LEGISLATIVE ASSEMBLY
FOR THE AUSTRALIAN CAPITAL TERRITORY

STANDING COMMITTEE ON PLANNING, ENVIRONMENT AND TERRITORY AND MUNICIPAL SERVICES

Mr Mick Gentleman MLA (Chair), Mr Alistair Coe MLA (Deputy Chair), Dr Chris Bourke MLA, Mr Andrew Wall MLA

ANSWER TO QUESTION TAKEN ON NOTICE DURING PUBLIC HEARINGS

Asked by **Mr Gentleman** on 17 October 2013: **Mr Corbell** took on notice the following question(s):

Ref: Hansard Transcript 17 October 2013 Page 14

In relation to: the Australian Sustainable Schools Initiative program.

CHAIR: With that reduction in energy and water consumption and not having to deal with waste, has that seen a reduction in costs for those schools as well?

Mr Corbell: It certainly will have. I do not have any immediate figures to hand, but I am happy to take that on notice and see what that is.

MINISTER CORBELL: The answer to the Member's question is as follows:–

Schools accredited for water under the Australian Sustainable Schools Initiative (AuSSI) – ACT consumed approximately 8.06 kilolitres (kL) of water per student in 2012-13, compared to 9.22 kL per student for non-accredited schools. This resulted in a saving of approximately $40,050 in total for the 36 accredited schools by comparison with non-accredited schools.

AuSSI schools accredited for energy consumed approximately 355 megajoules of energy per square metre of floor space (MJ per m^2) in 2012-13 compared to 429 MJ per m^2 for non-accredited schools. This resulted in savings of approximately $550,800 in total for the 34 accredited schools compared with non-accredited schools.

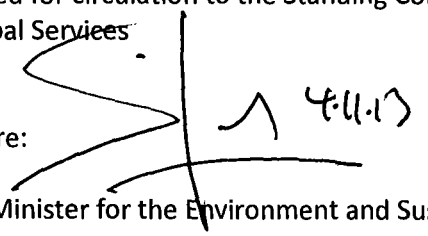
As an example of the improvement that a school can achieve, Chapman Primary School (not including the preschool) saved $12,662 in energy bills in 2012-13 compared with 2011-12.

AuSSI schools accredited for waste sent approximately 0.44 cubic metres of waste to landfill per student in 2012-13 compared to 0.58 cubic metres per student for non-accredited schools. This resulted in savings of approximately $40, 070 for the 37 accredited schools compared with non-accredited schools.

One example of a school that has saved money is St Matthew's Primary School where the cost of sending waste to landfill was approximately $4,086 per year in 2012. Following the introduction of recycling, the cost of sending waste to landfill decreased to approximately $1,200 per year. The total cost of waste and recycling per year is now $2,160, a saving of approximately $1,926 per year.

Further analysis will need to be undertaken before the full cost impacts associated with increased recycling can be accurately quantified for all accredited schools.

Approved for circulation to the Standing Committee on Planning, Environment and Territory and Municipal Services

Signature:  Date: 4.11.13

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

LEGISLATIVE ASSEMBLY
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STANDING COMMITTEE ON PLANNING, ENVIRONMENT AND TERRITORY AND MUNICIPAL SERVICES
Mr Mick Gentleman MLA (Chair), Mr Alistair Coe MLA (Deputy Chair),
Dr Chris Bourke MLA, Mr Andrew Wall MLA

ANSWER TO QUESTION TAKEN ON NOTICE
DURING PUBLIC HEARINGS

Asked by **Mr Coe** on 17 October 2013: **Mr Corbell** took on notice the following question(s):

Ref: Hansard Transcript 17 October 2013 Page 17

In relation to: the Outreach Scheme - Dryers

MR COE: As part of that scheme [Outreach], how many dryers have been replaced or purchased?

Mr Corbell: Clothes dryers?

MR COE: Yes.

Mr Corbell: I would have to take that on notice, Mr Coe. I do not have the detail.

MINISTER CORBELL: The answer to the Member's question is as follows:–

Sixteen clothes dryers were provided to clients during the Outreach trial program in 2010.

No clothes dryers have been purchased or provided since the commencement of the Outreach Energy and Water Efficiency Program in 2011. Clothes dryers are not included in the list of appliances that may be provided under the Program.

Approved for circulation to the Standing Committee on Planning, Environment and Territory and Municipal Services.

Signature: Date: 4.11.13

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

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Dr Chris Bourke MLA, Mr Andrew Wall MLA

ANSWER TO QUESTION TAKEN ON NOTICE
DURING PUBLIC HEARINGS

Asked by **Mr Coe** on 17 October 2013: **Mr Corbell** took on notice the following question(s):

Ref: Hansard Transcript 17 October 2013 Page 18

In relation to: the Outreach Scheme

MR COE: How many more substantial upgrades, such as curtains, would have been applied to Housing ACT properties?

Mr Corbell: As part of outreach?

MR COE: Yes.

Mr Corbell: Again, I would need to take that question on notice, Mr Coe. I do not have that information immediately available.

MINISTER CORBELL: The answer to the Member's question is as follows:–

Approximately 650 Housing ACT tenants participating in the Outreach Energy and Water Efficiency Program have been referred for an energy efficiency assessment, followed by a retrofit to a maximum value of $2,420 (GST inclusive).

Approximately 475 of these tenant households received curtains.

Non-fixed items supplied in retrofits, such as curtains, become the property of the tenant.

In 2010, as part of the Outreach trial, funding was provided to Housing ACT to install insulation and/or draught sealing in 212 properties and install solar hot water systems in 109 properties.

In 2011 funding was provided for Housing ACT to install solar hot water systems in 86 properties.

Approved for circulation to the Standing Committee on Planning, Environment and Territory and Municipal Services

Signature: 4.11.13 Date:

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

LEGISLATIVE ASSEMBLY
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ANSWER TO QUESTION TAKEN ON NOTICE DURING PUBLIC HEARINGS

Asked by **Mr Coe** on 17 October 2013: **Mr Corbell** took on notice the following question(s):

Ref: Hansard Transcript 17 October 2013 Page 20

In relation to: Costs of schemes listed on page 187 through to 189

MR COE: How much did the scheme cost?

Mr Corbell: I am happy to take that question on notice. I do not have that immediately to hand.

MR COE: Will you please advise how much each of the schemes have cost, the ones that are on page 187 through to 189?

Mr Corbell: Yes, happy to do that

MINISTER CORBELL: The answer to the Member's question is as follows:–

The ACTSmart Budget is allocated each year across the range of ACTSmart programs according to each program's requirements in that year and the expected take up rate of the program. The **expenditures** for the 2012-13 financial year for the listed ACTSmart programs are as follows:

Program	**2012-13 $'000**
Rainwater tank rebate[1]	26
Toilet Smart and ToiletSmart Plus[2]	360
IrrigationSmart[3]	118
GardenSmart[4]	202
Business Energy and Water (water component)	17

[1]Rainwater tank rebate program closed 30 June 2012. Rebate claims for 29 tanks installed shortly before program closure were honoured in 2012-13
[2]Non-pensioner ToiletSmart program closed 30 June 2013
[3]IrrigationSmart program closed 30 June 2013
[4]GardenSmart program closed 30 June 2013

Evaluation of the IrrigationSmart, GardenSmart and ToiletSmart programs in 2012-13 showed that they contributed significant water savings of 1.1 GL towards the Think Water Act Water (TWAW) demand management reduction target in line with projected savings. In the context of

improvements in water security due to major water projects, the breaking of the millennium drought and the review of the TWAW strategy it was determined that these programs had made their contribution to reduction in consumption and should be closed.

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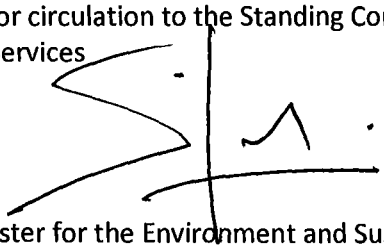
Signature: 

Date: 4.11.13

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

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ANSWER TO QUESTION TAKEN ON NOTICE
DURING PUBLIC HEARINGS

Asked by **MR COE** on 17 October 2013: **MR CORBELL** took on notice the following question(s):

Ref: Hansard **Transcript 17 October 2013 PAGE 27**

In relation to: **Brown Consulting, January 2011**

MR COE: Page 288—Brown Consulting, January 2011, the relocation of power line options and PSP design. That is a select tender. There are certainly numerous players that could undertake that work. Why was that a select tender? Again, that surely was planned.

Mr Corbell: I will take the question on notice.

MR COE: If you could take on notice, obviously, the rationale for it, how it was selected, if other players were considered and any information that you think would help defend that decision.

Mr Corbell: I am happy to do so, Mr Coe.

MINISTER CORBELL: The answer to the Member's question is as follows:–

The original tender was advertised and processed as an open tender in accordance with procurement guidelines and five tender submissions were received. All of these had a contract price which was well above the available budget. On advice from Shared Services Procurement the tender brief was rewritten to narrow the design deliverables and allow the consultancies that submitted tenders previously to submit a revised tender using a select tender process.

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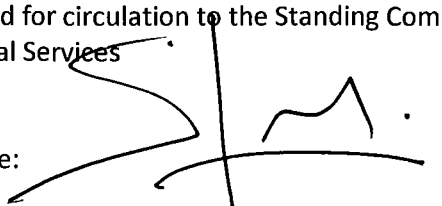
Signature: 

Date: 31.10.13

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

LEGISLATIVE ASSEMBLY
FOR THE AUSTRALIAN CAPITAL TERRITORY

STANDING COMMITTEE ON PLANNING, ENVIRONMENT AND TERRITORY AND MUNICIPAL SERVICES
Mr Mick Gentleman MLA (Chair), Mr Alistair Coe MLA (Deputy Chair), Dr Chris Bourke MLA, Mr Andrew Wall MLA

ANSWER TO QUESTION TAKEN ON NOTICE DURING PUBLIC HEARINGS

Asked by **Mr Coe** on 17 October 2013: **Mr Corbell** took on notice the following question(s):

Ref: Hansard Transcript **17 October 2013 Page 27**

In relation to: the Urban Water Cycle Solutions contract

MR COE: The November 2012 contract to Urban Water Cycle Solutions—a $179,000-odd select tender to develop a systems approach to integrated catchment management for the ACT and region. Why was that select tender as opposed to open?

Mr Corbell: Again, I would have to take the question on notice, Mr Coe, given the specifics of the inquiry you are making.

MINISTER CORBELL: The answer to the Member's question is as follows:–

Project – Urban Water Cycle Solutions (Dr Peter Coombes) - $219,225.00

This service from this consultancy is serving two important purposes for Water in the ACT.

1. It provided the scientific basis and justification for activities proposed under the ACT's $85M Priority Project Business Case currently being assessed by the Commonwealth – "A long-term Plan to Improve Water Quality in the ACT and Murrumbidgee River System"; and

2. It will provide a "Systems approach to total water resource management" that will facilitate the formulation of evidence based management policies of both catchment management and total water cycle management across the Territory.

The first part of this service was under a very tight time-constraint, supporting the Business Case as part of the ACT's Priority Project bid to the Commonwealth Government. An open tender process would not facilitate the timeline.

The Procurement Process
The Consultancy was awarded to Urban Water Cycle Solutions, following ACT Procurement Guidelines under a Select Tender, which still involves a competitive process, where five separate water specialist consultancies were approached and submitted bids for the project.

Funding
Funding for the consultancy was provided through the Commonwealth's (then SEWPAC) Priority Project funding associated with the development of the Business Case.

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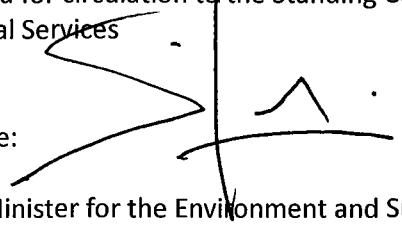
Signature: 

Date: 4.11.13

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

LEGISLATIVE ASSEMBLY
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ANSWER TO QUESTION TAKEN ON NOTICE
DURING PUBLIC HEARINGS

Asked by **MR GENTLEMAN** on 17 October 2013: **MR CORBELL** took on notice the following question(s):

Ref: Hansard Transcript 17 October 2013 **PAGE 29**

In relation to:

THE CHAIR: Thank you. My question is in regard to action plans on page 329 of the report. Could you advise the committee of the outcomes for the action plans that were finalised in 2012-13?

Ms McKeown: The action plans themselves actually contain actions that will happen into the future. So, for the little eagle, say, it is a new action plan that is yet to be finalised, and it will have actions for things that we do for the next five or 10 years. So I could not actually say to you what are the actual actions that have been finalised for the new plans, but we have reports from the flora and fauna committee on a couple of action plans that we could provide if you would like.

THE CHAIR: Yes, that would be good, if you go into some detail on those.

Mr Corbell: We are happy to provide those, Mr Gentleman. Those are detailed reports from the flora and fauna committee on follow-through of implementation of existing action plans and what have been outcomes or steps that have been taken. So happy to make those available.

MINISTER CORBELL: The answer to the Member's question is as follows:–

Please find attached the Implementation Reports considered by the Flora and Fauna Committee during 2012/13 on the following Action Plans:

- Action Plan 29 ACT Aquatic Species and Riparian Zone
- Action Plan 27 ACT Lowland Woodland Conservation Strategy
- Action Plan 5 Gentiana baeuerlenii.

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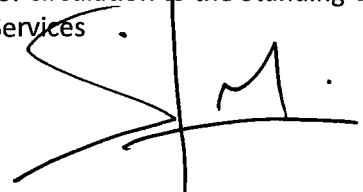
Signature: 

Date: 30·10·13

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

Review of Implementation

Ribbons of Life

ACT Aquatic Species and Riparian Zone Conservation Strategy

Action Plan 29

Conservation Research
Policy Division, Environment and Sustainable Development Directorate
May 2013

Review of Implementation of the ACT Aquatic Species and Riparian Zone Conservation Strategy: Action Plan 29

Outline

This review on the implementation of Action Plan 29 has been prepared for the ACT Flora and Fauna Committee. The Committee has a specific role in monitoring the implementation of the Action Plans prepared under the Nature Conservation Act (1980).

The review provides a summary of the progress made between 2010 and 2013 towards meeting the performance criteria of the ACT Aquatic Species and Riparian Zone Conservation Strategy.

The review is presented in table format and summarises activities undertaken against the performance criteria that are listed in the Action Plan Table 6.1 (page 141). Who has undertaken the work, timing and outcomes against the activity are also included.

Vision and Goals of the Strategy.

VISION

The Vision of the strategy is for the Murrumbidgee and Molonglo rivers in the ACT and their major tributaries make an outstanding contribution to the conservation of aquatic and riparian ecosystems of the upper Murrumbidgee River catchment. Overall the strategy has been successfully implemented through either on going management actions or activities specifically targeted at delivering actions under the Strategy.

The Protection Goals under the Strategy include to:

- Conserve in perpetuity viable, wild populations of all aquatic and riparian native flora and fauna species in the ACT.
- Conserve in perpetuity aquatic and riparian native vegetation communities in the ACT as viable and well-represented ecological communities.

The Management Goals under the Strategy include:

- Aquatic and riparian communities and habitats in the ACT are maintained and where degraded, rehabilitated to support the range of flora and fauna typical of the ACT. Rehabilitation may include the re-introduction of threatened or locally extinct fish species to ACT and/or regional streams where they no longer occur naturally.
- Maintain in perpetuity a well-connected system of aquatic and riparian environments that support movement of aquatic and riparian fauna in the ACT and region.

Highlights

Many significant activities have taken place since the Strategy was reviewed in 2010. A few of these, which are discussed briefly below, include the reduction to fish barriers in the Cotter River, actions under the Upper Murrumbidgee Demonstration Reach for river rehabilitation, the innovative use of 'Reef Balls' renamed 'Cod Caves' to improve fish habitat in two urban areas, research conducted for the Enlarged Cotter Dam, ongoing expansion of the Waterwatch network and the development of the Actions for Clean Water (ACWA) plan, and the Restoration of Waterways on ground program achievements. Also of note is the fact that actions have been undertaken by a wide variety of organisations, not just government bodies.

The Vanity's Crossing fishway has allowed the significant expansion in the range of Macquarie perch in the lower Cotter River. They have become established above Vanity's Crossing up to Pipeline Crossing and recorded as far as Burkes Creek Crossing (next crossing upstream). A fishway specifically designed to accommodate Macquarie perch swimming requirements was constructed at Pipeline Crossing in 2011 by ACTEW Water. Both the Vanity's and Pipeline crossing fishways have since been rebuilt after they were damaged by floods.

The demonstration reach concept is an initiative under the Murray Darling Basin Authority's (MDBA) Native Fish Strategy (NFS) to improve fish habitat. The Upper Murrumbidgee Demonstration Reach (UMDR) commenced in 2009 after a consortium of government and community groups successfully applied for funding from Caring For Our Country (CFOC). The UMDR initiative has so far completed an implementation plan, engaged with the public about river rehabilitation, conducted monitoring, undertaken rehabilitation work on priority riparian areas and successfully worked across the ACT/NSW border to implement its aims. Final plans are now also available for the community engagement plan, a carp management plan, monitoring literature review and monitoring strategy. The UMDR has been unable to gain new funding for the employment of a coordinator which has reduced the amount of community liaison being undertaken. Nevertheless, funding has been obtained to carry out a number of projects including community based riparian assessment of the NSW section of the reach, an assessment of fishways in the ACT, study on the effectiveness of the Casuarina Sands fishway, assessment of the sampling methodology for Murray Crays and the Tharwa Fish Habitat Project.

Many sections of the Murrumbidgee through the UMDR are affected by 'sand slugs' which cause reduced water depth and structural habitat. Sand slugs affect fish by reducing ability to pass through a river section and significantly reduce habitat available for resting, feeding or breeding. The Tharwa Fish Habitat Project is the end point of a consultancy run through the UMDR to recommend ways to manage the unnaturally high sand load in the UMDR for fish. The consultancy recommended the use of Engineered Log Jams (ELJs) as a way to cause sand scour producing channel deepening and also to provide some rock and woody habitat. Two trial ELJs have been constructed along with the significant augmentation of adjacent rock groynes, which were present from a previous project. Despite the short amount of time since completion, already channel deepening around the ELJs can be observed.

In response to the 2010-2012 flood events, there was a wide scale removal of in stream and bank flood debris and exotic vegetation in the Molonglo River, upstream

of Lake Burley Griffin. The works were seen as potentially detrimental to native fish species including Murray cod which have few other habitat options in this reach. Given the recent in stream debris removal & the impact of unattached snags from recent flooding and the recreational use of the area, using logs for fish habitat was not suitable. An artificial habitat, concrete Reefballs, was chosen for a trial fish habitat augmentation. The Reefballs have holes and caves in them for fish habitat. The Reefballs were redesigned for freshwater fish and renamed 'Cod Caves'. A total of 50 Reefballs weighing up to 500 kg with some specially designed to provide breeding habitat were placed into 5 river reaches. Sonar mapping was undertaken to assist in Cod Cave placement. Electrofishing monitoring of the structures has begun and intended to continue for 3 years supplemented by sonar monitoring. A separate installation of 60 reef balls was funded through an ACT envirogrant to the Capital Region Fishing Alliance on Yerrabi Pond to provide additional structural habitat. Reefalls proved to be fast and efficient in deployment from a crane or a long reach excavator with 10 to 25 balls an hour being placed.

The Enlarged Cotter Dam (ECD) is almost complete. The suite of projects related to the (ECD) represents a significant investment in knowledge generation and mitigation activities for the threatened Macquarie perch and two-spined blackfish. Activities include:

- the eradication of the alien carp and redfin perch between the old and new dam walls to prevent invasion of the ECD;
- the sterilisation between the old and new dam walls to prevent transfer of EHN virus; the investigation into predation on Macquarie perch by cormorants;
- the construction of 7 km of rock reef shelter habitat in the ECD inundation zone; the installation of a fishway at Pipeline Road Crossing to provide access additional riverine habitat for Macquarie perch;
- the completion of 3 years of baseline monitoring for threatened and alien fish in the ECD and the river upstream;
- the initial development of a genetic test to determine the presence of Macquarie perch in trout stomachs;
- the preparation of emergency translocation plans for Macquarie perch in the event of critically low water quality in the newly filling ECD; and
- the preparation of cormorant management plan for the ECD should cormorant abundance increase to critical levels in the filling reservoir.

These activities were conducted by the University of Canberra and funded by ACTEW Water. The activities provide assurance for the future of threatened fish species in the Cotter catchment between Cotter and Bendora dams.

The Waterwatch program has continued to expand with over 200 sites now being monitored by over 150 volunteers across the ACT region. Efforts over the past 3 years have seen a notable expansion of the program into the Murrumbidgee catchment upstream of the ACT with the support from ACTEW Water's Source Water Protection Program. This expansion was in part sparked from a Waterwatch volunteer reporting on exceptionally high turbidity readings in the Murrumbidgee in late 2009 which highlighted the extensive erosion problems in the upper catchment. These events lead to the formation of the Actions for Clean Water Alliance (ACWA) that subsequently developed an implementation plan, launched in October 2012. The Alliance (consisting of Water Policy, NRM Council, ACTEW Water, MCMA,

UMCCC and Waterwatch) have committed to implementing the ACWA Plan. Immediate on-ground works will be complemented by a range of management strategies and activities that are currently being developed.

The ACT Parks and Conservation Service Restoration of Waterways Project has been implemented to rehabilitate some ACT urban rivers. Achievements include:

- the control of weeds and other invasive species from a total of 24 km of infested ACT waterways;
- removal of significant flood debris deposits from a total of 51 km of waterways;
- extensive revegetation on over 20 hectares of riparian zone with suitable native plants species, including a mixture of trees, shrubs and water-edge species; and
- the installation of 50 artificial fish habitat structures for native fish (see above).

These works have been concentrated in the Molonglo Catchment, working from upstream, down on the Molonglo River and its tributaries: Queanbeyan River, Reedy, Woolshed and Jerrabomberra Creeks, and an additional section of critically degraded river below Scrivener dam. Other outcomes include improved water quality and flow, improved habitat for native wildlife (aquatic and terrestrial), and improved recreational amenity through improved access and social and cultural association with our rivers.

Overall, work conducted under the Strategy has addressed the priority actions for section 6.5 (page 150). Generally, *information* has been collected and communicated from survey and monitoring work; *protection* of relevant species has been maintained; significant *threats* have been addressed; river corridors have been protected through *planning* processes; *management* activities have been guided by information collected and restoration activities targeted at identified high priority areas; *community/ landholders* have participated significantly in management activities and have been provided with relevant information; and the ACT *cooperates at both a regional and national* level to help deliver actions under the strategy.

A number of the activities undertaken have also been directly targeted at priority river sections. The priority actions have been addressed in the table below under the relevant performance criteria. The strategy has been found to be relevant and useful in the prioritisation of potential activities that occur along ACT river corridors.

List of Acronyms

ACTEW	ACT Electricity and Water
CR	Conservation Research
ECD	Enlarged Cotter Dam
ESDD	Environment and Sustainable Development Directorate
LDA	Land Development Agency
MDBA	Murray Darling Basin Authority
NFS	Native Fish Strategy
PCS	Parks and Conservation Service
TAMS	Territory and Municipal Services Directorate
UC	University if Canberra
UMDR	Upper Murrumbidgee Demonstration Reach

Activities undertaken against listed performance criteria.

1. Information					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress to 2013**
2008–2010 Comprehensive survey undertaken of riparian vegetation and habitat for high priority areas.	Survey and map compilation undertaken for the Murrumbidgee River and major tributaries in 2008 & 2009.	Conservation Research Unit (CR)	Completed.	Riparian vegetation composition determined, condition assessed, and management needs assessed and mapped. A Murrumbidgee report and a major tributaries report has been produced with included maps.	Project completed. Reports printed and also placed on the WWW http://www.environment.act.gov.au/cpr/report_series Riparian project outcomes have been used to select areas for rehabilitation action under the Million Tree project.
	NEW ACT Vegetation Communities have been reclassified to fit with NSW Upper Murrumbidgee Catchment (UMC) communities. The new UMC vegetation communities are being mapped in ACT, as a part part of this mapping, riparian vegetation is being revisited, including detailed coverage of canopy in already mapped areas, and getting coverage in other areas not already mapped (e.g. small tributaries like Woolshed Creek etc.)	CR	In progress		In progress
	NEW Community riparian assessment being undertaken by Cooma Waterwatch	Cooma Waterwatch, in association with the UMDR	In progress		Landholder riparian assessments undertaken, community workshop still to run, remote area (gorge) assessments still to take place
Vegetation monitoring program designed and commenced for priority	Riparian vegetation monitoring method developed for upland	CR	Completed	Method trialled, yet to be implemented.	Funding required to undertake riparian monitoring.

1. Information					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress to 2013**
species/ecological communities.	riparian zones, which tend to differ to lowland zones outside the ACT.				
Survey and other relevant data entered into ACT vegetation database within 6 months of collection.	Investigation into whether riparian survey data suitable for entry into vegetation database.	CR	Ongoing		Data found to be suitable to enter into database and will be commenced soon.
Monitoring program for fish, crayfish and aquatic macroinvertebrates is maintained.	Monitoring for fish undertaken annually or bi-annually dependant on species or community.	CR	Ongoing	Technical reports prepared. Outcomes assist waterway management by PCS and ACTEW.	On going as stated
	Monitoring Associated with the Enlarged Cotter Dam (ECD) commencing 2010.	ACTEW, University of Canberra (UC).	Ongoing		On going. First 3 years of monitoring completed (baseline) by University of Canberra. Proposal for next phase of monitoring prepared.
	Assessment of river health using AUSRIVAS Macroinvertebrate protocols undertaken twice per year in autumn and spring	Managed by Environment and Sustainable Development Directorate (ESDD) Water Policy Unit and undertaken by the UC	Ongoing	Reported in the Annual Water Report produced by ESDD	Ongoing
	ACTEW Murrumbidgee Ecological Monitoring Program	ACTEW, GHD, CR	Ongoing	Monitoring of fish, macroinvertebrates (AUSRIVAS), water quality, hydrology, geomorphology and periphyton. Monitoring information will allow ACTEW to more accurately predict and track the impacts of current and proposed operations.	Monitoring ongoing, and now also targeted at monitoring response of the river biota to the M2G pipeline project.
Database for survey and monitoring data on aquatic species is developed.	Database developed 2009.	CR	Completed. Historic data input completed	Currently historic data being validated and imported.	Majority of historical data imported. Database now used directly for data input and reporting.
Extent of recovery of fire affected riverine and riparian ecosystems and	Surveys have been conducted as part of annual fish monitoring and by the	PCS Research and Planning Section	Initial report completed.	Commentary provided in annual fish species reports. Follow-up fire response report to be	Follow-up fire response report yet to be completed.

1. Information					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress to 2013**
ecological communities reported.	riparian projects.			completed. Riparian project determined and mapped extent of fire affected vegetation communities. Post fire condition was also assessed.	
Number of research projects undertaken and extent to which management recommendations arising from research are adopted.	Large biota project	PCS	Completed	Radio Tracking methodologies for 4 fish species, 1 cray 1 reptile species and 1 mammal trialled in the laboratory and field situations. Diel movements and habitat preferences of Macquarie Perch in Cotter Dam determined. Research recommendations used to guide reservoir, river management and construction of the ECD.	Research papers published. For example, B. T. Broadhurst, J. G. Dyer, B. C. Ebner, J. D. Thiem and P. A. Pridmore (2011) Response of two-spined blackfish *Gadopsis bispinosus* to short-term flow fluctuations in an upland Australian stream. **Hydrobiologia**, 673:63–77
	Constructed homes project, Murray cray and other projects for Enlarged Cotter Dam (ECD) management	ACTEW, UC, ANU	Completed	Artificial habitat use by Macquarie perch assessed and ECD construction activities guided by recommendations. Movement patterns of Two spined blackfish in Bendora determined. Murray cray survey techniques and densities determined, swimming speeds of Macquarie perch and alien fish species in the Cotter determined to help understand and manage fish passage	Recommendations used to design and construct 7 km of artificial reef habitats for fish in the ECD NEW: Cormorant Diet Study. Project to determine if Macquarie perch are a significant component of the cormorant diet. A Cormorant Management Plan has been produced to reduce the impacts of these birds on Macquarie perch.
	Aprasia habitat mapping project	UC, CR	Completed	On-ground mapping and modelling.	Completed
	Urban lakes and ponds response to drawdown project	DECCEW and eWater CRC	June 2008-June 2011	Will assist urban lake draw-down management.	Completed
	NEW Assessment of efficacy of the Casuarina Sands fishway to pass fish.	CR, funded by MDBA Native Fish Strategy	In progress		In progress Passive Integrated Transponder (PIT) array installed, fish tagged and trials commenced running fish through the fishway.

1. Information					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress to 2013**
	Assessment of Murray cray sampling methodology.	As above	In progress		Crays found by Fulton 2010 to only spend <3 minutes on baits, which affects historical sampling method of lift nets as crays can leave the net before lifiting. Enclosed Munyana traps to be trialled and compared to lift nets (previous sampling method).
Integrated Nature Conservation Plan (INCP) includes up-to-date ecological data on rivers and riparian zones.	AUSRIVAS outputs on stream health available through the online water quality database. Located on the INCP and WaterWatch websites	ESDD	Superseded by ACTMapI		Superseded by ACTMapI

2. Protection					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
2008–2010 Conservation status of aquatic and riparian species and ecological communities assessed. Where appropriate, threatened species nominations prepared.	No new aquatic fauna nominated. Regular aquatic species monitoring undertaken to enable review of status.	CR	Ongoing	Reports prepared annually that include assessment of status of different species.	As before
	Bossiaea grayii conservation status	CR	Completed	Currently being assessed.	Listed as threatened, action plan completed.
Key riverine and riparian habitats are protected by legislation, reservation, planning and management actions.	Significant riverine areas protected	Parks and Conservation Service (PCS)	Ongoing	Murrumbidgee River Corridor largely protected in nature reserve. Cotter River entirely protected in national park and catchment area. Molonglo River protected in nature reserve or special purpose reserve.	On going
	Review of Environmental Flow guidelines	ESDD	2010-2011		Review completed, at http://www.legislation.act.gov.au/di/2013-44/default.asp
Plant and animal species declared threatened in the States or by the Commonwealth are protected in the ACT. ACT conservation status reviewed.	*Muehlenbeckia Tuggeranong*	CR	Completed	Listed threatened under EPBC and ACT NCA	Regularly monitored
	Bossiaea grayii	CR	Completed	Currently being assessed	Completed
	Pomaderris pallida Only listed under EPBC.	CR	Not started	Threatened under EPBC, yet to be assessed for ACT	Federal Government responsibility for Action Plan. Field survey conducted. Species considered not to be under threat in the ACT.
	Murray Cod angling size limit increase in keeping with NSW size limit changes and SA review of Murray Cod status to temporary protection	CR	Completed	With Minister	Legislation change passed and now enforceable.
Extent to which development proposals are assessed under applicable legislation.	Large development proposals have been provided concerning ECD, Murrumbidgee to Googong Pipeline (M2G),	PCS and ESDD	Ongoing	Assessments under Planning and Development Act and EPBC Act undertaken and expert comments provided. Ongoing meetings conducted with developers to highlight environmental	Ongoing as proposals are received.

2. Protection					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
	Murrumbidgee to Cotter River Pipeline (M2C) and Molonglo Valley urban development.			concerns. Molonglo River Assessment Strategy developed.	
2010–2012 Rivers and riparian zones have been assessed for suitable entries to the ACT Heritage Places Register and nominations prepared.	Molonglo Development: Molonglo River Riparian Management Strategy			No progress to date.	

3. Threats					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
2008–2010 Actions to address threats have been prepared and are being implemented.	Murrumbidgee riverine threats assessed and the Upper Murrumbidgee Demonstration Reach (UMDR; for rehabilitation) developed. Threats addressed include sedimentation, fish passage, riparian degradation, alien fish, etc.	Managed by PCL Research and Planning Unit , partners include: ACTEW, MDBA, MCMA, ACT WaterWatch, RiverSmart Australia, ACT NRM Council, Greening Australia, ANU, UC	Ongoing	Implementation plan completed. Monitoring, communications and carp management plans currently being finalised prior to commencement of identified actions. Plans being developed to assist with Tharwa sand slug management. Local communities have been engaged in riverine rehabilitation. Regional, cross-border, multi-agency approach to management of Upper Murrumbidgee being adapted for the UMDR.	UMDR plans completed and released: Monitoring, Communication, Carp. Sand mitigation plan completed and released. Major recommendation being acted upon: Engineered Log Jams (ELJs) at Tharwa constructed as a trial to improve fish passage and provide habitat. Cooma Waterwatch riparian project being implemented under UMDR to understand riparian condition upstream of the ACT
	Lower Cotter Catchment revegetation program to help address sedimentation	PCS managing	Completed	Revegetation, weed control, road maintenance, turbidity monitoring. Turbidity of the Cotter River has been found to be decreasing.	Completed
	Translocation of Macquarie perch to increase population	UC, ACTEW, previously CR	Ongoing	Macquarie perch young of year and juveniles translocated to Molonglo and upper Cotter rivers,, mix of ages translocated	Project undertaken by UC funded by ACTEW under the Enlarged Cotter Dam Fish Management Plan. Draft

3. Threats					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
	numbers and reduce isolation			to Paddys River.	final report for 2009-2012 completed. Paper on historic Queanbeyan River translocation accepted for publication
	ACTEW Source Water Protection program for water quality improvement and supply protection	ACTEW implemented through ACTEWAGL	Ongoing	New water watch coordinator funded in Cooma to engender support for water quality improvement Proposing to institute riparian Revegetation of the Murrumbidgee catchment in the ACT. Catchment assessment conducted to determine catchments of high priority for water quality improvement activities. GIS data for the Murrumbidgee collected to provide broad information base about environmental management of the rivers. Schools education program on water quality protection being developed.	Ongoing
	ACTEW Revegetation offsets for the ECD of the Paddys River	ACTEW	Ongoing	Habitat lost under the ECD footprint offset in the Paddys River catchment. Rehabilitation activities and research being undertaken.	In 2011 & 2012 willow and poplar control from just upstream of Murrays corner down to the crossing near the Cotter caves. Late last year the Yurung Dhaura trainee group funded to plant approximately 300 riparian plants from Murrays Corner downstream for 2km.
	Trout monitoring in the Cotter River to understand the threat to Macquarie perch and two spined blackfish.	ACTEW, UC	Ongoing		Trout monitoring in progress to detect potentially damaging increases in trout numbers as the ECD fills. Impact of trout on Cotter threatened species being assessed through the analysis of trout gut contents. First stage of genetic test developed to enable identification of fish remains in trout stomachs

3. Threats					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
Area of riparian zone occupied by weeds has been reduced. Incidence of high priority weeds has been reduced and their spread controlled.	Major projects along the Lower Molonglo River, Molonglo Reach & Molonglo Gorge controlling pest Willows and Blackberries. Smaller projects at Scrivener Dam, in Western Lake Burley Griffin including Westbourne Woods lake foreshore area - controlling Blackberry, pest Willows, Poplars and Black Alder. Follow-up control of pest Willows, Blackberry, Serrated Tussock and Tall African Lovegrass along the Murrumbidgee River. Follow-up control of African Lovegrass, Woody Weeds and Blackberry in the Gudgenby River catchment (Middle Creek, Rendezvous Creek, Bogong Creek). Jerrabomberra Wetlands management	PCS PCS	Ongoing – Unknown budget, though expected to be reduced next financial years Ongoing	Significant reduction in environmental weed cover at the locations mentioned. The Million Trees program included revegetation in some areas of the Murrumbidgee.	Ongoing Molonglo Reach – cattle fenced off from river and alternative water supply installed (troughs). Completed April 2013. Blackberry sprayed. Completed April 2013. Jerrabomberra Creek (within

3. Threats					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
					reserve)– removal of willow, alder, poplar etc on sections of the Creek. Also follow up control continuing. Revegetation with native trees and shrubs (approx 90% success rate after year 1). Kellys Swamp – willow and blackberry follow up control.
	Restoration of Waterways Project: Invasive trees and weeds poisoned/removed include crack and black willow, box elder, white poplar, English elm, blackberry and St John's Wort.	PCS	2011-2013		Invasive weeds controlled along 26km of waterway in upper Molonglo catchment: Molonglo and Queanbeyan Rivers, Woolshed and Reedy Creeks. Over 20 hectares of riparian zone rehabilitated
2010–2012 Threats to rivers and riparian areas are substantially reduced or decreasing.	UMDR	UMDR cooperative	Ongoing		Ongoing as funding becomes available
	One Million Trees project	PCS	Until 2018		Ongoing
	Follow-up environmental weed control: Molonglo Gorge, Molonglo Reach, Lake Burley Griffin (west), Molonglo River below Scrivener to Murrumbidgee	City Services	Ongoing – budget pending	Intensive invasive weed removal (including Crack Willow, Black Alder, White Poplar and Blackberry) for 4.5km length (approximately 10ha) of Lake Burley Griffin riparian zone, in 2010-11. Intensive revegetation of in-stream, edge and riparian flora. Follow-up weed control ongoing with budget pending.	Intensive invasive weed removal (including Crack and Black Willow, and Blackberry) for 3.5k length (approximately 17 ha) of Molonglo Reach, in 2011-13. Intensive revegetation in-stream, edge, bank and riparian edge. Follow-up weed control funded at this stage until 2015.
	NEW Restoration of Waterways Project	PCS	2011-2013		Invasive tree and woody weed infestations targeted and controlled in 26km of waterway in upper Molonglo catchment.

4. Planning					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
2006 Planning and development decisions (urban, recreation and infrastructure) are based on this *Strategy* and up-to-date ecological information.	Development assessments undertaken	PCS, DECCEW, ACTPLA	Ongoing	Assessments conducted for: Enlarged Cotter Dam (ECD), Murrumbidgee to Googong Pipeline (M2G), Murrumbidgee to Cotter River Pipeline (M2C) and Molonglo Valley urban development. Molonglo Strategic Assessment conducted.	Completed
2008–2010 Extent to which linear habitat connectivity has been maintained and improved.	Million Trees Program initiated	PCS	Ongoing for 10 years starting 2008	Riparian vegetation rehabilitation activities conducted in identified priority areas. Planting occurring on riparian, valley slopes and drainage lines within the Murrumbidgee River Corridor (MRC)	Ongoing
	Molonglo River Restoration Strategy developed for Coombs area	LDA	2010	Strategy to be finalised and implemented.	Completed
	NEW Restoration of Waterways Project	PCS	2011-2013		Rehabilitation of river banks (>20ha) following invasive tree removal, at 2identified priority sites, Oaks Estate and below Scrivener dam. Revegetation with 6,800 plants: suitable mixture of native trees, shrubs and understorey plants including aquatic emergents.
Extent to which habitat for Pink-tailed Worm Lizard is protected.	Pink-tailed Worm Lizard habitat mapped	UC, PCS	Completed	Moderate to high quality habitat will be protected under requirements of the EPBC Act.	Project completed. Report prepared and results are part of a PhD that has been recently submitted

5. Management					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
2008–2010 Extent to which aspects of best practice management have been applied.	Establishment of Upper Murrumbidgee Demonstration Reach (UMDR) Steering Committee	CP, ACT PCS, ACTEW, MDBA, MCMA, ACT WaterWatch, RiverSmart Australia, ACT NRM Council, Greening Australia, ANU, UC	Ongoing	Regional, cross-border, multi-agency approach to management of Upper Murrumbidgee being adapted.	UMDR initiative still continues, although without a coordinator because of lack of funding. Activities proposed under the Implementation Plan are being carried out as funding becomes available.
	Updated ACT Fish Stocking Plan prepared	CR	Completed	2009 – 2014 Fish Stocking Plan finalised and being implemented. Available on the WWW	Due for update 2014
	Environmental Flows Guidelines review	ESDD	Completed		Completed. Published at http://www.legislation.act.gov.au/di/2013-44/default.asp
Management Plans prepared for all Public Land areas.	Already exist: MRC Management Plan, Lower Molonglo Management Plan, Lower Cotter Management Strategy	UMDR cooperative	Completed		Completed and now on the UMDR webpage (http://upperbidgeereach.org.au/)
	Googong Foreshores Plan of Management	Conservation Planning (CP), PCS	Has been considered by Commonwealth Completed		Plan completed and with TAMS for Minister's approval
	Namadgi Management Plan.	CP, PCS	Completed		Completed in 2010 and now on the TAMS website.
	Jerrabomberra Wetlands Nature Reserve of Management	CP, PCS	Commenced		Completed 2010 on TAMS website

5. Management					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
	NEW Lower Cotter Plan of Management	CP, PCS			In progress
Extent to which ecological condition and habitat quality of rivers and riparian zones have been maintained or improved.	UMDR initiative	UMDR cooperative	Ongoing	UMDR is working towards river habitat improvement e.g. riparian restoration, fish passage improvement, sedimentation management, etc.	On-going as funding becomes available. CFOC, NFS, ACTEW, Envirogrant funding obtained to implement a sand mitigation project at Tharwa.
	One Million Trees project	PCS	Ongoing	Vegetation planted in riparian, valley slope and drainage lines of MRC (and other areas of the ACT) in priority sites	Ongoing
	Lower Cotter Program	PCS management UC, Greening Australia, ACTEW	Completed	Community based revegetation program run by Greening Australia until 2013. Water monitoring by UC - found turbidity to be decreasing in Lower Cotter post bushfires and post pine forest plantations. Road maintenance by ACTEW as an offset for ECDam. Ongoing weed control by PCS.	Completed
	Maintaining Cotter River biota - Environmental flows in the Cotter River	ACTEW, ESDD, PCS, UC	Ongoing	Monitoring of riverine biota conducted. E flows appear to be maintaining habitat and biota of the Cotter River.	Ongoing
	ACTEW Source Water Protection Program	ACTEW through ACTEW AGL	Ongoing	Program aims to improve and maintain Water Quality which will benefit biota. Current projects listed in section 3 - Threats	Ongoing
	NEW Restoration of Waterways Project: Control and removal of willow and other	PCS	2011-2013		Invasive tree and woody weed control completed on a total of 26km of waterway. This includes crack willow regrowth (Molonglo River from the NSW border to Molonglo Gorge and

5. Management					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
	invasive species from priority waterways; debris removal; rehabilitation of banks.				Molonglo River tributaries: Woolshed and Reedy Creeks) and large scale removal of willow and other invasive species in the previously untreated, heavily infested areas at: Oaks Estate and below Scrivener dam (>20 ha). These two sites were previously identified as high priority due to being critically degraded, choked sections of river. Water is now able to flow freely. Both sites have been replanted with 6,800 suitable native plant species: trees, shrubs, understorey and aquatic emergent species.
Management responsibility established for the Molonglo River adjacent to Fyshwick and below Scrivener Dam to Coppins Crossing. Rehabilitation programs commenced.	Molonglo River Rescue Action Plan	Molonglo Catchment Group in consultation with Molonglo river Rescue Steering Committee (ACT Govt & community groups)	Completed 2010	Action Plan completed.	Ongoing weed control and maintenance of revegetation from 2010-13 in Molonglo Reach. Future weed treatments and maintenance planned, pending available budget (City Services).

6. Community/ landholder involvement					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
2008–2010 Number and type of opportunities for managers of rivers and riparian zones to exchange information about 'best practice' management.	UMDR Steering Group, along with M&E, Carp Mgmt Subgroups established for Murrumbidgee	Multiple agencies within ACT Government, community groups, Federal agencies	Ongoing	Meetings and field days conducted, information exchanged	Progressed to 2011 until funding was finished
	Upper Murrumbidgee Catchment Coordinating Committee (UMCCC) Bimonthly meetings, field trips and biennial forum.	Members include ACT Government, ACTEW, local councils, MCMA, and Waterwatch.	Ongoing		Continued. Membership extensive and expanding.
Number and type of opportunities for community groups to participate in conservation activities in the rivers and riparian zones.	UMDR Community Reference Group establishment, Liaison with recreation River Users and involvement in UMDR on ground planting, Frog Watch, Waterwatch, Platypus Count activities	UMDR cooperative	Ongoing, Pending budget	Meetings and field days conducted. Fish survey methods demonstration to take place.	Activities include, electro fishing demonstrations, assistance with 'carp-out' event, riparian workshop
	Lower Cotter Catchment Program – Community revegetation activities	Conservation Volunteers, Greening Australia	2009-2013	Community planting activities taking place	Completed
	Waterwatch water monitoring activities	Waterwatch	Ongoing	Approximately 150 sites across the ACT and upper Molonglo catchment. Working with the Australian Platypus Conservancy to run workshops and encourage community to monitoring Platypus activity and report findings.	Program has expanded to include upstream of the ACT. More than 200 sites across the ACT region are monitored monthly by over 150 volunteers. Information on riparian health and macroinvertebrates is also collected.
	Platypus Count month	Waterwatch	Ongoing		Ongoing

6. Community/ landholder involvement					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
	NEW Artificial fish habitat improvement in Yerrabi Lake	Capital Region Fishing Alliance using an environment grant and tech assistance from CR	Completed		'Cod Caves' installed into Yerrabi lake to improve fish habitat.
	Million trees program	PCS	Ongoing		Community involvement in planting under the MRC Million Trees project, Also landholder involvement where selected creek/gully lines have been fenced off.
	Restoration of Waterways Project (PCS): Community meeting about riparian restoration (2011) and revegetation activities (2012-13) along a 1km stretch of the Queanbeyan and Molonglo Rivers at Oaks Estate.	ACT Government: Parks and Conservation Service; Oaks Estate community; Oaks Estate Progress Association; Greening Australia; Molonglo Catchment Group; Conservation Volunteers Australia.	2011-2013		Community planting day May 2012. Revegetation June 2012. Ongoing maintenance of revegetation plantings by community and volunteer groups including weeding, mowing around and watering (2013). Plants established successfully.
	'Spray safe' unit and training activites contributing to reduction in riparian weeds and herbicide runoff through more targeted application.	Southern ACT Catchment group	2010-present		Ongoing

6. Community/ landholder involvement					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
Materials available to community groups to educate and raise awareness about aquatic and riparian issues.	UMDR Education package, website, brochures being developed	UMDR cooperative	Ongoing	Draft brochure and website.	Brochures developed as projects are completed. Website still live
	Waterwatch 'Sustaining River Life' Teach the Reach curriculum developed	Waterwatch	Completed	Program prototype running, to be released in 2010.	'Teach the Reach' was expanded and became 'Sustaining River Life'. Released in 2010.
	Waterwatch general education materials	Waterwatch	Ongoing	Posters, quarterly newsletters	Posters, quarterly newsletters - on going
	"Mapping Lower Molonglo"	Molonglo Catchment Group	In progress		In progress
	Glove box guide to Waterplants of the ACT region	Molonglo Catchment Group	Complete		Guide completed 2013
	NEW Willow control material provided to community members. Away with Willows DVD and Willow Management Guide booklets.	Parks & Conservation Service; Oaks Estate (and Queanbeyan) community; Oaks Estate Progress Association; Molonglo Catchment Group	Completed 2011		Improved knowledge in community about need for willow control and riparian restoration; community support and improved communications with ACT Government
	African Lovegrass brochure, poster and awareness campaign	Southern ACT Cathcment Group	2012		Completed

7. Regional and National Cooperation					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
2008–2010 Extent of ACT involvement in relevant national and regional programs and activities.	Participant in eWater CRC	DECCEW and ACTPLA	2004-2012	Improved knowledge and management tools for aquatic ecosystems and catchment processes	Revised agreement focused on hydrological modeling.
	UMDR Steering Group/s	UMDR cooperative	Currently on hold	Exchange of information and technical input on relevant issues	Steering Group on hold until coordinator funding can be sourced.
	MDBA NFS	PCS, MDB state reps., MDBA	Ongoing	Exchange of information and technical input on relevant issues	Involved until NFS is wound up 2013. It is proposed to undertake a short term investment in renewing some elements of the NFS.
	OFMIG – Ornamental Fish Management	CR, Australian state and Commonwealth rep.s, industry groups	No longer functioning	Exchange of information and technical input on relevant issues	
	Aquatic Ecosystem Technical Group (AETG)	CR, state and commonwealth reps	Ongoing	Exchange of information and technical input on relevant issues	On going. Suggestion to merged Wetlands and Waterbirds Taskforce with AETG.
	Wetlands and Water birds Taskforce	ESDD, CR	Ongoing		Exchange of information and technical input on relevant issues
	Actions for Clean Water Alliance (ACWA)	Water Policy, NRM Council, ACTEW Water, MCMA, UMCCC and Waterwatch	Ongoing	Turbidity issues highlighted in late 2009.	ACWA Implemetation Plan launched in October 2012. On-ground works implemented by MCMA with a number of project currently being developed.

8. Threatened and Uncommon Plants (*Muehlenbeckia tuggeranong* and any other threatened or uncommon plant species/ecological community occurring in riparian zones)					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
2008–2010 Actions with regard to the reproduction of *Muehlenbeckia tuggeranong* have been undertaken (s. 2.4.1).	Australian National Botanic Gardens propagation of *Muehlenbeckia tuggeranong*	Botanic Gardens, PCS	Ongoing	Botanic Gardens currently have plants. All plants are clones and the Gardens are unable to get the plants to reproduce sexually Discussions with Botanic Gardens to have an ex-situ population maintained at the gardens and investigate re-introduction into the field.	Plants re-introduced into suitable field locations and are monitored.
Threatened or uncommon plant species or ecological communities identified from surveys.	Surveys conducted	PCS	Complete and ongoing	*Bossiaea grayii* nomination in preparation following riparian surveys; locations of *Pomaderris pallida*, *Muehlenbeckia tuggeranong*, *Discaria pubescence*, *Isoetes muelleri* identified from riparian project.	Undertaking new activities from the action plan
Conservation status of uncommon plant species or ecological communities assessed.	*Bossiaea grayii* *Pomaderris pallida*	PCS	Completed	Currently being assessed	Completed
Land managers and landowners advised of presence of threatened or uncommon plant species or ecological communities and management guidelines provided.		PCS	Ongoing	Land managers notified	Ongoing
Liaison with interstate agencies undertaken (as required).			Ongoing	Exchange of information and technical input on relevant issues	ongoing

9. Threatened and Uncommon Animals of the Rivers and Riparian Zones • Rivers: Two-spined Blackfish, Trout Cod, Macquarie Perch, Silver Perch, Murray Cod, Murray River Crayfish and other threatened or uncommon animal) • Riparian Zones: Painted Honeyeater and Pink-tailed Worm Lizard and any other threatened or uncommon animal					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
2008–2010 Up-to-date database of threatened and uncommon animal species maintained.	Detailed mapping of *Aprasia parapulchella* habitat underway.	UC, PCS	Completed	Report and maps expected by the end of 2010	Completed
	Fish database	PCS	Completed	Historical data currently being input	Completed, being used to enter current data
Conservation status of uncommon animal species assessed.	Fish monitoring takes place for threatened and uncommon species.	CR	Ongoing	No significant change detected that would prompt a re-assessment of conservation status.	As before
	Fish monitoring for the ECD under the Fish Management Plan	ACTEW, UC	Ongoing		Monitoring of Macquarie perch and Two spined blackfish undertaken in the Cotter Reservoir and the river upstream to assess any impact. Project on spawning cues and spawning timing of Macquarie perch also undertaken in 2009/2010
Land managers and landowners advised of presence of threatened or uncommon animal species and management guidelines provided.	PCS and ACTEW advised of aquatic species distribution	CR	Ongoing	ACTEW river flow management takes fish distributions into account. PCS land management takes distributions into account.	As before
Habitat for threatened and uncommon species has been maintained or restored.	Vanity's Crossing fishway in operation	CR with ongoing monitoring from Waterwatch	Completed	Currently providing access upstream for Macquarie perch	Vanities fish way repaired each time after two floods.
	Pipeline Crossing has been remediated for fish passage	ACTEW, UC	Completed		Pipeline fishway installed and repaired once after a flood.
	Artificial habitat for Macquarie perch in the ECD	ACTEW	Completed		Completed
	NEW Tharwa Engineered Log	ACTEW	Completed		2 ELJ's installed and 2 rock groynes

9. Threatened and Uncommon Animals of the Rivers and Riparian Zones • Rivers: Two-spined Blackfish, Trout Cod, Macquarie Perch, Silver Perch, Murray Cod, Murray River Crayfish and other threatened or uncommon animal) • Riparian Zones: Painted Honeyeater and Pink-tailed Worm Lizard and any other threatened or uncommon animal					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
	Jams (ELJs) installed to improve fish passage and habitat				augmented to induced sand scour, causing river deepening and provide additional habitat.
	50 Artificial fish habitat structures installed into Molonglo River at 2 sites: Oaks Estate and Molonglo Reach	PCS and CR	Completed with on-going monitoring		Cod Caves installed and are being monitored for fish usage.
	Mapping of potential movement barriers to Macquarie perch in Cotter river	UC, ACTEW			Mapping and performance of barriers under low flow conditions assessed. High flows and moderate flows to be completed in 2013
	Mapping of potential barriers to Murray cod migration in Murrumbidgee River	UC, ACTEW	Commenced 2012		Field data collection on location and characteristics of barriers between Angle Crossing and Casuarina Sands completed (analysis and reporting to be completed in 2013 (Honours project)
	Investigation of spawning and larval drift in Murray Cod	UC, ACTEW	Commenced 2012		Larval Murray cod sampled in 2011 and 2012 at 6 sites along Murrumbidgee River between Tharwa Sandwash and below Casuarina Sands. Cod detected at all sites
	Investigation of flow and pool habitat characteristics for Maurray cod habitat	UC, ACTEW	Commenced in 2011		Pool habitats at 6 representative sites monitored for dissolved oxygen and temperature over spring-autumn in 2011 and 2012.

9. Threatened and Uncommon Animals of the Rivers and Riparian Zones • Rivers: Two-spined Blackfish, Trout Cod, Macquarie Perch, Silver Perch, Murray Cod, Murray River Crayfish and other threatened or uncommon animal) • Riparian Zones: Painted Honeyeater and Pink-tailed Worm Lizard and any other threatened or uncommon animal					
Performance Criteria	**Activities Undertaken**	**Who**	**Timing**	**Progress/Outcomes of the Activity at 2010**	**Progress 2013**
	Carp and redfin eradication below Cotter dam	UC, ACTEW	Commenced in 2011		Carp and Redfin perch eradicated between old and new Cotter dam walls to prevent invasion when new Cotter dam overtops old cotter dam
	Prevention of transfer of EHN virus into new Cotter dam during construction	UC, ACTEW	2011		Disinfection of area between old and new cotter dams to prevent potential transfer of virus when new Cotter dam overtops old Cotter dam
	Investigation of movement patterns of Two-spined blackfish in Bendora Reservoir	UC, ACTEW	2011		Movement of blackfish investigated using radiotelemetry. Blackfish made nocturnal movements from 'home' sites to feeding sites, and then returned each night. Movement greater than recorded in riverine habitats. Paper published
	Spawning timing of Two-spined blackfsih	UC, ACTEW	2012		Artificial spawning tubes deployed, blackfish spawned earlier at lower altitude, daily deposition of growth rings determined. Report (Hons Thesis) to be completed by June 2013
Liaison with interstate agencies undertaken (as required).	UMDR mult-jurisdictional, multi-agency project facilitating cross border cooperation in the management of the Murrumbidgee River Also see section 7. Regional and National Cooperation	UMDR cooperative	Ongoing	Exchange of information and technical input on relevant issues	Exchange limited as funding not available for a coordinator.

ACT LOWLAND WOODLAND CONSERVATION STRATEGY – ACTION PLAN 27

IMPLEMENTATION REPORT

First Published: March 2004

Review prepared by:

Conservation Planning and Research (CPR) Unit

Environment and Sustainable Development Directorate (ESDD)

Review Date: August 2013

Overview

This multi-species Action Plan superseded Action Plans previously published for the Yellow Box – Red Gum Grassy Woodland ecological community. It includes the following threatened communities and species:

- Yellow Box – Red Gum Grassy Woodland
- A Leek Orchid (*Prasophyllum petilum*)
- Small Purple Pea (*Swainsona recta*)
- Hooded Robin (*Melanodryas cucullata*)
- Swift Parrot (*Lathamus discolor*)
- Superb Parrot (*Polytelis swainsonii*)
- Brown Treecreeper (*Climacteris picumnus*)
- Painted Honeyeater (*Grantiella picta*)
- Regent Honeyeater (*Xanthomyza phrygia*)
- Varied Sittella *(Daphoenositta chrysoptera)*
- White-winged Triller (*Lalage sueurii*)

This is the third implementation review report following on from reviews in March 2007 and March 2010.

The vision of Action Plan 27 was for the Australian Capital Territory (ACT) to make an outstanding contribution, regionally and nationally to conservation of Lowland Woodland.

The Plan identified the following major conservation goals;

- Woodland - Conserve in perpetuity all types of Lowland Woodland communities in the ACT, as viable and well-represented ecological systems.
- Fauna and Flora - Conserve in perpetuity, viable, wild populations of all lowland woodland flora and fauna species in the ACT and support regional and national efforts towards conservation of these species (including declared threatened species).
- Management - Manage and rehabilitate Lowland Woodlands across all tenures with appropriate regeneration, restoration and reinstatement practices.

These goals are to be achieved through the implementation of specific actions and performance criteria that relate to the vegetation community or each threatened species covered by the plan. The attached tables list the box -gum vegetation community or threatened species and the actions that relate to each entity and evaluate the level of progress on each action.

Revision of the Action Plan

Action Plan 27 is nearly ten years old and due for revision. However, consideration of lowland woodland will benefit considerably from the ACT vegetation mapping program currently underway and due for completion by the end of 2015. This mapping will be consistent with a recently published vegetation classification that encompasses all of the ACT and surrounding NSW. The classification describes the woodlands of the ACT in finer detail than any previous classification. The classification includes seven ACT lowland woodland vegetation communities:

- Blakely's Red Gum – Yellow Box +/- White Box tall grassy woodland;
- Yellow Box +/- Apple Box tall grassy woodland;
- Snow Gum grassy mid-high woodland;
- Drooping She-oak low woodland to open forest;
- Red Box grass-shrub woodland;
- Ribbon Gum very tall woodland; and
- Black Sallee grass-herb woodland.

There are also six dry sclerophyll open forest communities, two forested wetlands and six sub-alpine woodland communities that adjoin lowland woodland communities and it some cases, such as when considering habitat of threatened woodland species, are best considered along with the seven lowland woodland communities.

The mapping will provide accurate, contextual and specific information as to the extent, distribution, and representation in the reserve network of each lowland vegetation type, as well as habitat information and some condition information. It is possible that the mapping will provide the basis for listing more threatened woodland communities and may highlight areas that are critical for the conservation of these communities. Thus, given the extensive progress with woodland management to date and the need for accurate and updated vegetation information to inform the review, it is considered prudent to delay the Action Plan revision until after the vegetation mapping information is available.

Recommendation

- that the Flora and Fauna Committee support the delay of the review of this Action Plan until after the new vegetation mapping information is available for the woodland areas.

Highlights of the last three years

In the last three years major woodland restoration programs have commenced, several woodland research projects have been completed and there has been considerable expansion in lowland woodland areas under or indentified for conservation management.

Work supporting this Action Plan has been undertaken with many partners, including:

- ACT Government (Environment and Sustainable Development Directorate (ESDD), Territory and Municipal Services (TAMS including the Parks and Conservation Service (PCS)), Economic Development Directorate (EDD))
- NSW Government (NSW National Parks and Wildlife Service (NPWS)
- NSW Pasture Protection Board
- Australian National University (ANU)
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- University of Canberra
- Australian National Botanic Gardens (ANBG)
- Invasive Animals Cooperative Research Centre (IA CRC)
- ACT Electricity and Water (ACTEW)
- Greening Australia (GA)
- Canberra Ornithonologists Group (COG)
- Capital Woodland and Wetlands Conservation Trust (CWWCT)
- Friends of Grasslands (FOG)
- ParkCare
- LandCare
- Bush on the Boundary (BoB)
- Murrumbidgee Catchment Management Authority

1. Extension of the woodland reserve system

With a few exceptions, such as woodland at East O'Malley and parts of Moncrieff, since 2004 urban development has been concentrated away from lowland woodland vegetation, while woodland areas of high conservation significance, previously identified for future urban use have generally been added to the reserve network. Since 2004 approximately 2200 ha of lowland woodland has been added to the reserve network, is managed for conservation or is proposed as reserve since 2004. About 600 ha of woodland have been identified for conservation since 2010. (see Appendix 1).

The new conservation areas include:

From end 2003 – 2009

- Callum Brae (414 ha) Goorooyaroo (701 ha), Kama (154 ha), West Jerrabomberra (about 70 ha of woodland), Condor (10 ha), Percival Hill (79 ha) and Kinleyside (200 ha)

From 2010

- Molonglo (180 ha), East Bonner (22 ha), EPBC offset areas (50 ha), North and East Throsby (270 ha) and Kenny (80 ha of woodland)

2. Inquiry by the Commissioner of the Environment and Sustainability into Canberra Nature Park.

In July 2011 the Commissioner reported that the condition of 28 of the woodland and forest reserves within Canberra Nature Park were in a satisfactory condition, that five (Goorooyarroo, Isaacs Ridge, Mulligans Flat, McQuiods Hill and Red Hill) were approaching a critical condition and that Mt Painter was in a critical condition. Most reserves had patches of poor condition and overall 2270 ha were found to be in need of restoration within Canberra Nature Park and Molonglo River Corridor.

Key disturbances relating to poor condition were found to be past vegetation clearance, grazing pressure by stock, kangaroos and rabbits, weed infestation, erosion and baring of soil, fire related impacts, visitor use impacts and infrastructure impacts.

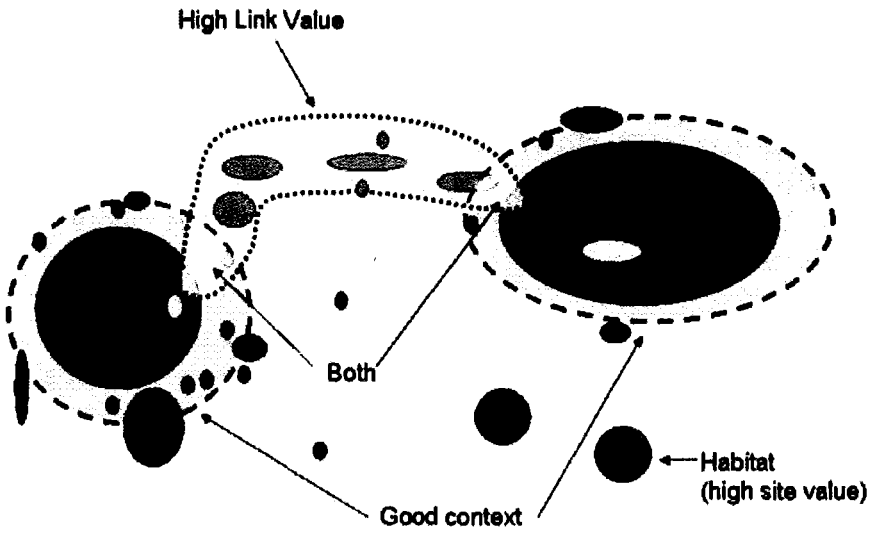
The Commissioner recommended amongst other things:

- Strengthening community awareness and involvement (e.g. by expanding Parkcare).
- Improving condition and resilience (e.g. by addressing disturbances and improving connectivity);
- Implementing a nature reserve restoration program;
- Preparing operational plans for each reserve;
- Improving provision and management of appropriate recreation infrastructure in nature reserves;
- Identification of new sources of protection and restoration funding (e.g. offsets, levy); and
- Develop and implement a rabbit pest management plan.

The ACT Government 'agreed', 'agreed in principle' or 'agreed in part' to all of the recommendations. Additional staff have been allocated to Canberra Nature Park (CNP)and operational plans are being produced. The pre-existing woodland restoration project (see below) was presented as the restoration package. A rabbit management plan is being produced. A woodland trust has been established and is likely to be the repository of offset payments (with each offset having its own account).

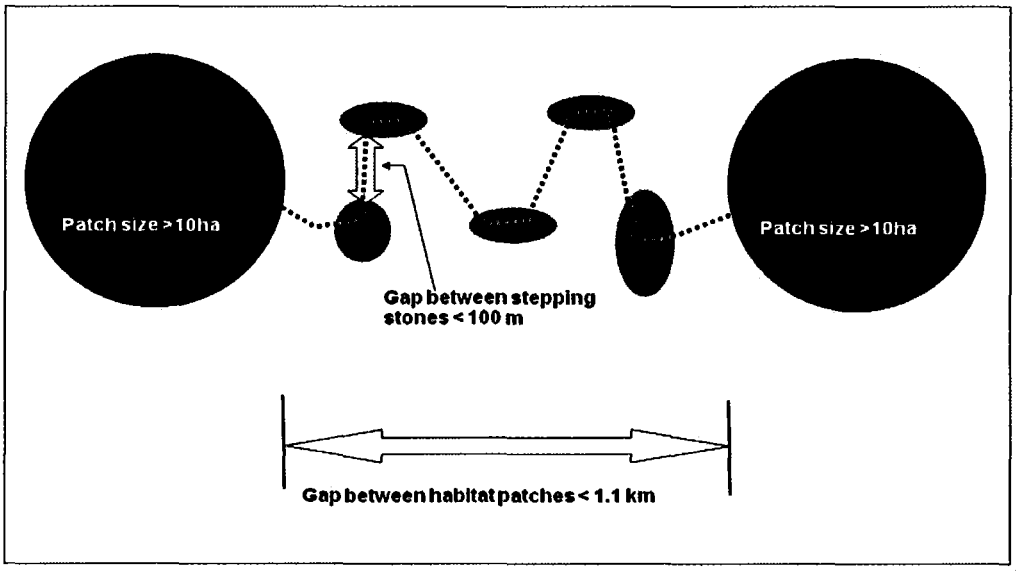
3. Connectivity Mapping – addressing fragmentation

Connectivity conservation seeks to enhance wildlife habitat and habitat links across the landscape. It needs to consider both the habitat that an animal is able to live and breed in (habitat for settlement) and that which it can move through (habitat for dispersal). As indicated in the following figure the spatial arrangement of habitat patches across the landscape will also influence whether a particular patch can be utilised as settlement and/or dispersal habitat.



Restoring landscape connection is an increasing focus of Landcare activities responding to climate change and habitat fragmentation concerns. Recent CSIRO work suggests that most animals of southern Australian woodlands and forests will not usually cross a canopy gap of more than 100 m, and will not travel more than 1.1 km away from at least a 10 ha sized patch of suitable living habitat. Thus the extent and spatial arrangement of habitat and canopy is essential to understanding wildlife movement and how connectivity restoration can be most readily achieved.

Parameters that need to be met for most wildlife to move across the landscape



Utilising initial work of the ANU Fenner school ACT connectivity analysis, available vegetation and landuse data, innovative fine scale modelling techniques and tools were used to model fauna habitat and connectivity values across the ACT. The analysis reveals those parts of the landscape that are key to existing wildlife movement and those areas where functioning connections can be restored for least amount of restoration effort.

Across the ACT Spot 5 satellite imagery combined with radar measurements of tree density was used to establish a map of tree canopy, accurate to the single paddock tree scale.

Woodland, forest and generalist habitat was mapped and rated through combination of about 15 existing vegetation, street tree and landuse maps, through satellite foliage cover and tree density analysis, and the spatial relationship of a particular habitat patch to other patches of habitat. Large patches close to other habitat patches scored highly, while isolated small patches scored lowly.

An analysis was then repeated 550,000 times that took random pairs of points from within any two patches of habitat in the ACT and nearby region and asked what is the easiest route for a woodland, forest or generalist species to get from one point to the other. Paths through well connected habitat were repeatedly utilised to connect differing habitat patch pairs and these well used paths are identified as regional links.

While regional links may be the least cost pathways they may not be able to be actually used by wildlife. This was checked by overlaying a map showing where connections between stepping stone trees exceeds 100 m (local links) and the distribution of habitat patches greater than 10 ha. Existing habitat patches of 5 -10 ha were also identified as areas of potential restoration focus.

Connectivity mapping tools are available through ACTMAPi and are guiding development considerations and restoration efforts. Appendix 2 and 3 provide examples as to how the analysis is guiding woodland restoration efforts across the Majura Valley and was also utilised to identify key crossing points where faunal crossing features are being incorporated into the design and construction of the Majura Parkway.

The CSIRO has begun a research program across the ACT that is testing the movement of wildlife in relation to the movement parameters. This research will also provide baseline data of wildlife movement prior to restoration activities being undertaken.

4. Woodland restoration

From 2011 the ACT Government committed $250,000 a year for four years towards woodland restoration across the ACT. This funding was used as leverage to obtain a further $2.37m for woodland restoration across the ACT and neighbouring NSW under the Commonwealth Biofund program. The Biofund project is over 6 years and also contains in-kind commitments from Parks and Conservation Service, Greening Australia, the Murrumbidgee Catchment Management Authority, the Australian National University, the NSW Pasture Protection Board and at least 1,000 hours of volunteer support. The total in-kind and monetary value of woodland restoration to be undertaken across the ACT and adjoining NSW from 2011 - 2017 is $4.8m.

The restoration project is focused on Commonwealth targets and will consolidate and connect the largest remaining box-gum grassy woodland landscape in Australia (60,000 ha), enhancing a biodiverse and carbon storing landscape, resilient to climate change. Diverse stakeholders in the ACT region will develop a shared restoration vision, implemented through targeted on-ground restoration and regeneration works that harness proven and

effective methods, and community capacities. The project will directly tackle key threats and will be an exemplar of innovative cross-border, cross-tenure and community engagement approaches.
Under the program

- 700 ha of heavily degraded woodland, but which occurs in key areas of connectivity value will be restored;
- 800 ha of existing woodland will be protected, enhanced and regenerated;
- targeted weed, fox and rabbit control will occur across an area of 10,000 ha. Having a "bettong ready" landscape in the Greater Goorooyarroo area, particularly that adjoin Mulligans Flat sanctuary is a key focus;
- the restoration/regeneration work will involve in excess of 75,000 tube stock plantings over 150 ha; and
- other activities include introduction of logs to woodlands, direct seeding, Greening Australia Whole of Paddock Rehabilitation, and targeted grazing and weed control.

In addition to the above program, agreements under the Gungahlin and Molonglo Strategic Assessments include funding and ACT Government commitments to enhance about 500 ha of woodland. There is also a further $120,000, as part of the Kings Highway offset package, to restore/regenerate 50 ha woodland on reserves in the ACT.

5. Research

5.1 Woodland research

The Mulligans Flat–Goorooyarroo Woodland Experiment is a partnership between the ANU, the ACT Government and CSIRO. Long term research into woodland restoration and function is continuing. Recent publications from this research report on species re-introductions, and that by distributing coarse woody debris in particular patterns and places in the landscape, and in combination with different grazing levels, conservation managers can improve effectiveness of restoration programs.

As part of the offset package for Clarrie Hermes Drive, a Masters at the ANU has been completed (by David Johnson) on how native forb diversity can be best restored within degraded native grass understorey. Experiments were undertaken that measured the response of forbs to competition in a controlled glasshouse environment. The purpose of this research was to test the hypothesis that appropriate forb species for grassland restoration can be selected based on a simple plant functional group classification. The results of this experiment suggest that geophytes generally are more likely to survive under significant competition from native grass species than hemicryptophytes. If this observation holds for geophytes generally, then forb species selection should be guided by the degree of competition on the site proposed for restoration. For example, geophytes should be re-introduced where there is an existing grassy canopy and hemicryptophytes in open gaps. However, other site factors need to be considered when selecting species for restoration. Geophytes are the most sensitive herbaceous group to high P and grazing by livestock.

The results of the Masters thesis are now being tested within a PhD study focused on how best the implement woodland understorey restoration. Greening Australia is funding related work aimed at measuring and investigating the techniques and results from their regional Whole of Paddock Rehabilitation program.

Using initial funding provided by the ACT Government, the ANBG are developing seed banks and germination protocols for a number of woodland forbs and shrubs. Currently 26 species have been collected and testing is continuing to determine if the amount of seed is sufficient for seed banking needs and to determine germination protocols.

5.2 Threatened Plant Research

The ANBG is undertaking research into seed collection and germination methods for the Tarengo Leek Orchid. Progress using seed from the Hall population has been limited due to the low number of flowering plants and the lack of fertile seed being produced, however advances have been made using seed from the Tarengo population in NSW. Adequate quantities of viable seed from the Tarengo population have been collected and have been used in the establishment of germination tests using fungal cultures from the Tarengo population. Protocorms have developed to stage two of growth in the laboratory however more experimentation with media and fungal cultures is required to get the plants through to the leaf development stage.

In conjunction with the ANBG, ESDD and ACTEW translocation of a population of Small Purple Pea has occurred as part of an offset package for an ACTEW development. This project has involved the collection of seed from the Mt Taylor and Cooma Railway Easement populations. The seed was grown to planting stage by ANBG and then translocated to a site in the ACT at Williamsdale that will be managed for conservation in perpetuity. The new population is currently fairing well and more plants will be translocated into it later in 2013. This population will be monitored to determine survivorship and recruitment.

In June 2011, the Kambah Small purple pea population was burnt to trial land management techniques. The burn was patchy and of low intensity. In total, 7-10 plants have been recorded at Kambah since 2002, but only 1 plant was recorded in 2012. The previously unburnt sections of habitat were burnt in autumn 2013. Monitoring of this site is continuing.

5.3 Threatened Woodland Birds (PhD studies)

Two PhD studies undertaken though the ANU Fenner School are focussing on woodland bird conservation, particularly why some species are apparently continuing to decline and how conservation of these species can be improved. These projects were conceived and initiated by CPR and the ACT Government has provided financial and in-kind support for these studies. The first PhD project (by Karen Ilkin) investigated how woodland birds use habitat in the Molonglo valley (the site of the next major Urban expansion) and how these bird-habitat relationships can be used to inform urban planning to create more bird-friendly suburbs. Karen recently completed this PhD and the results are currently being published in scientific journals. The other PhD study (by Laura Rayner) investigated factors that have led to the decline of woodland birds both on and off reserve, with the aim of informing reserve management. This PhD is near completion.

5.4 Kangaroo Research

CPR is undertaking research to try and define the relationship between herbivore density and total grazing pressure within Canberra Nature Park (CNP). The research is also investigating the relationships between pasture biomass (kilograms of plant matter per hectare) and the biodiversity of both flora and reptile species. As of August 2013, research is being conducted in 15 urban or peri-urban reserves through funding received for a two year study. Research includes measures of kangaroo population estimates, quantitative and/or qualitative floristic studies and reptile surveys. Reserves encompass endangered natural

temperate grassland and box-gum grassy woodland ecosystems in addition to other more abundant forest, woodland and grassland communities. Results from this research will be used in conjunction with that from independent research institutions to advise on the management of grazing pressure within CNP according to locally derived quantitative evidence. Funding to extend the time period of this research is being pursued.

Detailed Actions and performance criteria

1. Yellow Box - Red Gum Woodland Endangered Community

Priority actions from Action Plan	Performance Criteria	Outcomes previously reported	Action since March 2010
1. Complete surveys of woodlands including data collection on ground layer and understorey vegetation and habitat characteristics.	n/a	2924 woodland polygons mapped spatially and entered into a data base, last updated in 2005. Species lists, condition and habitat characteristics collected in each polygon.	8150 ha of EPBC Box – Gum woodland mapped late 2011, largely by collating consultant's development and planning reports, some field work and use of data of earlier woodland survey. Vegetation mapping using 3D Lidar interpretation is underway for all the ACT .and is expected to be finalised by end of 2015.
2. Comprehensive, Adequate and Representative (CAR) system of lowland Woodland protected by reservation or other measures. 3. Protecting key habitat areas in Hall – Kinlyside, Gooroo, East Majura Valley and Callum Brae, and off-reserve areas such as Castle Hill (Tuggeranong – Naas complex). 4. Protecting lower elevation woodlands particularly in the Callum Brae – Jerrabomberra, Majura Valley – Kowen, and Gungahlin complexes.	Degree to which nature conservation estate addresses CAR principles. Areas of lowland woodland cleared or modified for development Woodlands identified as essential for conservation are protected	From 2003 -2009 reserves have been established at Callum Brae (414ha) Goorooyaroo (701ha) Kama (154ha), West Jerrabomberra (About 70ha of woodland) plus small extensions to Mulligans Flat and Mugga Mugga (tens of ha) Kinlyside (201ha) was being managed for conservation.	Lidar vegetation mapping will enable CAR criteria to be applied to each lowland woodland type, but since 2004 there has been considerable expansion of reserved lowland woodland in the ACT (in the vicinity of 2000 ha and usually this conserved woodland has been of high or moderate quality) with a loss of around 450 ha of mostly lower quality woodland (eg paddock trees over native pasture) (see Appendix 1.) **Since 2010** Around 180 ha of woodland is conserved in Molonglo River Park or Molonglo offset areas as part of Molonglo Strategic Assessment approval. 22 ha added to Mulligans Flat at East Bonner as offset for loss of woodland at Ngunnawal. About 50 ha of Box Gum woodland, secondary grassland and other woodland proposed within offsets at Gungaderra, Jarramlee, Mulanggari and Issaacs Ridge. 350 ha of woodland is proposed be added to the reserve network at Throsby and Kenny as part of the Gungahlin Strategic Assessment. A further 120 ha of urban land in the northern lease areas will be re-zoned hills, ridges and buffers and protected from development. Investigation of advanced offsets (where the commonwealth will allow banking of new reserves against future clearing) at Bottom Pinnacle (130 ha), Aranda Bushland (50 ha) and possibly acquisition of Commonwealth land at Newline (120ha of prime woodland bird habitat heavily infested with African Lovegrass). Since 2003 about 1900 ha of Box –Gum woodland has been added to or will shortly be added to the reserve network. About 400 ha has or will shortly be cleared, mainly in Gungahlin and Molonglo. Close to 50% of the remaining 13,765 of ACT's Box Gum woodland is under conservation management. Much of the unreserved woodland is in the Murrumbidgee Valley or on Commonwealth land.
5. Providing for improved habitat connectivity for wildlife movement:	Extent to which ecological connectivity is maintained or enhanced.	With TAMS funding, ANU completed a connectivity study that identified core areas of connectivity at a number of scales.	With funding from Kings Highway offset, the NSW NPWS built on the ANU study and identified woodland and forest habitat values across the ACT and identified the key linkages between habitat. This analysis is guiding the location of 1500 ha of restoration within woodland

			restoration projects totalling $6m across the ACT and neighbouring NSW. Scientific study is monitoring the effectiveness of improved connections. The connectivity mapping is publicly available (through ACTMapi) and is being utilised in ACT planning and development decisions. For example it influenced the location and type of faunal crossing points along the Majura Parkway and was utilised in the Gungahlin Strategic Assessment. The data can be rerun in the future to determine how connectivity value has been impacted by development and restoration.
6. Best practice management is applied to all Lowland Woodland, with particular attention to habitat of rare and threatened species 7. Reviewing management of lowland woodland areas in government horse paddocks and agisted land to ensure ecological condition is improved.	Management plans for public lands reflect commitment to active and effective conservation Best management practice guidelines developed for those undertaking restoration works Extent and nature of changed management practises to enhance ecological condition of lowland woodland in government horse paddocks Ecological condition of woodland is maintained or improved.	Woodland condition and distribution on horse paddocks and agisted land has been assessed and mapped	An Implementation plan and guidelines have been developed and utilised within recent woodland restoration projects. Work plans have been established for works across focus areas such as the Belconnen Hills and Majura Valley. Operational plans are being developed for CNP which will identify woodland areas of importance and detail management actions to be undertaken within these areas The CNP Plan of Management is currently being reviewed. A ranger will be appointed to oversee and encourage best management by Parkcare volunteers. Monitoring indicates weed cover has been significantly reduced within most woodland reserves, while numbers of active rabbit warrens have also been reduced. Some structural simplification of woodland in outer asset protection zones has occurred due to fuel management. Agistment areas at Jarramlee and West Majura are now managed for conservation (though both of these areas are predominately grassland). No recent assessment of ecological condition of horse paddocks has been undertaken, but breaking of drought conditions is likely to have helped conditions improve. The Watson Woodlands Parkcare group is pushing for improved condition and connectivity to Mt Majura, across the Hackett Horse Paddocks.
8. Assessing woodlands for their potential for listing on the ACT Heritage Places Register as natural heritage places.	Woodlands that qualify for the ACT Heritage Act are listed	A draft nomination has been completed, limited stakeholder consultation is occurring	Kama woodland, Horse Park Wetlands, Hall Precinct including the cemetery and other woodlands, Aranda Snow Gums, Lanyon, Small Purple Pea habitat areas and Button Wrinklewort habitat at Majura Firing Range and Stirling Ridge are currently registered. Nominations have been made for Canberra Nature Park and covering woodlands • in the Jerrabomberra valley and • from the Molonglo River – north across the Majura Valley and then Gungahlin to the Barton Highway Proposed changes within the Heritage Act review would disallow nominations made purely on natural values.

Priority actions from Action Plan	Performance Criteria	Outcomes previously reported	Action since March 2010
9. Protecting a more complete altitudinal range of woodlands by including secondary grassland and lower elevation woodlands in reserves.	Targets in the ACT Natural Resource Management Plan for lowland woodlands are achieved	Karma + Goorooyaroo NR have protected low elevation woodland (640m to 510m asl) and ecotone areas leading to NTG (as does West Jerrabomberra) Potential new additions to the reserve system in Bonner, Moncrieff and Throsby will protect more low elevations woodlands and ecotones to grasslands	Ecotone areas added to reserve system or proposed to be added at East Bonner and Kenny. West Majura is also being managed for conservation. Low altitude woodlands at Moncrieff will be destroyed or degraded as a result of Gungahlin Strategic Assessment. Aranda additions would cover an ectone from grassland – through woodlands to forest. Additions to Mulanggari (20 ha) and Gungaderra (10 ha) add secondary grassland and small woodland areas into these reserves. The NRM targets were established in 2009 and are more broad than the priority action. They are: • By 2015, trajectories show that endangered species and communities are becoming less threatened; and • By 2030, the conservation listing status of endangered species and communities improves by 20% (*which means 20% of species move off the list or from a more threatened category to a less threatened one eg endangered to vulnerable).* As detailed below there is no evidence that any of the listed plants and most of the birds associated with Box – Gum woodland are on a trajectory of being less threatened. Superb Parrot is the only species whose numbers have significantly increased since Action Plan 27 was written and it is unclear whether this represents an overall population increase or just movement of NSW birds into the ACT. It is hoped that woodland restoration programs and specific plant projects now underway will establish favourable trajectories for threatened woodland species. Box Gum woodland in the ACT is arguably on a positive trajectory in relation to the percentage of the community reserved, improvement in condition particularly the balance of native to exotic species and improved connectivity works currently underway.
10. Identify and monitor threats to Lowland Woodland and component species 11. Prepare, implement and monitor effect of threat abatement measures	2004-2006 Actions to address threats are in place 2007-2009 – Priority threats are substantially reduced or decreasing	Incorporation of ecological thresholds for woodland communities into bushfire fuel reduction planning CPR monitoring of 15 NTG and Lowland Woodland reserves measuring species richness, abundance and cover Rigorous clearing controls and offsetting rules are being considered to reduce the impacts of urban expansion on	Ongoing threats identified in plan include urban expansion, fragmentation, overgrazing, weed and pest invasion, firewood collection, dieback and fire. Intermittent monitoring of grassland and woodland areas continues. Within woodland in CNP there has generally been a reduction in weed cover and improved native understorey condition. Woodland bird monitoring suggests loss in diversity of structure particularly shrubs, overstorey regeneration and logs Simplification of woodland understorey has occurred as part of establishment of fire asset protection zones in woodland areas. Firewood can not be collected from protected areas. Fuel reduction burns impact amount of woody debris . Fire Planning seeks to keep fire regularity within Box Gum

		lowland woodlands The impacts of kangarooing grazing are being quantified through studies being undertaken by ANU and CPR	woodland with a 10 -40 year range. However burns occur more regularly than 10 years within some outer asset protection zones supporting woodland. The connectivity and restoration work should reduce fragmentation and also has significant weed and pest control elements. Good quality box gum woodland within the reserve network is a priority area for weed and invasive animal control. Overgrazing by eastern grey kangaroos is a significant issue in several woodland areas requiring an active culling program. Research and monitoring of the impacts of Kangaroo grazing on plant diversity and cover and reptile abundance and diversity is underway. Changes to the *Planning and Development Act* require that an EIS is required if more that 0.5 ha of native vegetation is being cleared by a development activity (or 5ha if the activity is on land zoned for future urban use), unless the Conservator of Flora and Fauna determines that the proposal will not have a significant adverse impact. This together with Commonwealth EPBC offset requirements has seen urban expansion generally occurring away from Box – Gum woodland areas. The ACT is developing its own offset rules which may re-enforce this trend.
12. Establishing mechanisms to assist in the application of best practice management (Conservation management Networks (CMN), voluntary management agreements, guidelines) to facilitate conservation outcomes on reserve and off-reserve land.	Important off-reserve woodlands are subject to protection agreements appropriate to their tenures. Priority threats to Lowland Woodland and component species are substantially reduced o decreasing Lowland Woodlands are part of a regional Conservation Management Network Research and monitoring are undertaken and the results used to inform managers of measures to improve condition and habitat qualities Monitoring of lowland woodland and associated species indicates ecological condition is maintained or improved	The Southern Tablelands CMN run by NSW DECCW received financial support for 2yrs(07 & 08) The Grassy Ecosystem Management Kit was completed and extension courses implemented Land Management Agreements highlight woodland conservation have been supported and implemented Suggested actions were: Encouraging the formation of Parkcare and Friends groups for individual woodland reserves eg. Mulligan's Flat and Goorooyaroo	Off –reserve woodlands are mainly on rural leases and Commonwealth land. Land Management Agreements in place for rural areas – but not as working documents – conditions may protect woodland from clearing but agreements are not generally a vehicle of off-reserve active conservation management. TAMS is currently undertaking a review of the Land Management Agreement process Review of the *Nature Conservation Act,* raised provision of off-park conservation mechanisms in early consultation stages, but these have not been progressed. CMN continues, but does not have a big presence in the ACT. Grassy ecosystem management kit is available, some rural landholders have been involved in the box gum woodland restoration projects, but extension conservation courses or detailed instruction has not occurred. No new Parkcare groups have been supported in recent years. Gungahlin Bush on the Boundaries group forms some of the community education and involvement roles undertaken by Parkcare groups elsewhere.

2. Threatened or uncommon plants

2.1. Tarengo Leek Orchid

Protection and conservation status

Endangered. Known from two sites in NSW and the Hall Cemetery in the ACT. Not protected in nature reserve.

Priority actions from Action Plan	Performance Criteria	Outcomes previously reported	Action since March 2010
Seek an alternative for a future cemetery and minimise future burials within the Hall Cemetery Implement the Hall Master Plan and enlarge the Hall Cemetery so as to protect the Tarengo Leek Orchid	Hall Cemetery modified according to master plan	Numerous requests have been made to cemeteries ACT to enlarge Hall Cemetery to aid in the management of the site, no action has yet been taken.	CPR is striving to relieve pressure on the woodland areas. A Southern Cemetery is being investigated and taking all funding so expansion options of Hall cemetery are not currently being actively pursued. CPR has prepared a new Management Plan for the Cemetery to ensure best management practices are applied to the site. A number of new grave sites have been allocated in areas of the Cemetery of lesser ecological value as the moratorium on new burials has been lifted. FOG continue to carry out weed control.
Prepare a new management plan based on accurate mapping of the location of graves and plants	Cemetery managed under the new plan Monitoring of orchids indicates an increasing number of plants	Numerous annual site inspections are performed with Cemeteries ACT to provide management advice	Monitoring of last three years has seen a decline in numbers from 47 in 2010, 37 in 2011 and 15 in 2012. The abundance records for 2012 are the lowest since ACT Government counts commenced in 1995. It is likely that this does not necessarily indicate a true loss of plants from the population as *P. petilum* is known to experience periods of dormancy. However given the nature of the decline current management procedures are in need of review. Increased weed cover is a concern and management has been changed so that high quality areas are done first during the Autumn mow, with weedy areas done last. Hopefully this will reduce the rate of weed spread. The management plan was also amended to allow replacement regeneration of Red gum trees.

2.2. Small Purple Pea

Protection and conservation status

Endangered. A few scattered populations occur in the ACT, of which the largest is protected in reserve (Mt Taylor).

Priority actions from Action Plan	Performance Criteria	Outcomes previously reported	Action since March 2010
Investigate reintroduction of plants into the Kambah site from other populations within the region	Reintroduction assessment provided to the Flora and Fauna Committee and Conservator of Flora and Fauna for consideration Monitoring indicates increasing numbers of plants	Monitoring indicates a steady increase in plant numbers at Mt Taylor. The Kambah population is stable but not recruiting. Aranda and Farrer Ridge populations are still extant. A new population has been found at Williamsdale (2 plants). Reintroduction plan to be prepared The Kambah population will be burnt in Autumn 2011 to try and trigger recruitment	The Mt Taylor population had been stable, with numbers steadily increasing since plants were first tagged in 2001, in 2011 there was a 53% decrease in abundance from the previous year. In 2012 this decrease increased to 68%. A number of factors may be influencing this decline including rainfall, predation of plants, ground temperatures and moisture levels and intra-specific competition. It is also possible that it is in part due to natural population fluctuation as *S. recta* is known to have dormancy periods of anywhere from 1 to 9 years. Kambah population was burnt in June 2011. The burn was patchy and of low intensity. A total of 7-10 plants have been recorded at Kambah since 2002, but only 1 plant was recorded in 2012. The previously unburnt sections of habitat were burnt in Autumn 2013. As part of the Murrumbidgee to Gogoong Pipeline approval seed from Mt Taylor was collected by ANBG for propagation in restored and offset area.

2.3 Austral Toadflax (*Thesium australe*) and Hoary Sunray (*Leucochrysum albicans var. tricolor*) and other rare species

Priority actions from Action Plan	Performance Criteria	Outcomes previously reported	Action since March 2010
Maintains a database of known occurrences and abundance to enable analysis of changes in distribution and abundance Consider listing if any of the species are declining in extent or abundance	Data on extent and abundance provided to the flora and fauna committee for consideration regarding listing of species	Spatial data collected and maintained for all rare and threatened species Abundance estimates to be made when resources permit	Revision of species worthy of special protection status has been undertaken. Flora and Fauna Committee proposed removing common plants from protection list and adding about 300 rare plants to list. Known records of these rare species have been collated. A program has begun to support Parkcare groups and land managers to survey abundance of these species in areas of interest in lowland ACT. This distributional and contextual information will be utilised in planning, development and management decisions. CPR has had some success through provision of conservation advice in development or planning processes, in protecting Hoary sunray plants from being cleared for development.

2.4 Eucalypt outliers

Priority actions from Action Plan	Performance Criteria	Outcomes previously reported	Action since March 2010
Maintain a register of plants and encourage regeneration through fencing and weeding	Eucalypt outliers subject to documented management actions Assessment of condition of plants completed	Spatial data maintained for all species. Protection measures instigated during various development activities (eg. fencing) Condition reviews to be conducted when resources allow	15 Black Gums (*Eucalyptus aggregata*) in Kowen inspected in October 2011. Trees were healthy, but regenerated affected by sheep grazing of seedlings. Sheep camping in summer and high level of serrated tussock in surrounding area may impact long term survival.

2.5 Snow Gum woodland

Priority actions from Action Plan	Performance Criteria	Outcomes previously reported	Action since March 2010
Priorities for management and protection all remaining Snow Gum woodland areas that are partially modified or moderately modified, where these are ecotonal between woodland and grassland	Protection and management in place consistent with priority assessment Priority Snow Gum Woodlands are subject to appropriate levels of protection and to documented management actions	Spatial data maintained for all known locations including condition assessments. Areas within reserves are subject to appropriate management Condition reviews to be conducted when resources allow Prioritise all known sites according to their conservation significance when resources allow This priority has been applied in planning decisions (eg. Kings Highway deviation) but no new Snow Gum lowland woodland has been added to the reserves system. Nomination to list Snow Gum Woodland as an EEC rejected by FFC	Vegetation mapping across the ACT will enable extent, status and prioritisation of lowland Snow Gum Woodland in the ACT to be determined. Mapping expected to be completed by the end of 2015 Probably a large proportion of the ACT distribution of the lowland snow gum woodland is already conserved within Mt Ainslie-Mt Majura Reserve and at Aranda Snow Gums. An extension to the Aranda Snow Gum area is being considered.

3. Threatened, declining or uncommon animals (all birds)

The COG regularly publish analyses (by Ross Cunningham) of trends in ACT bird species, based on their survey data. The most recent was in 2011. However, in most cases for the ACT listed bird species there is insufficient data to detect statistical changes in abundance. The exceptions are the Superb Parrot and Varied Sittella, both of which have had an increase in the number of sightings. The Mulligans Flat Hooded Robin populations appear to have become extinct.

Regent Honeyeater

Endangered. Widely ranging, occasionally visits northern ACT. Within the ACT a large proportion of habitat is protected in reserve (Mulligans Flat, Goorooyaroo, Ainslie-Majura)

Painted Honeyeater

Vulnerable. Widely ranging, rarely visits ACT. Some habitat protected in reserves (MRC, Mulligans Flat, Woden, Mt Taylor, Tidbinbilla) and defence land (Campbell Park).

Hooded Robin

Vulnerable. Majority of known habitat protected in conservation areas (Mulligans Flat, Goorooyaroo, Namadgi, Jarramlee) but also on defence land(Majura Army Firing Area) and in Naas and Murrumbidgee valleys .Population in Mulligan's Flat appears to have recently become extinct.

Brown Treecreeper

Vulnerable. Some habitat protected in reserves (Namadgi – Glendale, MRC, Tuggeranong Hill, Kama) and defence land (Majura Training Area and Newline) with remainder off-reserve (Central Molonglo, Southern Murrumbidgee Valley, Naas Valley)

Swift Parrot

Vulnerable. Widely ranging, occasionally visits the ACT during non-breeding winter. Recorded from eucalypt forest/woodland mainly in Majura – Mt Ainslie area.

Superb Parrot

Vulnerable. Up until the summer of 2005-06 the Superb Parrot was known as a rare visitor. However since then flocks of up to a hundred birds have been regularly observed feeding on ovals and street trees in Belconnen and parts of Gungahlin from September to March. Targeted surveys have located two areas in which breeding is concentrated, with 15-20 pairs of breeding birds nesting at each of the Throsby Ridge and Central Molonglo sites. The occasional pair also nests within Mulligans Flat and Goorooyarroo Nature reserves. Birds may also be breeding south of the Molonglo in the Pine Ridge area but this has to be confirmed. Birds appeared to overwinter in Canberra for the first time this year.

Varied Sittella

Vulnerable. Widely distributed in woodlands and forests throughout the ACT, but most records are from woodlands in the northern lowlands,. Much of its recorded habitat is protected in reserves (examples are Mulligans Flat, Goorooyaroo, Ainslie-Majura, Kama-Lower Molonglo),.

White-winged Triller

Vulnerable. Migrates to ACT each summer, where it is widely distributed in woodlands. A large proportion of sightings are from reserves (Mulligans Flat, Goorooyaroo, Pinnacle, Black Mountain, Gigerline) and defence land (Campbell Park).

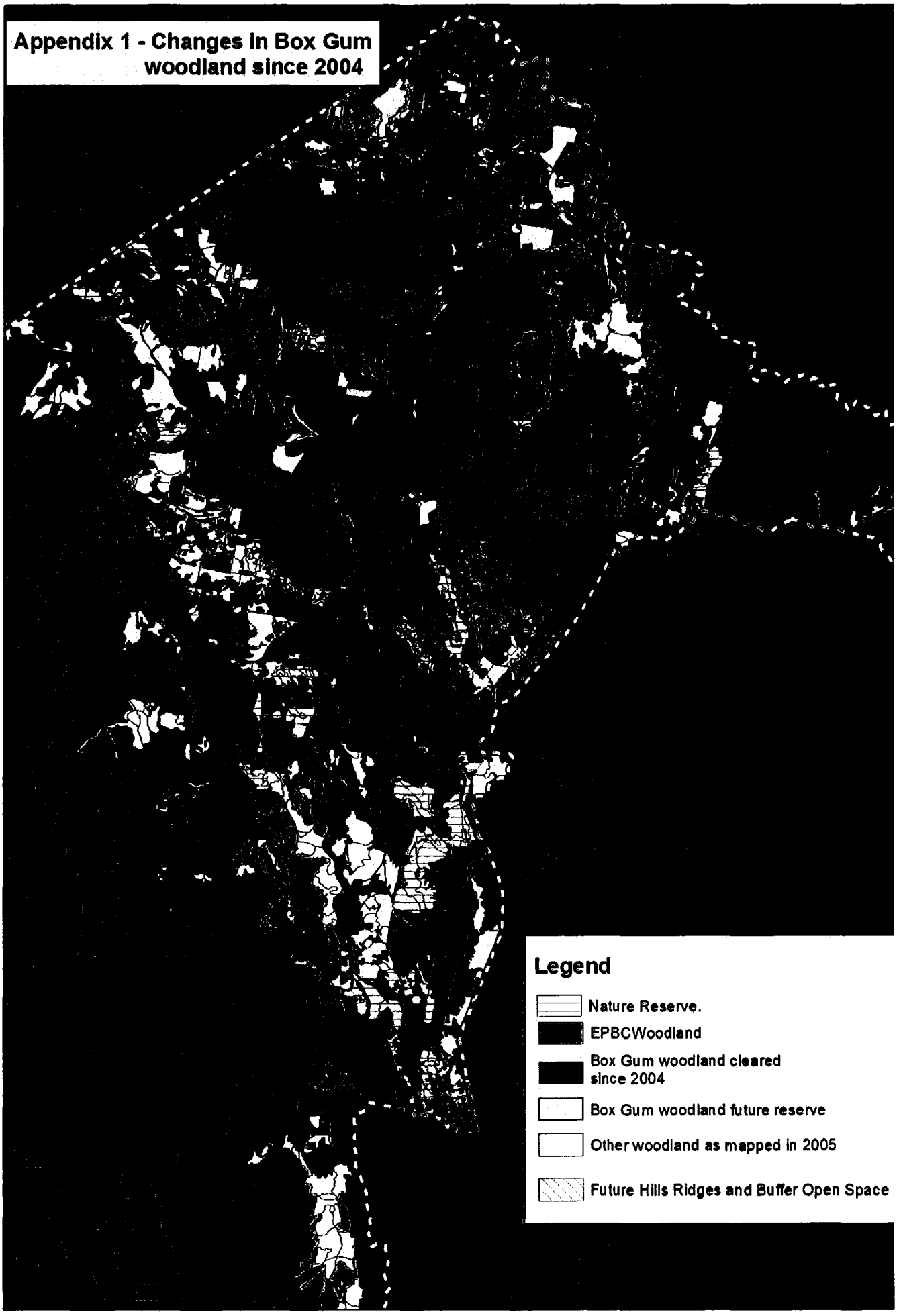
Priority actions from Action Plan	Performance Criteria	Outcomes previously reported	Action since March 2010
Identify habitats and areas of high biodiversity	n/a	Spatial data collected and maintained for all species	Targeted survey of Superb Parrot breeding areas have been undertaken. Continuation of agreement with Canberra Ornithologist Group to access their comprehensive bird records
Protect habitat	n/a	Key habitat areas identified in all development assessment comments	Significant woodland bird locations identified and considered during planning and development processes. (eg. Little Eagle nesting site precluded proposed urban and solar developments, while woodland bird habitat information was collated as part of Gungahlin Strategic Assessment). Key woodland bird habitat at Throsby will be added to the reserve network.

Maintain and enhance connectivity giving priority for habitat protection and restoration to sites providing connectivity	n/a	ANU connectivity study completed Woodlands restoration proposal submitted to target rehabilitation works including enhancing connectivity value	Connectivity analysis has now identified woodland bird habitat quality and how this quality and connections between habitat can best be enhanced through restoration. $1m of $6m restoration projects spent improving habitat and links in Belconnen Hills, Majura Valley and Greater Goorooyarroo area. Callum Brae and Murrumbidgee Valley will be additional focus areas of future years.
Maintenance of woodland remnants and isolated paddock trees	n/a	Various surveys undertaken to identify and protect remnants and individual trees that provide crucial habitat resources (eg. Superb Parrot surveys by COG) Incorporate survey results into development advice	Individual paddock trees and isolated remnants mapped and included in connectivity analysis. Trees and isolated remnants of high connectivity value or potential are focus for restoration and protection. Superb Parrot nesting trees identified by surveys in Molonglo and Gungahlin valleys. Some Land Management Agreements within habitat areas have clauses that preclude clearing of hollow bearing trees.
Limit removal of live and dead timber	n/a	Maintaining dead timber is a management objective of the conservation reserves Importation of dead timber into select reserves being considered based on the outcomes of ANU research	Some Land Management Agreements within habitat areas have clauses that preclude clearing of dead standing timber and collection of firewood. Research indicates that presence of fallen logs is a major determinant of woodland diversity. Timber (from development areas) has been imported into Mulligans Flat, Goorooyarroo, and Kama nature reserves. The woodland restoration projects and Gungahlin Strategic Assessment have funding for further log importation into important woodland bird habitat areas. Woodland bird monitoring, which includes habitat changes from 2003 -2009, records loss of logs within reserve areas. Enforcement activity on illegal firewood collection has not occurred.
Prevention of intensive grazing	n/a	Grazing targets suitable for habitat protection have been included in LMA's Monitoring of select nature reserves for kangaroo grazing impacts Kangaroo control implemented at select reserves	LMA's generally have non-auditable almost meaningless conditions re grazing and there is little compliance or enforcement activity. With the aid of Parkcare groups who GPS active warrens, PCS has undertaken much ripping and fumigation of rabbit warrens within ACT's woodland reserves, so that numbers on most reserves are relatively low. Kangaroo numbers and/or grazing are monitored at a number of woodland reserves. A Kangaroo control program is in place.
Maintenance of patches of shrubs or eucalypt regrowth	n/a	Development and assessment advice reflects the need to maintain habitat complexity (eg. fire fuel reduction planning)	Woodland restoration has resulted in targeted planting and assisted natural regeneration of shrub and eucalypt regrowth. Development and fire planning advice has stressed the importance of habitat complexity with mixed results.
Regeneration of habitat	n/a	Habitat regeneration incorporated into reserve management plans	Habitat regeneration is incorporated into woodlands restoration programs. Operational plans are currently being developed for reserves and enhancing bird habitat is a key objectives of several reserves.
Minimisation of adverse effects of fire	n/a	Bushfire operations plans developed annually including consideration of effects on all threatened species. Regional fire plans developed for the next 10 years including consideration of effects on all threatened species	There is a 10-40 fire threshold target for box –gum woodland. Ecological burns have not been undertaken for threatened woodland animal species, and given frequency in which woodland is burnt is probably not required. Regional fire plans did consider threatened species impacts Planning and operation prescriptions include: 7.1 Generally areas with significant patches/thickets of shrubby vegetation should not be burnt in spring (Sep to Nov) to avoid the primary nesting season.

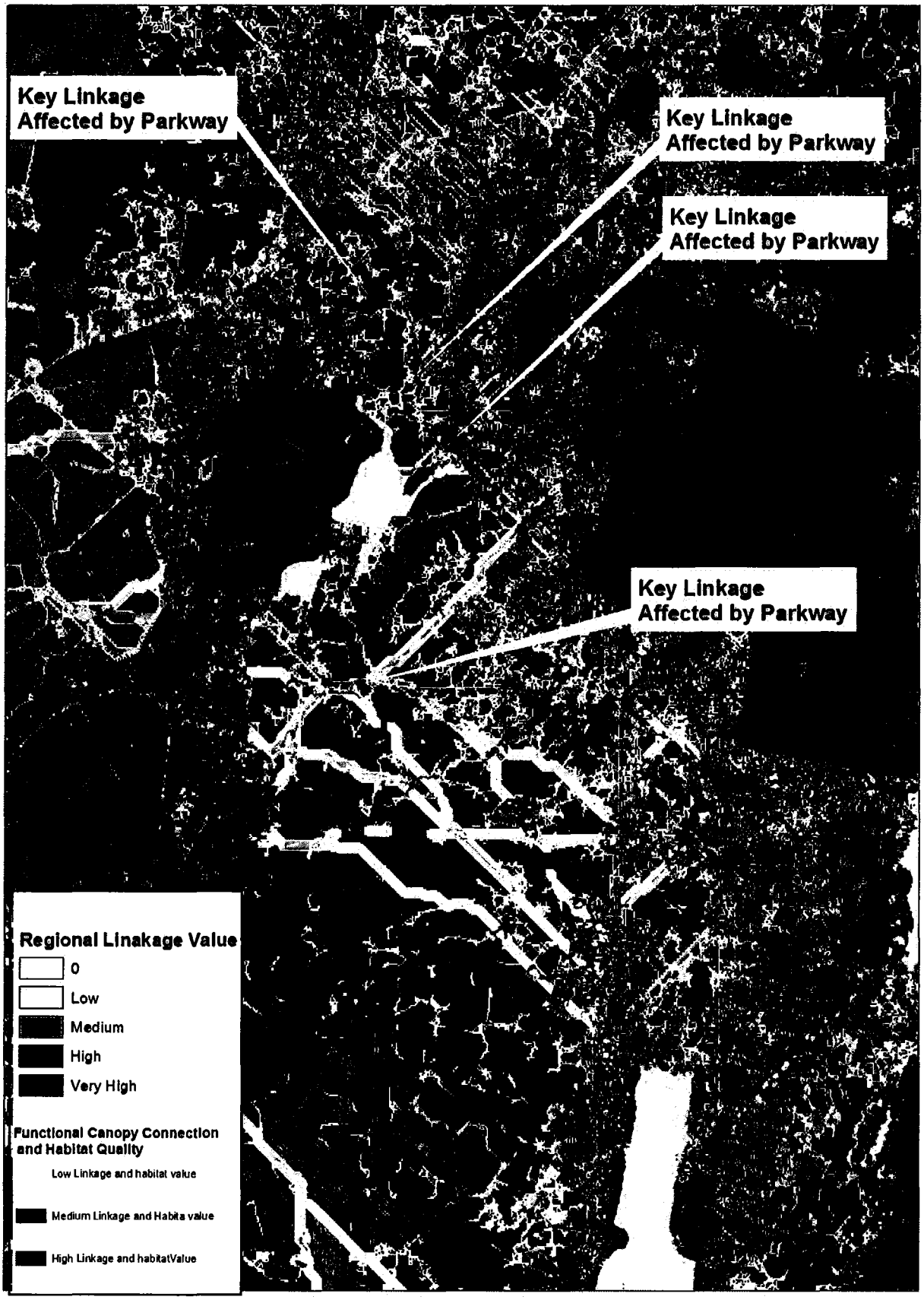
		Ecological burns planned and implemented for select threatened species Emergency action plans for wildfire developed including considerations for all threatened species	*If identified bird habitat must be burnt in spring, apply Ecological Guidelines: 7.3 and 7.4* 7.2 Areas with regular Superb Parrot *(Polytelis swainsonii)* sightings should not be burnt between Jul and Dec (burn during autumn or early winter) 7.3 Where spring burning is undertaken in bird habitat, patches or thickets of shrubby vegetation should be left unburnt to provide habitat and nesting areas. 7.4 Lighting crews should avoid igniting individual shrubs or thickets where nests are observed Prescriptions are written into burn plans and Officers are encouraged to adhere to them in the operation.
Minimise nest hollow competition	n/a	ANU research indicates that nest boxes are **not** a viable way of augmenting nest hollow supply. This has been incorporated into government advice Current research is occurring into the value of urban tree hollows for native species	Research has found that large hollow bearing trees in the urban environment are important in maintaining the local biodiversity. Retention of such trees is encouraged, with some success.
Monitor threatened, declining and rare species to determine their long term trend	n/a	COG undertakes annual bird surveys and analyses trends and passes these onto government Surveys for specific species are undertaken on an as needs basis 2009 small mammal surveys were undertaken in lowland reserves	CPR surveyed urban reserves for small ground-dwelling mammals in 2009. Small mammals (including house mice) appear to have disappeared or are at undetectable numbers within the urban reserves. This was attributed to removal of ground cover (fuel reduction burning) which increases susceptibility to predation (from cats and foxes). COG analysed their data from 1998 – 2010. The longitudinal trends in occupancy rate were calculated for 55 species (34 woodland-dependent, 21non-woodland) reported in more than 1% of the 2567 surveys at the ten-year sites: • 15 species (9 woodland-dependent) showed some evidence of a declining trend over the ten years • 25 species (17 woodland-dependent) showed no overall change, and • 15 species (8 woodland-dependent) showed an increasing trend. Most of the threatened birds were at too low a level of occurrence for meaningful statistics, but there was a weak increase in Varied Sittella and a strong decline in scarlet robin which COG considers merits its listing as a threatened species.
Encourage and support the continuation of COG	n/a	ACT government employs COG to undertake specific surveys	COG has been funded to undertake Superb Parrot nest tree surveys and is encouraged in its bird conservation work.
Encourage and support research into threatened and rare species	n/a	ACT government is a partner in Australia's largest woodland experiment at Mulligan's Flat and Goorooyaroo NR's ACT government has provided resources for a PhD student studying the reintroduction of Brown Treecreepers and Burrowing Bettongs Woodland birds	Woodland research at Mulligans Flat is ongoing and supported. Research by CSIRO testing what parameters birds require to move across the landscape has also been funded. The Capital Woodland and Wetlands Conservation Trust (CWWCT) is funding an ecologist position to support the Mulligans Flat research and outreach programs. Research into woodland bird habitat use in urban areas and the Molonglo Valley has been supported. Two PhD studies (Fenner School) investigating factors contributing to declines and methods to improve conservation.
Maintain links with national programs	n/a	ACT has provided extensive data and input into the	Commonwealth Biofund monies are being utilised for woodland restoration

and recovery efforts		development of National Recovery Plans (eg. Swainsona recta)	
Liaise with NSW DECCW on a regional approach to the conservation of threatened bird species	n/a	Dependant on future resources	Biofund monies have been jointly obtained to improve regional woodland, woodland habitat and wildlife connectivity. ACT would appear to be a regional stronghold for many woodland birds listed as threatened in NSW such as the Speckled warbler, flame robin, scarlet robin and ganga gang.
Raise community awareness	n/a	Community awareness programs coordinated through TAMS communications branch and include radio, newspaper and television pieces as well as internet content	Action is ongoing but irregular .

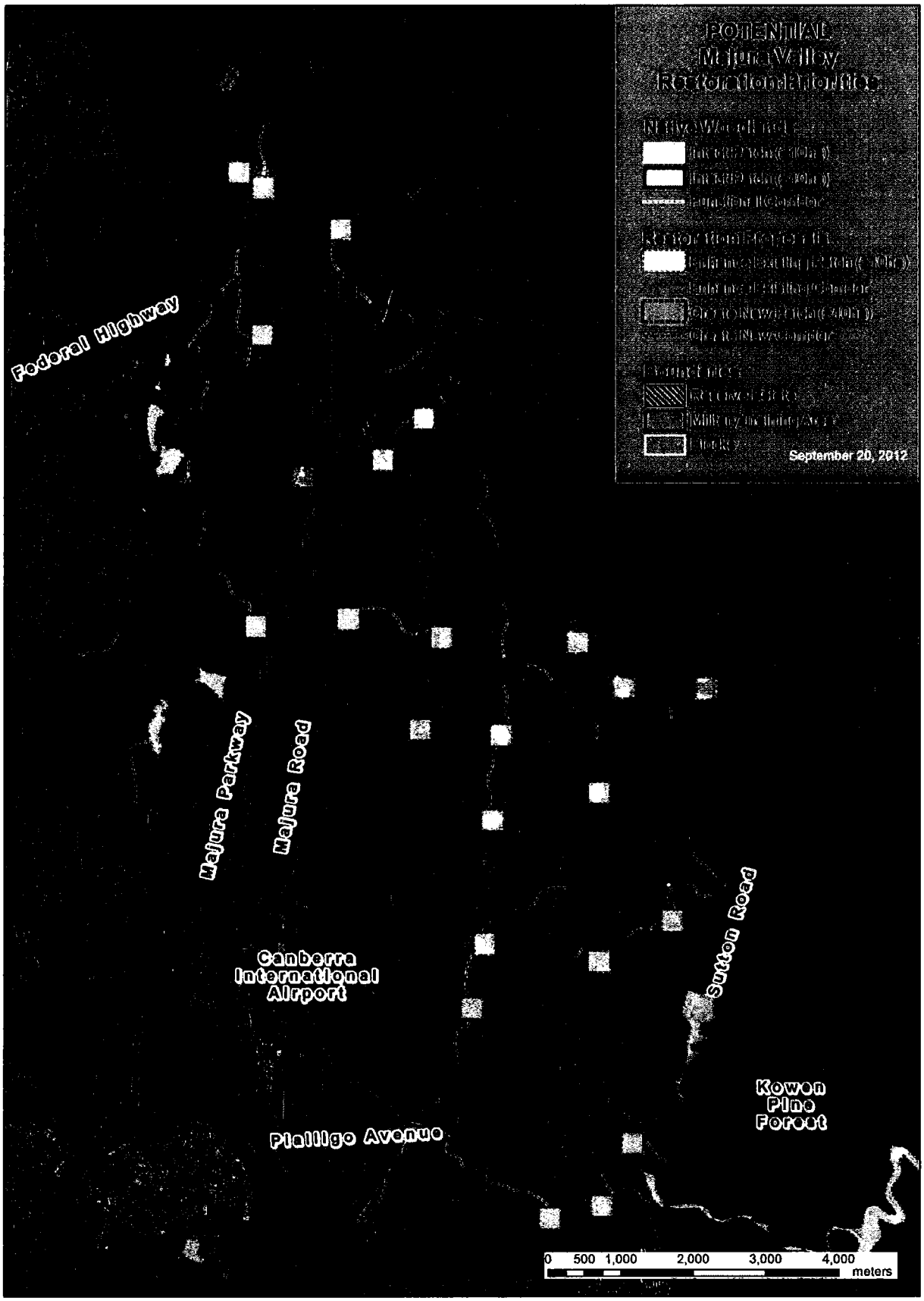
Completed 29 August 2013.


Appendix 1 - Changes in Box Gum woodland since 2004
Legend
Nature Reserve.
EPBCWoodland
Box Gum woodland cleared since 2004
Box Gum woodland future reserve
Other woodland as mapped in 2005
Future Hills Ridges and Buffer Open Space

Appendix 2. Use of Connectivity Analyis to identify key wildlife movement points cut by the Majura Parkway



Appendix 3: Use of connectivity analysis to guide woodland restoration



Report to the Flora and Fauna Committee, March 2013

REVIEW OF IMPLEMENTATION

A subalpine herb

Gentiana baeuerlenii Action Plan No. 5

Review date: March 2013 (2nd review)
Last reviewed: September 2010

Background information

Gentiana baeuerlenii was declared endangered on: 15 April 1996.

The criterion under which it was listed was:

1.1 The species is known or suspected to occur in the ACT region and is already recognised as endangered in an authoritative international or national listing.

1.2 The species is observed, estimated, inferred or suspected to be at risk of premature extinction in the ACT region in the medium-term future, as demonstrated by:

1.2.6 Extremely small population.

In accordance with the requirements of the *Nature Conservation Act* Action Plan No. 5 was developed and published in 1997.

The objectives of the Action Plan were to:

- Preserve the existing ACT population as it is the *only known location* where the species survived;
- Manage the habitat so that natural ecological processes continue to operate; and
- Develop successful propagation techniques.

Description

The *Gentiana baeuerlenii* is a small annual herb, standing 2-4 cm high. It has bell shaped flowers, greenish on the outside and blue-white inside with five petals.

Habitat

The species occurs in only one location in the ACT in the Orroral valley, well within Namadgi National Park. It occurs in the inter-tussock space of moist tussock grassland and sedgeland (*Poa labillardieri* and *Carex gaudichaudii*) associated with ground water, possibly a spring-fed area. The area is probably secondary grassland or a relict grassland opening once surrounded by open woodland. The site is on the lower slopes of a broad valley, above a river and lower valley floor.

Distribution

The species was identified during a remarkable chance rediscovery in the by Mr. Laurie Adams of the Australian National Herbarium. It was believed to be extinct, having previously been described from the Quidong area near Bombala NSW, from specimens found there in 1887.

Conservation status

National

Endangered - ANZECC (1993). Briggs & Leigh (1996), EPBC ACT (2000)

Australian Capital Territory

Endangered - Section 21 of the Nature Conservation Act 1980, Determination No. 89 of 1997 (formerly Determination No. 29 of 1996).

Special Protection Status Species - Schedule 6 of the Nature Conservation Act 1980, Determination No. 77 of 1996.

Special Protection Status (SPS) is the highest level of statutory protection and is conferred on species which are either threatened with extinction or are a migratory animal subject to an international agreement for their protection.

New South Wales

Endangered - Part 1, Schedule 1 of the Threatened Species Conservation Act 1995.

History of reviews (since last report)

September 2010	1st Action Plan review – considered by FFC
January 2011	Recovery Plan review – by Commonwealth
March 2013	2nd Action Plan review (current)

Current condition

When this species was originally discovered in the ACT in 1992 there were 20 plants observed. In 1994 10 plants were observed; in 1997 1 plant and in 1998 there were 4 observed (but not flowering). The Conservation Planning and Research unit have monitored the site since 2002 and since that time no plants have been recorded (see recorded history below). It is now 15 years since this plant has been observed.

Year	Condition
1998	Last time the plant was observed (4 plants – not flowering)
2002	Visited on 6 occasions between March – May. No plants found. In March pig damage found in the area and the site fenced.
2003	Orroral valley burnt in the 2003 wildfires.
2004	Visited on 2 occasions. No plants found.
2005	Visited on 2 occasions (April, May) No plants found.
2006	Visited on 6 occasions (May – June). No plants found.
2007	Visited on 2 occasions (March, April). No plants found.
2008	Visited on 2 occasions (April, May). No plants found.
2009	Visited on 2 occasions (both May). No plants found – site very dry.
2010	Visited on 1 occasion (April). No plants found.
2011	Visited on 4 occasions (Dec 2010, Feb 2011, April 2011, May 2011). No plants found.
2012	Visited on 1 occasion (May). Very wet, hard to access site. No plants found.
2013	Intending to visit site in May 2013.

Conservation Actions – summary of implementation

Due to the nature of this species and the small size of the site, management actions have been directed towards maintaining existing conditions and ensuring that activities located nearby do not adversely affect the site.

Many of these actions remain unchanged from the report given to the Committee in September 2010.

Actions identified in the ACTION PLAN	**Actions undertaken**
SURVEY/MONITORING/RESEARCH	
Environment ACT (Wildlife Research and Monitoring) will monitor the existing population on an annual basis.	Completed from 2002 to the present. Results given above.
REQUIRED MANAGEMENT ACTIONS	
The site will be kept open if necessary, by artificially trimming the tussock grass during the non-flowering season. This will be done by careful use of a "whipper-snipper" and removing cut grass by raking to avoid continuous build up of decaying matter which smothers soil and small plants. Any spread of tea-tree will be monitored and appropriately controlled.	The site was fenced to minimize pig damage in 2002. Grass has grown across the site – a burn in the area had been considered for 2011 however due to very wet conditions this has not been implemented.
Herbicides will not be used anywhere in the vicinity of the site, where there is any possibility of it adversely affecting the species.	No herbicides used near the location of the species.
Activities, such as track development, which could alter the drainage of the site, will not be allowed near the site.	No track development has occurred near the location of the species.
Feral pig control in the area needs to be maintained.	Annual feral pig control is undertaken in the whole of Namadgi National Park including Orroral Valley.
Expert advice will be sought on the need and potential for ex-situ conservation measures to be taken for this species.	Expert advice has been sought on an ex-situ population. No ex-situ population has been established as there have never been enough plants germinated to allow collection of seed.
Consideration will be given to burning adjacent areas of similar habitat subject to assessment of each area.	The site did burn in the 2003 wildfire. In some areas the burn was severe and penetrated into the peat, other areas were very lightly burnt. Seed may have been killed due to the severity of the fire.
PROTECTION	
When the seed numbers are greater,	There have never been enough plants that

depending on the season, propagation must be undertaken.	have germinated to allow collection of seed
No track development near the site;	No track development has occurred near the site.
Visitor access to the area where the species is located is not encouraged	Visitor access is no encouraged, there is no signage to the location and the entry to the area is obscure to access.
OTHER	
The Action Plan will be reviewed after three years	The review of the Action Plan has not been undertaken.

Recommendations

- The Flora and Fauna Committee endorse some site management actions such as burning or slashing based on advice from Conservation Planning and Research.
- The Flora and Fauna Committee agree not to update the Action Plan until either 1) the species is found again or 2) the species is listed as extinct.

Action Plan reference

ACT Government, 1997. *A subalpine herb* (Gentiana baeuerlenii): *An endangered species*. Action Plan No. 5. Environment ACT, Canberra.

LEGISLATIVE ASSEMBLY
FOR THE AUSTRALIAN CAPITAL TERRITORY

STANDING COMMITTEE ON PLANNING, ENVIRONMENT AND TERRITORY AND MUNICIPAL SERVICES
Mr Mick Gentleman MLA (Chair), Mr Alistair Coe MLA (Deputy Chair),
Dr Chris Bourke MLA, Mr Andrew Wall MLA

ANSWER TO QUESTION TAKEN ON NOTICE
DURING PUBLIC HEARINGS

Asked by **MR GENTLEMAN** on 17 October 2013: **MR CORBELL** took on notice the following question(s):

Ref: Hansard Transcript **17 October 2013 PAGE 331**

In relation to: Conservator investigations.

I understand some 18 investigations were referred to the conservator. Can you tell us some of the detail of those investigations? That is page 331.

MINISTER CORBELL: The answer to the Member's question is as follows:–

Of the 18 matters referred for investigation:

- Two briefs of evidence were submitted to the Director of Public Prosecutions (DPP) pending court action for breaches of the *Nature Conservation Act 1980* or *Tree Protection Act 2005*;
- Seven offenders were issued formal cautions (Five - *Nature Conservation Act 1980*, One - *Fisheries Act 2000*, One - *Tree Protection Act 2005*);
- One offender was issued one Infringement Notice to value of $1,250.00 under the *Tree Protection Act 2005*.
- One investigation remains active (*Tree Protection Act 2005*)

Of the remaining referrals, there was either insufficient evidence to proceed to a full investigation, the matter was investigated however no offence disclosed, or an offender was unable to be identified.

The two briefs submitted to the DPP were accepted and proceeded by way of summons.

The *Tree Protection Act 2005* matter involved the owner/occupier of an address in Narrabundah removing a regulated Fraxinus tree (ash) without approval. An application, and subsequent reconsideration, denied the removal of the tree. The Owner then applied to a Certifier to have building work undertaken. The certifier said that the tree was not within the building zone and that he would certify the building, however the owner would still have to apply for approval to remove the tree. Once the job had been certified the owner then cut down the tree using a chainsaw. A statement was obtained from the certifier.

The owner was charged with two offences against the *Tree Protection Act 2005*, Section 15(1) and Section 15(2). He entered a plea of guilty to the offence against Section 15(2) and the DPP entered no evidence for the offence against Section 15(1).

The matter was heard in the Canberra Magistrates Court 25 September 2013 with the owner being convicted and ordered to pay a fine of $2,800. He was given 28 days to pay.

In sentencing, the Magistrate considered that the owner had entered a plea of guilty at the earliest opportunity and that he had been co-operative with authorities, however his actions of taking matters into his own hands could not be accepted by the court and the actions he had undertaken with the certifier had been entirely to achieve his intended result. He also considered that as an architect, the owner was well aware of the legislation and the processes required to undertake development activities.

The *Nature Conservation Act 1980* matter involved numerous offences against the taking and keeping of wildlife, and numerous animal welfare charges under the *Animal Welfare Act*. The alleged offender was identified by Licensing Officers as having native animals without a licence. Initial enquiries revealed that a number of native animals were being held by the occupant at an address in Kambah. A joint operation involving the RSPCA, AFP and Licensing and Investigations Officers was conducted. A number of native birds were seized, some had to be euthanized and others were rehabilitated by RSPCA wildlife veterinarians and wildlife officers. A number of summons were issued, and due to the defendant actively avoiding summons service, a warrant for the arrest of the alleged offender was executed. She was later arrested by Police and has appeared in the Canberra Magistrates Court a number of times where she has pleaded not guilty to all charges. The matter was in court on 26 September 2013 for a case management hearing. The matter will now go to a full hearing and is scheduled for 14 February 2014 in the Canberra Magistrates Court.

Approved for circulation to the Standing Committee on Planning, Environment and Territory and Municipal Services

Signature: Date: 30-10-13

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

LEGISLATIVE ASSEMBLY
FOR THE AUSTRALIAN CAPITAL TERRITORY

STANDING COMMITTEE ON PLANNING, ENVIRONMENT AND TERRITORY AND MUNICIPAL SERVICES
Mr Mick Gentleman MLA (Chair), Mr Alistair Coe MLA (Deputy Chair)
Dr Chris Bourke MLA, Mr Andrew Wall MLA

ANSWER TO QUESTION TAKEN ON NOTICE
DURING PUBLIC HEARINGS

Asked by **MR WALL** on **17 October 2013**: **MR CORBELL** took on notice the following question(s):

Ref: Hansard Transcript **17 October 2013 PAGE 30**

In relation to: spot checks of unrenewed licences.

MR WALL: With regard to licensing for plants and animals, if an individual holds a licence that expires and they do not renew it, is any investigation carried out to see if they are still holding the plant or animal?

Ms McKeown: They certainly do some spot audits where the investigators will go and knock on the door and ask for the paperwork to prove that they no longer have the animal and where the animal has gone.

MR WALL: Is that done at the expiry of each unrenewed licence?

Ms McKeown: I would not say it was done at the expiry, due to resources, obviously. But they do spot audits. If they are aware someone had an animal, they may contact them and ask them what happened to the animal. Sometimes they will be told the animal is deceased and sometimes they are told the animal has been sold on, so, therefore, they ask for the correct paperwork to track that animal and find the person that has it.

MR WALL: How many spot checks would be carried out in a year?

Ms McKeown: I do not know. We would have to take that on notice. The investigations area actually sits within TAMS.

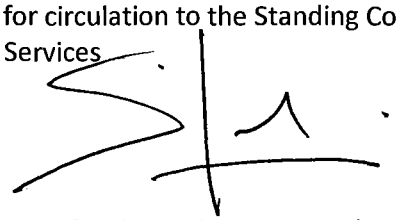
Mr Corbell: We can take the question on notice and provide an answer to you, Mr Wall.

MINISTER CORBELL: The answer to the Member's question is as follows:–

Licences under the *Nature Conservation Act 1980* are administered by the Licencing and Investigations Unit of Territory and Municipal Service Directorate. Renewal notices are sent out prior to the expiration of each licence, with all unrenewed licences followed up. If a licence is not renewed, further investigations will be undertaken and the licensee contacted to determine the reason for non renewal. If the renewal notice is 'returned to sender', the unit will endeavour to locate the new address and follow up that way. New addresses are usually able to be found and the licensee contacted. More often than not the licensee has merely forgotten to update their address upon moving.

The Licensing and Investigations Unit conduct regular unannounced inspections on all licenced commercial premises (pet shops, displays etc). Regular inspections are also conducted on private licensees who have large holdings or who do a lot of transactions. Random and pre-arranged inspections are also undertaken on other individuals with small holdings. Some people have a licence for one animal, which is maintained for the life of the animal with no changes i.e. they have one snake which lives for 20 years and they don't breed the animals, therefore their licence details never change. This type of licensee is inspected less frequently. The total number of inspections varies each year, dependent on animal movements, operational needs and resourcing with approximately 100 inspections undertaken annually, some times more.

Approved for circulation to the Standing Committee on Planning, Environment and Territory and Municipal Services

Signature: 

Date: 4.11.13

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

LEGISLATIVE ASSEMBLY
FOR THE AUSTRALIAN CAPITAL TERRITORY

STANDING COMMITTEE ON PLANNING, ENVIRONMENT AND TERRITORY AND MUNICIPAL SERVICES
Mr Mick Gentleman MLA (Chair), Mr Alistair Coe MLA (Deputy Chair),
Dr Chris Bourke MLA, Mr Andrew Wall MLA

ANSWER TO QUESTION TAKEN ON NOTICE
DURING PUBLIC HEARINGS

Asked by **Dr Bourke** on **17 October 2013**: **Mr Chester** took on notice the following question:

Ref: Hansard Transcript **17 October 2013 PAGE 35**

In relation to:

Mr Chester: Yes. I will give you an example of a different industry—the service stations. With respect to the way they control run-off from their sites, they have moved to a new form of stormwater intercept and control device so that water running off the site goes into a submerged device, gets cleaned before the discharge and it can control emergency spills and capture those. Given that the ACT is a small location, we have had to develop a code to incorporate that within the authorisations and licences that we now give service stations.

DR BOURKE: In regard to service stations, perhaps you could tell me more about the range of environmental authorisations you issue for treatment of contaminated soils. There is a waste control and recovery permit authorisation. Perhaps you could tell me more about that as well.

Mr Chester: With regard to the specifics of the authorisation for petroleum recovery, I will have to take that on notice, go back to our database and pull it out and find out the details for you.

MINISTER CORBELL: The answer to the Member's question is as follows:–

Under Section 42 of the Environment Protection Act 1997, it is a requirement that certain activities, known as Class A activities, that pose environmental risk cannot be undertaken unless the person undertaking the activity holds an environmental authorisation.

In relation to the treatment of contaminated soil, including soil coming from a service station, there are two Class A activities:

- the treatment (other than by incineration), storage or handling of more than 1 000m^3 of contaminated soil from land outside the parcel of land where the contaminated soil is treated, stored or handled (item 11); and
- the treatment (other than by incineration), storage or handling of more than 10 000m^3 of contaminated soil from land (item 12).

These activities allow for the treatment of contaminated soil within the ACT, consistent with best practice waste management. Any soil that cannot be remediated to a level to allow for disposal/reuse in the ACT is consigned for further treatment/disposal interstate and is subject to

the requirements of the *National Environment Protection Measure for the Movement of Controlled Waste between States and Territories* (the NEPM).

There are currently two authorisations for item 11. These belong to the Land Development Agency and Territory and Municipal Services. There are no authorisations currently issued for on-site treatment under item 12.

There are no waste control and recovery permit authorisation as such. There are Class A activities which relate to the operation of a facility that recovers, processes or disposes, or is intended by the operator to recover, process or dispose, of more than 20t of waste petroleum products per year.

Transformer Maintenance Services Australia Pty Limited is the only business in the ACT authorised for this activity. Their authorisation is limited to dealing with transformer oil (polychlorinated biphenyl free), not petroleum wastes generated at service stations. These wastes (used oil, solvents, fuel) are collected by licensed waste transporters and taken interstate in accordance with the NEPM as there are no liquid waste treatment facilities in the ACT for these types of wastes.

Approved for circulation to the Standing Committee on Planning, Environment and Territory and Municipal Services

Signature: Date:

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

LEGISLATIVE ASSEMBLY
FOR THE AUSTRALIAN CAPITAL TERRITORY

STANDING COMMITTEE ON PLANNING, ENVIRONMENT AND TERRITORY AND MUNICIPAL SERVICES
Mr Mick Gentleman MLA (Chair), Mr Alistair Coe MLA (Deputy Chair), Dr Chris Bourke MLA, Mr Andrew Wall MLA

ANSWER TO QUESTION TAKEN ON NOTICE
DURING PUBLIC HEARINGS

Asked by **Dr Bourke** on **17 October 2013**: **Mr Corrigan** took on notice the following question(s):

Ref: Hansard Transcript 17 October 2013 **page 44**

In relation to: **Calvary Multi-storey Carpark**

Mr Corbell: Yes. Variation 313 made changes to land use in the vicinity of Calvary hospital to formalise what were previously informal parking arrangements on the eastern side of the hospital. You might recall that in the area—I think it is adjacent to Hyson Green, if I recall correctly, which is the private psychiatric facility at Calvary—there was an informal dirt car park that encroached into a bushland area adjacent to the hospital grounds. This had been, for a long time, an informal car park that had been established on the hospital grounds. As part of formalising land use arrangements around the hospital, the opportunity was taken to address the issue of the use of that site and to formalise it to allow the hospital to formally count it as car parking provision on the site and allow it to potentially make further improvements to the car parking infrastructure there.

In relation to the multistorey car park proposal—first of all, Jim will tell me if I have got any of that history wrong, but, secondly, he will tell me how it relates to the multistorey development.

Mr Corrigan: Correct on the first bit. The multistorey car park—I will have to make some more inquiries about that, about the relationship there.

MINISTER CORBELL: The answer to the Member's question is as follows:–

Calvary Hospital is exploring a possible location for a multi-storey car park on its property. However, it is understood this facility will be in a different location to the area covered by Variation 313. A development application for a multistorey car park at Calvary Hospital has not been lodged to date.

Approved for circulation to the Standing Committee on Planning, Environment and Territory and Municipal Services

Signature: 14/11/13 Date:

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

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ANSWER TO QUESTION TAKEN ON NOTICE
DURING PUBLIC HEARINGS

Asked by Mr Coe on 17 October 2013: **MINISTER CORBELL** took on notice the following question(s):

Ref: Hansard Transcript 17 October 2013, Page 45

In relation to: The remuneration arrangements for positions for the Capital Metro Project Board.

MR COE: Have you sought a determination for the board or just the chairman?

MINISTER CORBELL: I would have to check that. I think it is just for the chair, because the chair is the only independent and non-public service officer.

MINISTER CORBELL: The answer to the Member's question is as follows:

A remuneration determination was sought from the Remuneration Tribunal for both the independent chair and independent member positions.

Approved for circulation to the Standing Committee on Planning, Environment and Territory and Municipal Services

Signature: Date: 20.11.13

By the Minister for the Environment and Sustainable Development, Simon Corbell, MLA

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ANSWER TO QUESTION TAKEN ON NOTICE DURING PUBLIC HEARINGS

Asked by **Dr Bourke MLA** on **17 October 2013**: **Minister Corbell** took on notice the following question(s):

Ref: Hansard Transcript 17 October 2013 **PAGE 49**

In relation to : **Transit time**

Mr Corbell: The Belconnen to the city bus priority measures are currently in the process of delivery, Dr Bourke, as you probably know. The government has identified and has funded a range of works to improve bus priority between the city and Belconnen. A significant parcel of those works has now been delivered by the Territory and Municipal Services Directorate. That includes the connections through the new city bus station, the city west bus station facilities, as part of the ANU exchange development. The bus priority measures along Barry Drive and Belconnen Way are complete. There are now works underway on College Street, I understand, to give priority for buses along College Street and the connection onto, I think, Haydon Drive—if I recall correctly. Those works have been funded by government and are now under construction and delivery by Territory and Municipal Services.

The objective here, of course, is to improve the running of public transport along this key route between Belconnen and the city. The government has made very significant investments in improving bus interchange facilities in the Belconnen town centre itself. The new Belconnen community bus station and the Westfield station are now very well patronised, very well used, and provide a much higher and safer level of amenity and convenience than previous arrangements. We are following through on that with priority measures along significant parts of the corridor between the city and Belconnen.

DR BOURKE: What about issues around transit time? Has that been improved as a result of these measures, or has patronage been increasing?

Mr Corbell: The idea is to improve reliability as congestion continues to grow along that corridor. What we have to appreciate about these measures is that giving right of way to public transport, separating buses from the general vehicle traffic, ensures that running times remain reliable and are not interrupted as congestion or other problems on roads would otherwise interfere with bus operations.

That is the important rationale behind investing in these pieces of infrastructure—to maintain reliability of running times and give certainty for running times as other traffic levels continue to increase. I am happy to take on notice some information around figures and provide those as appropriate.

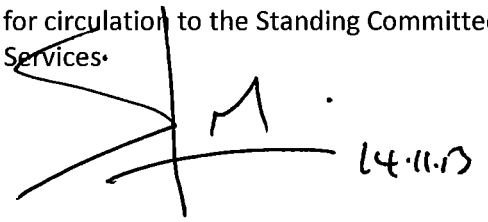
Minister Corbell: The answer to the Member's question is as follows:–

There has been improvement in the patronage since the bus priority measure was implemented in the corridor. Based on the data from the MyWay ticketing system, there has been about a 4.5 percent increase in boarding numbers (from 1,550 to 1620) during the morning peak period (measured before and after implementation of the project).

The Belconnen to City transitway is now carrying an average of 4,200 passengers on a weekday.

The bus priority measure helps the current bus users to avoid traffic congestion.

Approved for circulation to the Standing Committee on Planning, Environment and Territory and Municipal Services.

Signature:  Date: 14.11.13

By the Minister for the Environment and Sustainable Development, Simon Corbell MLA