

# 4 | The Lowland Native Grassland Conservation Strategy

## 4.1

### Introduction

The *Lowland Native Grassland Conservation Strategy* is intended to fulfill a number of roles. These are:

- action plans for species and ecological communities listed as threatened under the *Nature Conservation Act 1980*;
- a multi-species/ecological community strategy for native grassland conservation;
- a source document on native grassland for ACT and Commonwealth Government agencies with responsibilities for nature conservation, planning and land management; and
- a source document for community and other stakeholders with an interest in native grassland conservation.

As an Action Plan prepared under the *Nature Conservation Act 1980*, the *Strategy* addresses the requirement in section 23 of the Act, that it '*shall include proposals to ensure, as far as is practicable, the identification, protection and survival of the species, or the ecological community; or proposals to minimise the effect of any process which threatens any species or ecological community*'.

The *Strategy* provides information, strategic direction and performance criteria for a variety of government planning exercises, including:

- Proposals in *The Canberra Plan* (ACT Government 2004c) (Theme 'Living with the Environment—Our Bush Capital), which state that areas of high conservation value will be enhanced and protected.
- Proposals in *The Canberra Spatial Plan* (ACT Government 2004b). An objective of the *Spatial Plan* (p. 72) is to:
 

*Protect and enhance biodiversity through nature reserves and maintaining connectivity between them.*

In particular the *Spatial Plan* notes that development in the new employment corridor in Majura, Symonston and Jerrabomberra, including around the airport, will take into account the areas of native grassland and habitat for threatened species that are of significant nature conservation value.

- Proposals in *The Social Plan* (ACT Government 2004d): **(Priority 7 Respect and protect the environment)** '*7.4 Ecological protection and urban development*: The Government will help protect our threatened species and ecological communities as part of best practice planning for urban development'; and
 

*'7.5 Conservation strategies*: The Government will continue to ensure that key biodiversity assets are identified, protected and managed through preparation of conservation strategies for lowland woodlands (2003), native grasslands (2004) and aquatic and riverine communities (2005)'.
- Preparation of the Outline Plan for the Jerrabomberra Valley.
- Preparation of any future land use proposals including those involving variations to *The Territory Plan* and amendments to the *National Capital Plan*, the shape and location of urban development and the use to be made of land surrounding metropolitan Canberra.

As part of these planning processes, decisions will be made by the ACT Government as to whether grasslands will be protected as Public Land (Nature Reserve), will remain without formal protection in other tenures under the *Territory Plan*, but subject to management requirements, or be modified or destroyed as pressures for urban expansion are addressed. This *Strategy* will be used by all agencies and others involved in land use planning decisions as one source of information on the values and significance of remaining grassland areas. The

*Strategy* also identifies and places in context, grassland areas on National Land in the ACT which are managed by Commonwealth agencies. These areas remain outside of the management arrangements provided for under the *Land (Planning and Environment) Act 1991* (see s. 1.5.2). Memoranda of Understanding are in place regarding conservation planning and management of most of these areas (see s. 3.4.3 and 3.4.4).

Other natural and cultural values of particular areas of native grassland, such as evidence of Aboriginal occupation, recreational use, aesthetic amenity, educational and special scientific features are normally taken into consideration during the planning phase before specific proposals are developed by government agencies. Management of these values is set out in management plans for particular areas or groups of areas, such as the *Canberra Nature Park Management Plan* (ACT Parks and Conservation Service 1999) (see s.1.7).

Presenting information on these values is beyond the scope of the *Strategy*. It is recognised that other values placed on native grassland areas by interested expert bodies, community groups and individuals may be important in their own right and complement the nature conservation values, thus adding to the overall significance of particular areas of grassland. The ACT Government takes these values into account through a variety of mechanisms, including environment impact assessment, and public consultation on proposals to amend the *Territory Plan*, Action Plans such as this *Strategy*, and Management Plans for Public Land prepared under the *Land (Planning and Environment) Act 1991*.

## 4.2

### **Vision, Goals, Objectives and Actions for the Lowland Native Grassland Conservation Strategy**

As outlined in chapters 2 and 3, detailed surveys, research work and annual monitoring over a ten-year period have enabled the development of a good understanding of the location, extent, floristics and conservation significance of the ACT's native grasslands and their regional context in the Southern Tablelands. Based on this information, a vision statement, conservation goals and objectives, actions necessary to achieve the objectives, and performance criteria were prepared in draft form for consideration at a public forum in March 2004 (s. 1.6). These have been refined, based on comment received at the forum and on the draft *Strategy* (Table 4.1). The statements in Table 4.1 are grouped into: Information, Protection, Threats, Planning, Management and Community/ Landholder Involvement and are set out in a format similar to that adopted by some Australian jurisdictions for recovery plans for threatened species. Actions related to particular threatened or uncommon plant and animal species are included at the end of Table 4.1.

Performance Criteria have been developed as an aid to future reviews of progress in implementing the *Strategy*. Achievement of targets depends on a number of factors including budget funding by the ACT Government, commitment by landholders, the involvement of community groups and other factors beyond the control of Environment ACT, which will take a leading role in coordinating the implementation of the *Strategy*.

**Table 4.1: Vision, Goals, Objectives, Actions and Performance Criteria for the ACT Lowland Native Grassland Conservation Strategy**

#### **VISION**

The Australian Capital Territory makes an outstanding contribution, regionally and nationally, to conservation of natural temperate grassland and grassland flora and fauna.

#### **PROTECTION GOALS**

##### **Goal (Grassland)**

Conserve in perpetuity all remaining core conservation sites and other viable areas of the natural temperate grassland ecological community in the ACT.

##### **Goal (Fauna and Flora)**

Conserve in perpetuity, viable, wild populations of all native grassland flora and fauna species in the ACT, and support local, regional and national efforts towards conservation of these species.

#### **MANAGEMENT GOAL**

Manage and rehabilitate natural temperate grassland and related habitat with appropriate regeneration, restoration, and reinstatement practices across all land.

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**Table 4.1:** (Continued)

**Natural Temperate Grasslands**

Before European settlement, the temperate grasslands of the ACT and region, and their associated flora and fauna, were part of an extensive band of grasslands in south-eastern Australia. Occurring across broad plains and in low elevation areas subject to cold air drainage, they formed a mosaic with lowland woodland and riparian and wetland communities. These grasslands and associated grassy woodlands were the natural resource base for the development of the Australian pastoral industry from the early 1800s. Their accessibility and productivity resulted in their almost complete transformation by the new pastoral economy. In the ACT, the development of Canberra in the valleys and on the plains during the 20<sup>th</sup> century destroyed most of the grassland that remained.

Natural temperate grassland is one of Australia’s most threatened ecosystems. In south-eastern Australia, 99.5% of the estimated pre-European natural temperate grassland has been destroyed or grossly altered. Some form of degrading disturbance threatens all grassland remnants, even those in permanent reserves. Loss of grassland habitat and the

fragmentation and degradation of the remaining areas has had a severe impact on plants and animals that are dependent on grasslands. Characteristic species of grasslands such as the Grassland Earless Dragon and the Striped Legless Lizard now survive only in small and disconnected populations. The once extensive ‘wildflower’ displays provided by species of inter-tussock forbs are restricted to remnants of relatively undisturbed grassland.

The *ACT Lowland Native Grassland Conservation Strategy* builds on more than ten years of survey, monitoring, research, conservation planning and management in relation to lowland native grasslands in the ACT and region. From a slim knowledge base in 1990, a good understanding has been developed of the remaining grasslands in the ACT and some of their component species. Some grasslands have been placed in reserves and there are good prospects for conserving other areas. The *Strategy* provides the strategic context for the ongoing protection, management and restoration of this unique Australian ecosystem.

- NOTE:** (i) See end of table for abbreviations and footnotes  
 (ii) Bracketed items at end of each Action indicate primary responsibility for, or significant participation in the Action

**1. Information**

Objective	Actions	Performance Criteria
(a) The location, type and ecological condition of all natural temperate grassland and habitat for threatened species in the ACT are described and the information kept current. (b) A comprehensive database of natural temperate grassland and component species in the ACT is maintained. (c) ACT data is included in national, state and community databases. (d) Ecological information is used to underpin adaptive management.	(a) Undertake monitoring to maintain up to date information on the ecological condition of all remaining natural temperate grassland in the ACT (EACT). (b) Maintain the ACT database for vegetation and grassland species to support planning, management and research (EACT). (c) Assess priorities and address gaps in information on native grassland and grassland species. (d) Link data collection to national, state (especially NSW) and community databases and to <i>National Recovery Plans for Natural Temperate Grassland of the Southern Tablelands, Striped Legless Lizard, Grassland Earless Dragon, Button Wrinklewort, Ginninderra Peppercress</i> (NSW and ACT) (EACT, NSW, CwIth, community). (e) Assess the implications of research results for management.	<p><b>2005–2007</b></p> <ul style="list-style-type: none"> <li>■ Location, type and condition assessments of native grassland remnants completed and are kept up to date.</li> <li>■ Survey and other relevant data entered into ACT vegetation database within 6 months of collection.</li> <li>■ Priorities reviewed and data deficiencies addressed.</li> <li>■ <i>Integrated Nature Conservation Plan*</i> includes up-to-date ecological data on native grassland and grassland species.</li> <li>■ Data exchange protocols established with other priority database managers and regular exchange takes place.</li> <li>■ Extent to which management recommendations arising from research outcomes are adopted.</li> </ul> <p>* The <i>Integrated Nature Conservation Plan</i> is the central repository for information related to nature conservation in the ACT. Based on a Geographical Information System it shows, for example, all ACT reserves, distribution of threatened species and ecological communities, important fauna habitat and locations where major works are planned or being undertaken.</p>

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**Table 4.1:** (Continued)

**2. Protection**

Objective	Actions	Performance Criteria
<p>(a) A comprehensive, adequate and representative (CAR) system of natural temperate grassland areas in the ACT is protected by reservation, or other measures where reservation is not practical or desirable.</p> <p>(b) All Category 1 native grasslands (Core Conservation Sites) are afforded the highest available level of protection, relevant to their tenure.</p> <p>(c) All Category 2 native grasslands (Complementary Conservation Sites) are afforded appropriate protection, and conservation management is undertaken where compatible uses are permitted on these sites.</p> <p>(d) Category 3 native grasslands (Landscape and Urban Sites) are maintained and managed according to their values (e.g. as buffers, landscape features and habitat).</p> <p>(e) Key habitat for threatened grassland flora and fauna species is protected including where this may involve lower conservation value grassland areas.</p> <p>(f) Land development proposals affecting natural temperate grassland and component species are assessed for their ecological impact and if proceeded with adverse impacts are minimised to an acceptable level.</p> <p>(g) The ACT Heritage Places Register includes natural temperate grassland and key habitats for threatened grassland species.</p>	<p>(a) Evaluate the extent to which protected and other areas managed for conservation contribute to a CAR system.</p> <p>(b) Develop and support appropriate proposals that will protect areas identified for reservation representing: (i) the geographic and ecological extent of natural temperate grassland including representation of all floristic associations; (ii) key habitat for threatened, uncommon and declining grassland species; (iii) important areas for improving connectivity or acting as buffers for high conservation value grasslands; and (iv) elements that will achieve a CAR protected area system (EACT, community).</p> <p>(c) Determine the most appropriate form of protection (e.g. through LMAs, MOUs, voluntary agreements) for ecologically important off-reserve areas. Include protection requirements in agreements and monitor the effectiveness of the agreements (EACT, ACTPLA, Cwlth).</p> <p>(d) Ensure land development proposals are assessed under relevant environmental impact and nature conservation legislation.</p> <p>(e) Work with the ACT Heritage Council to identify natural temperate grassland and threatened species habitat suitable for nomination to the ACT Heritage Places Register. Prepare nominations (EACT, ACTPLA, ACT Heritage Council).</p>	<p><b>2005–2007</b></p> <ul style="list-style-type: none"> <li>■ CAR principles are satisfied across the nature conservation estate.</li> <li>■ Area of natural temperate grassland cleared or significantly modified by land development proposals.</li> <li>■ Extent to which ecological connectivity is maintained or enhanced.</li> <li>■ Natural temperate grassland and threatened species habitat identified as being essential for the ACT’s reserve and off-reserve nature conservation system is appropriately protected.</li> <li>■ Natural temperate grassland and threatened species habitat that qualify for the ACT Heritage Places Register are listed.</li> <li>■ Extent to which protection agreements are in place for important off-reserve natural temperate grasslands and the effectiveness of the agreements in protecting the values of these grasslands.</li> </ul>

**3. Threats**

Objective	Actions	Performance Criteria
<p>(a) Substantially reduce or eliminate threats to natural temperate grassland through appropriate planning and management actions.</p> <p>(b) Reduce the impact and occurrence in grasslands of weeds of concern.</p>	<p>(a) Identify and monitor threats (including urban expansion, fragmentation, overgrazing, weed invasion, unplanned fire, other damaging disturbance) to natural temperate grassland and component species (EACT, ACTPLA, Cwlth, community).</p> <p>(b) Prepare and implement threat abatement responses (EACT, ACTPLA, Cwlth, community).</p> <p>(c) Monitor effect of threat abatement measures (EACT, ACTPLA, Cwlth, community).</p> <p>(d) Prepare and implement control programs for weeds of concern (all landholders)</p>	<p><b>2005–2007</b></p> <ul style="list-style-type: none"> <li>■ Actions to address priority threats to natural temperate grassland are in place and being implemented.</li> <li>■ Area of grassland occupied by weeds of concern is reduced.</li> </ul> <p><b>2008–2010</b></p> <ul style="list-style-type: none"> <li>■ Priority threats to natural temperate grassland and component species are substantially reduced or decreasing.</li> </ul>

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**Table 4.1:** (Continued)

**4. Planning**

Objective	Actions	Performance Criteria
<p>(a) The <i>Lowland Native Grassland Conservation Strategy</i> and up-to-date ecological information is the major basis for assessing planning decisions impacting on conservation of native grassland and component species.</p> <p>(b) Government and non-government organisations recognise the biodiversity conservation values of natural temperate grassland and component species and incorporate their conservation requirements in planning, development and land management activities.</p> <p>(c) Native grassland remnants are assessed for their potential to contribute to the ACT's protected area system, conserving threatened species and maintaining ecological connectivity across the ACT.</p> <p>(d) Natural temperate grassland conservation contributes to targets established in the <i>Murrumbidgee Catchment Blueprint</i> through meeting targets in the <i>ACT Natural Resource Management Plan</i> (ACT NRM Board 2003).</p> <p>(e) Co-ordinated arrangements for the protection of native grassland are established across the region.</p>	<p>(a) Consult with all government and non-government parties participating in ACT and regional planning processes to ensure that information on the conservation significance of natural temperate grassland and component species is incorporated: (i) into strategic planning for the ACT and region; (ii) at an early stage into planning for urban and other development in the ACT; and (iii) into development control and management plans (EACT, ACTPLA, NSW, Cwlth, community).</p> <p>(b) Proposals assessed under the <i>Land (Planning and Environment) Act 1991</i> include appropriate information on natural temperate grassland and their component species.</p> <p>(c) Work with other agencies (development and infrastructure) and landholders (especially rural lessees and Commonwealth agencies) to: (i) prevent or minimise further fragmentation; (ii) maximise connectivity of natural temperate grassland; and (iii) encourage activities aimed at improving viability of natural temperate grassland remnants (EACT, Cwlth, landholders, community).</p> <p>(d) Work with NSW agencies to develop, implement and promote measures for protection of native grassland communities in the region (EACT, NSW).</p>	<p><b>2005–2007</b></p> <ul style="list-style-type: none"> <li>■ All ACT planning and urban development decisions involving natural temperate grassland and habitat for component species are based on the <i>Lowland Native Grassland Conservation Strategy</i> and up to date ecological information.</li> <li>■ Extent to which protection of natural temperate grassland communities contribute to regional targets for protection and connectivity.</li> <li>■ Planning and development proposals in NSW affecting natural temperate grassland and grassland species have regard to ACT information and the regional context.</li> </ul> <p><b>2008–2010</b></p> <ul style="list-style-type: none"> <li>■ The majority of ACT native grasslands under a range of tenures are part of a regional Conservation Management Network (CMN).</li> </ul>

**5. Management**

Objective	Actions	Performance Criteria
<p>(a) 'Best practice' management is applied to natural temperate grassland in the ACT across all land tenures with particular attention to grassland habitat of threatened, uncommon and declining species.</p> <p>(b) The ecological condition and habitat quality of the remaining natural temperate grassland communities in the ACT is maintained or improved.</p> <p>(c) Rural and other private landowners manage natural temperate grassland and habitat for threatened species in a way that preserves its natural values.</p>	<p>(a) Have in place management plans (Public Land) or similar arrangements (for other tenures) that reflect commitment to active and effective conservation of natural temperate grassland remnants.</p> <p>(b) Continue to develop and promote 'best practice' management of natural temperate grassland and its component species (with particular attention to declining and threatened species in the ACT) by:</p> <p>(i) Promoting research into conservation management of natural temperate grassland including the functional role and dynamics of the grassland and key component species and research focused on best management practice (EACT);</p>	<p><b>2005–2007</b></p> <ul style="list-style-type: none"> <li>■ Area of natural temperate grassland with management plans or similar arrangements for 'active' conservation management.</li> <li>■ 'Best practice' guidelines for natural temperate grassland restoration are prepared and regularly updated to take into account restoration experience and relevant research.</li> <li>■ Effectiveness of management actions in protecting the conservation values of the grassland areas.</li> <li>■ A register of suitable sites supports regeneration/restoration* activities and guides priority setting.</li> </ul>

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Table 4.1: (Continued)

5. Management (continued)

Objective	Actions	Performance Criteria
<p>* <i>Regeneration</i> means the natural recovery of natural integrity following disturbance or degradation.</p> <p><i>Restoration</i> means returning existing habitats to a known past state or to an approximation of the natural condition by repairing degradation, by removing introduced species or by reinstatement.</p> <p><i>Reinstatement</i> means to introduce to a place one or more species or elements of habitat or geodiversity that are known to have existed there naturally at a previous time, but that can no longer be found at that place (<i>Australian Heritage Commission 2002</i>).</p>	<ul style="list-style-type: none"> <li>(ii) Identifying and prioritising activities and sites for regeneration and restoration* of natural temperate grassland (EACT);</li> <li>(iii) Developing and applying an 'adaptive management' approach linking research and monitoring to management (EACT);</li> <li>(iv) Monitoring the effectiveness of management actions applied as part of 'best practice';</li> <li>(v) Providing up to date 'best practice' management guidelines for managers of all land tenures and community groups to apply when undertaking natural temperate grassland restoration* activities (EACT, Cwlth, landholders, community);</li> <li>(vi) Taking into account the known conservation requirements of component flora and fauna species (in particular, declining and threatened species) in management of natural temperate grassland (EACT, Cwlth, landholders, community).</li> <li>(c) Liaise with Commonwealth agencies responsible for managing National Land containing natural temperate grassland and habitat for threatened species, and keep the MOUs with those agencies under review (EACT, Cwlth).</li> </ul>	<ul style="list-style-type: none"> <li>■ Area of natural temperate grassland subject to restoration/regeneration management.</li> <li>■ Extent and nature of liaison with Commonwealth agencies, and effectiveness of MOUs in protecting natural temperate grassland and associated species on National Land.</li> </ul> <p><b>2008–2010</b></p> <ul style="list-style-type: none"> <li>■ Research and monitoring are continuing and the results used to inform managers of measures to improve ecological condition and habitat qualities.</li> </ul>

6. Community/landholder involvement

Objective	Actions	Performance Criteria
<ul style="list-style-type: none"> <li>(a) Landholders, community groups and others are actively involved in native grassland conservation.</li> <li>(b) Native grassland sites, their managers and the community are linked together in a Conservation Management Network.</li> </ul>	<ul style="list-style-type: none"> <li>(a) Encourage the involvement of landholders, community groups and others in the protection and management of native grasslands (EACT).</li> <li>(b) Facilitate information and skills exchange between stakeholders aimed at achieving best practice management of native grasslands (EACT, NSW, Cwlth, landholders, community).</li> <li>(c) Encourage the formation of an ACT and NSW regional Conservation Management Network (CMN) for natural temperate grassland, building upon the existing NSW CMNs (EACT, NSW, landholders, community).</li> </ul>	<p><b>2005–2007</b></p> <ul style="list-style-type: none"> <li>■ A Conservation Management Network (CMN) of sites with links to NSW CMNs is established.</li> <li>■ Number and type of opportunities for managers of natural temperate grassland sites to exchange information about 'best practice' management.</li> <li>■ Availability and take-up of agreements and incentives to conserve natural temperate grassland and undertake 'best practice' management.</li> <li>■ Number and type of opportunities for community groups to participate in grassland conservation and restoration activities.</li> </ul>

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**Table 4.1:** (Continued)

**6. Community/landholder involvement** (continued)

Objective	Actions	Performance Criteria
	<p>(d) Investigate opportunities for voluntary agreements, and incentives for land managers to conserve natural temperate grassland and component species (EACT, landholders).</p> <p>(e) Raise community awareness through community liaison and public education, with the aim of fostering protection of native grasslands.</p>	

**7. Threatened or Uncommon Plants**

(see s. 2.2.2 and Parts 1–6 of this table for more detail)

**(Button Wrinklewort, Ginninderra Peppergrass and any other threatened or uncommon grassland plant)**

Actions	Performance Criteria
<p><b>INFORMATION (Survey, Monitoring, Research)</b></p> <ul style="list-style-type: none"> <li>■ Maintain alertness to the possible presence of threatened or uncommon grassland species when undertaking surveys in appropriate habitat (EACT).</li> <li>■ Maintain a database of known occurrences and abundance of threatened and uncommon grassland species to enable analysis of changes in distribution and abundance (EACT).</li> <li>■ Maintain a watching brief on ACT populations of threatened and uncommon grassland species and evaluate their conservation status in a regional context (EACT).</li> <li>■ Review research by the CSIRO directed towards understanding how genetic variations influence the viability of small populations, for its potential to be applied to the conservation management of threatened and uncommon species in the ACT (EACT).</li> </ul> <p><b>PROTECTION AND MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>■ Protect threatened and uncommon grassland species through the provisions of the <i>Land (Planning and Environment) Act 1991</i>, <i>The Territory Plan</i>, Memoranda of Understanding and other management agreements (EACT, Commonwealth and other land managers).</li> <li>■ Seek to ensure known populations of threatened and uncommon grassland species are protected from inadvertent damaging actions (e.g. by advising landowners and managers of their presence) (EACT, LMA).</li> <li>■ Prepare management guidelines for threatened and uncommon grassland species if required (EACT).</li> <li>■ Manage sites, and provide advice to other landowners and managers, to maintain optimum habitat (where known) for threatened and uncommon grassland species (EACT).</li> <li>■ Consider nomination for ACT listing if uncommon grassland species show evidence of local decline in extent and abundance (EACT).</li> </ul> <p><b>REGIONAL AND NATIONAL COOPERATION</b></p> <ul style="list-style-type: none"> <li>■ Maintain links with, and participate in, regional and national recovery efforts for threatened grassland species to ensure that conservation actions are coordinated with regional and national programs (EACT).</li> <li>■ Liaise with interstate agencies involved in protection and management of threatened and uncommon grassland species with the aim of increasing knowledge of their biology, and habitat and conservation requirements (EACT).</li> </ul> <p><b>COMMUNITY INVOLVEMENT AND EDUCATION</b></p> <ul style="list-style-type: none"> <li>■ Encourage the community to assist in the conservation of native grasslands and their component species, and provide community education materials (EACT).</li> </ul>	<p><b>2005–2007</b></p> <ul style="list-style-type: none"> <li>■ Grassland flora is a key component of grassland monitoring programs.</li> <li>■ Conservation status of grassland flora is kept under review.</li> <li>■ Environmental impact assessment of native grassland sites includes threatened and uncommon species.</li> <li>■ Relevant genetic research is applied to the management of threatened and uncommon grassland plants.</li> <li>■ The extent and type of protection for habitat supporting threatened and uncommon grassland plants.</li> <li>■ Management guidelines have been prepared for threatened and uncommon grassland plants (as required).</li> <li>■ The extent of community involvement in the protection and management of threatened and uncommon grassland plants</li> </ul>

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**Table 4.1:** (Continued)

**8. Threatened and Uncommon Animals**

(see s. 2.3.6 and 2.3.7 and Parts 1–6 of this table for more detail)

**(Striped Legless Lizard, Grassland Earless Dragon, Golden Sun Moth, Perunga Grasshopper and any other threatened or uncommon grassland animal)**

Actions	Performance Criteria
<p><b>INFORMATION (Survey, Monitoring, Research)</b></p> <ul style="list-style-type: none"> <li>■ Maintain alertness to the possible presence of threatened or uncommon grassland species when undertaking surveys in appropriate habitat (EACT).</li> <li>■ Maintain a database of known occurrences and abundance of threatened and uncommon grassland species to assist in detecting changes in distribution and abundance (EACT).</li> <li>■ Maintain a watching brief on ACT populations of threatened and uncommon grassland species and evaluate their conservation status in a regional context (EACT).</li> <li>■ Facilitate and encourage research that will provide information on status of threatened and uncommon grassland species and management requirements (EACT).</li> </ul> <p><b>PROTECTION AND MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>■ Seek to ensure known populations of threatened and uncommon grassland species are protected from inadvertent damaging actions (e.g. by advising landowners and managers of their presence) (EACT, LMA).</li> <li>■ Prepare management guidelines for threatened and uncommon grassland species where necessary (EACT).</li> <li>■ Manage sites, and provide advice to other landowners and managers, to maintain optimum habitat (where known) for threatened and uncommon grassland species (EACT).</li> <li>■ Consider nomination for ACT listing if uncommon grassland species show evidence of local decline in extent and abundance (EACT).</li> </ul> <p><b>REGIONAL AND NATIONAL COOPERATION</b></p> <ul style="list-style-type: none"> <li>■ Maintain links with, and participate in, regional and national recovery efforts for threatened grassland species to ensure that conservation actions are coordinated with regional and national programs (EACT).</li> <li>■ Liaise with interstate agencies involved in protection and management of threatened and uncommon grassland species with the aim of increasing knowledge of their biology, and habitat and conservation requirements (EACT).</li> </ul> <p><b>COMMUNITY INVOLVEMENT AND EDUCATION</b></p> <ul style="list-style-type: none"> <li>■ Encourage the community to assist in the conservation of native grasslands and their component species, and provide community education materials (EACT).</li> </ul>	<p><b>2005–2007</b></p> <ul style="list-style-type: none"> <li>■ Grassland fauna are a key component of grassland monitoring programs.</li> <li>■ Conservation status of grassland fauna is kept under review.</li> <li>■ Environmental impact assessment of native grassland sites includes threatened species.</li> <li>■ Best Practice Guidelines include information relevant to management of grassland animals.</li> </ul>

**ABBREVIATIONS:**

- EACT Environment ACT
- NSW Relevant NSW government agencies primarily the Department of Environment and Conservation
- Cwth Commonwealth agencies responsible for managing National Land in the ACT (Department of Defence, National Capital Authority, CSIRO)
- ACTPLA ACT Planning and Land Authority
- LMA Land Management Agreement (for rural leases in the ACT)
- MOU Memorandum of Understanding
- CMN Conservation Management Network

## 4.3

### Policy Guidelines for Lowland Native Grassland Conservation in the ACT

#### 4.3.1 A Comprehensive, Adequate and Representative Reserve System

ACT Government policies for conservation of the diversity of ecological communities in the Territory are set out in documents such as *The Territory Plan*, *The Canberra Spatial Plan*, *The ACT Nature Conservation Strategy* (ACT Government 1998c), and specifically for natural temperate grassland, Action Plan No. 1 (ACT Government 1997a). Statements in these documents point towards a system of protection for the ACT that places its natural environments within a regional context and reflects national priorities. The latter are contained in several inter-governmental agreements: *Australian Guidelines for Establishing the National Reserve System* (Commonwealth of Australia, 1999), a *National Strategy for the Conservation of Australia's Biological Diversity* (Commonwealth of Australia 1996) and related documentation.

A key objective of this *Strategy* is the establishment of a comprehensive, adequate and representative system of protection of grassland in reserves or by other measures where reservation is not practicable or desirable (Table 4.1). This recognises that in the ACT, high conservation value grasslands and areas forming a core of critical habitat occur on National Land and unless the status of the land changes, these areas are unavailable for incorporation into the ACT reserve system.

The origin of the comprehensive, adequate and representative (CAR) principles for reservations for biodiversity conservation was in the *Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia* (JANIS 1997) produced to meet a commitment in the *National Forest Policy Statement* (NFPS) (Commonwealth of Australia 1992) for the establishment of a national forest reserve system. While the CAR criteria were initially developed in the context of conserving forest ecosystems, the principles are generic in nature and can be applied generally to establishment of a CAR reserve system, together with other protection measures, for conservation of biodiversity (ACT Government 2004a).

Socio-economic considerations may preclude protection of all currently unprotected occurrences in the ACT of natural temperate grassland and grassland

habitat for threatened species. However, advantage can be taken of some urban planning opportunities and primary land uses compatible with conservation to modify land use proposals that would otherwise result in loss of small areas of grassland. The fragmented nature of much of the remaining unprotected natural temperate grassland points to off-reserve conservation measures as a supplementary option to pursue. The guidelines for the National Reserve System program (Commonwealth of Australia 1999) call for decision making processes to integrate long-term and short-term environmental, economic, social and equity considerations; and endorse the principle of 'least cost', where an optimal reserve configuration can be established with the minimum economic and social cost to the community.

The following definitions apply to the comprehensive, adequate and representative reserve system principles:

**Comprehensiveness**—sampling the full range of communities/ecosystems. In the ACT this would include the full range of the five floristic associations identified for ACT natural temperate grassland (see s. 2.1.4).

- Comprehensiveness should be addressed in a biogeographical context (i.e. using IBRA regions (Thackway and Cresswell, 1995; Environment Australia 2000)) and at an appropriate scale. For natural temperate grassland, the appropriate regional scale is the 'Southern Tablelands' as defined in Environment ACT (2003).
- All remaining occurrences of endangered ecosystems should be reserved or protected by other means as far as is practicable.

*An endangered ecosystem is one where its distribution has contracted to less than 10% of its former range, or the total area has contracted to less than 10% of its former area, or where 90% of its area is in small patches which are subject to threatening processes and unlikely to persist.*

Flexibility in the application of reserve criteria is needed to ensure that the reserve system delivers optimal nature conservation outcomes as well as acceptable social and economic outcomes. Reserve design criteria should, therefore, be considered as guidelines rather than mandatory targets. For example, the effort to achieve reservation of all occurrences of an endangered community may reach a point of diminishing return and nature conservation objectives may be more efficiently and effectively achieved through other strategies. If socio-economic impacts are such that trade-offs are required to meet all criteria for reserve design, optimisation of biodiversity protection should take precedence.

**Adequacy**—the maintenance of ecological viability and integrity of populations, species and communities. An adequate protected area system will replicate ecologically viable natural temperate grassland communities, species and populations.

- Extent and replication of samples of populations, species and communities in the reserve system across their range such that their viability is ensured, particularly as a safeguard against catastrophic events (e.g. the 2003 ACT bushfires). Two key principles are: (a) the greater the extent reserved, the more likely that the ecological functioning and species composition of an ecosystem will be maintained; (b) ecosystems are represented within the protected area network at more than one site.

Decline in range and area of the community (reserved or otherwise) and fragmentation of the remnants are important reasons why natural temperate grassland and associated species are threatened with extinction. It follows that adequacy is a limiting factor in the ACT's contribution to a bio-regionally adequate reserve system. A systematic approach is called for to compensate, involving reservation where possible and an increased emphasis on off-reserve conservation measures such as protection of habitat links, special protection measures for occurrences on private land and sympathetic management of adjacent land.

**Representativeness**—sample areas included in the reserve system or other protected areas should reasonably reflect the biological diversity of the communities.

- Consider the range of species that comprise the community, especially those that depend on reservation for protection. The objective is to maximise their viability in a region through adequate reservation, not reserve every ecosystem in which they have been recorded. Consider the range of floristic and structural mixes that are found in the community.

In the ACT there is scope for greater representation of natural temperate grassland and habitat for threatened grassland species in the reserve system, with strong complementary measures for off-reserve occurrences. The ACT reserve system should sample natural temperate grassland as a component of the regional ecosystem. Representative coverage of regional ecosystems can only be satisfied at a bioregional scale.

In the context of this *Strategy*, the terms 'comprehensive', 'adequate' and 'representative' need to be described in ways relevant to the level and scale of decision-making by government and other

stakeholders in the ACT. Planning and conservation issues outlined in Chapter 3 have been reviewed and reference made to the scope of explanations for the terms included in the National Reserve System guidelines to derive the following elements for an assessment of the ACT's contribution to a CAR reserve system:

**A 'comprehensive' protected area system will contain the full range of natural temperate grassland types in the ACT including:**

- natural temperate grassland across the full range of altitude, soil types, and aspect;
- all five floristic associations; and
- areas where natural temperate grassland intergrades with Yellow Box–Red Gum Grassy Woodland.

**An 'adequate' reserve system will include areas of natural temperate grassland that retain viable ecological communities and populations of their component species including:**

- large areas of natural temperate grassland preferably with small perimeter/area ratios;
- replicated samples of each of the natural temperate grassland floristic associations; and
- natural temperate grassland areas that are well connected to other native grassland or other native ecological communities to ensure ecological processes are maintained to the greatest possible extent.

**A 'representative' protected area system that encompasses the diversity of species and habitats including:**

- threatened and uncommon grassland plants and animals;
- the geographic range of species.

These elements have been assessed in terms of the degree to which they are demonstrated or included in the five grassland complexes (s. 3.6). These assessments, together with a summary of the priority tasks necessary to achieve an improved CAR reserve system for the ACT are outlined in Table 4.2.

The extent to which the priority tasks are addressed will be a measure of the contribution made by the ACT nature reserve system and off-reserve measures in achieving the Vision and Goals identified for this *Strategy*. A strong, representative reserve system will be complemented by off-reserve conservation measures. The latter should be aimed at improving ecological connectivity, providing opportunities for restoration and regeneration of grasslands, and

conserving habitat for those species that range widely across the landscape either in migratory movements, in response to climatic conditions or because home ranges are larger than the protected areas system. For this to be successful managers of land that provides connectivity must first recognise that maintaining and/or enhancing connectivity should be a part of their management practices.

#### 4.3.2 Other Policy Guidelines for Lowland Native Grassland Conservation in the ACT

In addition to guidelines for a comprehensive, adequate and representative protected area system, policy frameworks for the upper Murrumbidgee River catchment as part of the Murray–Darling Basin are relevant to nature conservation in the ACT region.

Targets of the Integrated Catchment Management Policy for terrestrial biodiversity in the Murray–Darling Basin are: maintaining key ecological processes; maintaining or re-establishing viable populations of native species and the integrity of ecological communities (especially vegetation); and controlling threats to biodiversity (MDBC, 2001). The ACT is a participant in the Murray–Darling Basin initiative, and is involved in a number of programs of relevance to the ACT, such as the sustainable rivers audit.

At the sub-regional level, the *Murrumbidgee Catchment Blueprint* (Murrumbidgee Catchment Management Board 2003) has been prepared to satisfy legislative requirements in the NSW *Catchment Management Act 1989* and in response to arrangements under the *National Action Plan for Salinity and Water Quality* (COAG 2000). Although the *Murrumbidgee Catchment Blueprint* is inclusive of the ACT at the broader catchment level, the ACT has a separately identified component that reflects the ACT's different governmental arrangements, land tenure system, and urban focus. ACT aspects are dealt with in the *ACT Natural Resource Management Plan* (ACT NRM Board 2003)

The ACT targets, actions and activities have been prepared through a process of community and government consultation. They provide direction for future natural resource management investment and will enable the ACT to assign funding to address issues of concern to the Territory as well as to participate in projects spanning more than one catchment. However, each jurisdiction needs to deal with natural resource management within its own policy and planning framework.

For the Murrumbidgee Catchment as a whole, a target of the *Blueprint* (p. 32) is to manage for biodiversity

conservation a minimum of 30% of the area of each of the *remaining* native vegetation communities of the Murrumbidgee Catchment by 2012. The proposed ACT contribution to the catchment target is to manage for biodiversity conservation a minimum of 30% of the *pre-European* extent of each vegetation community in the ACT (ACT NRM Board 2003, p. 15). The *Natural Resource Management Plan* notes that this may not always be feasible, as is the case with natural temperate grassland where only about 5% of the estimated original area of 20 000 ha remains in a moderate to good condition (see s. 3.3).

ACT management targets in the *ACT Natural Resource Management Plan* relevant to the natural temperate grassland conservation are:

- by 2006, have in place biodiversity targets that enable on-going assessment and protection of biodiversity values;
- all protected areas of the ACT managed for the conservation of ecosystems and ecological processes 100% of the time;
- by 2005, all significant remnant vegetation on rural land in the ACT is managed to maintain and enhance its biodiversity values;
- by 2005, have in place targets for urban biodiversity; and
- by 2006 incorporate urban biodiversity targets into integrated urban ecological function targets.

## 4.4

### The State of Protection of Natural Temperate Grassland and Other Grassy Habitats in the ACT

As outlined previously (see ss. 2.1.3, 2.1.7, 3.3), most of the original extent of natural temperate grassland in the ACT and region has been cleared since European settlement for pastoral and agricultural use and for the development of Canberra as the National Capital. In this context, all remaining areas of the ecological community in the ACT warrant serious consideration for their conservation potential, either in the case of core conservation areas (s. 3.5.1) as part of the ACT's nature conservation estate or as a secondary land use in areas where statutory protection is not practicable.

In addition to protection of habitat as nature reserves, opportunities also need to be sought to improve the ecological condition of the more degraded areas, to supplement core sites with buffers (particularly where the core area is small) and to ensure that their potential role as habitat for threatened flora and fauna is

considered. Such restoration work can make an important contribution to conservation, even in places where the habitat no longer qualifies as natural temperate grassland endangered ecological community

Recognition of natural temperate grassland and the need to conserve it has only developed recently (over the last 15 years) as public policy. The fragments remaining of this once extensive ecological community and the few areas protected for nature conservation reflect this lack of recognition. However, the ACT is now in a good position to conserve the last remaining viable examples of grassland and threatened species habitat (some of which are relatively large in area) as part of the ACT's nature conservation estate. The challenge will be to manage these areas to improve their ecological condition and to enhance the habitat of threatened species so that populations increase to levels where their viability may be more certain.

The remaining 991 ha of natural temperate grassland in the ACT is about 5% of the estimated pre-European extent in the ACT of 20 000 ha. If the more highly modified areas containing areas of native pasture and exotic grasslands and associated threatened species are included (Tables 2.1, 3.2–3.8), the remaining area totals about 2172 ha or about 10% of the pre-European extent.

In the region defined by Fallding (2002), which includes the ACT (see s. 1.1), about 9% of the pre-1750 area of grassland in various conditions remains, only a portion of which would now qualify as the natural temperate grassland endangered ecological community. For the Southern Tablelands as a whole, less than 3% remains. Virtually all these grasslands are threatened in some way, even in reserves, especially by weed invasion.

An important precursor to sound conservation planning (including protection) is knowledge of the resource. The need for grassland surveys in the ACT was recognized in the early 1990s, and with support initially from Commonwealth funding, comprehensive surveys were carried out between 1991 and 1996. These formed the basis for the Action Plan for natural temperate grassland (ACT Government 1997a) (see s. 3.1). Survey of ACT grasslands is now largely complete, in terms of the flora and vertebrate fauna.

As elsewhere, there is limited knowledge of grassland invertebrates (see s. 2.3.3), although quite extensive invertebrate studies have been undertaken in the ACT, which is far better surveyed for invertebrates than most of the southern tablelands grassland ecosystems. Lack of knowledge of invertebrates is related to complexity of sampling, enormous diversity and large, short-term fluctuations due to climate, management and other

disturbance factors. Recent surveys have shown improvements in the condition of some of the grasslands (e.g. Crace Nature Reserve), as well as new or extended populations of some threatened species (e.g. in the Majura Valley, see s. 3.6.1).

Sites where natural temperate grassland and other grassy habitat for threatened species now remains are shown in Figures 2.3–2.7 as at 1 March 2004, and a summary for each geographic area is in Table 4.2. The summary information allows an assessment to be made of the state of grassland conservation across the ACT and to identify priorities for conservation action.

Significant conclusions for the ACT include:

- (a) About 991 ha of natural temperate grassland (partially or moderately modified) are now left in a condition that meets the definition of this endangered ecological community. This represents about 5% of the estimated original area in the ACT.
- (b) An additional 542 ha of highly modified and exotic grassy vegetation is closely associated with the sites containing the endangered ecological community. Another 639 ha of grasslands are known habitat for threatened species.
- (c) By deduction about 19 000 ha of former natural temperate grassland have been destroyed or substantially changed during the development of Canberra or as a result of other land uses. This represents about 95% of the original area.
- (d) In the regional context, the remaining area of natural temperate grassland endangered ecological community in the ACT (991 ha) represents approximately 1% of the original area (estimate 83 000 ha) and about 6% of what is left in 2000 (estimate 15 500 ha) (regional data from Fallding 2002 and Environment ACT 2003). By any measure this is a very small amount of a once extensive native grassland community.
- (e) About 799 ha (37%) of the remaining natural temperate grassland and other grassland habitat (2172 ha) are protected within Public Land (Nature Reserve) areas. Another 531 ha (24%) are managed under MOUs with Commonwealth or other agencies.
- (f) Significant areas of natural temperate grassland and other grassy habitat are not protected (Category 1: 258 ha and Category 2: 447 ha). Almost all this land is in the Majura and Jerrabomberra valleys.
- (g) Another 136 ha are in small fragments that have been assessed as Category 3 or Landscape and Urban fragments. Almost all of this land is located in the Belconnen area.

**Table 4.2: Summary of Lowland Native Grassland Data Showing Areas Remaining Under Various Categories of Land Use, Presence of Threatened Species and Conservation Planning Issues**

All areas in hectares	Area of Natural Temperate Grassland	Area of other grassy habitat	Total area grassland and grassy habitat	Area protected in Public Land (Nature Reserve)	Area managed under MOU	Area not formally protected in each Conservation Category (s 3.5)—includes area managed by CUPP*			Threatened Species present in native grassland and other suitable habitat	Issues for identifying priority tasks for conservation of grasslands and threatened grassland species
	(a)	(b)	(c)	(% of (c))	(% of (c))	1	2	3		
<b>Total for ACT</b>	<b>991 (542)</b>	<b>639</b>	<b>2172</b>	<b>799 (37%)</b>	<b>531 (24%)</b>	<b>258</b>	<b>447</b>	<b>136</b>		
Gungahlin	179 (231)	0	410	392 (96%)	0 (0%)	0	17.5	0.8 (*0.3)	Golden Sun Moth Perunga Grasshopper Striped Legless Lizard Button Wrinklewort	Key habitats identified and protected. Resolve planning around Mitchell. Priority to manage to improve condition.
Majura	209 (144)	289	641	0 (0%)	138 (22%)	348	155	0	Grassland Earless Dragon Striped Legless Lizard Golden Sun Moth Perunga Grasshopper	No threatened species or natural temperate grassland formally protected. Priority to protect and manage to improve condition. Road and airport developments a threat.
Jerrabomberra	267 (80)	350	697	325 (47%)	220 (32%)	42	110	0.3	Grassland Earless Dragon Striped Legless Lizard Golden Sun Moth Perunga Grasshopper	Priority to manage to improve condition.
Belconnen	300 (88)	0	388	82 (27%)	139 (36%)	8	71 (*18.6)	87	Golden Sun Moth Perunga Grasshopper Ginninderra Peppercress Striped Legless Lizard	Largest Golden Sun Moth habitat in the region a priority for protection.
Canberra City and Tuggeranong	36 (1)	0	37	0 (0%)	26 (70%)	1.2 (*1.2)	8.6 (*6.2)	0.2 (*0.2)	Golden Sun Moth Button Wrinklewort	Most sites are vulnerable to neglect and lack recognition as assets. Further fragmentation and weed invasion threaten survival in the long term.

**Notes:**

(a) Includes Natural Temperate Grassland and, in brackets, area of closely associated native pasture (BSR 5) and exotic grassland

(b) Other grassland habitat (BSR 5) containing threatened species

(c) Total, all grassland and grassy habitat types ((a) + (b))

**CUPP:** Canberra Urban Parks and Places

- (h) The largest area of unprotected native grassland and threatened species habitat is in the Majura Valley. There has been significant recent improvement in protection in the Jerrabomberra Valley. About 150 ha remain unprotected in both the Jerrabomberra Valley and Belconnen areas respectively. The remaining native grassland and threatened species habitat in these three areas are the planning and/or management responsibility of either the ACT or Commonwealth Governments, or of a private landholder (Canberra International Airport and rural lessees).
- (i) Almost all natural temperate grassland and other grassland habitats in the Gungahlin area (96%), a high proportion in Jerrabomberra (79%) (following the recent establishment of reserves), and much of this habitat in the Belconnen (58%) and Canberra City (66%) areas have protection by virtue of either their status as nature reserves or as land subject to MOUs with Commonwealth agencies.

**4.4.1 Actions to Improve Conservation of Lowland Native Grassland in the ACT**

Significant early actions to improve grassland conservation in the ACT were:

- developing and implementing (from 1993) the *Recovery plan for lowland native grasslands in the ACT* (Wildlife Research Unit 1991) (see s. 3.1); and
- protecting about 400 ha of natural temperate grassland and other grassland habitat in the Gungahlin grassland reserves (Mulangarri, Crace, Gungahlerra) (1995).

Since the first Action Plans for natural temperate grassland and component threatened species were adopted, beginning in 1997, there have been several Government decisions implementing some of the priority actions identified in these plans. These are:

- Removing about 82 ha of natural temperate grassland, including some Wet *Themeda* grassland from the Dunlop residential estate and adding it to Dunlop Nature Reserve (1997).
- Establishing Memoranda of Understanding with Commonwealth managers of National Land (see s. 3.4.3).
- Announcing (22 July 2004) protection in nature reserves of over 300 hectares of natural temperate grassland and other grassy habitat for threatened species (Grassland Earless Dragon) in the Jerrabomberra Valley.

In 2003–04 the ACT Planning and Land Authority, Land Development Authority and Environment ACT initiated

work on an Outline Plan for the Jerrabomberra Valley. This ‘Southern Broadacre Planning Study’ is a comprehensive land use study of the Jerrabomberra Valley that will provide the framework and land use policies for this part of the ACT. The study has identified the need to establish new nature reserves to protect native grassland and habitat for the Grassland Earless Dragon. The study is expected to form the basis of a draft Variation to the Territory Plan (DVP) that will formally set out proposed land uses, including nature conservation.

Funding to establish the new reserves was included in the ACT Government’s 2004–05 Budget. It will ensure protection of two core grassland sites and other key habitat for the endangered Grassland Earless Dragon. Parts of the foreshadowed reserves will join Yellow Box–Red Gum Grassy Woodland that are to be protected following an announcement in May 2003, as well as other grassland habitat at the Queanbeyan Nature Reserve (Letchworth) in NSW.

Notwithstanding the progress made to date, and until announced new reserves are formalised through a Variation to the Territory Plan, there is no part of the ACT that provides certain, long-term protection for three of the ACT’s threatened species. These are the Grassland Earless Dragon, the Golden Sun Moth, and the Ginninderra Peppercreess. Although work is in progress to rectify this situation for both the Jerrabomberra valley and at Lawson, long-term security for these species will not be assured until detailed planning is completed and management of their habitat is directed towards their conservation rather than being an adjunct to the primary land use. Implementation of protection and conservation management is the top priority.

**4.4.2 Priority Tasks to Improve Conservation of Lowland Native Grassland and Component Threatened Species in the ACT**

Priority tasks to improve the protection status of lowland native grassland (including the natural temperate grassland endangered ecological community), and the several plant and animal species that are regarded as grassland species are set out in Table 4.2. Making the decisions to implement any of these tasks is the responsibility of the ACT Government through its land planning and management actions. In summary the priority tasks are:

- Completing planning studies of those parts of the ACT where the long-term land use has yet to be defined, including identifying those areas that are best used as nature reserves.

The key areas for these studies are the Jerrabomberra and Majura Valleys and at Symonston. The 'Southern Broadacre Planning Study' has identified indicative boundaries for protection of grassland habitat for threatened species in the Jerrabomberra valley. This is in the context of competing demands for land capable of supporting alternative uses for an expanding city.

*The Canberra Spatial Plan* provides the strategic directions for the development of Canberra, which include protection in nature reserves of key nature conservation assets and threatened species. It also identifies the need for further investigations to be undertaken (to identify potential land for industrial and related employment purposes) in the corridor along the Monaro Highway in Jerrabomberra, Symonston and Majura.

- Protecting all grasslands assessed as being the core conservation areas (Category 1 sites), either as part of the ACT's nature conservation estate or through equivalent, secure management.
- Including in the protected area system, grassland habitat for threatened species not yet adequately protected:
  - Grassland Earless Dragon in the Jerrabomberra and Majura valleys;
  - Golden Sun Moth at Lawson; and
  - Ginninderra Peppercress at Lawson.
- Providing for improved habitat connectivity for wildlife movement between grasslands and woodlands or other adjacent habitats. This complements the same connectivity consideration included in the *ACT Lowland Woodland Conservation Strategy* (ACT Government 2004a). Important examples for grassland are between:
  - Mount Ainslie Nature Reserve and Campbell Park paddocks (MA04);
  - woodland and grassland at the Training Area in the Majura valley (MA01);
  - woodland and grassland in the Jerrabomberra valley (JE02);
  - Aranda Bushland and natural temperate grassland at Caswell Drive (BE10); and
  - adjacent native grassland areas on either side of the ACT and NSW border at Queanbeyan (Mikes Hill (JE04), Woods Lane (JE06) (ACT)) and Queanbeyan Nature Reserve (Letchworth) (NSW).
- Reviewing management of native grassland areas in ACT nature reserves to ensure ecological condition is improved. A priority is managing
  - invasive weeds such as Chilean Needlegrass and African Lovegrass.
- Assessing grasslands and threatened species habitats for their potential for listing on the ACT Heritage Places Register.
- Establishing mechanisms to assist in the application of best practice management (Conservation Management Networks, voluntary management agreements, guidelines) to facilitate conservation outcomes on reserve and off-reserve land.

Implementation of these priority actions depends upon a variety of government administrative processes. Briefly these are:

- Preparing recommendations from the Conservator of Flora and Fauna to the ACT Planning and Land Authority (ACTPLA) for those areas that should be protected, by including them in the ACT nature conservation estate.
- Including grassland conservation priorities in the principles and policies applied by ACTPLA when undertaking detailed planning for urban development (e.g. for Jerrabomberra valley, Lawson and East Gungahlin).
- Concluding agreements between the Conservator of Flora and Fauna and landholders, such as Memoranda of Understanding and Land Management Agreements (for rural leases).
- Implementing best practice management in grasslands managed by Environment ACT, including nature reserves, as well as in areas that are agisted and areas managed by other Territory agencies (Canberra Urban Parks and Places) and Commonwealth agencies (Department of Defence, National Capital Authority).
- Applying this *Strategy* and the information that it provides to future planning proposals for the ACT.
- Establishing Conservation Management Networks and investigating voluntary management agreements.
- Promoting cross border cooperation between ACT and NSW government agencies and other stakeholders so that coordinated conservation planning and management activities maximise the opportunities to achieve regional targets for biodiversity conservation.