC and SEQ Catchments which included bollarding / protection works for Twin Bridges and Savages Crossing.

NRM Program/Initiative	Description of Current Level of Effort / Implementation
Community education and awareness	ESC endorses the use of the Living in the Upper Brisbane River Catchment Booklet which has been prepared by Cheryl McLeod for the Brisbane Valley Kilcoy Landcare Group. This booklet provides an excellent education resource for landholders in that region including practical land management advice, which supports Council NRM programs. ESC also promotes the use of the Living in the Lockyer information booklet.

"This page has been left blank intentionally"

11.2 SEQ Regional NRM Programs

11.2.1 Role of SEQWater

The South East Queensland Water Corporation Limited (SEQWater), is the main supplier of untreated water in bulk to Local Governments and industries in the SEQ region, through ownership of Wivenhoe, Somerset and North Pine dams (SEQWater, 2007a).

SEQWater's vision is excellence in providing quality water to our customers, today and into the future. SEQWater's mission is to be acknowledged as a major Water Resource Steward and Water Cycle Manager (SEQWater, 2007a).

Areas of focus for SEQWater including the bulk water supply storages in Esk Shire (which are indicated on **Figure F1**) are:

- North Pine Dam (Lake Samsonvale) situated on the North Pine River in Pine Rivers Shire;
- Somerset Dam situated on the Stanley River in Esk and Kilcoy Shires;
- Wivenhoe Dam situated on the Brisbane River in Esk Shire; and
- Mid Brisbane River - the 70 km of the Brisbane River located between Wivenhoe Dam and Mt Crosby (SEQWater, 2001a).

SEQWater is committed to working with landholders, community, industry and other stakeholders with responsibilities for land use management within the catchments of the storages and the Mid Brisbane River. SEQWater will maintain an active association with all Local Governments to provide for effective water quality outcomes as part of land use planning and development assessment processes (SEQ Water, 2001a).

SEQWater seeks to assess the quality of water entering, stored in and released from its reservoirs to advise relevant stakeholders and manage hazards and associated risks to its water quality (SEQ Water and Brisbane Water, 2006).

11.2.2 Relevant Publications by SEQWater

In 2001 SEQWater produced the Development Guidelines for Water Quality Management, which ESC contributed to. This document is currently under review. It was designed to be used by all stakeholders with the responsibility for land use management and in particular development with the catchment areas of Wivenhoe, Somerset and North Pine Dams and the Mid Brisbane River, downstream of Wivenhoe Dam to Mt Crosby. These Guidelines outline the 'best practice' approach to managing impacts of land use and development activities on waterways and water quality within these catchments (SEQWater, 2001). SEQWater uses the guidelines when assessing development applications referred to it by Local Government for advice under the IPA (SEQ Water, 2001).

The SEQWater – Water Quality Strategy Plan produced in 2001, outlines an integrated and comprehensive approach to ensure that the quality of water entering, stored in and released from the dams to its customers is fit and safe for its intended use. In particular, the Plan outlines SEQWater's approach to the management of the hazards and associated risks that potentially threaten our ability to maintain that safe water supply (SEQWater, 2001b).

The main management strategies for SEQWater include:

- water quality investigations and storage management;
- catchment landuse management;
- town planning and regulation;
- community information and rural extension;
- responsibilities and regulation; and
- implementation of an Environmental Management System.

Priority actions have been planned for each of these management strategies (SEQWater, 2001b).

SEQWater have also produced a publication entitled – A Helpful Guide to Living and Building in Our Drinking Water Catchments, which helps explain the Development Guidelines for Water Quality Management (SEQWater, 2003). These guidelines are currently being updated and a code will be provided for addressing water quality management in local government planning schemes (A Volders, pers.comm. 2007).

SEQWater is in the process of developing a Pest Management Plan for its land. This will tie in with its existing Water Quality Strategy and Land Management Strategy Leased land property management plan, and which incorporate pest management strategies (ESC, 2006).

11.2.3 SEQWater NRM Programs in Esk Shire

SEQWater has 22 people employed within its land and water quality sections that contribute to NRM programs across its three drinking water catchment areas. Some staff are based at the Wivenhoe office. The main focus of SEQWater is on water quality.

Fortnightly water quality monitoring is undertaken within the SEQ water storages. Sampling points are located at critical places for point source inflows. Some water quality monitoring occurs within the Mid Brisbane River. Event stations are established at Esk, which sample inflows into Lake Wivenhoe during rainfall events. The majority of the water quality monitoring work undertaken is investigations into water quality issues that are highlighted by community members. "As part of its response to the drought, SEQWater has increased the frequency, location and extent of its water quality monitoring program and strengthened its monitoring capabilities" (SEQWater, 2007b).

SEQWater owns around 3% of the catchment around Lake Wivenhoe / Somerset and undertakes education programs with farmers who operate primary industries on leased land to assist with reducing the risk to water quality posed by stock access (SEQ WCG, 2004). SEQWater also assist leaseholders with site based management plans and weed control (SEQ WCG, 2004).

SEQWater also offers sponsorships to local community environmental groups for catchment management actions and sponsors land management workshops.

Advice on development applications is provided to Esk Shire when there are referred to SEQWater for specialist advice. This can occur when Council is unsure whether the environmental management measures proposed for a particular development meet the SEQWater guideline.

A significant project about to commence in the area that is a joint project with SEQ Catchments, DNRW and EPA is the Mt Esk Pocket to D'Aguilar Range Biodiversity Corridor Partnerships Project. The focus of this project is on the southern part of the Shire on areas of leasehold land, including reconnecting the existing fragmented biodiversity corridor and restoring threatened species habitats. In addition an 8 000ha area of SEQWater land adjacent to Lakes Wivenhoe and Somerset is currently being investigated for the potential to establish a Nature Refuge Agreement over the site to protect the conservation values in perpetuity. For stage one of this project the focus will be on McKey's Hill – Mount Brisbane and Somerset Dam, with other areas in Esk Shire expected to benefit in future project stages.

11.2.4 Role of SEQ Catchments

SEQ Catchments is the Regional NRM Body responsible for the planning and implementation of integrated natural resource management for SEQ. The vision of SEQ Catchments is to secure a sustainable future for our natural resources through community involvement, government and industry partnerships and innovative on-ground delivery. SEQ Catchments works in partnership with local governments, urban and rural industries, community groups, Landcare groups, environmental groups, landowners and Traditional Owners to develop and implement on-ground NRM projects (SEQ Catchments, 2007).

SEQ Catchments is the result of a merger between two former regional NRM bodies in SEQ, Natural Resource Management SEQ Inc (NRMSEQ) and SEQ Western Catchments Group Inc (SEQWCG). SEQWCG were responsible for the preparation of the HLOF report and NRMSEQ was responsible for the preparation of the Future in Balance Regional NRM Plan.

SEQ Catchments is responsible for the implementation of short-term management actions to meet the medium term resource condition targets outlined in the HLOF report through funding programs which were outlined in the current Regional Investment Strategy (RIS). The RIS details the expenditure of funds from the Natural Heritage Trust and National Action Plan for Salinity and Water Quality Programs (SEQ Catchments, 2006a).

The amount of funding available across the SEQ region is small compared to the significant amount required to improve NRM outcomes. Thus SEQ Catchments targets their Regional Investment Strategy towards projects that:

- will make the greatest difference with respect to the resource condition outcomes and landscape connectivity;
- protect natural assets that still exist rather than large scale remediation works, based on the philosophy that it is more cost effective to retain and appropriately manage existing natural values before tackling badly degraded areas that often require considerable investment;
- achieve multiple benefits across the landscape and across a range of NRM / Environmental assets; and
- are of a significant scale with multiple stakeholders and investors involved, compared to smaller projects with higher transaction costs. Although funding is provided for smaller projects within local areas to ensure action and investment occurs (SEQ Catchments, 2006a). This assists with providing local demonstration sites.

Investment package programs detailed in the RIS include:

- Healthy Land;
- Preserving Our Natural Ecosystems;
- Protecting Our Water Assets;
- Community Partnerships; and
- Regional Planning, Science and Information (SEQ Catchments, 2006a).

The level of investment in each of the program areas is determined through the priorities identified in each regional NRM Plan and the preceding RIS that were prepared for both SEQWCG and NRMSEQ (SEQ Catchments, 2006a).

SEQ Catchments advises that it will be up to local government, community groups, industry and individual landowners to propose and develop projects that make a difference locally and by working together with SEQ Catchments this will help to local, regional and national outcomes (SEQ Catchments, 2006a).

11.2.5 NRM Programs Undertaken in Esk Shire by SEQ Catchments

Some of the projects have been undertaken / supported by the SEQWCG or are currently being undertaken / supported by SEQ Catchments within Esk Shire and surrounds are outlined in **Table 16**. Projects that are run in other local government areas are marked with an * symbol next to the project name.

Table 16: SEQ WCG and SEQ Catchments Projects Undertaken or Underway in Esk Shire since 2005

Project Name	Project Partner	Project Description	Committed Funds
Climate Change – Literature Report*.	Sinclair Knight Merz.	Literature review of current research, to inform case studies of how regional NRM planning can incorporate climate change issues into the planning process.	$5 000 (project relevant to the whole SEQ region).
Community Attitudes Survey – Western Catchments*.	University of the Sunshine Coast (USC).	Honours project including social research applying quantitative measures of landholder awareness about weeds and weed control.	$10 000 (across 13 local government areas).
Dairying Better and Better for Tomorrow Program – Western Catchments*.	Sub-tropical Dairy Program Ltd.	Partnership projects with Queensland Dairy Organisation.	$159 375 (across 13 local government areas).
Dry Vine Scrub Fire Management Project – Minden.	West Moreton Landcare Group.	A collaborative effort between landcare, community and SEQ Catchments to develop and implement a fire plan to protect this dry vine scrub.	$13 730
Identifying Community Capacity (SEO3) Project – SEQ Western Catchments Region*.	DNRW.	This project is a social and economic Strategic Investment Plan, undertaken by Griffith University and funded by the National Action Plan for Salinity and Water Quality (NAP). The project aims to identify community capacity within the SEQ Western Catchments region so funding and strategies to raise the capacity of the community to participate in regional initiatives is targeted better and help undertake activities which protect or enhance the condition of regional land, water and biodiversity resources. This project resulted in factsheets regarding the drivers and barriers for community capacity in the region.	$56 550 (across 13 local government areas).
Incentives for Irrigation Efficiencies – Western Catchments*.	Growcom, Agforce, DNRW.	In partnership with Growcom, incentive funds are to be provided to a minimum of 75 growers.	$86 667 (across 12 local government areas).

Project Name	Project Partner	Project Description	Committed Funds
National Landcare Program 01 – Landcare Group Support, Lockyer Catchment*.	Lockyer Catchment Association.	This project aims to build capacity within the Lockyer Catchment region to ensure effective participation in NRM programs, information sharing, coordination and implementation of on-ground activities.	$18 000 (across Esk, Gatton and Laidley).
National Landcare Program 03 – Black Snake Creek*.	West Moreton Landcare Group.	This project involves the collation of existing reports and knowledge of natural resource assets with a focus on soil salinity, erosion and land use, on-site audits and an evaluation of the current land use practices of landholders. Six demonstration sites for soil remediation practices will be established.	$85 625 (Esk Shire and Ipswich City).
Nature Assist (Nature Refuge Support)*.	Conservation Volunteers Australia.	Nature Assist is an incentive scheme for landholders, providing the opportunity for financial assistance to protect and actively manage the natural assets of their property that are subject to a Nature Refuge agreement.	$43 000 (for 9 local government areas).
Pilot study (to determine the interactions between wader birds and aquatic weeds of national significance) – Western Catchments*.	USC.	This project will be undertaken by a group of undergraduate students at USC with assistance from community organisations. The aim of the project is to determine the interactions between wader birds and aquatic weeds of national significance.	$5 000 (across 13 local government areas).
Platypus Care – SEQ Western Catchments*.	Wildlife Preservation Society.	This project employs a Wildlife Preservation Society of Queensland researcher to undertake the Platypus Care program across the western catchments of SEQ. This project includes a community awareness campaign and targeted surveys and monitoring at four sites. So far it has resulted in a map of platypus sightings across the region.	$5 254 (across 12 local government areas).

Project Name	Project Partner	Project Description	Committed Funds
Property Management Planning – Western Catchments*.	Queensland Murray Darling Committee trading as Swift NRM.	This program aims to deliver a coordinated property and sub catchment management planning process involving 65 landholders within 7 identified groups across the region. The group planning process utilises advanced mapping technology of key natural resource assets at the property and sub catchment level, incorporating self assessment questionnaires and relevant best management practice guidelines to develop action plans which help deliver desired regional NRM outcomes.	$79 775 (across 13 local government areas).
SE NLP Regional Farm Forestry Extension*.	Local landholders.	Support for sustainable native forest management. This can enhance the amenity and biodiversity values of the properties involved.	$92 500 (across 6 local government areas).
NRM Coordination Officer Position*.	Gatton and Laidley Shire Councils.	Funding for a full-time NRM Coordination Officer who works across Esk, Gatton and Laidley Shires.	Contributions towards the position made by SEQ Catchments and the three Councils.
Land for Wildlife Program SEQ.	Landholders and 14 local governments.	Support and advice for private landholders to improve biodiversity values on their properties. Established in 1998 there are now over 2 400 members across SEQ. In Esk Shire there are 50 members managing 1 895 hectares of land for conservation.	$90 000 from SEQ Catchments to support the program across 18 local government areas.

(SEQ Catchments, 2006b and D. McPherson, and S. Mooney and D. Metters, pers. comm. 2007)

Currently SEQ Catchments is planning additional projects to commence in the coming years. Some of the projects that are proposed that are of benefit to Esk Shire include:

- position approved for an NRM Officer to work full-time within the Upper Brisbane / Stanley River Catchments in the Shires of Esk, Kilcoy and Nanango. This officer should commence duties during 2007;
- investment in the SEQ Regional Trails project including implementation of the trails and funding assistance for public land management;
- grazing land management program in conjunction with the Department of Primary Industries and Fisheries as part of the National Landcare Program, focusing on ground cover management and increasing the uptake of sustainable grazing practices;
- provisions of environmental mapping layers outlining condition of NRM assets and satellite imagery of the Shire;
- funding for priority agricultural weeds project (approximately $10 000);
- potential for projects to focus on Class 3 priority environmental weeds;
- increased focus on efforts along Ivory Creek;
- support and training for a Land for Wildlife Extension Officer in Esk Shire;
- ongoing employment of a Soil Erosion Officer by SEQ Catchments and SEQWater to assist with identifying erosion hotspots and gully erosion; and
- ongoing facilitation of landcare projects in the Upper Brisbane River Catchment (D.McPherson and S.Mooney, pers.comm, 2007)

11.3 Identification of Other NRM Programs of Relevance

Table 17 outlines the NRM Programs or initiatives that are of relevance for addressing the variety of NRM issues that are occurring in Esk Shire. The programs are outlined because they are currently successful programs in the SEQ region or are relatively easy for ESC to implement due to low to medium resource requirements. The relevant programs that are recommended for implementation by ESC are outlined in **Section 4**.

Table 17: Other NRM Programs of Relevance to Esk Shire

Program / Initiative Description	Benefits for Addressing Multiple NRM Issues	Resource Requirements
Land for Wildlife - Land for Wildlife (LFW) is a national voluntary nature conservation program that aims to support private landholders to protect and enhance native flora and fauna on their property. To receive registration, landholders must intend to manage their property in a way that protects and enhances native flora and fauna, or in a way that integrates nature conservation with other land management activities. Properties that have greater than one hectare of retained viable habitat are usually fully registered in the program; other properties can be listed as "working towards" registration. LFW registration does not alter the legal status of a property in any way. It does not grant public access to the property or grant it any formalised protection status. In 2004 NRMSEQ (now SEQ Catchments) began the regional coordination of the program (SEQ Catchments, 2006c).	The program is run across the SEQ region and most local governments have a Land for Wildlife Officer who undertakes property assessments, assists with property management planning and provide environmental advice to landholders. Land for Wildlife greatly assists with improving private land management and conservation efforts and may provide a stepping stone for landholders to become involved in permanently protecting their land through the Nature Refuge program. Landholders may participate in workshops and field days that are run and receive a quarterly newsletter with best practice NRM advice. The commitment of participating landholders is recognised through the provision of a free LFW sign that is displayed on the property (SEQ Catchments, 2006c).	During previous efforts ESC assisted with registering 50 landholders in the Land for Wildlife program resulting in 1 895 hectares of land being managed for conservation (D Metters, pers. comm. 2007). To increase the profile of the program in the Shire a Land for Wildlife Extension Officer could work across two to three Shires (dependent on funding) to assess properties for interested landholders and revisit existing Land for Wildlife properties. Ongoing support to landholders could be provided by SEQ Catchments through the provision of training, signs, landholder folders, newsletters, database management, other materials and support. Access to a 4WD Vehicle, mobile phone and computer for the Extension Officer. Small budget for provision of materials for landholders and for running one to two best practice land management workshops per annum.
Nature Refuges - A nature refuge is a voluntary conservation agreement between a landholder and the Queensland Government (EPA) that leads to the establishment of a nature refuge. [4] A nature refuge is a category of protected area under the NCA. Each agreement is designed to suit the landholder and in most cases allows for the sustainable use of natural resources in the future. A nature refuge can cover part or all of a property protecting wildlife and wildlife habitat. More than 95 landholders across Queensland manage nature refuges on their properties, protecting rare and threatened ecosystems, plants and animals, while maintaining and enhancing property enterprises as diverse as grazing, cropping, horticulture and ecotourism (EPA, 2006d).	**NatureAssist** is a financial incentives scheme designed to encourage and assist nature refuge clients who make the significant commitment of establishing a perpetual nature refuge. The NatureAssist Incentives Tender provides funding for any activity, so long as the activity in question either maintains or improves the natural values found on your particular property. Typical activities may include fencing off riparian areas, weed control, detailed property management plans and rehabilitation or revegetation efforts. In addition Land Tax and Transfer Duty Refunds may be available (EPA, 2006e). This is a cost effective way for the state government to include private land within the protected area estate.	ESC could work in partnership with the EPA and SEQ Catchments to promote the Nature Refuge Program. This could most effectively be done by a Land for Wildlife Extension Officer.

[4] Some local governments in SEQ run Voluntary Conservation Agreement (VCA) programs that aim to establish conservation covenants over significant conservation land. More landholders may be eligible for a VCA than a Nature Refuge agreement due to locally specific eligibility criteria. For this NRMP a VCA program is not recommended as being relevant for Esk Shire due to the resources required to run the program and the need to establish a successful Land for Wildlife program prior to commencing a VCA program.

Program / Initiative Description	Benefits for Addressing Multiple NRM Issues	Resource Requirements
Environmental Management Plans for key recreational sites and significant roadside vegetation remnants including fire and bushland management information.	Would greatly assist all council officers and community members who manage or use these sensitive / high impact sites and could result in a program of works being established for each reserve overtime.	Depending on who undertakes these plans. Minimal cost would be involved in getting university students to prepare these plans as part of an on ground research project. Or a template Environmental Management Plan could be prepared by a consultant or council officer and individual plans could be prepared overtime.
Private landholder NRM Grants Program – some SEQ Councils use operational or environment levy funds to provide private landholders with the opportunity to be involved in an NRM Grants Program. Most programs are tailored to offer grants between $2 000 and $10 000 and are focused on property management initiatives in priority areas such as revegetation, fencing off riparian areas, weed control and addressing land degradation.	NRM Issues can be addressed at the property scale and multiple works can be undertaken in priority areas due to the in-kind contribution from landholders for their time in undertaking NRM initiatives.	Preparation of grant applications and criteria for assessing eligibility. Property visits to properties that may apply for or receive a grant. Provision of extension advice.
Environmental education programs for Staff and Councillors including environmental induction and erosion and sediment control courses.	Significant NRM issues are occurring due to a lack of knowledge of best management practices particularly with respect to erosion and sediment control during construction projects. Initial workshops / presentations could assist with increasing staff and Councillor awareness about these issues and a program of training / inductions could be scheduled for each year.	Obtain information environmental induction and erosion and sediment control training materials from other SEQ Councils, SEQ Catchments or the LGAQ.
Environmental weed control rebate program – could be aimed at property owners who are trying to control environmental weeds (that are a strategic priority for Esk Shire) on private property or adjoining public land (where permission is granted by Council). A 50% rebate for the cost of environmental weed control up to $400 per financial year, is available. Approved works on private land include the purchase of herbicide, contract labour to poison, fell and chip priority environmental weeds.	This program would greatly assist with providing financial incentives to assist with controlling significant environmental weed infestations predominately on private land. Council could choose priority sites adjacent to public land to appropriately target this program.	The level of the rebate would need to be determined by Council, however it is recommended that at least $200 is provided to make the program a valid incentive. Ipswich City Council offers a 50% rebate up to the value of $400 per financial year (Ipswich City Council, 2007). Staff time would be required to liaise with landholders applying for the rebate.
Short workshops on best practice land management for landholders.	All NRM issues can be discussed for a particular property or area. This is a practical way of providing advice to landholders.	Workshop presenters and facilitators, minor costs for venue hire or catering. Could be undertaken in conjunction with SEQ Catchments or other workshops hosted by Catchment groups to share workshop costs.
Small scale riparian rehabilitation projects undertaken by Greencorps, local community groups or Conservation Volunteers Australia – this project could be undertaken in conjunction with Ipswich City Council.	This will improve the habitats provided by local riparian areas as well as resulting in erosion control, weed management and water quality improvements.	Access to Greencorps and Conservation Volunteers Australia. Materials for riparian rehabilitation projects.
NRM Research projects undertaken by University students – cost effective way of undertaking multiple projects or gaining more detailed information on priority local NRM values.	Students from various NRM / Environment courses could be involved in research projects in particular catchments to assist with improved local information and tailoring management responses.	Facilitation of university projects, potentially by the NRM Coordinator.

Program / Initiative Description	Benefits for Addressing Multiple NRM Issues	Resource Requirements
NRM information kit for all landholders – incorporating existing information from the Living in the Lockyer booklet, the Living in the Upper Brisbane River Catchment booklet and other relevant state government information. A Rural Living Kit used by Caboolture Shire Council could provide a template for the establishment of the Esk Shire kit. Information could be included on how to obtain other excellent reference materials produced by **the Southeast Queensland Fire and Biodiversity Consortium** (SEQFABC) or involvement in the consortium. Revegetation advice for local vegetation communities could be provided.	Can be used by all Council officers, SEQ Catchments staff and community groups involved in NRM in Esk Shire to assist with raising the profile of NRM and providing best practice information. SEQFABC brochures / kits that could be included in the kit include: • Introduction Brochure on Fire Ecology; • Fire Management for Protected Vegetation; and • Individual Property Planning Kit (Southeast Queensland Fire and Biodiversity Consortium, 2006).	Printing and distribution costs. Display of information kits in Council office and libraries. Potentially could be distributed through local catchment groups, shops and real estate agents. Council could become a sponsor of the SEQFABC, like many other Councils in SEQ. This involves a small annual financial contribution.
Best practice guideline for peri-urban landholders – this could be developed in conjunction with SEQ Catchments and SEQWater and other relevant Councils.	Would be a guideline that provides integrated solutions for all NRM issues within peri urban areas.	Partnership project that would compile existing information and develop specific per-urban information. Printing and distribution costs.
Support for fauna survey programs – during each year community fauna survey programs are run by community groups, SEQ Catchments, neighbouring Councils and the QPWS NatureSearch program. Fauna records are collated by the EPA for the Wildnet and Wildlife Online programs, which give the public access to verified Queensland flora and fauna data. ESC could promote the NatureSearch program and liaise with the QPWS to request that surveys are undertaken within priority areas (EPA, 2006g). Alternatively interested persons who may become involved in the Land for Wildlife program could be encouraged to undertake the required training to participate in NatureSearch or other fauna monitoring programs.	Greatly improves the fauna information for the Shire and assists with refining the EPA's mapping for the Biodiversity Significance Overlay overtime.	Minimal – promotion of the NatureSearch and other fauna monitoring activities on the Council website and through local community networks.
Cities for Climate Protection Program (CCP) – is a program that enables cities to adopt policies and implement measures to achieve quantifiable reductions in local greenhouse gas emissions, improve air quality and enhance liveability and sustainability. The program is coordinated in Australia by International Council for Local Environmental Initiatives (ICLEI) and has over 200 Councils participating within Australia (ICLEI, 2007).	The program involves the undertaking of five structured milestones, which initially involve local governments understanding how local decisions affect energy use. The program involves monitoring, measuring and reporting on environmental performance. Most Councils who undertake this program have experienced significant financial savings due to reducing in utility and fuel costs for Council and the community (ICLEI, 2007).	Skills in greenhouse and energy management issues and facilitation with the community to identify and undertake relevant programs. Funding required would depend on the breadth of the actions undertaken. Tools and technical experience is available through ICLEI and several other SEQ Councils who have undertaken the program (ICLEI, 2007).

“This page has been left blank intentionally”

12 IDENTIFICATION OF OTHER FUNDING OPPORTUNITIES

As substantial efforts could be undertaken to improve the current condition of the NRM assets of Esk Shire, funding is required from external sources if significant improvements are to be made particularly over the short to medium term. Sourcing external funding will assist with increasing the effectiveness of individual programs, for example where matching funding can be obtained from other sources.

Table T8 outlines a range of grant and funding opportunities available to ESC and the local community for undertaking NRM programs and initiatives particularly in relation to land and pest management.

Section 2.2 of this NRMP outlines the regional importance of Esk Shire's NRM assets. The information is this section should be used to demonstrate why external agencies should invest in NRM efforts in the Esk Shire.

The NRM principles in SEQRP outlined in **Table 11** assist with providing the overarching principles for regional NRM efforts, as does the HLOF Plan within the Western Catchments region.

Whilst concerns may be raised by ESC about the need to have staff available to assist with the supervision and coordination of grant or other funding programs, it is recommended that undertaking externally funded activities is critical for improving the current condition of NRM assets and should be considered a high priority.

"This page has been left blank intentionally"

13 CONSULTATION UNDERTAKEN FOR THE DEVELOPMENT OF THE NRMP

13.1 Overview of Consultation Activities

The preparation of this NRMP has been assisted by input from ESC, SEQ Catchments and SEQWater officers.

HLA participated in the SEQWater Risk Assessment Workshop session for Wivenhoe and Somerset Dam organised by SEQWater on 8th March 2007, this greatly assisted with obtaining information on the current condition of the dams and their catchment areas.

HLA presented to the ESC meeting on 11th April 2007, regarding the purpose of and overview of content of this NRMP. Feedback was received on the importance of:

- recommending practical NRM measures;
- acknowledging landholder's needs to improve productivity and the financial or land management implications of NRM initiatives such as fencing off riparian zones; and
- recognition that weed management is a significant issue particularly in watercourses and will have more of an impact should considerable rainfall occur following the current drought period.

Community contacts were emailed one month prior to the planned community consultation workshops for the NRMP to assist with promoting the workshops. Public notices were placed in the Brisbane Valley Sun on 5th and 12th April and a news story was included on 12th April. A public notice was also placed in the Gatton Star on 11th April. Consultation workshops were held in Fernvale on 17th April and at Esk on 18th April. Whilst only a few residents and community representatives attended these sessions, valuable feedback was received to assist with determining NRM priorities.

13.2 Overview of Information Gained Through the Consultation Activities

The information gained through the community consultation sessions is outlined in **Table** T9. Issues have been identified under the key themes of:

- pest management (flora and fauna);
- council issues;
- communication / education;
- property / land management;
- water;
- vegetation;

- fauna;
- stock; and
- extractive industry.

Where an issue raised belongs to several NRM themes it has been included with each relevant theme and written in italics. The most significant number of issues where raised for the pest management and property / land management themes.

The consultation information has been arranged to show how each issue raised relates to the following categories:

- operational issue for Council;
- specific NRM information for Council;
- council to raise with relevant agency;
- potentially addresses / improvements made through the implementation of Environment Levy and operational programs;
- ongoing NRM challenge; and
- support expressed for current approach / program.

The information gained through the consultation sessions has outlined that the priorities and programs / initiatives outlined in the NRM action plan are in line with the expectations of the community representatives who were involved in the consultation sessions; however, several general NRM issues that could be considered by Council have been outlined.

14 GUIDELINE FOR THE PREPARATION OF OTHER NRM PLANS

As this NRMP has been funded by ESC, SEQWater and SEQ Catchments it is envisaged that this plan will be used as a model for the development of other NRM Plans within the SEQ Region.

In order to assist with the preparation of future NRM Plans, a guideline has been prepared that could be used by other Councils or catchment groups. This guideline was independently reviewed by Nigel Weston and Glen Millar from Caboolture Shire Council who provided useful comments on the guideline and its effectiveness for use by other Councils. The guideline is outlined in **Appendix A**.

"This page has been left blank intentionally"

15 RECOMMENDATIONS

This NRMP has demonstrated the importance of the NRM assets of Esk Shire from a local and regional perspective. Of most importance is that the condition of the land and water resources of the Shire significantly determines the level of water quality of the drinking water supply catchments that are used by SEQ.

With the establishment of the Esk Shire Environment Levy and increasing opportunities for partnerships with other agencies such as SEQWater and SEQ Catchments, the condition of the Shire's NRM assets can be improved overtime, which will result in improved water quality, land productivity and enhancement of biodiversity values.

The following recommendations are required to be implemented to make this NRMP effective and ensure that the required improvements in NRM condition values occur overtime. Implementing these recommendations will greatly assist ESC with improving its environmental performance and provide evidence of environmental initiatives that can be used to demonstrate that regional funds are required to make enough difference.

15.1 Implementation of the NRMP

- Implement the high priority Environment Levy programs outlined in the NRM Action Plan immediately;
- review the recommended operational programs (outlined in the NRM Action Plan) and determine a program for commencement of those programs; and
- determine a forward program for applying for appropriate grants and funding opportunities to expand on the funding for NRM programs;

15.2 Ongoing role of SEQ Catchments and SEQWater

- SEQ Catchments and SEQWater are encouraged to continue their beneficial involvement with ESC to implement local and regional NRM priority initiatives. Continued funding from these agencies is required to supplement the funding from ESC for high priority NRM initiatives, to ensure the effective implementation of this NRMP;
- in conjunction with ESC it is recommended that a quarterly meeting be held to discuss the implementation of this NRMP and plan priority actions to be funded overtime. These meetings would also assist with integrating plans for landholders programs (especially for field days and landholder grants) and could result in a forward program of events being released that are supported by the three agencies; and
- ongoing liaison between the three agencies should occur to improve on and collect new NRM condition data over time.

15.3 Resourcing of NRM actions

- To attract more regional investment to expand on ESC NRM initiatives (and implement them if successful), the amount of officer time dedicated to NRM programs will need to be increased. Currently ESC's NRM Coordinator is employed for three years on a job share arrangement with two neighbouring Councils. ESC needs to ensure that this position continues over the longer term and the time allocation is increased to ensure that improvement in NRM asset condition and community involvement in NRM increases overtime.

15.4 Continuation of the Environment Levy

- To achieve continuous improvements to the condition of NRM values and ensure that landholders are supported to undertake NRM initiatives, it is recommended that the Environment Levy be retained indefinitely and indexed to increase with CPI;
- as competition for Environment Levy funds may increase; ESC should develop a policy outlining the use of Environment Levy funds including percentages allocated to certain types of programs, to ensure that the NRM action plans can be implemented; and
- ESC should promote the success of Environment Levy programs implemented over time, to assist with demonstrating to the broader community the importance of investing in NRM.

15.5 Corporate and Operational Planning

- The next version of the Esk Shire Corporate Plan needs to include significant information on Council's role and commitment to NRM;
- this NRMP should be used to guide operational planning for activities that impact upon natural resource assets and to coordinate operational and environment levy NRM programs; and
- ensure all relevant ESC, SEQ Catchments and SEQWater staff are aware of this plan and have access to it, to ensure it is used for all corporate and operational planning initiatives within Esk Shire.

15.6 Advocacy / Partnerships

- Use this NRMP as a basis for discussions on regional investment for NRM initiatives in Esk Shire. Key agencies that should be informed about this plan include:
  - adjoining local governments;
  - Brisbane City Council;
  - DNR&W;
  - EPA;
  - QPWS;
  - OUM;
  - DEWR;
  - Council of Mayors (SEQ);
  - SEQ Environmental Management Technical Reference Group (coordinated by Logan City Council); and
  - NGOs who invest in conservation areas / programs around Australia.
- The State Government agencies outlined should be informed of some of the key government owned sites in the Shire that are not currently being managed appropriately and the overall NRM challenges. ESC should seek commitment from these agencies that they will meet the relevant legislative requirements and improvements will be made in Esk Shire over time; and
- with respect to policy and planning provisions relating to NRM, Council should discuss with state agencies the overall intent for the Regional Landscape and Rural Production Areas of the Shire, due to the potential for conflict between agricultural, extractive industry and biodiversity/open space uses.

15.7 Distribution / Promotion of this NRMP

- Distribute copies of this plan (or a summary version consisting of the **Sections 1 to 4** and these recommendations) to local environmental and community groups or interested residents;
- ensure a full copy of this plan is available in Shire libraries and popular local community venues; and
- as results are obtained with NRM programs these achievements should be highlighted on Council's website and in local newspapers to assist with promoting the benefits of NRM.

15.8 Review of the NRMP

A short-term review of the implementation of Environment Levy programs should be undertaken following the first year programs. This will greatly assist in determining the success of high priority programs and when other programs should be implemented.

A detailed review of the success of implementation and recommended NRM programs and integration with SEQ Catchments and SEQWater initiatives should be undertaken, following the first two years of implementation of this plan.

A full review of this NRMP should be undertaken following five years of implementation, to ensure that NRM priorities are updated based on current condition data and legislation / policy requirements. Should any major changes in NRM legislation occur before the review, ESC may need to consider how this impacts upon the implementation of this NRMP and other operational activities.

16 REFERENCES

Atkinson Dam Waterfront Caravan Park. 2007. Atkinson Dam. http://www.atkinsondam.com.au. Accessed 15 March 2007.

Australian Government. 2007. Natural Resource Management – Turbidity. http://www.nrm.gov.au/monitoring/indicators/turbidity.html. Accessed 20 March 2007.

Australian Government Department of Environment and Water Resources. 2007. Local Government Area Search – Protected Area Matters Search Tool. http://www.environment.gov.au/cgibin/erin/ert/ert_dispatch.pl?loc_type=lga&search=Search&report=epbc. Access 5 March 2007.

Australian Government National Health and Medical Research Council and Natural Resource Management Ministerial Council. 2004. National Water Quality Management Strategy – Australian Drinking Water Guidelines 6. 2004. http://www.nhmrc.gov.au/publications/synopses/_files/adwg_11_06.pdf. Accessed 28 March 2007.

Bates, N. 2007. *Government has capacity to do worse*. Fraser Coast Chronicle. 22 March.

CSIRO. 2007. *South East Queensland Sustainable Landscape Project – CSIRO Sustainable Ecosystems*. http://www.seqcatchments.com.au/pdfs/AG14%20Handout%20Final.pdf. Accessed 13 June 2007.

Connell Wagner. 2005. *Integrated Environmental Management System ESC*. Connell Wagner, Brisbane.

Department of Housing, Local Government and Planning. 1992. State Planning Policy 1/92 Development and the Conservation of Agricultural Land. http://www.ipa.qld.gov.au/docs/spp1_92.pdf. Accessed 7 March 2007.

Department of Local Government, Planning, Sport and Recreation. 2007. *South East Queensland Census Collection Districts (ASGC 2001); Final projected total population 2006 edition Queensland Government Medium Series population projections*. Produced by the Planning Information and Forecasting Unit.

Department of Local Government, Planning, Sport and Recreation. 2006. *Population and Housing Fact Sheet Esk Shire*. http://www.lgp.qld.gov.au/docs/corporate/publications/planning/demographics/profiles/demographic_and_housing/esk.pdf. Accessed 27 February 2007. Produced by the Planning Information and Forecasting Unit.

Department of Local Government and Planning and Department of Emergency Services. 2003. State Planning Policy 1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide. http://www.ipa.qld.gov.au/docs/SPP_IFBL.pdf. Accessed 7 March 2007.

DNRW. 2007. Cultural Heritage – Duty of Care. http://www.nrw.qld.gov.au/cultural_heritage/legislation/duty_of_care.html. Accessed 8 June 2007.

DNRW. 2006a. *Clearing and Development*. http://www.nrw.qld.gov.au/vegetation/clearing/index.html. Accessed 7 March 2007.

DNRW. 2006b. Policy for Vegetation Management Offsets. http://www.nrw.qld.gov.au/vegetation/pdf/offsets_policy_20_nov_06.pdf. Accessed 7 March 2007.

DNRW. 2006c. *Mining, Exploration and Petroleum*. http://www.nrw.qld.gov.au/mines/land_tenure/land_use_plans.html. Accessed 8 May 2007.

Department of Primary Industries and Department of Housing, Local Government and Planning. 1993. *Planning Guidelines: The Identification of Good Quality Agricultural Land*. http://www.ipa.qld.gov.au/docs/plng_guide_identif_ag_land.pdf

EPA. 2007a. *Industry Environmental Codes*. http://www.epa.qld.gov.au/environmental_management/planning_and_guidelines/codes_of_practice/industry_environmental_codes. Accessed 7 March 2007.

EPA. 2007b. Koala Plan. http://www.epa.qld.gov.au/nature_conservation/wildlife/koala_plan/. Accessed 8 June 2007.

EPA. 2006a. *Forest Transfer Processes in Queensland*. http://www.epa.qld.gov.au/parks_and_forests/managing_parks_and_forests/forest_transfer_processes_in_queensland/. Accessed on 5 March 2007.

EPA. 2006b. *List of gazetted SEQFA and Wet Tropics forest reserves as at 20 October 2006*. http://www.epa.qld.gov.au/publications/p02016aa.pdf/List_of_gazetted_SEQFA_and_Wet_Tropics_forest_reserves.pdf. Accessed 5 March 2007

EPA. 2006c. Climate Change and Greenhouse. http://www.epa.qld.gov.au/environmental_management/sustainability/climate_change_and_greenhouse/. Accessed 14 June 2007.

EPA. 2006d. *Nature Refuges*. http://www.epa.qld.gov.au/nature_conservation/nature_refuges/. Accessed 6 March 2007.

EPA. 2006e. *Nature Assist*. http://www.epa.qld.gov.au/nature_conservation/nature_refuges/nature_assist/. Accessed 6 March 2007.

EPA. 2006f. *South-east Queensland Regional Coastal Management Plan*. http://www.epa.qld.gov.au/register/p01361aa.pdf. Accessed 7 March 2007.

EPA. 2000g. *NatureSearch.* http://www.epa.qld.gov.au/nature_conservation/community_role/naturesearch/. Accessed 9 March 2007.

EPA. 2004a. *Biodiversity Planning Assessment – Southeast Queensland South Landscape Expert Panel Report.* Queensland Government.

EPA. 2004b. Biodiversity Planning Assessment – Southeast Queensland South Flora Expert Panel Report. Queensland Government.

EPA. 2003. *Regional Nature Conservation Strategy*. http://www.epa.qld.gov.au/nature_conservation/biodiversity/conserving_biodiversity/regional_nature_conservation_strategy/. Accessed 7 March 2007.

ESC. 2007a. *ESC website.* http://www.esk.qld.gov.au/. Accessed 23 February 2007.

ESC. 2007b. *Project Brief Master Plan Study: Twin Bridges, Savages Crossing, Fielding Reserve, Lowood Bend & Hills Reserve*.

ESC. 2006. *Local Government Area Pest Management Plan 2005-2009*. http://www.esk.qld.gov.au/content/Forms/EskSC_Pest_Management_Plan_2005_2009.pdf. Accessed 19 March 2007.

ESC. 2005. *Esk Shire Planning Scheme*. http://www.esk.qld.gov.au/. Accessed 23 February 2007.

Healthy Waterways. 2006a. Report Card 2006 for the waterways and catchments of South East Queensland. http://www.ehmp.org/FileLibrary/1-reportcard2006-web_0001.pdf. Accessed 27 March 2007.

Healthy Waterways. 2006b. WSUD Technical Design Guidelines and Factsheets. http://www.healthywaterways.org/wsud_technical_design_guidelines.html. Accessed 27 March 2007.

Ipswich City Council. 2007. *Conservation Partnerships on Private Land*. http://www.ipswich.qld.gov.au/environment/conservation/landholder_incentives/conservation_partnerships_on_private_land.php. Accessed 6 March 2007.

International Council for Local Environmental Initiatives (ICLEI). 2007. *Cities for Climate Protection*. http://www.iclei.org/index.php?id=800. Accessed on 16 March 2007.

Kearney. F. 2006. Southeast Queensland Sustainable Landscape Project. http://www.cse.csiro.au/research/documents/AGSIP_AG14_summaryhandoutwithprinciples.pdf. Accessed 21 March 2007.

Kerr. R.S. 1988. *Confidence and Tradition A History of Esk Shire*. The Council of the Shire of Esk.

Kinhill. 2000. *Catchment Investigations for Lake Wivenhoe and Lake Somerset*. A report for the SEQ Water Board.

Johnson. D.P. 2005. *State of the Rivers - Upper Brisbane, Mid Brisbane and Stanley Rivers and Major Tributaries: An Ecological and Physical Assessment of the Condition of Streams in the Upper Brisbane, Mid Brisbane and Stanley Rivers Catchment*. Queensland Department of Natural Resources and Mines, Natural Resource Sciences.

LGAQ. 2005. *Integrating Natural Resource Management into Local Government Corporate, Strategic and Operational Plans*. http://www.lgaq.asn.au/lgo/resources/environment/NRM/Complete%20Final.pdf. Accessed 6 March 2007.

Lord, B. 2002. *Catchment Action Plan for the Upper Brisbane River*. Produced for the Brisbane Valley Kilcoy Landcare Group.

Low Choy, Dr D, Steiner, B and Maccheroni A. 2006. *Bridging the Barriers: A Study of Local Government NRM Uptake Opportunities.* A report for the SEQ Western Catchments Group.

Millennium Ecosystem Assessment. 2005. *Ecosystems and Human Well-being Synthesis*. Island Press, Washington DC.

McLeod, C. 2006. *Living in the Upper Brisbane Catchment*. Prepared for the Brisbane Valley Kilcoy Landcare Group.

OUM. 2005. *South East Queensland Regional Plan 2005 - 2026*. Queensland Government.

OUM. 2007. *Regional Landscape*. http://www.oum.qld.gov.au/?id=37, accessed 22 February 2007.

Queensland Outdoor Recreation Federation Inc. January 2007. *Active Trails: A Strategy for Recreation Trails in South East Queensland*. Prepared by the Queensland Outdoor Recreation Federation Inc for the Queensland Government and the Council of Mayors (SEQ). http://www.oum.qld.gov.au/docs/pdf/Active_Trails.pdf. Access on 22 February 2007.

Queensland Water Commission. 2007. *Level Five Water Restrictions and Households*. http://www.qwc.qld.gov.au/tiki-read_article.php?articleId=70. Accessed 26 March 2007.

SEQ Catchments. 2007. *SEQ Catchments: Regional NRM Body – South East Queensland*. http://www.seqcatchments.com.au. Accessed 28 February 2007.

SEQ Catchments. 2006a. *Fact Sheet 3 – The SEQ CATCHMENTS Regional Investment Strategy*. http://www.seqcatchments.com.au/documents/factsheets/RIS%20fact%20sheet.pdf. Accessed 28 February 2007.

SEQ Catchments. 2006b. *SES Catchments Ltd Investment Summary 2006*. http://www.seqcatchments.com.au/pdfs/SEQ CATCHMENTS_project_summary.pdf. Accessed 5 March 2007.

SEQ Catchments. 2006c. *Land for Wildlife*. http://www.seqcatchments.com.au/projects.html#. Accessed 6 March 2007.

SEQWater, 2007a. *SEQWater – About Us*. http://www.seqwater.com.au/content/standard.asp?name=AboutUs. Accessed 28 February 2007.

SEQWater. 2007b. *Water Quality Monitoring Increased As Dam Levels Fall*. http://www.seqwater.com.au//files/pdf/WQRA%20Release%20210107.pdf. Accessed 27 February 2007.

SEQWater. 2007c. SEQWater Risk Assessment Consultation Workshop for Lake Somerset and Lake Wivenhoe. Held on 8 March 2007.

SEQWater and Brisbane Water. 2006. *Drought Water Quality Risk Assessment*. http://www.seqwater.com.au/files/pdf/Drought_Risk_Assessment_Report.pdf. Accessed 12 March 2006. Report prepared by the Peter M. Schneider, Philip T. Orr, Robert Townsley, Mavourneen R. Lutton, and Matthew Andrew.

SEQWater. 2003. *A Helpful Guide to Living and Building in Our Drinking Water Catchments*. http://www.seqwater.com.au/files/pdf/seqwater%20guidelines_web.pdf. Accessed 15 March 2007.

SEQWater.2001a. *Development Guidelines for Water Quality Management – Edition One*. http://www.seqwater.com.au/files/pdf/WQDevelopmentGuidelines.pdf. Accessed 12 March 2007.

SEQWater.2001b. *SEQWater Water Quality Strategy Plan 2001.* http://www.seqwater.com.au/files/pdf/WQStrategyPlan.pdf. Accessed 12 March 2007.

Sinclair Knight Merz. 2004. Mid Brisbane River Recreation Management Plan. http://www.esk.qld.gov.au/content/Forms/management%20Plan_final_logos.pdf. Accessed 26 March 2007. Report produced for Esk Shire, Ipswich and Brisbane City Councils and SEQWater.

Southeast Queensland Fire and Biodiversity Consortium. 2006. *Products and Materials*. http://www.griffith.edu.au/school/asc/fire2/htmls/frame06_products.html. Accessed 6 March 2007.

Stanley River Catchment Action Group. 2003. *Stanley River Action Plan*.

Strategic Leisure Group. 2006. *ESC Parkland Strategy*. Produced for ESC.

Toowoomba City Council. 2006. *Water Futures Toowoomba*. http://www.toowoombawater.com.au/water-supply/cressbrookdam.html. Accessed 15 March 2007.

WCRW. 2007. *Western Corridor – Home*. http://www.westerncorridor.com.au/home.aspx?docID=1. Accessed 13 June 2007.

"This page has been left blank intentionally"

Tables

"This page has been left blank intentionally"

Table T1: Regional Ecosystems as Defined by the Vegetation Management Act 1999 Known to Occur Within the Esk Shire.

RE Code	Ecological Community Description	Status*	Areas Known to Occur Within Esk Shire
RE 12.3.1	Gallery rainforest (notophyll vine forest) on alluvial plains.	E	C
RE 12.3.3	Queensland Blue Gum woodland to open forest on alluvial plains.	E	C, SE, SW
RE 12.5.2	Queensland Blue Gum, Pink Bloodwood on remnant Tertiary surfaces, usually near coast.	E	C, SE, SW
RE 12.5.6	Grey Ironbark, Small-fruited Grey Gum, Tallowwood and / or Blackbutt open forest on remnant Tertiary surfaces.	E	C, SW
RE 12.8.21	Semi-evergreen vine thicket with Queensland Bottle Tree on Cainozoic igneous rocks.	E	SE
RE 12.8.24	Lemon-scented Spotted Gum open forest on Cainozoic igneous rocks especially trachyte.	E	SW
RE 12.9-10.6	Brigalow open forest on sedimentary rocks.	E	SE
RE 12.9-10.8	Silver-leaf Ironbark, Narrow-leaved Ironbark woodland on sedimentary rocks.	E	N, C, SE, SW
RE 12.9-10.11	Swamp Tea-tree low open forest on sedimentary rocks.	E	SE
RE 12.9-10.12	Narrow-leaved Red Gum, Pink Bloodwood, Rusty Gum woodland on sedimentary rocks.	E	SE, SW
RE 12.9-10.15	Semi-evergreen vine thicket with Queensland Bottle Tree on sedimentary rocks.	E	N, C, SE
RE 12.12.17	Semi-evergreen vine thicket on Mesozoic to Proterozoic igneous rocks.	E	SE
RE 12.3.2	Flooded Gum tall open forest on alluvial plains.	OC	SW
RE 12.3.8	Swamps with Sedges.	OC	SE
RE 12.3.11	Grey Ironbark, Queensland Blue Gum, Pink Bloodwood open forest on alluvial plains usually near coast.	OC	C
RE 12.8.8	Sydney Blue Gum or Flooded Gum tall open forest on Cainozoic igneous rocks.	OC	SW
RE 12.8.13	Araucarian complex microphyll vine forest on Cainozoic igneous rocks.	OC	N, C, SE
RE 12.9-10.3	Gum-topped Box on sedimentary rocks.	OC	SE, SW
RE 12.9-10.7	Narrow-leaved Ironbark woodland on sedimentary rocks.	OC	N, SE, SW
RE 12.9-10.16	Araucarian microphyll to notophyll vine forest on sedimentary rocks.	OC	N
RE 12.11.8	Silver-leaf Ironbark, Narrow-leaved Ironbark woodland on metamorphics and / or interbedded volcanics.	OC	C, SW
RE 12.11.9	Queensland Blue Gum open forest on metamorphics and / or interbedded volcanics.	OC	SW
RE 12.11.14	Narrow-leaved Ironbark, Queensland Blue Gum woodland on metamorphics and / or interbedded volcanics.	OC	N, C, SE, SW
RE 12.11.17	White Mahogany or Yellow Stringybark open forest on metamorphics and / or interbedded volcanics.	OC	C
RE 12.12.1	Simple notophyll vine forest usually with abundant Gully Vine Forest on Mesozic to Proterozoic igneous rocks.	OC	SE
RE 12.12.8	Silver-leaf Ironbark woodland on Mesozoic to Proterozoic igneous rocks.	OC	N, C, SW
RE 12.12.11	White Mahogany, Yellow Stringybark, Brown bloodwood open forest on Mesozoic to Proterozoic igneous rocks.	OC	C
RE 12.12.12	Queensland Blue Gum, Narrow-leaved Ironbark or Grey Ironbark, Swamp Box open forest on granite.	OC	N, C, SE, SW
RE 12.12.14	Shrubby woodland usually of rocky near coastal areas on Mesozoic to Proterozoic igneous rocks.	OC	SE
RE 12.12.28	Gum-topped Box open forest on Mesozoic to Proterozoic igneous rocks.	OC	N
RE 12.3.7	Queensland Blue Gum, Weeping Bottlebrush, River Sheoak fringing forest.	NOC	C, SE, SW
RE 12.5.1	Open forest complex with Lemon-scented Spotted Gum on subcoastal remnant Tertiary surfaces.	NOC	SE, SW
RE 12.5.7	Lemon-scented Spotted Gum, Yellow Stringybark, Broad-leaved Ironbark open forest on remnant Tertiary surfaces.	NOC	SW
RE 12.8.3	Complex notophyll vine forest on Cainozoic igneous rocks.	NOC	SE
RE 12.8.17	Narrow-leaved Ironbark, Silver-leaf Ironbark woodland on Cainozoic igneous rocks.	NOC	SW
RE 12.9-10.2	Lemon-scented Spotted Gum, Narrow-leaved Ironbark open forest on sedimentary rocks.	NOC	SE, SW

RE Code	Ecological Community Description	Status*	Areas Known to Occur Within Esk Shire
RE 12.9-10.5	Open forest complex often with Brown Bloodwood, Lemon-scented Spotted Gum, Narrow-leaved Ironbark, Broad-leaved Ironbark on quartzose sandstone.	NOC	SW
RE 12.9-10.14	Blackbutt tall open forest on sedimentary rocks.	NOC	C, SW
RE 12.9-10.17	Open forest complex often with White Mahogany, Grey Gum, Grey Ironbark, Lemon-scented Spotted Gum on sedimentary rocks.	NOC	N, C, SE
RE 12.9-10.19	Broad-leaved Ironbark open forest on sedimentary rocks.	NOC	SE
RE 12.11.1	Simple notophyll vine forest often with abundant Gully Vine Forest on metamorphics and / or interbedded volcanics.	NOC	SE
RE 12.11.2	Sydney Blue Gum or Flooded Gum, Tallowwood, White Mahogany, Brush Box tall open forest on metamorphics and / or interbedded volcanics.	NOC	SE
RE 12.11.3	Open forest generally with Grey Ironbark, Small-fruited Grey Gum on metamorphics and / or interbedded volcanics.	NOC	N, C, SE, SW
RE 12.11.5	Open forest complex with Lemon-scented Spotted Gum, Grey Ironbark, Grey Gum on metamorphics and / or interbedded volcanics.	NOC	SE
RE 12.11.6	Lemon-scented Spotted Gum, Narrow-leaved Ironbark open forest on metamorphics and / or interbedded volcanics.	NOC	SE, SW
RE 12.11.7	Narrow-leaved Ironbark woodland on metamorphics and / or interbedded volcanics.	NOC	SW
RE 12.11.10	Notophyll vine forest with Hoop Pine on metamorphics and / or interbedded volcanics.	NOC	N, SE
RE 12.11.11	Araucarian microphyll vine forest on metamorphics and / or interbedded volcanics.	NOC	N, C, SE, SW
RE 12.11.18	Gum-topped Box open forest on metamorphics and / or interbedded volcanics.	NOC	N, SW
RE 12.11.22	Rusty Gum, Narrow-leaved Ironbark woodland on metamorphics and / or interbedded volcanics.	NOC	SE
RE 12.12.2	Blackbutt tall open forest on Mesozoic to Proterozoic igneous rocks especially granite.	NOC	SE, SW
RE 12.12.3	Open forest complex with Lemon-scented Spotted Gum, Grey Ironbark or Narrow-leaved Ironbark or Ironbark, Grey Gum and / or Grey Gum, White Mahogany or Yellow Stringybark on Mesozoic to Proterozoic igneous rocks.	NOC	C, SW
RE 12.12.5	Lemon-scented Spotted Gum, Narrow-leaved Ironbark open forest on Mesozoic to Proterozoic igneous rocks.	NOC	SE, SW
RE 12.12.7	Narrow-leaved Ironbark woodland on Mesozoic to Proterozoic igneous rocks.	NOC	N, SE, SW
RE 12.12.13	Araucarian complex microphyll to notophyll vine forest on Mesozoic to Proterozoic igneous rocks.	NOC	N, C, SE, SW
RE 12.12.15	Grey Ironbark, Small-fruited Grey Gum, White Mahogany open forest on near coastal hills on Mesozoic to Proterozoic igneous rocks.	NOC	N, C, SE, SW
RE 12.12.16	Notophyll vine forest on Mesozoic to Proterozoic igneous rocks.	NOC	N, C, SE, SW
RE 12.12.23	Queensland Blue Gum and Thin-leaved Stringybark woodland on crests, upper slopes and elevated valleys on Mesozoic to Proterozoic igneous rocks.	NOC	SW
RE 12.12.24	Rusty Gum, Narrow-leaved Ironbark woodland on Mesozoic to Proterozoic igneous rocks.	NOC	N
RE 12.12.25	Broad-leaved Ironbark woodland to open forest on Mesozoic to Proterozoic igneous rocks.	NOC	SE

* Status: VMA 1999: E = Endangered; OC = Of Concern; NOC = Not of Concern.

** N = North; C = Central; SE = South-east; SW = South-west.

Table T2: EVR-Listed Flora Species Recorded as Occurring Within Esk Shire.

Family Name	Botanical Name	Common Name	Status		Source**
			EPBC	NCA	
Cycads and Conifers					
Cupressaceae	*Callitris baileyi*	Bailey's Cypress		R	2
Monocotyledons					
Cyperaceae	*Cyperus semifertilis*	A Cyperus	V		1, 2
Orchidaceae	*Acianthus amplexicaulis*	Mosquito Orchid		R	2
Orchidaceae	*Bulbophyllum globuliforme*	Miniature Moss-orchid	V		1
Orchidaceae	*Cryptostylis hunteriana*	Leafless Tongue-orchid	V		1
Orchidaceae	*Diuris sheaffiana*	Tricolour Diuris	V		1
Orchidaceae	*Papillilabium beckleri*	An Orchid		R	2
Orchidaceae	*Sarcochilus weinthalii*	Botched Sarcochilus	V	E	2
Poaceae	*Arthraxon hispidus*	Hairy-joint Grass	V		1
Poaceae	*Arundinella grevillensis*	Reedgrass		R	2
Dicotyledons					
Apocynaceae	*Parsonsia lenticellata*	Narrow-leaved Parsonsia		R	2
Asteraceae	*Acomis acoma*	A Daisy		R	2
Brassicaceae	*Lepidium peregrinum*	Wandering Peppercress	E		1, 2
Caespaliniaceae	*Senna acclinis*	Rainforest Senna		R	2
Corynocarpaceae	*Corynocarpus rupestris subsp. arborescens*	Southern Corynocarpus		R	2
Epacridaceae	*Leucopogon recurvisepalus*	A Heath		E	2
Euphorbiaceae	*Fontainea venosa*	A Fontainea	V		1
Fabaceae	*Indigofera baileyi*	Bailey's Indigo		R	2

Family Name	Botanical Name	Common Name	Status		Source**
			EPBC	NCA	
Fabaceae	*Isotropis foliosa*	A Pea		R	2
Fabaceae	*Sophora fraseri*	Brush Sophora	V	V	2
Haloragaceae	*Haloragis exaltata subsp. velutina*	Tall Velvet Sea-berry	V		1
Hernandiaceae	*Hernandia bivalvis*	Cudgerie		R	2
Lamiaceae	*Plectranthus leiperi*	Plectranthus	V	V	1, 2
Mimosaceae	*Acacia attentuata*	Whipstick Wattle	V	V	2
Myrtaceae	*Callistemon pungens*	Severn River Bottlebrush	V		2
Myrtaceae	*Eucalyptus curtsii*	Plunkett Mallee		R	2
Myrtaceae	*Kunzea flavescens*	Yellow Kunzea		R	2
Mrytaceae	*Leptospermum oreophilum*	Tea-tree		R	2
Myrtaceae	*Melaleuca irbyana*	Swamp Tea-tree		R	2
Proteaceae	*Grevillea quadricauda*	A Grevillea	V		1
Ranunculaceae	*Clematis fawcettii*	Stream Clematis	V		1
Rhamnaceae	*Pomaderris crassifolia*	A Pomaderris		V	2
Rutaceae	*Bosistoa selwynii*	Heart-leaved Bosistoa	V		1
Rutaceae	*Bosistoa transversa*	Three-leaved Bosistoa	V		1. 2
Sterculiaceae	*Brachychiton collinus*	A Kurrajong		R	2
Sterculiaceae	*Rulingia salviifolia*	Sage-leaved Rulingia		R	2

*Status: EPBC: E = Endangered; V= Vulnerable.

NCA: E = Endangered; V = Vulnerable; R = Rare.

**Source: 1 = EPBC Protected Matters Report; 2 = Wildlife Online.

Table T3: Flora Species Found Within Esk Shire

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Ferns and Fern Allies						
Adiantaceae	*Adiantum aethiopicum*	Maidenhair Fern		C		2
Adiantaceae	*Adiantum atroviride*	Common Maidenhair Fern		C		2
Adiantaceae	*Adiantum diaphanum*	Filmy Maidenhair Fern		C		2
Adiantaceae	*Adiantum formosum*	Giant Maidenhair Fern		C		2
Adiantaceae	*Adiantum hispidulum*	Rough Maidenhair Fern		C		2
Adiantaceae	*Adiantum hispidulum var. hispidulum*	Rough Maidenhair Fern		C		2
Adiantaceae	*Adiantum hispidulum var. minus*	Rough Mainenhair Fern		C		2
Adiantaceae	*Adiantum silvaticum*	Maidenhair Fern		C		2
Adiantaceae	*Cheilanthes distans*	Bristly Cloak Fern		C		2
Adiantaceae	*Cheilanthes sieberi*	Mulga Fern		C		2
Adiantaceae	*Cheilanthes sieberi subsp. sieberi*	Mulga Fern		C		2
Adiantaceae	*Cheilanthes tenuifolia*	Rock Fern		C		2
Adiantaceae	*Doryopteris concolor*	A Fern		C		2
Adiantaceae	*Pellaea falcata*	Sickle Fern		C		2
Adiantaceae	*Pellaea falcata var. nana*	Sickle Fern		C		2
Adiantaceae	*Pellaea nana*	Dwarf Sickle Fern		C		2
Adiantaceae	*Pellaea paradoxa*	Heart Fern		C		2
Adiantaceae	*Pellaea viridis var. viridis*	A Fern			*	2
Azollaceae	*Azolla pinnata*	Ferny Azolla		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Blechnaceae	*Blechnum cartilagineum*	Gristle Fern		C		2
Blechnaceae	*Doodia aspera*	Prickly Rasp Fern		C		2
Blechnaceae	*Doodia caudata*	Small Rasp Fern		C		2
Cyatheaceae	*Cyathea australis*	Rough Tree Fern		C		2
Davilliaceae	*Davallia pyxidata*	Hare's Foot Fern		C		2
Dennstaedtiaceae	*Pteridium esculentum*	Common Bracken		C		2
Dicksoniaceae	*Calocaena dubia*	Common Ground Fern		C		2
Dryopteridaceae	*Lastreopsis decomposita*	Trim Shield Fern		C		2
Dryopteridaceae	*Lastreopsis microsora subsp. microsora*	Creeping Shield Fern		C		2
Gleicheniaceae	*Gleichenia dicarpa*	Pouched Coral Fern		C		2
Gleicheniaceae	*Sticherus flabellatus*	Shiny Fan Fern		C		2
Gleicheniaceae	*Sticherus flabellatus var. flabellatus*	Shiny Fan Fern		C		2
Lindsaeaceae	*Lindsaea microphylla*	Lacy Wedge Fern		C		2
Nephrolepidaceae	*Arthropteris tenella*	Climbing Fern		C		2
Nephrolepidaceae	*Nephrolepis cordifolia*	Fishbone Fern		C		2
Ophioglossiaceae	*Botrychium australe*	Parsley Fern		C		2
Osmundaceae	*Todea barbara*	King Fern		C		2
Polypodiaceae	*Dictymia brownii*	Strap Fern		C		2
Polypodiaceae	*Drynaria rigidula*	Basket Fern		C		2
Polypodiaceae	*Microsorum scandens*	Fragrant Climbing Fern		C		2
Polypodiaceae	*Platycerium bifurcatum*	Elkhorn		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Polypodiaceae	*Platycerium bifurcatum subsp. bifurcatum*	Elkhorn				3
Polypodiaceae	*Platycerium superbum*	Staghorn Fern		C		2
Polypodiaceae	*Pyrrosia confluens*	Horseshoe Felt Fern		C		2
Polypodiaceae	*Pyrrosia confluens var. confluens*	Horseshoe Felt Fern		C		2
Polypodiaceae	*Pyrrosia rupestris*	Felt Fern		C		2
Pteridaceae	*Pteris tremula*	Tender Bracken		C		2
Pteridaceae	*Pteris umbrosa*	Jungle Bracken		C		2
Pteridaceae	*Pteris vittata*	Chinese Bracken		C		2
Schizaceae	*Schizaea bifida*	Forked Comb Fern		C		2
Thelypteridaceae	*Christella dentata*	Creek Fern		C		2
Cycads and Conifers						
Araucariaceae	*Araucaria bidwillii*	Bunya Pine		C		2
Araucariaceae	*Araucaria cunninghamii*	Hoop Pine		C		2
Cupressaceae	*Callitris baileyi*	Bailey's Cypress		R		2
Cupressaceae	*Callitris columellaris*	Coastal Cypress Pine		C		2
Pinaceae	*Pinus elliotti*	Slash Pine			*	2, 3
Podocarpaceae	*Podocarpus elatus*	She Pine		C		2
Zamiaceae	*Macrozamia lucida*	Pineapple Zamia		C		2
Monocotyledons						
Alismataceae	*Damasonium minus*	Starfruit		C		2
Alliaceae	*Nothoscordum borbonicum*	Onoin Weed			*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Amaryllidaceae	*Crinum flaccidum*	Murray Lily		C		2
Amaryllidaceae	*Proiphys cunninghamii*	Moreton Bay Lily		C		2
Anthericaceae	*Caesia parviflora*	Pale Grass Lily		C		2
Anthericaceae	*Laxmannia gracilis*	Slender Wire Lily		C		2
Anthericaceae	*Thysanotus tuberosus subsp. tuberosus*	Fringe-lily		C		2
Anthericaceae	*Tricoryne elatior*	Yellow Autumn Lily		C		2
Araceae	*Alocasia brisbanensis*	Cunjovei		C		2
Araceae	*Alocasia macrorrhizos*	Elephant's Ear		C		2
Araceae	*Gymnostachys anceps*	Settler's Flax		C		2
Araceae	*Pistia stratiotes*	Water Lettuce			*	2
Arecaceae	*Archontophoenix cunninghamiana*	Piccabeen Palm		C		2
Asparagaceae	*Asparagus africanus*	Asparagus Fern			*	2
Aspleniaceae	*Asplenium attenuatum var. attenuatum*	Simple Spleenwort		C		2
Aspleniaceae	*Asplenium australasicum*	Bird's Nest Fern		C		2
Colchicaceae	*Wurmbea dioica subsp. dioica*	Early Nancy		C		2
Convallariaceae	*Schelhammera multiflora*	A Schelhammera		C		2
Cyperaceae	*Abildgaardia vaginata*	A Sedge		C		2
Cyperaceae	*Baumea juncea*	Bare Twigrush		C		2
Cyperaceae	*Bolboschoenus fluviatilis*	Marsh Club-rush		C		2
Cyperaceae	*Bulbostylis barbata*	A Sedge		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Cyperaceae	*Carex appressa*	Tall Sedge		C		2
Cyperaceae	*Carex hubbardii*	A Sedge		C		2
Cyperaceae	*Caustis blakei*	Koala Fern		C		2
Cyperaceae	*Caustis blakei subsp. blakei*	Koala Fern		C		2
Cyperaceae	*Caustis flexuosa*	Curly Wig		C		2
Cyperaceae	*Cyperus bowmannii*	A Sedge		C		2
Cyperaceae	*Cyperus curvistylis*	A Sedge		C		2
Cyperaceae	*Cyperus difformis*	Rice Sedge		C		2
Cyperaceae	*Cyperus eragrostis*	Umbrella Sedge			*	2
Cyperaceae	*Cyperus fulvus*	Sticky Sedge		C		2
Cyperaceae	*Cyperus gracilis*	Slender Flat-sedge		C		2
Cyperaceae	*Cyperus gunnii subsp. novae-hollandiae*	Flat-sedge		C		2
Cyperaceae	*Cyperus gymnocaulos*	Spiny Flat-sedge		C		2
Cyperaceae	*Cyperus leiocaulon*	A Sedge		C		2
Cyperaceae	*Cyperus mirus*	A Sedge		C		2
Cyperaceae	*Cyperus nutans var. eleusinoides*	Flat-sedge		C		2
Cyperaceae	*Cyperus platystylis*	A Sedge		C		2
Cyperaceae	*Cyperus polystachyos var. polystachyos*	Bunchy Sedge		C		2
Cyperaceae	*Cyperus semifertilis*	A Cyperus	V			1, 2
Cyperaceae	*Cyperus sesquiflorus*	A Sedge			*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Cyperaceae	*Cyperus squarrosus*	Bearded Flat-sedge		C		2
Cyperaceae	*Cyperus tetracarpus*	A Sedge		C		2
Cyperaceae	*Cyperus tetraphyllus*	A Sedge		C		2
Cyperaceae	*Eleocharis cylindrostachys*	Spikerush		C		2
Cyperaceae	*Eleocharis equisetina*	Spikerush		C		2
Cyperaceae	*Fimbristylis bisumbellata*	Fimbristylis		C		2
Cyperaceae	*Fimbristylis velata*	Fringe-rush		C		2
Cyperaceae	*Gahnia aspera*	Sawsedge		C		2
Cyperaceae	*Gahnia sieberiana*	Sword Grass		C		2
Cyperaceae	*Lepidosperma elatius*	Tall Sword Sedge		C		2
Cyperaceae	*Lepidosperma laterale*	Variable Sword Sedge		C		2
Cyperaceae	*Schoenoplectus mucronatus*	A Club Sedge		C		2
Cyperaceae	*Schoenoplectus validus*	River Club Sedge		C		2
Cyperaceae	*Schoenus brevifolius*	Zig Zag Bog Sedge		C		2
Cyperaceae	*Scleria mackaviensis*	A Sedge		C		2
Cyperaceae	*Scleria sphacelata*	A Sedge		C		2
Cyperaceae	*Tetraria capillaris*	Hair Sedge		C		2
Dioscoreaceae	*Dioscorea transversa*	Native Yam		C		2
Dracaenaceae	*Cordyline petiolaris*	Large-leaved Palm Lily		C		2
Dracaenaceae	*Cordyline rubra*	Red-fruited Palm Lily		C		2
Dracaenaceae	*Cordyline stricta*	Narrow-leaved Palm Lily		C		2
Flagellariaceae	*Flagellaria indica*	Whip Vine		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Hydrocharitaceae	*Egeria densa*	Dense Waterweed			*	2
Hydrocharitaceae	*Elodea canadensis*	Canadian Pondweed			*	2
Hydrocharitaceae	*Hydrilla verticillata*	Hydrilla		C		2
Hydrocharitaceae	*Ottelia alismoides*	Swamp Lily		C		2
Hydrocharitaceae	*Vallisneria nana*	Native Vallisneria		C		2
Hypoxidaceae	*Hypoxis hygrometrica var. villosisepala*	Golden Weather Grass		C		2
Hypoxidaceae	*Hypoxis pratensis var. pratensis*	Golden Weather Grass		C		2
Iridaceae	*Patersonia glabrata*	Iris		C		2
Iridaceae	*Sisyrinchium sp. (Peregian P.R.Sharpe 4970)*	Scourweed			*	2
Liliaceae	*Lilium formosanum*	Formosan Lily			*	2
Orchidaceae	*Acianthus amplexicaulis*	Mosquito Orchid		R		2
Orchidaceae	*Acianthus caudatus*	Mayfly Orchid		C		2
Orchidaceae	*Acianthus exsertus*	Mosquito Orchid		C		2
Orchidaceae	*Acianthus fornicatus*	Pixie Caps		C		2
Orchidaceae	*Bulbophyllum globuliforme*	Miniature Moss-orchid	V			1
Orchidaceae	*Caladenia alata*	Fairy Orchid		C		2
Orchidaceae	*Caladenia caerulea var. caerulea*	Blue Caladenia		C		2
Orchidaceae	*Caladenia catenata*	White Caladenia		C		2
Orchidaceae	*Caleana major*	Flying Duck Orchid		C		2
Orchidaceae	*Calochilus gracillimus*	Slender Beard Orchid		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Orchidaceae	*Chiloglottis sp. (Mango Flat D.L.Jones 2547)*	An Ant Orchid		C		2
Orchidaceae	*Chiloglottis sylvestris*	Ant Orchid		C		2
Orchidaceae	*Corybas aconitiflorus*	Helmet Orchid				2
Orchidaceae	*Corybas barbarae*	Helmet Orchid		C		2
Orchidaceae	*Cryptostylis hunteriana*	Leafless Tongue-orchid	V			1
Orchidaceae	*Cryptostylis subulata*	Large Tongue Orchid		C		2
Orchidaceae	*Dendrobium aemulum*	Ironbark Orchid		C		2
Orchidaceae	*Dendrobium gracilicaule*	Slender Orchid		C		2
Orchidaceae	*Dendrobium kingianum*	Pink Rock Orchid		C		2
Orchidaceae	*Dendrobium kingianum subsp. kingianum*	Pink Rock Orchid		C		2
Orchidaceae	*Dendrobium speciosum*	Rock Orchid		C		2
Orchidaceae	*Dendrobium teretifolium*	Rat's Tail Orchid		C		2
Orchidaceae	*Dipodium variegatum*	Hyacinth Orchid		C		2
Orchidaceae	*Diuris sheaffiana*	Tricolour Diuris	V			1
Orchidaceae	*Diuris sulphurea*	Tiger Orchid		C		2
Orchidaceae	*Dockrillia bowmanii*	Scrub Pencil Orchid		C		2
Orchidaceae	*Dockrillia linguiformis*	Tongue Orchid		C		2
Orchidaceae	*Dockrillia teretifolia*	Rat's Tail Orchid		C		2
Orchidaceae	*Eriochilus petricola*	An Orchid		C		2
Orchidaceae	*Genoplesium acuminatum*	An Orchid		C		2
Orchidaceae	*Genoplesium cranei*	An Orchid		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Orchidaceae	*Genoplesium filiforme*	An Orchid		C		2
Orchidaceae	*Liparis swenssonii*	Rock Orchid		C		2
Orchidaceae	*Microtis parviflora*	Slender Onion Orchid		C		2
Orchidaceae	*Orthoceras strictum*	Horned Orchid		C		2
Orchidaceae	*Papillilabium beckleri*	An Orchid		R		2
Orchidaceae	*Plectorrhiza tridentata*	Tangle Orchid		C		2
Orchidaceae	*Prasophyllum elatum*	Tall Leek Orchid		C		2
Orchidaceae	*Pterostylis acuminata*	Sharp Greenhood		C		2
Orchidaceae	*Pterostylis erecta*	Erect Greenhood		C		2
Orchidaceae	*Pterostylis hispidula*	A Greenhood		C		2
Orchidaceae	*Pterostylis nutans*	Nodding Greenhood		C		2
Orchidaceae	*Pterostylis obtusa*	A Greenhood		C		2
Orchidaceae	*Pterostylis ophioglossa*	Snake-tongue Greenhood		C		2
Orchidaceae	*Pterostylis parviflora*	Tiny Greenhood		C		2
Orchidaceae	*Pterostylis russellii*	A Greenhood		C		2
Orchidaceae	*Rhinerrhiza divitiflora*	Raspy Root Orchid		C		2
Orchidaceae	*Sarcochilus dilatatus*	Brown Sarcochilus		C		2
Orchidaceae	*Sarcochilus falcatus*	Orange Blossom Orchid		C		2
Orchidaceae	*Sarcochilus hillii*	Spider Orchid		C		2
Orchidaceae	*Sarcochilus weinthalii*	Botched Sarcochilus	V	E		2
Orchidaceae	*Thelymitra angustifolia*	An Orchid		C		2
Orchidaceae	*Thelymitra nuda*	Scented Sun Orchid		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Orchidaceae	*Thelymitra pauciflora*	Slender Sun Orchid		C		2
Philesiaceae	*Eustrephus latifolius*	Wombat Berry		C		2
Philesiaceae	*Geitonoplesium cymosum*	Scrambling Lily		C		2
Phormiaceae	*Dianella brevipedunculata*	Flax Lily		C		2
Phormiaceae	*Dianella caerulea*	Flax Lily		C		2
Phormiaceae	*Dianella caerulea var. assera*	Flax Lily		C		2
Phormiaceae	*Dianella caerulea var. protensa*	Flax Lily		C		2
Phormiaceae	*Dianella longifolia*	Blue Flax Lily		C		2
Phormiaceae	*Dianella longifolia var. stenophylla*	Blue Flax Lily		C		2
Phormiaceae	*Dianella revoluta*	Blue Flax Lily		C		2
Phormiaceae	*Dianella revoluta var. revoluta*	Blue Flax Lily		C		2
Poaceae	*Ancistrachne uncinulata*	Hooky Grass		C		2
Poaceae	*Aristida benthamii var. benthamii*	Three-awned Speargrass		C		2
Poaceae	*Aristida calycina*	A Wiregrass		C		2
Poaceae	*Aristida calycina var. calycina*	Dark Wiregrass		C		2
Poaceae	*Aristida gracilipes*	Slender Wiregrass		C		2
Poaceae	*Aristida personata*	Purple Wiregrass		C		2
Poaceae	*Aristida queenslandica*	Wiry Speargrass		C		2
Poaceae	*Aristida queenslandica var. queenslandica*	A Wiry Speargrass		C		2
Poaceae	*Aristida ramosa*	Purple Wiregrass		C		2
Poaceae	*Aristida sciuroides*	A Wire Grass		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Poaceae	*Aristida vagans*	Three-awned Speargrass		C		2
Poaceae	*Aristida warburgii*	A Wiregrass		C		2
Poaceae	*Arthraxon hispidus*	Hairy-joint Grass	V			1
Poaceae	*Arundinella grevillensis*	Reedgrass		R		2
Poaceae	*Arundinella nepalensis*	Reedgrass		C		2
Poaceae	*Austrostipa aristiglumis*	Plains Grass		C		2
Poaceae	*Austrostipa ramosissima*	Bamboo Grass		C		2
Poaceae	*Austrostipa verticillata*	Slender Bamboo Grass		C		2
Poaceae	*Bothriochloa bladhii subsp. bladhii*	Forest Bluegrass		C		2
Poaceae	*Bothriochloa decipiens*	Pitted Bluegrass		C		2
Poaceae	*Capillipedium parviflorum*	Scented Top		C		2
Poaceae	*Capillipedium spicigerum*	Spicytop		C		2
Poaceae	*Cenchrus caliculatus*	Hillside Burrgrass		C	*	2
Poaceae	*Chionachne cyathopoda*	River Grass		C		2
Poaceae	*Chloris divaricata var. divaricata*	Slender Chloris		C		2
Poaceae	*Chloris gayana*	Rhodes Grass			*	2, 3
Poaceae	*Chloris truncata*	Windmill Grass		C		2
Poaceae	*Chloris ventricosa*	Tall Chloris		C		2
Poaceae	*Chrysopogon filipes*	Australian Vetiver		C		2
Poaceae	*Cleistochloa subjuncea*	Sandstone Panic		C		2
Poaceae	*Cymbopogon refractus*	Barbed-wire Grass		C		2
Poaceae	*Cynodon dactylon*	Bermuda Couch			*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Poaceae	*Dactyloctenium radulans*	Button Grass		C		2
Poaceae	*Dichanthium aristatum*	Angleton Grass			*	2
Poaceae	*Dichanthium sericeum subsp. sericeum*	Queensland Blue Grass		C		2
Poaceae	*Dichelachne micrantha*	Shorthair Plumegrass		C		2
Poaceae	*Digitaria breviglumis*	Short-glumed Umbrella Grass		C		2
Poaceae	*Digitaria didactyla*	Queensland Blue Couch			*	2
Poaceae	*Digitaria diffusa*	Open Summer Grass		C		2
Poaceae	*Digitaria longiflora*	Common Crabgrass		C		2
Poaceae	*Digitaria parviflora*	Small-flowered Finger Grass		C		2
Poaceae	*Digitaria ramularis*	A Grass		C		2
Poaceae	*Echinochloa colona*	Awnless Barnyard Grass			*	2
Poaceae	*Echinochloa crus-galli*	Barnyard Grass			*	2
Poaceae	*Enteropogon unispiceus*	A Grass		C		2
Poaceae	*Entolasia marginata*	Bordered Panic		C		2
Poaceae	*Entolasia stricta*	Wiry Panic		C		2
Poaceae	*Entolasia whiteana*	Panic Grass		C		2
Poaceae	*Eragrostis brownii*	Brown's Lovegrass		C		2
Poaceae	*Eragrostis elongata*	Clustered Lovegrass		C		2
Poaceae	*Eragrostis leptostachya*	Paddock Lovegrass		C		2
Poaceae	*Eragrostis megalosperma*	Lovegrass		C		2
Poaceae	*Eragrostis parviflora*	Weeping Lovegrass		C		2
Poaceae	*Eragrostis pilosa*	Soft Lovegrass			*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Poaceae	*Eragrostis sororia*	Lovegrass		C		2
Poaceae	*Eragrostis spartinoides*	Lovegrass		C		2
Poaceae	*Eremochloa bimaculata*	Poverty Grass		C		2
Poaceae	*Eriachne pallescens*	A Grass		C		2
Poaceae	*Eriochloa procera*	Slender Cupgrass		C		2
Poaceae	*Eriochloa pseudoacrotricha*	Spring Grass		C		2
Poaceae	*Hemarthria uncinata var. spathacea*	Mat Grass		C		2
Poaceae	*Heteropogon contortus*	Black Speargrass		C		2
Poaceae	*Hyparrhenia filipendula*	Tambookie Grass		C		2
Poaceae	*Hyparrhenia rufa subsp. rufa*	Thatch Grass			*	2
Poaceae	*Imperata cylindrica*	Blady Grass		C		2
Poaceae	*Leptochloa decipiens subsp. decipiens*	Slender Canegrass		C		2
Poaceae	*Leptochloa decipiens subsp. peacockii*	Slender Canegrass		C		2
Poaceae	*Megathyrsus maximus var. pubiglumis*	Green Panic				2
Poaceae	*Melinis repens*	Red Natal Grass			*	2, 3
Poaceae	*Microlaena stipoides var. stipoides*	Weeping Grass		C		2
Poaceae	*Notodanthonia longifolia*	Long-leaved Wallaby Grass		C		2
Poaceae	*Oplismenus aemulus*	Creeping Shade Grass		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Poaceae	*Oplismenus hirtellus subsp. imbecillis*	A Grass		C		2
Poaceae	*Panicum decompositum var. decompositum*	Native Millet		C		2
Poaceae	*Panicum effusum*	Hairy Panic		C		2
Poaceae	*Panicum effusum var. effusum*	Hairy Panic		C		2
Poaceae	*Panicum maximum*	Guinea grass				3
Poaceae	*Panicum queenslandicum*	Coolabah Grass		C		2
Poaceae	*Panicum repens*	Torpedo Grass			*	2
Poaceae	*Paspalidium albovillosum*	A Grass		C		2
Poaceae	*Paspalidium aversum*	A Grass		C		2
Poaceae	*Paspalidium distans*	Shotgrass		C		2
Poaceae	*Paspalidium gracile*	Slender Panic		C		2
Poaceae	*Paspalum dilatatum*	Paspalum			*	2
Poaceae	*Paspalum distichum*	Water Couch		C		2
Poaceae	*Paspalum spp.*	Grass				3
Poaceae	*Pennisetum ciliare*	Buffel Grass				2
Poaceae	*Pennisetum glaucum*	Pearl Millet			*	2
Poaceae	*Phragmites australis*	Common Reed		C		2, 3
Poaceae	*Poa labillardieri*	Tussock Grass		C		2
Poaceae	*Poa labillardieri var. labillardieri*	Tussock Grass		C		2
Poaceae	*Poa queenslandica*	Queensland Poa		C		2
Poaceae	*Polypogon monspeliensis*	Annual Beardgrass			*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Poaceae	*Sacciolepis indica*	Indian Cupscale Grass		C		2
Poaceae	*Sarga leiocladum*	A Grass		C		2
Poaceae	*Schizachyrium pseudeulalia*	A Grass		C		2
Poaceae	*Sehima nervosum*	Whtiegrass		C		2
Poaceae	*Setaria pumila*	Pale Pigeon Grass				3
Poaceae	*Setaria pumila subsp. pumila*	Pale Pigeon Grass			*	2
Poaceae	*Setaria sphacelata*	South African Pigeon Grass			*	2
Poaceae	*Setaria surgens*	Annual Pigoen Grass		C		2
Poaceae	*Sorghum bicolor*	Forage Sorghum			*	2
Poaceae	*Sorghum leiocladum*	Wild Sorghum		C		2
Poaceae	*Sporobolus creber*	Slender Rat's Tail Grass		C		2
Poaceae	*Sporobolus natalensis*	Giant Rat's Tail Grass			*	2
Poaceae	*Sporobolus pyramidalis*	Giant Rat's Tail Grass			*	2
Poaceae	*Themeda triandra*	Kangaroo Grass		C		2
Poaceae	*Tragus australianus*	Small Burr Grass		C		2
Poaceae	*Triodia molesta*	Pincushion Spinifex		C		2
Poaceae	*Tripladenia cunninghamii*	Wire Lilly		C		2
Poaceae	*Urochloa decumbens*	Signal Grass				2
Poaceae	*Urochloa humidicola*	A Grass				2
Poaceae	*Urochloa subquadripara*	Green Summer Grass				2
Poaceae	*Urochloa texana*	Texan Millet				2
Poaceae	*Urochloa whiteana*	Millet		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Pontederiaceae	*Eichhornia crassipes*	Water Hyacinth			*	3
Potamogetonaceae	*Potamogeton crispus*	Curly Pondweed		C		2
Potamogetonaceae	*Potamogeton perfoliatus*	Perfoliate Pondweed		C		2
Smilacaceae	*Ripogonum album*	White Supplejack		C		2
Smilacaceae	*Ripogonum brevifolium*	Small-leaved Supplejack		C		2
Smilacaceae	*Smilax australis*	Barbed-wire Vine		C		2
Smilacaceae	*Smilax glyciphylla*	Sweet Sarsaparilla		C		2
Sparganiaceae	*Sparganium erectum subsp. stoloniferum*	Erect Bur-reed			*	2
Xanthorrhoeaceae	*Lomandra confertifolia*	Mat Rush		C		2
Xanthorrhoeaceae	*Lomandra confertifolia subsp. confertifolia*	Mat Rush		C		2
Xanthorrhoeaceae	*Lomandra confertifolia subsp. pallida*	Mat Rush		C		2
Xanthorrhoeaceae	*Lomandra elongata*	Pale Mat Rush		C		2
Xanthorrhoeaceae	*Lomandra filiformis*	Wattle Mat Rush		C		2
Xanthorrhoeaceae	*Lomandra filiformis subsp. filiformis*	Wattle Mat Rush		C		2
Xanthorrhoeaceae	*Lomandra laxa*	Broad-leaved Matrush		C		2
Xanthorrhoeaceae	*Lomandra longifolia*	Spiny Mat Rush		C		2
Xanthorrhoeaceae	*Lomandra multiflora*	Many-flowered Mat Rush		C		2
Xanthorrhoeaceae	*Lomandra multiflora subsp. multiflora*	Many-flowered Mat Rush		C		2
Xanthorrhoeaceae	*Xanthorrheoa spp.*	Blackboys				3

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Xanthorrhoeaceae	*Xanthorrhoea glauca*	Black-boy		C		2
Xanthorrhoeaceae	*Xanthorrhoea johnsonii*	A Grass Tree		C		2
Xanthorrhoeaceae	*Xanthorrhoea latifolia*	A Grass Tree		C		2
Xanthorrhoeaceae	*Xanthorrhoea latifolia subsp. latifolia*	A Grass Tree		C		2
Zingiberaceae	*Alpinia caerulea*	Wild Ginger		C		2
Dicotyledons						
Acanthaceae	*Brunoniella australis*	Blue Trumpet		C		2
Acanthaceae	*Brunoniella spiciflora*	A Herb		C		2
Acanthaceae	*Harnieria hygrophiloides*	White Karambal		C		2
Acanthaceae	*Pseuderanthemum tenellum*	Pastel Flower		C		2
Acanthaceae	*Pseuderanthemum variabile*	Pastel Flower		C		2
Acanthaceae	*Rostellularia adscendens*	Pink Tongues		C		2
Acanthaceae	*Rostellularia adscendens var. adscendens*	Pink Tongues		C		2
Acanthaceae	*Rostellularia obtusa*	A Shrub		C		2
Aizoaceae	*Tetragonia tetragonioides*	New Zealand Spinach			*	2
Alangiaceae	*Alangium villosum*	Muskwood		C		2
Alangiaceae	*Alangium villosum subsp. tomentosum*	Muskwood		C		2
Amaranthaceae	*Achyranthes aspera*	Chaff Flower		C		2
Amaranthaceae	*Alternanthera nana*	Hairy Joyweed		C		2
Amaranthaceae	*Alternanthera pungens*	Khaki Weed			*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Amaranthaceae	*Amaranthus spinosus*	Needle Burr			*	2
Amaranthaceae	*Amaranthus viridis*	Green Amaranth			*	2
Amaranthaceae	*Deeringia amaranthoides*	Redberry		C		2
Amaranthaceae	*Deeringia arborescens*	Climbing Derringa		C		2
Amaranthaceae	*Gomphrena celosioides*	Gomphrena Weed			*	2
Amaranthaceae	*Nyssanthes diffusa*	Barbed-wire Weed		C		2
Anacardiaceae	*Euroschinus falcatus*	Ribbonwood		C		2
Anacardiaceae	*Euroschinus falcatus var. falcatus*	Ribbonwood		C		2
Anacardiaceae	*Rhodosphaera rhodanthema*	Tulip Satinwood		C		2
Anacardiaceae	*Schinus molle var. areira*	Pepper Tree			*	2
Annonaceae	*Melodorum leichhardtii*	Zig Zag Vine		C		2
Apiaceae	*Actinotus helianthi*	Flannel Flower		C		2
Apiaceae	*Conium maculatum*	Poison Hemlock			*	2
Apiaceae	*Cyclospermum leptophyllum*	Slender Celery			*	2
Apiaceae	*Daucus carota*	Wild Carrot			*	2
Apiaceae	*Daucus glochidiatus*	Australian Carrot		C		2
Apiaceae	*Foeniculum vulgare*	Fennel			*	2
Apiaceae	*Hydrocotyle laxiflora*	Stinking Pennywort			*	2
Apiaceae	*Platysace lanceolata*	Native Parsnip		C		2
Apiaceae	*Trachymene incisa subsp. Incisa*	Wild Parsnip		C		2
Apiaceae	*Trachymene procumbens*	Creeping Wild Parsnip		C		2
Apiaceae	*Xanthosia pilosa*	Wooly Xanthosia		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Apocynaceae	*Alstonia constricta*	Bitterbark		C		2
Apocynaceae	*Alyxia ruscifolia*	Chainfruit		C		2
Apocynaceae	*Alyxia ruscifolia subsp. ruscifolia*	Chainfruit		C		2
Apocynaceae	*Carissa ovata*	Currantbush		C		2
Apocynaceae	*Ervatamia angustisepala*	Windmill Bush		C		2
Apocynaceae	*Parsonsia lanceolata*	Northern Silkpod		C		2
Apocynaceae	*Parsonsia latifolia*	Green-leaved Silkpod		C		2
Apocynaceae	*Parsonsia leichhardtii*	Black Silkpod		C		2
Apocynaceae	*Parsonsia lenticellata*	Narrow-leaved Parsonsia		R		2
Apocynaceae	*Parsonsia lilacina*	Crisped Silkpod		C		2
Apocynaceae	*Parsonsia paulforsteri*	A Silkpod		C		2
Apocynaceae	*Parsonsia sp.*			C		2
Apocynaceae	*Parsonsia straminea*	Monkey Rope		C		2
Apocynaceae	*Parsonsia velutina*	Hairy Silkpod		C		2
Apocynaceae	*Tabernaemontana pandacaqui*	Banana Bush		C		2
Araliaceae	*Astrotricha latifolia*	Long-leaf Star-hair		C		2
Araliaceae	*Calamus muelleri*	Lawyer Vine		C		2
Araliaceae	*Polyscias elegans*	Celery Wood		C		2
Araliaceae	*Polyscias sambucifolia*	Elderberry Panax		C		2
Aristolochiaceae	*Aristolochia elegans*	Calico-flower			*	2
Asclepiadaceae	*Araujia hortorum*	White Moth Vine		C	*	2
Asclepiadaceae	*Araujia sericifera*	Moth Vine			*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Asclepiadaceae	*Asclepias curassavica*	Red-headed Cotton Bush			*	2
Asclepiadaceae	*Cryptostegia grandiflora*	Rubber Vine			*	2
Asclepiadaceae	*Gomphocarpus fruticosus*	Narrow-leaved Cotton Bush			*	2
Asclepiadaceae	*Gomphocarpus physocarpus*	Balloon Cotton Bush			*	2
Asclepiadaceae	*Hoya australis*	Common Waxflower		C		2
Asclepiadaceae	*Hoya australis subsp. australis*	Common Waxflower		C		2
Asclepiadaceae	*Marsdenia fraseri*	Narrow-leaved Milk Vine		C		2
Asclepiadaceae	*Marsdenia lloydii*	Corky Marsdenia		C		2
Asclepiadaceae	*Marsdenia micradenia*	Gymnena		C		2
Asclepiadaceae	*Marsdenia rostrata*	Milk Vine		C		2
Asclepiadaceae	*Secamone elliptica*	Secamone		C		2
Asclepiadaceae	*Tylophora grandiflora*	Small-leaved Tylophora		C		2
Asteraceae	*Acanthospermum hispidum*	Star Burr			*	2
Asteraceae	*Acomis acoma*	A Daisy		R		2
Asteraceae	*Ageratina adenophora*	Crofton Weed			*	2
Asteraceae	*Ambrosia artemisiifolia*	Annual Ragweed			*	2, 3
Asteraceae	*Ambrosia psilostachya*	Perennial Ragweed			*	2
Asteraceae	*Baccharis halimifolia*	Groundsel Bush			*	2
Asteraceae	*Bidens pilosa*	Cobbler's Pegs			*	2, 3
Asteraceae	*Brachyscome dentata*	Lobe-seed Daisy		C		2
Asteraceae	*Brachyscome microcarpa*	Blue Daisy		C		2
Asteraceae	*Calotis cuneata*	Mountain Burr-daisy		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Asteraceae	*Calotis dentex*	White Burr-daisy		C		2
Asteraceae	*Calotis lappulacea*	Yellow Burr-daisy		C		2
Asteraceae	*Camptacra barbata*	A Herb		C		2
Asteraceae	*Carduus pycnocephalus*	Slender Thistle			*	2
Asteraceae	*Carduus thoermeri*	Nodding Thistle			*	2
Asteraceae	*Carthamus lanatus*	Saffron Thistle			*	2
Asteraceae	*Centipeda minima subsp. minima*	Spreading Sneezeweed		C		2
Asteraceae	*Centratherum australianum*	A Centratherum		C		2
Asteraceae	*Chrysocephalum apiculatum*	Yellow Buttons		C		2
Asteraceae	*Cirsium vulgare*	Spear Thistle			*	2, 3
Asteraceae	*Cnicus benedictus*	Blessed Thistle			*	2
Asteraceae	*Conyza bonariensis*	Fleabanes			*	2, 3
Asteraceae	*Conyza primulifolia*	Chilean Fleabane			*	2
Asteraceae	*Cotula australis*	Common Cotula		C		2, 3
Asteraceae	*Crassocephalum crepidioides*	Thickhead			*	2
Asteraceae	*Eclipta platyglossa*	Yellow Twin-heads		C		2
Asteraceae	*Eclipta prostrata*	White Eclipta		C		2
Asteraceae	*Epaltes australis*	Spreading Nutheads		C		2
Asteraceae	*Euchiton involucratus*	Star Cudweed		C		2
Asteraceae	*Euchiton sphaericus*	Star Cudweed		C		2
Asteraceae	*Gamochaeta coarctata*	Gray Everlasting			*	2
Asteraceae	*Gamochaeta pensylvanica*	Cudweed			*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Asteraceae	*Glossocardia bidens*	Native Cobbler's Pegs		C		2
Asteraceae	*Gynura drymophila var. drymophila*	A Daisy		C		2
Asteraceae	*Helenium amarum*	Bitter Sneezeweed			*	2
Asteraceae	*Helichrysum leucopsideum*	Satin Everlasting Daisy		C		2
Asteraceae	*Hypochaeris microcephala var. albiflora*	White Flatweed			*	2
Asteraceae	*Ixora beckleri*	Brown Coffeewood		C		2
Asteraceae	*Lactuca serriola forma serriola*	Prickly Lettuce			*	2
Asteraceae	*Lagenophora gracilis*	Slender Bottle-daisy		C		2
Asteraceae	*Lagenophora stipitata*	Common Bottle-daisy		C		2
Asteraceae	*Olearia canescens*	A Daisy		C		2
Asteraceae	*Olearia chrysophylla*	Daisy Bush		C		2
Asteraceae	*Ozothamnus diosmifolius*	White Dogwood				2
Asteraceae	*Parthenium hysterophorus*	Parthenium			*	2, 3
Asteraceae	*Peripleura hispidula*	A Daisy		C		2
Asteraceae	*Peripleura hispidula var. setosa*	A Daisy		C		2
Asteraceae	*Picris angustifolia subsp. carolorum-henricorum*	Ox Tongue		C		2
Asteraceae	*Podolepis neglecta*	A Daisy		C		2
Asteraceae	*Pseudognaphalium luteoalbum*	Jersey Cudweed		C		2
Asteraceae	*Rhodanthe anthemoides*	White Paper Daisy		C		2
Asteraceae	*Senecio amygdalifolius*	A Fireweed		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Asteraceae	*Senecio pinnatifolius var. pinnatifolius*	A Fireweed		C		2
Asteraceae	*Senecio prenanthoides*	Beaked Fireweed		C		2
Asteraceae	*Senecio quadridentatus*	Cotton Fireweed		C		2
Asteraceae	*Sigesbeckia orientalis*	Indian Weed		C	*	2
Asteraceae	*Silybum marianum*	Variegated Thistle			*	2
Asteraceae	*Soliva anthemifolia*	Dwarf Jo Jo Weed			*	2
Asteraceae	*Sphagneticola trilobata*	Singapore Daisy			*	2
Asteraceae	*Tagetes minuta*	Stinking Roger				3
Asteraceae	*Verbesina encelioides*	Crownbeard			*	2
Asteraceae	*Vernonia cinerea*	Vernonia		C		2
Asteraceae	*Veronica plebeia*	Trailing Speedwell		C		2
Asteraceae	*Vittadinia dissecta*	Fuzzweed		C		2
Asteraceae	*Vittadinia pustulata*	Fuzzweed		C		2
Asteraceae	*Vittadinia sulcata*	Native Daisy		C		2
Asteraceae	*Wedelia spilanthoides*	Native Wedelia		C		2
Asteraceae	*Xanthium spinosum*	Bathurst Burr			*	2
Asteraceae	*Xerochrysum bracteatum*	Golden Everlasting Daisy		C		2
Balsaminaceae	*Impatiens walleriana*	Balsam			*	2
Bignoniaceae	*Jacaranda mimosifolia*	Jacaranda			*	2, 3
Bignoniaceae	*Macfadyena unguis-cati*	Cat's Claw Creeper			*	2, 3
Bignoniaceae	*Pandorea jasminoides*	Pandorea		C		2
Bignoniaceae	*Pandorea pandorana*	Wonga Vine		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Bignoniaceae	*Pandorea sp. (Mt Maroon P.I.Forster+ PIF7111)*	Pandorea		C		2
Bignoniaceae	*Tecoma stans*	Tecoma			*	2
Boraginaceae	*Cynoglossum suaveolens*	Sweet Hound's Tooth		C		2
Boraginaceae	*Echium plantagineum*	Paterson's Curse			*	2
Boraginaceae	*Ehretia acuminata*	Koda		C		2
Boraginaceae	*Ehretia acuminata var. acuminata*	Koda		C		2
Boraginaceae	*Ehretia membranifolia*	Weeping Koda		C		2
Boraginaceae	*Heliotropium amplexicaule*	Blue Helitrope			*	3
Brassicaceae	*Lepidium africanum*	Common Peppercress			*	2
Brassicaceae	*Lepidium bonariense*	Argentine Peppercress			*	2
Brassicaceae	*Lepidium didymum*	Lesser Swinecress			*	2
Brassicaceae	*Lepidium peregrinum*	Wandering Peppercress	E	C		1, 2
Brassicaceae	*Lepidium virginicum*	Virginian Peppercress			*	2
Brassicaceae	*Raphanus raphanistrum*	Wild Radish			*	2
Brassicaceae	*Rorippa laciniata*	Perennial Marsh Cress		C		2
Brassicaceae	*Rorippa nasturtiumaquaticum*	Watercress			*	2
Brassicaceae	*Rorippa palustris*	Marsh Cress			*	2
Brassicaceae	*Sisymbrium officinale*	Hedge Mustard			*	2
Cactaceae	*Opuntia sp.*	Prickly Pear				3
Cactaceae	*Opuntia stricta*	Prickly Pear			*	2
Cactaceae	*Opuntia tomentosa*	Velvety Tree Pear			*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Caesalpiniaceae	*Caesalpinia ferrea*	Leopard Tree			*	3
Caesalpiniaceae	*Caesalpinia scortechinii*	Large Prickle Vine		C		2
Caesalpiniaceae	*Chamaecrista rotundifolia var. rotundifolia*	Round-leaf Cassia			*	2
Caesalpiniaceae	*Senna barclayana*	Smooth Senna		C		2
Caesalpiniaceae	*Senna floribunda*	Arsenic Bush		C		2
Caespaliniaceae	*Gleditsia triacanthos*	Honey Locust Tree			*	2, 3
Caespaliniaceae	*Pratia concolor*	Poison Pratia		C		2
Caespaliniaceae	*Senna acclinis*	Rainforest Senna		R		2
Caespaliniaceae	*Senna barclayana*	Smooth Senna		C		2
Caespaliniaceae	*Senna coronilloides*	A Senna		C		2
Caespaliniaceae	*Senna hirsuta*	Hairy Senna			*	2
Caespaliniaceae	*Senna occidentalis*	Coffee Senna			*	2
Caespaliniaceae	*Senna sulfurea*	A Senna		C		2
Caespaliniaceae	*Senna x floribunda*	Smooth Senna			*	2
Campulanaceae	*Lobelia purpurascens*	White Root		C		2
Campulanaceae	*Wahlenbergia communis*	Tufted Bluebell				2
Campulanaceae	*Wahlenbergia gracilis*	Sprawling Bluebell				2
Campulanaceae	*Wahlenbergia stricta*	Bluebell		C		2
Campulanaceae	*Wahlenbergia stricta subsp. stricta*	Tall Bluebell		C		2
Capparaceae	*Capparis arborea*	Brush Caper Berry		C		2
Capparaceae	*Capparis sarmentosa*	Scrambling Caper		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Capparaceae	*Capparis velutina*	Rainforest Capper		C		2
Capparaceae	*Cleome hassleriana*	Prickly Spider-flower			*	2
Caprifoliaceae	*Sambucus australasica*	Native Elderberry		C		2
Caprifoliaceae	*Sambucus nigra*	Black Elderberry				2
Caryophyllaceae	*Petrorhagia nanteuilii*	Proliferous Pink			*	2
Caryophyllaceae	*Polycarpaea corymbosa var. minor*	A Forb		C		2
Caryophyllaceae	*Polycarpon tetraphyllum*	Four-leaved Allseed				2
Caryophyllaceae	*Stellaria media*	Chickweed			*	2
Casuarinaceae	*Allocasuarina littoralis*	Black Sheoak		C		2
Casuarinaceae	*Allocasuarina torulosa*	Forest Shoeak		C		2
Casuarinaceae	*Casuarina cristata*	Belah		C		2
Casuarinaceae	*Casuarina cunninghamiana*	River Sheoak		C		2, 3
Celastraceae	*Cassine australis*	Red Olive Berry		C		2
Celastraceae	*Celastrus australis*	Staff Climber		C		2
Celastraceae	*Celastrus subspicata*	Large-leaved Staffvine		C		2
Celastraceae	*Denhamia pittosporoides*	Veiny Denhamia		C		2
Celastraceae	*Denhamia pittosporoides subsp. pittosporoides*	Veiny Denhamia		C		2
Celastraceae	*Elaeodendron australe*	Red Olive Plum		C		2
Celastraceae	*Elaeodendron australe var. australe*	Red Olive Plum		C		2
Celastraceae	*Hedraianthera porphyropetala*	Hedraianthera		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Celastraceae	*Maytenus bilocularis*	Orangebark		C		2
Celastraceae	*Maytenus disperma*	Orange Boxwood		C		2
Celastraceae	*Maytenus silvestris*	Narrow-leaved Orange Bark		C		2
Celastraceae	*Pleurostylia opposita*	Pleurostylia		C		2
Celestraceae	*Siphonodon australis*	Ivorywood		C		2
Ceratophyllaceae	*Ceratophyllum demersum*	Hornwort		C		2
Chenopodiaceae	*Chenopodium ambrosioides*	Mexican Tea			*	2
Chenopodiaceae	*Chenopodium pumilio*	Small Crumbweed		C		2
Chenopodiaceae	*Einadia hastata*	Saltbush		C		2
Chenopodiaceae	*Einadia polygonoides*	Knotweed Goosefoot		C		2
Chenopodiaceae	*Einadia trigonos subsp. stellulata*	Fishweed		C		2
Chenopodiaceae	*Salsola kali*	Soft Roly-poly		C		2
Chenopodiaceae	*Sclerolaena muricata var. muricata*	Black RolyPoly		C		2
Clusiaceae	*Hypericum gramineum*	Small St. John's Wort		C		2
Commelinaceae	*Aneilema acuminatum*	Aneilema		C		2
Commelinaceae	*Aneilema biflorum*	Aneilema		C		2
Commelinaceae	*Commelina benghalensis*	Hairy Wandering Jew			*	2
Commelinaceae	*Commelina diffusa*	Wandering Jew		C		2
Commelinaceae	*Murdannia graminea*	Murdannia		C		2
Commelinaceae	*Pollia crispata*	Pollia		C		2
Convolvulaceae	*Convolvulus erubescens*	Australian bindweed		C		2
Convolvulaceae	*Cuscuta campestris*	Dodder		C	*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Convolvulaceae	*Dichondra repens*	Kidney Weed		C		2
Convolvulaceae	*Evolvulus alsinoides var. decumbens*	Tropical Speedwell		C		2
Convolvulaceae	*Ipomoea plebeia*	Bellvine		C		2
Convolvulaceae	*Polymeria calycina*	Pink bindweed		C		2
Corynocarpaceae	*Corynocarpus rupestris subsp. arborescens*	Southern Corynocarpus		R		2
Crassulaceae	*Bryophyllum delagoense*	Mother-of-millions			*	2
Crassulaceae	*Bryophyllum tubiflorum*	Mother-of-millions			*	2
Crassulaceae	*Crassula sieberiana*	Australian Stonecrop		C		2
Crassulaceae	*Crassula sieberiana subsp. sieberiana*	Australian Stonecrop		C		2
Cucurbitaceae	*Diplocyclos palmatus subsp. palmatus*	Native Bryony		C		2
Cucurbitaceae	*Sicyos australis*	Star Cucumber		C		2
Cucurbitaceae	*Zehneria cunninghamii*	Slender Cucumber		C		2
Cunoniaceae	*Aphanopetalum resinosum*	Gumvine		C		2
Cunoniaceae	*Caldcluvia paniculosa*	Rose-leaf Marara		C		2
Cunoniaceae	*Geissois benthamii*	Red Carabeen		C		2
Cunoniaceae	*Pseudoweinmannia lachnocarpa*	Rose Marara		C		2
Cunoniaceae	*Schizomeria ovata*	White Cherry		C		2
Dilleniaceae	*Hibbertia dentata*	Trailing Guinea Flower		C		2
Dilleniaceae	*Hibbertia diffusa*	Wedge Guinea-Flower		C		2
Dilleniaceae	*Hibbertia linearis var. obtusifolia*	Hoary Guinea-flower		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Dilleniaceae	*Hibbertia salicifolia*	Twining Guinea-flower		C		2
Dilleniaceae	*Hibbertia sericea*	Silky Guinea Flower		C		2
Dilleniaceae	*Hibbertia sp. (Isla Gorge P.Sharpe 598)*	A Guinea-flower		C		2
Dilleniaceae	*Hibbertia stricta*	Guinea-flower		C		2
Dilleniaceae	*Hibbertia vestita*	Hairy Guinea-flower		C		2
Dilleniaceae	*Hibbertia aspera*	Rough Guinea-flower		C		2
Droseraceae	*Drosera peltata*	Pale Sundew		C		2
Ebenaceae	*Diospyros australis*	Black Plum		C		2
Ebenaceae	*Diospyros fasciculosa*	Grey Ebony		C		2
Ebenaceae	*Diospyros geminata*	Scaly Ebony		C		2
Ebenaceae	*Diospyros pentamera*	Myrtle Ebony		C		2
Elaeocarpaceae	*Elaeocarpus obovatus*	Blueberry Ash		C		2
Elaeocarpaceae	*Elaeocarpus reticulates*	Ash Quandong		C		2
Elaeocarpaceae	*Sloanea woollsii*	Yellow Carrabeen		C		2
Epacridaceae	*Acrotriche aggregata*	Red Cluster Heath		C		2
Epacridaceae	*Epacris obtusifolia*	Common Heath		C		2
Epacridaceae	*Leucopogon biflorus*	A Bearded Heath		C		2
Epacridaceae	*Leucopogon juniperinus*	Prickly Heath		C		2
Epacridaceae	*Leucopogon lanceolatus*	Lance-leaved Bearded Heath		C		2
Epacridaceae	*Leucopogon muticus*	Blunt Blunted Heath		C		2
Epacridaceae	*Leucopogon recurvisepalus*	A Heath		E		2
Epacridaceae	*Leucopogon trichostylus*	Daphne Heath		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Epacridaceae	*Lissanthe strigosa subsp. subulata*	Peach Heath		C		2
Epacridaceae	*Melichrus adpressus*	Large Nectar-heath		C		2
Epacridaceae	*Melichrus urceolatus*	Honey Gorse		C		2
Epacridaceae	*Monotoca scoparia*	Prickly Broom Heath		C		2
Epacridaceae	*Pterocaulon redolens*	Applebush		C		2
Epacridaceae	*Pterocaulon sphacelatum*	Applebush		C		2
Epacridaceae	*Trochocarpa laurina*	Tree Heath		C		2
Epacridaceae	*Woollsia pungens*	Woollsia		C		2
Erythroxylaceae	*Erythroxylum australe*	Cocaine Tree		C		2
Erythroxylaceae	*Erythroxylum sp. (Splityard Creek L.Pedley 5360)*	A Tree		C		2
Euphorbiaceae	*Acalypha capillipes*	Small-leaved Acalypha		C		2
Euphorbiaceae	*Acalypha nemorum*	Hairy Acalypha		C		2
Euphorbiaceae	*Actephila lindleyi*	Actephila		C		2
Euphorbiaceae	*Alchornea ilicifolia*	Native Holly		C		2
Euphorbiaceae	*Amperea xiphoclada*	Broom Spurge		C		2
Euphorbiaceae	*Baloghia inophylla*	Scrub Bloodwood		C		2
Euphorbiaceae	*Bertya opponens*	Cobar-coolabah		C		2
Euphorbiaceae	*Breynia oblongifolia*	Coffee Bush		C		2
Euphorbiaceae	*Breynia oblongifolia var. oblongifolia*	Coffee Bush		C		2
Euphorbiaceae	*Bridelia exaltata*	Scrub Ironbark		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Euphorbiaceae	*Bridelia leichhardtii*	Brush Ironbark		C		2
Euphorbiaceae	*Chamaesyce dallachyana*	Mat Spurge		C		2
Euphorbiaceae	*Chamaesyce hirta*	Asthma Plant			*	2
Euphorbiaceae	*Chamaesyce maculata*	Prostrate Spurge			*	2
Euphorbiaceae	*Claoxylon australe*	Brittlewood		C		2
Euphorbiaceae	*Cleistanthus cunninghamii*	Omega		C		2
Euphorbiaceae	*Croton acronychioides*	Thick-leaved Croton		C		2
Euphorbiaceae	*Croton insularis*	Queensland Cascarilla		C		2
Euphorbiaceae	*Croton verreauxii*	Green Cascarilla		C		2
Euphorbiaceae	*Dissiliaria baloghioides*	Hauer		C		2
Euphorbiaceae	*Drypetes australasica*	Yellow Tulip		C		2
Euphorbiaceae	*Drypetes deplanchei*	Grey Boxwood		C		2
Euphorbiaceae	*Euphorbia cyathophora*	Dwarf Poinsettia			*	2
Euphorbiaceae	*Euphorbia tannensis subsp. eremophila*	Caustic Bush		C		2
Euphorbiaceae	*Excoecaria dallachyana*	Scrub Poison Tree		C		2
Euphorbiaceae	*Fontainea venosa*	A Fontainea	V			1
Euphorbiaceae	*Glochidion ferdinandi*	Cheese Tree		C		2
Euphorbiaceae	*Homalanthus populifolius*	Bleeding Heart		C		2
Euphorbiaceae	*Mallotus claoxyloides*	Green Kamala		C		2
Euphorbiaceae	*Mallotus discolor*	White Kamala		C		2
Euphorbiaceae	*Mallotus philippensis*	Red Kamala		C		2
Euphorbiaceae	*Micrantheum ericoides*	Heath Micrantheum		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Euphorbiaceae	*Petalostigma pubescens*	Quinine Tree		C		2
Euphorbiaceae	*Phyllanthus gasstroemii*	Blunt Spurge		C		2
Euphorbiaceae	*Phyllanthus gunnii*	Scrubby Spurge		C		2
Euphorbiaceae	*Phyllanthus mitchellii*	A Spurge		C		2
Euphorbiaceae	*Phyllanthus similis*	A Spurge		C		2
Euphorbiaceae	*Phyllanthus subcrenulatus*	A Spurge		C		2
Euphorbiaceae	*Phyllanthus triandrus subsp. (Mt May P.I.Forster+ PIF11778)*	A Spurge		C		2
Euphorbiaceae	*Poranthera microphylla*	Small Poranthera		C		2
Euphorbiaceae	*Poranthera obovata*	Poranthera		C		2
Euphorbiaceae	*Ricinus communis*	Castor Oil Plant			*	2, 3
Euphorbiaceae	*Sarcostemma viminale subsp. brunonianum*	Caustic Bush		C		2
Euphorbiaceae	*Sauropus hirtellus*	A Spurge		C		2
Euphorbiaceae	*Tragia novae-hollandiae*	Stinging-vine		C		2
Eupomatiaceae	*Eupomatia laurina*	Bolwarra		C		2
Fabaceae	*Aeschynomene brevifolia*	A Jointvetch		C	*	2
Fabaceae	*Austrosteenisia blackii*	Bloodvine		C		2
Fabaceae	*Austrosteenisia blackii var. blackii*	Bloodvine		C		2
Fabaceae	*Cajanus cajan*	Pigeon Pea			*	2
Fabaceae	*Castanospermum australe*	Blackbean		C		2
Fabaceae	*Chorizema parviflorum*	Eastern Flame Pea		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Fabaceae	*Crotalaria incana*	Woolly Rattlepod			*	2
Fabaceae	*Crotalaria incana subsp. incana*	Woolly Rattlepod			*	2
Fabaceae	*Crotalaria incana subsp. purpurascens*	Woolly Rattlepod			*	2
Fabaceae	*Crotalaria lanceolata subsp. lanceolata*	Lance-leaved Rattlepod			*	2
Fabaceae	*Crotalaria linifolia*	A Rattlepod		C		2
Fabaceae	*Crotalaria medicaginea*	Trefoil Rattlepod		C		2
Fabaceae	*Crotalaria medicaginea var. neglecta*	Trefoil Rattlepod		C		2
Fabaceae	*Crotalaria mitchellii subsp. laevis*	Yellow Rattlepod		C		2
Fabaceae	*Crotalaria montana*	Mountain Rattlepod		C		2
Fabaceae	*Crotalaria pallida*	StreakedRattlepod				3
Fabaceae	*Crotalaria spectabilis*	Showy Rattlepod			*	2
Fabaceae	*Cullen tenax*	Emu-foot		C		2
Fabaceae	*Daviesia arborea*	Golden Pea Tree		C		2
Fabaceae	*Daviesia filipes*	Bitter Pea		C		2
Fabaceae	*Daviesia genistifolia*	Broom Bitter Pea		C		2
Fabaceae	*Daviesia squarrosa*	A Pea		C		2
Fabaceae	*Daviesia ulicifolia*	Native Gorse		C		2
Fabaceae	*Daviesia villifera*	Prickly Daviesia		C		2
Fabaceae	*Daviesia wyattiana*	Long-leaved Bitter Pea		C		2
Fabaceae	*Derris involuta*	Native Derris		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Fabaceae	*Desmodium brachypodum*	Large Tick Trefoil		C		2
Fabaceae	*Desmodium gunnii*	Slender Trefoil		C		2
Fabaceae	*Desmodium rhytidophyllum*	Desmodium		C		2
Fabaceae	*Desmodium varians*	Slender Tick Trefoil		C		2
Fabaceae	*Dillwynia retorta var. retorta*	Eggs and Bacon		C		2
Fabaceae	*Erythrina sp. (Croftby P.I.Forster+ PIF6209)*	Bean Tree		C		2
Fabaceae	*Erythrina vespertilio*	Bean Tree		C		2
Fabaceae	*Galactia tenuiflora*	Snail Flower		C		2
Fabaceae	*Glycine clandestina*	Twining Glycine		C		2
Fabaceae	*Glycine clandestina var. clandestina*	Twining Glycine		C		2
Fabaceae	*Glycine microphylla*	Small-leaf Glycine		C		2
Fabaceae	*Glycine tabacina*	Glycine Pea		C		2
Fabaceae	*Gompholobium pinnatum*	Poor Man's Gold		C		2
Fabaceae	*Goodia lotifolia*	Golden Tip		C		2
Fabaceae	*Goodia lotifolia var. lotifolia*	Golden Tip		C		2
Fabaceae	*Hardenbergia violacea*	Native Sarsparilla		C		2
Fabaceae	*Hovea acutifolia*	Hovea		C		2
Fabaceae	*Hovea lorata*	Hovea		C		2
Fabaceae	*Hovea planifolia*	Hovea		C		2
Fabaceae	*Indigofera australis*	Austral Indigo		C		2
Fabaceae	*Indigofera australis var. australis*	Austral Indigo		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Fabaceae	*Indigofera baileyi*	Bailey's Indigo		R		2
Fabaceae	*Indigofera hirsuta*	Hairy Indigo		C		2
Fabaceae	*Indigofera linifolia*	Native Indigo		C		2
Fabaceae	*Indigofera linnaei*	Birdsville Indigo		C		2
Fabaceae	*Isotropis foliosa*	A Pea		R		2
Fabaceae	*Jacksonia scoparia*	Dogwood		C		2
Fabaceae	*Kennedia rubicunda*	Red Kennedy Pea		C		2
Fabaceae	*Lespedeza juncea*	Perennial Lespedeza		C		2
Fabaceae	*Lespedeza juncea subsp. sericea*	Perennial Lespedeza		C		2
Fabaceae	*Leucaena leucocephala*	Leucaena			*	2
Fabaceae	*Leucaena leucocephala subsp. glabrata*	Leucaena			*	2
Fabaceae	*Leucochrysum albicans var. albicans*	Hoary Sunray		C		2
Fabaceae	*Lotus australis*	Australian Trefoil		C		2
Fabaceae	*Macroptilium atropurpureum*	Siratro			*	2, 3
Fabaceae	*Macroptilium lathyroides*	Archer Vine			*	2
Fabaceae	*Mirbelia pungens*	Prickly Mirbelia		C		2
Fabaceae	*Phyllota phylicoides*	Yellow Peabush		C		2
Fabaceae	*Podolobium ilicifolium*	Prickly Shaggy Pea		C		2
Fabaceae	*Pultenaea cunninghamii*	Prickly Pea		C		2
Fabaceae	*Pultenaea flexilis*	A Bush Pea		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Fabaceae	*Pultenaea microphylla*	A Bush Pea		C		2
Fabaceae	*Pultenaea petiolaris*	A Bush Pea		C		2
Fabaceae	*Pultenaea retusa*	Blunt Bush Pea		C		2
Fabaceae	*Pultenaea spinosa*	A Bush Pea		C		2
Fabaceae	*Pultenaea villosa*	Hairy Bush Pea		C		2
Fabaceae	*Rhynchosia acuminatissima*	A Herb		C		2
Fabaceae	*Rhynchosia minima*	A Herb		C		2
Fabaceae	*Rhynchosia minima var. minima*	A Herb		C		2
Fabaceae	*Sonchus oleraceus*	Common Sowthistle			*	2
Fabaceae	*Sophora fraseri*	Brush Sophora	V	V		2
Fabaceae	*Stylosanthes scabra*	Shrubby Stylo			*	2
Fabaceae	*Swainsona brachycarpa*	Slender Swainson-pea		C		2
Fabaceae	*Swainsona galegifolia*	Smooth Darling Pea		C		2
Fabaceae	*Swainsona luteola*	Dwarf Darling Pea		C		2
Fabaceae	*Swainsona queenslandica*	Smooth Darling Pea		C		2
Fabaceae	*Tephrosia bidwillii*	A Pea-bush		C		2
Fabaceae	*Tephrosia brachyodon var. longipes*	Red Pea-bush		C		2
Fabaceae	*Tephrosia rufula*	A Pea-bush		C		2
Fabaceae	*Tipuana tipu*	Tipuana			*	2
Fabaceae	*Trifolium repens*	White Clover				3
Fabaceae	*Trifolium repens var. repens*	White Clover			*	2
Fabaceae	*Vicia sativa subsp. nigra*	Vetch			*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Fabaceae	*Vigna luteola*	Dalrymple Vigna		C		2
Fabaceae	*Vigna radiata var. sublobata*	Mung Bean		C		2
Fabaceae	*Vigna sp. (Jimbour A.R.Bean 12534)*	A Pea		C		2
Fabaceae	*Vigna unguiculata subsp. cylindrica*	Catjang			*	2
Fabaceae	*Vigna vexillata var. angustifolia*	Wild Cow Pea		C		2
Fabaceae	*Zornia dyctiocarpa*	Zornia		C		2
Fabaceae	*Zornia dyctiocarpa var. dyctiocarpa*	Zornia		C		2
Fabaceae	*Zornia muriculata*	Upright Zornia		C		2
Fabaceae	*Zornia muriculata subsp. angustata*	Upright Zornia		C		2
Flacourtiaceae	*Casearia multinervosa*	Casearia		C		2
Flacourtiaceae	*Homalium alnifolium*	Homalium		C		2
Flacourtiaceae	*Scolopia braunii*	Flintwood		C		2
Flacourtiaceae	*Xylosma terrae-reginae*	Xylosma		C		2
Fumariaceae	*Fumaria officinalis subsp. officinalis*	Fumitory			*	2
Gentianaceae	*Centaurium erythraea*	Common Centaury			*	2
Geraniaceae	*Geranium homeanum*	Geranium		C		2
Geraniaceae	*Geranium solanderi var. solanderi*	Native Geranium		C		2
Geraniaceae	*Pelargonium australe subsp. australe*	Austral's Stork Bill		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Goodeniaceae	*Dampiera sylvestris*	Blue Dampiera		C		2
Goodeniaceae	*Goodenia grandiflora*	Large-flowered Goodenia		C		2
Goodeniaceae	*Goodenia hederacea subsp. hederacea*	Goodenia		C		2
Goodeniaceae	*Goodenia ovata*	Hop Goodenia		C		2
Goodeniaceae	*Goodenia rotundifolia*	Round-leaf Goodenia		C		2
Goodeniaceae	*Scaevola ramosissima*	Purple Fan Flower		C		2
Goodeniaceae	*Velleia paradoxa*	Spur Velleia		C		2
Goodeniaceae	*Velleia spathulata*	Wild Pansies		C		2
Gyrostemonaceae	*Codonocarpus attenuatus*	Bell Fruit-tree		C		2
Haloragaceae	*Gonocarpus teucrioides*	Common Raspwort		C		2
Haloragaceae	*Haloragis exaltata subsp. velutina*	Tall Velvet Sea-berry	V			1
Haloragaceae	*Haloragis heterophylla*	Rough Raspweed		C		2
Haloragaceae	*Myriophyllum crispatum*	Curling Water Milfoil		C		2
Hernandiaceae	*Hernandia bivalvis*	Cudgerie		R		2
Lamiaceae	*Ajuga australis*	Australian Bugle		C		2
Lamiaceae	*Clerodendrum floribundum*	Smooth Spider-bush		C		2
Lamiaceae	*Clerodendrum tomentosum*	Hairy Lollybush		C		2
Lamiaceae	*Gmelina leichhardtii*	White Beech		C		2
Lamiaceae	*Lycopus australis*	Water Horehound		C		2
Lamiaceae	*Mentha diemenica*	Native Mint		C		2
Lamiaceae	*Plectranthus graveolens*	Flea Bush		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Lamiaceae	*Plectranthus leiperi*	Plectranthus	V	V		1, 2
Lamiaceae	*Plectranthus parviflorus*	Cockspur Flower		C		2
Lamiaceae	*Premna lignum-vitae*	Satinwood		C		2
Lamiaceae	*Prostanthera lasianthos*	Victorian Christmas Bush		C		2
Lamiaceae	*Prostanthera nivea*	Mint Bush		C		2
Lamiaceae	*Prunella vulgaris*	Self Heal			*	2
Lamiaceae	*Salvia coccinea*	Red Salvia			*	2
Lamiaceae	*Spartothamnella juncea*	Native Broom		C		2
Lamiaceae	*Teucrium argutum*	Pastel Flower		C		2
Lamiaceae	*Vitex lignum-vitae*	Hollywood		C		2
Lamiaceae	*Anisomeles malabarica*	A Mint		C		2
Lauraceae	*Beilschmiedia obtusifolia*	Hard Bolly Gum		C		2
Lauraceae	*Cassytha filiformis*	Dodder Laurel		C		2
Lauraceae	*Cassytha glabella forma glabella*	Dodder Laurel		C		2
Lauraceae	*Cassytha muelleri*	Dodder Laurel		C		2
Lauraceae	*Cryptocarya bidwillii*	Yellow Laurel		C		2
Lauraceae	*Cryptocarya erythroxylon*	Pigeonberry Ash		C		2
Lauraceae	*Cryptocarya glaucescens*	Jackwood		C		2
Lauraceae	*Cryptocarya laevigata subsp. laevigata*	Glossy Laurel		C		2
Lauraceae	*Cryptocarya microneura*	Murrogun		C		2
Lauraceae	*Cryptocarya obovata*	Pepperberry		C		2
Lauraceae	*Cryptocarya triplinervis*	Three-veined Laurel		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Lauraceae	*Litsea glutinosa*	Bollywood		C		2
Lauraceae	*Neolitsea australiensis*	Green Bolly Gum		C		2
Lauraceae	*Neolitsea dealbata*	White Bolly Gum		C		2
Loganiaceae	*Logania pusilla*	Tiny Logania		C		2
Loranthaceae	*Amyema bifurcatum*	Twin-forked Mistletoe		C		2
Loranthaceae	*Amyema congener subsp. rotundifolia*	A Mistletoe		C		2
Loranthaceae	*Amyema quandang var. quandang*	Grey Mistletoe		C		2
Loranthaceae	*Benthamina alyxifolia*	A Mistletoe		C		2
Loranthaceae	*Dendrophthoe vitellina*	Long-flowered Mistletoe		C		2
Loranthaceae	*Muellerina eucalyptoides*	Creeping Mistletoe		C		2
Malvaceae	*Abutilon oxycarpum*	Flannel Weed		C		2
Malvaceae	*Abutilon oxycarpum forma acutatum*	Small-flowered Abutilon		C		2
Malvaceae	*Anoda cristata*	Anoda Weed			*	2
Malvaceae	*Hibiscus heterophyllus*	Native Hibiscus		C		2, 3
Malvaceae	*Hibiscus splendens*	Pink Hibiscus		C		2
Malvaceae	*Malvastrum americanum var. americanum*	Spiked Malvastrum			*	2
Malvaceae	*Malvastrum americanum var. stellatum*	Spiked Malvastrum		C	*	2
Malvaceae	*Malvastrum coromandelianum*	Prickly Malvastrum			*	2
Malvaceae	*Pavonia hastata*	Pink Pavonia			*	2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Malvaceae	*Sida cordifolia*	Flannel Weed			*	2, 3
Malvaceae	*Sida corrugata*	Corrugated Sida		C		2
Malvaceae	*Sida rhombifolia*	Patty's Lucerne			*	2
Malvaceae	*Sida subspicata*	Spiked Sida		C		2
Meliaceae	*Anthocarapa nitidula*	Incense Cedar		C		2
Meliaceae	*Dysoxylum fraserianum*	Rose Mahogany		C		2
Meliaceae	*Dysoxylum rufum*	Hairy Rosewood		C		2
Meliaceae	*Dysphania glomulifera subsp. glomulifera*	Globular Pigweed		C		2
Meliaceae	*Melia azedarach*	White Cedar		C		2
Meliaceae	*Melia azedarach var. australasica*	White Cedar		C		2
Meliaceae	*Owenia venosa*	Crow's Apple		C		2
Meliaceae	*Synoum glandulosum*	Scented Rosewood		C		2
Meliaceae	*Toona australis*	Red Cedar		C		2
Meliaceae	*Turraea pubescens*	Native Honeysuckle		C		2
Menispermaceae	*Legnephora moorei*	Round Leaf-vine		C		2
Menispermaceae	*Nymphoides indica*	Water Snowflake		C		2
Menispermaceae	*Pleogyne australis*	Wiry Grape		C		2
Menispermaceae	*Stephania japonica*	Snakevine		C		2
Menispermaceae	*Stephania japonica var. discolor*	Snakevine		C		2
Menispermaceae	*Tinospora smilacina*	Snakevine		C		2
Mimosaceae	*Acacia amblygona*	Fan-leaf Wattle		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Mimosaceae	*Acacia attentuata*	Whipstick Wattle	V	V		2
Mimosaceae	*Acacia aulacocarpa*	Brown Salwood		C		2
Mimosaceae	*Acacia baeuerlenii*	A Wattle		C		2
Mimosaceae	*Acacia baueri*	Tiny Wattle		C		2
Mimosaceae	*Acacia brachycarpa*	A Wattle		C		2
Mimosaceae	*Acacia complanata*	Flat-stemmed Wattle		C		2
Mimosaceae	*Acacia concurrens*	Black Wattle		C		2, 3
Mimosaceae	*Acacia decora*	Pretty Wattle		C		2
Mimosaceae	*Acacia decurrens*	Black Wattle				2
Mimosaceae	*Acacia falcata*	Sickle Wattle		C		2
Mimosaceae	*Acacia farnesiana*	Mimosa Bush			*	2
Mimosaceae	*Acacia fimbriata*	Fringed Wattle		C		2
Mimosaceae	*Acacia harpophylla*	Brigalow		C		2
Mimosaceae	*Acacia hispidula*	Rough Hairy Wattle		C		2
Mimosaceae	*Acacia implexa*	Lightwood		C		2
Mimosaceae	*Acacia irrorata*	Green Wattle		C		2
Mimosaceae	*Acacia irrorata subsp. irrorata*	A Green Wattle		C		2
Mimosaceae	*Acacia julifera subsp. julifera*	Julie's Wattle		C		2
Mimosaceae	*Acacia leiocalyx*	Black Wattle		C		2
Mimosaceae	*Acacia maidenii*	Maiden's Wattle		C		2
Mimosaceae	*Acacia melanoxylon*	Blackwood		C		2
Mimosaceae	*Acacia myrtifolia*	Red-stemmed Wattle		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Mimosaceae	*Acacia neriifolia*	Pechey Wattle		C		2
Mimosaceae	*Acacia pennata*	A Wattle		C		2
Mimosaceae	*Acacia penninervis*	Mountain Wattle		C		2
Mimosaceae	*Acacia podalyriifolia*	Queensland Silver Wattle		C		2, 3
Mimosaceae	*Acacia quadrilateralis*	Square-leaved Wattle		C		2
Mimosaceae	*Acacia ramulosa*	Horse Mulga		C		2
Mimosaceae	*Acacia salicina*	Doolan		C		2
Mimosaceae	*Acacia spp.*	Wattles				3
Mimosaceae	*Acacia striatifolia*	A Wattle		C		2
Mimosaceae	*Acacia suaveolens*	Sweet Wattle		C		2
Mimosaceae	*Acacia ulicifolia*	Prickly Moses		C		2
Mimosaceae	*Acacia viscidula*	Sticky Wattle		C		2
Mimosaceae	*Desmanthus pernambucanus*	Pigeon Bundleflower				2
Mimosaceae	*Neptunia gracilis*	Native Sensitive Plant		C		2
Mimosaceae	*Pararchidendron pruinosum*	Stinkwood		C		2
Mimosaceae	*Pararchidendron pruinosum var. pruinosum*	Stinkwood		C		2
Molluginaceae	*Glinus lotoides*	Hairy Carpet Weed		C		2
Molluginaceae	*Glinus oppositifolius*	Slender Carpet-weed		C		2
Monimiaceae	*Wilkiea macrophylla*	Large-leaved Wilkiea		C		2
Moraceae	*Cudrania cochinchinensis*	Cockspur Thorn		C		2
Moraceae	*Ficus coronata*	Creek Sandpaper Fig		C		2
Moraceae	*Ficus fraseri*	White Sandpaper Fig		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Moraceae	*Ficus macrophylla*	Moreton Bay Fig		C		2
Moraceae	*Ficus obliqua*	Small-leaved Fig		C		2
Moraceae	*Ficus opposita*	Sandpaper Fig		C		2
Moraceae	*Ficus opposita var. opposita*	Sandpaper Fig		C		2
Moraceae	*Ficus platypoda*	Desert Fig		C		2
Moraceae	*Ficus spp.*	Fig				3
Moraceae	*Ficus superba var. henneana*	Deciduous Fig		C		2
Moraceae	*Ficus virens var. sublanceolata*	White Fig		C		2
Moraceae	*Ficus watkinsiana*	Green-leaved Moreton Bay Fig		C		2
Moraceae	*Maclura cochinchinensis*	Cockspur Thorn		C		2
Moraceae	*Morus alba*	White Mulberry			*	2
Moraceae	*Streblus brunonianus*	Whalebone Tree		C		2
Moraceae	*Trophis scandens subsp. scandens*	Burneyvine		C		2
Myoporaceae	*Eremophila debilis*	Winter Apple		C		2
Myrsinaceae	*Embelia australiana*	Embelia		C		2
Myrsinaceae	*Myrsine variabilis*	Myrsine		C		2
Myrsinaceae	*Rapanea howittiana*	Brush Muttonwood		C		2
Myrsinaceae	*Rapanea variabilis*	Muttonwood		C		2
Myrtaceae	*Acmena ingens*	Southern Satinash		C		2
Myrtaceae	*Acmena smithii*	Lilly Pilly		C		2, 3
Myrtaceae	*Angophora floribunda*	Rough-barked Apple		C		2
Myrtaceae	*Angophora leiocarpa*	Rusty Gum		C		2, 3

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Myrtaceae	*Angophora subvelutina*	Broad-leaved Apple		C		2
Myrtaceae	*Angophora woodsiana*	Smudgee		C		2
Myrtaceae	*Austromyrtus acmenoides*	Scrub Ironwood		C		2
Myrtaceae	*Austromyrtus bidwillii*	Python Tree		C		2
Myrtaceae	*Austromyrtus hillii*	Scaly Myrtle		C		2
Myrtaceae	*Babingtonia collina*	Babingtonia		C		2
Myrtaceae	*Backhousia angustifolia*	Narrow-leaved Backhousia		C		2
Myrtaceae	*Backhousia myrtifolia*	Carrol		C		2
Myrtaceae	*Callistemon linearis*	Narrow-leaved Bottlebrush		C		2
Myrtaceae	*Callistemon pungens*	Severn River Bottlebrush	V	C		2
Myrtaceae	*Callistemon viminalis*	Weeping Bottlebrush		C		2
Myrtaceae	*Corymbia citriodora*	Lemon-scented Spotted Gum		C		2, 3
Myrtaceae	*Corymbia citriodora subsp. variegata*	Lemon-scented Spotted Gum		C		2
Myrtaceae	*Corymbia clarksoniana*	Clarkson's Bloodwood		C		2
Myrtaceae	*Corymbia gummifera*	Red Bloodwood		C		2
Myrtaceae	*Corymbia henryi*	Large-leaved Spotted Gum		C		2
Myrtaceae	*Corymbia intermedia*	Pink Bloodwood		C		2, 3
Myrtaceae	*Corymbia intermedia*	Pink Bloodwood		C		2
Myrtaceae	*Corymbia tessellaris*	Moreton Bay Ash		C		2
Myrtaceae	*Corymbia trachyphloia*	Brown Bloodwood		C		2
Myrtaceae	*Corymbia trachyphloia subsp. trachyphloia*	Brown Bloodwood		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Myrtaceae	*Decaspermum humile*	Silky Myrtle		C		2
Myrtaceae	*Eucalyptus acmenoides*	White Mahogany		C		2
Myrtaceae	*Eucalyptus baileyana*	Bailey's Stringybark		C		2
Myrtaceae	*Eucalyptus biturbinata*	Grey Gum		C		2
Myrtaceae	*Eucalyptus carnea*	Broad-leaved White Mahogany		C		2
Myrtaceae	*Eucalyptus crebra*	Narrow-leaved Ironbark		C		2, 3
Myrtaceae	*Eucalyptus curtsii*	Plunkett Mallee		R		2
Myrtaceae	*Eucalyptus dura*	Gum-topped Ironbark		C		2
Myrtaceae	*Eucalyptus eugenioides*	White Stringybark		C		2
Myrtaceae	*Eucalyptus exserta*	Queensland Peppermint		C		2
Myrtaceae	*Eucalyptus fibrosa*	Broad-leaved Ironbark		C		2, 3
Myrtaceae	*Eucalyptus grandis*	Flooded Gum		C		2
Myrtaceae	*Eucalyptus helidonica*	Helidon Hill White Mahogany		C		2
Myrtaceae	*Eucalyptus interstans*	A Eucalyptus		C		2
Myrtaceae	*Eucalyptus longirostrata*	Grey Gum		C		2
Myrtaceae	*Eucalyptus major*	Large-fruited Grey Gum		C		2, 3
Myrtaceae	*Eucalyptus melanoleuca*	Nanango Ironbark		C		2
Myrtaceae	*Eucalyptus melanophloia*	Silver-leaf Ironbark		C		2
Myrtaceae	*Eucalyptus melliodora*	Yellow Box		C		2
Myrtaceae	*Eucalyptus microcorys*	Tallowwood		C		2, 3
Myrtaceae	*Eucalyptus molucanna*	Gum-topped Box		C		2, 3
Myrtaceae	*Eucalyptus pilularis*	Blackbutt		C		2, 3

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Myrtaceae	*Eucalyptus planchoniana*	Needlebark Stringybark		C		2
Myrtaceae	*Eucalyptus propinqua*	Small-fruited Grey Gum		C		2
Myrtaceae	*Eucalyptus racemosa*	Scribbly Gum				3
Myrtaceae	*Eucalyptus racemosa subsp. racemosa*	Scribbly Gum		C		2
Myrtaceae	*Eucalyptus saligna*	Sydney Blue Gum		C		2
Myrtaceae	*Eucalyptus siderophloia*	Red Ironbark		C		2
Myrtaceae	*Eucalyptus tereticornis*	Queensland Blue Gum		C		2, 3
Myrtaceae	*Eucalyptus tereticornis subsp. tereticornis*	Queensland Blue Gum		C		2
Myrtaceae	*Eucalyptus tindaliae*	Queensland White Stringybark		C		2
Myrtaceae	*Eucalyptus torrelina*	Cadaghi				3
Myrtaceae	*Eugenia uniflora*	Brazilian Cherry Tree			*	2
Myrtaceae	*Gossia acmenoides*	Scrub Ironwood		C		2
Myrtaceae	*Gossia bidwillii*	Python Tree		C		2
Myrtaceae	*Gossia punctata*	Myrtle		C		2
Myrtaceae	*Kunzea flavescens*	Yellow Kunzea		R		2
Myrtaceae	*Leptospermum brachyandrum*	Weeping Tea-tree		C		2
Myrtaceae	*Leptospermum microcarpum*	Small-fruited Tea-tree		C		2
Myrtaceae	*Leptospermum neglectum*	Tea-tree		C		2
Myrtaceae	*Leptospermum oreophilum*	Tea-tree		R		2
Myrtaceae	*Leptospermum petersonii*	Lemon-scented Tea-tree		C		2
Myrtaceae	*Leptospermum polygalifolium*	Tantoon		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Myrtaceae	*Leptospermum sp.*	Tea-tree				3
Myrtaceae	*Leptospermum trinervium*	Woolly Tea-tree		C		2
Myrtaceae	*Leptospermum variabile*	Tea-tree		C		2
Myrtaceae	*Lophostemon confertus*	Brush Box		C		2
Myrtaceae	*Lophostemon suaveolens*	Swamp Box		C		2
Myrtaceae	*Melaleuca bracteata*	Black Tea-tree		C		2
Myrtaceae	*Melaleuca irbyana*	Swamp Tea-tree		R		2
Myrtaceae	*Melaleuca linariifolia*	Snow-in Summer		C		2
Myrtaceae	*Melaleuca quinquenervia*	Broad-leaved Paperbark		C		2, 3
Myrtaceae	*Melaleuca tamariscina subsp. irbyana*	Scale-leaved Paperbark		C		2
Myrtaceae	*Pilidiostigma rhytispermum*	Small-leaved Plum Mrytle		C		2
Myrtaceae	*Psidium guineense*	Cherry Guava			*	2
Myrtaceae	*Rhodamnia dumicola*	Rib-fruited Malletwood		C		2
Myrtaceae	*Rhodamnia rubescens*	Scrub Turpentine		C		2
Myrtaceae	*Rhodomyrtus psidioides*	Native Guava		C		2
Myrtaceae	*Syncarpia glomulifera*	Turpentine		C		2
Myrtaceae	*Syncarpia verecunda*	Gresty's Turpentine		C		2
Myrtaceae	*Syzygium australe*	Scrub Cherry		C		2
Myrtaceae	*Syzygium corynanthum*	Sour Cherry		C		2
Myrtaceae	*Syzygium francisii*	Giant Watergum		C		2
Myrtaceae	*Tristaniopsis laurina*	Water Gum		C		2
Myrtaceae	*Waterhousea floribunda*	Weeping Lilly Pilly		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Musaceae	*Musa acuminata*	Banana			*	2
Musaceae	*Myoporum acuminatum*	Coastal Boobialla		C		2
Musaceae	*Myoporum montanum*	Boobialla		C		2
Ochnaceae	*Ochna serrulata*	Ochna			*	2, 3
Oleaceae	*Jasminum didymum subsp. racemosum*	Native Jasmine		C		2
Oleaceae	*Jasminum simplicifolium*	Stiff Jasmine		C		2
Oleaceae	*Jasminum simplicifolium subsp. australiense*	Stiff Jasmine		C		2
Oleaceae	*Jasminum simplicifolium subsp. australiense x J.suavissimum*	Stiff Jasmine		C		2
Oleaceae	*Jasminum singuliflorum*	Jasmine		C		2
Oleaceae	*Jasminum suavissimum*	Forest Jasmine		C		2
Oleaceae	*Ligustrum lucidum*	Large-leaved Privet			*	2
Oleaceae	*Notelaea linearis*	Native Olive		C		2
Oleaceae	*Notelaea longifolia*	Long-leaved Mock Olive		C		2
Oleaceae	*Notelaea longifolia forma glabra*	Long-leaved Mock Olive		C		2
Oleaceae	*Notelaea microcarpa*	Native Olive		C		2
Oleaceae	*Notelaea ovata*	Forest Olive		C		2
Oleaceae	*Olea paniculata*	Native Olive		C		2
Onagraceae	*Epilobium billardierianum subsp. cinereum*	Variable Willow Herb		C		2
Onagraceae	*Gaura parviflora*	Clockweed			*	2
Onagraceae	*Ludwigia octovalvis*	Willow Primrose		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Onagraceae	*Ludwigia peploides subsp. montevidensis*	Water Primose		C		2
Onagraceae	*Oenothera affinis*	Long-flowered Evening Primrose			*	2
Onagraceae	*Oenothera rosea*	Rose Evening Primrose			*	2
Oxalidaceae	*Oxalis chnoodes*	Oxalis		C		2
Oxalidaceae	*Oxalis corniculata*	Yellow Wood Sorrel			*	2
Oxalidaceae	*Oxalis pes-caprae*	Soursob			*	2
Oxalidaceae	*Oxalis radicosa*	Wood Sorrel		C		2
Oxalidaceae	*Oxalis thompsoniae*	Oxalis		C		2
Papaveraceae	*Argemone ochroleuca subsp. ochroleuca*	Mexican Poppy			*	2
Passifloraceae	*Passiflora aurantia var. aurantia*	Blunt-leaved Passionfruit		C		2
Passifloraceae	*Passiflora edulis*	Edible Passionfruit			*	2
Passifloraceae	*Passiflora herbertiana subsp. herbertiana*	Native Passionfruit		C		2
Passifloraceae	*Passiflora sp.*	Passion Flower				3
Passifloraceae	*Passiflora suberosa*	Corky Passion Flower			*	2
Passifloraceae	*Passiflora subpeltata*	White Passion Flower			*	2
Phytolaccaceae	*Monococcus echinophorus*	Burr Bush		C		2
Phytolaccaceae	*Phytolacca dioica*	Bella Sombra			*	2
Phytolaccaceae	*Phytolacca octandra*	Inkweed			*	2
Phytolaccaceae	*Rivina humilis*	Coral Berry			*	2
Piperaceae	*Peperomia blanda var. floribunda*	A Hackleberry		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Piperaceae	*Peperomia leptostachya*	Native Hackleberry		C		2
Pittosporaceae	*Billardiera scandens*	Appleberry		C		2
Pittosporaceae	*Bursaria incana*	Prickly Pine		C		2
Pittosporaceae	*Bursaria spinosa*	Blackthorn		C		2
Pittosporaceae	*Bursaria spinosa subsp. spinosa*	Blackthorn		C		2
Pittosporaceae	*Citriobatus linearis*	Black-fruited Thornbush		C		2
Pittosporaceae	*Citriobatus pauciflorus*	Orange Thorn		C		2
Pittosporaceae	*Hymenosporum flavum*	Native Frangipani		C		2
Pittosporaceae	*Pittosporum revolutum*	Yellow Pittosporum		C		2
Pittosporaceae	*Pittosporum rhombifolium*	Diamond Pittosporum		C		2
Pittosporaceae	*Pittosporum undulatum*	Sweet Pittosporum		C		2
Pittosporaceae	*Pittosporum viscidum*	Black-fruited Thornbush		C		2
Plantaginaceae	*Plantago debilis*	Shade Plantain		C		2
Plumbaginaceae	*Plumbago zeylanica*	Native Plumbago		C		2
Polygalaceae	*Comesperma hispidulum*	Hairy Comesperma		C		2
Polygonaceae	*Fallopia convolvulus*	Black Bindweed			*	2
Polygonaceae	*Muehlenbeckia gracillima*	Slender Lignum		C		2
Polygonaceae	*Persicaria lapathifolia*	Pale Knotweed		C	*	2
Polygonaceae	*Persicaria orientalis*	Prince's Feathers		C		2
Polygonaceae	*Persicaria prostrata*	Creeping Knotweed		C		2
Polygonaceae	*Polygonum aviculare*	Wireweed			*	2
Polygonaceae	*Polygonum plebeium*	Small Knotweed		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Polygonaceae	*Rumex brownii*	Swamp Dock		C		2
Portulacaceae	*Calandrinia pickeringii*	Pink Purslane		C		2
Portulacaceae	*Portulaca pilosa*	A Pigweed				2
Portulacaceae	*Portulaca pilosa subsp. pilosa*	A Pigweed				2
Primulaceae	*Samolus valerandii*	Brookweed		C		2
Proteaceae	*Banksia integrifolia*	Coastal Banksia		C		2
Proteaceae	*Banksia integrifolia subsp. compare*	Coastal Banksia		C		2
Proteaceae	*Banksia oblongifolia*	Dwarf Banksia		C		2
Proteaceae	*Banksia spinulosa var. collina*	Hill Banksia		C		2
Proteaceae	*Grevillea banksii*	Red Silky Oak		C		2
Proteaceae	*Grevillea quadricauda*	A Grevillea	V			1
Proteaceae	*Grevillea robusta*	Southern Silky Oak		C		2, 3
Proteaceae	*Hakea eriantha*	Tree Hakea		C		2
Proteaceae	*Hakea florulenta*	Three-nerved Willow Hakea		C		2
Proteaceae	*Hakea purpurea*	Crimson Hakea		C		2
Proteaceae	*Hakea sericea*	White Hakea		C		2
Proteaceae	*Isopogon petiolaris*	Drumsticks		C		2
Proteaceae	*Lomatia silaifolia*	Crinkle Bush		C		2
Proteaceae	*Persoonia cornifolia*	Broad-leaved Geebung		C		2
Proteaceae	*Persoonia iogyna*	A Geebung		C		2
Proteaceae	*Persoonia sericea*	Silky Geebung		C		2
Proteaceae	*Persoonia sp.*	A Geebung				3

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Proteaceae	*Persoonia tenuifolia*	Fine-leaved Geebung		C		2
Proteaceae	*Petrophile canescens*	Conesticks		C		2
Ranunculaceae	*Clematis fawcettii*	Stream Clematis	V			1
Ranunculaceae	*Clematis glycinoides*	Forest Clematis		C		2
Ranunculaceae	*Ranunculus meristus*	A Buttercup		C		2
Ranunculaceae	*Ranunculus muricatus*	Sharp Buttercup			*	2
Ranunculaceae	*Ranunculus sessiliflorus var. sessiliflorus*	Annual Buttercup		C		2
Rhamnaceae	*Alphitonia excelsa*	Red Ash		C		2, 3
Rhamnaceae	*Alphitonia petriei*	Pink Ash		C		2
Rhamnaceae	*Cryptandra rigida*	A Cryptandra		C		2
Rhamnaceae	*Pomaderris argyrophylla*	A Pomaderris		C		2
Rhamnaceae	*Pomaderris aspera*	Hazel Pomaderris		C		2
Rhamnaceae	*Pomaderris crassifolia*	A Pomaderris		V		2
Rhamnaceae	*Pomaderris ferruginea*	Rusty Pomaderris		C		2
Rhamnaceae	*Pomaderris lanigera*	Woolly Pomaderris		C		2
Rhamnaceae	*Pomaderris queenslandica*	Queensland Hazelwood		C		2
Rosaceae	*Malus pumila*	Apple			*	2
Rosaceae	*Prunus munsoniana*	Wild Goose Plum			*	2
Rosaceae	*Rubus moluccanus*	Broad-leaf Bramble		C		2
Rosaceae	*Rubus parvifolius*	Pink-flowered Native Raspberry		C		2
Rosaceae	*Rubus rosifolius*	Blackberry		C		2
Rosaceae	*Rubus rosifolius var. rosifolius*	Rose-leaf Bramble		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Rosaceae	*Rubus spp.*	Raspberry				3
Rubiaceae	*Asperula conferta*	Common Woodruff		C		2
Rubiaceae	*Asperula geminifolia*	A Woodruff		C		2
Rubiaceae	*Canthium buxifolium*	Stiff Canthium		C		2
Rubiaceae	*Canthium coprosmoides*	Coastal Canthium		C		2
Rubiaceae	*Canthium lamprophyllum*	Large-leaved Canthium		C		2
Rubiaceae	*Canthium microphyllum*	Small-leaved Canthium		C		2
Rubiaceae	*Canthium odoratum*	Shiny-leaved Canthium		C		2
Rubiaceae	*Canthium vacciniifolium*	Small-leaved Coffee-tree		C		2
Rubiaceae	*Dentella repens*	Dentella		C		2
Rubiaceae	*Galium migrans*	Wandering Bedstraw		C		2
Rubiaceae	*Hodgkinsonia ovatiflora*	Golden Ash		C		2
Rubiaceae	*Mitracarpus hirtus*	Berrimah Weed			*	2
Rubiaceae	*Morinda acutifolia*	Veiny Morinda		C		2
Rubiaceae	*Morinda jasminoides*	Morinda		C		2
Rubiaceae	*Opercularia aspera*	Coarse Stinkweed		C		2
Rubiaceae	*Opercularia diphylla*	Stinkweed		C		2
Rubiaceae	*Opercularia hispida*	Hairy Stinkweed		C		2
Rubiaceae	*Pavetta australiensis*	Butterfly Bush		C		2
Rubiaceae	*Pavetta australiensis var. australiensis*	Butterfly Bush		C		2
Rubiaceae	*Pomax umbellata*	Pomax		C		2
Rubiaceae	*Psychotria daphnoides*	Smooth Psychotria		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Rubiaceae	*Psychotria daphnoides var. daphnoides*	Smooth Psychotria		C		2
Rubiaceae	*Psychotria loniceroides*	Hairy Psychotria		C		2
Rubiaceae	*Psydrax odorata*	Shiny-leaved Canthium		C		2
Rubiaceae	*Psydrax odorata forma buxifolia*	Shiny-leaved Canthium		C		2
Rubiaceae	*Randia chartacea*	Narrow-leaved Gardenia		C		2
Rubiaceae	*Richardia stellaris*	A Clover			*	2
Rubiaceae	*Spermacoce brachystema*	A Spermacoce		C		2
Rubiaceae	*Spermacoce multicaulis*	A Spermacoce		C		2
Rubiaceae	*Tarenna cameronii*	Diplospora		C		2
Rutaceae	*Acronychia laevis*	Glossy Acronychia		C		2
Rutaceae	*Bergera koenigii*	Common Jasmine-orange				2
Rutaceae	*Boronia polygalifolia*	Dwarf Boronia		C		2
Rutaceae	*Bosistoa selwynii*	Heart-leaved Bosistoa	V			1
Rutaceae	*Bosistoa transversa*	Three-leaved Bosistoa	V	C		1. 2
Rutaceae	*Bossiaea heterophylla*	Variable Bossiaea		C		2
Rutaceae	*Bouchardatia neurococca*	Union Nut		C		2
Rutaceae	*Citrus australis*	Native Lime		C		2
Rutaceae	*Clausena brevistyla*	Clausena		C		2
Rutaceae	*Coatesia paniculata*	Axebreaker		C		2
Rutaceae	*Crowea exalata subsp. exalata*	Small Crowea		C		2
Rutaceae	*Dinosperma erythrococcum*	Tingle-tongue		C		2
Rutaceae	*Euodia micrococca*	Hairy-leaved Doughwood		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Rutaceae	*Flindersia australis*	Crow's Ash		C		2
Rutaceae	*Flindersia collina*	Broad-leaved Leopard Tree		C		2
Rutaceae	*Flindersia schottiana*	Bumpy Ash		C		2
Rutaceae	*Flindersia xanthoxyla*	Yellow-wood		C		2
Rutaceae	*Geijera parviflora*	Wilga		C		2
Rutaceae	*Geijera salicifolia*	Brush Wilga		C		2
Rutaceae	*Melicope erythrococca*	Tingle-tongue		C		2
Rutaceae	*Melicope micrococca*	White Evodia		C		2
Rutaceae	*Melicope vitiflora*	Northern Evodia		C		2
Rutaceae	*Microcitrus australasica*	Fingerlime		C		2
Rutaceae	*Microcitrus australis*	Native Lime		C		2
Rutaceae	*Micromelum minutum*	Clusterberry		C		2
Rutaceae	*Philotheca difformis subsp. smithiana*	A Philotheca		C		2
Rutaceae	*Sarcomelicope simplicifolia*	Yellow Aspen		C		2
Rutaceae	*Sarcomelicope simplicifolia subsp. simplicifolia*	Yellow Aspen		C		2
Rutaceae	*Zanthoxylum brachyacanthum*	Thorny Yellowwood		C		2
Rutaceae	*Zieria minutiflora*	Twiggy Zieria		C		2
Rutaceae	*Zieria minutiflora subsp. minutiflora*	Twiggy Zieria		C		2
Salicaceae	*Leptomeria acida*	Sour Currant Bush		C		2
Salicaceae	*Salix spp.*	Willow			*	3

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Santalaceae	*Choretrum candollei*	White Sour Bush		C		2
Santalaceae	*Exocarpos cupressiformis*	Native Cherry		C		2
Santalaceae	*Exocarpos latifolius*	Broad-leaved Cherry		C		2
Santalaceae	*Exocarpos strictus*	Dwarf Cherry		C		2
Santalaceae	*Santalum obtusifolium*	Sandalwood		C		2
Sapindaceae	*Alectryon connatus*	Grey Birds-eye		C		2
Sapindaceae	*Alectryon diversifolius*	Scrub Boonaree		C		2
Sapindaceae	*Alectryon reticulatus*	Wild Quince		C		2
Sapindaceae	*Alectryon subcinereus*	Native Quince		C		2
Sapindaceae	*Alectryon subdentatus*	Hard Alectryon		C		2
Sapindaceae	*Alectryon tomentosus*	Hairy Alectryon		C		2
Sapindaceae	*Arytera distylis*	Twin-leaved Coogera		C		2
Sapindaceae	*Arytera divaricata*	Coogera		C		2
Sapindaceae	*Arytera foveolata*	Pitted Coogera		C		2
Sapindaceae	*Arytera microphylla*	Small-leaved Coogera		C		2
Sapindaceae	*Atalaya multiflora*	Broad-leaved Whitewood		C		2
Sapindaceae	*Atalaya salicifolia*	Brush Whitewood		C		2
Sapindaceae	*Cardiospermum grandiflorum*	Balloon Vine			*	2
Sapindaceae	*Cupaniopsis parvifolia*	Small-leaved Tuckeroo		C		2
Sapindaceae	*Diploglottis australis*	Native Tamarind		C		2
Sapindaceae	*Diploglottis cunninghamii*	Native Tamarind		C		2
Sapindaceae	*Dodonaea boroniifolia*	Fern-leaf Hop Bush		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Sapindaceae	*Dodonaea multijuga*	Hop Bush		C		2
Sapindaceae	*Dodonaea triquetra*	Large-leaved Hop Bush		C		2
Sapindaceae	*Dodonaea viscosa*	Sticky Hop Bush		C		2
Sapindaceae	*Dodonaea viscosa subsp. burmanniana*	Sticky Hop Bush		C		2
Sapindaceae	*Dodonaea viscosa subsp. cuneata*	Sticky Hop Bush		C		2
Sapindaceae	*Dodonaea viscosa subsp. spatulata*	Sticky Hop Bush		C		2
Sapindaceae	*Elattostachys nervosa*	Green Tamarind		C		2
Sapindaceae	*Elattostachys xylocarpa*	White Tamarind		C		2
Sapindaceae	*Guioa semiglauca*	Guioa		C		2
Sapindaceae	*Harpullia hillii*	Blunt-leaved Tulip		C		2
Sapindaceae	*Harpullia pendula*	Tulipwood		C		2
Sapindaceae	*Jagera pseudorhus*	Foambark		C		2
Sapindaceae	*Koelreuteria elegans subsp. formosana*	Chinese Rain Tree				2
Sapindaceae	*Mischocarpus anodontus*	Veiny Pearfruit		C		2
Sapindaceae	*Toechima tenax*	Pitted-leaf Steelwood		C		2
Sapotaceae	*Niemeyera antiloga*	Brown Pearwood		C		2
Sapotaceae	*Pouteria cotinifolia*	Small-leaved Coondoo		C		2
Sapotaceae	*Pouteria cotinifolia var. cotinifolia*	A Coondoo		C		2
Sapotaceae	*Pouteria myrsinifolia*	A Boxwood		C		2
Sapotaceae	*Pouteria myrsinoides*	A Boxwood		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Sapotaceae	*Pouteria myrsinoides subsp. myrsinoides*	A Boxwood		C		2
Sapotaceae	*Pouteria pohlmaniana*	Yellow Boxwood		C		2
Saxifragaceae	*Abrophyllum ornans*	Native Hydrangea		C		2
Scrophulariaceae	*Buchnera gracilis*	Blackrod		C		2
Scrophulariaceae	*Mecardonia procumbens*	A Mecardonia			*	2
Scrophulariaceae	*Verbascum virgatum*	Twiggy Mullein			*	2
Simaroubaceae	*Ailanthus triphysa*	White Siris		C		2
Solanaceae	*Capsicum annuum var. glabriusculum*	Cayenne			*	2
Solanaceae	*Duboisia myoporoides*	Corkwood		C		2
Solanaceae	*Lycium ferocissimum*	African Boxthorn			*	2
Solanaceae	*Nicandra physalodes*	Apple of Peru			*	2
Solanaceae	*Nicotiana forsteri*	Nicotiana		C		2
Solanaceae	*Physalis angulata*	Cape Gooseberry			*	2
Solanaceae	*Physalis ixocarpa*	Annual Ground Cherry			*	2
Solanaceae	*Physalis peruviana*	Cape Gooseberry			*	2
Solanaceae	*Solanum americanum subsp. nodiflorum*	Black Nightshade			*	2
Solanaceae	*Solanum aviculare*	Kangaroo Apple				2
Solanaceae	*Solanum corifolium*	Straggling Nightshade		C		2
Solanaceae	*Solanum densevestitum*	Furry Nightshade		C		2
Solanaceae	*Solanum discolor*	A Nightshade		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Solanaceae	*Solanum linnaeanum*	Apple of Sodom			*	2
Solanaceae	*Solanum mauritianum*	Tobacoo Tree			*	2, 3
Solanaceae	*Solanum nemophilum*	Nightshade		C		2
Solanaceae	*Solanum prinophyllum*	Forest Nightshade		C		2
Solanaceae	*Solanum pseudocapsicum*	Madeira Winter Cherry			*	2
Solanaceae	*Solanum rixosum*	A Nightshade		C		2
Solanaceae	*Solanum seaforthianum*	Brazilian Nightshade			*	2
Solanaceae	*Solanum sp.Q1 (aff. furfuraceum)*	A Nightshade		C		2
Solanaceae	*Solanum stelligerum*	Devil's Needles		C		2
Stackhousiaceae	*Stackhousia viminea*	Slender Stackhousia		C		2
Sterculiaceae	*Argyrodendron actinophyllum*	Black Booyong		C		2
Sterculiaceae	*Argyrodendron actinophyllum subsp. actinophyllum*	Black Jack		C		2
Sterculiaceae	*Argyrodendron trifoliolatum*	Booyong		C		2
Sterculiaceae	*Brachychiton bidwillii*	Little Kurrajong		C		2
Sterculiaceae	*Brachychiton collinus*	A Kurrajong		R		2
Sterculiaceae	*Brachychiton discolor*	Lacebark		C		2
Sterculiaceae	*Brachychiton populneus*	A Kurrajong		C		2
Sterculiaceae	*Brachychiton populneus subsp. populneus*	A Kurrajong		C		2
Sterculiaceae	*Helicteres semiglabra*	A Helicteres		C		2
Sterculiaceae	*Lasiopetalum ferrugineum var. ferrugineum*	Rusty Petals				2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Sterculiaceae	*Rulingia dasyphylla*	Kerrawang		C		2
Sterculiaceae	*Rulingia salviifolia*	Sage-leaved Rulingia		R		2
Sterculiaceae	*Seringia arborescens*	Seringia		C		2
Sterculiaceae	*Seringia corollata*	Seringia		C		2
Sterculiaceae	*Sterculia quadrifida*	Peanut Tree		C		2
Stylidiaceae	*Stylidium graminifolium*	Grassy-leaved Trigger-flower		C		2
Surianaceae	*Guilfoylia monostylis*	Guilfoylia		C		2
Thymelaeaceae	*Pimelea latifolia subsp. altior*	Broad-leaved Rice Flower		C		2
Thymelaeaceae	*Pimelea linifolia*	Slender Rice Flower		C		2
Thymelaeaceae	*Pimelea linifolia subsp. linifolia*	Slender Rice Flower		C		2
Thymelaeaceae	*Pimelea neoanglica*	Poison Pimelea		C		2
Thymelaeaceae	*Wikstroemia indica*	Tie Bush		C		2
Tiliaceae	*Corchorus olitorius*	Jute		C		2
Tiliaceae	*Grewia latifolia*	Dysentery Plant		C		2
Tremendaceae	*Tetratheca thymifolia*	Black-eyed Susan		C		2
Ulmaceae	*Aphananthe philippinensis*	Rough-leaved Elm		C		2
Ulmaceae	*Celtis paniculata*	Native Celtis		C		2
Ulmaceae	*Trema tomentosa*	Poison Peach		C		2
Ulmaceae	*Trema tomentosa var. viridis*	Poison Peach		C		2
Urticaceae	*Dendrocnide excelsa*	Giant Stinging Tree		C		2
Urticaceae	*Dendrocnide photinophylla*	Shiny-leaved Stinging Tree		C		2
Urticaceae	*Elatostema reticulatum*	Rainforest Spinach		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Urticaceae	*Urtica incisa*	Stinging Nettle		C		2
Verbenaceae	*Lantana camara*	Lantana			*	2, 3
Verbenaceae	*Lantana montevidensis*	Creeping Lantana			*	2, 3
Verbenaceae	*Verbena aristigera*	Mayne's Pest			*	2
Verbenaceae	*Verbena bonariensis*	Purpletop			*	2, 3
Verbenaceae	*Verbena incompta*	Purpletop				2
Verbenaceae	*Verbena litoralis var. brasiliensis*	Verbena			*	2
Verbenaceae	*Verbena litoralis var. litoralis*	Verbena			*	2
Verbenaceae	*Verbena rigida*	Veined Verbena			*	2
Verbenaceae	*Verbena rigida var. rigida*	Veined Verbena		C	*	2
Violaceae	*Hybanthus monopetalus*	Slender Violet-bush		C		2
Violaceae	*Hybanthus stellarioides*	Spade Flower		C		2
Violaceae	*Viola hederacea*	Ivy-leaved Violet		C		2
Viscaceae	*Notothixos incanus*	Notothixos		C		2
Vitaceae	*Cayratia acris*	Hairy Grape		C		2
Vitaceae	*Cayratia clematidea*	Slender Grape		C		2
Vitaceae	*Cayratia eurynema*	Soft Water Vine		C		2
Vitaceae	*Cayratia saponaria*	Silver Hair Cayratia		C		2
Vitaceae	*Cissus antarctica*	Kangaroo Vine		C		2
Vitaceae	*Cissus hypoglauca*	Native Grape		C		2
Vitaceae	*Cissus opaca*	Peppervine		C		2
Vitaceae	*Tetrastigma nitens*	Shining Grape		C		2

Family Name	*Botanical Name*	Common Name	Status*			Source**
			EPBC	NCA	WEED	
Zygophyllaceae	*Tribulus micrococcus*	Yellow Vine		C		2
Zygophyllaceae	*Tribulus terrestris*	Caltrop		C		2

*Status: Cwth: EPBC: E = Endangered; V = Vulnerable.
Qld: NCA: E = Endangered; V = Vulnerable; R = Rare.
Weed: Non-native flora species.

**Source: 1 = EPBC Protected Matters Report; 2 = EPA Wildlife Online; 3 = HLA field survey.

"This page has been left blank intentionally"

Table T4: Fauna Species Found Within Esk Shire

The status and source information for this table is categorised as follows:

*Status:	Commonwealth Significance:	EPBC: CE = Critically Endangered; E = Endangered; V = Vulnerable.
	State Significance	NCA: PE = Presumed Extinct; E = Endangered; V = Vulnerable; R = Rare.
	Regional Significance	SEQ: Non-priority Taxa in SEQ bioregion.
	Regional Significance	Action Plan (AP): E = Endangered; V = Vulnerable; R = Rare; NT = Near Threatened; IK = Insufficiently Known; DD = Data Deficient, LC= Least Concern.
	Protected under International Treaties:	EPBC: Mi = Migratory; Ma = Marine.
	Pest	Non-native fauna species.
**Source:	1 = EPBC Protected Matters Report; 2 = Wildlife Online.	

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Invertebrates								
Glasswing	*Acraea andromacha andromacha*							2
Australian Fritillary	*Argyreus hyperbius inconstans*		E					2
Caper White	*Belenois java teutonia*							2
Lemon Migrant	*Catopsilia pomona pomona*							2
Greasy Swallowtail	*Cressida cressida cressida*							2
Lesser Wanderer	*Danaus chrysippus petilia*							2
Monarch	*Danaus plexippus plexippus*							2
Black Jezebel	*Delias nigrina*							2
Common Crow	*Euploea core corinna*							2
No-brand Grass-yellow	*Eurema brigitta australis*							2
Large Grass-yellow	*Eurema hecabe phoebus*							2
Small Grass-yellow	*Eurema smilax*							2
Regent Skipper (southern subspecies)	*Euschemon rafflesia rafflesia*							2
Pale-blue Triangle (eastern subspecies)	*Graphium eurypylus lycaon*							2
Meadow Argus	*Junonia villida calybe*							2
Common Evening-brown	*Melanitis leda bankia*							2
Large Purple Line-blue	*Nacaduba berenice berenice*							2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Green Grass-dart (Bassian subspecies)	*Ocybadistes walkeri sothis*							2
Richmond birdwing	*Ornithoptera richmondia*		V					2
Orchard Swallowtail (Australian subspecies)	*Papilio aegeus aegeus*							2
Dingy Swallowtail	*Papilio anactus*							2
Chequered Swallowtail	*Papilio demoleus sthenelus*							2
A Moth	*Phyllodes imperialis (southern subsp.* - ANIC 3333*)*	E						1
Cabbage White	*Pieris rapae*							2
Tailed Emperor	*Polyura sempronius sempronius*							2
Blue Tiger	*Tirumala hamata hamata*							2
Brown Ochre	*Trapezites iacchus*							2
Common Grass-blue (Australian subspecies)	*Zizina labradus labradus*							2
Fishes								
Agassiz's Glassfish	*Ambassis agassizii*			R				2
Longfin Eel	*Anguilla reinhardtii*							2
Boofhead Catfish	*Arius leptaspis*							2
Snubnose Garfish	*Arrhamphus sclerolepis*							2
Goldfish	*Carassius auratus*							2
Silverstreak Hardyhead	*Craterocephalus marjoriae*							2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Flyspecked Hardyhead	*Craterocephalus stercusmuscarum*							2
Mosquitofish	*Gambusia holbrooki*							2
Mouth Almighty	*Glossamia aprion*							2
Striped Gudgeon	*Gobiomorphus australis*							2
Empire Gudgeon	*Hypseleotris compressa*							2
Firetail Gudgeon	*Hypseleotris galii*							2
Western Carp Gudgeon	*Hypseleotris klunzingeri*							2
Spangled Perch	*Leiopotherapon unicolor*							2
Murray Cod	*Maccullochella peelii peelii*		V					2
Australian Bass	*Macquaria novemaculeata*							2
Crimson-spotted Rainbowfish	*Melanotaenia duboulayi*							2
Murray River Rainbowfish	*Melanotaenia fluviatilis*							2
Eastern Rainbowfish	*Melanotaenia splendida splendida*							2
Southern Purple-spotted Gudgeon	*Mogurnda adspersa*			R				2
Sea Mullet	*Mugil cephalus*							2
Pinkeye Mullet	*Myxus petardi*							2
Bony Bream	*Nematalosa erebi*							2
Queensland Lungfish	*Neoceratodus forsteri*	V	V		✔			1, 2
Bullrout	*Notesthes robusta*							2
Flathead Gudgeon	*Philypnodon grandiceps*							2
Rendahl's Catfish	*Porochilus rendahli*							2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Pacific Blue Eye	*Pseudomugil signifer*							2
Australian Smelt	*Retropinna semoni*							2
Freshwater Catfish	*Tandanus tandanus*							2
Amphibians								
Tusked Frog	*Adelotus brevis*		V		✔			2
Cane Toad	*Bufo marinus*						*	2
Beeping Froglet	*Crinia parinsignifera*		C					2
Clicking Froglet	*Crinia signifera*		C		✔			2
Greenstripe Frog	*Cyclorana alboguttata*		C					2
Superb Collared Frog	*Cyclorana brevipes*		C					2
Ornate Burrowing Frog	*Limnodynastes ornatus*		C					2
Striped Marshfrog	*Limnodynastes peronii*		C					2
Spotted Grassfrog	*Limnodynastes tasmaniensis*		C					2
Scarlet-sided Pobblebonk	*Limnodynastes terraereginae*		C					2
Common Green Treefrog	*Litoria caerulea*		C					2
Orange-eyed Treefrog	*Litoria chloris*		C					2
Bleating Treefrog	*Litoria dentata*		C		✔			2
Eastern Sedgefrog	*Litoria fallax*		C					2
Graceful Treefrog	*Litoria gracilenta*		C					2
Broad Palmed Rocketfrog	*Litoria latopalmata*		C					2
Stony Creek Frog	*Litoria lesueuri sensu lato*		C					2
Striped Rocketfrog	*Litoria nasuta*		C					2
Cascade Treefrog	*Litoria pearsoniana*		V	IK				2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Emerald Spotted Treefrog	*Litoria peronii*		C		✔			2
Ruddy Treefrog	*Litoria rubella*		C					2
Southern Laughing Treefrog	*Litoria tyleri*		C		✔			2
Whistling Treefrog	*Litoria verreauxii*		C		✔			2
Stoney Creek Frog	*Litoria wilcoxii*		C					2
Great Barred Frog	*Mixophyes fasciolatus*		C					2
Fleay's Frog	*Mixophyes fleayi*		E	E				1
Giant Barred Frog	*Mixophyes iteratus*	E	E	E				2
Barred Frog	*Mixophyes sp.*							2
Red Backed Broodfrog	*Pseudophryne coriacea*		C		✔			2
Great Brown Broodfrog	*Pseudophryne major*		C		✔			2
Copper Backed Broodfrog	*Pseudophryne raveni*		C		✔			2
Dusky Gungan	*Uperoleia fusca*		C					2
Eastern Gungan	*Uperoleia laevigata*		C		✔			2
Chubby Gungan	*Uperoleia rugosa*		C					2
Gungan	*Uperoleia sp.*							2
Reptiles								
Common Death Adder	*Acanthophis antarcticus*		R	R / IK				2
Nobbi Dragon	*Amphibolurus nobbi*		C					2
Burrowing Skink	*Anomalopus verreauxii*		C					2
Spotted Python	*Antaresia maculosa*		C					2
Brown Tree Snake	*Boiga irregularis*		C					2
White-crowned Snake	*Cacophis harriettae*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Dwarf Crowned Snake	*Cacophis krefftii*		C		✔			2
A Skink	*Calyptotis lepidorostrum*		C		✔			2
Scute-nosed Skink	*Calyptotis scutirostrum*		C					2
A Rainbow Skink	*Carlia foliorum*		C					2
Shaded-litter Rainbow Skink	*Carlia munda*		C					2
Open-litter Rainbow Skink	*Carlia pectoralis*		C		✔			2
Rainbow Skink	*Carlia schmeltzii*		C					2
A Skink	*Carlia sp.*							2
Lively Skink	*Carlia vivax*		C					2
Broad-shelled River Turtle	*Chelodina expansa*		C	R / IK				2
Eastern Snake-necked Turtle	*Chelodina longicollis*		C					2
A Turtle	*Chelodina sp.*							2
Three-toed Snake-tooth Skink	*Coeranoscincus reticulatus*	V						1
Striped Fence Skink	*Cryptoblepharus virgatus*		C					2
Striped Skink	*Ctenotus arcanus*		C		✔			2
Robust Skink	*Ctenotus robustus*		C					2
Copper-tailed Skink	*Ctenotus taeniolatus*		C					2
Pink-tongued Lizard	*Cyclodomorphus gerrardii*		C					2
Collared Delma	*Delma torquata*	V	V					1, 2
Yellow-faced Whip Snake	*Demansia psammophis*		C					2
Common Tree Snake	*Dendrelaphis punctulata*		C					2
Eastern Two-lined Dragon	*Diporiphora australis*		C		✔			2
Major Skink	*Egernia frerei*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Land Mullet	*Egernia major*		C		✔			2
Saw-shelled Turtle	*Elseya latisternum*		C					2
Murray Turtle	*Emydura macquarii macquarii*		C					2
Brisbane Short-necked Turtle	*Emydura macquarii signata*		C					2
A Turtle	*Emydura sp.*							2
Narrow-banded Sand Swimmer	*Eremiascincus fasciolatus*		C					2
Elf Skink	*Eroticoscincus graciloides*		R	R / IK				2
Dark Bar-sided Skink	*Eulamprus martini*		C					2
Blue-speckled Forest-skink	*Eulamprus murrayi*		C	R / IK	✔			2
Eastern Water Skink	*Eulamprus quoyii*		C					2
Bar-sided Skink	*Eulamprus tenuis*		C					2
Red-naped Snake	*Furina diadema*		C					2
Dunmall's Snake	*Furina dunmalli*	V		V				1
Wood Gecko	*Gehyra dubia*		C					2
Grey Snake	*Hemiaspis damelii*		E					2
Black-bellied Swamp Snake	*Hemiaspis signata*		C					2
House Gecko	*Hemidactylus frenatus*							2
Bynoe's Gecko	*Heteronotia binoei*		C					2
Pale-headed Snake	*Hoplocephalus bitorquatus*		C		✔			2
Stephens' Banded Snake	*Hoplocephalus stephensii*		R	R / IK				2
Secretive Skink	*Lampropholis amicula*		C		✔			2
Grass Skink	*Lampropholis couperi*		C		✔			2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Rainbow Skink	*Lampropholis delicata*		C					2
Garden Skink	*Lampropholis guichenoti*		C		✔			2
Burton's Legless Lizard	*Lialis burtonis*		C					2
Carpet Python	*Morelia spilota*		C					2
South-eastern Morethia Skink	*Morethia boulengeri*		C		✔			2
Fire-tailed Skink	*Morethia taeniopleura*		C		✔			2
Eastern Tiger Snake	*Notechis scutatus*		C		✔			2
Robust Velvet Gecko	*Oedura robusta*		C					2
Southern Spotted Velvet Gecko	*Oedura tryoni*		C					2
Coastal Taipan	*Oxyuranus scutellatus*		C					2
Eastern Water Dragon	*Physignathus lesueurii*		C					2
Bearded Dragon	*Pogona barbata*		C					2
Spotted Black Snake	*Pseudechis guttatus*		C		✔			2
Red-bellied Black Snake	*Pseudechis porphyriacus*		C					2
Western Brown Snake	*Pseudonaja nuchalis*		C					2
Eastern Brown Snake	*Pseudonaja textilis*		C					2
Robust Blind Snake	*Ramphotyphlops ligatus*		C					2
Blind Snake	*Ramphotyphlops proximus*		C					2
A Blind Snake	*Ramphotyphlops sp.*							2
Brown-snouted Blind Snake	*Ramphotyphlops wiedii*		C					2
Eastern Small-eyed Snake	*Rhinoplocephalus nigrescens*		C					2
Eastern Blue-tongued Lizard	*Tiliqua scincoides*		C					2
Rough-scaled Snake	*Tropidechis carinatus*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Freshwater Snake	*Tropidonophis mairii*		C					2
Goanna	*Varanus sp.*							2
Lace Monitor	*Varanus varius*		C					2
Bandy-bandy	*Vermicella annulata*		C	R / IK				2
Birds								
Spiny-cheeked Honeyeater	*Acanthagenys rufogularis*		C					2
Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*		C					2
Striated Thornbill	*Acanthiza lineata*		C					2
Yellow Thornbill	*Acanthiza nana*		C					2
Brown Thornbill	*Acanthiza pusilla*		C					2
Buff-rumped Thornbill	*Acanthiza reguloides*		C					2
Eastern Spinebill	*Acanthorhynchus tenuirostris*		C					2
Collared Sparrowhawk	*Accipiter cirrhocephalus*		C					2
Brown Goshawk	*Accipiter fasciatus*		C					2
Grey Goshawk	*Accipiter novaehollandiae*		R	LC				2
Common Myna	*Acridotheres tristis*							2
Clamorous Reed-warbler	*Acrocephalus stentoreus*		C					2
Common Sandpiper	*Actitis hypoleucos*		C					2
Australian Owlet-nightjar	*Aegotheles cristatus*		C					2
Green Catbird	*Ailuroedus crassirostris*		C		✔			2
Azure Kingfisher	*Alcedo azurea*		C					2
Australian Brush-turkey	*Alectura lathami*		C					2
Australian King-parrot	*Alisterus scapularis*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Bush-hen	*Amaurornis olivaceus*		C					2
Chestnut Teal	*Anas castanea*		C					2
Grey Teal	*Anas gracilis*		C					2
Mallard	*Anas platyrhynchos*							2
Australasian Shoveler	*Anas rhynchotis*		C					2
Pacific Black Duck	*Anas superciliosa*		C					2
Darter	*Anhinga melanogaster*		C					2
Magpie Goose	*Anseranas semipalmata*		C			Ma		1, 2
Little Wattlebird	*Anthochaera chrysoptera*		C		✔			2
Richard's Pipit	*Anthus novaeseelandiae*		C					2
Red-winged Parrot	*Aprosmictus erythropterus*		C					2
Fork-Tailed Swift	*Apus pacificus*		C			Mi / Ma		1, 2
Wedge-tailed Eagle	*Aquila audax*		C					2
Great Egret	*Ardea alba*		C			Mi / Ma		1, 2
Cattle Egret	*Ardea ibis*		C			Mi / Ma		1, 2
Intermediate Egret	*Ardea intermedia*		C					2
White-necked Heron	*Ardea pacifica*		C					2
Dusky Woodswallow	*Artamus cyanopterus*		C					2
White-breasted Woodswallow	*Artamus leucorynchus*		C					2
Little Woodswallow	*Artamus minor*		C					2
Masked Woodswallow	*Artamus personatus*		C					2
White-browed Woodswallow	*Artamus superciliosus*		C					2
Pacific Baza	*Aviceda subcristata*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Hardhead	*Aythya australis*		C					2
Musk Duck	*Biziura lobata*		C		✔			2
Bush Stone-curlew	*Burhinus grallarius*		C	NT	✔			2
Sulphur-crested Cockatoo	*Cacatua galerita*		C					2
Major Mitchell's Cockatoo	*Cacatua leadbeateri*		V					2
Galah	*Cacatua roseicapilla*		C					2
Little Corella	*Cacatua sanguinea*		C					2
Long-billed Corella	*Cacatua tenuirostris*		C					2
Fan-tailed Cuckoo	*Cacomantis flabelliformis*		C					2
Brush Cuckoo	*Cacomantis variolosus*		C					2
Sharp-tailed Sandpiper	*Calidris acuminata*		C					2
Curlew Sandpiper	*Calidris ferruginea*		C					2
Pectoral Sandpiper	*Calidris melanotos*		C					2
Red-necked Stint	*Calidris ruficollis*		C					2
Red-tailed Black-cockatoo	*Calyptorhynchus banksii*		C					2
Yellow-tailed Black-cockatoo	*Calyptorhynchus funereus*		C					2
Glossy Black-cockatoo	*Calyptorhynchus lathami*		V	E				2
Glossy Black-cockatoo (eastern)	*Calyptorhynchus lathami lathami*		V	NT				2
Pheasant Coucal	*Centropus phasianinus*		C					2
Emerald Dove	*Chalcophaps indica*		C					2
Red-capped Plover	*Charadrius ruficapillus*		C					2
Australian Wood Duck	*Chenonetta jubata*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
White-backed Swallow	*Cheramoeca leucosternus*		C					2
Whiskered Tern	*Chlidonias hybridus*		C					2
White-winged Black Tern	*Chlidonias leucopterus*		C					2
Horsfield's Bronze-cuckoo	*Chrysococcyx basalis*		C					2
Shining Bronze-cuckoo	*Chrysococcyx lucidus*		C					2
Little Bronze-cuckoo	*Chrysococcyx minutillus*		C					2
Gould's Bronze-cuckoo	*Chrysococcyx russatus*		C					2
Speckled Warbler	*Chthonicola sagittata*		C	NT				2
Brown Songlark	*Cincloramphus cruralis*		C					2
Rufous Songlark	*Cincloramphus mathewsi*		C					2
Spotted Quail-thrush	*Cinclosoma punctatum*		C					2
Swamp Harrier	*Circus approximans*		C					2
Spotted Harrier	*Circus assimilis*		C					2
Golden-headed Cisticola	*Cisticola exilis*		C					2
Red-browed Treecreeper	*Climacteris erythrops*		R					2
Brown Treecreeper	*Climacteris picumnus*		C					2
Grey Shrike-thrush	*Colluricincla harmonica*		C					2
Little Shrike-thrush	*Colluricincla megarhyncha*		C					2
White-headed Pigeon	*Columba leucomela*		C					2
Rock Dove	*Columba livia*							2
Barred Cuckoo-shrike	*Coracina lineata*		C					2
Ground Cuckoo-shrike	*Coracina maxima*		C					2
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
White-bellied Cuckoo-shrike	*Coracina papuensis*		C					2
Cicadabird	*Coracina tenuirostris*		C					2
White-winged Chough	*Corcorax melanorhamphos*		C					2
White-throated Treecreeper	*Cormobates leucophaeus*		C					2
White-throated Treecreeper (southern)	*Cormobates leucophaeus metastasis*		C					2
Australian Raven	*Corvus coronoides*		C					2
Torresian Crow	*Corvus orru*		C					2
A Crow	*Corvus sp.*							2
King Quail	*Coturnix chinensis*		C					2
Stubble Quail	*Coturnix pectoralis*		C					2
Brown Quail	*Coturnix ypsilophora*		C					2
Pied Butcherbird	*Cracticus nigrogularis*		C					2, 3
Grey Butcherbird	*Cracticus torquatus*		C					2
Pallid Cuckoo	*Cuculus pallidus*		C					2
Oriental Cuckoo	*Cuculus saturatus*		C					2
Coxen's Fig-Parrot	*Cyclopsitta diophthalma coxeni*	E	E	CE		Mi		1, 2
Black Swan	*Cygnus atratus*		C					2
Laughing Kookaburra	*Dacelo novaeguineae*							3
Laughing Kookaburra	*Dacelo novaeguineae*		C					2, 3
Varied Sittella	*Daphoenositta chrysoptera*		C					2
Wandering Whistling-duck	*Dendrocygna arcuata*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Plumed Whistling-duck	*Dendrocygna eytoni*		C					2
Whistling-duck	*Dendrocygna sp.*							2
Mistletoebird	*Dicaeum hirundinaceum*		C					2
Spangled Drongo	*Dicrurus bracteatus*		C					2
Little Egret	*Egretta garzetta*		C					2
White-faced Heron	*Egretta novaehollandiae*		C					2
Black-shouldered Kite	*Elanus axillaris*		C					2
Black-fronted Dotterel	*Elseyornis melanops*		C					2
Blue-faced Honeyeater	*Entomyzon cyanotis*		C					2
Eastern Yellow Robin	*Eopsaltria australis*		C					2
Black-necked Stork	*Ephippiorhynchus asiaticus*		R	LC				2
Red-kneed Dotterel	*Erythrogonys cinctus*		C					2
Red Goshawk	*Erythrotriorchis radiatus*	V	E	V				1, 2
Common Koel	*Eudynamys scolopacea*		C					2
White-throated Nightjar	*Eurostopodus mystacalis*		C					2
Dollarbird	*Eurystomus orientalis*		C					2
Brown Falcon	*Falco berigora*		C					2
Nankeen Kestrel	*Falco cenchroides*		C					2
Australian Hobby	*Falco longipennis*		C					2
Peregrine Falcon	*Falco peregrinus*		C					2
Black Falcon	*Falco subniger*		C					2
Crested Shrike-tit	*Falcunculus frontatus*		C					2
Eurasian Coot	*Fulica atra*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Latham's Snipe	*Gallinago hardwickii*		C			Mi / Ma		1, 2
Dusky Moorhen	*Gallinula tenebrosa*		C					2
Black-tailed Native-hen	*Gallinula ventralis*		C					2
Buff-banded Rail	*Gallirallus philippensis*		C	E				2
Diamond Dove	*Geopelia cuneata*		C					2
Bar-shouldered Dove	*Geopelia humeralis*		C					2
Peaceful Dove	*Geopelia placida*							2
Peaceful Dove	*Geopelia striata*		C					2
Squatter Pigeon	*Geophaps scripta*		C					2
Squatter Pigeon (southern)	*Geophaps scripta scripta*	V	V	NT				1, 2
Western Gerygone	*Gerygone fusca*		C					2
Brown Gerygone	*Gerygone mouki*		C					2
White-throated Gerygone	*Gerygone olivacea*		C					2
Oriental Pratincole	*Glareola maldivarum*		C					2
Musk Lorikeet	*Glossopsitta concinna*		C		✔			2
Little Lorikeet	*Glossopsitta pusilla*		C					2
Magpie-lark	*Grallina cyanoleuca*		C					2
Australian Magpie	*Gymnorhina tibicen*		C					2, 3
White-bellied Sea-Eagle	*Haliaeetus leucogaster*		C			Mi / Ma		1, 2
Brahminy Kite	*Haliastur indus*		C					2
Whistling Kite	*Haliastur sphenurus*		C					2
Little Eagle	*Hieraaetus morphnoides*		C					2
Black-winged Stilt	*Himantopus himantopus*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
White-Throated Needletail	*Hirundapus caudacutus*		C			Mi / Ma		1, 2
Airy Martin	*Hirundo ariel*		C					2
Welcome Swallow	*Hirundo neoxena*		C					2
Tree Martin	*Hirundo nigricans*		C					2
Comb-crested Jacana	*Irediparra gallinacea*		C					2
Black Bittern	*Ixobrychus flavicollis*		C					2
Little Bittern	*Ixobrychus minutus*		C					2
Varied Triller	*Lalage leucomela*		C					2
White-winged Triller	*Lalage sueurii*		C					2
Silver Gull	*Larus novaehollandiae*		C					2
Swift Parrot	*Lathamus discolor*	E	E	E		Ma		1
Wonga Pigeon	*Leucosarcia melanoleuca*		C					2
Yellow-faced Honeyeater	*Lichenostomus chrysops*		C					2
Fuscous Honeyeater	*Lichenostomus fuscus*		C					2
White-eared Honeyeater	*Lichenostomus leucotis*		C					2
Yellow-tufted Honeyeater	*Lichenostomus melanops*		C					2
Brown Honeyeater	*Lichmera indistincta*		C					2
Bar-tailed Godwit	*Limosa lapponica*		C					2
Black-tailed Godwit	*Limosa limosa*		C					2
Chestnut-breasted Mannikin	*Lonchura castaneothorax*		C					2
Nutmeg Mannikin	*Lonchura punctulata*							2
Square-tailed Kite	*Lophoictinia isura*		R	LC				2
Topknot Pigeon	*Lopholaimus antarcticus*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Brown Cuckoo-dove	*Macropygia amboinensis*		C					2
Pink-eared Duck	*Malacorhynchus membranaceus*		C					2
Superb Fairy-wren	*Malurus cyaneus*		C					2
Variegated Fairy-wren	*Malurus lamberti*		C					2
Red-backed Fairy-wren	*Malurus melanocephalus*		C					2
Noisy Miner	*Manorina melanocephala*		C					2
Bell Miner	*Manorina melanophrys*		C		✔			2
Little Grassbird	*Megalurus gramineus*		C					2
Tawny Grassbird	*Megalurus timoriensis*		C					2
Hooded Robin	*Melanodryas cucullata*		C					2
Lewin's Honeyeater	*Meliphaga lewinii*		C					2
Yellow-spotted Honeyeater	*Meliphaga notata*		C					2
White-throated Honeyeater	*Melithreptus albogularis*		C					2
Brown-headed Honeyeater	*Melithreptus brevirostris*		C					2
Black-chinned Honeyeater	*Melithreptus gularis*		R					2
White-naped Honeyeater	*Melithreptus lunatus*		C					2
Budgerigar	*Melopsittacus undulatus*		C					2
Rainbow Bee-eater	*Merops ornatus*		C			Mi / Ma		1, 2
Jacky Winter	*Microeca fascinans*		C					2
Black Kite	*Milvus migrans*		C					2
Singing Bushlark	*Mirafra javanica*		C					2
White-eared Monarch	*Monarcha leucotis*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Black-Faced Monarch	*Monarcha melanopsis*		C			Mi / Ma		1, 2
Spectacled Monarch	*Monarcha trivirgatus*		C			Mi / Ma		1, 2
Australasian Gannet	*Morus serrator*		C					2
Satin Flycatcher	*Myiagra cyanoleuca*		C			Mi / Ma		1, 2
Restless Flycatcher	*Myiagra inquieta*		C					2
Leaden Flycatcher	*Myiagra rubecula*		C					2
Dusky Honeyeater	*Myzomela obscura*		C					2
Scarlet Honeyeater	*Myzomela sanguinolenta*		C					2
Plum-headed Finch	*Neochmia modesta*		C					2
Star Finch (eastern subspecies)	*Neochmia ruficauda ruficauda*	E	E					1
Red-browed Finch	*Neochmia temporalis*		C					2
Turquoise Parrot	*Neophema pulchella*		R					2
Cotton Pygmy-goose	*Nettapus coromandelianus*		R					2
Australian Cotton Pygmy-goose	*Nettapus coromandelianus albipennis*			NT		Mi		1
Barking Owl	*Ninox connivens*		C		✔			2
Southern Boobook	*Ninox novaeseelandiae*		C					2
Powerful Owl	*Ninox strenua*		V	LC				2
Little Curlew	*Numenius minutus*		C		✔			2
Nankeen Night Heron	*Nycticorax caledonicus*		C					2
Cockatiel	*Nymphicus hollandicus*		C					2
Crested Pigeon	*Ocyphaps lophotes*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Olive-backed Oriole	*Oriolus sagittatus*		C					2
Logrunner	*Orthonyx temminckii*		C		✔			2
Golden Whistler	*Pachycephala pectoralis*		C					2
Rufous Whistler	*Pachycephala rufiventris*		C					2
Osprey	*Pandion haliaetus*		C					2
Spotted Pardalote	*Pardalotus punctatus*		C					2
Striated Pardalote	*Pardalotus striatus*		C					2
House Sparrow	*Passer domesticus*							2
Australian Pelican	*Pelecanus conspicillatus*		C					2
Red-capped Robin	*Petroica goodenovii*		C					2
Rose Robin	*Petroica rosea*		C					2
Great Cormorant	*Phalacrocorax carbo*		C					2
Pied Cormorant	*Phalacrocorax varius*		C					2
Little Pied Cormorant	*Phalacrocorax melanoleucos*		C					2
Little Black Cormorant	*Phalacrocorax sulcirostris*		C					2
Common Bronzewing	*Phaps chalcoptera*		C					2
Brush Bronzewing	*Phaps elegans*		C		✔			2
Little Friarbird	*Philemon citreogularis*		C					2
Noisy Friarbird	*Philemon corniculatus*		C					2
White-cheeked Honeyeater	*Phylidonyris nigra*		C					2
New Holland Honeyeater	*Phylidonyris novaehollandiae*		C		✔			2
Noisy Pitta	*Pitta versicolor*		C					2
Yellow-billed Spoonbill	*Platalea flavipes*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Royal Spoonbill	*Platalea regia*		C					2
Pale-headed Rosella	*Platycercus adscitus*		C					2
Pale-headed Rosella (southern form)	*Platycercus adscitus palliceps*		C					2
Crimson Rosella	*Platycercus elegans*		C					2
Eastern Rosella	*Platycercus eximius*		C		✔			2
Striped Honeyeater	*Plectorhyncha lanceolata*		C					2
Glossy Ibis	*Plegadis falcinellus*		C					2
American Golden Plover	*Pluvialis dominica*							2
Pacific Golden Plover	*Pluvialis fulva*		C					2
Plumed Frogmouth	*Podargus ocellatus plumiferus*		V					2
Tawny Frogmouth	*Podargus strigoides*		C					2
Great Crested Grebe	*Podiceps cristatus*		C					2
White-browed Robin	*Poecilodryas superciliosa*		C					2
Black-throated Finch	*Poephila cincta*		C					2
Hoary-headed Grebe	*Poliocephalus poliocephalus*		C					2
Grey-crowned Babbler	*Pomatostomus temporalis*		C					2
Purple Swamphen	*Porphyrio porphyrio*		C					2
Australian Spotted Crake	*Porzana fluminea*		C					2
Baillon's Crake	*Porzana pusilla*		C					2
Red-rumped Parrot	*Psephotus haematonotus*		C					2
Paradise Parrot	*Psephotus pulcherrimus*	EX	PE	E				2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Eastern Whipbird	*Psophodes olivaceus*		C					2
Wompoo Fruit-dove	*Ptilinopus magnificus*		C					2
Rose-crowned Fruit-dove	*Ptilinopus regina*		C		✔			2
Superb Fruit-dove	*Ptilinopus superbus*		C		✔			2
Satin Bowerbird	*Ptilonorhynchus violaceus*		C					2
Paradise Riflebird	*Ptiloris paradiseus*		C		✔			2
Lewin's Rail	*Rallus pectoralis*		R					2
Red-necked Avocet	*Recurvirostra novaehollandiae*		C					2
Grey Fantail	*Rhipidura fuliginosa*		C					2
Willie Wagtail	*Rhipidura leucophrys*		C					2
Rufous Fantail	*Rhipidura rufifrons*		C			Mi / Ma		1, 2
Australian Painted Snipe	*Rostratula australis (syn. benghalensis)*	V	V	V		Mi		1, 2
Channel-billed Cuckoo	*Scythrops novaehollandiae*		C					2
Yellow-throated Scrubwren	*Sericornis citreogularis*		C					2
White-browed Scrubwren	*Sericornis frontalis*		C					2
Large-billed Scrubwren	*Sericornis magnirostris*		C					2
Regent Bowerbird	*Sericulus chrysocephalus*		C					2
Weebill	*Smicrornis brevirostris*		C					2
Figbird	*Sphecotheres viridis*		C					2
Diamond Firetail	*Stagonopleura guttata*		C	NT	✔			2
Crested Tern	*Sterna bergii*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Caspian Tern	*Sterna caspia*		C					2
Gull-billed Tern	*Sterna nilotica*		C					2
Freckled Duck	*Stictonetta naevosa*		R					2
Australian Pratincole	*Stiltia isabella*		C					2
Pied Currawong	*Strepera graculina*		C					2
Spotted Turtle-dove	*Streptopelia chinensis*							2
Apostlebird	*Struthidea cinerea*		C					2
Common Starling	*Sturnus vulgaris*							2
Australasian Grebe	*Tachybaptus novaehollandiae*		C					2
Double-barred Finch	*Taeniopygia bichenovii*		C					2
Zebra Finch	*Taeniopygia guttata*		C					2
Australian White Ibis	*Threskiornis molucca*		C					2
Straw-necked Ibis	*Threskiornis spinicollis*		C					2
Collared Kingfisher	*Todiramphus chloris*		C					2
Forest Kingfisher	*Todiramphus macleayii*		C					2
Red-backed Kingfisher	*Todiramphus pyrrhopygia*		C					2
Sacred Kingfisher	*Todiramphus sanctus*		C					2
A Kingfisher	*Todiramphus sp.*							2
Pale-yellow Robin	*Tregellasia capito*		C					2
Scaly-breasted Lorikeet	*Trichoglossus chlorolepidotus*		C					2
Rainbow Lorikeet	*Trichoglossus haematodus moluccanus*		C					2, 3

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Wood Sandpiper	*Tringa glareola*		C					2
Common Greenshank	*Tringa nebularia*		C					2
Marsh Sandpiper	*Tringa stagnatilis*		C					2
Black-breasted Button-quail	*Turnix melanogaster*	V	V	V				1, 2
A Button-quail	*Turnix sp.*							2
Painted Button-quail	*Turnix varia*		C					2
Barn Owl	*Tyto alba*		C					2
Masked Owl	*Tyto novaehollandiae*		C	NT	✔			2
Masked Owl (southern subspecies)	*Tyto novaehollandiae novaehollandiae*		C					2
Sooty Owl	*Tyto tenebricosa*		R					2
Masked Lapwing (northern subspecies)	*Vanellus miles miles*		C					2
Masked Lapwing (southern subspecies)	*Vanellus miles novaehollandiae*		C					2
Banded Lapwing	*Vanellus tricolor*		C					2
Regent Honeyeater	*Xanthomyza phrygia*			E		Mi		1
Russet-tailed Thrush	*Zoothera heinei*		C					2
A Thrush	*Zoothera sp.*							2
Silvereye	*Zosterops lateralis*		C					2
Mammals								
Feathertail Glider	*Acrobates pygmaeus*		C	LC				2
Rufous Bettong	*Aepyprymnus rufescens*		C	LC	✔			2
Yellow-footed Antechinus	*Antechinus flavipes*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
An Antechinus	*Antechinus sp.*							2
Brown Antechinus	*Antechinus subtropicus*				✔			2
Dog	*Canis familiaris*						*	2
Dingo	*Canis lupus dingo*						*	2
Goat	*Capra hircus*						*	2
Red Deer	*Cervus elaphus*						*	2
Large-eared Pied Bat	*Chalinolobus dwyeri*	V	R	V				1, 2
Gould's Wattled Bat	*Chalinolobus gouldii*		C	LC				2
Chocolate Wattled Bat	*Chalinolobus morio*		C	LC				2
Hoary Wattled Bat	*Chalinolobus nigrogriseus*		C	LC				2
Little Pied Bat	*Chalinolobus picatus*		R	NT				2
Spotted-tailed Quoll (SE mainland population)	*Dasyurus maculatus maculatus (SE mainland population)*	E	V	V				1
A Quoll	*Dasyurus sp.*							2
Horse	*Equus caballus*						*	2
Cat	*Felis catus*						*	2
Water Rat	*Hydromys chrysogaster*		C					2
Northern Brown Bandicoot	*Isoodon macrourus*		C					2
Golden-tipped Bat	*Kerivoula papuensis*		R	NT				2
Brown Hare	*Lepus capensis*							2
Agile Wallaby	*Macropus agilis*		C	LC	✔			2
Black-striped Wallaby	*Macropus dorsalis*		C	LC	✔			2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Eastern Grey Kangaroo	*Macropus giganteus*		C					2
Whiptail Wallaby	*Macropus parryi*		C	LC				2
Red-necked Wallaby	*Macropus rufogriseus*		C					2
Common Wallaroo	*Macropus sp.*		C					2
Grassland Melomys	*Melomys burtoni*		C					2
Fawn-footed Melomys	*Melomys cervinipes*		C					2
A Melomys	*Melomys sp.*							2
Little Bent-wing Bat	*Miniopterus australis*		C	LC				2
Eastern Bent-wing Bat	*Miniopterus schreibersii oceanensis*		C	LC				2
East Coast Freetail Bat	*Mormopterus norfolkensis*		C	DD	✔			2
A Bat	*Mormopterus sp.*							2
House Mouse	*Mus musculus*						*	2
Large-footed Myotis	*Myotis macropus*		C		✔			2
Northern Long-eared Bat	*Nyctophilus bifax bifax*		C	LC				2
Lesser Long-eared Bat	*Nyctophilus geoffroyi*		C	LC				2
Gould's Long-eared Bat	*Nyctophilus gouldi*		C	LC				2
Eastern Long-eared Bat	*Nyctophilus timoriensis*	V	V	V				1
Platypus	*Ornithorhynchus anatinus*		C	LC	✔			2
Rabbit	*Oryctolagus cuniculus*							2
Long-nosed Bandicoot	*Perameles nasuta*		C	LC				2
Greater Glider	*Petauroides volans*		C	LC	✔			2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Yellow-bellied Glider (southern subspecies)	*Petaurus australis australis*		C	NT	✔			2
Sugar Glider	*Petaurus breviceps*		C	LC				2
Squirrel Glider	*Petaurus norfolcensis*		C	NT				2
Herbert's Rock-wallaby	*Petrogale herberti*		C	LC	✔			2
Brush-tailed Rock-wallaby	*Petrogale penicillata*	V	V	V				1, 2
Brush-tailed Phascogale	*Phascogale tapoatafa*		C		✔			2
Koala (southeast Queensland bioregion)	*Phascolarctos cinereus*		V	NT	✔			2
Common Planigale	*Planigale maculata*		C	LC				2
Long-nosed Potoroo (SE mainland)	*Potorous tridactylus tridactylus*	V	V	V				1, 2
Common Ringtail Possum	*Pseudocheirus peregrinus*		C		✔			2
Eastern Chestnut Mouse	*Pseudomys gracilicaudatus*		C		✔			2
Black Flying-fox	*Pteropus alecto*		C					2
Grey-headed Flying-fox	*Pteropus poliocephalus*	V						1, 2
Little Red Flying-fox	*Pteropus scapulatus*		C	LC	✔			2
A Flying-fox	*Pteropus sp.*							2
Bush Rat	*Rattus fuscipes*		C					2
Swamp Rat	*Rattus lutreolus*		C					2
Black Rat	*Rattus rattus*							2
A Rat	*Rattus sp.*							2
Pale Field-rat	*Rattus tunneyi*		C					2
Eastern Horseshoe-bat	*Rhinolophus megaphyllus*		C					2

Common Name	Scientific Name	Status						Source**
		EPBC	NCA	AP	SEQ	Mi / Ma	PEST	
Yellow-bellied Sheathtail Bat	*Saccolaimus flaviventris*		C	LC				2
A Bat	*Scotorepens sp.*							2
Common Dunnart	*Sminthopsis murina*		C					2
Pig	*Sus scrofa*						*	2
Short-beaked Echidna	*Tachyglossus aculeatus*		C					2
White-striped Freetail Bat	*Tadarida australis*		C	LC				2
A Pademelon	*Thylogale sp.*							2
Red-legged Pademelon	*Thylogale stigmatica*		C		✔			2
Red-necked Pademelon	*Thylogale thetis*		C	LC				2
Short-eared Possum	*Trichosurus caninus*		C	LC	✔			2
A Possum	*Trichosurus sp.*							2
Common Brushtail Possum	*Trichosurus vulpecula*		C					2
Large Forest Bat	*Vespadelus darlingtoni*		C	LC	✔			2
Finlayson's Cave Bat	*Vespadelus finlaysoni*		C	LC				2
Eastern Forest Bat	*Vespadelus pumilus*		C	LC				2
A Bat	*Vespadelus sp.*							2
Red Fox	*Vulpes vulpes*						*	2
Swamp Wallaby	*Wallabia bicolor*		C	LC	✔			2

*Status: Commonwealth Significance:
State Significance
Regional Significance
Regional Significance

EPBC: CE = Critically Endangered; E = Endangered; V = Vulnerable.
NCA: PE = Presumed Extinct; E = Endangered; V = Vulnerable; R = Rare.
SEQ: Non-priority Taxa in SEQ bioregion.
Action Plan (AP): E = Endangered; V = Vulnerable; R = Rare; NT = Near Threatened; IK = Insufficiently Known; DD = Data Deficient, LC= Least Concern.

Protected under International Treaties:	EPBC: Mi = Migratory; Ma = Marine.
Pest	Non-native fauna species.

**Source: 1 = EPBC Protected Matters Report; 2 = Wildlife Online.

Table T5: EVR-listed Fauna Species Known to Occur Within the Esk Shire

Common Name	*Scientific Name*	Status	Source
Invertebrates			
Australian Fritillary	*Argyreus hyperbius inconstans*	E[2]	2
Richmond Birdwing	*Ornithoptera richmondia*	V[2]	2
A Moth	*Phyllodes imperialis (southern subsp. - ANIC 3333)*	E[1]	1
Fishes			
Murray Cod	*Maccullochella peelii peelii*	V[2]	1
Queensland Lungfish	*Neoceratodus forsteri*	V[1 and 2]	1, 2
Amphibians			
Tusked Frog	*Adelotus brevis*	V[2]	2
Cascade Treefrog	*Litoria pearsoniana*	V[2]	2
Fleay's Frog	*Mixophyes fleayi*	E2	1
Giant Barred Frog	*Mixophyes iteratus*	E[1 and 2]	2
Reptiles			
Common Death Adder	*Acanthophis antarcticus*	R[2]	2
Three-toed Snake-tooth Skink	*Coeranoscincus reticulatus*	V[1]	1
Collared Delma	*Delma torquata*	V[1 and 2]	1, 2
Elf Skink	*Eroticoscincus graciloides*	E[2]	2
Dunmall's Snake	*Furina dunmalli*	V[1]	1
Grey Snake	*Hemiaspis damelii*	R[2]	2
Stephens' Banded Snake	*Hoplocephalus stephensii*	R[2]	2
Birds			
Grey Goshawk	*Accipiter novaehollandiae*	R[2]	2
Major Mitchell's Cockatoo	*Cacatua leadbeateri*	V[2]	2
Glossy Black-cockatoo	*Calyptorhynchus lathami*	V[2]	2
Glossy Black-cockatoo (eastern)	*Calyptorhynchus lathami lathami*	V[2]	2
Red-browed Treecreeper	*Climacteris erythrops*	R[2]	2
Coxen's Fig Parrot	*Cyclopsitta diophthalma coxeni*	E[1and 2]	1
Black-necked Stork	*Ephippiorhynchus asiaticus*	R[2]	2
Red Goshawk	*Erythrotriorchis radiatus*	V[1], E[2]	1, 2
Squatter Pigeon (southern)	*Geophaps scripta scripta*	V[1 and 2]	1, 2
Swift Parrot	*Lathamus discolor*	E[1and 2]	1
Square-tailed Kite	*Lophoictinia isura*	R[2]	2
Black-chinned Honeyeater	*Melithreptus gularis*	R[2]	2
Star Finch (eastern subspecies)	*Neochmia ruficauda ruficauda*	E[1and 2]	1, 2
Turquoise Parrot	*Neophema pulchella*	R[2]	2

Birds			
Cotton Pygmy-goose	*Nettapus coromandelianus*	R[2]	2
Powerful Owl	*Ninox strenua*	V[2]	2
Plumed Frogmouth	*Podargus ocellatus plumiferus*	V[2]	2
Paradise Parrot	*Psephotus pulcherrimus*	EX[1], PE[2]	2
Lewin's Rail	*Rallus pectoralis*	R[2]	2
Australian Painted Snipe	*Rostratula australis (syn. benghalensis)*	V[1 and 2]	1, 2
Freckled Duck	*Stictonetta naevosa*	R[2]	2
Black-breasted Button-quail	*Turnix melanogaster*	V[1 and 2]	1, 2
Sooty Owl	*Tyto tenebricosa*	R[2]	2
Mammals			
Large-eared Pied Bat	*Chalinolobus dwyeri*	V[1], R[2]	1, 2
Little Pied Bat	*Chalinolobus picatus*	R[2]	2
Spot-tailed Quoll (SE mainland population)	*Dasyurus maculatus maculatus*	E[1], V[2]	1
Golden-tipped Bat	*Kerivoula papuensis*	R[2]	2
Eastern Long-eared Bat	*Nyctophilus timoriensis*	V[1 and 2]	1
Brush-tailed Rock-wallaby	*Petrogale penicillata*	V[1 and 2]	1, 2
Koala (southeast Queensland bioregion)	*Phascolarctos cinereus*	V[2]	1
Long-nosed Potoroo (SE mainland)	*Potorous tridactylus tridactylus*	V[1 and 2]	1, 2
Grey-headed Flying-fox	*Pteropus poliocephalus*	V[1]	1, 2

*Status: EPBC Act: EX = Extinct; CE = Critically Endangered; E = Endangered; V = Vulnerable; CD = Conservation Dependant.
NCA: PE = Presumed Extinct; E = Endangered; V = Vulnerable; R = Rare.

**Source: 1 = EPBC Protected Matters Report; 2 = EPA Wildlife Online.

Table T6: Migratory and / or Marine Listed Bird Species Known to Occur Within the Esk Shire

Common Name	Scientific Name	Status*	Source**
Fork - Tailed Swift	*Apus pacificus*	Mi / Ma	1, 2
Great Egret	*Ardea alba*	Mi / Ma	1, 2
Cattle Egret	*Ardea ibis*	Mi / Ma	1, 2
Latham's Snipe	*Gallinago hardwickii*	Mi / Ma	1, 2
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	Mi / Ma	1, 2
White-Throated Needletail	*Hirundapus caudacutus*	Mi / Ma	1, 2
Rainbow Bee-eater	*Merops ornatus*	Mi / Ma	1, 2
Black - Faced Monarch	*Monarcha melanopsis*	Mi / Ma	1, 2
Spectacled Monarch	*Monarcha trivirgatus*	Mi / Ma	1, 2
Satin Flycatcher	*Myiagra cyanoleuca*	Mi / Ma	1, 2
Rufous Fantail	*Rhipidura rufifrons*	Mi / Ma	1, 2
Australian Cotton Pygmy-goose	*Nettapus coromandelianus albipennis*	Mi	1
Regent Honeyeater	*Xanthomyza phrygia*	Mi	1
Magpie Goose	*Anseranas semipalmata*	Ma	1, 2

*Status: EPBC Act: Mi = Migratory; Ma = Marine.

**Source: 1 = EPBC Protected Matters Report; 2 = EPA Wildlife Online.

Table T7: Regionally Significant Fauna Species Known to Occur in Esk Shire

Common Name	Scientific Name	Status*		Source**
		EPA	AP	
Fishes				
Agassiz's Glassfish	*Ambassis agassizii*		R	2
Southern Purple-spotted Gudgeon	*Mogurnda adspersa*		R	2
Amphibians				
Clicking Froglet	*Crinia signifera*	SEQ		2
Bleating Treefrog	*Litoria dentata*	SEQ		2
Cascade Treefrog	*Litoria pearsoniana*		IK	2
Emerald Spotted Treefrog	*Litoria peronii*	SEQ		2
Southern Laughing Treefrog	*Litoria tyleri*	SEQ		2
Whistling Treefrog	*Litoria verreauxii*	SEQ		2
Red Backed Broodfrog	*Pseudophryne coriacea*	SEQ		2
Great Brown Broodfrog	*Pseudophryne major*	SEQ		2
Copper Backed Broodfrog	*Pseudophryne raveni*	SEQ		2
Eastern Gungan	*Uperoleia laevigata*	SEQ		2
Reptiles				
Dwarf Crowned Snake	*Cacophis krefftii*	SEQ		2
A Skink	*Calyptotis lepidorostrum*	SEQ		2
Open-litter Rainbow Skink	*Carlia pectoralis*	SEQ		2
Broad-shelled River Turtle	*Chelodina expansa*		R / IK	2
Striped Skink	*Ctenotus arcanus*	SEQ		2
Eastern Two-lined Dragon	*Diporiphora australis*	SEQ		2
Land Mullet	*Egernia major*	SEQ		2
Blue-speckled Forest-skink	*Eulamprus murrayi*	SEQ	R / IK	2
Pale-headed Snake	*Hoplocephalus bitorquatus*	SEQ		2
Secretive Skink	*Lampropholis amicula*	SEQ		2
Grass Skink	*Lampropholis couperi*	SEQ		2

Common Name	Scientific Name	Status*		Source**
		EPA	AP	
Garden Skink	*Lampropholis guichenoti*	SEQ		2
South-eastern Morethia Skink	*Morethia boulengeri*	SEQ		2
Fire-tailed Skink	*Morethia taeniopleura*	SEQ		2
Eastern Tiger Snake	*Notechis scutatus*	SEQ		2
Spotted Black Snake	*Pseudechis guttatus*	SEQ		2
Bandy-bandy	*Vermicella annulata*	SEQ		2
Birds				
Green Catbird	*Ailuroedus crassirostris*	SEQ		2
Little Wattlebird	*Anthochaera chrysoptera*	SEQ		2
Musk Duck	*Biziura lobata*	SEQ		2
Bush Stone-curlew	*Burhinus grallarius*	SEQ	NT	2
Glossy Black-cockatoo	*Calyptorhynchus lathami*		E	2
Glossy Black-cockatoo (eastern)	*Calyptorhynchus lathami lathami*		NT	2
Speckled Warbler	*Chthonicola sagittata*		NT	2
Black-necked Stork	*Ephippiorhynchus asiaticus*		LC	2
Buff-banded Rail	*Gallirallus philippensis*		E	2
Musk Lorikeet	*Glossopsitta concinna*	SEQ		2
Bell Miner	*Manorina melanophrys*	SEQ		2
Australian Cotton Pygmy-goose	*Nettapus coromandelianus albipennis*		NT	2
Barking Owl	*Ninox connivens*	SEQ		2
Little Curlew	*Numenius minutus*	SEQ		2
Logrunner	*Orthonyx temminckii*	SEQ		2
Brush Bronzewing	*Phaps elegans*	SEQ		2
New Holland Honeyeater	*Phylidonyris novaehollandiae*	SEQ		2
Eastern Rosella	*Platycercus eximius*	SEQ		2
Rose-crowned Fruit-dove	*Ptilinopus regina*	SEQ		2

Common Name	Scientific Name	Status*		Source**
		EPA	AP	
Superb Fruit-dove	*Ptilinopus superbus*	SEQ		2
Paradise Riflebird	*Ptiloris paradiseus*	SEQ		2
Diamond Firetail	*Stagonopleura guttata*	SEQ	NT	2
Masked Owl	*Tyto novaehollandiae*	SEQ	NT	2
Regent Honeyeater	*Xanthomyza phrygia*		E	2
Mammals				
Feathertail Glider	*Acrobates pygmaeus*		LC	2
Rufous Bettong	*Aepyprymnus rufescens*	SEQ	LC	2
Brown Antechinus	*Antechinus subtropicus*	SEQ		2
Gould's Wattled Bat	*Chalinolobus gouldii*		LC	2
Chocolate Wattled Bat	*Chalinolobus morio*		LC	2
Hoary Wattled Bat	*Chalinolobus nigrogriseus*		LC	2
Little Pied Bat	*Chalinolobus picatus*		NT	2
Agile Wallaby	*Macropus agilis*	SEQ	LC	2
Black-striped Wallaby	*Macropus dorsalis*	SEQ	LC	2
Whiptail Wallaby	*Macropus parryi*		LC	2
Little Bent-wing Bat	*Miniopterus australis*		LC	2
Eastern Bent-wing Bat	*Miniopterus schreibersii oceanensis*		LC	2
East Coast Freetail Bat	*Mormopterus norfolkensis*	SEQ	DD	2
Large-footed Myotis	*Myotis macropus*	SEQ		2
Northern Long-eared Bat	*Nyctophilus bifax bifax*		LC	2
Lesser Long-eared Bat	*Nyctophilus geoffroyi*		LC	2
Gould's Long-eared Bat	*Nyctophilus gouldi*		LC	2
Platypus	*Ornithorhynchus anatinus*	SEQ	LC	2
Long-nosed Bandicoot	*Perameles nasuta*		LC	2
Greater Glider	*Petauroides volans*	SEQ	LC	2

Common Name	Scientific Name	Status*		Source**
		EPA	AP	
Yellow-bellied Glider (southern subspecies)	*Petaurus australis australis*	NT	SEQ	2
Sugar Glider	*Petaurus breviceps*	LC		2
Squirrel Glider	*Petaurus norfolcensis*	NT		2
Herbert's Rock-wallaby	*Petrogale herberti*	LC	SEQ	2
Brush-tailed Phascogale	*Phascogale tapoatafa*	SEQ		2
Common Planigale	*Planigale maculata*		LC	2
Common Ringtail Possum	*Pseudocheirus peregrinus*	SEQ		2
Eastern Chestnut Mouse	*Pseudomys gracilicaudatus*	SEQ		2
Little Red Flying-fox	*Pteropus scapulatus*	SEQ	LC	2
Yellow-bellied Sheathtail Bat	*Saccolaimus flaviventris*		LC	2
White-striped Freetail Bat	*Tadarida australis*		LC	2
Red-legged Pademelon	*Thylogale stigmatica*	SEQ		2
Red-necked Pademelon	*Thylogale thetis*		LC	2
Short-eared Possum	*Trichosurus caninus*	SEQ	LC	2
Large Forest Bat	*Vespadelus darlingtoni*	SEQ	LC	2
Finlayson's Cave Bat	*Vespadelus finlaysoni*		LC	2
Eastern Forest Bat	*Vespadelus pumilus*		LC	2
Swamp Wallaby	*Wallabia bicolor*	SEQ	LC	2

* Status: EPA: SEQ = Listed as a Non-EVR Priority Taxa for the SEQ bioregion by EPA (2003).
AP (Action Plan): E = Endangered; VU = Vulnerable: R = Rare: NT = Near Threatened; IK = Insufficiently Known; DD = Data Deficient.

**Source: 1 = EPBC Protected Matters Report; 2 = EPA Wildlife Online.

"This page has been left blank intentionally"

Table T8: Grants and Other Funding Opportunities Available for NRM Initiatives in Esk Shire

Grant / Funding Program	Program Description	Contact Details	Potential Projects
Commonwealth Government			
Conservation Covenants.	Tax deductions are available for landowners who enter into conservation covenants to protect areas of high conservation value. Applications for 2007 are ongoing.	DEWR P: (02) 6274 1919	Conservation of vegetation and fauna habitat areas.
Grants to Voluntary Environment and Heritage Organisations (GVHEO).	Grants are available to assist community-based environment and heritage organisations to value, conserve and protect the natural environment and cultural heritage with administrative costs. Applications for the 2006-07 round have now closed. Applications for the 2007-08 round are expected to open in early 2008.	DEWR P: (02) 6274 1919	Management of conservation areas.
Maintaining Australia's Biodiversity Hotpots Programme.	Grants are available to improve biodiversity hotspots on private and leasehold land through conservation management and the protection of habitat areas. Projects may include voluntary acquisition or stewardship payments for on-ground biodiversity works. Applications for the latest round closed in early 2007. Another round will be announced at a later date.	DEWR P: 1800 803 772	Conservation of threatened flora / fauna habitat.
Community Water Grants.	Grants are available local governments, schools and environmental groups to improve water resource management. Application dates to be advised.	DEWR P: 1800 803 772	Aquatic weed control and management; water resource management.
Environmental Management Systems (EMS) Incentives Program.	Grants up to $3 000 are available to primary producers to implement sustainable management and farming practices. Projects may include salinity and erosion management, vegetation management and weed / pest management. Applications close July 2007.	DAFF P: 1800 050 585	Revegetation works for salinity / soil erosion control; fencing and conservation of native wildlife habitat; weed and pest control and management.
Natural Disaster Mitigation Programme.	Grants are available to local agencies (including councils and catchment authorities) for natural disaster mitigation works, measures and related activities that contribute to safer, sustainable communities better able to withstand the effects of natural disasters. Projects may include flood mitigation and risk management studies, as well as bushfire mitigation works and programmes. Applications for 2007 are now open.	DOTARS P: (02) 6274 7111	Flood and bushfire mitigation works.
EnviroFund.	Grants to up $50 000 are available to community groups to undertake small on-ground projects tackling important local problems and move towards effective engagement in broader regional approaches to natural resource management. Eligible applicants include incorporated associations, business and individuals. The EnviroFund will generally provide up to one dollar for every dollar or in kind equivalent contributed by the applicant. Projects may include revegetation works, habitat management, weed control and management, awareness and education programs. The next round of applications is expected to open in early 2008.	National Heritage Trust P: 1800 303 863	Revegetation works for soil stabilisation / erosion control and habitat creation and improvement; management of habitat areas including access restrictions, fencing, erection of signs and awareness programs / pamphlets.
Natural Resource Innovation Grants.	Grants are available to land managers to engage in farming, food, aquaculture and forest industries to contribute to sustainable production by developing and adopting innovative practices, production techniques, technologies and products. Projects may include salinity management, reducing farm greenhouse gas emissions, crop production, water quality and water use efficiency. Applicants are advised to discuss their proposals with their State Landcare Coordinator prior to submission. Applications for 2007 are now closed. This Program is likely to be reopened in 2008.	National Landcare Programme P: 1800 657 220	Weed control and management, sustainable irrigation practices and water resource management.
Photovoltaic Rebate Program.	Photovoltaic systems convert sunlight into electricity. Cash rebates are now available to householders and owners of community use buildings who install grid-connected or stand-alone photovoltaic systems. Applications close June 2007.	Energy Advisory Service P: 1300 369 388	Installation on buildings to reduce contributions to greenhouse emissions.
Green Corps.	Green Corps is a Commonwealth Government youth development program offering people aged 17 – 20 the opportunity to receive quality training while participating in projects that contribute to significant environmental and cultural heritage initiatives. Applications for 2007 are ongoing.	Green Corps P: (07) 3902 4467 F: (07) 3902 4422	Revegetation / rehabilitation of conservation areas, weed control and management.
Tax Deduction for Landcare.	Tax deductions are available to primary production and businesses for the purpose of producing assessable income from the use of rural land (excluding mining and quarrying) to eradicate / exterminate animal pests / weeds from the land; prevent / combat land degradation other than by the use of fences; erecting fences to restrict animal access to degraded areas; and drainage works to control / assist salinity management.	Australian Taxation Office P: 13 28 66	Weed / pest management, soil erosion and salinity management.

Grant / Funding Program	Program Description	Contact Details	Potential Projects
Tax Deductions for Water Facilities.	Tax deductions are available to primary producers on land to construct water management facilities including dams, water tanks, irrigation channels and associated infrastructure.	Australian Taxation Office P: 13 28 66	Improved water management on cropping / grazing land.
State Government			
Lifestyle WaterWise Grants Program.	Grants up to $30 000 are available to not-for-profit organisations to reduce dependence on town water supplies in Queensland. Projects may include improved sports ground or park watering systems or providing alternative water sources. Applications for 2007 have now closed. This Program may reopen in 2008.	DNRW P: 1800 243 585	Recreation area management (e.g. improved use of water resources, installation of water tanks).
Community Awareness Grants.	Grants up to $5 000 are available to community groups, such as Landcare, Bushcare, Coastcare and Waterwatch, to help the development of small projects that promote the importance of natural resources in our lives, and encourage Queenslanders to become involved in protecting these resources. Application deadlines for 2007 are still to be finalised.	DNRW P: (07) 3239 3860	Education / Awareness Programs (e.g. workshops, production of interpretive signage, pamphlets).
Home WaterWise Rebate Scheme.	Rebates are available to households which install water saving devices such as water tanks. Applications for 2007 are ongoing.	DNRW P: 1800 243 585	Installation of water saving devices at recreational facilities.
Nature Refuges.	Reimbursements are available to landowners who enter a Conservation Agreement with the Queensland Government to conserve nature refuges on their property. Applications for 2007 are ongoing.	QLD EPA P: (07) 3225 1740	Conservation of vegetation and wildlife habitat.
Smaller Communities Assistance Program.	Grants are available to local government bodies to provide reliable water supply and sewerage services of an acceptable standard and cost in smaller communities. Projects may include development of new complete water supply and sewerage services where none exist, including reticulation and upgrading of existing sewerage services to improve environmental or health outcomes. Application deadlines for 2007 are still to be finalised.	DLGPSR P: (07) 3225 8695 F: (07) 3225 8685	Stormwater management (e.g. management of runoff entering waterways).
Environmental Infrastructure Program.	Grants are available to local governments to protect populations from environmental health risks and protect the sustainability of natural and built environments in line with State policies. Projects may include remediation of landfill sites, pollution management and protection of catchment areas. Applications for 2007 will be accepted in late 2007.	DLGPSR P: (07) 3225 8695 F: (07) 3225 8685	Waste management (e.g. installation of bins and waste disposal program for recreational areas).
Minor Facilities Program.	Grants are available to local governments to undertake minor construction, extension or upgrade works to sport and recreation facilities for local sporting competitions and for community participation in active recreation. Applications for this program are expected to reopen in early 2008.	DLGPSR P: 1300 656 191	Development of recreational facilities including rafting areas (ramp construction / maintenance) and amenities.
Local Sport and Recreation Program.	Grants are available to local governments to undertake recreation planning, provide opportunities and develop places to increase participation in sport and active recreation. Projects may focus on planning (i.e. identifying and prioritising existing and future land allocation, facilities, services, programs and policies) or places (i.e. development of public sport and active recreation facilities). Applications for 2007 are now closed. This Program is expected to reopen early 2008.	Sport and Recreation Qld P: (07) 3239 0770 F: (07) 3239 0777	Development of recreational facilities (e.g. amenities, picnic tables, boating ramps).

Grant / Funding Program	Program Description	Contact Details	Potential Projects
Businesses and Organisations			
Threatened Species Network Grants.	Grants up to $50 000 are available to incorporated community-based organisations to work on the conservation and recovery of threatened species and ecological communities. The Grant funds projects that benefit species or ecological communities that are listed as threatened under the EPBC Act. Applications for 2007 close 01 June 2007.	Threatened Species Network P: (02) 8202 1233 F: (02) 9281 1060	Threatened species habitat management (e.g. conservation of habitat areas including access restrictions, fencing etc; rehabilitation / revegetation of habitat areas).
Healthy Waterways Awards.	Grants up to $1 500 are available to community groups, government and non-government organisations to improve, protect and manage waterways and catchments in SEQ. The next round of award nominations will be sought in early 2008.	Healthy Waterways P: (07) 3403 9427 F: (07) 3403 6879	Stream bank rehabilitation, aquatic weed control and management, waste management, stormwater management.
SEQ Catchments Property Management Planning Program.	SEQ Catchments Property Management Planning Program includes a property management planning tool which aims to integrate the management of soil, vegetation, water and fauna with the aspirations of the landholder. LandPlus can assist with farm activity assessment, conservation planning and land / water management plans. Please contact SEQ Catchments for application closing dates.	SEQ Catchments P: (07) 3211 4404	Management of native vegetation and wildlife habitat on grazing land.
Landcare Australia Funding.	Grants up to $10 000 are available for Landcare and Coastcare groups to raise awareness of, and participation in, landcare and landcare issues. Applications for 2007 are ongoing.	Landcare Australia P: (02) 9412 1040 F: (02) 9412 1060	Erosion control and management, revegetation works, weed control and management, stormwater management.
Australia Post Community Development Grant.	Grants up to $3 000 are available to community groups to protect and improve the environment and community. Applications for 2007 close on 30 April and 18 October 2007.	Landcare Australia	
Mitre 10 Junior Landcare Grants.	Grants up to $500 are available to schools and organisations who wish to involve their students in landcare projects in conjunction with local landcare groups. Projects may include conservation of natural resources, rehabilitation works, environmental monitoring programs and waste minimisation. Applications for 2007 are open.	Landcare Australia P: (03) 9662 9977	Rehabilitation / revegetation works.
Bi-Lo Junior Landcare Grant.	Grants up to $500 are available to young Australians to participate in local Landcare projects on their school grounds and / or within their local community / environment. Applications will be more successful if the proposed project involves the school or broader local community, had determined educational outcomes with an environmental focus, is linked to a community Landcare group, is well planned and allows maximum student involvement. Applications for 2007 are ongoing.	Landcare Australia P: (03) 9662 9977	Revegetation works, pollution / waste management.
Waratah Fencing Grants.	Grants up to $2 200 are available to landcarers and primary producers for strategic environmental repair and protection projects that involve fencing. Projects may include erecting fencing around conservation areas to restrict livestock access. Please contact Landcare for dates on the 2008 round.	Landcare Australia P: (02) 9412 1040	Erection of fencing along riparian areas, conservation zones, significant vegetation to restrict access to livestock and humans.
Australian Bird Environment Fund.	Grants up to $3 500 are available to projects that aim to conserve and protect native birds and their habitat. Projects may include practical conservation such as native plantings for revegetation and fencing of remnant vegetation; information brochures, signage and posters. The Grant program has been suspended and is under review. It is expected to be opened again in 2008.	Australian Bird Environment Foundation P: (03) 9877 5752 F: (03) 9894 4048	Conservation / rehabilitation of bird habitat areas, erection of fencing and signage of bird habitat areas.
WSQ General Activity Sponsorships.	Annual grants up to $1 000 are available to community groups to control and manage weed species. Applications dates are posted after the AGM each year. Applications are ongoing throughout the year.	WSQ P: (07) 4637 6274	Weed control and management.

Grant / Funding Program	Program Description	Contact Details	Potential Projects
ANZ Staff Foundation.	Grants up to $5 000 are available to communities and community organisations to conserve resources and protect the environment, develop innovative projects from local community organisations and to assist organisations to build their capacity (especially in rural areas). Preference will be given to organisations and projects that create opportunities for ANZ staff to participate as volunteers; are already supported by ANZ staff; or are initiated by ANZ staff in association with community organisations in which they are already actively involved. An ANZ Branch is located at Toogoolawah. Applications closing dates are 15 January and 15 July every year.	ANZ Bank P: 1800 808 910	Revegetation works and weed control and management.
Macquarie Bank Foundation.	Grants are available to community groups to run environmental projects. Applications are accepted throughout the year.	Macquarie Bank P: (02) 8232 9673	Water resource management, soil and vegetation management.
Westpac Operation Backyard.	Annual grants are available to environmental and landcare groups and not-for-profit organisations to implement environmental projects. Projects must involve Westpac employees and meet Landcare Australia approval guidelines. A Westpac Bank is located in Lowood. Applications are ongoing.	Westpac Bank P: (02) 9412 1040	Revegetation / rehabilitation works.
eTree Program.	eTree is a Computershare initiative with Landcare Australia to encourage shareholders to register for electronic communications in return for revegetation activities. SEQ Catchments receives eTree funding on behalf of Queensland shareholders. eTree can fund revegetation materials such as plants, tree guards, mulch and fertiliser. Exclusion fencing, watering and signage are available to larger projects. Applications are ongoing.	P: (07) 3211 4404 (SEQ Catchments)	Revegetation.

Table T9: Consultation Responses from the Esk Shire NRMP Consultation Workshops

Theme and Issues	Responses					
	Operational Issue for Council	Specific NRM Information for Council	Council to Raise with Relevant Agency	Potentially Addressed / Improvements Made Through Levy and Operational Programs	Ongoing NRM Challenge	Support Expressed for Current Approach / Program
Pest Management (Flora and Fauna)						
Improved performance on weed management is required by Council	√			√		
Seasonal fluctuations in pest management	√	√			√	
Management actions required prior to major rainfall events[5]	√				√	
Support weed management for creeks	√			√	√	√
Effective native plant recruitment does not occur along the Brisbane River due to weed infestation of the banks. This leads to bank instability and enhances the already significant bank erosion, so that in a flood event the few mature riparian deep rooted trees are likely to be knocked over. Flood events will also uproot weeds that are shallow rooted, so that long stretches of denuded banks are highly likely to result.		√		√	√	
Controlled burn fuel not available – lantana takes over and controlled burns avoided due to erosion problems		√			√	
Field days are best for learning outcome – weed identification (key topic)				√		
Cows only eat grass but infested with weeds		√				
Cattle grazing assists weed management in some cases		√				
Weed chemicals used need to be more environmentally sound	√				√	
Major weeds – Parthenium, Lantana, Giant Rat's Tail, Mother of Millions	√	√	√	√	√	
Cats Claw Creeper killing native vegetation in riparian areas	√	√		√	√	
Cats Claw Creeper requires bio-control		√				
Management of pest weeds in riparian areas – lantana	√			√	√	
Investigate use for lantana – e.g. weed matter for sale	√		√			
Water Hyacinth in Brisbane River prevents recreation	√		√		√	
SEQWater cannot chemically control Water Hyacinth due to pollution issues	√	√	√		√	
Water Hyacinth draining water at rate greater than evaporation		√				
Water Hyacinth cannot be used as cattle fodder		√				
Water Hyacinth roots in water leads to significant impact on water treatment costs		√	√		√	
Water Hyacinth in base of river compounds low flow problems		√	√		√	
Weeds catching silt in rivers which develops maintenance issues		√	√		√	
Rabbits are a real and significant problem – burrows everywhere	√	√			√	
Feral animals - foxes	√				√	
Fox / rabbit numbers increasing	√	√			√	
Feral cats – cat registration and micro-chipping required		√				

[5] Responses expressed in italics are indicated in multiple categories of this table.

Theme and Issues	Responses					
	Operational Issue for Council		Operational Issue for Council		Operational Issue for Council	
Domestic dogs a big problem in south – domestic and wild dogs cross breeding		√				
Amalgamation – hope the NRM Plan will outlast any local government changes	√	√				
Environmental Levy – contribution by everyone will enhance the outcome		√				
Regional levy required for water catchment protection		√	√			
Esk Shire very important to Brisbane		√				
Vision for Esk Shire: recreation potential and the need to increase promotion of NRM vision – 'Valley of the Lakes'		√				
Tourism information network is growing and targeting unique markets will strengthen efforts	√	√				
Farmers want to be made aware of riparian management opportunities – e.g. grants and programs		√		√		
ESC's 'Welcome to Shire' pack needs to contain NRM information	√	√		√		
Resourcing is a real issue – 1.5 days is inadequate for an NRM officer	√				√	
Profile and implementation of NRM – responsibilities need definition	√	√				
Greatest pressure occurs in southern part of Shire		√				
Envirofunds sourced around salinity areas – integrate council and community program funding	√			√		
Commence investment in high quality land with only slight degradation		√			√	
Funding should only be allocated to rehabilitate significantly degraded land if the process will contribute to community education		√		√	√	
The acquisition of wildlife corridors and big 'connection' projects are favoured		√		√	√	
'Living Ways' project – attempt to plant Lowood roads to protect threatened areas	√					
Only 2% Rosewood scrub remaining – priority for protection	√	√		√		
Improved performance on weed management is required by Council	√			√		
NRM issues to be incorporated into road management plans	√					
Ergon – cuts down high trees which leaves weeds – Council to liaise with Ergon to improve practices		√	√			
Feral cats – cat registration and micro-chipping required		√				
Communication / Education						
Education is very important – booklet and information required				√		
Multiple approaches required for education and consultation		√		√		
ESC's 'Welcome to Shire' pack needs to contain NRM information	√	√		√		
Real Estate education required before Info packs are distributed to new residents		√			√	
Payment suggested for information booklets	√					
Rates notices and council newsletters – important media to use		√				

Theme and Issues	Responses					
	Operational Issue for Council	Specific NRM Information for Council	Council to Raise with Relevant Agency	Potentially Addressed / Improvements Made Through Levy and Operational Programs	Ongoing NRM Challenge	Support Expressed for Current Approach / Program
Field days are best for learning outcome – weed identification (key topic)		√		√		√
Field days for new landholders		√		√		
Link socio-cultural events with NRM issues		√		√		
Landholders respond better to personal contact		√		√		
Farmers want to be made aware of riparian management opportunities – e.g. grants and programs		√		√		
Esk show – present actual weed specimen, not just brochure / picture	√	√				
Envirofunds sourced around salinity areas – integrate council and community program funding	√			√		
DPI recommendations on sustainable grazing levels – use for education		√				
Peri-urban / rural (hobby farm) communication / education approaches to be investigated over time		√		√	√	
Importance of targeting education to various types of farmers based on farm size (peri-urban / rural)		√		√	√	
Funding should only be allocated to rehabilitate significantly degraded land if the process will contribute to community education		√		√	√	
Extractive industries need to educate community about environmental benefits					√	
Feral cats – cat registration and micro-chipping required		√				
Domestic dogs a big problem in south – domestic and wild dogs cross breeding		√				
Property / Land						
Regional plan has not stopped rural residential blocks being sold off		√	√			
Real Estate education required before Info packs are distributed to new residents		√			√	
Concentration of settlements – needs to respect the environment and keep the urban for compact		√				
Riparian zone is the most productive land – requires protection and enhancement		√	√	√	√	
Salinity problems occur around Minden and Blacksnake Creek		√		√		
Envirofunds sourced around salinity areas – integrate council and community program funding	√			√		
Slowing water flow on a landscape level		√				
Lifestyle farmers – water and land management issues		√				
Major erosion episodes predicted with next flood		√				
Controlled burn fuel not available – lantana takes over and controlled burns avoided due to erosion problems		√				
Fencing of rivers – a major problem, not worth it for farmers and better suits hobby farmers		√			√	
Grazing requires management – controlled river access		√			√	

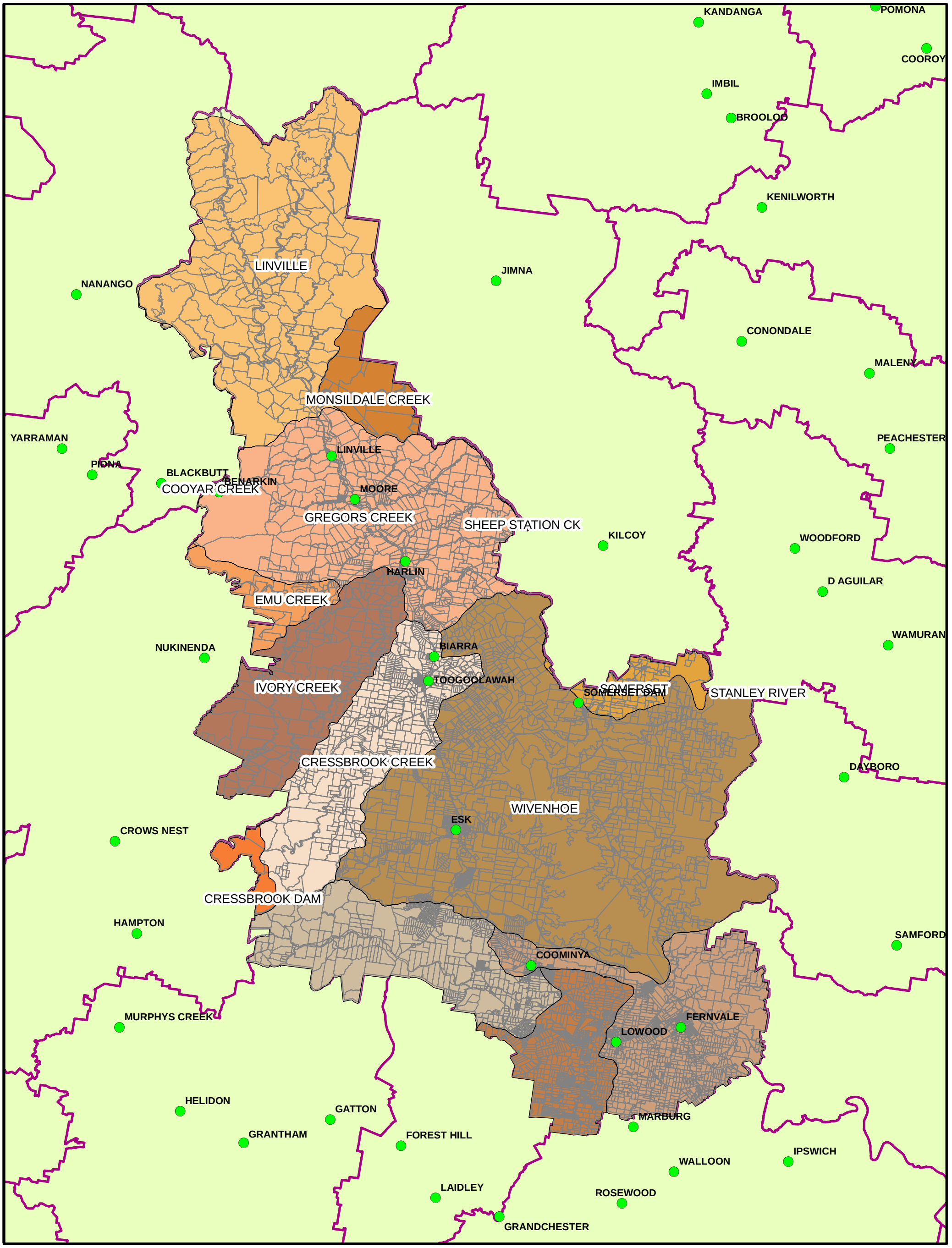
Theme and Issues	Responses					
	Operational Issue for Council	Specific NRM Information for Council	Council to Raise with Relevant Agency	Potentially Addressed / Improvements Made Through Levy and Operational Programs	Ongoing NRM Challenge	Support Expressed for Current Approach / Program
Farmers spell river paddocks but hobby farmers do not		√			√	
Commence investment in high quality land with only slight degradation		√			√	
Funding should only be allocated to rehabilitate significantly degraded land if the process will contribute to community education		√		√	√	
The acquisition of wildlife corridors and big 'connection' projects are favoured		√		√	√	
Encouragement of wildlife away from roadside is required – avoid vegetating right to road edge		√				
'Living Ways' project – attempt to plant Lowood roads to protect threatened areas		√				
Roadside remnant vegetation – high priority		√			√	
NRM issues to be incorporated into road management plans	√				√	
Ergon – cuts down high trees which leaves weeds – Council to liaise with Ergon to improve practices		√	√			
Southern area – many horse farmers with no vegetation		√				
DPI recommendations on sustainable grazing levels – use for education		√				
Only 2% Rosewood scrub remaining – priority for protection		√			√	
Fertile soils and high productivity cultivation areas are located within riparian buffer zones, causing land management and protection conflicts.		√			√	
Farmers want to be made aware of riparian management opportunities – e.g. grants and programs		√		√		
Water						
Support weed management for creeks		√		√	√	
Management actions required prior to major rainfall		√				
Flooding issues – major impacts will occur		√				
Effective native plant recruitment does not occur along the Brisbane River due to weed infestation of the banks. This leads to bank instability and enhances the already significant bank erosion, so that in a flood event the few mature riparian deep rooted trees are likely to be knocked over. Flood events will also uproot weeds that are shallow rooted, so that long stretches of denuded banks are highly likely to result.		√			√	
Groundwater aquifers running dry in the north		√				
Saline groundwater table		√				
Salinity – Plain and Waterford Creeks		√				
Environmental flow needed for Cressbrook Dam		√				
Slowing water flow on a landscape level		√				
Farmers should benefit from Western Corridor Pipeline – Liaise with Project Director		√	√		√	
Environmental vandalism (excessive clearing and land degradation) from SEQ Western Corridor Recycled Water Project pipeline		√	√			

Theme and Issues	Responses					
	Operational Issue for Council	Specific NRM Information for Council	Council to Raise with Relevant Agency	Potentially Addressed / Improvements Made Through Levy and Operational Programs	Ongoing NRM Challenge	Support Expressed for Current Approach / Program
Water restrictions for Brisbane should be permanent		√	√			
Regional levy required for water catchment protection		√	√			
Restoration of wildlife corridors in south		√		√	√	
Water exiting too quickly – even improved grass pastures would be beneficial		√				
Offstream stock watering points should be funded		√			√	
Lifestyle farmers – water and land management issues						
Can't build overland storages – Moreton Water Resource Plan prevents storage greater than 5 ML		√	√			
1974 – flood filled Wivenhoe in a day		√				
1996 – last flood occurrence		√				
Water Hyacinth roots in water leads to significant impact on water treatment costs		√	√			
Water Hyacinth in base of river compounds low flow problems		√	√			
Vegetation						
Lowood – vegetation clearing		√				
Restoration of wildlife corridors in southern part of Shire		√		√	√	
Roadside remnant vegetation – high priority		√			√	
Encouragement of wildlife away from roadside is required – avoid vegetating right to road edge		√				
The acquisition of wildlife corridors and big 'connection' projects are favoured		√		√	√	
Supplementary planting should be conducted within well vegetated areas		√				
5000 acres of forest needed in Blacksnake Creek		√				
Water exiting too quickly – even improved grass pastures would be beneficial		√				
Cows only eat grass but infested with weeds		√				
Controlled burn fuel not available – lantana takes over and controlled burns avoided due to erosion problems		√				
Ergon – cuts down high trees which leaves weeds – Council to liaise with Ergon to improve practices		√	√			
Effective native plant recruitment does not occur along the Brisbane River due to weed infestation of the banks. This leads to bank instability and enhances the already significant bank erosion, so that in a flood event the few mature riparian deep rooted trees are likely to be knocked over. Flood events will also uproot weeds that are shallow rooted, so that long stretches of denuded banks are highly likely to result.		√			√	
'Living Ways' project – attempt to plant Lowood roads to protect threatened areas		√				
Southern area – many horse farmers with no vegetation		√				
Only 2% Rosewood scrub remaining – priority for protection		√			√	

Theme and Issues	Responses					
	Operational Issue for Council	Specific NRM Information for Council	Council to Raise with Relevant Agency	Potentially Addressed / Improvements Made Through Levy and Operational Programs	Ongoing NRM Challenge	Support Expressed for Current Approach / Program
VMA – vegetation clearing is not perceived as big an issue in recent times		√				
Native Fauna						
Koala habitat in south threatened		√	√			
Restoration of wildlife corridors in southern part of Shire		√	√	√	√	
Encouragement of wildlife away from roadside is required – avoid vegetating right to road edge		√				
Stock						
Cows only eat grass but infested with weeds		√				
Cattle grazing assists weed management in some cases		√				
Grazing requires management – controlled river access		√				
Offstream stock watering points should be funded		√			√	
Southern area – many horse farmers with no vegetation		√				
DPI recommendations on sustainable grazing levels – use for education		√				
Water Hyacinth cannot be used as cattle fodder		√				
Extractive Industry						
Extractive Industries – seen as environmental vandals		√				
Extractive Industry improvement since 1995		√				
Riparian management studies to be conducted for extractive industries		√				
Environmental assessment is improving and extractive industry approval is harder to get		√				
Significant environmental improvement results from extractive industries		√				
Compliance with environmental legislation draws great financial cost		√				
Extractive industries need to educate community about environmental benefits		√			√	

Figures

"This page has been left blank intentionally"



HLA

Location of Esk Shire and Major Catchments
Esk Shire Council
Assessment
Esk, Qld

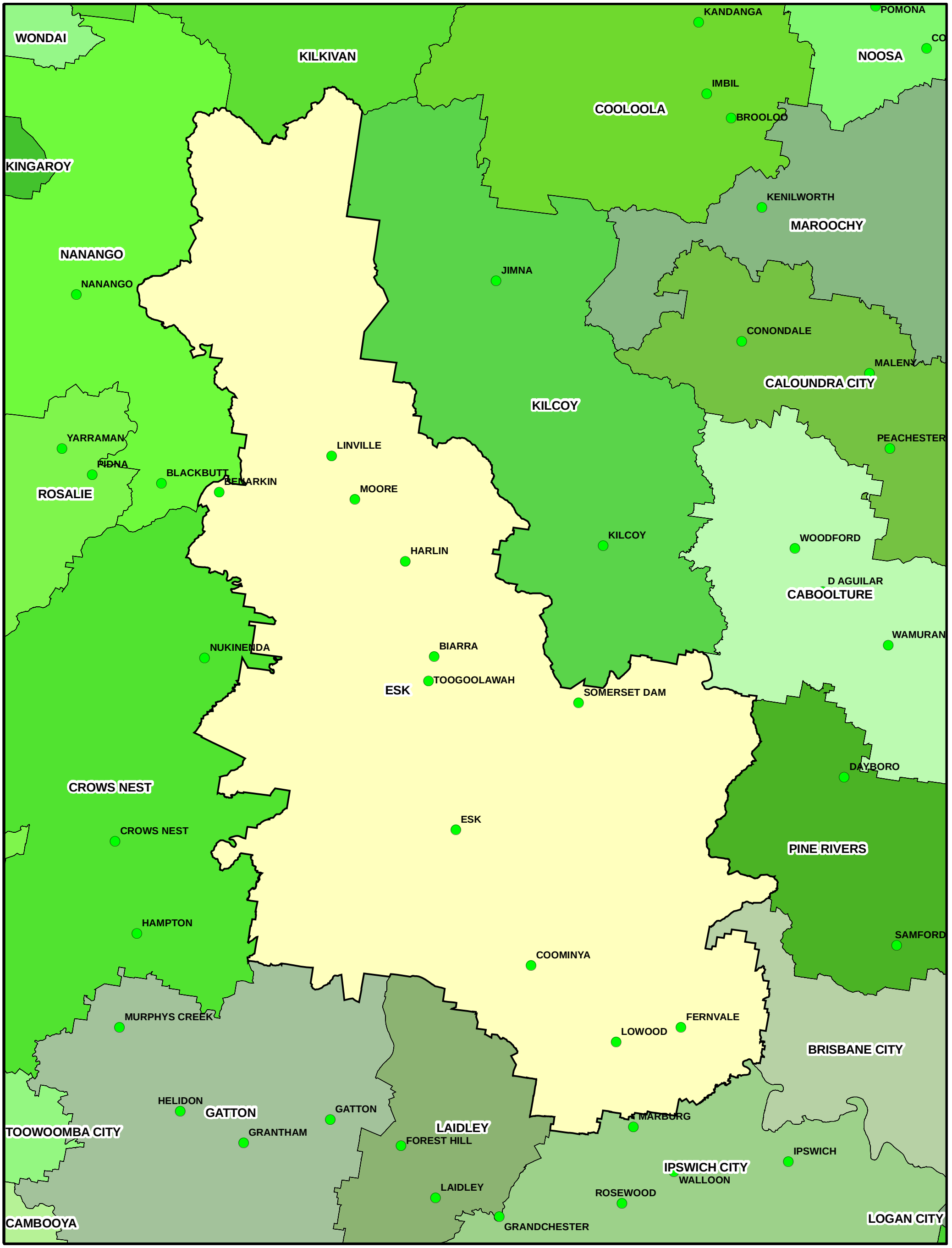
Legend
- Towns
- DCDB
- Local Government Boundaries
- Subcatchment Regions

Source:
Region boundary, subcatchment, DCDB supplied by the Esk Shire Council, 2007.
(c) Esk Shire Council, 2007.
Towns sourced from GeoScience Australia, 2002. (c) GeoScience Australia, 2007.

N
Datum GDA94

FIGURE
F1

PROJECT NUMBER B60179001 | DATE March 2007 | DRAWN CS | VERSION A



HLA

Local Governments
Esk Shire Council
Assessment
Esk, Qld

Legend

- Towns
- Roads
- Esk Shire Region Boundary
- Local Government Boundaries

Source:
Region boundary, supplied by the Esk Shire Council, 2007. (c) Esk Shire Council, 2007.
Towns sourced from GeoScience Australia, 2002. (c) GeoScience Australia, 2007.
Local Government boundaries sourced from the Department of Natural Resources & Water, 2005. (c) DRW, 2007.
Roads sourced from MapInfo, 1990. (c) MapInfo Australia Pty Ltd, 2007. (c) Public Sector Mapping Authority Australia Pty Ltd, 2007.

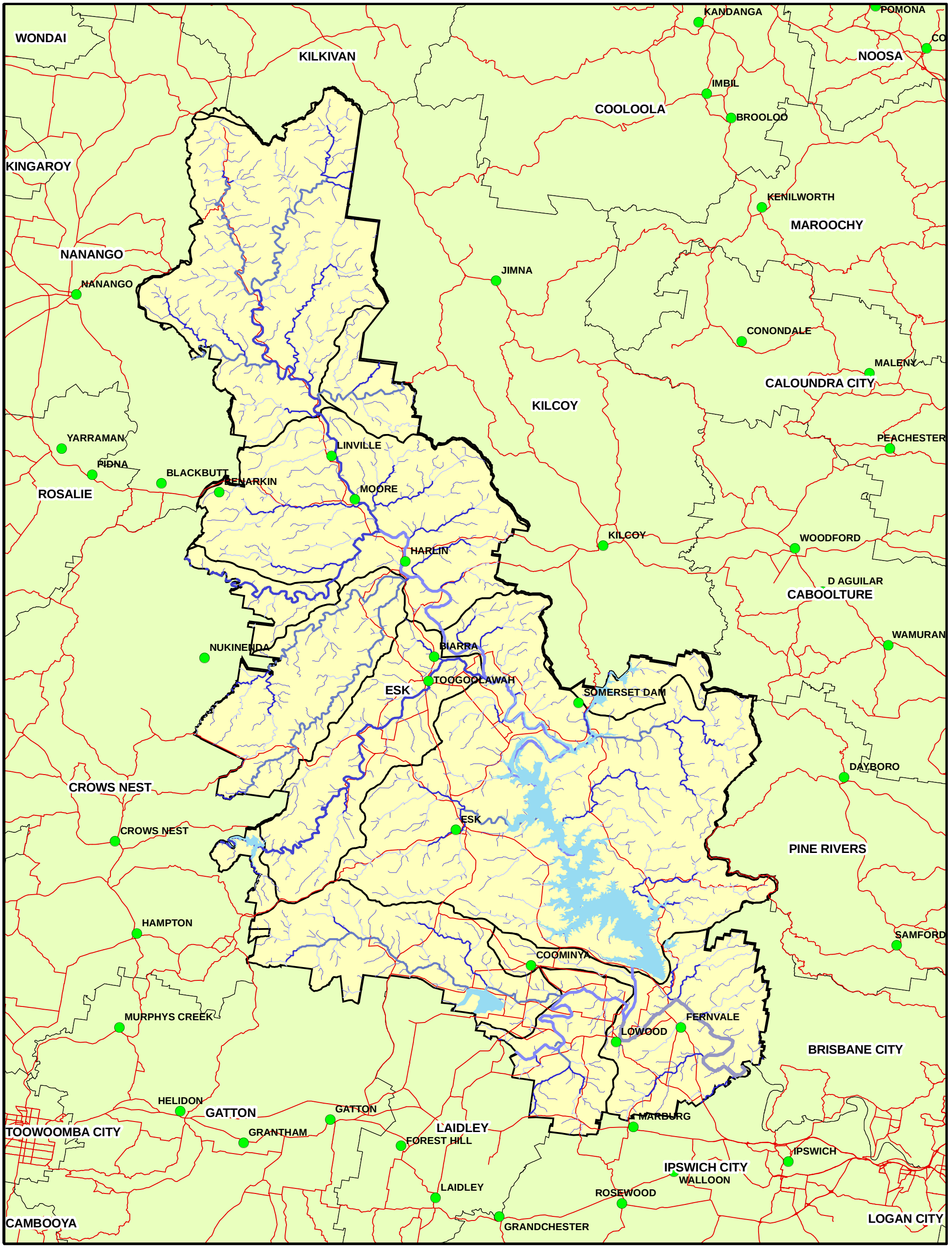
N

Datum GDA94

FIGURE

F2

PROJECT NUMBER B60179001 | DATE March 2007 | DRAWN CS | VERSION A



HLA

Major Waterways and Water Storages
Esk Shire Council
Assessment
Esk, Qld

Legend
- Towns
- Waterbodies
- Region Boundary
- Local Government Boundaries
- Roads

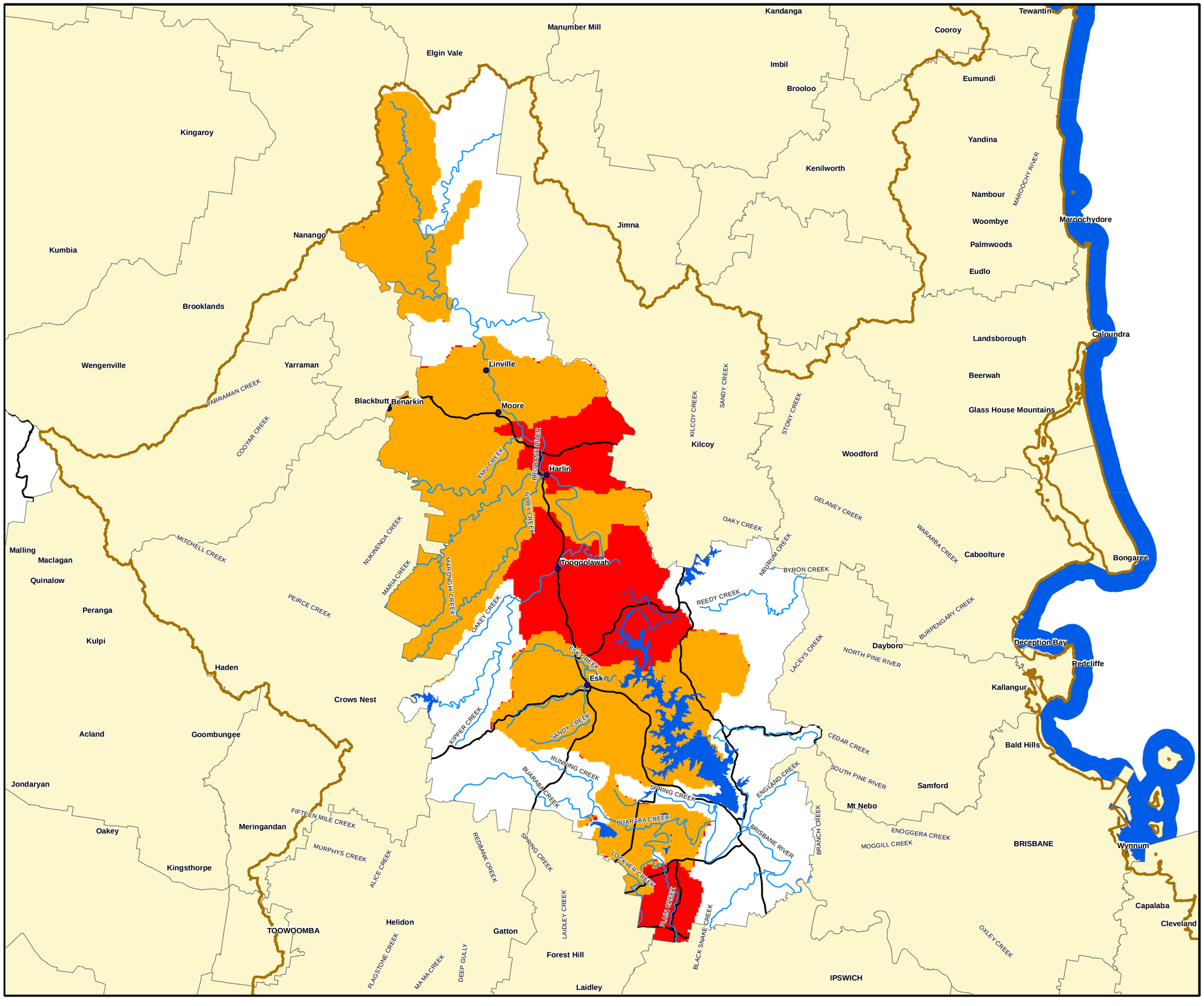
Source:
Region boundary, subcatchment, waterbodies & stream orders supplied by the Esk Shire Council, 2007. (c) Esk Shire Council, 2007.
Towns sourced from GeoScience Australia, 2002. (c) GeoScience Australia, 2007.
Local Government boundaries sourced from the Department of Natural Resources & Water, 2005. (c) DRW, 2007.
Roads sourced from MapInfo, 1990. (c) MapInfo Australia Pty Ltd, 2007. (c) Public Sector Mapping Authority Australia Pty Ltd, 2007.

N

Datum GDA94

FIGURE
F3

PROJECT NUMBER B60179001 | DATE March 2007 | DRAWN CS | VERSION A



PROJECT NUMBER B60179001
DATE May 2007
DRAWN CS
VERSION A

Legend

- Towns
- Lakes
- Water
- Waterways
- Major Roads

Degradation Risk / Streambank hazard

- 1
- 2
- 3 High
- 4 Very High (hazard)

N

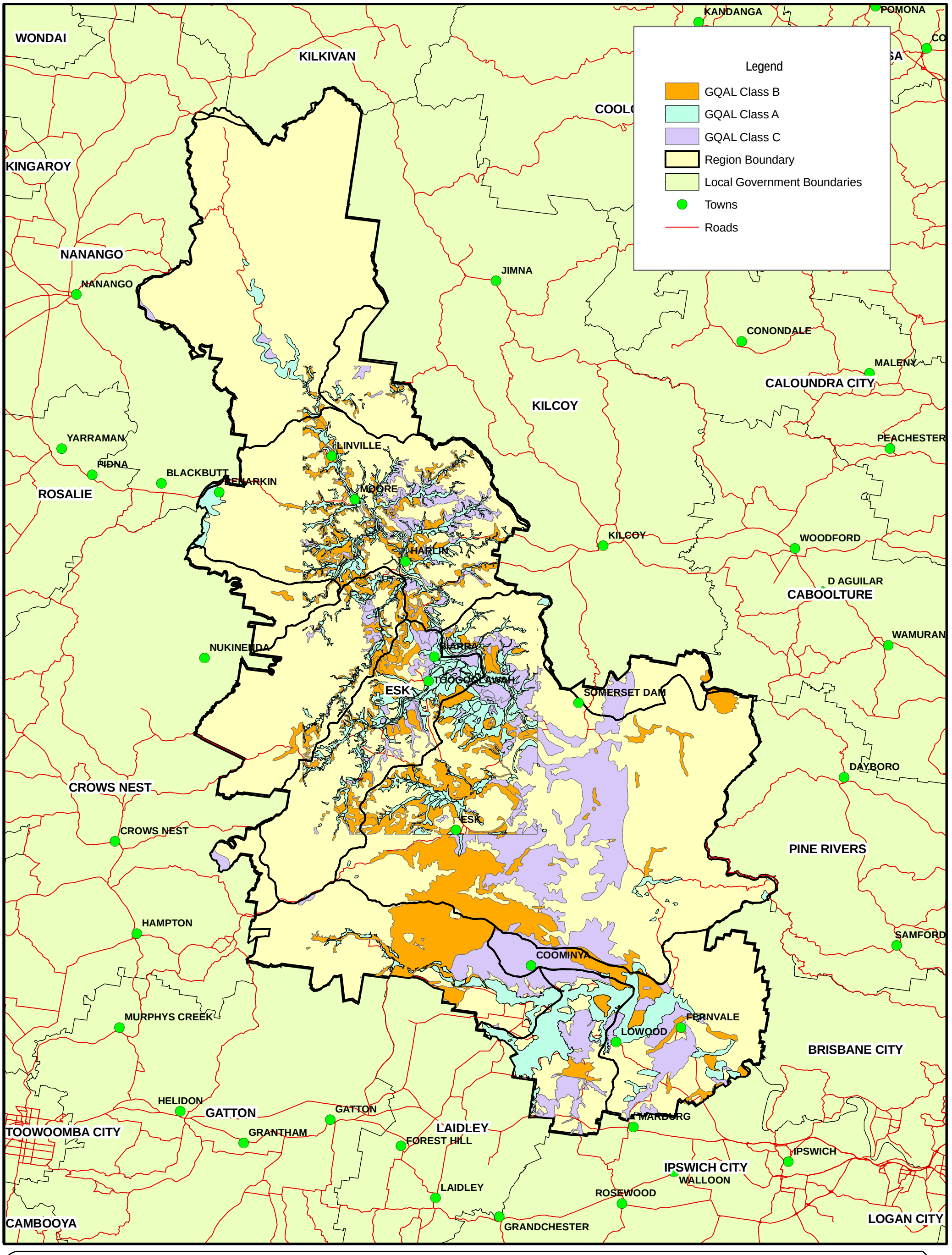
Datum GDA94

Source:
Degradation Risk/streambank hazard, catchments, towns, lakes, waterbodies, roads and towns supplied by SEQ Catchment. (c) SEQ Catchment, 2007.

2006 SEQ Regional Landscape Assessment - Degradation Risk
Esk Shire Council
Assessment
Esk, Qld

HLA

Figure
F4



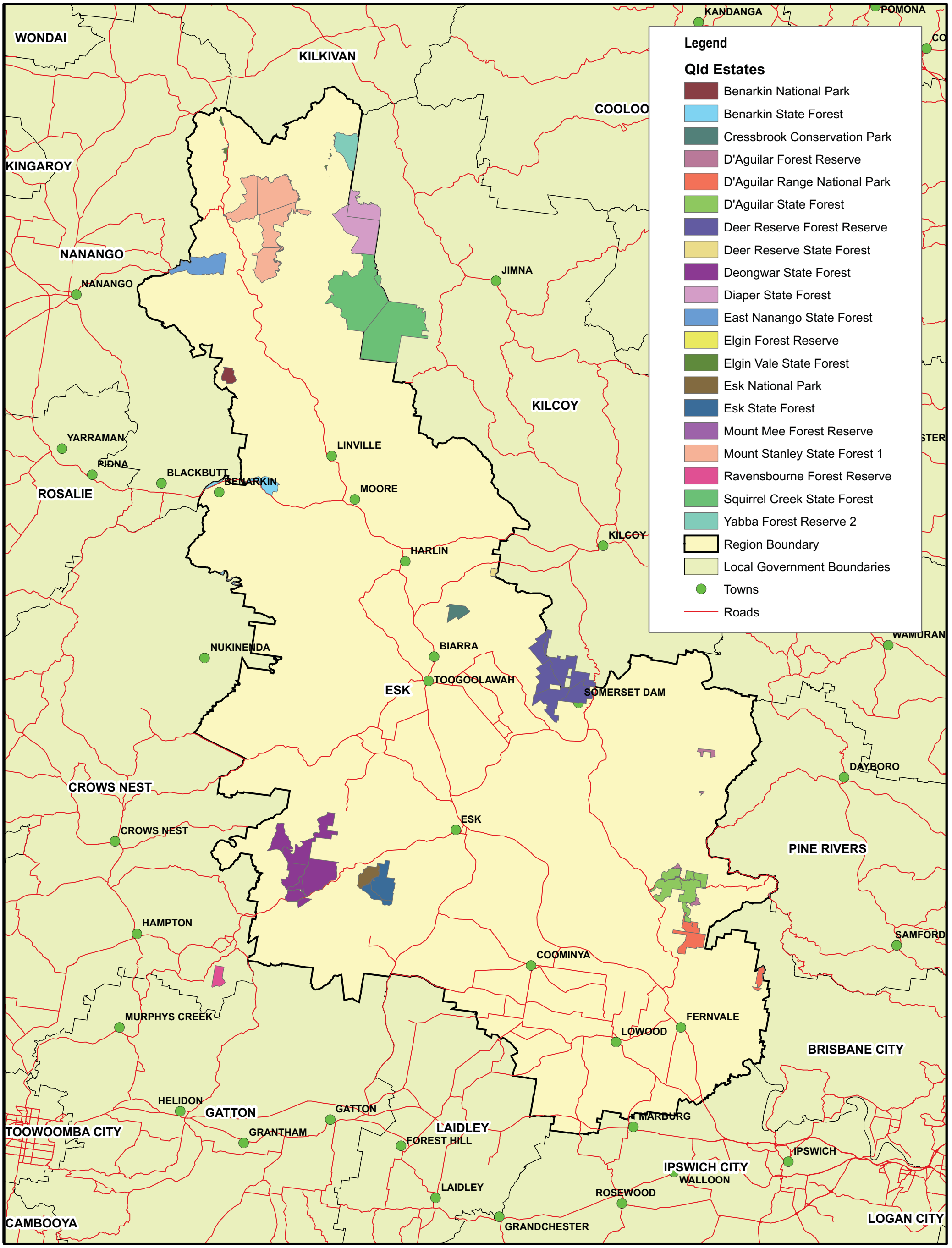
Good Qualtiy Agricultural Land (GQAL)
Esk Shire Council
Assessment
Esk, Qld

Source:
Region boundary, subcatchment, GQAL supplied by the Esk Shire Council, 2007. (c) Esk Shire Council, 2007.
Towns sourced from GeoScience Australia, 2002. (c) GeoScience Australia, 2007.
Local Government boundaries sourced from the Department of Natural Resources & Water, 2005. (c) DRW, 2007.
Roads sourced from MapInfo, 1990. (c) MapInfo Australia Pty Ltd, 2007. (c) Public Sector Mapping Authority Australia Pty Ltd, 2007.

N
Datum GDA94

FIGURE
F5

PROJECT NUMBER B60179001 | DATE March 2007 | DRAWN CS | VERSION A



HLA

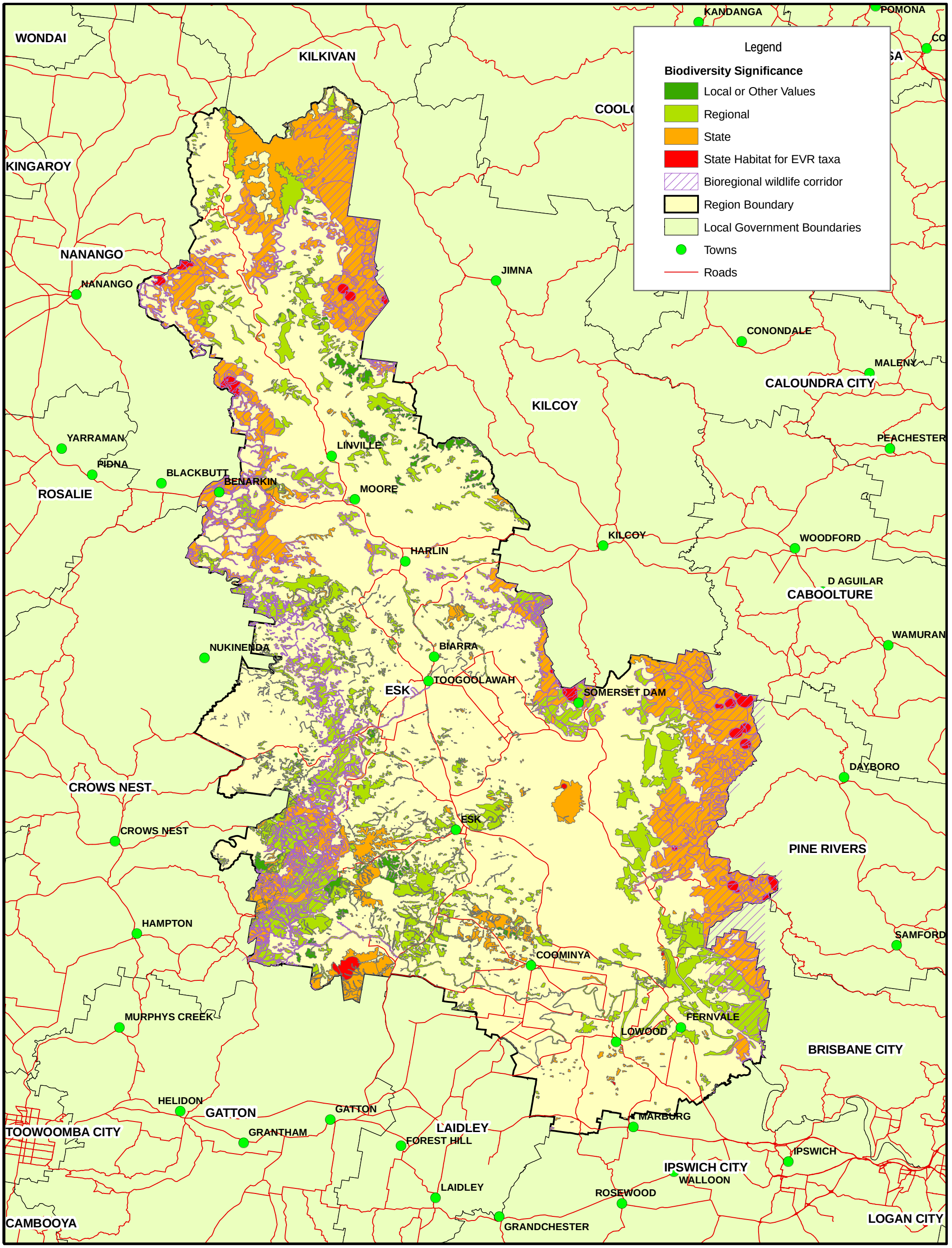
Protected Areas, Forestry Reserves and State Forests within Esk Shire
Esk Shire Council
Assessment
Esk, Qld

Source:
Region boundary supplied by the Esk Shire Council, 2007. (c) Esk Shire Council, 2007.Towns sourced from GeoScience Australia, 2002. (c) GeoScience Australia, 2007. Local Government boundaries sourced from the Department of Natural Resources & Water, 2005. (c) DRW, 2007. Roads sourced from MapInfo, 1990. (c) MapInfo Australia Pty Ltd, 2007. (c) Public Sector Mapping Authority Australia Pty Ltd, 2007. Biodiversity Planning Assessment (2005) and Qld Estates (Jan06) sourced from the Environmental Protection Agency. (c) The State of Qld, EPA, 2007.

N
Datum GDA94

FIGURE
F6

PROJECT NUMBER B60179001 | DATE June 2007 | DRAWN CS | VERSION A



HLA

Biodiversity Significance
Esk Shire Council
Assessment
Esk, Qld

Source:
Region boundary supplied by the Esk Shire Council, 2007.
(c) Esk Shire Council, 2007.
Towns sourced from GeoScience Australia, 2002.
(c) GeoScience Australia, 2007.
Local Government boundaries sourced from the Department of Natural Resources & Water, 2005. (c) DRW, 2007.
Roads sourced from MapInfo, 1990.
(c) MapInfo Australia Pty Ltd, 2007.
(c) Public Sector Mapping Authority Australia Pty Ltd, 2007.
Biodiversity Planning Assessment sourced from the Environmental Protection Agency, 2005. (c) The State of Qld, EPA, 2007.

N

Datum GDA94

FIGURE

F7

PROJECT NUMBER B60179001 | DATE March 2007 | DRAWN CS | VERSION A

Plates

"This page has been left blank intentionally"

Plate P1: The Brisbane River, near Lowood.

Plate P2: Cattle Using the Upper Brisbane River.

Plate P3: Stanley River.

Plate P4: Rural Residential Areas Around Fernvale.

Plate P5: Hillslope Erosion Near Savage's Crossing.

Plate P6: Hill's Crossing.

Plate P7: Savage's Crossing.

Plate P8: Open Plains on the way to Kilcoy.

Plate P9: Benarkin State Forest.

Plate P10: Roadside Weed Invasion at Benarkin State Forest.

Plate P11: Extensive Weed Invasion in Wallably Creek.

Appendix A: Guideline for the Preparation of an NRMP

"This page has been left blank intentionally"

GUIDELINE FOR THE PREPARATION OF AN NRMP

Use of the Guideline

This template has been designed to be used by local governments in SEQ when preparing a Shire or city wide NRMP. It may be of some benefit to other Queensland local governments.

The guideline follows the methodology used for the preparation of the Esk Shire NRMP. The process outlined in this guideline provides information on how to document and address major NRM issues and challenges at the strategic level. Locally specific information or issues to be addressed will; however, need to be scoped in more detail by any local government who uses this guideline. This guideline includes items to investigate, tasks to undertake or specific report sections that may be included in a NRMP.

Consultation Undertaken

A draft version of this guideline was independently reviewed by Nigel Weston and Glen Millar from Caboolture Shire Council and comments made have been incorporated to improve the effectiveness of this guideline.

Who Should be Involved in the Preparation of an NRMP?

Various Council staff, government agency representatives, regional NRM bodies and external community members or consultants can have input into the preparation of an NRMP. A project team should be established consisting of the officers who mainly deal with NRM issues and a project manager should be appointed. Key community or government contacts should be identified at the start of the project and where relevant should be contacted / involved during the development of the NRMP.

What are the benefits of preparing an NRMP?

An NRMP can greatly assist a local government to prepare a strategic framework for the management of its NRM assets. An NRMP provides a vehicle for documenting the condition of NRM assets, the threatening processes impacting on those values and appropriate means of addressing them. Through an NRMP a Council can outline its level of compliance with relevant legislation and policies and demonstrate to the community that is it showing leadership in undertaking NRM programs throughout its area. The plan will outline the strategic NRM programs and priorities for the area and be useful for attracting external funding to assist with implementation of key projects.

Whilst preparing an NRMP is not a legislative requirement, it significantly assists with preparing a more specific local nature conservation strategy, which each Council is required to prepare to meet the provisions of the Southeast Queensland Regional Plan.

NRMP Guideline

The major steps required to prepare an NRMP are outlined below. In some cases a local government may not have the capacity to undertake all of the steps outlined. In that situation, the local government could determine what the most relevant tasks to undertake, based on its resources available and the local NRM issues to be addressed.

Desktop Assessment and Information Collation

- Determine the NRM Asset categories that will be used to describe the extent and condition of the NRM values e.g. water, land, biodiversity and atmosphere. Condition information is important for providing baseline indicators and to assist with monitoring the success of future NRM efforts;
- a glossary of terms (written in plain language) and acronyms should be established from the start of the project so all project stakeholders are aware of the terminology used;
- review of and incorporation of relevant information from:
  - existing NRM documentation for the study area;
  - any regional NRM Plans (e.g. Healthy Land Our Future or the Future in Balance); and
  - existing Council management plans and relevant environmental documents.
- search of relevant websites for NRM information e.g. EPA, DNRW, Australian Government Department of Environment and Water Resources (including undertaking a protected matters search), SEQWater and SEQ Catchments;
- obtain relevant mapping from the EPA, DNRW, Department of Primary Industries and Fisheries;
- collect information on current community expectations for Council's involvement in NRM and barriers to community participation in NRM Programs (refer to Low Choy, Steiner and Maccheroni, 2006);
- determine whether any aspects of the NRMP can be used to meet the requirement under the SEQRP for the development of a Local Nature Conservation Strategy for each local government area;
- the introduction section of the report should now be able to prepared and may contain the following:
  - an outline of what the local government considers to be "NRM" and its role in NRM;
  - the purpose of the NRMP and any guiding principles and NRM Vision established;
  - an overview of the local government area's history as it relates to the current condition of the area (e.g. history of vegetation clearing, agricultural pursuits and urban development);
  - an overview of demographic and land use issues including settlement patterns and predicted impacts from population growth and proposed future urban development or growth in rural living areas;
  - the scope of the NRMP; and
  - an overview of the NRM assets and threats impacting upon them, as well as a description of the current condition of NRM assets from a local and regional perspective.

Fieldwork:

- ensure the NRMP authors have an adequate understanding of the NRM issues facing the local government area. This can be obtained through a Council officer or community member passing on their knowledge of the area during a tour or extensive fieldwork could be undertaken if resources permit;
- detailed investigations into the condition of NRM assets may be required to assist with determining priority areas for investment, if these investigations are not able to be undertaken document the limitations of the process;
- obtain photographs of NRM assets in varying condition in order to add value to the text; and
- a section on the assessment of the NRM assets can be finalised using information obtained from fieldwork collected.

Assessment of NRM Responsibilities:

- identification of the statutory requirements for the local government for undertaking NRM initiatives such as vegetation, water and pest management;
- review of how effectively the local government is currently meeting the statutory requirements and identification of areas that require attention;
- outline other regional policies of relevance (e.g. South East Queensland Regional Nature Conservation Strategy and the Southeast Queensland Regional Plan);
- identification of Local Laws in existence in the local government area that may impact on natural resource management (e.g. Vegetation Protection Local Law or Control of Pests Local Law); and
- review of the existing Corporate Plan to determine how effectively Council's NRM functions are outlined in the Corporate Plan, as well as strategic and operational plans. If required, outline how NRM could be more appropriately incorporated over time (refer to the Local Government Association of Queensland Guideline produced in 2005 for Integrating Natural Resource Management into Local Government Corporate, Strategic and Operational Plans).

Review of Existing NRM Initiatives:

- outline all major NRM initiatives currently being undertaken within the local government area by Council, SEQ Catchments, other NRM or community groups or government agencies. If possible interview the officers or community members who undertake these programs to determine where they are targeted, levels of investment, current opportunities for improving the program and success stories.

Identification of Other NRM Programs of Relevance:

- identify other NRM programs conducted in surrounding areas that would effectively address NRM challenges within the local government area; and
- if possible interview the staff and / or community members who undertake these programs to source any case studies and to assist with determining the benefits for implementing the programs, any issues that have arisen and level of resources / investment required to keep the program/s running.

Identification of Potential Funding Opportunities:

- determine future funding or grant opportunities that the local government could apply for to assist with its NRM efforts. Prioritise the most appropriate funding opportunities to apply for based on the types of programs they are likely to be funded and the NRM values and challenges present within the local government area.

NRM Action Plans:

- develop NRM Action Plans for the local government area. These may be integrated plans or outline specific actions for individual NRM assets such as biodiversity;
- ensure that the action plans and associated NRM programs are tailored to be the most appropriate ones for the NRM assets and challenges present;
- ensure that a range of NRM outcomes will be achieved through a broad range of programs covering elements such as education, protection and restoration; and
- priority actions should be determined and time scales for implementation established where appropriate. If resources permit outline targets that measure progress against long-term goals and include monitoring and evaluation programs.

Report Recommendations:

- develop overall report recommendations that can be presented to Council for endorsement. Ensure that report recommendations provide clear guidance on the future strategic direction for NRM within the local government area and priority areas for NRM investment.

Stakeholder Consultation:

- ensure that key stakeholders including Councillors, catchment group members and interested community members have opportunities to provide input into the development of the NRMP (where appropriate) and are allowed sufficient time to review the draft plan prior to finalisation and implementation; and
- include summary information in the NRMP about the consultation processes that were followed and an outline of any significant comments raised about the Draft NRMP and how they were addressed.

Presentations to Council:

- dependent on the Council committee and reporting structure within the local government area, it may be advantageous to commence consultation with Councillors about the project prior to it reaching a final draft status.

Promotion of the NRMP:

- ensure that all Councillors, Council staff and the community are able to access the NRMP and are kept aware of the efforts the Council undertakes to implement the recommendations of the plan; and
- media promotion regarding the existence of the plan and that it is commencing implementation may be useful.

Review of the NRMP:

- at a minimum an initial review of the implementation of the high priority actions outlined in the NRMP should be undertaken after two years. A full review of the NRMP should be undertaken every five years to ensure that programs are appropriately targeted to respond to community considerations and threatening processes. When a major change in environmental or planning legislation occurs any impact on the provisions of the NRMP should be determined and the plan reviewed if required.