



ACT BIODIVERSITY FUND PROJECT 2012-2017

FINAL EVALUATION

FINAL REPORT
18 August 2017

ACT BIODIVERSITY FUND 2012-2017

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About the Evaluators

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Acknowledgements

The reviewers received input and feedback from an extensive array of people with an interest in ACT woodlands restoration and ecology and the threatened ecological community of Yellow Box–Red Gum lowland grassy woodlands in particular. The opinions, experiences and ideas shared provided an evidence base that was invaluable in arriving at the findings and forming the recommendations articulated in this report. We are very grateful to all participants for their time and the thoughtfulness of their responses. For a list of those individuals who participated in interviews and questions posed refer to Appendices 2 and 3, respectively, at the end of the report.

Our thanks go to Tim Wong (ACT Government), who acted as the review secretariat, and to Kristy Gould (ACT Parks and Conservation Service) and Angela Calliess (Greening Australia), Project Steering Committee members, who provided a detailed overview of the project, its approach and activities. We also wish to express our thanks to the broader ACT Environment Directorate, CSIRO, Greening Australia, Mulligan's Flat–Goorooyarroo Woodland Experiment (Mulligan's Sanctuary), and other stakeholders and team members for their inputs, including the provision of documents and additional information. ACT NRM senior management provided advice on key stakeholders, early guidance to the review team and valuable feedback on the draft report.

The reviewers are especially grateful to Tom Sloan, Minkyung Sul and Derek Elias for their assistance in coordinating and managing the review. Specifically, the added insights and logistical and other support in facilitating interviews and crafting the report. Any errors or omissions reside with the reviewers.

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EXECUTIVE SUMMARY

Introduction

The Biodiversity Fund program (\$946.2 million 2012-2017) administered by the Commonwealth's Department of the Environment and Energy was established as a competitive, merit-based grants program as part of the Clean Energy Future (CEF) initiative. The program was designed to protect and enhance biodiversity by providing land managers with grants to undertake on-ground works to revegetate land, protect biodiversity, and prevent the spread of invasive species.

The ACT Environment, Planning and Sustainable Development Directorate was successful in gaining a \$2.155 million grant for a five-year project (2012-2017) to help consolidate and connect 60,000 hectares of the largest remaining box-gum grassy (Yellow Box-Blakely's Red Gum) woodland landscape in Australia. This grant was provided to improve landscape scale conservation through increasing the connectivity of critical habitats that were increasingly fragmented by intensification of urban and agricultural lands. Through consolidating five focal landscapes including the cross-border northern landscape of Greater Goorooyarroo, the project aimed to reduce the vulnerability of the threatened box gum grassy woodland ecological community and associated species, that have diminished to small, isolated populations; more vulnerable to extinction and climate impacts.

As part of due diligence processes, the ACT Government project manager, ACT NRM (Australian Capital Territory Natural Resource Management) commissioned a final project evaluation of the five-year program. The objective of the review, as defined by ACT NRM was to undertake a final evaluation of the ACT Woodlands Biodiversity Fund project (2012-2017) (ACT BioFund project). The secondary purpose was to evaluate how the BioFund project contributed to the delivery of the broader ongoing Woodlands Restoration Program in the ACT including two ACT Government funded projects: the ACT Woodland Restoration Project (2011-15) and The Murrumbidgee River Corridor (MRC) Million Trees project (2008-2018), and a number of other complementary initiatives

Conduct of the Review

The review comprised 7 elements: 18 interviews (including 7 ACT government staff and 2 written responses); a focus group (including 6 stakeholders involved in scientific research and monitoring); review of key documents; Project Steering Committee (PSC) guidance on evaluation framework; selection of interviewees and documents; a draft report and the final report.

Major Findings

The review's major findings are summarised here according to appropriateness, efficiency and effectiveness:

Appropriateness

The appropriateness of the ACT BioFund project was assessed with respect to: mission and goals, geographic focus, partners and governance.

Mission and goals - Overall, the BioFund project's mission and goals were recognised by stakeholders as

highly appropriate insofar as they complemented and built upon the existing restoration work already funded by the ACT Government and helped to bolster additional work, including in weed control, and restoration work. The mission and goals of the project aligned well with broader plans and strategies, such as those on invasive weeds, fire management plans and conservation strategies, yet the project was unique in terms of the focus on building connectivity within a landscape structure. The project successfully built on resources, planning and effort of the ACT Woodland Restoration project, and also directly complemented the Million Trees project (which was only permitted to spend funds on tree planting) through enabling the provision of mid-storey planting and other important habitat/structural elements for habitat enhancement, revegetation, and weed and pest control.

The BioFund project benefited from scientific collaboration between the ACT Government, the Australian National University (ANU) and CSIRO, including the “150m/1.0-to-1.3km/10ha rule connectivity” and Mulligan’s Flat–Goorooyarroo Woodland Experiment, to apply best practices and scientific research in on-ground restoration activities. While connectivity modelling informed priority focal landscapes, local scale (site) activities were strongly influenced by tenure and stakeholder consultations. Further discussions between scientists, land managers and community members, using scientific models as the starting point in a process of considering different perspectives, practical issues and broader cultural values, would have assisted in building community understanding and an ‘inclusive’ vision of the focal landscapes and priorities at the local scale.

Geographic focus - The appropriateness of the BioFund project’s geographic focus was in large part linked to the direction provided by the ACT Government’s overall Woodland Conservation Strategy (2004), coupled with the practical realities of tenure types and other land management considerations. As the strategy focused on yellow-box red gum, as one of the most threatened ecological communities in the ACT, most stakeholders considered the project’s geographical focus to be broadly appropriate. Some stakeholders thought that greater importance could have been given to connectivity with a range of eco-systems required to support ACT’s threatened species, including grasslands, riparian areas and wetlands, while acknowledging that this was not the focus of the BioFund project.

The project’s geographic focus evolved to combine best-practice scientific recommendations with the practical realities of fire management, farm management, and other key factors that were important in guiding the project’s boundaries. As a result, activities sometimes occurred opportunistically across rural lands (the Greater Goorooyarroo area in particular), and at times, outside of the focal areas (for example, the Kowen Plateau was added as an additional restoration area). For some respondents, the strong focus on the cross-border landscape of Greater Goorooyarroo was highly appropriate given the significant investments made at the adjacent Mulligan’s Flat Nature Reserve and the high degree of partially or substantially modified woodlands and grasslands present in the NSW landscape.

The degree to which the geographic focus of the project was appropriate to the long-term aim of biodiversity connectivity, however, requires long term monitoring and scientific analysis. Overall, the project began with appropriate, best-practice scientific data with respect to consolidating corridors for biodiversity and then worked to build on existing assets, and subsequently extended opportunistically beyond the initial focus areas, including working with rural landholders on privately-owned land where possible. A key element in

judging the project's long-term success will be the degree to which the project has contributed to woodlands connectivity in the ACT and region.

Partners - The appropriate involvement of partners and stakeholders was a core objective of the BioFund project. Overall, the project and its contribution to the broader ACT Woodlands Restoration Project involved a wide range of partners and stakeholders, which progressively diversified and expanded as the project developed. While the original 2004 ACT Woodland Conservation Strategy was initiated at the request of community groups, including Park Care groups, Canberra Ornithologists Group (COG), and scientists, it was rural landholders and lessees who evolved to become key stakeholders in the project.

Governance - Three senior individuals from within ACT NRM, ACT Parks and Conservation Service (PCS) and Greening Australia Capital Region (GACR) formed a close working relationship as the Project Steering Committee (PSC). This small team worked well together from a project management perspective to ensure direct lines of communication were available to achieve coordinated outputs and integrate reporting within the specified timeframes. These core partners were consistently praised by a number of interviewees for their performance in managing the project, engaging with partners and stakeholders and efficiently implementing the project. Within the ACT Government, the project was considered unique in its ability to quickly and effectively coordinate across policy, planning, research and implementation. Indeed, the project's demonstrated success in this regard was credited with affecting a cultural change with respect to collaboration and integration more widely within the ACT Government. External perceptions of project governance were equally positive with one close but independent project observer commending ACT project managers for their reflective approach to governance and deft handling of partners and stakeholders. This capacity was noted as being of particular importance once the project moved towards greater engagement with private landholders.

Efficiency

The efficiency of the ACT Biodiversity Fund Project was assessed using the following categories: 1) early project start up activities, 2) inputs and outputs, 3) staffing arrangements, 4) internal and external collaboration, 5) financial administration, 6) M&E and reporting, and 7) knowledge and adaptive management.

Early start up activities - The project was challenged during the inception phase in how to best integrate resources (human and financial) and planning approaches with the existing ACT Woodlands Restoration Project (2011-2015). Key to resolution of these issues was recruitment of a full time project officer in the Parks and Conservation Service to oversee delivery, alignment of contracting processes with Greening Australia (the main delivery partner), and establishment of clear partnership arrangements (roles and responsibilities, and common understanding of and commitment to the overall programs goals) between Parks and Conservation Service, Greening Australia and ACT NRM.

Financial administration - The financial administration of the project was complicated by having two different funding sources available for woodland restoration from the ACT Government and the Commonwealth, and the respective rules, reporting, and acquittal processes that each demanded. Initial concerns of competition for sites between ACT and Commonwealth funds were overcome through more clearly differentiating restoration elements to be funded from different funding sources.

Inputs and Outputs - Targeted outputs for the ACT BioFund project included: 700 hectares of revegetation; 800 hectares of restoration (enhancing existing habitat); and 10,000 ha of invasive species control. Targets were achieved, and exceeded through a number of well-established restoration activities and techniques such as direct seeding, tube stock planting, stock exclusion fencing, and control of weeds and vertebrate pests. Delivery was considered to be relatively straightforward given the flexibility in activities and geographical areas to achieve project targets. Project implementers noted that there was little pressure throughout the project time period to deliver on targets.

Staffing arrangements - Staffing for project management and oversight included senior officers from ACT NRM and ACT PCS, and a senior manager from GACR who helped guide planning and directed a small team of GACR project delivery staff. The central liaison role in terms of broader landscape-scale strategy and implementation sat within ACT PCS, which helped in streamlining reserve management planning processes, and efficiently facilitating implementation with GACR. Within GACR, staff reported a high level of rapport with the core team involved in the planning, implementation and management of project activities, including engagement of volunteers. The central liaison role of the senior ACT PCS officer was highly praised in enabling the project's overall level of efficiency. These centralised roles were credited with enabling a culture of collaboration within the broader ACT Government and the achievement of project targets well ahead of schedule.

M&E - Ten monitoring sites have been established across the focal landscapes in order to compare a range of intervention methods against a control site. Given that some project outcomes may take many years to be realised, BioFund project staff aimed to establish straightforward and readily replicable M&E techniques and approaches. However, project-level M&E may not reveal the full extent of influence the project may have at the landscape level over time (Watson et al, 2017). In order to answer longer term M&E questions at the landscape level additional monitoring and analysis may be required and M&E efforts may need to be combined with other conservation effectiveness research within the ACT Environment Division of EPSDD and with other scientific research bodies.

Knowledge and adaptive management - The Mulligan's Flat–Goorooyarroo Woodland Experiment played an integral part in knowledge development and adaptive management of the project. Research findings, especially regarding biomass management through the addition of coarse woody debris (CWD) to landscapes, feral species exclusion, grazing impacts and woodland restoration techniques, resulted in changes to the ACT Government's broader woodlands restoration works and management, including those carried out under the BioFund project. Adaptive management was considered a hallmark of the project by a number of interviewees who noted that project staff and stakeholders sought to continually improve the project and align its impact with spending and research on woodlands in the ACT.

Effectiveness

Effectiveness was evaluated in terms of perceptions of cost-effectiveness and project outcomes – namely institutional and capacity-related outcomes, land management outcomes, landscape-scale change, and outcomes linked to complementary projects. Undertaking a thorough assessment of cost-effectiveness was not a requirement of this evaluation; however, we are able to provide some limited comments in this regard further to feedback from respondents.

Cost effectiveness - The initial proposal for the BioFund project was assessed for cost-effectiveness prior to its approval for Commonwealth funding. The project was rated highly against both of these measures due to the demonstration of significant leveraging of cash and in-kind resources from ACT Government and the volunteer sector. Once implementation commenced, the Commonwealth funding agency noted that its cost-effectiveness was comparable to other projects based on a dollars-per-hectare metric.

Institutional and capacity-related outcomes - The project affected high-level institutional change in the way that landscape connectivity is approached by key organisations in the ACT. Project staff and other key ACT Government staff noted that the project enabled new ways of working with regard to how to plan and consult across a landscape and across different land tenures. The project was credited with enabling greater coordination between policy, planning, research and project implementation areas and in creating a shared sense of purpose and good will between coordinating units. In essence, the project created institutional connectivity between different areas of the ACT Government and among core stakeholders. Strong stakeholder engagement outcomes were noted by the majority of interviewees as a core outcome of the project. In this sense, the project was widely viewed to engender more than just ecological connectivity but community connectivity as well. The project's success in this regard was recognised by an ACT Landcare Award in 2016.

Land management outcomes - The project was commended by many interviewees for affecting broad-scale operational changes (biomass management, feral species exclusion, grazing impacts and woodland restoration techniques) to the way in which land management is approached and interventions made. This was particularly the case with woodland enhancements, including the introduction of coarse woody debris (CWD), but also new techniques for under- and mid-storey planting, and importantly leaving or replacing tree remnants and trunks in the landscape. In addition, the project has assisted with ongoing work carried out by ACT PCS on invasive weeds. The greatest outcome repeatedly noted by informants for this review was the increasing integration of ACT Government working directly with rural landholders and in cross-border environments to achieve wider landscape conservation outcomes.

Landscape-scale change and outcomes linked to complementary projects - The landscape-scale outcomes of the project (such as improvements in connectivity and enhancement of habitat for particular species) will likely take a number of years to manifest. While a technical assessment of this outcome is outside of the scope of this participatory review a number of respondents noted that ecological connections have been enhanced or created in a number of previously isolated areas. Landscape-scale outcomes have also been identified between Mulligan's Flat and the cross-border areas near Goorooyarroo Nature Reserve through securing significant connectivity areas between these two areas. Working in the cross-border landscape was considered by many as one of the biggest landscape-scale achievements of the project. The support provided to committed landowners outside of state administrative boundaries will likely have ongoing landscape-scale impacts and has extended the possibilities for future cross-border collaborative work.

Recommendations – Future Opportunities

Based on stakeholder feedback regarding future opportunities, this report makes 11 recommendations with respect to institutional capacity and related opportunities, stakeholder engagement, technical approaches, and landscape scale opportunities. These can be found in the final section of the report.

Abbreviations

ACT	Australian Capital Territory
ACTCPR	Australian Capital Territory Conservation Planning and Research
ACTPCS	Australian Capital Territory Parks and Conservation Services
ACTNRM	Australian Capital Territory Natural Resource Management
ANO	Australian National Audit Office
ANU	Australian National University
BioFund	Biodiversity Fund
CEF	Clean Energy Future
COG	Canberra Ornithologists Group
CPR	Conservation Planning and Research (ACT Environment Directorate)
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSO	Civil Society Organisation
CWD	Coarse Woody Debris
CVA	Conservation Volunteers Australia
EPBC	Environmental Protection and Biodiversity Conservation
EPSDD	Environment, Planning and Sustainable Development Directorate
GACR	Greening Australia (Capital Region)
LLS	Local Land Services
LMA	Land Management Agreement
MERI	Monitoring, Evaluation, Reporting and Improvement
MERIT	Monitoring, Evaluation, Reporting and Improvement Tool
M&E	Monitoring and Evaluation
NES	National Environmental Significance
NGO	Non-Governmental Organisation
NHT	Natural Heritage Trust
NSW	New South Wales
PSC	Project Steering Committee
TAMS	Territory and Municipal Services
YBRG	Yellow Box-Red Gum

1. INTRODUCTION

This report is framed in six main parts. To begin, background context is provided in terms of both this review and the Biodiversity Fund (BioFund) Project implemented in the Australian Capital Territory (ACT). Next the review terms of reference are specified and the process by which the review has been conducted is outlined. In section 5, the review findings are framed according to each theme of the evaluation – appropriateness, efficiency, effectiveness, and future opportunities. The report closes with sections on synthesis and discussion, which draw from the review overall and present some specific recommendations.

2. BACKGROUND

This Evaluation

In June 2017, the evaluators were engaged through Sustineo Pty Ltd to provide an independent final review of the ACT's BioFund Project funded by the Commonwealth's Department of Environment and Energy, which was due to conclude on 30 June. The project spanned a 5-year period during which time it worked towards the goal of whole-landscape biodiversity connectivity. This evaluation assesses the performance of BioFund as an individual project within a larger 'ACT and Region' scheme – central to this is an understanding of whether and how effectively the BioFund project contributed to the broader aims of ongoing restoration and replanting programs at the landscape scale.

The Biodiversity Fund (Restore ACT and Greater Goorooyarroo Woodlands)

In July 2011, the Australian Government announced the Clean Energy Future (CEF) initiative, which outlined planned measures to reduce Australia's carbon emissions to meet the 2020 target (at least five percent below year 2000 emissions levels by 2020). The four key elements of the CEF initiative were: the introduction of a carbon price; a package of renewable energy programs; a package of energy efficiency programs; and the Land Sector Package, which included the Biodiversity Fund program.

The Biodiversity Fund program (\$946.2 million) was established as a competitive, merit-based grants program within the CEF initiative. Its objectives were to: maintain ecosystem function and increase ecosystem resilience to climate change; and increase and improve the management of biodiverse carbon stores across the country. These objectives were to be achieved through grants to land managers for on-ground works, such as revegetation, protection of existing biodiversity, and prevention of the spread of invasive species (ANAO, 2014).

The ACT Environment, Planning and Sustainable Development Directorate was successful in gaining a \$2.155 million grant for a 5-year project (2012-2017) to help consolidate and connect 60,000 hectares of the largest remaining box-gum grassy woodland landscape in Australia – referred to as the (woodland) 'BioFund Project'. This project aimed to improve 'landscape scale conservation' (Doerr et al 2014) through increasing the connectivity of critical habitats that were increasingly fragmented by intensification of urban and agricultural lands. The idea (initially conceived in partnership between the Canberra Ornithologists Group and a senior conservation officer of the ACT Government) aimed to consolidate five focal landscapes including the cross-border area of the Greater Goorooyarroo, thereby reducing the vulnerability of many native species that have been diminished to small, isolated populations more vulnerable to extinction and climate impacts. Greater Goorooyarroo is the area of land that straddles the northern border of the ACT and NSW. The area

comprises Mulligans/Goorooyarroo Nature Reserves, privately owned rural properties and urban areas. The project was delivered by Greening Australia Capital Region (GACR) and ACT Parks and Conservation Service (ACTPCS), and necessarily involved a diverse number of stakeholders including private landowners, traditional owners, collaborators, researchers and government agencies in ACT and New South Wales (NSW).

ACT Woodlands Restoration and Million Trees

The ACT Biodiversity Fund project was envisaged to complement ongoing activities that form part of the ACT's broader Woodland Restoration Program (ACT Woodlands Restoration Project and The Murrumbidgee River Corridor Million Trees Project). In 2012, the ACT Government allocated \$1 million over four years for woodland restoration of 450 ha (4.5 km²) of key landscape areas in order to provide additional connectivity between woodland patches. The project aimed at restoring degraded areas of habitat and connectivity value, natural regeneration in existing woodland patches and to replace missing habitat elements, such as logs or a shrub layer. Like the BioFund project, this project was delivered by GACR in partnership with the ACT Government and rural landholders.

The ACT Government also received funding under the Australian Government's Million Trees program to plant 300,000 native trees over ten years in the Murrumbidgee River Corridor. This project is currently being delivered by the ACTPCS using contracted planting organisations and Conservation Volunteers Australia (CVA). Since 2008, over 230,000 trees have been planted. Planting targets formerly drought-affected areas, in particular, and where maximum benefit from connectivity can occur.

The Broader Woodlands Context

ACT contains some of the largest, most highly connected and most botanically diverse examples of the nationally significant yet critically endangered White Box-Yellow Box – Blakely's Red Gum lowland grassy woodlands. Declared an endangered ecological community in 1997 under the ACT *Nature Conservation Act 1980*, it is considered that less than 5 percent of the original extant of this community remains nationally, and that which is left is mainly in small fragmented patches less than 10 ha (Commonwealth listing advice 2006, Gibbons and Boak 2002, Davidson 2005). Since settlement, the ACT has lost over two thirds of this significant woodland. However, these areas still comprise about half Australia's remaining lowland woodlands. The lowland woodland remaining in the ACT is considered outstanding in relation to: the large size of the remaining patches (typically greater than 100 ha); the high level of connectivity of lowland woodland across the landscape; the high botanical diversity, including many rare and threatened species; and their good condition in relation to the vegetation structure and regeneration and level of weed invasion. Despite these outstanding characteristics, ACT's nationally significant woodlands continue to be threatened (Conservation Research Unit, 2017).

Nationally, the key threats to woodland are recognised as clearing, grazing and weed invasion. Other threats recognised nationally include salinity, nutrient enrichment, altered fire regimes and the effects of fragmentation (TAMS, 2011). The *ACT Lowland Woodland Conservation Strategy (2004)* described the main threats as clearing and fragmentation for urban and infrastructure development, modification of woodland composition and structure for grazing and other land uses, dieback, firewood collecting, weed invasion, fire and introduced pests, and changes in native species abundance (Conservation Research Unit, 2017). Cats and foxes are the major predators of concern to ACT's woodland wildlife, while competition for hollows by introduced species such as Indian Myna and European Honey Bee are also of concern. Other specific threats

include: grazing pressure on woodland understorey over-grazing by kangaroos and rabbits; fuel reduction and simplification of habitat to reduced fuel loads as part of fire management (which if done too frequently it can significantly reduce the viability of the understorey shrubs and grasses and removes fallen timber and leaf litter, which reduces the habitat quality for woodland birds); invasive weed control (especially the introduction of new weeds and the control of weeds which are capable of rapid invasion) (Conservation Research Unit, 2017).

Legislation and Offsets

Commonwealth approval is required for any action that may significantly impact on a matter of National Environmental Significance (NES), such as the box-gum grassy woodland or several lowland woodland species listed as threatened under the Environmental Protection Biodiversity Conservation Act 1999 (the EPBC Act). As part of an approval the Commonwealth requires offsetting to maintain features of NES. The EPBC Offsets Policy 2012 and ACT Environmental Offsets Policy 2015, has resulted in reduced clearing and increased protection for box-gum woodland, due to the offsets requirements (Conservation Research Unit, 2017).

ACT Woodlands Ecological Connectivity

The *ACT Lowland Woodland Conservation Strategy* (2004) (also known as Action Plan 27) mapped the distribution of woodlands (Environment ACT, 2004). Where previous strategies and action plans were formulated for individual species, the 2004 strategy took a whole ecological landscape approach and called for a comprehensive, adequate, and representative and woodland reserve system, including the maintenance and enhancement of connectivity. Defined as ‘the degree to which the landscape facilitates or impedes movements among patches’ (Bennett 1999), ecological connectivity considers the whole landscape and the degree to which woodland fragments are linked together with other natural ecological communities, such as native grasslands, wetland areas and forests. Increasing the heterogeneity of habitats connected across a landscape improves the long-term viability of previously fragmented populations and is necessary to support movements required for gene flow between populations, to facilitate immigration to (or re-colonisation of) populations that are not self-sustaining and for dispersal of offspring or seeds. The principles adopted in the 2004 Woodlands Strategy for maintaining habitat connectivity were:

- linking large woodland patches in the ACT;
- linking ACT woodland patches to the surrounding region;
- linking woodlands to other ecological communities (grassland, forest, riparian communities);
- maintaining key east-west and north-south wildlife corridors;
- maintaining riparian areas as corridors;
- linking by ‘stepping stone’ patches should be considered where corridors are impractical;
- woodland areas with lower conservation value, and other ecosystems and rural areas can provide buffers to high conservation value woodlands; and
- paddock trees and clumps of trees can provide a valuable basis for building connectivity between fragments.

The principles of ecological connectivity within the ACT and broader NSW woodlands context were further bolstered by the Woodlands Implementation Plan in 2011. This plan provided a total of 18 recommendations

to guide the implementation of the strategy. Summarised below these recommendations recognised that achieving functional connectivity within the ACT and Greater Goorooyarroo landscape would require:

- a whole landscape and ecosystem approach mainstreamed into planning processes across a range of settings and tenures;
- community and especially Indigenous involvement with a focus on learning;
- prioritisation and targeting of restoration and land management activities based on best practice, available science and impact coupled with coordinated weed and grazing control measures encouraged through LMAs (Land Management Agreements);
- geographic focus of works as recommended by the 2004 strategy and areas known to support relative abundance of threatened woodland birds;
- offsets, covenanting and/or other options for incentive payments be targeted towards priority restoration areas; and
- ongoing use of research into the most effective measures for woodland and habitat restoration and management encouraged and supported and continuous reflection and knowledge management.

The BioFund project therefore offered an opportunity to field test biodiversity connectivity models across complex tenure landscapes under the recommendations set out in the 2011 Woodlands Implementation Plan discussed above.

Defining and Managing Landscape Approaches

McNeely and Scherr (2013: 275) define landscape as:

A mosaic where a cluster of local ecosystems is repeated in a similar form...A landscape is characterised by a particular configuration of topography, vegetation, land use and settlement pattern that delimits some coherence of natural, historical, and cultural processes and activities.

Landscapes are biophysical, cultural and political entities. Given however that these three processes rarely coincide spatially, key to addressing issues at the landscape level is to delineate landscape functionality i.e. the context of a particular issue or problem. For example, the primary focus of the BioFund was to conserve and consolidate threatened significant biodiversity habitat, box-gum grassy woodland. If the focus was instead on the protection of culturally significant sites in the landscape, a different landscape may have been defined. The scale of the landscape in this instance is defined by the “graininess” of the mosaic. The mosaic addressed is box-gum grassy woodlands across the ACT region. This landscape is an “agro-ecological landscape” which Buck et al (2006) remind us is a mosaic of natural, semi-natural and agricultural lands occurring in an area of importance for conservation and for rural (and increasingly urban) development.

In a recent review of integrated landscape approaches, Reed et al (2016) noted that at a minimum, effective integrated landscape scale approaches entail ongoing efforts in good governance, reflexive management, participation and constant adjustment. As such, their review found that there are very few examples of successfully integrated landscape approaches. This review found that while the BioFund focused primarily on the agro-ecological mosaic of box-gum grassy woodland, it has put in place the right institutional approaches

and coalitions of stakeholders to further integrate landscape scale approaches and include a wider range of ecosystems across a range of tenures with differing political and cultural processes at play.

3. TERMS OF REFERENCE

The purpose of this review, as defined by ACT Natural Resources Management (ACTNRM), was to undertake a final participatory evaluation of the ACT Woodlands Biodiversity Fund project (2012-17) (BioFund Project), with the secondary purpose of evaluating how it contributed to the delivery of the broader ongoing Woodlands Restoration Program in the ACT, including the Million Trees Project. Although the review touches on a number of technical aspects of the project, the review is not a technical assessment of the degree to which biodiversity connectivity was measurably achieved. A technical review of the project will likely be undertaken at a future date with other relevant areas of ACT Government's Environment, Planning and Sustainable Development Directorate. The primary evaluation questions specified in the Request for Services were:

- Evaluate whether the project design was fit for purpose;
- Evaluate whether the outcomes were credible and based on scientifically and administratively defensible methods and approaches;
- Evaluate whether the funding was spent in a transparent manner, resulting in the desired outputs and outcomes;
- Evaluate the Effectiveness, Impact, Appropriateness and Efficiency of the project.
 - Impact - Were quality outputs delivered which resulted in the program outcomes being achieved?
 - Appropriateness - To what degree did the program utilise best practise science in decision making?
 - Efficiency – Was the model used to deliver the project efficient in its design and execution?

In addition, a secondary evaluation question was posed with respect to effectiveness, namely: How effectively did the project engage with other complementary initiatives to achieve landscape scale restoration outcomes?

These were distilled into the following four evaluation themes with the PSC to develop the review's 'Evaluation Framework' and guide interview questions as the main form of data collection:

- Appropriateness – assesses the project's mission and goals and its linkage to broader strategies, its geographic focus, its partnerships and its governance arrangements;
- Efficiency – examines the efficiency with which project outputs were delivered, including start-up activities, staffing, financial arrangements, M&E, knowledge management, collaboration and adaptive management;
- Effectiveness – assesses short- to long-term outcomes, linkages with other projects, and aspects of cost effectiveness; and
- Future opportunities – looks to 'what next?' by exploring strengths to enhance, weaknesses to shore up, opportunities to capture and threats to minimise.

4. CONDUCT OF THE EVALUATION

The core focus of this review was to collect participatory data on the performance of the project through the conduct of interviews and stakeholder discussions. This review comprised seven elements:

Evaluation planning—On 30 May 2017 the reviewers met with the PSC to refine review the evaluation questions in the terms of reference, and to match them with the project cycle (planning, implementation and outcomes), and collect information on data sources and collection.

Evaluation framework—Further to the evaluation planning meeting, a draft framework was submitted and additional PSC guidance provided.

Interviews and focus group—A list of stakeholders and partners was provided to the reviewers by the PSC (Appendix 2), which included seven ACT Government staff members. Reviewers attempted to contact four rural landholders and two Park Care representatives. In total two rural landholders and 1 Park Care representative participated in the review. In consultation with ACT NRM, a total of 16 telephone interviews were conducted. A further two respondents responded only with written comments to the questions posed. The questions are listed in Appendix 3. One focus group was conducted primarily with informants involved in scientific research and monitoring. Interviews took between 30–60 minutes and were conducted over a one-month period (19 June to 17 July 2017).

Key documents—From the commencement of the evaluation process, the primary author sourced and reviewed the key documents compiled in the reference list at the end of this report. Together with the collation and interpretation of interview responses, these reports form a strong evidence base to inform the review findings and recommendations.

Draft report—A draft report was submitted to ACTNRM’s Executive Officer on 31 July. ACTNRM subsequently provided written comments and questions for reviewers’ consideration.

Final report—Following feedback from ACTNRM and consideration of any additional information received, the report was finalised and submitted by 18 August 2017.

5. FINDINGS

Evaluation Theme 1: Appropriateness

The appropriateness of the BioFund project was assessed with respect to: the project's mission and goals and its linkage to broader strategies, its geographic focus, its partnerships and its governance arrangements.

Project mission and goals and its linkage to broader strategies

The stated aim of the project was to 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. In order to achieve this the project worked to integrate activities with the existing ACT Woodland Conservation Strategy (2004) and Woodlands Restoration Implementation Plan (2011) to protect and enhance the box-gum grassy woodlands through on-ground restoration and regeneration works.

Key woodland remnants/focal areas were identified across the ACT woodlands system and the Greater Goorooyarroo area, which straddles the ACT and NSW border and includes rural residential, urban areas and three nature reserves. In doing so, the project sought to tackle key threats to woodlands restoration through two main types of activities: enhancing existing woodland and improving overall landscape functionality through undertaking well-established techniques of planting, pest and weed control. However, the project sought to undertake these activities and tackle key threats to the woodlands through innovative approaches that followed the recommendations of the Woodlands Restoration Implementation Plan (TAMS, 2011):

- to restore and enhance whole landscape and whole ecosystem structures through landscape planning approaches that worked in unison with other relevant branches of the ACT Environment Directorate (such as invasive weeds and fire management), as well as paying specific attention to missing habitat elements for a range of species;
- work in cross-tenure including cross-border landscapes;
- implement activities and achieve outcomes in a collaborative manner with a range of diverse stakeholders, including rural landholders, NGOs, and community and Indigenous groups in such a way that recognised the range of landscape utilities and cultural values; and
- consult continually with scientific researchers at CSIRO, ANU and Mulligan's Flat-Goorooyarroo Woodland Experiment to ensure practices were in-step with the latest scientific findings.

In this review, the BioFund project's mission and goals were recognised by stakeholders as highly appropriate insofar as they complemented and built upon the existing restoration work already funded by the ACT Government and helped to bolster additional work, including in weed control, and restoration work where needed, such as direct seeding. This directly complemented the Million Trees project (which was only permitted to spend funds on tree planting) through enabling the provision of mid-storey planting and other important habitat/structural elements for enhancement, revegetation, and weed and pest control. Without this project, stakeholders noted that existing ACT resources would have been stretched and the project's high-level goals of building connectivity unlikely to have been realised. In particular, one informant noted that the project was highly appropriate in its weighting given to enhancement versus revegetation, and its design in matching the scale of works to available funds. Furthermore, stakeholders commented that the

goals and objectives of the project aligned well with broader plans and strategies, such as those on invasive weeds, fire management plans and national conservation strategies. Overall, informants noted that the mission and goals of the project were well aligned with the broader strategies of the ACT Government and communities, yet unique in terms of the focus on building connectivity within a landscape structure. This was noted as highly appropriate not only for the ACT, but for Australia more generally. Finally, the length of the project was noted as highly appropriate for what it was setting out to achieve.

Best practice use of science in decision-making

The ACT Lowland Woodland Conservation Strategy 2004 (Action 27) was the first plan that sought to incorporate conservation research at the landscape scale. Since that time, the ACT Government's overall approach to woodlands management and decision-making has been informed by ongoing scientific collaboration between the ACT Government, the Australian National University (ANU) and CSIRO (Mulligan's Flat–Goorooyarroo Woodland Experiment) at The Mulligan's Flat Woodland Sanctuary on woodland ecology and management. The BioFund project did not stand outside of this overall approach and benefitted from ongoing informal linkages to research communities with a specific interest in woodlands restoration research. Specifically, research by Barrett and Love (2012) on fine-scale modelling of fauna habitat and connectivity value in the ACT region, and later by Doerr *et al* (2014) whose research established the following rule:

- minimum gap distances of less than 150 m between scattered trees are needed to provide connectivity for woodland specialists and generalists, and common and at-risk bird species; and
- inter-patch distances of 1.0–1.3 km can limit the abundance of exotic invasive bird species.

This rule informed the project's initial planning work. Based on this, project planners sought to apply the recommended "150m/1.0–1.3km/10ha rule" to guide activities and achieve functionality for biodiversity in the landscape. In addition, research undertaken as part of the Mulligan's Flat–Goorooyarroo Woodland Experiment helped to establish the need for expanded landscape approaches to woodlands beyond ACT borders and within the much more fragmented cross-border rural landscapes of NSW.

The use of best-available science and modelling techniques was tempered by the realities of tenure and stakeholder consultations on the ground. Scoping missions undertaken in the early project planning stages identified that the practical feasibility of perfectly applying the 150m/1.0–1.3km/10ha rule were unrealistic (e.g. not acceptable to rural landholders or not aligned with their land management plans) at a number of sites. Stakeholders involved in project implementation noted that this does not diminish the likelihood of the rule from being fully applied in future, noting that connectivity models have helped to begin a conversation between the ACT Government and local landowners. This conversation may enable future efforts towards connectivity. Furthermore, some stakeholders expressed confusion about the appropriateness of some planned works and on-ground activities, especially with respect to enhancement work for mid-storey layers. This confusion related mostly to the merits of mid-storey plantings in relatively intact, well-protected areas where natural regeneration was observed – one interviewee expressed the view that greater focus should have been given instead to rehabilitation. While stakeholders involved in implementation agreed that the planned approaches and activities based on mapping and scoping works were appropriate overall, the project would have benefited from better communication and explanation of its scientific models to avoid the aforesaid confusion arising among community members. Further discussions between scientists, land

managers and community members would have assisted in building understanding and an 'inclusive' vision of the focus landscapes, in which scientific models should be used as the starting point in a process of considering different perspectives, practical issues and broader cultural values.

Geographic Focus

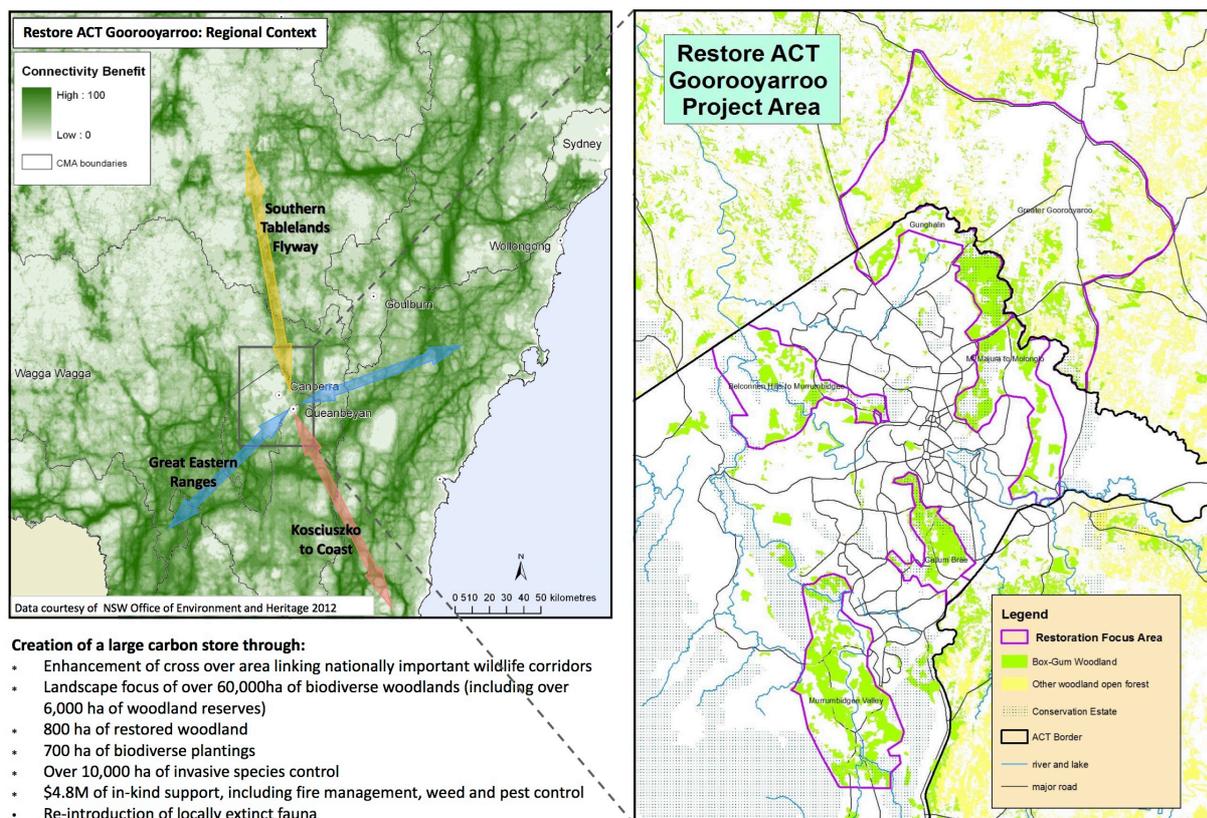
The 2004 Woodland Conservation Strategy identified broad landscape-level priority connections (corridors) (see Figure 1) to provide for wildlife movement as:

- Hall–Kinlyside–Mulligan’s Flat–Gooroo–Majura Valley–Jerrabomberra Valley;
- Jerrabomberra Valley to Rob Roy Range;
- Belconnen Hills to the Lower Molonglo River; and
- across the rural landscape by connecting woodland fragments.

The strategy also contained restoration and enhancement recommendations for five sites (see Figure 1):

- Gungahlin Woodland Complex (North Gungahlin, Gooroo-Mulligan’s Flat, Central Gunghalin)
- Majura-Kowen Complex (Mt Ainslie–Mt Majura, East Majura Valley, Kowen)
- Callum Brae–Jerrabomberra Valley Complex (Red Hill, Mugga Lane West, Mugga Lane East, Wanniasa Hills, Farrer Ridge)
- Tuggeranong–Naas Complex (Tidbinbilla–Booroomba, Rob Roy Range, Naas)
- North Murrumbidgee–Lower Molonglo Complex (Bulgar Creek, Uriarra, West Belconnen)

Figure 1: Biodiversity Corridors and Project Focus Areas



The BioFund project’s activities were focused in these identified areas and further refined by four scoping studies listed here in order of completion:

1. Black Mountain to Murrumbidgee (Greening Australia, 2011).
2. Greater Goorooyarro, including Gungahlin and cross-border landscapes into NSW (Total Catchment Management Services, 2013).
3. Majura Valley (Greening Australia, 2013).
4. Callum Brae, Kowen and South Murrumbidgee, including the Tuggeranong–Naas complex (Greening Australia, 2014).

The appropriateness of the BioFund project's geographic focus is in large part linked to the appropriateness of the ACT Government's overall Woodland Conservation Strategy 2004, coupled with the practical realities of tenure types and other land management considerations. As the strategy focuses yellow-box red gum, as one of the most threatened ecological communities in the ACT, most stakeholders considered the project's geographical focus to be broadly appropriate.

Case Study 1: The appropriateness of working off reserve - Clear Ranges case study

In 2011, aerial mapping identified 75 to 100 percent coverage of the invasive weed, serrated tussock across the Clear Range in the south east of the ACT, and its infestation in neighbouring NSW, as a result of the 2003 bush fires. This weed threatened to spread into Namadgi National Park and neighbouring rural land due to its adjacent location and prevailing winds, which spread seeds across lower foothills and into significant woodland habitat including areas of nationally significant yellow box-red gum grassy woodland. Previous invasive weed control had been dependent on the efforts of individual landholders, and intermittent grant funding. Recognising that the issue was 'landscape scale' in nature (crossing different land tenures - private and reserve land), the Biofund project brokered an approach to address the serrated tussock infestation and develop capacity and collaboration between various land managers to 'keep on top' of invasive weeds impacting upon woodland condition in the area over the long term. The project supported three landholders to undertake cross-property weed control planning, and also facilitated collaboration with the Parks and Conservation Service (National Park managers). The resultant plan was then part funded through the Biofund project: aerial spraying and intensive spot spraying by contractors targeted the main infestations of tussock on the higher and less accessible areas of the three properties. Greening Australia then delivered revegetation works in 2013 and 2015 (trees and shrubs) in treated areas to compete with and 'shade out' future tussock plants. The landholder contribution is an ongoing commitment to spot spray emerging tussock plants, allowing native species to outcompete these weeds. Parks and Conservation Service is undertaking complementary weed control on the reserve estate. Serrated tussock coverage has now been drastically reduced with the best sites containing less than one percent and other sites infested at a rate of less than 10 percent or less than 25percent. Native grasses such as red grass, wallaby grass, fleabane, great mullein and some forbs such as sweet hound's tongue are regenerating in the area. This case study illustrates how the project has worked with different partners to address landscape scale threats to woodlands.

Legacy of focal areas, the practical realities of coordination and opportunistic approaches

Within the ACT, many priority areas in the strategy were identified 10 years prior through ACT Landkeepers, Caring for Our Country (Commonwealth funding component) and the Natural Heritage Trust (NHT). Overall, focal areas within the ACT were perceived by a number of interviewees as 'low hanging fruit' on government-owned land primarily in need of some enhancement work but with good pre-existing connectivity between patches. The availability of additional funds and resources from the BioFund project, together with the serendipitous release of scientific findings on ecological connectivity by CSIRO researchers (Doerr et al, 2014) enabled landscape-scale interventions to be pursued and enabled greater engagement with rural landholders and lessees both within the ACT and at the cross-border focal site of Greater Goorooyarroo.

The project's geographic focus evolved to combine best-practice scientific recommendations with the practical realities of fire management, farmer grazing regimes, and other key factors that were important in determining the project's boundaries. As a result, activities often occurred opportunistically, particularly in the Callum Brae and Greater Goorooyarroo area, and at times, according to interviewees, outside of the focal areas. Where patches of woodland were identified close to or outside of focal areas that met the scientific

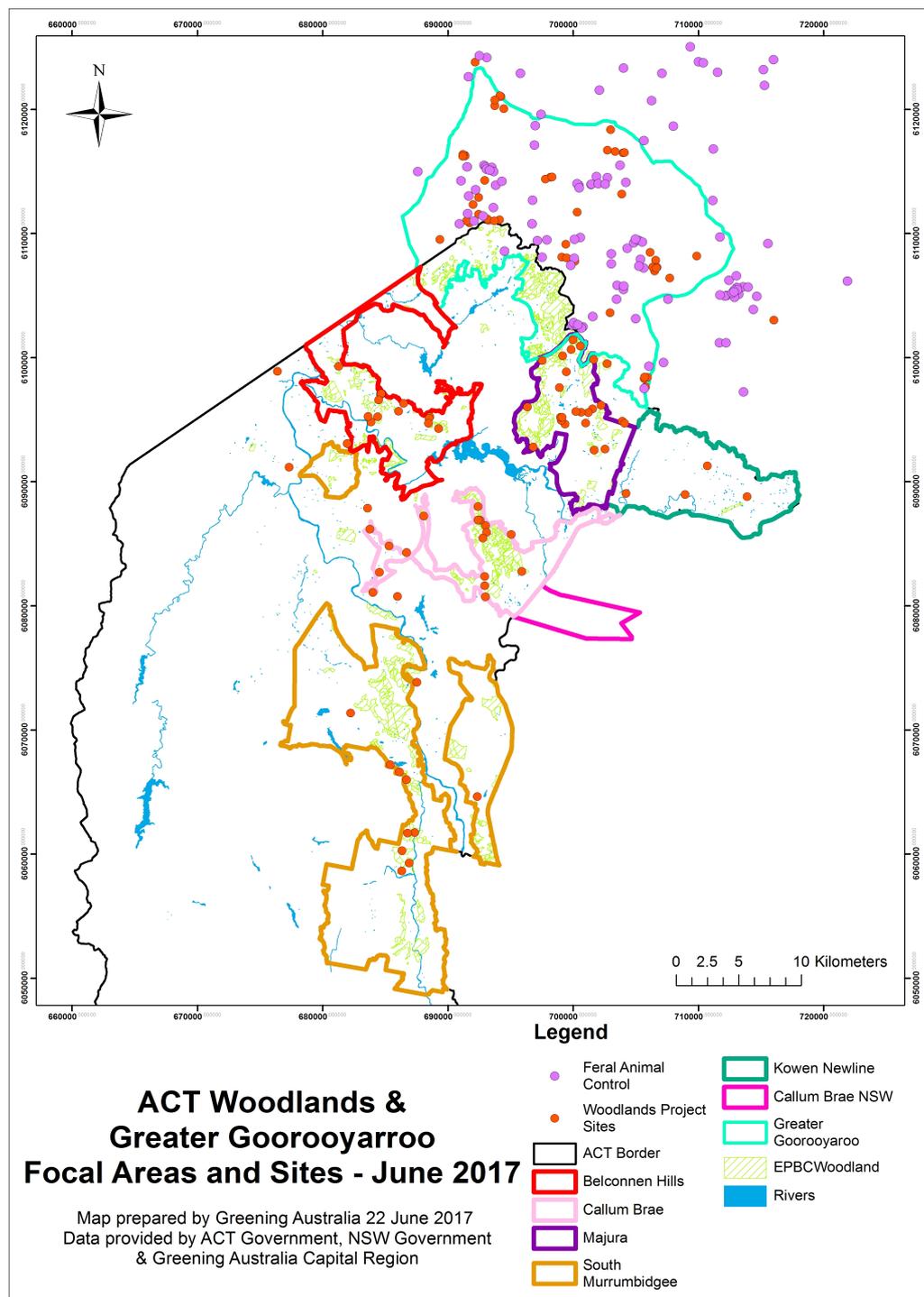
criteria and could be worked in quickly and without restrictions, these opportunities were seized. This opportunistic approach to the project's geographic focus may have helped counter the following limiting factors expressed by some stakeholders:

- Limitations imposed on the project in working with land put aside through the offsets policy (discussed further below); and
- Challenges in fitting project outputs into the needs of rural landholders (addressed here and in the following section on stakeholders and partners).

Some land that was suitable for woodlands restoration and enhancement was not included in the BioFund project because of the timing of the commencement of the ACT's Environmental Offsets Policy in 2015. This land was excluded with a view to ensuring the integrity of the offsets policy and to avoid conflicting objectives on the same parcels of land. This decision was taken despite the fact that land set aside as environmental offsets may not be required for another 20 years. This land included blocks that may or may not have had any restoration or revegetation activities carried out. In the past, the offsets issue therefore limited the extent to which the most appropriate land was targeted by the project.

Interviewees involved in planning and implementation perceived a trade-off between capturing the value for money from working on easier plots of land versus applying best-practice models for connectivity. Several interviewees suggested that a more appropriate focus would have been to give more emphasis to rural lands rather than reserves. As the final project map provided by GACR shows a high concentration of work in the cross-border landscape of Greater Goorooyarroo with rural landholders, these perceptions may be allayed to some degree (see Figure 2).

Figure 2: Final Project Site Mapping 2017



For some informants, the strong focus on the cross-border landscape of Greater Gorooyarroo was highly appropriate given the significant investments made at the adjacent Mulligan’s Flat Nature Reserve and the high degree of partially or substantially modified woodlands and grasslands present in the NSW landscape characterised by good ‘travelling stock’ patches (woodland patches designed to shelter and water cattle moving across the landscape prior to modern transportation) with regard to size. This presented the project with more scope to do works like feral animal control, which in turn resulted in better landscape outcomes for the ACT and more broadly.

Focussing on the Mulligans Flat – Gorooyarroo area and the wider landscape around it (including NSW) is totally appropriate for the woodland ecosystem.

If you take the borders off, it's the same landscape whether it is reserves with biodiversity in the ACT or remnant vegetation in NSW. Where we have suburbs they have grazing land. Connectivity is critical for both sides, reserves in the suburbs and vegetation in the grazing paddocks. Everything in between must be connected for biodiversity, without one you don't have the other.

The cross tenure and cross territory approach of the project was definitely appropriate in terms of consolidating and connecting threatened ecological communities and building collaborative working relationships. Boundaries on maps aren't useful. The nature of this is that the city and the ACT is surrounded by NSW.

The degree to which the geographic focus of the project was appropriate to the long-term aim of biodiversity connectivity remains, however, to be seen. Overall, the project began with appropriate, best-practice scientific data with respect to corridors for biodiversity and then worked to build on existing assets, and subsequently extend opportunistically beyond the initial focal area, including working with rural landholders on privately-owned land where possible.

Biofund helped us to point out the gaps especially with private land. Previously the government was reluctant to use public money on private land to control weeds even though it has a huge impact.

The focal areas for work were, according to one informant, 'carved up' with each area not large enough to sustain species in the long term. Functional linkages between these patches did not always occur according to scientific modelling as implementation efforts were limited by tenure, stakeholder interest and broader governance issues like the offset policy. As it stands, the broader geographic focus and key focal areas may not be ideally connected in terms of strictly following CSIRO's "150m/1.0–1.3km/10ha rule"; however, further research is needed to confirm this. A key element in judging the project's success will be the degree to which it contributes to wider landscape connectivity over time. As one stakeholder noted, modelling based on 30 years of past restoration efforts suggest that woodland areas are expanding. While landscape connectivity is a long-term goal, the project has made a positive contribution to that outcome over its 5-year period of activities ranging from tree and under-storey plantings, to the control of weeds and foxes. Finally, although this review is confined to the assessment of activities undertaken as part of the BioFund project's contribution to the ACT Woodland Conservation Strategy (2004), any final assessment of landscape connectivity should reasonably include the range of ecosystems required to support ACT's threatened species, especially grasslands, riparian areas and wetlands.

Partnerships and Stakeholders

The appropriate involvement of partners and stakeholders was a core objective of the BioFund project. Stakeholder engagement is often one of the most challenging aspects of any project. Overall, the project and its contribution to the broader ACT Woodlands Restoration Project involved a wide range of partners and stakeholders, which progressively diversified and expanded as the project developed. The original 2004 ACT Woodland Conservation Strategy was initiated at the request of community groups, including Park Care groups, Canberra Ornithologists Group (COG), and scientists. Community members, rural landholders and

lessees evolved to become key stakeholders to the project. The various partners and stakeholders and their involvement in the project are discussed below.

Canberra Ornithologists Group (COG)

From the outset, the COG was strongly involved in the project and, indeed, were credited by a number of interviewees with initiating the broader ACT Woodlands Restoration Project through appealing to the Chief Minister for the first phase of funding from the ACT Government of \$1 million over four years. This encouraged co-investment by the Commonwealth. COG was involved at critical points in the project, including reviewing and commenting on scoping reports, the mid-term review and ongoing M&E efforts.

Scientific and Research Community (CSIRO and ANU)

CSIRO and ANU, as key scientific research organisations, were primarily involved in the project through the ACT Government's formal research partnership with these institutions at Mulligan's Flat–Goorooyarroo Woodland Experiment. Findings and expertise from this project informed many aspects of project implementation. However, a number of stakeholders noted that the specific linkages between the project and research bodies were not formalised, but rather existed at a broader institutional level between ACT Parks and Conservation (located in Territory and Municipal Services Directorate prior to 2016) and Conservation Planning and Research (in the Environment and Sustainable Development Directorate). Having explicit arrangements between the project and research bodies was expressed by some respondents as desirable, especially in helping to establish long-term, formal M&E at specific project sites. More formal involvement between the project and research bodies may have enhanced the robustness of the project's M&E approaches for measuring its contribution to landscape-scale change at different time-scales.

Park Care Groups

Park Care groups are volunteer community groups established for people with an interest in the natural environment. These groups contribute to protecting natural sites within the ACT and the foreshores of Googong dam. The project benefitted from having a number of passionate and dedicated volunteer groups contribute to its planning and implementation. Park Care was involved with the project from having input into scoping studies to planting activities. The Park Care representative consulted for this review was extremely positive about the assistance provided by GACR and their overall involvement. However, suggestions were raised by other stakeholders involved in project management that Park Care Groups could have been engaged beyond particular sites, educated on the landscape-related aims of the project, and used to help advocate landscape-scale visions more broadly within the community. Follow-up with these groups regarding the scoping studies compared to the actual activities undertaken was also noted as an area for improvement.

Rural Landholders

As the project unfolded and evolved, a greater number of stakeholders became involved. Rural landholders and lessees came to be seen as integral to the success of the project as many of the actions identified as necessary for the project's success needed to occur on private land, which had historically been excluded from publicly funded conservation efforts. The degree to which rural landholders and lessees were appropriately involved in the project was to some degree a function of their interest, education about woodlands and therefore demand for assistance with conservation works on their land. Overall, it was noted that there was (and is) strong demand from rural land managers. According to informants, the engagement

approach undertaken in the cross-border landscape of Greater Gorooyarroo was particularly appreciated by NSW landowners, the majority of which commute frequently to Canberra and are cognisant of the differences in funding between ACT and NSW in conservation and the control of weeds and pests. The project had a two-pronged approach to engagement with rural landholders on either side of the border, with a much more involved consultation process employed for NSW than in the ACT. Working with rural landholders was noted as one of the more challenging aspects of the project with a number of informants noting that the initial focus on working through rural landowners' associations meant that a number of rural landholders who were not part of these associations were missed. Rural landholders may therefore have been better engaged earlier on in the project and through other mechanisms and pathways in addition to formal associations.

Indigenous Communities

It is estimated that there are thousands of places of Indigenous cultural significance throughout the Canberra landscape (ABC News, 2016). A number of sites are still actively used by Indigenous groups while other sites remain unpublicised due to fears of vandalism. The inclusion of Indigenous groups in project implementation was stated upfront as a core objective of the project, and helped to align the project with national goals and objectives like those of Caring for Country. In 2012, a formal consultation was undertaken and draft discussion paper produced on Aboriginal engagement in woodland restoration in the ACT and Greater Gorooyarroo. This report identified a total of 10 opportunities for engagement with Indigenous groups: five of which were noted as a priority (cultural heritage tours, protection of sites, caring for country employment and training register, cultural and social mapping); three identified as partner-led engagement opportunities (woodland interpretation, cultural workshops and cultural field days) and two that required additional funding (Aboriginal employment, ecological and cultural training and monitoring).

Of these recommendations, a total of five were undertaken. These included cultural heritage tours, protection of sites, woodland interpretation, cultural workshops and cultural field days.

It should be noted that the cultural tours were initiated independently of the Biofund Project by ACT Catchment Groups (funded through ACT Government Heritage Grant funding). Catchment Groups and Traditional owner groups have also supported site protection works and cultural events independently of the Biofund project.

Throughout consultations, it became apparent to project managers that many in the community needed more time to consider how woodland restoration and connectivity related to cultural knowledge and practice and community members needed more opportunities to think about, discuss and re-discover cultural knowledge. Consequently, project managers decided that an initial first step towards this would be to earmark a proportion of the BioFund project to fund a full time position for an Indigenous project officer within Greening Australia. This position was initially funded for three years, and is now a permanent Indigenous Education and Training officer position within Greening Australia (funded by Greening Australia). The project officer's employment provided local traditional custodians within the region with a dedicated pathway for project involvement and information about activities being undertaken across the landscape. The project officer engaged appropriately with the community – communicating Indigenous perspectives on cultural linkages to country to project implementers, and communicating project objectives, issues and potential benefits back to Indigenous communities. The degree to which the project involved Indigenous

community members appropriately throughout the project depended to a large extent on this dedicated project officer role. Some respondents thought that broader engagement may have resulted if additional funding for Aboriginal ranger positions had been available. Ongoing cross-collaboration between Indigenous employees within GACR and ACTPCS and with academic researchers was expressed as a desirable way of improving Indigenous involvement. Additionally, dedicated Indigenous community planting activities and more tangible benefits, including employment or Indigenous procurement avenues such as Supply Nation, could be explored in future.

Catchment Groups

Two catchment group representatives interviewed for this review were among the least satisfied with the project, its framing and their level of involvement. A total of three catchment groups in the ACT and NSW were relevant to the project: Ginninderra, Molonglo and Southern ACT. Molonglo catchment group did not participate in this review. These groups, established between 1997 and 2003, were created as community-based associations aimed at supporting and coordinating the range of different stakeholder groups involved in Land Care and conservation across tenures and at the catchment level. Overall, catchment group representatives reported that given their long-standing history in coordination and representation of the community at the catchment or landscape level, the degree to which they were involved was inadequate and, therefore, inappropriate.

Catchment representatives interviewed reported that avenues for their involvement were not explicit and that they felt unsure of the role that they could play to support the project. They noted that although a number of their members became involved in project activities, at the strategic planning level representatives felt that they were in direct competition with the project and the ACT Government more broadly. Catchment group representatives queried why the project was delivered through GACR and not Ginninderra and Southern ACT catchment groups, which in their view may have improved the level of community engagement and the overall legacy of the project. These groups noted that while the activities and technical framing of the project was good (although at times misdirected to planting over weeding), the governance of the project (addressed in the following section) was lacking. Had catchment groups been involved more closely with the project, representatives felt that engagement with rural landholders would have been more effective, landscape-level planning and approaches more coherent, and the long-term community ownership of the project bolstered. At a minimum they suggested that the project should have coordinated more closely with these groups to maximise positive impacts.

Overall, catchment groups expressed frustration at what they described as a 'lack of natural resource strategy', a responsibility they believe that should lie with ACT Government and should involve the coordination of activities by all groups involved in NRM across the territory. They noted that without a clear strategy and supporting policies there were no obvious avenue for their participation or capacity to deal with issues at a regional level.

Missing Groups? Local Councils?

Evaluating whether the project involved appropriate stakeholders and partners also requires identification of those who did not participate but may have made a valuable contribution to the project. NSW local councils is one group of missing stakeholders that was identified by an interviewee during the review process.

Opportunities to work on council landholdings and/or align complementary projects may have been missed and could have helped broaden the impact of activities.

Core stakeholders and the PSC: project administration and governance

The core managing partners of the project and PSC were ACTNRM, ACTPCS and GACR. Their roles were as follows:

- ACTNRM coordinated funding and reporting, oversaw the project and its links with the Commonwealth's Department of Environment and Energy.
- ACTPCS helped implement the project and worked to ensure coordination with other areas of the ACT Government, including bushfire management units, invasive weeds and other relevant planning areas.
- GACR was the primary implementation partner, including planning and executing the project at individual sites and overseeing the network of volunteers and other stakeholders involved in on-ground activities.

Three senior individuals from within ACTNRM, ACTPCS and GACR formed a close working relationship as the PSC. This small team worked well together from a project management perspective to ensure direct lines of communication were available to achieve coordinated outputs and integrated reporting within the specified timeframes.

These core partners were consistently praised by a number of interviewees for their performance in managing the project, engaging with partners and stakeholders and efficiently implementing the project. This was noted as particularly outstanding given that project implementation and stakeholder engagement were perceived as outside of the typical purview of these particular ACT Government agencies. Within the ACT Government, the project was considered unique in its ability to quickly and effectively coordinate across policy, planning and implementation. Indeed, the project's demonstrated success in this regard was credited with affecting a cultural change with respect to collaboration and integration more widely within the ACT Government.

It changed the culture with ACT Parks to a landscape connectivity approach. It changed the way we work as an organisation. The project was very strategic in its approach; it was strategy driven. The change in culture was very significant. It has been a highlight of working here. It was transformative in nature which meant it attracted good people.

External perceptions of project governance were equally positive (with the exception of the aforementioned catchment groups), with one close but independent project observer commending ACT project managers for their reflective approach to governance and deft handling of partners and stakeholders. This capacity was noted as being of particular importance once the project moved towards greater engagement with private landholders. Yet it was this aspect of the project that presented the greatest governance-related limitation in that the project's scope was confined to delivering on-ground environmental outcomes and had policy component (or allocated funds) for addressing the wider planning issues and drivers of land use and land use change.

The main limitation associated with being able to expand and make connections across the landscape

is engagement with broader land planning processes. There has never been good connection between environment planning and other types of development planning and that's not unusual. That is everywhere. The BioFund project was dedicated to on ground work, not work at the policy level. It is difficult to get land planning to the table. The BioFund came from the Commonwealth and had no appetite to devote funding to anything except trees in the ground and some community engagement. There are strict controls around this and for the M&E of funds, on project administration. There is no provision for any funding to be used for new or better governance arrangements and in this way the hands of proponents are tied. The Commonwealth Government wants success stories: weeds controlled and hectares of planting. The short answer is that the ACT Government has done a fantastic job pushing the boundaries as much as they could but were highly limited by the types of things that are out of their immediate control.

Evaluation Theme 2: Efficiency

The efficiency of the BioFund project was assessed using the following categories: 1) early project start-up activities, 2) inputs and outputs, 3) staffing arrangements, 4) internal and external collaboration, 5) financial administration, 6) M&E and reporting, and 7) knowledge and adaptive management.

Early project start-up activities:

The project was challenged during the inception phase in how to best integrate resources (human and financial) and planning approaches with the existing ACT Woodlands Restoration Project (2011-2015). A part-time project officer from ACTPCS, who was assigned to oversee implementation of the ACT Woodland's Restoration Project, was also assigned to oversee the much larger BioFund project. The arrival of BioFund project money significantly expanded the scope of the project and interviewees noted that it quickly became evident that the role required a full-time and more senior officer to coordinate funding, activities and management. This was arranged within the first year.

Ideally, funds from both the ACT Treasury and the Commonwealth's BioFund initiative should have been managed by a single entity to achieve coherence in how the two different funding sources were applied across the landscape in practice from the outset. Although stakeholders reported that this eventually occurred, primarily as a result of productive working relationships between the three main managing entities of ACTNRM, ACTPCS and GACR, streamlining between the spending of the two funding sources occurred as a matter of professional will to 'make it work' rather than by initial design.

Financial administration, including transparency

The financial administration of the project was also complicated by the two different funding envelopes available from the ACT Government and the Commonwealth and the respective rules, reporting, and acquittal processes that each demanded. While ACT Government funding applied a procurement model based on services purchased on an 'as needs' basis, the BioFund initiative applied a project model with funds released on a milestone basis. Initial concerns that this would lead to competition for sites between ACT and Commonwealth funds were overcome through creative approaches to providing different restoration elements with different funds.

The ACT project funds enabled coarse woody debris to be placed within the landscape, whereas BioFund

could not be used for that purpose. The BioFund money could not fund coarse woody debris....So we paid for site prep with the ACT money because the BioFund would only fund plants but not prep. So we played with the different funding in terms of what was allowed. We got what we wanted to do on the ground by working out who could pay for what.

While administratively complex, some stakeholders viewed the different funding streams as advantageous in that the different funds enabled a wider range of activities across the landscape, with different funds clearly targeted to specific outputs.

Financial reporting, transparency and accountability were monitored using the Commonwealth's online reporting system (MERIT) on a 6-monthly basis. Interviews with Commonwealth staff noted that reporting and financial transparency were all conducted to a high standard.

Outputs delivered

A total of \$2.155 million funding was awarded to the ACT Government for a 5-year period (2012-2017) in response to their successful BioFund project proposal to restore a number of woodland landscapes across the ACT and adjacent NSW. Inputs for this work included:

- Site assessment (including advice and support to landowners through sharing of resources, knowledge and networks.)
- Large woody debris placement
- Connectivity modelling
- Volunteer engagement
- Indigenous engagement
- Rural landholder engagement
- Communications materials and advertisements
- Invasive species control
- Strategic bushfire management plans
- Fire management guidelines for land management activities
- Species selection and propagation
- Site preparation
- Revegetation: tube stock, machine direct seeding, assisted regeneration

The initial project proposal targets submitted to the Commonwealth were:

- 700 hectares of revegetation
- 800 hectares of enhanced woodlands
- 10,000 hectares managed for invasive species (including feral animals).

These outputs were achieved through a number of well-established restoration activities and techniques such as direct seeding, tube stock planting, stock exclusion fencing, and control of weeds and vertebrate pests. These activities and techniques were identified through three scoping studies in the ACT and one long term community facilitated strategy in Greater Gorooyarroo in the cross-border region.

The end of project figures provided by GACR addressing funding from both the Biofund project and the ACT

Woodlands Restoration Project noted the following combined project achievements:

- Revegetation of 909 ha
- Enhancement and protection of 844 ha of woodland remnant (including 4,415 tonnes of coarse woody debris distributed)
- 28,548 tube stocks planted
- 101 km of direct seeding undertaken
- 4,494 ha of invasive species control
- 9555 ha of feral animal control
- 18 rural landowners engaged, 43 schools, community groups or organisations
- Establishment of 10 monitoring sites targeting a range of different types of treatments and intervention methods have been established and will continue on a three-yearly basis or as appropriate (draft woodland's review).

Feral animal and weed control was undertaken by ACTPCS across woodland reserves and on rural properties by landowners adjoining reserves, where the landowners have made a commitment to do follow-up control. Landowners were also supported to control Serrated Tussock and Blackberry in particular, along with other woody weeds, such as Hawthorn and Firethorn, within woodland remnants.

When discussing project efficiency, interviewees noted that delivery was relatively straightforward given the flexibility allowed through milestone payments and the ability to work across very broad geographical areas, to meet defined proposal targets listed above. Project implementers noted that targets were met relatively early in the project, and the project was able to then concentrate on more strategic sites to enhance connectivity, particularly areas adjacent to river corridors and on rural properties.

Delivery was relatively easy because it was so flexible and it covered a range of things from advice down to tube stock. I don't think we would change anything about the way we did it.

Staffing arrangements

Once initial staffing arrangements regarding project oversight within the ACT Government were resolved, no other issues concerning staffing arrangements were reported. Staffing arrangements for project management and oversight (discussed in appropriateness section) included the PSC, which comprised senior officers from ACTNRM and ACTPCS and a senior manager from GACR. The central liaison role in terms of broader landscape-scale strategy and implementation sat within ACTPCS, which helped in streamlining planning processes and implementation with GACR. Within GACR, staff reported a high level of rapport with the core team involved in the planning, implementation and management of project activities, including engagement of volunteers.

Internal and external collaboration

Internal Collaboration

The central liaison role of the senior ACTPCS officer was highly praised in enabling the project's overall level of efficiency. It was noted by some informants that bureaucratic structures within government can often overwhelm good intentions for cross-agency collaboration, but that the centralised roles of the senior

officers helped to leverage across agencies and enable coordination and integration across policy, science, research, planning and implementation aspects of the project. These centralised roles were credited with enabling a culture of collaboration within the broader ACT Environment Directorate and the achievement of project targets well ahead of schedule. More than one interviewee declared their participation in the project to be a career highlight.

Often what happens is that bureaucracy gets in the way, but with this project the rangers put in request and it happened. We had a 10-year plan but suddenly the funding became available so quickly and streamlined that we completed it in 3 years.

External Collaboration

Volunteers were considered an integral part in the delivery of project outputs. Outside of core stakeholder groups the project worked with a diverse range of volunteers, landholders and organisations, including Girl Guides, Shooting Associations, Indigenous groups, and other community groups. More than 15 Land Care and Park Care groups were engaged in the project. Volunteers came from a diverse range of backgrounds from new lifestyle block holders to elderly farmers seeking to give back to the environment. Greening Australia's nursery volunteers also assisted the project through plant propagation, weeding, and thinning of seedlings that have been planted during this project.

A number of interviewees, noted the efficiency with which works were organised and conducted by GACR and their volunteers.

I have nothing but praise for the way they run the planting, having organised a planting before by myself. I know that doing this is not easy.

We were very satisfied with the project management, everyone who turned up was skilled and enthusiastic. The sites they chose were just right and they were quick, they had the right equipment, water and the whole works. I was amazed at how efficient the whole thing was.... They knew what they were doing.

Monitoring, Evaluation and Reporting

M&E Outputs

Ten monitoring sites have been established across the focal landscapes in order to compare a range of intervention methods against a control site. Monitoring design was developed in conjunction with the ACT Environment Directorate's Conservation Planning and Research (CPR) and includes assessments for species survival, vegetation cover, woody debris, and bird surveys. Monitoring is scheduled to continue at 3-yearly intervals. Given that some project outcomes may take many years to be realised, BioFund project staff aimed to establish straightforward and readily replicable M&E techniques and approaches. The project employed a commonly used biometric monitoring tool, which is anticipated to be applied at 3-yearly intervals subject to funding availability. M&E sites have been located primarily on reserve land, in part because conducting M&E on private landholdings presents significant challenges. Finally, one stakeholder noted that further differentiation between enhanced or newly created biodiversity connections is needed. This stakeholder also noted that 'degrees of connectivity' could be further established for different species and between different

types of eco-systems.

Reporting

Stakeholders noted the difficulties presented by a change in reporting frameworks from paper based to MERIT halfway through project implementation. However, reporting changes did not obscure the overarching narrative of adaptive management of the project and a number of project observers noted that variations between the original project plan and project implementation were well justified. Overall, reporting from the ACT Government to the Department of Environment and Energy was commended as richly detailed, and providing a strong narrative of adaptive management within an evolving context on system-wide change.

Long-term M&E

The need to align M&E approaches with ongoing university research and within the ACT Environment Directorate's plans for conservation effectiveness monitoring was noted as an area for further work to extend learning beyond the close of the project. Overall, project-level M&E may not reveal the full extent of influence the project may have had at the landscape level (Watson et al, 2017). In order to answer longer term M&E questions at the landscape level additional funding may be required and M&E efforts may need to be undertaken within the framework of conservation effectiveness monitoring within the ACT Environment Directorate and with other scientific research bodies.

Knowledge and Adaptive Management

The Role of Mulligan's Flat–Goorooyarroo Woodland Experiment

The Mulligan's Flat–Goorooyarroo Woodland Experiment played an integral part in knowledge development and adaptive management of the project. This partnership between the ANU, the ACT Government and CSIRO has enabled long-term research about woodland restoration and management, especially regarding biodiversity outcomes and values associated with species reintroduction. Research findings, especially regarding biomass management through the addition of CWD to landscapes, feral species exclusion, grazing impacts and woodland restoration techniques, resulted in changes to the ACT Government's broader woodlands restoration works and management, including those carried out under the BioFund project. In essence, this site served as an incubator of ideas and knowledge that enabled the collaborative generation and application of knowledge in other areas.

Case Study 2: Research to management – the case of coarse woody debris

Coarse Woody Debris (CWD) has been removed from lowland woodlands since European occupation and can take a long time to accumulate. CWD (or fallen timber) plays a major role in the structure and function of temperate forest ecosystems, particularly for biodiversity as shelter and foraging sites (Manning, 2007). The Mulligans Flat-Goorooyarroo (MFGO) Woodland Experiment was established to improve understanding of temperate woodlands restoration which included conducting research on the role of coarse woody debris (CWD) in restoration efforts. This research looked at factors such as arrangement, placement, amount, size, type and age class of CWD. Studies at the MFGO showed that 20.5 tonnes/ha in clumped arrangements with a variety of age classes is beneficial to biodiversity.

ACT Parks and Conservation Service implemented this research across ACT through funding from the ACT Woodland Restoration Project. The aim was to place 20 tonne/ha of large hardwood logs in clumped arrangements in targeted areas. The CWD comes from a range of eucalypt species and age classes. A number of considerations were taken into account including threatened species, heritage sites, rare plants, fire, recreation and fire wood collection. Some of the challenges of implementing this project included sourcing suitable CWD, cost of transport and placement, finding suitable storage areas, and logistics such as steep terrain and wet weather. During the course of this project approximately 4500 tonnes of CWD was placed at 185 sites within 11 nature reserves and on rural land. Placement of CWD as part of restoration projects is now common practice where funding is available.

Mid-term review

In August 2015, a mid-project review was undertaken. Participants included representatives from the ANU, CSIRO, COG, the ACT Government, GACR and the Southern ACT Catchment Group. The review identified emerging research, policy and program priorities for woodland restoration in the region and identified people and partners best suited to progress action. Research priorities related to further connectivity monitoring scales as well as connectivity between other types of landscapes, the effects of different treatments, and the writing of guidelines. Policy priorities included updating the existing over-arching strategy and the development of policies related to CWD, rocks, and containment of domestic pets. Program priorities included a large range of expanded land management activities, including new areas, changes to existing approaches, enhancement of breeding and habitat sites, introduction of new techniques, and incentives for landholders.

Adaptive Management

Adaptive management was considered a hallmark of the project by a number of interviewees who noted that project staff and stakeholders sought to continually improve the project and align its impact with spending and research on woodlands in the ACT. This was noted as a function of the direct feedback loops that existed between different internal and external collaborators; from ACTPCS to project administrators, implementers and scientists, as well as the longer time frame of the project. A much-cited example of this is the story of CWD. Scientific findings from Mulligan's Flat-Goorooyarroo Woodland Experiment provided a strong evidence base to show that CWD is important for habitats. Findings provided benchmarks for quantities needed across a landscape (Manning *et al*, 2013). Given the weight and bulk of CWD, project implementers were faced with the challenge of working out the logistics associated with distributing tonnes of CWD across the ACT and cross-border landscapes. A range of machinery was trialled to establish the most cost-effective

techniques for minimising disturbance to habitats. Overall, the ability of project staff to leverage ACT funds, corral scientific findings and coordinate trees planted by the BioFund project with the delivery of other habitat elements funded by the ACT Government across a range of tenures was a distinctive feature of the project's adaptive management.

By way of synthesis of the above efficiency findings, one particular interviewee provided insightful comments on the degree to which the current funding environment is conducive to the aims of wider landscape outcomes.

No one has any money to do any discretionary work anymore. NRM groups do not receive any standard operational funding...anymore. This means that everyone must develop a plan to implement without money. Groups have to look at what money is out there and patch it together with a range of different funds, models and objectives through appealing to different buckets of funds in such a way that will allow you to patch it all together. In this way, the BioFund helped to achieve a degree of spatial coordination through matching local land services and landscape conservation initiatives to try and achieve a broader objective.

Evaluation Theme 3: Effectiveness

The effectiveness of the BioFund project was evaluated in terms of cost-effectiveness perceptions and project outcomes, namely institutional and capacity-related outcomes, land management outcomes, landscape-scale change, and outcomes linked to complementary projects. The assessment of cost-effectiveness was not a requirement of this evaluation; however, we are able to provide some limited comments in this regard further to feedback from interviewees.

Cost-effectiveness

The initial proposal for the BioFund project was assessed for cost-effectiveness prior to its approval for Commonwealth funding. This assessment included the degree to which the project was likely to contribute to broader landscape-scale objectives as well as its capacity to leverage other funds and activities. The project was rated highly against both of these measures. Once implementation commenced, the funding agency noted that its cost-effectiveness was comparable to other projects based on a dollars-per-hectare metric.

A number of stakeholders expressed the opinion that they regarded the project as very cost effective. One informant, however was of the opinion, that implementation by GACR was higher on a per tree basis than for other tree planting programs due to higher administrative costs associated with volunteer involvement. Volunteer involvement was considered an effective approach by stakeholders for achieving the long-term objectives of the project, especially associated with the development of a shared landscape vision among stakeholders.

Project managers noted that cost-effectiveness was enhanced through its requirement for in-kind contributions from both the ACT Government and rural landholding participants. This provided for a minimum level of commitment to immediate works and future responsibility for areas of project activity. We note that the project's cost-effectiveness extended beyond the in-kind contributions associated with planting

and managing trees in the ground to the range of outcomes that follow.

Outcomes

The following project outcomes garnered from interviews with stakeholders are divided into four main areas: institutional and capacity-related outcomes, land management outcomes, and landscape-scale change and outcomes linked to complementary projects.

Institutional and capacity-related outcomes

The project affected high-level institutional change in the way that landscape connectivity is approached by key organisations in the ACT. Project staff and other key ACT Government staff noted that the project enabled new ways of working with regard to how to plan and consult across a landscape and across different land tenures. The project was credited with enabling greater coordination between policy, planning and project implementation areas and in creating a shared sense of purpose and good will between coordinating units. As a consequence, many units provided their time in-kind and additional resources to the project. This was noted as a highly positive outcome and achievement, with one interviewee noting that the reverse is often true in unsuccessful projects, where a degree of cost shifting may occur. In essence, the project created institutional connectivity between different areas of the ACT Government and among core stakeholders.

Stakeholder outcomes

Strong stakeholder engagement outcomes were noted by the majority of interviewees as a core outcome of the project. In this sense, the project was widely viewed to engender more than just ecological connectivity but community connectivity as well. In short, the development of a shared landscape vision has translated into greater connectivity across ACT government agencies and community stakeholders as a result of the shared learning experience of better understanding how woodlands connect. As a result, robust and collaborative relationships have been forged beyond the boundaries of ACT Government units and within wider groups or communities of interest. Beyond the immediate community of interest, wider community-based events and information days have worked to broaden the general public's interest in woodlands conservation work. Stakeholder engagement has helped build momentum, awareness, support and enthusiasm for further collaboration in future projects. Woodland enhancements undertaken by the project in urban reserves was noted as particularly useful for generating wider community interest and engagement. While working with private landholders has increased the appreciation of some rural landholders for landscape-scale connections, and the idea that small changes can have a big impact to habitat ecology and species survival.

Land management outcomes

The project was commended by many interviewees for affecting broad-scale operational changes (e.g. biomass management through the addition of CWD to landscapes, feral species exclusion, grazing impacts and woodland restoration techniques) to the way in which land management is approached and interventions made. The project has demonstrated and enabled new techniques informed by a strong evidence base created by the Mulligan's Flat–Goorooyaroo Woodland Experiment to be introduced and rolled out across the work of ACTPCS and GACR activities. This was particularly the case with woodland enhancements, including the introduction of CWD, but also new techniques for under- and mid-storey planting, and importantly leaving or replacing tree remnants and trunks in the landscape. Understandings of restoration objectives for woodlands and their functions has changed, particularly in light of new scientific

thinking around the need to support ecosystems to adapt to a changing climate. This has meant that woodland function, structure and heterogeneity is now the larger focus instead of, for example, whether or not a tree or shrub is native to the area. In addition, the project has assisted with ongoing work carried out by ACTPCS on invasive weeds with modelling showing direct project benefits from weed control through adding complexity to existing woodland structures. The greatest outcome repeatedly noted by respondents for this review was the increased receptivity of the ACT Government to plan across tenures and work with rural landholders and in cross-border environments to achieve 'tenure blind' landscape scale outcomes in restoration and biodiversity connectivity.

Land management outcomes should also include threat reduction measures. Although the project worked to coordinate the invasive weeds unit and bush fire management units, other threats to woodlands (including control over feral cats and foxes and broader planning processes) continue to pose a threat to the woodlands landscapes and further consolidated, ongoing efforts will be required. Nonetheless, respondents noted that the landscape is now in a better condition than before the project.

Landscape-scale change and outcomes linked to complementary projects

The landscape-scale outcomes of the project will likely take a number of years to manifest. While a technical assessment of this outcome is outside of the scope of this participatory review a number of informants noted that connections have been enhanced or created in a number of previously isolated areas such as The Pinnacle Nature Reserve and Urambi Hills which are now better connected to the wider reserve network. This review notes the need to undertake a more thorough review of connectivity.

Achievement of landscape-scale outcomes have also been identified between Mulligan's Flat and the cross-border areas near Goorooyaroo Nature Reserve through securing significant connectivity areas between these two areas. Another important outcome has been the use of connectivity models to negotiate with Roads ACT to include two large wildlife 'tunnels' to be incorporated into the design and construction of the new Majura Parkway.

Working in the cross-border landscape was considered by many as one of the biggest landscape-scale achievements of the project. Although the same landscape, the administrative border between ACT and NSW previously provided an administrative and political barrier for woodlands and conservation efforts funded from the ACT. Previously, this hampered the effectiveness of conservation and connectivity efforts. The support provided to committed landowners outside of administrative boundaries will likely have ongoing landscape-scale impacts and has extended the possibilities for future cross-border collaborative work. The ACT has continued to invest in cross-border woodland connectivity efforts, including to the east of the ACT border.

Million Trees

From the outset, Million Trees project work was included in planning approaches for the BioFund project. Interviewees noted that some sites (or adjacent sites) planted 7 to 8 years ago through the Million Trees project were subsequently targeted by the BioFund project for enhancement through understorey planting and CWD. In addition, ACT Government staff overseeing the Million Trees project helped identify and refer BioFund project staff to rural landholders in adjacent areas receptive to conservation efforts. These efforts

were also combined with weed control led by another ACT Government unit. Ideally, the sequence of activities should move from weed control to tree planting and then further revegetation and enhancement of habitat structures. Although this ideal sequence does not always occur due to various factors, the BioFund project enabled better land use planning approaches and revegetation in areas around Million Trees sites. For example, the Million Trees project focused primarily on riparian areas, while the BioFund project's activities often worked in adjoining, often sloping areas. This enabled improved weed control for the Million Trees sites. Revegetation adjacent to Million Trees revegetation efforts helped extend the linkage of vegetation from the river corridor to woodlands. However, project implementers noted that, for the most part, the projects tended to work in different areas with the majority of the BioFund project's work focused to the north-east of the Territory, while the Million Trees project focused more on the lower Cotter Dam catchment areas and towards the southern areas of the Murrumbidgee river. Some interviewees felt that linkages between these two projects could have been further enhanced through greater consultation.

Evaluation Theme 4: Future Opportunities

In this section, interviewees were asked to consider what they would change if they were to run the project again: what strengths of the project would they further emphasise, which weaknesses would they shore up, opportunities to further capture and threats minimise. Answers to these questions have been organised according to institutional and capacity-related approaches, stakeholder engagement, land management approaches and landscape-scale actions.

Project Management

Suggestions from interviewees coalesced around three main areas. The first of these was the suggestion that policy approaches and guidelines from the project be further articulated to ACT Government land managers to institutionalise the many positive lessons learned from the project. Interrelated with this suggestion was the proposal that the strong linkages between scientific advisory groups at Mulligan's Flat–Goorooyarroo Woodland Experiment, the ANU and CSIRO be formalised further to ensure future ongoing linkages outside of current strong professional ties. The second issue raised related to project planning and associated budgeting. Here it was suggested that the allocation of project funds be tapered overtime with less funding required upfront in the planning phase. Finally, a number of interviewees suggested a greater emphasis on the production of communication and outreach products to broaden the interest of and engagement with the wider community, especially the manner in which scientific findings are interpreted in order to make these communication products more broadly accessible. Clear and regular communication of project achievements was noted as an area for improvement along with tips and techniques about habitat structure complexity based on scientific findings (e.g. leaving fallen or dead trees in place) in a form that may be readily used by the broader community.

Stakeholder Engagement

More effective approaches to stakeholder engagement was emphasised by a number of stakeholders. This included the suggestion that connectivity modelling work, be the starting point for greater participatory engagement. Interviewees suggested early (even prior to project commencement) and concerted engagement with all participants to help foster a sense of co-ownership that would greatly improve outcomes in future activities. An internal strategy may be beneficial for clearly articulating Environment and Planning Directorates approach to working with land planning authorities, including strategies around deal

with competing land use demands.

Greater involvement of Indigenous groups was highlighted as a potential area for improvement, through additional employment opportunities for Aboriginal ranger positions. Although the project helped to increase Indigenous employment through funding an Aboriginal position, further employment prospects and training possibilities would help align the ACT Government's efforts with national initiatives towards closing the gap, Indigenous procurement policies and Caring for Country.

The need to work entirely off-reserve and engage landowners both within and outside of the ACT Rural Landowner Association to broaden rural landholder involvement, was noted by some informants, especially due to increasing trends towards lifestyle blocks on the fringes of Canberra. Targeted workshops, information sessions and educational packages were suggested as needed, given the high level of churn experienced in these areas. The continued fragmentation of larger rural areas into lifestyle blocks in the Greater Gooroyarroo area was identified as a growing pressure on the land and a major threat to the legacy of the project, compounded by those new rural residents who come to discover that the high demands of land management is incompatible with their lifestyles. Opportunities may also exist to develop new approaches in collaborative ways by working with those private landholders who are receptive to more experimental activities.

Land Management

Focus group discussions identified integrated pest management approaches as the biggest land management challenge to increasing biodiversity connections. Fox and cat control was highlighted as among the highest priority, along with communications and education materials targeting the wider community. Any new proposed changes (especially affecting cat control) would need to include social research and understanding of what people are willing to accept. Beyond this, approaches to restoring heavily degraded sites need to be developed, especially methodologies for rapid remediation. Among the range of land management approaches suggested for follow up were increased M&E of sites to identify the mechanisms of decline among specific species and to identify what functional connectivity means for different threatened species.

Landscape Level Change

At the landscape level, informants suggested that any future approaches will need to continue to leverage and link with other projects in order to achieve landscape-level outcomes. A key challenge for this will be to maintain momentum until a new funding stream is available. In the meantime, the danger exists that it will take time to reinvigorate community interest and enthusiasm. As such, ensuring that the momentum from the BioFund project is not lost may require greater coordination across NRM bodies within Australia to promote changes to national-level funding structures.

The danger is that the next round of funding is going to be all about trees in the ground and you won't have any scope to do anything interesting around land use and planning. One of the problems with natural resource management in Australia is that it doesn't have a big voice. Each regional area thinks it is unique. NRM does very little in terms of broader national advocacy and engagement. There needs to be a push for NRM to be more vocal and constructive in a unified way to better promote structured NRM investments. To achieve real outcomes beyond just trees in the ground and the best way to do that is to counter threats. The funding structure influences this a lot.

Unified advocacy across all groups involved in NRM may be required in future to help secure stable funds and enable longer term approaches to monitoring and managing the impacts of challenges to woodland conservation such as climate change (Watson *et al*, 2017). New ideas and emerging research around landscape function and scale will likely demand longer-term conservation planning, monitoring and research to ensure appropriate planting that maintains landscape function in more extreme climate scenarios. This may challenge existing funding models and approaches. Climate projections for the ACT (including higher temperatures, variable rainfall and extreme bushfire events and its impacts on the landscape function and biodiversity) will need to be further considered in all woodlands conservation approaches. Indeed, the ACT Government has already outlined priorities for conservation action in the ACT Nature Conservation Strategy 2013–23 and the ACT Biosecurity Strategy 2015–25, both of which prioritise threats to both biodiversity and productive landscapes. Final project money from the BioFund also contributed to testing and developing provenance and species mix trials within woodlands to help determine appropriate vegetation responses to climate change.

The degree to which the preparatory actions outlined in each can be pursued, monitored and verified will be a function of secure and predictable funding and commitments to landscape-scale interventions. Towards this end, the BioFund project has contributed knowledge and experience with respect to establishing effective administrative, stakeholder engagement, and technical land management approaches.

5. SYNTHESIS AND DISCUSSION

In response to the questions posed in the Statement of Requirements with respect to appropriateness, efficiency, effectiveness and future opportunities, the review found the following:

Appropriateness of the BioFund project—was it appropriate (its goals and objectives, its geographic focus, its partners and its governance arrangements) given broader conservation strategies and plans of the Territory and rapidly emerging scientific research findings with respect to best practice for biodiversity connectivity? Overall, the review found that the BioFund project was appropriate in that it complemented existing efforts, worked to restore missing elements in the landscape and ecological habitats, and coordinated with and leveraged other conservation projects. The BioFund project drew on best-available science and practices in stakeholder collaboration to achieve outcomes and overcome on-ground challenges arising from disconnects with ‘ideal’ outputs from modelling processes. The appropriateness of the project could have been further enhanced through:

- more formalised linkages to scientific research bodies;
- greater Indigenous involvement, including through employment and Indigenous business procurement options (e.g. Supply Nation);
- involvement of the community in forming collective advocacy for reliable long term funding streams for woodland restoration – particularly outside the reserve system;
- greater involvement of NSW local councils; and
- targeted and strategic engagement with land management agencies to address underlying drivers of woodlands loss and ongoing threats.

Efficiency of the BioFund project—has it been efficiently delivered? Despite early project start-up issues with staffing, the project met its targets early and with relative ease once ways of working were established, including close coordination between the policy, planning and implementation arenas of the project. Two different funding models from the Commonwealth and ACT Treasury presented challenges, however, strong project coordination between ACTPCS, ACTNRM and GACR turned this into a strength of project delivery. Overall an adaptive approach to project management enhanced the efficiency of project implementation.

Effectiveness of the BioFund project—has the project produced its specified outcomes? The assessment of cost-effectiveness was not a requirement of this evaluation; however, we are able to provide some limited comments in this regard further to feedback from respondents. The project was considered by some informants to be cost-effective on the basis of its landscape-scale focus, its engagement with stakeholder, and leveraging of other funds or in-kind contributions from other stakeholders. The project was found to have been broadly effective across three broad areas of institutional and capacity-related outcomes, land management outcomes, landscape-scale change and outcomes linked to complementary projects, but with some provisos. Institutionally, the project effected cultural change characterised by increased collaboration and coordination in the managing agencies involved in the project. From a land management perspective, new types of interventions (e.g. CWD) were made possible through greater understanding of woodland structure and function available through scientific findings. Effectiveness in reducing systemic planning threats to woodlands and their biodiversity were noted as areas for improvement along with fox and feral cat control. At the landscape level, new connections between remnants and reserves now exist where they did not previously, and rural landholders and cross-border landscapes are now considered an important feature of biodiversity preservation efforts in the region. The project worked in unison to leverage the outcomes of other projects such as Million Trees (where its objectives with the BioFund project were found to overlap) and helped to influence other land management approaches such as land set aside under the ACT's Environmental Offsets Policy.

Future opportunities—future opportunities garnered from the interviews have been divided into three areas in order of potential phasing: 1) next steps and easy 'wins' 2) medium-term possibilities and 3) longer-term, aspirational approaches. Easy wins identified through the review process were to institutionalise the approaches and technical understanding made possible by the BioFund project through the development of internal guidelines and external communication products, especially targeted at rural lifestyle block holders. Medium-term suggestions included: the creation of formal linkages between new projects and scientific bodies; early engagement with all stakeholders in the design phase, especially Indigenous groups; collaborative and experimental partnerships with rural landholders built into project design; predator control of feral cats and foxes based on social research findings of socially acceptable forms of control. Aspirational and longer-term opportunities include: research and actions around the remediation of heavily degraded sites; an internal strategy for influencing and advocating for conservation and biodiversity interventions to address systemic threats posed by other planning and land management agencies; and higher level/national advocacy for coherence and stability in national NRM funding, especially in light of the increasing challenges posed by climate change.

6. RECOMMENDATIONS

Recommendations – Future Opportunities

Based on stakeholder feedback regarding future opportunities, this report makes 11 recommendations with respect to institutional capacity and related communications opportunities, stakeholder engagement opportunities, technical approaches, and landscape scale opportunities.

Institutional Capacity and Communications Opportunities

1. Staff planning and human resource considerations maybe needed upfront and prior to grant application submissions to enable front-end planning and design.
2. The ACT Government could streamline its existing mechanisms for handling different funding sources in such a way that helped to reduce the administrative burden for implementing partners. Front-ending low-cost planning and back-ending project implementation expenditure may help to ensure adequate planning, design and consultation prior to expenditure.
3. Distil lessons learned from the BioFund project into guidelines and communication products to institutionalise learning and capitalise on good news stories for broader public awareness raising.

Stakeholder Engagement Opportunities

4. Canberra's landscape and its functionality for biodiversity is a source of pride for a number of groups. These groups could help with broader public and community education and awareness campaigns. This could form part of the basis for a communication strategy for NRM in the ACT.
5. Exploring options around involvement of Indigenous groups in planning and design is desirable in future projects, together with tangible benefits and procurement opportunities. This would help align future projects with national initiatives related to 'closing the gap'.
6. Broader engagement in cross-border regions with the right partners would likely have significant benefits in any future project efforts given the size of the land areas for which they have management responsibilities and the scope for greater impact from leveraging of investments, such as weed management.
7. Explore other avenues for engagement with rural landholders within and outside of the ACT. The avenues could address the range of existing rural landholders from new lifestyle block owners to established, older farmers, and those who may be willing to collaborate and test new ideas.
8. Formal linkages between scientific research bodies could be further explored in terms of advisory for individual projects order to tailor and institutionalise scientific best practices in implementation.

Technical Approaches

9. Explore the ways in which future scientific modelling can be deployed in a more participatory manner and used as a starting point for early discussion, consultation and partnership with people and communities' essential to project success. Scientific modelling should provide a baseline against which conservation long-term effectiveness may be measured and communicated. Connectivity models that comprise a range of ecosystems (not just woodlands) are desirable in developing a more realistic understanding of functional connectivity for a range of threatened species.

Landscape Scale Opportunities

10. In order to demonstrate project success in the longer term, M&E will need to move beyond project-based indicators and towards monitoring system-wide, cross-tenure measures of effectiveness. Project-based funds are generally not amenable to landscape-scale M&E and may require other approaches. A small percentage of funds could be held back to fund long-term monitoring.
11. Policy officers in the ACT Government could explore regional coordination and advocacy among a range of NRM groups to help feed into national-level dialogue on secure and predictable funding amenable to landscape-level approaches needed to meet the challenges posed by climate change.

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Appendix 1: Statement of Requirements

1. TITLE OF PROJECT

Final project evaluation – ACT Woodlands Biodiversity Fund Project (2012-17) including its contribution to the “Woodlands Restoration Program in the ACT”.

2. PURPOSE

The primary purpose of this consultancy is to undertake a final evaluation of the ACT Woodlands Biodiversity Fund project (2012-17) (Biodiversity Fund Project). The secondary purpose is to evaluate how the Biodiversity Fund project contributed to the delivery of the broader ongoing Woodlands Restoration Program in the ACT. Evaluation will be guided by the key evaluation questions outlined in Section 4 (Services).

3. BACKGROUND

The *Building restored resilient landscapes in the ACT and Greater Goorooyarroo Project* (‘ACT Biodiversity Fund Project’) was funded through the Commonwealth Department of Environment - Clean Energy Future - Biodiversity Funding (2011-2017). The project will be finalised by 30 June 2017. The ACT Environment, Planning and Sustainable Development Directorate (EPSDD) proposes to undertake a final evaluation to assess the project and its outcomes.

The goal of the ACT Biodiversity Fund Project is to consolidate and connect 60,000 hectares of the largest remaining box-gum grassy woodland landscape in Australia, thereby, enhancing the biodiversity and climate resilience of this landscape. The project was designed to protect and enhance the box-gum woodlands through on-ground restoration and regeneration works across five focal restoration landscapes, including a cross-border landscape (Greater Goorooyarroo). The Project was primarily delivered by Greening Australia Capital Region (GACR) and the ACT Parks and Conservation Service (PCS), but involved collaborations with community, researchers and other government agencies in NSW.

A Woodland Restoration Program for the ACT

A woodland restoration program has been developed across lowland areas, including within the Murrumbidgee River Corridor. This program built on the goals of the ACT Biodiversity Fund Project, adding the following two projects:

1. ACT Woodlands Restoration Project

In 2012, the ACT Government allocated \$1 million over four years for woodland restoration of 450 ha (4.5 square kilometres) of key landscape areas that will provide additional connectivity between woodland patches. The project is restoring degraded areas of key habitat and connectivity value, assisting natural regeneration in existing woodland patches and replacing missing habitat elements such as logs or a shrub layer. The project is being delivered by GACR, in consultation with the ACT Government, South-East Local Land Services (SELLS) and rural landholders.

2. The Murrumbidgee River Corridor Million Trees Project

The ACT Government received funding under the Australian Government’s Million Trees program to plant 300,000 native trees over ten years in the Murrumbidgee River Corridor. The project is being

delivered by the ACT Parks and Conservation Services, using contracted planting and volunteers. Over 230,000 trees have been planted since 2008. Planting is continuing, particularly in formerly drought-affected areas and where maximum benefit from connectivity can occur. Weed control in planted areas is an integral part of the project to promote tree survival.

4. THE SERVICES

Required Services

Primary Evaluation Questions:

- Evaluate whether the project design was fit for purpose;
- Evaluate whether the outcomes were credible and based on scientifically and administratively defensible methods and approaches;
- Evaluate whether the funding was spent in a transparent manner, resulting in the desired outputs and outcomes;
- Evaluate the Effectiveness, Impact, Appropriateness and Efficiency of the project. See Key Evaluation Questions;
 - Impact - Were quality outputs delivered which resulted in the program outcomes being achieved?
 - Appropriateness - To what degree did the program utilise best practise science in decision making?
 - Efficiency – Was the model used to deliver the project efficient in its design and execution?

Secondary Evaluation Questions:

- Effectiveness - How effectively did the project engage with other complementary initiatives to achieve landscape scale restoration outcomes?

Tasks:

- Collect information from project partners (either through telephone or face-to face- interviews) – see section 7 – Special Requirements for minimum consultation list; and other available data and reports;
- Analyse the collated information to determine the degree of success to which current funding, partnerships and resources have been effective in the restoration of Box Gum Woodland Ecosystems in the ACT and Surrounds, within the scope and objectives of the ACT Woodlands Biodiversity Fund Project (2012-17);
- Provided an assessment of ways the project could have been improved; and
- Provide a final report incorporating the items identified under Scope of the Evaluation, including any comments/changes after a review of the draft report by EPSDD.

Reporting and Deliverables

- The Supplier is expected to communicate in writing and verbally, arrange meetings and supply a written report of their findings;
- The Supplier is expected to report as indicated in the Key Performance Indicator Section below; and
- The Supplier is required to provide a draft and final versions of recommendation reports including spreadsheets in Microsoft Word/Excel/other format, whatever is appropriate.

PROPOSAL

The proposal should contain:

- A company profile – clearly identifying the names of all personnel who will be undertaking the work, their qualifications, expertise and a statement of their respective roles;
- Evidence of experience in developing and coordinating evaluation processes for environmental programs;
- A demonstrated understanding of the Biodiversity Fund MERI requirements and monitoring guidelines by the Commonwealth;
- Proposed research methodology;
- A timeline of scheduled activities;
- Proposed format of final report; and
- A fee structure - to include a breakdown and analysis costs for each component of the work/activity.

The proposal should reach ACTNRM by 30th April 2017. Please send your proposal by:

Post to: Mardie Kearns MERI Officer ACTNRM PO BOX 158, Canberra ACT 2601	Email to: actnrm@act.gov.au Attn: Mardie Kearns
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Sub – contractors

If a sub-contractor is commissioned to undertake part of this work the primary contractor is responsible for the sub- contractors’ work in compliance with the terms of the brief. The sub- contractors have no claim on ACTNRM for fees or expenses.

BUDGET

A maximum budget of \$25,000 (inc GST) has been allocated for this project and the total expenditure should not exceed this amount.

It is anticipated the budget will cover the following components for which staged payments will be scheduled after satisfactory completion of each stage:

Stage 1 – Evaluation framework - methodology	20%
Stage 2 – Data collection (quantitative and qualitative) and interpretation	30%
Stage 3 – Delivery of the final report	50%

5. WORKPLACE HEALTH AND SAFETY

It is the responsibility of the Supplier for Workplace Health and Safety considerations related to the purchase, specifically regarding:

- the health and welfare of the Supplier’s employees; and

It is the responsibility of the ACT Government for Workplace Health and Safety considerations related to the purchase, specifically regarding:

- the health and welfare of Territory employees;
- the health and welfare of the general public who could be affected by the Services on ACT Public land.

6. KEY PERFORMANCE INDICATORS OF THE SUPPLIER

As part of the contract we will monitor your performance providing the Services. Including:

- Regular attendance at meetings;
- Effective communication with project partners and us;
- Timely submission of reports; and
- Accurate and well-drafted reports in the required format;

At this stage the schedule of activities is:

- | | |
|---|--------------|
| • Acceptance of the contract | 15 May 2017 |
| • Develop evaluation framework | 30 May 2017 |
| • Data collection and interpretation | 30 June 2017 |
| • Delivery of draft evaluation report | 15 July 2017 |
| • Delivery of the final evaluation report to ACTNRM | 30 July 2017 |

7. SPECIFIC REQUIREMENTS

Individuals the supplier is required to consult with:

- Tim Wong - ACTNRM
- Kristy Gould, Brian Summers, Darren Rosso, Stuart Jeffress, Daniel Iglesias & Craig Wainwright – ACT Parks and Conversation Services
- Greening Australia (3 people)
- Rural landholders who had works done (2-4 people – 2 in ACT and 2 in NSW)
- Parkcare Groups who had works done (2 people)
- Southern ACT Catchment Group
- South-East Local Land Services (1 person)
- Possibly Majura training area (Department of Defence)

Appendix 2: Stakeholder Interviews and Focus Group

#	Name	Organisation
1	Ian Rayner	Greening Australia
2	Angela Calliess	Greening Australia
3	Adam Shipp	Greening Australia
4	Sue McIntyre (written response)	CSIRO
5	Jenilee Delandre	Greening Australia
6	Kristy Gould	ACTPCS
7	Rainer Rehwinkel	Dept of Environment and Heritage NSW
8	Martine Franco	Southern ACT Catchment Group
9	Karissa Preuss	Ginninderra Catchment Group
10	Steve Taylor	ACT PCS
11	Lyne McCarthy	Commonwealth Department of Environment and Energy
12	Brian Summers (written)	ACT PCS
13	Veronica Doerr	CSIRO
14	Kate Boyd	ACT PCS
15	Stuart Jefferies	ACT PCS
16	John Brannan	Park Care
17	Kerry Murphey and Colin Swan	Rural Leasee (ACT)
18	Alan McNeil	Rural NSW Landholder

Focus Group Participants

#	Name	Organisation
1	Laura Rayner	ANU

2	Adrian Manning	ANU
3	Margaret Kitchin	ACT Research, Conservation
4	Kristy Gould	CSIRO
5	Jenny Bounds	COG
6	Tim Wong	ACTNRM

Appendix 3: Interview Questions

Semi-Structured Interview Form for ACT BioFund Final Evaluation

Questions

1	What is your understanding of the goals and mission of the biodiversity fund project? Do you think that the goal and mission was appropriate for its aim and the wider woodland's context of the ACT?
2.	Was the geographic focus of the project appropriate and based on best available knowledge and science?
3.	Did the project involve the right partners and stakeholders? Who else could have or should have been involved?
4.	Were the project management arrangements and governance of the project appropriate for what was trying to be achieved? (based on best available science and admin best practice?)
5.	Were the priorities and activities undertaken in your area appropriate to achieving the goals and aims of improved biodiversity connectivity and the wider aim of woodland's restoration across the landscape?
6.	<p>Following on from question 5 please provide some feedback on project implementation:</p> <ul style="list-style-type: none"> • Start up and early activities • Staffing and volunteer arrangements, were they adequate? • Financial administration of the project and accountability to outputs? • M&E and reporting and respond well to new information? How well was knowledge managed? • Did the project team collaborate well together and with other partners and stakeholders? • Risk management and adaptive management practices in place and how well they worked? • The outputs delivered by the project <ul style="list-style-type: none"> ○ The efficiency of the model used to deliver in its design and execution?
7	Was the project cost effective in your opinion? Why or why not?
8.	What do you think have been the main outcomes associated with the project? (either in terms of project management, land management, stakeholder engagement or landscape scale impacts?)
9.	What has been the most significant linkage between these outcomes and other projects undertaken in ACT Woodland's such as the broader Woodland's Restoration Program and the Million Trees Project?
10.	If you were to run the project again what would you change? (Strengths to enhance, weaknesses to shore up, opportunities to better capture, threats to minimise)

Thank you for your time and participation

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0.1						
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