

**Biodiversity  
Recovery Plan**  
for  
**Gatton and Laidley Shires  
South-East Queensland  
2003-2008**

**Version 2, 5 March 2004**

**Revised to be compatible with Version 4.0 of the  
Queensland Herbarium Vegetation Mapping**



**Lockyer  
Catchment  
Association**

**A project of the Lockyer Catchment Association  
(LCA) Inc. supported by funding from the  
Threatened Species Network (TSN) Community  
Grants Program, which is a joint program of the  
World Wide Fund For Nature Australia (WWF)  
and the Commonwealth Government  
Natural Heritage Trust (NHT)**



A project of the Lockyer Catchment Association (LCA) Inc. supported by funding from the Threatened Species Network (TSN) Community Grants Program, which is a joint program of the World Wide Fund For Nature Australia (WWF) and the Commonwealth Government Natural Heritage Trust (NHT).

Printed and distributed with the assistance of Gatton Shire Council.

Boyes, B. (2004). *Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008*. Version 2, 5 March 2004. Lockyer Catchment Association (LCA) Inc., Forest Hill.

© Bruce Boyes 2004.

# Contents

---

<b>1. Introduction.....</b>	<b>3</b>
1.1 Approach and scope of recovery plan.....	4
1.2 Significant species and ecological communities covered .....	5
1.3 Identification and conservation of critical habitat.....	5
1.4 Lockyer Catchment Biodiversity Recovery Project .....	6
1.5 Recovery plan preparation and structure .....	7
1.6 Integration with other plans and strategies.....	8
1.7 Acknowledgements .....	9
1.8 References.....	9
<b>2. Significant species and ecological communities .....</b>	<b>13</b>
2.1 Plant species.....	14
2.2 Invertebrate species .....	16
2.3 Amphibian species .....	17
2.4 Reptile species.....	18
2.5 Bird species .....	18
2.6 Mammal species .....	20
2.7 Ecological communities .....	21
<b>3. Threat matrix and recovery action plan.....</b>	<b>25</b>
3.1 Vegetation clearing .....	27
3.2 Inappropriate fire management practices.....	30
3.3 Pest plants.....	33
3.4 Pest animals .....	36
3.5 Lack of awareness .....	39
3.6 Inappropriate grazing practices .....	41
3.7 Inappropriate timber harvesting or timber thinning practices.....	43
3.8 Impacts on wetlands and riparian areas.....	46
3.9 Lack of knowledge .....	50
3.10 Other threats .....	52
3.11 Supporting actions .....	56

<b>4. Implementation program .....</b>	<b>59</b>
<b>4.1 Monitoring and evaluation.....</b>	<b>60</b>
4.1.1 Progress made in implementing recovery plan actions .....	60
4.1.2 The efficacy of recovery plan actions .....	61
<b>4.2 Local Government measures .....</b>	<b>61</b>
4.2.1 Statutory measures .....	61
4.2.2 Voluntary measures.....	64
4.2.3 Upgrading of GIS data sets .....	64
<b>4.3 Implementation work plan.....</b>	<b>65</b>

# **1. Introduction**

---

# 1.1 Approach and scope of recovery plan

The introduction of the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* has substantially strengthened the role and effectiveness of threatened species and ecological community recovery planning. Arguably the most significant innovation is the ability to prepare multi-species, local or regional recovery plans. These new approaches and their benefits are introduced in the Environment Australia booklet *How to Go About Preparing a Recovery Plan*:

Traditionally recovery plans have been prepared for a single species covering its entire range. This may not always be the most effective way of taking action to protect threatened species or ecological communities. Where feasible, the Commonwealth is therefore encouraging the development of multi-species, local or regional recovery plans that focus on particular actions to protect the populations of threatened species in a specific area. Often species that occur in the same region are subject to the same threats. A set of actions directed towards combating those threats will benefit multiple threatened species. The advantage of a local, multi-species or regional approach is that it can focus efforts on specific populations of animals and plants and can develop local community campaigns to help implement the necessary recovery actions. Further benefits include the avoidance of duplication, greater efficiency and cost-effectiveness, and the ability to bring together a broader range of interested groups and individuals.

The favoured approach for scoping a recovery plan should be one that most efficiently meets the particular recovery requirements of the species, group of species or ecological communities covered.

The *Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008* implements the multi-species and local approaches by carrying out recovery planning for all of the significant species and ecological communities within defined Local Government areas:

## *Local recovery planning*

The recovery plan covers the Local Government areas of Gatton and Laidley Shires and focuses on actions to combat the common threats to the significant species and ecological communities in the Gatton and Laidley Shire area.

## *Multi-species recovery planning*

The recovery plan covers all of the significant species and ecological communities within Gatton and Laidley Shires, including threatened species and ecological communities listed at National and State levels and species with regional significance.

Gatton and Laidley Shires are located within, and comprise most of the land area of, the catchment of Lockyer Creek. The Lockyer Catchment is located approximately 100 km west of Brisbane, South-East Queensland and is part of the wider Brisbane River Catchment.

Parts of the 295,400 ha Lockyer Catchment have been cleared for intensive agriculture and grazing, resulting in the extensive loss and fragmentation of native vegetation communities

on the alluvial creek flats and adjacent low hills. The Lockyer Catchment uplands retain good native vegetation cover, including the 35,000 ha Helidon Hills in the north of the catchment and large continuous habitat areas along and adjoining the Great Dividing Range in the south and west of the catchment. Overall, approximately 50% of the catchment retains native vegetation cover, with this vegetation hosting a large number of significant species and ecological communities.

## 1.2 Significant species and ecological communities covered

The *Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008* covers:

1. All of the species in Gatton and Laidley Shires listed as extinct, endangered or vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* - a total of 11 flora species and 15 fauna species.
2. All of the species in Gatton and Laidley Shires listed as endangered, vulnerable or rare under the Queensland *Nature Conservation Regulation 1994*.
3. All of the ecological communities in Gatton and Laidley Shires that have a status of endangered or of-concern under the Queensland *Vegetation Management Act 1999* and Queensland *Vegetation Management (Freehold Lands) Regulation*.
4. Species in Gatton and Laidley Shires identified as having regional significance (within the South-East Queensland bioregion). Included are species where biologists have expressed concern about decline or potential decline, species that have recently been removed (downgraded) from Commonwealth and/or Queensland threatened species lists and species with a restricted or disjunct occurrence in the South-East Queensland bioregion.

## 1.3 Identification and conservation of critical habitat

Regulations under the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* require a recovery plan to identify, to the extent practicable, areas of habitat that are critical to the survival of the species or ecological communities covered by the plan. Regulation 7.09 states that the following matters may be taken into account when identifying critical habitat:

- Whether the habitat is used during periods of stress (e.g. flood, drought or fire);
- Whether the habitat is used to meet essential life cycle requirements (e.g. foraging, breeding, nesting, roosting, social behaviour patterns or seed dispersal processes);
- The extent to which the habitat is used by important populations;
- Whether the habitat is necessary to maintain genetic diversity and long-term evolutionary development;

- Whether the habitat is necessary for use as corridors to allow the species to move freely between sites used to meet essential life cycle requirements;
- Whether the habitat is necessary to ensure the long-term future of the species or ecological community through reintroduction or re-colonisation; and
- Any other way in which habitat may be critical to the survival of a listed threatened species or ecological community.

The *Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008* uses the Queensland Environmental Protection Agency (EPA) regional ecosystem classification system to identify critical habitat. The Queensland EPA report *The Conservation Status of Queensland's Bioregional Ecosystems* highlights the relevance of the regional ecosystem classification system to the multi-species and local recovery planning approaches of this recovery plan:

Regional ecosystems are an integrated entity derived from landscape pattern, geology and landform, and vegetation, so as to provide a robust classification for biodiversity planning that incorporates ecological processes at the landscape scale. This landscape approach is developed for biodiversity planning because of the paucity of information on the distribution of biota over much of the State. This classification will be useful for land use planning and a range of land management activities.

Information on the exact distribution and life cycle requirements of the significant species and ecological communities covered by this recovery plan is very limited, and will remain limited for the foreseeable future. This is because of the comparatively large areas of vegetation remaining in Gatton and Laidley Shires and limits to the resources that can be realistically allocated for the intensive studies needed to locate every population of every significant species and to determine all of the life cycle requirements of every significant species. However, the recovery of significant species and ecological communities can still be achieved by using the regional ecosystem classification system to identify critical habitat for significant species and ecological communities, and by identifying management activities aimed at maintaining and restoring regional ecosystem ecological processes. This is the aim of the *Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008*.

## **1.4 Lockyer Catchment Biodiversity Recovery Project**

The preparation of the *Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008* was an initiative of the Lockyer Watershed Management Association (LWMA) Inc. - Lockyer Landcare Group, which in 2002 merged with the Lockyer Catchment Coordinating Committee (LCCC) to form the Lockyer Catchment Association (LCA) Inc.

The recovery plan preparation was a component of the Lockyer Catchment Biodiversity Recovery Project. The project involved recovery planning and on-ground conservation works and was funded from the Threatened Species Network (TSN) Community Grants



Program, which is a joint program of the World Wide Fund For Nature Australia (WWF) and the Commonwealth Government Natural Heritage Trust (NHT).

The recovery team for the *Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008* project has been chaired by the Lockyer Watershed Management Association (LWMA) Inc. - Lockyer Landcare Group. Members of the recovery team include representatives from Landcare and Catchment Management Groups, the Queensland Parks and Wildlife Service (QPWS) and Environmental Protection Agency (EPA), Gatton and Laidley Shire Councils, The University of Queensland Gatton Campus, the University of Southern Queensland, the Toowoomba Bird Observers Group and Greening Australia.

## 1.5 Recovery plan preparation and structure

This recovery plan consists of a main recovery plan document (this document) and two appendices (Appendix A and Appendix B).

Appendix A and Appendix B have been designed so that they can also be used as stand-alone documents to:

- Assist landholders in Gatton and Laidley Shires to better manage the biodiversity on their properties; and
- Assist the preparation and assessment of development and vegetation clearing applications in Gatton and Laidley Shires.

The recovery plan has been prepared using the following process:

- Step 1** An exhaustive list of significant species and ecological communities present or likely to be present in Gatton or Laidley Shires was compiled. This list now appears as Section 2 of the recovery plan, and is also reproduced in Appendix B of the recovery plan.
- Step 2** A concise description of each significant species and ecological community was prepared. The Regional Ecosystem habitat for each significant species was then determined, and a list of threats for each significant species and ecological community was developed. This description, habitat and threat information now appears as Appendix B of the recovery plan.
- Step 3** A threat matrix was prepared using the description, habitat and threat information from Step 2. In the threat matrix, significant species and ecological communities facing a common range of threats are listed under that key threat group, e.g. vegetation clearing, inappropriate fire regimes etc. A list of actions to address each threat group was then prepared. This threat matrix and recovery action plan now appears as Section 3 of the recovery plan.

- Step 4** An implementation program was developed, consisting of monitoring and evaluation processes, Local Government measures, and a work plan. This implementation program now appears as Section 4 of the recovery plan.
- Step 5** A list of the significant species found in each Regional Ecosystem in Gatton and Laidley Shires was prepared, using the Regional Ecosystem habitat information from Step 2 above. Management principles for each Regional Ecosystem were then prepared, using the threat information from Step 2 above and the action plan and implementation program information from Steps 3 and 4 above. These Regional Ecosystem management principles now appear as Appendix A of the recovery plan.

## 1.6 Integration with other plans and strategies

The Lockyer Catchment Association (LCA) Inc. has prepared *Caring for our Lockyer Catchment - A Natural Resource Management Strategy* to guide the sustainable management of the catchment into the future. *Caring for our Lockyer Catchment* establishes management actions under five themes: Land, Water, Biodiversity, Understanding and Participation (Education), and Integrated Planning and Coordinated Management. The management actions have been developed from extensive consultation with landholders, the community and government agencies and are consistent with the actions of the *Natural Resource Management Strategy for South-East Queensland*.

The preparation of the *Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008* implements Action 2 under Objective B1 of the “Biodiversity” theme of *Caring for our Lockyer Catchment*.

Objective B1: Develop community-based strategies to address issues related to the following:

- Biodiversity conservation on public and private land.
- Rare and threatened species and ecosystems.
- Significant habitat areas, wildlife corridors and remnant vegetation.
- Lack of community awareness.
- Lack of biodiversity data.
- Impact of weeds and feral animals.
- Managing fire for biodiversity conservation.

Action 2: Develop and implement the *Recovery Plan for the Threatened Species and Ecological Communities of Gatton and Laidley Shires, South-East Queensland*.

## 1.7 Acknowledgements

The Lockyer Catchment Association (LCA) Inc. thanks the individuals, groups, and agencies that have assisted with the preparation of this recovery plan:

- *Provision and interpretation of vegetation mapping* - Paul Grimshaw & Raelene Brown, Queensland Parks and Wildlife Service; Steve Fox & Gayle Drabsch, Lockyer Catchment Centre.
- *Preparation of significant species and ecosystem lists* - Paul Grimshaw, Queensland Parks and Wildlife Service.
- *Collation of significant species, significant ecosystem and habitat data* - Paul Grimshaw, Tanya Pritchard, Dr. Ian Gynther, Harry Hines & Craig Middleton, Queensland Parks and Wildlife Service; Patrick McConnell, University of Southern Queensland.
- *Technical advice* - Dyan Currie, Veronica Schilling & Michelle Milton, Gatton Shire Council; Jennifer Roughan, Buckley Vann Town Planning Consultants; Paul Grimshaw, Dr. Ian Gynther, & Harry Hines, Queensland Parks and Wildlife Service; Patrick McConnell, University of Southern Queensland; Rod Fensham, Queensland Herbarium; Peter Young, Queensland Environmental Protection Agency; Brigitta Wimmer & Liz Dovey, Environment Australia.
- *Project funding* - Threatened Species Network (TSN) Community Grants Program; Lockyer Watershed Management Association (LWMA) Inc. - Lockyer Landcare Group; Lockyer Catchment Centre.
- *Project office* - Lockyer Catchment Centre.
- *Proof reading of final drafts* - Graeme Burkett, Secretary, Biodiversity Subcommittee of the Lockyer Catchment Association.
- *Printing, binding and distribution* - Gatton Shire Council.

## 1.8 References

Blackley, Roxane (1999). *Draft Lockyer Valley Biodiversity Recovery Plan*. University of Queensland, St. Lucia.

Boyes, B. (ed) (1999). *Rainforest Recovery for the New Millennium*. Proceedings of the World Wide Fund For Nature Australia (WWF) 1998 South-East Queensland Rainforest Recovery Conference.

Boyes, B. (2000). *Gatton Shire Biodiversity Strategy*. Lockyer Watershed Management Association (LWMA) Inc. - Lockyer Landcare Group, Forest Hill.

Boyes, B. (2001). *Land Use Planning Handbook for the Lockyer Catchment*. Lockyer Catchment Coordinating Committee (LCCC), Forest Hill.

Boyes, B. (2001). *Living in the Lockyer Property Management Planning Kit*. Lockyer Catchment Centre, Forest Hill.

- Boyes, B., Pope, S and Mortimer, M. (1998). *Sustainable Management of the Helidon Hills Draft Management Plan*. Western Subregional Organisation of Councils (WESROC).
- Brisbane City Council (2000). *Brisbane City Plan*.
- Brisbane Valley, North Coast and South Coast Working Groups (2002). *Draft Regional Vegetation Management Plan - South-East Queensland*.
- Croft, T., Carruthers, S., Possingham, H and Inns, B. (1999). *Biodiversity Plan for the South-East of South Australia*. Department for Environment, Heritage and Aboriginal Affairs.
- Environment Australia (2000). *Recovery Plan Guidelines for Nationally Listed Threatened Species and Ecological Communities under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 - How to go about preparing a recovery plan*. Draft of August 2000.
- Environment Australia (2000). *Recovery Plan Guidelines for Nationally Listed Threatened Species and Ecological Communities under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 - Content requirements*. Draft of August 2000.
- Forest Assessment Unit, Queensland Department of Environment (1997). *Systematic Vertebrate Fauna Survey Project. Stage 1 - Vertebrate Fauna Survey in the SEQ Bioregion*. Queensland CRA/RFA Steering Committee.
- Forest Assessment Unit, Queensland Department of Environment (1997). *Systematic Vertebrate Fauna Survey Project. Stage 2B - Assessment of Habitat Quality for Priority Species in Southeast Queensland Bioregion*. Queensland CRA/RFA Steering Committee.
- Fox, S., Johnson, R., Murphy, D. and Patmore, D. (1997). *An Assessment of Native Vegetation Areas within Laidley Shire*. Lockyer Watershed Management Association (LWMA) Inc. - Lockyer Landcare Group and the Lockyer Catchment Centre, Forest Hill.
- Gardner, M. (1998). *Fire Management Plan - Helidon Hills*. The University of Queensland Gatton Campus and Gatton Shire Council.
- Gould, L. (2003). *Lockyer Wetlands Directory*. Lockyer Catchment Centre, Forest Hill.
- Grimshaw, P. (2001). *Gatton Shire Vegetation Mapping Report*. Queensland Parks and Wildlife Service.
- Grimshaw, P. and Brown, R. (2000). *Gatton Shire Vegetation Survey*. Queensland Parks and Wildlife Service.
- Lockyer Catchment Centre (2000). *A landholder's guide to The Rare and Threatened Species of the Helidon Hills*. Lockyer Catchment Centre, Forest Hill.
- Lockyer Catchment Centre (2000). *Living in the Lockyer. A Landholders Guide to Land, Water, Wildlife and Vegetation Management in the Lockyer Catchment and Surrounds*. Lockyer Catchment Centre, Forest Hill.
- Lockyer Catchment Coordinating Committee (2000). *Caring for our Lockyer Catchment - A Natural Resource Management Strategy*.

- Maroochy Shire Council (2000). *Maroochy Plan 2000*.
- Maryborough City Council (2000). *Maryborough City Plan*.
- Queensland Department of Natural Resources (1997). *Delma torquata*. Draft Species Management Profile.
- Queensland Department of Natural Resources (1996). *Calyptorhynchus lathami*. Draft Species Management Profile.
- Queensland Department of Natural Resources (1997). *Delma torquata*. Draft Species Management Profile.
- Queensland Department of Natural Resources (1996). *Erythrorhynchus radiatus*. Draft Species Management Profile.
- Queensland Department of Natural Resources (1996). *Grevillea singuliflora*. Draft Species Management Profile.
- Queensland Department of Natural Resources (1996). *Ninox strenua*. Draft Species Management Profile.
- Queensland Department of Natural Resources (1997). *Phebalium obtusifolium*. Draft Species Management Profile.
- Romer, L. (undated brochure). *Wanted Coxen's Fig-Parrot*. Coxen's Fig Parrot Recovery Team.
- Ryan, M. (1995). *Wildlife of Greater Brisbane*. Queensland Museum, Brisbane.
- Sattler, P. and Williams, R.D. (eds) (1999). *The Conservation Status of Queensland's Bioregional Ecosystems*. Published by Environmental Protection Agency, Brisbane.
- Slater, P., Slater, P. and Slater R. (1989). *The Slater Field Guide to Australian Birds*. Lansdowne Publishing Pty. Ltd., Sydney.
- South-East Queensland Fire and Biodiversity Consortium (2001). *Fire & Nature Conservation In Southeast Queensland - An Introduction*.
- South-East Queensland Fire and Biodiversity Consortium (2002). *Individual Property Fire Management Planning Kit*.
- South-East Queensland Fire and Biodiversity Consortium (2002). *Fire In Bushland Conservation - the role of fire in the landscape and how we can manage it for biodiversity conservation*.
- Stanley, T.D. and Ross, E.M. (1983). *Flora of south-eastern Queensland Volume 1*. Queensland Department of Primary Industries, Brisbane.
- Stanley, T.D. and Ross, E.M. (1986). *Flora of south-eastern Queensland Volume 2*. Queensland Department of Primary Industries, Brisbane.

Stanley, T.D. and Ross, E.M. (1989). *Flora of south-eastern Queensland Volume 3*. Queensland Department of Primary Industries, Brisbane.

Watson, P. (2001). *The role and use of fire for biodiversity conservation in Southeast Queensland: Fire management guidelines derived from ecological research*. South-East Queensland Fire and Biodiversity Consortium.

Wilkinson, G. and Schwenke, G. (1992). *An assessment of the status, values and conservation requirements of the native vegetation in Laidley Shire*.

## **2. Significant species and ecological communities**

---

## 2.1 Plant species

Table 1. Significant flora species covered by the <i>Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008.</i>				
Status legend: X = Extinct; PX = Presumed Extinct; E = Endangered; V = Vulnerable; R = Rare; P = Pending; S = Regionally Significant				
Scientific Name	Common Name	Status EPBC (Commonwealth)	Status QNCR (Queensland)	Status Regional (South-East Qld)
<i>Acacia blakei</i> subsp. <i>diphylla</i>	Blake's wattle			S
<i>Acacia leichhardtii</i>	No common name			S
<i>Acacia montana</i>	No common name			S
<i>Allocasuarina inophloia</i>	Thready (Woolly)-barked oak			S
<i>Bertya</i> sp. (Helidon Hills G. Leiper AQ457013) now includes <i>B.</i> sp. (Oakey Creek B. O'Keefe 822)	No common name			S
<i>Bertya opponens</i>	Broad-leaved <i>Bertya</i>			S
<i>Boronia splendida</i> also includes <i>B.</i> sp. (Kogan L.S. Smith 14102)	Splendid <i>Boronia</i>			S
<i>Bothriochloa bunyensis</i>	Bunya bluegrass	V	V	
<i>Brasenia schreberi</i>	Watershield		R	
<i>Callistemon formosus</i>	White cliff bottlebrush		R	
<i>Callitris baileyi</i>	Bailey's cypress pine		R	
<i>Carex lophocarpa</i>	A sedge			S
<i>Caustis blakei</i> subsp. <i>macrantha</i> (Restricted species in trade)	Foxtails, 'Koala fern'		PV	
<i>Clematis fawcettii</i>	No common name	V	V	
<i>Cyperus gunnii</i> subsp. <i>novae-hollandiae</i>	Flecked flatsedge			S
<i>Cyperus squarrosus</i>	Bearded flatsedge			S
<i>Damasonium minus</i>	Starfruit			S
<i>Dichanthium setosum</i>	Bristly bluegrass	V	R	
<i>Eryngium vesiculosum</i>	Prostrate blue devil			S



<b>Table 1 (continued).</b>				
Status legend: X = Extinct; PX = Presumed Extinct; E = Endangered; V = Vulnerable; R = Rare; P = Pending; S = Regionally Significant				
<b>Scientific Name</b>	<b>Common Name</b>	<b>Status EPBC (Commonwealth)</b>	<b>Status QNCR (Queensland)</b>	<b>Status Regional (South-East Qld)</b>
<i>Eucalyptus bakeri</i>	Baker's mallee			S
<i>Eucalyptus helidonica</i>	Helidon Hills white mahogany			S
<i>Eucalyptus melanoleuca</i> (recently downgraded from R)	Yarraman ironbark			S
<i>Eucalyptus sideroxylon</i>	Mugga, red ironbark			S
<i>Eucalyptus taurina</i>	Helidon Hills ironbark		PV	
<i>Floydia praealta</i>	Ball nut, Opossum nut	V	V	
<i>Gahnia clarkei</i>	Tall sawsedge			S
<i>Grevillea quadricauda</i>	No common name	V	PV	
<i>Grevillea singuliflora</i>	Single-flower grevillea		R	
<i>Hibbertia monticola</i>	Mountain guinea flower		R	
<i>Leionema obtusifolium</i>	Helidon Hills phebalium	V	V	
<i>Leptospermum lamellatum</i>	No common name			S
<i>Lysicarpus angustifolius</i>	Budgeroo			S
<i>Macrozamia lucida</i>	Pineapple zamia			S
<i>Melaleuca groveana</i>	Grove's paperbark		R	
<i>Melastoma affine</i>	Blue tongue			S
<i>Mentha grandiflora</i>	Gorge pennyroyal			S
<i>Paspalidium grandispiculatum</i>	Helidon Hills panic	V	V	
<i>Picris evae</i>	Hawk weed	V	V	
<i>Poranthera</i> sp. (Mt Ballow G. Leiper AQ502886) includes <i>P.</i> sp. (Beerwah D. Hassall DH7431)	Mt Beerwah poranthera			S
<i>Potamogeton pectinatus</i>	Sago pondweed			S
<i>Rubus probus</i>	A native raspberry			S

<b>Table 1 (continued).</b>				
Status legend: X = Extinct; PX = Presumed Extinct; E = Endangered; V = Vulnerable; R = Rare; P = Pending; S = Regionally Significant				
<b>Scientific Name</b>	<b>Common Name</b>	<b>Status EPBC (Commonwealth)</b>	<b>Status QNCR (Queensland)</b>	<b>Status Regional (South-East Qld)</b>
<i>Sarcophilus dilatatus</i> (recently downgraded from R)	No common name			S
<i>Sophora fraseri</i>	Brush sophora	V	V	
<i>Stemmacantha australis</i>	Native thistle	V	V	
<i>Thesium australe</i>	Thesium	V	V	
<i>Triodia</i> sp.	Porcupine grass, Spinifex			S
<i>Triplarina bancroftii</i>	No common name		PR	
<i>Wahlenbergia scopulicola</i>	No common name		R	

## 2.2 Invertebrate species

<b>Table 2. Significant fauna species, invertebrates - covered by the <i>Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008.</i></b>				
Status legend: X = Extinct; PX = Presumed Extinct; E = Endangered; V = Vulnerable; R = Rare; P = Pending; S = Regionally Significant				
<b>Scientific Name</b>	<b>Common Name</b>	<b>Status EPBC (Commonwealth)</b>	<b>Status QNCR (Queensland)</b>	<b>Status Regional (South-East Qld)</b>
<i>Nesolycaena albosericea</i>	Satin (blue) opal butterfly		V	

## 2.3 Amphibian species

<b>Table 3. Significant amphibian species covered by the <i>Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008.</i></b>				
Status legend: X = Extinct; PX = Presumed Extinct; E = Endangered; V = Vulnerable; R = Rare; P = Pending; S = Regionally Significant				
<b>Scientific Name</b>	<b>Common Name</b>	<b>Status EPBC (Commonwealth)</b>	<b>Status QNCR (Queensland)</b>	<b>Status Regional (South-East Qld)</b>
<i>Adelotus brevis</i>	Tusked frog			S
<i>Cyclorana alboguttata</i>	Greenstripe frog			S
<i>Cyclorana brevipes</i>	Superb collared-frog			S
<i>Cyclorana verrucosa</i>	Warty water-holding frog, Rough frog			S
<i>Kyarranus kundagungan</i>	Red-and-yellow mountain-frog		V	
<i>Lechriodus fletcheri</i>	Black-soled frog		V	
<i>Limnodynastes salmini</i>	Salmon-striped frog			S
<i>Litoria brevipalmata</i>	Green-thighed frog		R	
<i>Litoria pearsoniana</i>	Cascade treefrog		E	
<i>Mixophyes fleayi</i>	Fleay's barred-frog	E	E	

## 2.4 Reptile species

<b>Table 4. Significant reptile species covered by the <i>Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008.</i></b>				
Status legend: X = Extinct; PX = Presumed Extinct; E = Endangered; V = Vulnerable; R = Rare; P = Pending; S = Regionally Significant				
Scientific Name	Common Name	Status EPBC (Commonwealth)	Status QNCR (Queensland)	Status Regional (South-East Qld)
<i>Coeranoscincus reticulatus</i>	Three-toed snake-toothed skink	V	R	
<i>Delma torquata</i>	Collared delma	V	V	
<i>Hoplocephalus stephensii</i>	Stephen's banded snake		R	

## 2.5 Bird species

<b>Table 5. Significant bird species covered by the <i>Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008.</i></b>				
Status legend: X = Extinct; PX = Presumed Extinct; E = Endangered; V = Vulnerable; R = Rare; P = Pending; S = Regionally Significant				
Scientific Name	Common Name	Status EPBC (Commonwealth)	Status QNCR (Queensland)	Status Regional (South-East Qld)
<i>Accipiter novaehollandiae</i>	Grey goshawk		R	
<i>Atrichornis rufescens</i>	Rufous scrub-bird		V	
<i>Calyptorhynchus lathami</i>	Glossy black-cockatoo		V	
<i>Climacteris erythroptus</i>	Red-browed treecreeper		R	
<i>Cyclopsitta diophthalma coxeni</i>	Coxen's fig-parrot	E	E	
<i>Dasyornis brachypterus</i>	Eastern bristlebird	E	E	

**Table 5 (continued).**

Status legend: X = Extinct; PX = Presumed Extinct; E = Endangered; V = Vulnerable;  
R = Rare; P = Pending; S = Regionally Significant

Scientific Name	Common Name	Status EPBC (Commonwealth)	Status QNCR (Queensland)	Status Regional (South-East Qld)
<i>Ephippiorhynchus asiaticus</i>	Black-necked stork		R	
<i>Erythrotriorchis radiatus</i>	Red goshawk	V	E	
<i>Falco hypoleucos</i>	Grey falcon		R	
<i>Geophaps scripta scripta</i>	Squatter pigeon (southern subsp.)	V	V	
<i>Grantiella picta</i>	Painted honeyeater		R	
<i>Lathamus discolor</i>	Swift parrot	E		
<i>Lophoictinia isura</i>	Square-tailed kite		R	
<i>Melithreptus gularis</i>	Black-chinned honeyeater		R	
<i>Menura alberti</i>	Albert's lyrebird		R	
<i>Neophema pulchella</i>	Turquoise parrot		R	
<i>Nettapus coromandelianus</i>	Cotton pygmy-goose		R	
<i>Ninox strenua</i>	Powerful owl		V	
<i>Podargus ocellatus plumiferous</i>	Plumed frogmouth		V	
<i>Psephotus pulcherrimus</i>	Paradise parrot	X	PX	
<i>Rallus pectoralis</i>	Lewin's rail		R	
<i>Rostratula benghalensis</i>	Painted snipe		R	
<i>Stictonetta naevosa</i>	Freckled duck		R	
<i>Turnix melanogaster</i>	Black-breasted button-quail	V	V	
<i>Tyto novaehollandiae</i>	Masked owl (southern subsp.)			S
<i>Tyto tenebricosa</i>	Sooty owl		R	
<i>Xanthomyza phrygia</i>	Regent honeyeater	E	E	

## 2.6 Mammal species

Table 6. Significant mammal species covered by the <i>Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008.</i>				
Status legend: X = Extinct; PX = Presumed Extinct; E = Endangered; V = Vulnerable; R = Rare; P = Pending; S = Regionally Significant				
Scientific Name	Common Name	Status EPBC (Commonwealth)	Status QNCR (Queensland)	Status Regional (South-East Qld)
<i>Chalinolobus dwyeri</i>	Large-eared pied bat		R	
<i>Chalinolobus picatus</i>	Little pied bat		R	
<i>Dasyurus maculatus maculatus</i>	Spotted-tailed quoll (southern subsp.)	V	V	
<i>Kerivoula papuensis</i>	Golden-tipped bat		R	
<i>Petrogale penicillata</i>	Brush-tailed rock wallaby	V	V	
<i>Phascolarctos cinereus</i>	Koala			S
<i>Potorous tridactylus tridactylus</i>	Long-nosed potoroo	V	V	
<i>Pseudomys novaehollandiae</i>	New Holland mouse			S
<i>Pseudomys oralis</i>	Hasting's River mouse	E	V	

## 2.7 Ecological communities

**Table 7. Significant ecological communities covered by the *Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008.***

1. Regional Ecosystem (RE) descriptions follow Sattler, P.S. & Williams, R.D. (eds) 1999. *The Conservation Status of Queensland's Bioregional Ecosystems*. Queensland Environmental Protection Agency, Brisbane.
2. Conservation status is the status under the Queensland *Vegetation Management Act 1999* and Queensland *Vegetation Management (Freehold Lands) Regulation*.

Regional Ecosystem	Floristic description (constant characteristic species in bold type)	General structure	Conservation status
RE 12.3.3	<i><b>Eucalyptus tereticornis</b></i> ± <i>Eucalyptus crebra</i> ± <i>Eucalyptus moluccana</i> ± <i>Corymbia intermedia</i> ± <i>Angophora subvelutina/floribunda</i> ± <i>Corymbia clarksoniana</i> ± <i>Corymbia tessellaris</i> .	Grassy open forest to woodland	Endangered
RE 12.3.11	<i><b>Eucalyptus tereticornis</b></i> , <i><b>Melaleuca quinquenervia</b></i> ± <i>Corymbia intermedia</i>	Tall woodland to tall open forest	Of concern
RE 12.5.6	<i><b>Eucalyptus pilularis</b></i> ± <i>Eucalyptus microcorys</i> ± <i>Eucalyptus helidonica</i> ± <i>Corymbia trachyphloia</i> ± <i>Corymbia intermedia</i> ± <i>Eucalyptus biturbinata</i> ± <i>Angophora woodsiana</i> .	Shrubby to grassy open forest	Endangered
RE 12.8.9	<i><b>Lophostemon confertus</b></i> ± ( <i>Eucalyptus tereticornis</i> , <i>Eucalyptus biturbinata</i> , <i>Eucalyptus eugenioides</i> , <i>Eucalyptus melliodora</i> , <i>emergents</i> ) ± <i>Allocasuarina torulosa</i> , with mixed rainforest/riparian species and fern species.	Tall open forest	Of concern
RE 12.8.19	Heterogeneous mix of trees (stunted), shrubs, forbs and grasses including <i>Eucalyptus tereticornis</i> , <i>Eucalyptus melliodora</i> , <i>Angophora floribunda</i> , <i>Acacia</i> spp., <i>Bursaria spinosa</i> var. <i>macrophylla</i> , <i>Xanthorrhoea glauca</i> , <i>Hovea</i> spp., <i>Doryanthes palmeri</i> , <i>Cassinia</i> spp., <i>Pimelia linifolia</i> , <i>Plectranthus graveolens</i> , <i>Sorghum leiocladum</i> , <i>Poa</i> spp., <i>Themeda triandra</i> , <i>Asperula conferta</i> etc.	Mid-high woodland/ open woodland or tall shrubland	Of concern

**Table 7 (continued).**

1. Regional Ecosystem (RE) descriptions follow Sattler, P.S. & Williams, R.D. (eds) 1999. *The Conservation Status of Queensland's Bioregional Ecosystems*. Queensland Environmental Protection Agency, Brisbane.
2. Conservation status is the status under the Queensland *Vegetation Management Act 1999* and Queensland *Vegetation Management (Freehold Lands) Regulation*.

<b>Regional Ecosystem</b>	<b>Floristic description (constant characteristic species in bold type)</b>	<b>General structure</b>	<b>Conservation status</b>
RE 12.8.21	<i><b>Brachychiton rupestris</b>, <b>Flindersia australis</b>, <b>Flindersia collina</b>, <b>Vitex lignumvitae</b>, <b>Elattostachys xylocarpa</b>, <b>Ficus spp.</b>, <b>Dendrocnide excelsa</b>, <b>Arytera foveolata</b> ± <i>Pouteria cotinifolia</i> var. <i>cotinifolia</i> ± <i>Erythroxylum australe</i>. (<i>Araucaria cunninghamii</i> absent in Gatton &amp; Laidley Shires)</i>	Microphyll closed forest to semi-evergreen vine thicket sometimes on boulder scree	Endangered
RE 12.9/10.3	<i><b>Eucalyptus moluccana</b> ± <b>Corymbia citriodora</b> ± <b>Eucalyptus crebra</b> ± <b>Eucalyptus tereticornis</b> ± <b>Eucalyptus carnea</b> ± <b>Eucalyptus fibrosa</b> subsp. <b>fibrosa</b> ± <b>Eucalyptus major</b>.</i>	Grassy sometimes shrubby open forest	Of concern
RE 12.9/10.6	<i><b>Acacia harpophylla</b> ± <b>Casuarina cristata</b> ± <b>Brachychiton rupestris</b> ± <b>Acacia fasciculifera</b> ± <b>Alectryon diversifolius</b> ± <b>Santalum lanceolatum</b> ± <b>Carissa ovata</b>.</i>	Open forest	Endangered
RE 12.9/10.7	<i><b>Eucalyptus crebra</b> ± <b>Eucalyptus melanophloia</b> ± <b>Eucalyptus tereticornis</b> ± <b>Corymbia tessellaris</b> ± <b>Corymbia clarksoniana</b> ± <b>Allocasuarina luehmannii</b>.</i>	Grassy woodland (sometimes with vine thicket understory)	Of concern
RE 12.9/10.11	<i><b>Melaleuca tamariscina</b> subsp. <b>irbyana</b> ± <b>Eucalyptus moluccana</b> ± <b>Eucalyptus tereticornis</b>.</i>	Low open forest or thicket with emergent eucalypts	Endangered



**Table 7 (continued).**

1. Regional Ecosystem (RE) descriptions follow Sattler, P.S. & Williams, R.D. (eds) 1999. *The Conservation Status of Queensland's Bioregional Ecosystems*. Queensland Environmental Protection Agency, Brisbane.
2. Conservation status is the status under the Queensland *Vegetation Management Act 1999* and Queensland *Vegetation Management (Freehold Lands) Regulation*.

<b>Regional Ecosystem</b>	<b>Floristic description (constant characteristic species in bold type)</b>	<b>General structure</b>	<b>Conservation status</b>
RE 12.9/10.15	<i><b>Flindersia australis</b>, <b>Flindersia collina</b>, <b>Brachychiton rupestris</b>, <b>Acacia fasciculifera</b>, <b>Ficus spp.</b> ± <i>Flindersia xanthoxyla</i> ± <i>Vitex lignumvitae</i> ± <i>Excoecaria dallachyana</i> ± <i>Pouteria cotinifolia</i> var. <i>cotinifolia</i> ± <i>Bursaria incana</i> ± <i>Croton insularis</i> ± <i>Drypetes deplanchei</i> ± <i>Owenia venosa</i> ± <i>Secamone elliptica</i>.</i>	Microphyll closed forest to semi-evergreen vine thicket	Endangered
RE 12.11.9	<i><b>Eucalyptus tereticornis</b>, <b>Eucalyptus crebra</b> ± <i>Angophora subvelutina</i> ± <i>Eucalyptus melanophloia</i> ± <i>Corymbia intermedia</i> ± <i>Eucalyptus biturbinata</i> ± <i>Eucalyptus eugenioides</i> ± <i>Eucalyptus melliodora</i> ± <i>Allocasuarina torulosa</i>.</i>	Very tall open forest/ woodland	Of concern
RE 12.12.3	<i><b>Corymbia citriodora</b> subsp. <b>variegata</b>/<b>Corymbia henryi</b>, <b>Eucalyptus crebra</b> ± <i>Corymbia intermedia</i> ± <i>Eucalyptus major</i> ± <i>Eucalyptus melanophloia</i></i>	Tall woodland to tall open forest	Of concern



# **3. Threat matrix and recovery action plan**

---

## **Acronyms used in recovery action plan**

LCA	Lockyer Catchment Association
GSC	Gatton Shire Council
LSC	Laidley Shire Council
UQGC	The University of Queensland Gatton Campus
EPA	Queensland Environmental Protection Agency
QPWS	Queensland Parks and Wildlife Service
SEQWCG	South-East Queensland Western Catchments Group

## 3.1 Vegetation clearing

Threats
<p><b>1. Loss or fragmentation of significant species populations, significant species habitat or significant ecological communities through vegetation clearing.</b></p> <p><u>Significant species at risk:</u> All of the significant species covered by this recovery plan except <i>Falco hypoleucos</i> and <i>Grantiella picta</i>.</p> <p><u>Significant ecological communities at risk:</u> All of the significant ecosystems covered by this recovery plan.</p>
<p><b>2. Loss of trees suitable for nesting through vegetation clearing.</b></p> <p><u>Significant bird species at risk:</u> <i>Calyptorhynchus lathami</i>, <i>Cyclopsitta diophthalma coxeni</i>, <i>Ephippiorhynchus asiaticus</i>, <i>Erythroriorchis radiatus</i>, <i>Lophoictinia isura</i>, <i>Neophema pulchella</i>, <i>Nettapus coromandelianus</i>, <i>Ninox strenua</i>, <i>Tyto novaehollandiae</i>, <i>Tyto tenebricosa</i>.</p> <p><u>Significant mammal species at risk:</u> <i>Dasyurus maculatus maculatus</i>.</p>
<p><b>3. Loss of trees with decorticating bark through vegetation clearing.</b></p> <p><u>Significant reptile species at risk:</u> <i>Hoplocephalus stephensii</i>.</p> <p><u>Significant bird species at risk:</u> <i>Climacteris erythroptis</i>.</p>
<p><b>4. Loss of food trees through vegetation clearing.</b></p> <p><u>Significant bird species at risk:</u> <i>Calyptorhynchus lathami</i>, <i>Cyclopsitta diophthalma coxeni</i>.</p> <p><u>Significant mammal species at risk:</u> <i>Phascolarctos cinereus</i>.</p>
<p><b>5. Loss of trees suitable for roosting through vegetation clearing.</b></p> <p><u>Significant mammal species at risk:</u> <i>Chalinolobus picatus</i>, <i>Kerivoula papuensis</i>.</p>
<p><b>6. Loss or fragmentation of Boronia species populations or species habitat through vegetation clearing.</b></p> <p><u>Significant invertebrate species at risk:</u> <i>Nesolycaena albosericea</i>.</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
<p>1. To ensure that vegetation clearing does not cause or contribute to:</p> <ul style="list-style-type: none"> <li>• A decline in the conservation status of Regional Ecosystems,</li> <li>• A decline in the conservation status of threatened species; or</li> <li>• The loss of regionally significant species.</li> </ul>	<ul style="list-style-type: none"> <li>• Development applicants are required to demonstrate that significant species and ecological communities will not be negatively impacted by proposed developments.</li> </ul>	<p>1A Develop Local Government Planning Scheme and/or Local Law mechanisms from the recommended statutory measures in Section 4.2 of this Recovery Plan.</p>	<p>Complete by 06/03</p>	<p>GSC &amp; LSC assisted by LCA</p>
	<ul style="list-style-type: none"> <li>• Vegetation clearing applicants are required to demonstrate that significant species and ecological communities will not be negatively impacted by proposed clearing.</li> </ul>	<p>1B Seek the incorporation of the significant species and ecological community management principles identified in this recovery plan into the South-East Queensland Regional Vegetation Management Plan (SEQ RVMP).</p>	<p>Complete by 06/03</p>	<p>LCA</p>
	<ul style="list-style-type: none"> <li>• Nature Refuge Agreements, Voluntary Conservation Covenants (VCCs) or Voluntary Conservation Agreements (VCAs) are secured for significant species habitats and significant ecological communities on private land.</li> </ul>	<p>1C Establish Voluntary Conservation Covenant (VCC) and Voluntary Conservation Agreement (VCA) programs in Gatton and Laidley Shires (refer Section 4.2 of this Recovery Plan).</p>	<p>Complete by 12/03</p>	<p>GSC &amp; LSC assisted by LCA</p>
		<p>1D Negotiate private land Nature Refuge Agreements, Voluntary Conservation Covenants (VCCs) and/or Voluntary Conservation Agreements (VCAs) in accordance with annual targets (refer Action 11A).</p>	<p>Commence by 12/03, complete by 12/08 in accordance with annual targets</p>	<p>GSC &amp; LSC assisted by LCA</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
	<ul style="list-style-type: none"> <li>Land for Wildlife registrations are secured for significant species habitats and significant ecological communities on private land.</li> </ul>	1E Continue to resource the Land for Wildlife program.	Ongoing	GSC & LSC
		1F Negotiate Land for Wildlife registrations in accordance with annual targets (refer Action 11A).	Complete by 12/08 in accordance with annual targets	GSC & LSC assisted by LCA
	<ul style="list-style-type: none"> <li>Property management plans are prepared for private properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration.</li> </ul>	1G Implement property management planning programs targeting properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration, in accordance with annual targets (refer Action 11A).	Commence by 12/03, complete by 12/08 in accordance with annual targets	GSC & LSC assisted by LCA
	<ul style="list-style-type: none"> <li>The property management plans designate significant species habitats and significant ecological communities, and describe conservation measures for these areas.</li> </ul>	1H Develop property management planning technical notes and workshop programs from the Regional Ecosystem Management Principles identified in Appendices A & B of this recovery plan, and use these in the property management planning program. (Refer also to Actions 5A and 5B)	Complete by 12/03, then review annually and update as required	GSC & LSC assisted by LCA

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
	<ul style="list-style-type: none"> <li>Significant species habitats and significant ecological communities on public land are securely protected.</li> </ul>	11 Seek the protection of significant species habitats and significant ecological communities on public land (including roadsides) by conversion to Conservation Park, National Park, or other protected area under the <i>Queensland Nature Conservation Act 1992</i> .	Ongoing	LCA

## 3.2 Inappropriate fire management practices

Threats
<p><b>1. The frequent low-intensity burning of shrubby understorey woodlands/forests to reduce fuel loads or promote grass growth for cattle grazing.</b>  <u>Significant flora species at risk:</u> <i>Acacia blakei</i> subsp. <i>diphylla</i>, <i>Acacia leichhardtii</i>, <i>Acacia montana</i>, <i>Bertya</i> sp. (Helidon Hills G.Leiper AQ457013), <i>Bertya opponens</i>, <i>Boronia splendida</i>, <i>Callistemon formosus</i>, <i>Callitris baileyi</i>, <i>Caustis blakei</i> subsp. <i>macrantha</i>, <i>Gahnia clarkei</i>, <i>Grevillea quadricauda</i>, <i>Grevillea singuliflora</i>, <i>Leionema obtusifolium</i>, <i>Leptospermum lamellatum</i>, <i>Melaleuca groveana</i>, <i>Melastoma affine</i>, <i>Mentha grandiflora</i>, <i>Paspalidium grandispiculatum</i>, <i>Poranthera</i> sp. (Mt Ballow G.Leiper AQ502886), <i>Rubus probus</i>, <i>Sophora fraseri</i>, <i>Triodia</i> sp., <i>Triplarina bancroftii</i>.  <u>Significant invertebrate species at risk:</u> <i>Nesolycaena albosericea</i>.</p>
<p><b>2. The infrequent burning of grassy understorey woodlands/forests.</b>  <u>Significant flora species at risk:</u> <i>Bothriochloa bunyensis</i>, <i>Dichanthium setosum</i>, <i>Picris evae</i>, <i>Stemmacantha australis</i>, <i>Thesium australe</i>, <i>Wahlenbergia scopulicola</i>.</p>
<p><b>3. The construction of firebreaks in ecotones and the absence of high-intensity fire in ecotones.</b>  <u>Significant flora species at risk:</u> <i>Bertya opponens</i>.</p>



**4. Fire incursion into rainforest ecosystems as a result of weed or exotic pasture grass invasion.**

Significant flora species at risk: *Clematis fawcettii*, *Floydia praealta*, *Sarcophilus dilatatus*.

Significant bird species at risk: *Turnix melanogaster*

Significant ecological communities at risk: Regional Ecosystem 12.8.21, Regional Ecosystem 12.9/10.6, Regional Ecosystem 12.9/10.15.

**5. Degradation of habitat quality through inappropriate fire regimes**

Significant bird species at risk: *Accipiter novaehollandiae*, *Dasyornis brachypterus*, *Erythrorchis radiatus*, *Geophaps scripta scripta*, *Lathamus discolor*, *Lophoictinia isura*, *Melithreptus gularis*, *Neophema pulchella*, *Ninox strenua*, *Tyto novaehollandiae*, *Tyto tenebricosa*.

Significant mammal species at risk: *Chalinolobus dwyeri*, *Chalinolobus picatus*, *Dasyurus maculatus maculatus*, *Petrogale penicillata*, *Phascolarctos cinereus*, *Potorous tridactylus tridactylus*, *Pseudomys novaehollandiae*.

Significant ecological communities at risk: Regional Ecosystem 12.5.6, Regional Ecosystem 12.8.9, Regional Ecosystem 12.8.10, Regional Ecosystem 12.8.19.

**6. Loss of trees with decorticating bark through inappropriate fire regimes.**

Significant reptile species at risk: *Hoplocephalus stephensii*.

Significant bird species at risk: *Climacteris erythroptera*.

**7. Loss or degradation of leaf litter through inappropriate fire regimes.**

Significant bird species at risk: *Atrichornis rufescens*.

**8. Loss, degradation or modification of leaf litter, surface rocks and logs or subsurface features through inappropriate fire regimes.**

Significant reptile species at risk: *Coeranoscincus reticulatus*, *Delma torquata*.

**9. Loss of, or damage to, *Allocasuarina* plant species or trees with suitable nesting sites through inappropriate fire regimes.**

Significant bird species at risk: *Calyptorhynchus lathamii*.

**10. Loss of, or damage to, fig trees through inappropriate fire regimes.**

Significant bird species at risk: *Cyclopsitta diophthalma coxeni*.

**11. Lack of recruitment of new trees caused by inappropriate fire regimes.**

Significant ecological communities at risk: Regional Ecosystem 12.3.3.

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
<p>2. To develop and implement fire management plans that balance the needs of significant species and ecological communities with the needs of landholders and land managers.</p>	<ul style="list-style-type: none"> <li>• Fire management plans are in place for private properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration.</li> <li>• Fire management plans are in place for Conservation Parks, National Parks and other protected areas.</li> <li>• The fire management plans result in a decrease in the extent to which significant species habitats and significant ecological communities are subject to inappropriate fire regimes.</li> </ul>	<p>2A Implement fire management planning programs targeting properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration, in accordance with annual targets (refer Action 11A). The fire management plans are to be prepared using Appendices A &amp; B of this recovery plan and the South-East Queensland Fire and Biodiversity Consortium <i>Individual Property Fire Management Planning Kit</i>, ecological guidelines and other products. The fire management plans should preferably be components of overall property management plans (refer Action 1G).</p>	<p>Commence by 12/03, complete by 12/08 in accordance with annual targets</p>	<p>GSC &amp; LSC assisted by LCA</p>
		<p>2B Seek the preparation and implementation of fire management plans for protected areas on public land.</p>	<p>Ongoing</p>	<p>LCA</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
		2C Develop Local Government Planning Scheme and/or Local Law mechanisms that regulate development in bushfire prone areas. The mechanisms should be consistent with the South-East Queensland Fire and Biodiversity Consortium <i>Strategic Fire Management Manual</i> , ecological guidelines and other products.	Complete by 06/03	GSC & LSC

### 3.3 Pest plants

Threats
<p><b>1. Invasion by the weed species <i>Lantana camara</i> (lantana).</b></p> <p><u>Significant flora species at risk:</u> <i>Bothriochloa bunyenensis</i>, <i>Callistemon formosus</i>, <i>Callitris baileyi</i>, <i>Clematis fawcettii</i>, <i>Dicanthium setosum</i>, <i>Floydia praealta</i>, <i>Sarcophilus dilatatus</i>, <i>Stemmacantha australis</i>, <i>Thesium australe</i>, <i>Triplarina bancroftii</i>, <i>Wahlenbergia scopulicola</i>.</p> <p><u>Significant bird species at risk:</u> <i>Turnix melanogaster</i>.</p> <p><u>Significant ecological communities at risk:</u> Regional Ecosystem 12.3.3, Regional Ecosystem 12.8.21, Regional Ecosystem 12.9/10.3, Regional Ecosystem 12.9/10.6, Regional Ecosystem 12.9/10.7, Regional Ecosystem 12.9/10.15, Regional Ecosystem 12.11.9.</p>
<p><b>2. Invasion by the weed species <i>Rivina humilis</i> (coral berry).</b></p> <p><u>Significant flora species at risk:</u> <i>Clematis fawcettii</i>, <i>Floydia praealta</i>, <i>Sarcophilus dilatatus</i>.</p> <p><u>Significant bird species at risk:</u> <i>Turnix melanogaster</i>.</p> <p><u>Significant ecological communities at risk:</u> Regional Ecosystem 12.8.21, Regional Ecosystem 12.9/10.15.</p>

<p><b>3. Invasion by the weed species <i>Anredera cordifolia</i> (madeira vine), <i>Macfadyena unguis-cati</i> (cat's claw creeper) and <i>Protasparagus</i> spp. (asparagus fern).</b></p> <p><u>Significant flora species at risk:</u> <i>Clematis fawcettii</i>, <i>Floydia praealta</i>, <i>Sarcochilus dilatatus</i>.</p> <p><u>Significant bird species at risk:</u> <i>Turnix melanogaster</i>.</p> <p><u>Significant ecological communities at risk:</u> Regional Ecosystem 12.8.21, Regional Ecosystem 12.9/10.6, Regional Ecosystem 12.9/10.15.</p>
<p><b>4. Invasion by the weed species <i>Opuntia tomentosa</i> (tree pear).</b></p> <p><u>Significant ecological communities at risk:</u> 12.9/10.6.</p>
<p><b>5. Invasion by the weed species <i>Bryophyllum tubiflorum</i> (mother of millions).</b></p> <p><u>Significant flora species at risk:</u> <i>Stemmacantha australis</i>, <i>Thesium australe</i>.</p> <p><u>Significant ecological communities at risk:</u> 12.3.3.</p>
<p><b>6. Invasion by the exotic pasture grass species <i>Panicum maximum</i> (green panic).</b></p> <p><u>Significant flora species at risk:</u> <i>Clematis fawcettii</i>, <i>Floydia praealta</i>, <i>Sarcochilus dilatatus</i>, <i>Stemmacantha australis</i>, <i>Thesium australe</i>.</p> <p><u>Significant bird species at risk:</u> <i>Turnix melanogaster</i>.</p> <p><u>Significant ecological communities at risk:</u> Regional Ecosystem 12.3.3, Regional Ecosystem 12.8.21, Regional Ecosystem 12.9/10.6, Regional Ecosystem 12.9/10.7, Regional Ecosystem 12.9/10.15.</p>
<p><b>7. Degradation of habitat quality through weed invasion.</b></p> <p><u>Significant mammal species at risk:</u> <i>Petrogale penicillata</i>, <i>Phascolarctos cinereus</i>, <i>Potorous tridactylus tridactylus</i>.</p>
<p><b>8. Loss or degradation of leaf litter through weed invasion.</b></p> <p><u>Significant bird species at risk:</u> <i>Atrichornis rufescens</i>.</p>
<p><b>9. Loss, degradation or modification of leaf litter, surface rocks and logs or subsurface features through weed invasion.</b></p> <p><u>Significant reptile species at risk:</u> <i>Coeranoscincus reticulatus</i>, <i>Delma torquata</i>.</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
<p>3. To prevent an increase in the area of significant species habitats and significant ecological communities invaded by pest plants, and, where possible, to decrease the area currently invaded.</p>	<ul style="list-style-type: none"> <li>• Pest plant management plans are in place for private properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration.</li> <li>• Pest plant management plans are in place for Conservation Parks, National Parks and other protected areas.</li> <li>• The pest plant management plans and associated on-ground actions result in preventing an increase in the area currently invaded or, where possible, result in a decrease in the area currently invaded.</li> </ul>	<p>3A Prepare new or revised Pest Management Plans for Gatton and Laidley Shires. The plans are to include actions to address the pest plant species listed above.</p>	<p>Complete by 06/03</p>	<p>GSC &amp; LSC assisted by LCA</p>
		<p>3B Implement pest plant management planning programs targeting properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration, in accordance with annual targets (refer Action 11A). The plans are to be prepared using Appendices A &amp; B of this recovery plan and be consistent with Pest Management Plans for Gatton and Laidley Shires, and should preferably be components of overall property management plans (refer Action 1G).</p>	<p>Commence by 12/03, complete by 12/08 in accordance with annual targets</p>	<p>GSC &amp; LSC assisted by LCA</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
		3C Seek the preparation of pest plant management plans for protected areas on public land. The plans should be consistent with the Pest Management Plans for Gatton and Laidley Shires.	Ongoing	LCA
		3D Facilitate funding and labour assistance for landholders to carry out on-ground actions to control pest plants. The on-ground actions should be consistent with property management plans.	Ongoing	GSC & LSC assisted by LCA

### 3.4 Pest animals

Threats
<p><b>1. Predation by feral animals.</b></p> <p><u>Significant amphibian species at risk:</u> <i>Mixophyes fleayi</i>.</p> <p><u>Significant reptile species at risk:</u> <i>Coeranoscincus reticulatus</i>, <i>Delma torquata</i>, <i>Hoplocephalus stephensii</i>.</p> <p><u>Significant bird species at risk:</u> <i>Atrichornis rufescens</i>, <i>Dasyornis brachypterus</i>, <i>Geophaps scripta scripta</i>, <i>Menura alberti</i>, <i>Rallus pectoralis</i>, <i>Rostratula benghalensis</i>, <i>Turnix melanogaster</i>.</p> <p><u>Significant mammal species at risk:</u> <i>Dasyurus maculatus maculatus</i>, <i>Petrogale penicillata</i>, <i>Phascolarctos cinereus</i>, <i>Pseudomys novaehollandiae</i>, <i>Pseudomys oralis</i>.</p>

<p><b>2. Possible predation by feral animals.</b>  <u>Significant amphibian species at risk:</u> <i>Lechriodus fletcheri</i>, <i>Litoria pearsoniana</i>.</p>
<p><b>3. Possible predation by feral animals, including the possible predation of eggs and tadpoles by exotic fish species.</b>  <u>Significant amphibian species at risk:</u> <i>Litoria brevipalmata</i>.</p>
<p><b>4. Competition from feral animals.</b>  <u>Significant mammal species at risk:</u> <i>Dasyurus maculatus maculatus</i>, <i>Petrogale penicillata</i>.</p>
<p><b>5. Competition from introduced house mice.</b>  <u>Significant mammal species at risk:</u> <i>Pseudomys novaehollandiae</i>, <i>Pseudomys oralis</i>.</p>
<p><b>6. Competition from introduced herbivores.</b>  <u>Significant mammal species at risk:</u> <i>Potorous tridactylus tridactylus</i>.</p>
<p><b>7. Predation by domestic dogs.</b>  <u>Significant mammal species at risk:</u> <i>Phascolarctos cinereus</i>.</p>
<p><b>8. Being caught in traps set for animals such as rabbits and foxes.</b>  <u>Significant mammal species at risk:</u> <i>Dasyurus maculatus maculatus</i>.</p>
<p><b>9. Possible poisoning from the ingestion of baits set for wild dogs and dingoes.</b>  <u>Significant mammal species at risk:</u> <i>Dasyurus maculatus maculatus</i>.</p>
<p><b>10. Habitat degradation through disturbance by feral pigs.</b>  <u>Significant bird species at risk:</u> <i>Dasyornis brachypterus</i>.</p>
<p><b>11. Degradation of water quality and riparian vegetation arising from feral animal disturbance.</b>  <u>Significant amphibian species at risk:</u> <i>Kyarranus kundagungan</i>.</p>
<p><b>12. Possible poisoning from the ingestion of cane toads (<i>Bufo marinus</i>).</b>  <u>Significant mammal species at risk:</u> <i>Dasyurus maculatus maculatus</i>.</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
<p>4. To prevent an increase in the area of significant species habitats and significant ecological communities currently affected by pest animals, and, where possible, to decrease the area currently affected.</p>	<ul style="list-style-type: none"> <li>• Pest animal management plans are in place for private properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration.</li> <li>• Pest animal management plans are in place for Conservation Parks, National Parks and other protected areas.</li> <li>• The pest animal management plans result in either preventing an increase in the area currently affected or facilitating a decrease in the area currently affected.</li> </ul>	<p>4A Prepare new or revised Pest Management Plans for Gatton and Laidley Shires. The plans are to include actions to address the pest animal species listed above.</p>	<p>Complete by 06/03</p>	<p>GSC &amp; LSC assisted by LCA</p>
		<p>4B Implement pest animal management planning programs targeting properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration, in accordance with annual targets (refer Action 11A). The plans are to be prepared using Appendices A &amp; B of this recovery plan and be consistent with Pest Management Plans for Gatton and Laidley Shires, and should preferably be components of overall property management plans (refer Action 1G).</p>	<p>Commence by 12/03, complete by 12/08 in accordance with annual targets</p>	<p>GSC &amp; LSC assisted by LCA &amp; UQGC</p>



Recovery objective	Performance criteria	Actions	Timeline	Responsibility
		4C Seek the preparation of pest animal management plans for protected areas on public land. The plans should be consistent with the Pest Management Plans for Gatton and Laidley Shires.	Ongoing	LCA
		4D Facilitate funding and labour assistance for landholders to carry out on-ground actions to control pest animals. The on-ground actions should be consistent with property management plans.	Ongoing	GSC & LSC assisted by LCA & UQGC

### 3.5 Lack of awareness

Threats
<p><b>1. A lack of awareness by landholders, community members and decision-makers in regard to the significant species and ecological communities of Gatton and Laidley Shire and their conservation requirements.</b></p> <p><u>Significant species at risk:</u> All of the significant species covered by this recovery plan.</p> <p><u>Significant ecological communities at risk:</u> All of the significant ecological communities covered by this recovery plan.</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
<p>5. Landholders and land managers gain an understanding of the significant species and ecological communities on their area and the conservation requirements of these species and communities.</p>	<ul style="list-style-type: none"> <li>The landholders of private properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration and the land managers responsible for protected areas on public land can identify their significant species and ecological communities and can demonstrate an awareness of their conservation requirements.</li> </ul>	<p>5A Prepare, publish and distribute written information that assists landholders and land managers to identify significant species and ecological communities and their conservation requirements. The information should be prepared using Appendices A &amp; B of this recovery plan, and be presented in a form that allows inclusion in property management planning kits and allows for easy updating. (Refer also to Action 1H).</p>	<p>Complete by 12/03, then review annually and update as required</p>	<p>GSC &amp; LSC assisted by LCA</p>
		<p>5B Host field days, workshops and other events to educate landholders and land managers in the identification and conservation of significant species and ecological communities. (Refer also to Action 1H).</p>	<p>Commence by 12/03, then ongoing</p>	<p>GSC &amp; LSC assisted by LCA</p>

## 3.6 Inappropriate grazing practices

Threats
<p><b>1. Degradation of habitat through inappropriate grazing practices.</b></p> <p><u>Significant flora species at risk:</u> <i>Acacia leichhardtii</i>, <i>Acacia montana</i>, <i>Allocasuarina inophloia</i>, <i>Bothriochloa bunyenensis</i>, <i>Callistemon formosus</i>, <i>Callitris baileyi</i>, <i>Clematis fawcettii</i>, <i>Dicanthium setosum</i>, <i>Eucalyptus bakeri</i>, <i>Floydia praealta</i>, <i>Gahnia clarkei</i>, <i>Grevillea quadricauda</i>, <i>Grevillea singuliflora</i>, <i>Leionema obtusifolium</i>, <i>Leptospermum lamellatum</i>, <i>Macrozamia lucida</i>, <i>Melaleuca groveana</i>, <i>Melastoma affine</i>, <i>Mentha grandiflora</i>, <i>Paspalidium grandispiculatum</i>, <i>Picris evae</i>, <i>Poranthera</i> sp. (Mt. Ballow G. Leiper AQ502886), <i>Rubus probus</i>, <i>Sarcophilus dilatatus</i>, <i>Sophora fraseri</i>, <i>Stemmacantha australis</i>, <i>Thesium australe</i>, <i>Triplarina bancroftii</i>, <i>Wahlenbergia scopulicola</i>.</p> <p><u>Significant bird species at risk:</u> <i>Dasyornis brachypterus</i>, <i>Erythrorchis radiatus</i>, <i>Geophaps scripta scripta</i>, <i>Lathamus discolor</i>, <i>Melithreptus gularis</i>, <i>Menura alberti</i>, <i>Psephotus pulcherrimus</i>, <i>Turnix melanogaster</i>, <i>Xanthomyza phrygia</i>.</p> <p><u>Significant mammal species at risk:</u> <i>Dasyurus maculatus maculatus</i>, <i>Petrogale penicillata</i>, <i>Phascolarctos cinereus</i>, <i>Potorous tridactylus tridactylus</i>.</p> <p><u>Significant ecological communities at risk:</u> Regional Ecosystem 12.5.6, Regional Ecosystem 12.8.9, Regional Ecosystem 12.8.10, Regional Ecosystem 12.8.21, Regional Ecosystem 12.9/10.6, Regional Ecosystem 12.9/10.15.</p>
<p><b>2. Lack of recruitment of new trees caused by inappropriate grazing practices.</b></p> <p><u>Significant ecological communities at risk:</u> Regional Ecosystem 12.3.3.</p>
<p><b>3. Loss or degradation of leaf litter through inappropriate grazing practices.</b></p> <p><u>Significant bird species at risk:</u> <i>Atrichornis rufescens</i>.</p>
<p><b>4. Loss, degradation or modification of leaf litter, surface rocks and logs or subsurface features through inappropriate grazing practices.</b></p> <p><u>Significant reptile species at risk:</u> <i>Coeranoscincus reticulatus</i>, <i>Delma torquata</i>.</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
<p>6. To decrease the area of significant species habitats and significant ecological communities currently affected by inappropriate grazing practices.</p>	<ul style="list-style-type: none"> <li>• Grazing management plans are in place for private grazing properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration.</li> <li>• Grazing management plans are in place for relevant Conservation Parks, National Parks and other protected areas.</li> <li>• The grazing management plans result in a decrease in the extent to which significant species habitats and significant ecological communities are subject to inappropriate grazing regimes.</li> </ul>	<p>6A Implement grazing management planning programs targeting properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration, in accordance with annual targets (refer Action 11A). The grazing management plans are to be prepared using Appendices A &amp; B of this recovery plan and the CSIRO publication <i>Balancing Conservation and Production: Understanding and Using Landscape Thresholds in Property Planning</i>. The grazing management plans should preferably be components of overall property management plans (refer Action 1G).</p>	<p>Commence by 12/03, complete by 12/08 in accordance with annual targets</p>	<p>GSC &amp; LSC assisted by LCA</p>
		<p>6B Seek the preparation and implementation of grazing management plans for relevant protected areas on public land.</p>	<p>Ongoing</p>	<p>LCA</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
		6C Facilitate funding and labour assistance for landholders to carry out on-ground actions to manage grazing, including the fencing of significant areas to exclude stock or control stock access. The on-ground actions should be consistent with property management plans.	Ongoing	GSC & LSC assisted by LCA

### 3.7 Inappropriate timber harvesting or timber thinning practices

Threats
<p><b>1. Degradation of habitat caused by inappropriate timber harvesting or inappropriate timber thinning practices.</b></p> <p><u>Significant flora species at risk:</u> <i>Acacia leichhardtii</i>, <i>Acacia montana</i>, <i>Allocasuarina inophloia</i>, <i>Bothriochloa bunyenensis</i>, <i>Callistemon formosus</i>, <i>Callitris baileyi</i>, <i>Dicanthium setosum</i>, <i>Gahnia clarkei</i>, <i>Grevillea quadricauda</i>, <i>Grevillea singuliflora</i>, <i>Leionema obtusifolium</i>, <i>Leptospermum lamellatum</i>, <i>Macrozamia lucida</i>, <i>Melastoma affine</i>, <i>Paspalidium grandispiculatum</i>, <i>Poranthera</i> sp. (Mt. Ballow G. Leiper AQ502886), <i>Rubus probus</i>, <i>Sophora fraseri</i>, <i>Triplarina bancroftii</i>.</p> <p><u>Significant bird species at risk:</u> <i>Accipiter novaehollandiae</i>, <i>Erythroriorchis radiatus</i>, <i>Geophaps scripta scripta</i>, <i>Lathamus discolor</i>, <i>Lophoictinia isura</i>, <i>Melithreptus gularis</i>, <i>Menura alberti</i>, <i>Neophema pulchella</i>, <i>Ninox strenua</i>, <i>Podargus ocellatus plumiferous</i>, <i>Tyto novaehollandiae</i>, <i>Tyto tenebricosa</i>, <i>Xanthomyza phrygia</i>.</p> <p><u>Significant mammal species at risk:</u> <i>Chalinolobus dwyeri</i>, <i>Chalinolobus picatus</i>, <i>Dasyurus maculatus maculatus</i>, <i>Kerivoula papuensis</i>, <i>Petrogale penicillata</i>, <i>Phascolarctos cinereus</i>.</p> <p><u>Significant ecological communities at risk:</u> Regional Ecosystem 12.5.6, Regional Ecosystem 12.8.9, Regional Ecosystem 12.8.10, Regional Ecosystem 12.9/10.3.</p>

<p><b>2. Loss or fragmentation of species populations or species habitat through inappropriate timber harvesting practices or inappropriate timber thinning practices.</b></p> <p><u>Significant flora species at risk:</u> <i>Eucalyptus helidonica</i>, <i>Eucalyptus melanoleuca</i>, <i>Eucalyptus sideroxylon</i>, <i>Eucalyptus taurina</i>, <i>Lysicarpus angustifolius</i>.</p>
<p><b>3. Loss of, or damage to, <i>Allocasuarina</i> plant species through inappropriate timber harvesting practices or inappropriate timber thinning practices.</b></p> <p><u>Significant bird species at risk:</u> <i>Calyptorhynchus lathami</i>.</p>
<p><b>4. Loss of, or damage to, fig trees through inappropriate timber harvesting practices or inappropriate timber thinning practices.</b></p> <p><u>Significant bird species at risk:</u> <i>Cyclopsitta diophthalma coxeni</i>.</p>
<p><b>5. Loss of trees with decorticating bark through inappropriate timber harvesting practices or inappropriate timber thinning practices.</b></p> <p><u>Significant reptile species at risk:</u> <i>Hoplocephalus stephensii</i>.</p> <p><u>Significant bird species at risk:</u> <i>Climacteris erythroptera</i>.</p>
<p><b>6. Lack of recruitment of new trees caused by inappropriate timber harvesting practices or inappropriate timber thinning practices.</b></p> <p><u>Significant ecological communities at risk:</u> Regional Ecosystem 12.3.3.</p>
<p><b>7. Loss of trees suitable for nesting through inappropriate timber harvesting practices or inappropriate timber thinning practices.</b></p> <p><u>Significant bird species at risk:</u> <i>Calyptorhynchus lathami</i>, <i>Cyclopsitta diophthalma coxeni</i>, <i>Ephippiorhynchus asiaticus</i>, <i>Erythrotriorchis radiatus</i>, <i>Lophoictinia isura</i>, <i>Neophema pulchella</i>, <i>Nettapus coromandelianus</i>, <i>Ninox strenua</i>, <i>Tyto novaehollandiae</i>, <i>Tyto tenebricosa</i>.</p> <p><u>Significant mammal species at risk:</u> <i>Dasyurus maculatus maculatus</i>.</p>
<p><b>8. Loss of food trees through inappropriate timber harvesting practices or inappropriate timber thinning practices.</b></p> <p><u>Significant bird species at risk:</u> <i>Calyptorhynchus lathami</i>, <i>Cyclopsitta diophthalma coxeni</i>.</p> <p><u>Significant mammal species at risk:</u> <i>Phascolarctos cinereus</i>.</p>
<p><b>9. Loss of trees suitable for roosting through inappropriate timber harvesting practices or inappropriate timber thinning practices.</b></p> <p><u>Significant mammal species at risk:</u> <i>Chalinolobus picatus</i>, <i>Kerivoula papuensis</i>.</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
<p>7. To decrease the area of significant species habitats and significant ecological communities currently affected by inappropriate timber harvesting and timber thinning practices.</p>	<ul style="list-style-type: none"> <li>• Timber harvesting and timber thinning management plans are in place for private grazing properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration.</li> <li>• Timber harvesting and timber thinning management plans are in place for relevant areas on public land.</li> <li>• The timber harvesting and timber thinning management plans result in a decrease in the extent to which significant species habitats and significant ecological communities are subject to inappropriate grazing regimes.</li> </ul>	<p>7A Implement timber harvesting and timber thinning management planning programs targeting properties covered by a Nature Refuge Agreement, Voluntary Conservation Covenant (VCC), Voluntary Conservation Agreement (VCA) or Land for Wildlife registration, in accordance with annual targets (refer Action 11A). The grazing management plans are to be prepared using Appendices A &amp; B of this recovery plan and the native forest management and timber thinning guidelines referred to in the <i>Regional Vegetation Management Plan - South East Queensland</i>. The timber harvesting and timber thinning management plans should preferably be components of overall property management plans (refer Action 1G).</p>	<p>Commence by 12/03, complete by 12/08 in accordance with annual targets</p>	<p>GSC &amp; LSC assisted by LCA</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
		7B Seek the preparation and implementation of timber harvesting and timber thinning management plans for relevant protected areas on public land.	Ongoing	LCA

### 3.8 Impacts on wetlands and riparian areas

Threats
<p><b>1. Alteration of stream flows.</b>  <u>Significant amphibian species at risk:</u> <i>Adelotus brevis</i>, <i>Cyclorana alboguttata</i>, <i>Cyclorana brevipes</i>, <i>Cyclorana verrucosa</i>, <i>Limnodynastes salmini</i>.</p>
<p><b>2. Alteration of wet/dry cycles of ephemeral wetlands and ponds.</b>  <u>Significant amphibian species at risk:</u> <i>Cyclorana alboguttata</i>, <i>Cyclorana brevipes</i>, <i>Cyclorana verrucosa</i>, <i>Limnodynastes salmini</i>.</p>
<p><b>3. Alteration of the wet/dry cycles of ephemeral wetlands.</b>  <u>Significant flora species at risk:</u> <i>Brasenia schreberi</i>, <i>Carex lophocarpa</i>, <i>Cyperus gunnii</i> subsp. <i>novae-hollandiae</i>, <i>Cyperus squarrosus</i>, <i>Damasonium minus</i>, <i>Eryngium vesiculosum</i>, <i>Potamogeton pectinatus</i>.  <u>Significant bird species at risk:</u> <i>Accipiter novaehollandiae</i>, <i>Ephippiorhynchus asiaticus</i>, <i>Falco hypoleucos</i>, <i>Melithreptus gularis</i>, <i>Nettapus coromandelianus</i>, <i>Stictonetta naevosa</i>.</p>
<p><b>4. Drainage of wetlands.</b>  <u>Significant bird species at risk:</u> <i>Nettapus coromandelianus</i>, <i>Rallus pectoralis</i>, <i>Rostratula benghalensis</i>, <i>Stictonetta naevosa</i>.</p>



<p><b>5. Cultivation.</b></p> <p><u>Significant flora species at risk:</u> <i>Brasenia schreberi</i>, <i>Carex lophocarpa</i>, <i>Cyperus gunnii</i> subsp. <i>novae-hollandiae</i>, <i>Cyperus squarrosus</i>, <i>Damasonium minus</i>, <i>Eryngium vesiculosum</i>, <i>Potamogeton pectinatus</i>.</p> <p><u>Significant amphibian species at risk:</u> <i>Cyclorana alboguttata</i>, <i>Cyclorana brevipes</i>, <i>Cyclorana verrucosa</i>, <i>Limnodynastes salmini</i>.</p>
<p><b>6. Siltation, pollution or exotic water-weed invasion of streams and ponds.</b></p> <p><u>Significant amphibian species at risk:</u> <i>Adelotus brevis</i>.</p>
<p><b>7. Siltation, pollution or exotic water-weed invasion of wetlands and ponds.</b></p> <p><u>Significant amphibian species at risk:</u> <i>Cyclorana alboguttata</i>, <i>Cyclorana brevipes</i>, <i>Cyclorana verrucosa</i>, <i>Limnodynastes salmini</i>.</p>
<p><b>8. Siltation, pollution or exotic water-weed invasion of wetlands.</b></p> <p><u>Significant flora species at risk:</u> <i>Brasenia schreberi</i>, <i>Carex lophocarpa</i>, <i>Cyperus gunnii</i> subsp. <i>novae-hollandiae</i>, <i>Cyperus squarrosus</i>, <i>Damasonium minus</i>, <i>Eryngium vesiculosum</i>, <i>Potamogeton pectinatus</i>.</p> <p><u>Significant bird species at risk:</u> <i>Accipiter novaehollandiae</i>, <i>Ephippiorhynchus asiaticus</i>, <i>Falco hypoleucos</i>, <i>Melithreptus gularis</i>, <i>Nettapus coromandelianus</i>, <i>Rallus pectoralis</i>, <i>Rostratula benghalensis</i>, <i>Stictonetta naevosa</i>.</p>
<p><b>9. Degradation of water quality and riparian vegetation arising from inappropriate timber harvesting practices, inappropriate grazing practices, weed invasion and pollution.</b></p> <p><u>Significant amphibian species at risk:</u> <i>Kyarranus kundagungan</i>, <i>Litoria brevipalmata</i>, <i>Litoria pearsoniana</i>, <i>Mixophyes fleayi</i>.</p>
<p><b>10. Modification of the vegetation fringing ephemeral wetlands and ponds through clearance, inappropriate fire regimes, weed invasion or exotic pasture grass invasion.</b></p> <p><u>Significant amphibian species at risk:</u> <i>Cyclorana alboguttata</i>, <i>Cyclorana brevipes</i>, <i>Cyclorana verrucosa</i>, <i>Limnodynastes salmini</i>.</p>
<p><b>11. Modification of the vegetation fringing wetlands through clearance, inappropriate fire regimes, weed invasion or exotic pasture grass invasion.</b></p> <p><u>Significant bird species at risk:</u> <i>Accipiter novaehollandiae</i>, <i>Ephippiorhynchus asiaticus</i>, <i>Falco hypoleucos</i>, <i>Melithreptus gularis</i>, <i>Nettapus coromandelianus</i>, <i>Stictonetta naevosa</i>.</p>

<p><b>12. Modification of riparian vegetation and the vegetation fringing wetlands through clearance, inappropriate fire regimes, weed invasion or exotic pasture grass invasion.</b></p> <p><u>Significant flora species at risk:</u> <i>Brasenia schreberi</i>, <i>Carex lophocarpa</i>, <i>Cyperus gunnii</i> subsp. <i>novae-hollandiae</i>, <i>Cyperus squarrosus</i>, <i>Damasonium minus</i>, <i>Eryngium vesiculosum</i>, <i>Potamogeton pectinatus</i>.</p> <p><u>Significant bird species at risk:</u> <i>Rallus pectoralis</i>, <i>Rostratula benghalensis</i>.</p>
<p><b>13. Clearance or fragmentation of riparian vegetation.</b></p> <p><u>Significant amphibian species at risk:</u> <i>Adelotus brevis</i>.</p>
<p><b>14. Modification of riparian vegetation through inappropriate fire regimes, inappropriate grazing practices or weed invasion.</b></p> <p><u>Significant amphibian species at risk:</u> <i>Adelotus brevis</i>.</p>
<p><b>15. Habitat degradation through inappropriate timber harvesting practices, inappropriate grazing practices, weed invasion and pollution.</b></p> <p><u>Significant amphibian species at risk:</u> <i>Lechriodus fletcheri</i>.</p>
<p><b>16. Modification of the vegetation covering the floor of ephemeral wetlands and ponds during the dry stage of the wet/dry cycle through clearance, inappropriate fire regimes, weed invasion or exotic pasture grass invasion.</b></p> <p><u>Significant amphibian species at risk:</u> <i>Cyclorana alboguttata</i>, <i>Cyclorana brevipes</i>, <i>Cyclorana verrucosa</i>, <i>Limnodynastes salmini</i>.</p>
<p><b>17. Modification of the vegetation covering the floor of ephemeral wetlands during the dry stage of the wet/dry cycle through clearance, inappropriate fire regimes, weed invasion or exotic pasture grass invasion.</b></p> <p><u>Significant flora species at risk:</u> <i>Brasenia schreberi</i>, <i>Carex lophocarpa</i>, <i>Cyperus gunnii</i> subsp. <i>novae-hollandiae</i>, <i>Cyperus squarrosus</i>, <i>Damasonium minus</i>, <i>Eryngium vesiculosum</i>, <i>Potamogeton pectinatus</i>.</p> <p><u>Significant bird species at risk:</u> <i>Accipiter novaehollandiae</i>, <i>Ephippiorhynchus asiaticus</i>, <i>Falco hypoleucos</i>, <i>Melithreptus gularis</i>, <i>Stictonetta naevosa</i>.</p>
<p><b>18. Disease.</b></p> <p><u>Significant amphibian species at risk:</u> <i>Lechriodus fletcheri</i>, <i>Litoria brevipalmata</i>, <i>Litoria pearsoniana</i>, <i>Mixophyes fleayi</i>.</p>
<p><b>19. Reductions in the availability of prey species caused by the loss or modification of wetlands.</b></p> <p><u>Significant bird species at risk:</u> <i>Erythrorchis radiatus</i>.</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
8. To develop and implement wetland and riparian area management strategies that integrate the conservation needs of significant species with agricultural land use needs.	<ul style="list-style-type: none"> <li>• Riparian areas are protected from further degradation, and where possible rehabilitated.</li> <li>• Wetland areas are protected from further degradation, and where possible rehabilitated.</li> </ul>	8A Develop and implement programs to protect and rehabilitate riparian areas in accordance with Appendices A & B of this recovery plan, <i>Caring for our Lockyer Catchment - A Natural Resource Management Strategy</i> , and annual targets (refer Action 11A).	Commence by 12/03, complete by 12/08 in accordance with annual targets	GSC & LSC assisted by LCA
		8B Develop and implement programs to protect and rehabilitate wetlands in accordance with Appendices A & B of this recovery plan, the <i>Lockyer Wetlands Directory</i> , and annual targets (refer Action 11A).	Commence by 12/03, complete by 12/08 in accordance with annual targets	GSC & LSC assisted by LCA
		8C Facilitate funding and labour assistance for landholders to protect and rehabilitate riparian areas and wetlands.	Ongoing	GSC & LSC assisted by LCA

### 3.9 Lack of knowledge

Threats
<p><b>1. A lack of knowledge in regard to the presence/absence of particular significant species in the recovery plan area.</b>  <u>Significant flora species at risk:</u> <i>Floydia praealta</i>, <i>Picris evae</i>, <i>Thesium australe</i>, <i>Triodia</i> sp., <i>Wahlenbergia scopulicola</i>.  <u>Significant invertebrate species at risk:</u> <i>Nesolycaena albosericea</i>.  <u>Significant amphibian species at risk:</u> <i>Litoria brevipalmata</i>, <i>Litoria pearsoniana</i>.  <u>Significant reptile species at risk:</u> <i>Hoplocephalus stephensii</i>.  <u>Significant bird species at risk:</u> <i>Atrichornis rufescens</i>, <i>Cyclopsitta diophthalma coxeni</i>, <i>Dasyornis brachypterus</i>, <i>Podargus ocellatus plumiferous</i>, <i>Psephotus pulcherrimus</i>, <i>Tyto tenebricosa</i>.  <u>Significant mammal species at risk:</u> <i>Dasyurus maculatus maculatus</i>, <i>Pseudomys oralis</i>.</p>
<p><b>2. A lack of knowledge in regard to the presence/absence of the species in Regional Ecosystems 12.3.3, 12.8.14, 12.8.19 and 12.9/10.7.</b>  <u>Significant flora species at risk:</u> <i>Stemmacantha australis</i>.</p>
<p><b>3. Limited knowledge in regard to habitat requirements.</b>  <u>Significant flora species at risk:</u> <i>Hibbertia monticola</i>.</p>
<p><b>4. A lack of knowledge in regard to which species of <i>Triodia</i> is present in Cambooya Shire.</b>  <u>Significant flora species at risk:</u> <i>Triodia</i> sp.</p>

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
9.1 To determine the presence/absence of particular significant species that may potentially occur in the recovery plan area.	<ul style="list-style-type: none"> <li>The presence of all of the significant species that may potentially occur in the recovery plan area, as listed above, is confirmed/denied.</li> </ul>	9A Carry out surveys and studies. Revise Sections 2 and 3 and Appendices A and B of this recovery plan as required.	Commence by 12/03, complete by 12/04	GSC & LSC assisted by LCA
9.2 To determine the presence/absence of <i>Stemmacantha australis</i> in Regional Ecosystems 12.3.3, 12.8.14, 12.8.19, and 12.9/10.7.	<ul style="list-style-type: none"> <li>The presence of all <i>Stemmacantha australis</i> in Regional Ecosystems 12.3.3, 12.8.14, 12.8.19, and 12.9/10.7 is confirmed/denied.</li> </ul>	9B Carry out surveys and studies. Revise Sections 2 and 3 and Appendices A and B of this recovery plan as required.	Commence by 12/03, complete by 12/04	GSC & LSC assisted by LCA
9.3 To determine the habitat requirements of <i>Hibbertia monticola</i> .	<ul style="list-style-type: none"> <li>Habitat requirements are identified.</li> </ul>	9C Carry out surveys and studies. Revise Sections 2 and 3 and Appendices A and B of this recovery plan as required.	Commence by 12/03, complete by 12/04	GSC & LSC assisted by LCA
9.4 To determine the species of <i>Triodia</i> present in Cambooya Shire.	<ul style="list-style-type: none"> <li>The species of <i>Triodia</i> is identified.</li> </ul>	9D Carry out surveys and studies. Revise Sections 2 and 3 and Appendices A and B of this recovery plan as required.	Commence by 12/03, complete by 12/04	GSC & LSC assisted by LCA

## 3.10 Other threats

Threats
<p><b>1. Over-harvesting for flora trade.</b>  <u>Significant flora species at risk:</u> <i>Caustis blakei</i> subsp. <i>macrantha</i>.</p>
<p><b>2. Inappropriate road maintenance activities.</b>  <u>Significant flora species at risk:</u> <i>Eucalyptus bakeri</i>, <i>Grevillea quadricauda</i>, <i>Triplarina bancroftii</i>.</p>
<p><b>3. Traffic.</b>  <u>Significant bird species at risk:</u> <i>Tyto novaehollandiae</i>.  <u>Significant mammal species at risk:</u> <i>Phascolarctos cinereus</i>.</p>
<p><b>4. Illegal collection.</b>  <u>Significant flora species at risk:</u> <i>Sarcochilus dilatatus</i>.</p>
<p><b>5. Illegal collection of eggs.</b>  <u>Significant bird species at risk:</u> <i>Calyptorhynchus lathami</i>, <i>Cyclopsitta diopthalma coxeni</i>, <i>Erythroriorchis radiatus</i>.</p>
<p><b>6. Deliberate shooting.</b>  <u>Significant bird species at risk:</u> <i>Accipiter novaehollandiae</i>, <i>Erythroriorchis radiatus</i>, <i>Lophoictinia isura</i>.</p>
<p><b>7. Reduction in breeding success caused by pesticide residues in the food chain.</b>  <u>Significant bird species at risk:</u> <i>Erythroriorchis radiatus</i>.</p>
<p><b>8. Possible reduction in breeding success caused by pesticide residues in the food chain.</b>  <u>Significant bird species at risk:</u> <i>Accipiter novaehollandiae</i>.</p>
<p><b>9. Abandonment of nest sites caused by humans coming too close to nest sites.</b>  <u>Significant bird species at risk:</u> <i>Erythroriorchis radiatus</i>.</p>

**10. Possible reduction in prey availability.**

Significant bird species at risk: *Tyto novaehollandiae*.

**11. Possible competition for nectar from some larger species of honeyeater which have benefited from habitat fragmentation.**

Significant bird species at risk: *Xanthomyza phrygia*.

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
10.1 To prevent the over-harvesting of <i>Caustis blakei</i> subsp. <i>macrantha</i> .	<ul style="list-style-type: none"> <li>Harvesting activities do not contribute to a decline in species populations and numbers.</li> </ul>	10A Develop and implement measures to prevent the over-harvesting of <i>Caustis blakei</i> subsp. <i>macrantha</i> .	Complete by 12/03	EPA/QPWS
10.2 To prevent damage to populations of <i>Eucalyptus bakeri</i> , <i>Grevillea quadricauda</i> and <i>Triplarina bancroftii</i> from road maintenance activities.	<ul style="list-style-type: none"> <li>Road maintenance activities do not contribute to a decline in species populations and numbers.</li> </ul>	10B Develop and implement measures to protect <i>Eucalyptus bakeri</i> , <i>Grevillea quadricauda</i> and <i>Triplarina bancroftii</i> and their habitats from damage due to road maintenance activities.	Complete by 12/03	GSC & LSC assisted by LCA
10.3 To prevent traffic causing the death or injury of <i>Phascolarctos cinereus</i> and <i>Tyto novaehollandiae</i> .	<ul style="list-style-type: none"> <li>Traffic does not contribute to a decline in species populations and numbers.</li> </ul>	10C Develop and implement measures to protect <i>Phascolarctos cinereus</i> and <i>Tyto novaehollandiae</i> from death or injury due to traffic.	Complete by 12/03	GSC & LSC assisted by LCA

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
10.4 To discourage the illegal collection of <i>Sarcochilus dilatatus</i> .	<ul style="list-style-type: none"> <li>Known locations of <i>Sarcochilus dilatatus</i> are not publicly revealed.</li> </ul>	10D Ensure that <i>Sarcochilus dilatatus</i> locations on GIS or other databases are not shown or made available to the public.	Commence immediately, then ongoing	GSC & LSC assisted by LCA
10.5 To discourage human contact with nest sites of <i>Calyptorhynchus lathami</i> , <i>Cyclopsitta diopthalma coxeni</i> and <i>Erythrotriorchis radiatus</i> .	<ul style="list-style-type: none"> <li>Nest site locations are not publicly revealed.</li> </ul>	10E Ensure that nest site locations on GIS or other databases are not shown or made available to the public.	Commence immediately, then ongoing	GSC & LSC assisted by LCA
10.6 To discourage the deliberate shooting of <i>Accipiter novaehollandiae</i> , <i>Erythrotriorchis radiatus</i> and <i>Lophoictinia isura</i> .	<ul style="list-style-type: none"> <li>Education programs are implemented.</li> </ul>	10F Education programs are implemented to promote an awareness of the values and benefits of <i>Accipiter novaehollandiae</i> , <i>Erythrotriorchis radiatus</i> and <i>Lophoictinia isura</i> . (Refer also to Actions 5A & 5B).	Commence by 12/03, then ongoing	GSC & LSC assisted by LCA
10.7 To encourage the reduced use of pesticides in areas frequented by <i>Erythrotriorchis radiatus</i> and <i>Accipiter novaehollandiae</i> .	<ul style="list-style-type: none"> <li>Education programs are implemented.</li> </ul>	10G Education programs are implemented to promote an awareness of the values and benefits of <i>Erythrotriorchis radiatus</i> and <i>Accipiter novaehollandiae</i> and the risk that pesticides pose to the survival of these species. (Refer also to Actions 5A & 5B).	Commence by 12/03, then ongoing	GSC & LSC assisted by LCA



Recovery objective	Performance criteria	Actions	Timeline	Responsibility
10.8 To determine whether reduction in prey availability is affecting <i>Tyto novaehollandiae</i> . If so, to initiate recovery actions.	<ul style="list-style-type: none"> <li>Studies are carried out.</li> </ul>	10H Carry out studies to determine whether reduction in prey availability is affecting <i>Tyto novaehollandiae</i> . Develop and implement management strategies if required.	Commence by 12/03, complete by 12/05	GSC & LSC assisted by LCA & QPWS
10.9 To determine if competition for nectar from some larger species of honeyeater is affecting <i>Xanthomyza phrygia</i> . If so, to initiate recovery actions.	<ul style="list-style-type: none"> <li>Studies are carried out.</li> </ul>	10I Carry out studies to determine if competition for nectar from some larger species of honeyeater is affecting <i>Xanthomyza phrygia</i> . Develop and implement management strategies if required.	Commence by 12/03, complete by 12/05	GSC & LSC assisted by LCA & QPWS

### 3.11 Supporting actions

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
11.1 To establish targets for recovery plan actions.	<ul style="list-style-type: none"> <li>• Annual targets for each of the years 2003 to 2008 are established and incorporated into the Regional Natural Resource Management Plan for the Western Catchments of South East Queensland.</li> <li>• The progress of recovery plan implementation meets or exceeds the annual targets.</li> </ul>	11A Establish annual targets for each of the years 2003 to 2008 for the implementation of Actions 1D, 1F, 1G, 2A, 3B, 4B, 6A, 7A, 8A and 8B. The targets must be: <ul style="list-style-type: none"> <li>• Quantifiable (i.e. state the number of properties or hectare area which will be achieved).</li> <li>• Location-specific (i.e. state the exact sub-catchment or bushland area where implementation will occur).</li> <li>• Sufficient to ensure the achievement of all relevant recovery objectives and performance criteria.</li> <li>• Developed using Appendices A &amp; B of this recovery plan, EPA <i>Southeast Queensland Biodiversity Planning Assessment, Lockyer Wetlands Directory</i>, and any other relevant documents.</li> </ul>	Complete by 12/03	LCA assisted by GSC, LSC & SEQWCG

Recovery objective	Performance criteria	Actions	Timeline	Responsibility
11.2 To secure an adequate level of resourcing for the implementation of recovery plan actions.	<ul style="list-style-type: none"> <li>A level of resourcing is secured that will enable the implementation of all recovery plan actions in accordance with determined targets.</li> </ul>	11B Allocate and/or seek funding and other resources that will enable the implementation of all recovery plan actions in accordance with the targets determined under Action 11A. Funding and other resources are to be allocated from the budgets of Gatton and Laidley Shire Councils and sought from programs such as the Natural Heritage Trust (NHT), National Action Plan for Salinity and water Quality (NAPSWQ) and Green Corps.	Commence by 12/03, then ongoing	GSC & LSC assisted by LCA & SEQWCG



# **4. Implementation program**

---

## 4.1 Monitoring and evaluation

Monitoring and evaluation of this recovery plan is to be carried out annually by the Biodiversity Sub-Committee of the Lockyer Catchment Association (LCA) Inc. and reported to Environment Australia, Queensland Environmental Protection Agency (EPA), Queensland Parks and Wildlife Service (QPWS), Queensland Department of Natural Resources and Mines (DNR&M), South East Queensland Western Catchments Group (SEQWCG), Gatton Shire Council and Laidley Shire Council. The first monitoring and evaluation is to be carried out by the Biodiversity Sub-Committee in February 2004.

The monitoring and evaluation process will include:

- Monitoring and evaluating the progress made in implementing recovery plan actions; and
- Monitoring and evaluating the efficacy of recovery plan actions.

### 4.1.1 Progress made in implementing recovery plan actions

Monitoring and evaluating the progress made in implementing recovery plan actions will include an assessment of:

- The number of development applications and clearing permit applications assessed using the Regional Ecosystem Management Principles in Appendices A & B of this recovery plan.
- The number of hectares of private land covered by a conservation agreement (Nature Refuge Agreement, Voluntary Conservation Covenant, Voluntary Conservation Agreement or Land for Wildlife registration).
- The existence of targets for recovery plan actions.
- The amount of funding secured for the implementation of recovery actions.
- The proportion of conservation agreement land covered by property management plans, and the extent to which property management plans designate significant species habitats and significant ecological communities.
- The number of hectares of public land secured by conversion to Conservation Park or National Park or other form of protected area.
- The proportion of private and public land covered by a fire management plan.
- The proportion of private and public land covered by a pest plant management plan.
- The proportion of private and public land covered by a pest animal management plan.
- The proportion of landholders and land managers who can identify the significant species and ecological communities on their land and can demonstrate an awareness of their conservation requirements.
- The proportion of private and public land covered by a grazing management plan.
- The proportion of private and public land covered by a timber harvesting and thinning management plan.
- The number of wetlands protected or rehabilitated.

- The length of riparian vegetation protected or rehabilitated.

#### **4.1.2 The efficacy of recovery plan actions**

Monitoring and evaluating the efficacy of recovery plan actions will include an assessment of:

- The area that has been cleared of (a) endangered Regional Ecosystems, (b) of-concern Regional Ecosystems, (c) not-of-concern Regional Ecosystems that are significant species habitat, and (d) wetlands.
- The extent to which fire management plans have resulted in a decrease in the significant species habitats and significant ecological communities that are subject to inappropriate fire regimes. This will be determined using representative monitoring sites.
- The extent to which pest plant management plans and associated on-ground actions have resulted in preventing an increase in the area currently invaded or have resulted in a decrease in the area currently invaded. This will be determined using representative monitoring sites.
- The extent to which pest animal management plans and associated on-ground actions have resulted in preventing an increase in the area currently affected or have resulted in a decrease in the area currently affected. This will be determined using representative monitoring sites.
- The extent to which wetland management plans and associated on-ground actions have resulted in preventing an increase in the area currently affected by threats or have resulted in a decrease in the area currently affected by threats. This will be determined using representative monitoring sites.
- The extent to which grazing management plans, sustainable timber thinning practices and other recovery actions result in the maintenance of, or improvement of, habitat quality. This will be determined using representative monitoring sites.

## **4.2 Local Government measures**

The Lockyer Catchment Association (LCA) Inc. will work with Gatton Shire Council and Laidley Shire Council to assist them to adopt the following recommended conservation measures. These measures implement recovery plan Actions 1A and 1C (refer to Section 3.1).

#### **4.2.1 Statutory measures**

Development proposals in Gatton and Laidley Shires should be assessed using the Regional Ecosystem management principles identified in Appendices A and B of this recovery plan. To facilitate this assessment, Gatton and Laidley Shire Council should each prepare either a Planning Scheme Code/Policy or Local Law using:

- Appendices A and B of this recovery plan;
- *Gatton Shire Vegetation Mapping Report* (Grimshaw, 2001) or *An Assessment of Native Vegetation Areas within Laidley Shire* (Fox et al, 1997);

- *Land Use Planning Handbook for the Lockyer Catchment* (Boyes, 2001);
- The Queensland Environmental Protection Agency *Southeast Queensland Biodiversity Planning Assessment* (current version); and
- The recommended Performance Criteria and Acceptable Measures from the table below.

Recommended Performance Criteria	Recommended Acceptable Measures
<p>P1. Populations of significant species and their habitats and other identified significant habitat areas must be retained, or where degraded, rehabilitated, and the impacts of development must be minimised.</p>	<p>A1.1 Known populations of significant species that occur in the area are conserved.</p> <p>A1.2 Surveys are undertaken to identify any additional populations and these are also conserved.</p> <p>A1.3 An environmental management plan is prepared and implemented which addresses matters identified in Appendices A and B of the <i>Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008</i>.</p> <p>A1.4 Where applicable, a fire management plan is prepared as part of an environmental management plan, that demonstrates fire regimes suitable for conserving significant species and ecological communities.</p> <p>A1.5 Biodiversity assessment information accompanying applications is comprehensive, competent and adequate.</p>
<p>P2. The relatively unfragmented nature of native vegetation areas must be maintained.</p>	<p>A2.1 Development occurs within existing cleared areas on a site.</p> <p>A2.2 There is no or minimal clearance of vegetation in identified significant habitat areas.</p>
<p>P3. Ecological corridors must be identified and retained or re-established to maintain, improve or create connectivity between habitat areas and to allow wildlife movement between habitat areas.</p>	<p>A3.1 Development does not occur in locations that would preclude or significantly diminish the retention or re-establishment of ecological corridors linking with identified significant habitat areas.</p>



	A3.2 Degraded ecological corridors are rehabilitated or re-established.
<p>P4. Development layout, planning and construction must minimise impacts on the edges of native vegetation (“edge effects”) as a result of:</p> <ul style="list-style-type: none"> <li>• Garden plants that are potential bushland weeds;</li> <li>• Domestic animals that could prey on native wildlife;</li> <li>• Rubbish dumping that could cause pollution of habitat or pose a risk to wildlife that may forage rubbish for food;</li> <li>• Light pollution that may pose a risk to wildlife, in particular nocturnal wildlife;</li> <li>• Noise pollution that may pose a risk to wildlife; and</li> <li>• Vandalism that may pose a risk to native vegetation and wildlife.</li> </ul>	<p>A4.1 Appropriate separation or buffering is provided to minimise the impact of edge effects.</p> <p>A4.2 Landscaping predominantly involves the use of native species typical of the particular ecosystem.</p> <p>A4.3 Landscaping does not involve any species known to invade or that could potentially invade significant habitat areas.</p> <p>A4.4 An environmental management plan is prepared and implemented which addresses measures to control edge effects.</p>
<p>P5. Development layout, planning and construction must minimise impacts on waterways and wetlands, with regard to:</p> <ul style="list-style-type: none"> <li>• Surface and ground water flow patterns of waterways and wetlands;</li> <li>• The effects of siltation or pollution; and</li> <li>• The wet/dry cycles of seasonally inundated (ephemeral) wetlands.</li> </ul>	<p>A5.1 Appropriate separation or buffering is provided to minimise impacts on waterways or wetlands.</p> <p>A5.2 Riparian or wetland vegetation and habitat is retained or, where in a degraded state, rehabilitated.</p> <p>A5.3 Specific management principles outlined Appendices A and B of the <i>Biodiversity Recovery Plan for Gatton and Laidley Shires, South-East Queensland 2003-2008</i> and <i>Lockyer Wetlands Directory</i> are implemented.</p>
<p>P6. Significant habitat areas are given secure protection.</p>	<p>A6.1 Significant habitat areas are subject to a Nature Refuge Agreement, Voluntary Conservation Agreement, Voluntary Conservation Covenant, or Land for Wildlife registration, or are transferred to community ownership or control (such as Council or community group trusteeship).</p>

#### 4.2.2 Voluntary measures

The biodiversity policies of Gatton and Laidley Shires should include a range of voluntary measures to complement the statutory measures in Section 4.2.1

The clearance of native vegetation in Gatton and Laidley Shires is now at a very low level, with most landholders valuing and appreciating their native vegetation. However, some clearance of significant vegetation is still occurring. In this context, the best outcomes will be achieved through a balance of both statutory and voluntary measures.

The voluntary measures should comprise conservation agreement programs and landholder incentives. The conservation agreement programs should include Land for Wildlife and both Voluntary Conservation Agreements (VCAs) and Voluntary Conservation Covenants (VCCs). The conservation agreement program developed by Crows Nest Shire Council provides a useful model. Recommended landholder incentives for Gatton and Laidley Shires are:

- *Bonus development rights - ecotourism.* Landholders who want to establish an ecotourism enterprise on their property receive discounts on application fees and other charges in return for conserving areas of native vegetation.
- *Bonus development rights - subdivision.* Landholders are given the right to carry out limited subdivision of their property in return for conserving areas of native vegetation.
- *Valuation concessions.* Landholders are given valuation concessions in return for conserving areas of native vegetation.
- *Rate rebates.* Landholders are given a rebate on their annual rates bill in return for conserving areas of native vegetation.
- *Management assistance.* Landholders are given grant funding to assist them with the costs of managing areas of native vegetation (e.g. grant funding to assist with pest management, fire management, or grazing management).
- *Significant species and ecological community technical notes.* Landholders are given technical notes that help them to identify and manage the significant species and ecological communities on their properties.

Further information about recommended landholder incentives for Gatton and Laidley Shires can be found in Chapter 4 of the *Gatton Shire Biodiversity Strategy*.

#### 4.2.3 Upgrading of GIS data sets

To facilitate the implementation of the measures outlined in Sections 4.2.1 and 4.2.2, both Gatton Shire Council and Laidley Shire Council will need to upgrade their Geographic Information System (GIS) data sets to include a new layer showing the known locations of all of the significant species identified in Appendix B of this recovery plan. This data should be compiled from all known sources including the Queensland Parks and Wildlife Service (QPWS) and Lockyer Catchment Centre, and updated regularly. Recovery plan Actions 10D and 10E will need to be addressed when establishing the new data set. Significant species location information from the new GIS data set should be made available to any interested landholders and development applicants on request.

## 4.3 Implementation work plan

Work Plan for 2003		
Implementation date	Actions	Lead responsibility
Commence immediately	10D, 10E	GSC & LSC
Commence immediately	Establish monitoring and evaluation sites in accordance with Section 4.1.2	GSC & LSC
Complete by 06/03	1A, 2C, 3A, 4A	GSC & LSC
Complete by 06/03	1B	LCA
Complete by 12/03	11A	LCA
Complete by 12/03	1C, 1H, 5A, 10B, 10C	GSC & LSC
Complete by 12/03	10A	EPA/QPWS
Commence by 12/03	1D, 1G, 2A, 3B, 4B, 5B, 6A, 7A, 8A, 8B, 9A, 9B, 9C, 9D, 10F, 10G, 10H, 10I, 11B	GSC & LSC
Ongoing	1E, 3D, 4D, 6C, 8C, 10D, 10E, 10F, 10G, 11B	GSC & LSC
Ongoing	1I, 2B, 3C, 4C, 6B, 7B	LCA

Notes:

<b>Work Plan for 2004</b>		
<b>Implementation date</b>	<b>Actions</b>	<b>Lead responsibility</b>
Complete by 02/04	Annual monitoring and evaluation, in accordance with Section 4.1	LCA
Complete by 12/04	9A, 9B, 9C, 9D	GSC & LSC
Achieve annual target by 12/04	1D, 1F, 1G, 2A, 3B, 4B, 6A, 7A, 8A, 8B	GSC & LSC
Review annually, update as required	1H, 5A	GSC & LSC
Ongoing	1E, 3D, 4D, 5B, 6C, 8C, 10D, 10E, 10F, 10G, 11B	GSC & LSC
Ongoing	1I, 2B, 3C, 4C, 6B, 7B	LCA

Notes:

<b>Work Plan for 2005</b>		
<b>Implementation date</b>	<b>Actions</b>	<b>Lead responsibility</b>
Complete by 02/05	Annual monitoring and evaluation, in accordance with Section 4.1	LCA
Complete by 12/05	10H, 10I	GSC & LSC
Achieve annual target by 12/05	1D, 1F, 1G, 2A, 3B, 4B, 6A, 7A, 8A, 8B	GSC & LSC
Review annually, update as required	1H, 5A	GSC & LSC
Ongoing	1E, 3D, 4D, 5B, 6C, 8C, 10D, 10E, 10F, 10G, 11B	GSC & LSC
Ongoing	1I, 2B, 3C, 4C, 6B, 7B	LCA

Notes:

<b>Work Plan for 2006</b>		
<b>Implementation date</b>	<b>Actions</b>	<b>Lead responsibility</b>
Complete by 02/06	Annual monitoring and evaluation, in accordance with Section 4.1	LCA
Achieve annual target by 12/06	1D, 1F, 1G, 2A, 3B, 4B, 6A, 7A, 8A, 8B	GSC & LSC
Review annually, update as required	1H, 5A	GSC & LSC
Ongoing	1E, 3D, 4D, 5B, 6C, 8C, 10D, 10E, 10F, 10G, 11B	GSC & LSC
Ongoing	1I, 2B, 3C, 4C, 6B, 7B	LCA

Notes:

<b>Work Plan for 2007</b>		
<b>Implementation date</b>	<b>Actions</b>	<b>Lead responsibility</b>
Complete by 02/07	Annual monitoring and evaluation, in accordance with Section 4.1	LCA
Achieve annual target by 12/07	1D, 1F, 1G, 2A, 3B, 4B, 6A, 7A, 8A, 8B	GSC & LSC
Review annually, update as required	1H, 5A	GSC & LSC
Ongoing	1E, 3D, 4D, 5B, 6C, 8C, 10D, 10E, 10F, 10G, 11B	GSC & LSC
Ongoing	1I, 2B, 3C, 4C, 6B, 7B	LCA

Notes:

<b>Work Plan for 2008</b>		
<b>Implementation date</b>	<b>Actions</b>	<b>Lead responsibility</b>
Complete by 02/08	Annual monitoring and evaluation, in accordance with Section 4.1	LCA
Achieve annual target by 12/08	1D, 1F, 1G, 2A, 3B, 4B, 6A, 7A, 8A, 8B	GSC & LSC
Review annually, update as required	1H, 5A	GSC & LSC
Ongoing	1E, 3D, 4D, 5B, 6C, 8C, 10D, 10E, 10F, 10G, 11B	GSC & LSC
Ongoing	1I, 2B, 3C, 4C, 6B, 7B	LCA
Complete by 12/08	Review and revise recovery plan to create a new recovery plan for 2009 - 2014	LCA
Complete by 02/09	Annual monitoring and evaluation, in accordance with Section 4.1	LCA

Notes: