



CUMBERLAND STEPPING STONES

Community Corridor Evaluation
Greater Western Sydney



2017

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With respect for Aboriginal cultural protocol and out of recognition that its campuses occupy their traditional lands, Western Sydney University acknowledges the Darug, Gandangarra, Tharawal (also historically referred to as D'harawal) and Wiradjuri peoples and thanks them for their support of its work in their lands (Greater Western Sydney and beyond).

DISCLAIMER

Findings and conclusions presented in this report reflect a summary of consultations with the communities in the target areas, and other key stakeholders, and are complemented by a review of the literature. The views contained in this report do not necessarily represent those of Western Sydney University and its entities. All reasonable precaution has been taken by the report authors to verify the information contained in this publication. Any opinions, findings, and conclusions or extracted lessons expressed in this report are those of the authors.

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The authors of this report would like to acknowledge that this research was conducted on Darug Lands and to pay our respects to elders past and present.

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CONNECTIVITY AND THE CUMBERLAND PLAIN

If I could wave a magic wand

“... This Cumberland Stepping Stones raises the profile of connectivity in a landscape that’s really fragmented and really struggling to retain biodiversity and fauna and that’s what’s so important about it. So if one child can take home the fact that they’ve planted a tree that links in with the trees over at the next local high school or in some council reserve or some such thing ... It’s not a concept that comes naturally to people these days because of the disturbed landscape we live in.

... There’s not a vision for conservation in Western Sydney unfortunately. So [as] hard as we try, and we’ve tried, so many years we’ve been trying and these key sites are so important ...

... If I could wave a magic wand at this really pivotal time in Western Sydney when we’re competing against road corridors, rail corridors, airports, immigration of 200,000 people, a burgeoning industry – you name it, we’ve got it and it’s all happening here on this particular corridor called the Cumberland Conservation Corridor. There are a couple of links that aren’t protected and if I had a few million bucks and the government had the wherewithal you’d be acquiring those really key sites to make sure this Cumberland Conservation Corridor formed a permanent link. And it’s just – I can’t tell you – we need these links between these core biodiversity areas ... We just need to make sure that those links right now are protected because five, ten years from now, they’ll be gone for sure ...”

PRIVATE LANDHOLDER

We would like to acknowledge the generosity and openness of all the volunteers we met who shared their stories, experiences and passion for the Cumberland Plain Woodland across Western Sydney. The critical and often invisible work of caring quietly for this country – along creeks, reserves, under powerlines, in school yards and on private property – keeps this bushland alive not just for future generations but for those creatures and plants which share these spaces with us now. We extend our sincere thanks to Greening Australia team at Oxley Park for the opportunity to collaborate on this important evaluation and acknowledge the funding support of the Commonwealth Government’s 20 Million Trees Program.

EXECUTIVE SUMMARY

Cumberland Plain Woodland (CPW) communities are endemic to Western Sydney and have been reduced to less than 6% of their original extent due to extensive clearing for agriculture and urban development. Remnant patches are present but are small and scattered, degraded by human disturbances and weed invasion. The Cumberland Conservation Corridor comprises three priority corridors in Western Sydney and is supported by the Australian Government's 20 Million Trees initiative. Greening Australia was awarded a \$2.889m grant to support the ongoing conservation efforts across this corridor with the aim of enhancing ecological connectivity. Recognising the importance of engaging people in active environmental restoration, Greening Australia included a strong community engagement component – 'the Community Corridor' – in the Cumberland Stepping Stones (CSS) project.

The Community Corridor targeted four key participant groups – schools, corporate volunteers, community Bush Care groups and private landholders – across 6 Western Sydney Local Government Areas to undertake planting within the Cumberland Conservation Corridor. Over a 12 month period, close to 75,000 native tubestock were planted or provided as give-aways across the 43 community sites. The Community Corridor project engaged more than 3,000 people, the majority of whom were students. In the overarching CSS project, a total of 421,300 plants have been

planted across Western Sydney. This study was asked to evaluate the Community Corridor CSS initiative and address the following question: *'Is community engagement and education an effective methodology for biodiversity conservation?'*

EVALUATION METHODOLOGY AND METHODS

The concept of 'place' was used as a conceptual framework for the study. Place links global concerns to local issues and is attuned to the specifics of people and their connection to their local environment. The research team acknowledges that a clear limitation of this study is the short timeframe in which to evaluate the impacts of this methodology for biodiversity conservation. Ideally, this study should be longitudinal to explore outcomes over the long term. The CSS project was implemented and evaluated over 2016/17.

The study was designed using a mixed-methods methodology and gathered qualitative and some quantitative data through online surveys, individual interviews, focus groups, oral place stories, and field notes and observations. The study evaluation techniques employed a primary analysis for each target group and a meta-analysis based on a summative evaluation for the entire program. The meta-analysis considered project process, efficiency, effectiveness, outcomes and learnings.

For each targeted community group the data was analysed according to



4

key participant groups involved



6

local government areas covered across Western Sydney



43

community sites undertook planting



3,000

people engaged during the program



75,000

native tubestock planted (including give-aways)

the data collection instrument. The schools survey data was collated in charts and free text from the online survey responses. The corporate events were analysed using an inductive approach based on the individual interview responses, researcher visuals and field notes, with major themes identified and outliers noted. A similar process was undertaken for the Bush Care focus groups. The private landholder interviews were recorded onsite oral place stories and were analysed using a storyline analysis framework.

THE IMPORTANCE OF COMMUNITY ENGAGEMENT AND EDUCATION

This study provides empirical evidence from the target participants that outlines the challenges and opportunities for long-term biodiversity conservation at a very local level. It is evident from the study responses that ongoing commitment, learning and observation are essential for long-term biodiversity conservation. People need to learn what biodiversity is, how to recognise it, and what they can do in the long term to enhance biodiversity beyond increasing the quantity of plants or the number of species. Each group that Greening Australia targeted in this project has a part to play in the ongoing efforts of biodiversity conservation in Western Sydney. The performance of Greening Australia's staff in implementing the project should be considered central to the project's success, particularly for the school and corporate sectors. The provision of plants, logistics support, risk assessments and, importantly, funding ensured that the project was accessible and affordable.

Across the Community Corridor 40 schools engaged with the project, with an estimated 2,400 students, teachers and parents participating. The online survey had a 47% response rate and a total of 39,500 seedlings were planted. Schools engaged with the project for varying reasons and, encouragingly, 90% of respondent schools indicated that their students continued to visit and care for their plantings. There is some

early anecdotal evidence for these young plants creating their own microhabitats, with increased insect and bird activity noted. A significant next step would be to support schools to expand these programs outside their gates and into the local bushland and waterways. Connecting these efforts with local Bush Care groups, councils, relevant corporate events and other environmental networks would further strengthen these linkages.

The Community Corridor project hosted 10 corporate events with some 300 volunteers and planted 10,000 tubestock at the Oxley Park Ropes Creek site. This study attended 3 of these events and individually interviewed 16 volunteers. The importance to these corporate volunteers of 'giving back to the community' and the pride associated with their work was evident. It was clear that the volunteers enjoyed the day and saw their contribution as a win-win-win for all involved. While the planting activity was successful, those interviewed suggested including more activities, such as weeding, to make the most of the 'free labour' on offer. Many of the corporate volunteers' responses indicated a desire to revisit the site at some time in the future to 'see their plants'.

Focus groups with two local Bush Care groups were conducted, and oral place stories were recorded with two private landholders. It was evident that both these cohorts have a deep and personal connection to their local places that extends over time. Given the right support, their dedication makes them (and these sites) well situated for long-term ongoing action and one-off planting events to improve connectivity in their local places. The CSS project was another source of support for these cohorts who take a long-term view of conservation work. A major issue for the private landholders is the interest or disinterest of adjoining neighbours. When owners of adjacent properties are not engaged in or do not understand the reasons for environmental action, the work

of the individual landholder can still be rewarding but may be isolating. Similar issues can be seen with Bush Care groups and the sporadic nature of the involvement of their volunteers.

WATERWAYS AND RIPARIAN ZONES ARE THE ONLY REMAINING CPW CONNECTORS

Outside of protected areas, urban development is squeezing and restricting remnant Cumberland Plain Woodland (CPW) to low-lying areas in Western Sydney – often located along the region's riparian zones and flood prone. Moving forward, a strategic priority should be to continue to focus on these sites as core connectors, recognising their crucial role in linking up with the larger intact stands of terrestrial Cumberland Plain Woodland remnants. While it is outside the scope of this study, the importance of a coherent policy and vision for protecting these areas, backed up by strategic funding and inter-agency collaboration cannot be overstated. Integral to this is support for ongoing education, engagement and action as an approach to maintaining a functioning bushland. This CSS Community Corridor project is a model framework for this work.

KEY FINDINGS:

- The Community Corridor project effectively engaged with environmental action and education across the target groups and sites. The study found that each group is equally important and that the groups complement each other as they bring different knowledges and strengths to their local places.
- Local commitments need to be supported by appropriate local, state and Commonwealth strategies and plans that align with a long-term vision and strategy to further support local action.
- In the short term, highly localised and site specific biodiversity

conservation outcomes are evidenced by the extent of new CSS plantings. However, ongoing maintenance and weed management are required to support these initial efforts and will need further evaluation.

→Effective biodiversity conservation requires a long-term commitment from the local community and needs a combination of knowledge, observation, leadership, patience and action. Functioning Bush Care groups and private landholders are community exemplars in how this learning is enacted and school sites have further potential.

RECOMMENDATIONS FOR POLICY AND STRATEGY:

1. Continue to support policy initiatives and mechanisms for the Cumberland Conservation Corridor via large scale initiatives, such as the Cumberland Stepping Stones, that recognise the key role played by community engagement and education.

2. Recognise that enhancing ecological connectivity for long-term conservation of the Cumberland Plain Woodland requires an ongoing commitment for weed management, monitoring and maintenance as well as planting and education.

3. Develop flexible funding mechanisms attuned to on-ground reality and to different requirements over time and in different places: Flexible and on-going funding mechanisms that support weed management and maintenance are just as crucial for biodiversity outcomes as is the provision of plants. New funding arrangements could include more flexibility in devolved funding arrangements for on-ground organisations, as well as including the facility to fund more strategic initiatives, to further targeted research, provide assistance for local leaders and private landholders to develop networks, and direct funding into on-ground priorities.

4. Consider the development of a coherent framework for Western Sydney biodiversity conservation and action, encompassing land and water systems, in order to leverage government priorities across a range of agencies to achieve systemic environmental benefits and biodiversity outcomes: Supporting a viable Cumberland Plain Woodland in Western Sydney requires facilitating the health of the waterways, as connectors with the larger terrestrial remnants of woodland, and liaising with private and public landholders. This will require a multi-stakeholder approach at all levels of government. For example, there is a scattered range of well developed resources

and opportunities available for local community and private landholders but these are not simple to access and are located across multiple agencies. Equally, there is a need to ensure that local communities are educated concerning the impacts of noxious weeds and land clearing and that requirements concerning these are clearly communicated and complied with at a very local level.

RECOMMENDATIONS FOR FURTHER ON-GROUND ACTIONS:

1. Recognise the institutional potential of schools as sites for long-term biodiversity conservation which supports enhanced connectivity: Schools should be supported with teachers' professional development and given further opportunities to extend their conservation efforts into local areas, beyond their school grounds, to which students can walk. These efforts should be coordinated with Bush Care groups and local councils to undertake environmental restoration for ongoing beneficial environmental outcomes.

2. Upscale the promotion of environmental volunteering opportunities and activities within the corporate sector and expand these to Bush Care and private landholder networks: Consideration should be given to broadening corporate activities to include ground preparation, watering and weeding. This would require further initial work and training but would provide additional and much needed intensive labour for dealing with weed infested areas. For large scale environmental restoration in areas with already established Bush Care groups and participating local landholders there is an opportunity for corporate volunteers to significantly add value to this work. Networking and organisation would be required at the local level; exemplars already exist in Western Sydney.

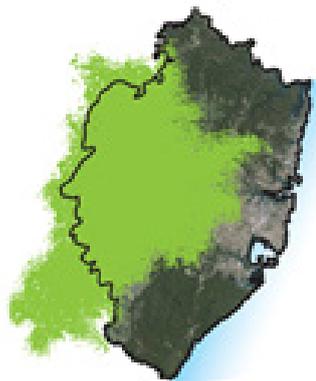
INTRODUCTION

From the middle of the twentieth century, in the period now acknowledged as 'The Great Acceleration', global biodiversity losses have become more rapid and severe and are directly attributable to human activities (Steffan et al., 2004). In Australia, biological diversity loss follows this trend, with some 1,700 species and ecological communities currently considered threatened and at risk of extinction (Australian Government Department of the Environment and Energy, 2016). Examples of human impact on Australian biodiversity include: increasing urbanisation and development resulting in habitat loss, degradation and fragmentation; unsustainable use and management of natural resources; changing fire regimes; changes to the aquatic environment and changing water flows; increasing number and spread of invasive species; and climate change (Australian Government Department of the Environment and Energy, 2016).

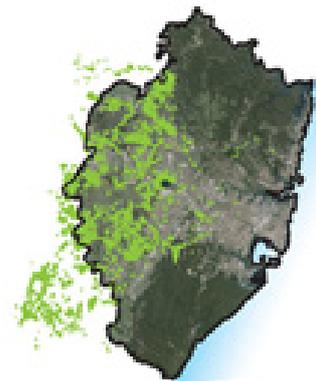
Conservation education recognises the central role people play in all conservation efforts and is intended to positively influence their awareness, attitudes, knowledges and behaviours toward natural resources, while increasing the capacity for social change and improvement (Patrick et al., 2007; Fien, Scott and Tilbury, 2001). Mainstreaming biodiversity challenges, however, involves more than just raising awareness of the importance of conservation issues. It is critical to encourage more Australians – individuals,

groups and corporations – to participate in activities that benefit their local community (Australian Government Department of the Environment and Energy, 2010). Non-government organisations (NGOs) and government agencies currently managing biologically significant and/or recreational areas are expanding their use of volunteers in order to conserve biodiversity and foster healthy environments and attitudes – often this is necessary due to the lack of funding and resource support (Caissie and Halpenn, 2003; Hamer et al., 2009). While volunteers can make significant contributions where resources are limited, there are concerns over their effectiveness and the reliability of the on-ground action they undertake (Hamer et al., 2009).

Recognising these forces, Greening Australia included a strong community engagement initiative in their ambitious and innovative Cumberland Stepping Stones project (CSS). The CSS project was funded by the Commonwealth Government and targeted 6 Local Government Areas (LGAs) in Western Sydney to enhance ecological connectivity across the Critically Endangered Cumberland Plain Woodland Ecological Community (Map 1). Implemented in 2016 and 2017, the project targeted key community groups – schools, private landholders, Bush Care groups and corporate volunteers – to undertake large scale planting and environmental action. This study is an evaluation of that initiative.



In 1988 Cumberland Plain Woodlands covered 107,000 hectares occupying approximately 30% of the Sydney Basin



Today less than 6% remains in small fragments scattered across western suburbs of Sydney, totaling only 6,400 hectares

Map 1: Cumberland Plain Woodland loss in the Sydney Basin
(Courtesy Cumberland Land Conservancy)

KEY DEFINITIONS AND TERMS

Community engagement refers to “the process by which community organisations and/or individuals build ongoing relationships for the purpose of applying a collective vision for the benefit of a community, whether they are connected by geographic location, special interest, affiliation or identity to address issues affecting their well-being/place” (Queensland Department of Emergency Services, 2001).

Education is defined as “the act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life. The specific aim of conservation education is to develop lifelong knowledge and skills for conservation action” (Patrick and Tunnicliffe, 2007 p. 22).

Biodiversity refers to “the variety of all species on earth, also known as biological diversity. It is the different plants, animals and micro-organisms, their genes, and the terrestrial, marine and freshwater ecosystems of which they are a part. Biodiversity is both essential for our existence and intrinsically valuable in its own right” (Australian Government Department of the Environment and Energy, 2016).

Biodiversity conservation refers to “the action of preserving and protecting something, in this case biological diversity. This is essential as mankind depends, directly and indirectly, on living systems for health and well-being. No matter how technologically advanced humans become we rely on food, fibre, materials and energy from nature for our continuing existence” (Australian Government Department of the Environment and Energy, 2016).

CUMBERLAND STEPPING STONES PROJECT OVERVIEW

“In the long term, that’s what the Cumberland Stepping Stones program will achieve, is some kind of connectivity. And that’s what we’re all about is connecting up landscapes, providing opportunity for wildlife, birds, things to move through.”
Private landholder

The Cumberland Plain Woodland (CPW), found in the western part of Sydney, has been reduced to less than 6% of its original extent due to extensive clearing for agriculture and urban development (Map 1). Remnant patches are present but small, and more than two-thirds of these remaining areas are degraded by human disturbances and weed invasion. The Cumberland Plain Woodland is now recognised as an endangered ecological community under state and national legislation, i.e. the NSW Threatened Species Conservation Act 1995 and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (Wilkins, Keith and Adam, 2003). The NSW Threatened Species Conservation Act has several objectives, with its primary objective being ‘to conserve biological diversity and promote ecologically sustainable development’ (Auld and Tozer, 2004).

The aim of the CSS program is to enhance ecological connectivity by revegetating 267 hectares of cleared land in 3 regional corridors across the Cumberland Plain in Greater Western Sydney, focused on 6 LGAs: Blue Mountains, Penrith, Blacktown, Hawkesbury, Fairfield and Liverpool. The program forms part of the Australian Government’s 20 Million Trees Cumberland Conservation Corridor and is supported by a \$2.889m Commonwealth Government investment. Through this program, Greening Australia planted a diverse mix of over 421,300 plants in order to:

- expand the extent of vegetation on National Parks Estate;
- deliver habitat condition improvement in public reserves; and
- engage the general, school and corporate communities in practical environmental action.

The main on-ground activities of the program are focused in national parks and reserves, using innovative direct seeding techniques, tubestock revegetation, habitat enhancement (designed to increase ecological function) targeting key identified fauna species, and wide scale Green Army deployment to support site maintenance, weeding and watering and to establish long-term monitoring. The 3 targeted regional corridors are as follows (Map 2):

→Eastern Creek Corridor:

The project aims to enhance connectivity within an important corridor, using Eastern Creek as the spine linking high quality remnant Cumberland Plain Woodland at Cecil Park in the south with the Colebee Biobanking site and through to Shanes Park in the north.

→Ropes and South Creeks:

Providing one of the few relatively intact east-west corridors across the Cumberland Plain, the land along Ropes and South Creeks and their connection to Mulgoa Nature Reserve are a critical linkage between the Cumberland Plain Woodland and Greater Blue Mountains World Heritage Area

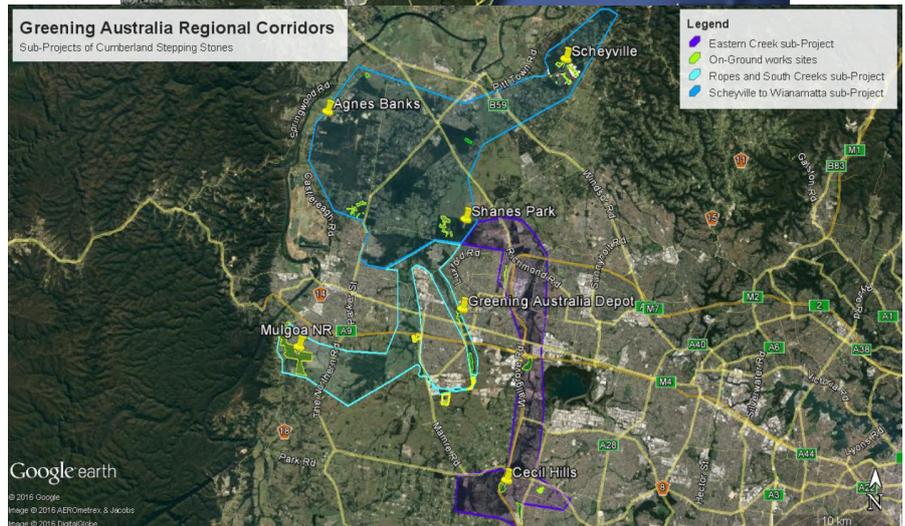
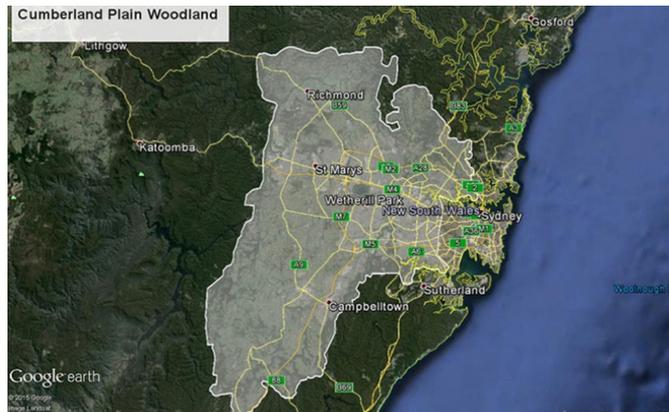
→Scheyville to Wianamatta

Corridor: This is a major zone of geological and topographic transition. The project will support the genetic connectivity of the northern Cumberland Plain Woodland through enhancing linkages within the lowland areas around Agnes Banks and Richmond and the sandstone transition communities associated with Scheyville National Park.

These corridors include the domains of all the major public landholders

with a stake in Cumberland Plain Woodland Conservation Corridor: NSW National Parks and Wildlife Services, National Parks and State Reserves, Local Councils parks and reserves, Western Sydney Parklands Trust and Office of Strategic Lands.

The Community Corridor aspect of CSS project was developed to sit within the above corridors to extend the conservation effort into the urban and peri-urban matrix surrounding core conservation lands and corridors. As a ‘sub-project’, its intention was to enable community members to be involved in hands-on activities that help support the protection of the Cumberland Plain Woodland and Shale Gravel Transition Forest Ecological Community in a manner that is structured and co-ordinated by Greening Australia. The Community Corridor was designed to support the efforts of existing Landcare and Bush Care groups, integrate with National Tree Day and give-away events, extend the conservation program into schools, and deliver meaningful outcomes, via corporate volunteering, for the Ropes Creek Creekline Restoration Plan.



Map 2: Cumberland Plain Woodland and Cumberland Stepping Stones regional corridor and project site locations across Western Sydney (Courtesy Greening Australia, 2016)

STUDY AIMS AND LIMITATIONS

This study aimed to investigate the research question: *‘Is community engagement and education an effective methodology for biodiversity conservation?’*

The study was conducted during the delivery phase of the CSS project from June 2016 to June 2017. There are clear limitations in terms of evaluating the long-term biodiversity conservation impacts and ideally a follow-up evaluation should be conducted after 2, 5 and 10 years. Within these stated limitations, the study collected and evaluated a combination of quantitative and qualitative data from each target group. Data collection methods were linked to the type of target group and included the use of online surveys, visual and field notes, individual structured interviews, focus groups, recorded oral place-based walks and talks, and desktop research (Table 1).

Table 1: Summary of Target Groups for Evaluation and Data Collection Instruments

Target Group	Data Collection Method	Response Rates
Schools	Online survey with 40 participating schools	19 completed (47%)
Corporate Events	Representative sample from 10 corporate events: 5 interviews in total – 5x3 minute audio recorded interviews with participants at 3 separate corporate events	16 recorded interviews
Bush Care	Focus groups with x1 Bush Care group	2 recorded focus groups
Private Landholders	Individual oral place story with x6 participating landholders	2 recorded interviews *

* Only 2 private landholders were able to be recorded in the contract period – an extra Bush Care focus group was conducted in lieu.

METHODOLOGY AND METHODS

“Place ... foregrounds a narrative of local and regional politics that is attuned to the particularities of where people actually live, and that is connected to global development trends that impact local places.” (Gruenewald, 2003b, p. 3)

This evaluation uses ‘place’ as a conceptual framework. Place is productive as a framework because it creates a space between the grounded physical reality of landscapes or terrains and the metaphysical space of language, stories and other representations of place (Somerville, 2008). This bridging of physical reality and representation has the potential to bring positivist paradigms from the physical sciences into conversation with post positivist research in arts and social sciences (Somerville, 2008). Place is thus multi-dimensional and includes human beings in relationship with non-human others and the material terrain of the environment, and an enlarged concept of place provides a link between local concerns and global issues: it is a way to engage community members on an emotional and spiritual level (Somerville et al., 2013). Such connections are vital if we are to co-develop new understandings for more a sustainable future.

PRIMARY ANALYSIS AND META LEVEL EVALUATION

This study delivers a primary analysis for each target community group and a meta-analysis based on a summative evaluation for the entire project. The primary analysis was conducted according to the data collection methods for each target group. The schools survey data were collated from the online survey responses, using qualitative and quantitative techniques. The corporate events were analysed using an inductive approach based on the interview responses, researcher visuals and field notes, with major themes identified and outliers noted. A similar process was undertaken for the Bush Care focus groups. The private landholder interviews, which were recorded onsite oral place stories, will be analysed using a storylines analysis framework.

The meta level analysis has been done as a summative evaluation and is more outcome focused than process focused. It is important to distinguish outcome from output and it needs to be noted that a summative evaluation is not about stating that there were a certain number of planting events held with a total of so many people attending (outputs), but rather about the result of these plantings in terms of conservation and education. While this analysis will consider the CSS process of implementation it will also focus on efficiencies, effectiveness, outcomes and learning – this framework has been adapted from: Davidson and Wehipeihana (2010) and Europe Aid Cooperation Office.

QUESTIONS FOR META LEVEL EVALUATION

1. Process:

- How was the CSS project designed and implemented from the perspective of participants? (i.e. What is its quality?)
- What was the participants’ experience of the process?

2. Efficiency:

- What is the relationship between the different methods of engagement?
- What is the benefit of each type of approach?

3. Effectiveness:

- To what extent did the engagement methods encourage the target groups to take part in the CSS?
- How self-sustaining was the activity?

4. Outcomes:

- Was there any significant change to on-ground biodiversity/vegetation as a result of the CSS project?
- How valuable to the participants were the outcomes?

5. Learnings:

- What worked and what did not?
- What were the unintended consequences/challenges?
- What are the future opportunities for CPW biodiversity conservation in Western Sydney for these methodologies?

FINDINGS AND DISCUSSION: TARGET GROUPS

School Program



40

school sites across Western Sydney participated



77

planting events were held within school grounds



2,400

students, teachers and families were involved in planting



39,000

native tubestock were planted

2016 - 2017

The aim of the CSS Community Corridor school program was to develop school-based habitat and to engage primary and secondary students in environmental action. All events were funded under the project and Greening Australia provided all plants and facilitated hands-on education. Each school was able to hold up to 4 planting events and was provided with a minimum of 500 plants per event and 60 plants as give-aways to the students for their own home gardens. Over the life of the CSS project 40 schools participated across Western Sydney, with 77 planting events completed in total (Map 3). Some 39,000 individual tubestock were planted – a mixture of small to medium shrubs and trees – with the average planting per school being 2,000. School participation ranged from childcare centres to primary and secondary schools across both the public and private education sectors and the 6 targeted LGAs. An estimated 2,400 people (students, teachers and families) took part in the project. In terms of management and logistics for Greening Australia the schools events needed to be meticulous in planning and delivery.

The schools and school teachers were required to:

- induct Greening Australia's staff members as per the school's own safety management plan;
- provide personal supervision of students;
- ensure students maintained Work Health and Safety procedures while planting, as per the

- instruction of Greening Australia's staff members and as per the school's own safety policy;
- be responsible for photo release formalities and emergency management;
- ensure students wore appropriate clothing, including closed shoes, full-length trousers, full-sleeved shirts and a hat during planting; and
- take responsibility for the student insurance requirements.

Greening Australia offered the following:

- talks to the students about Cumberland Plain Woodland of Western Sydney;
- ground preparation, with hole digging by mechanical augers for planting if required;
- induction of students about Safe Work Method Statements (SWMS); and
- provision of plants and supervision of students' planting activities.

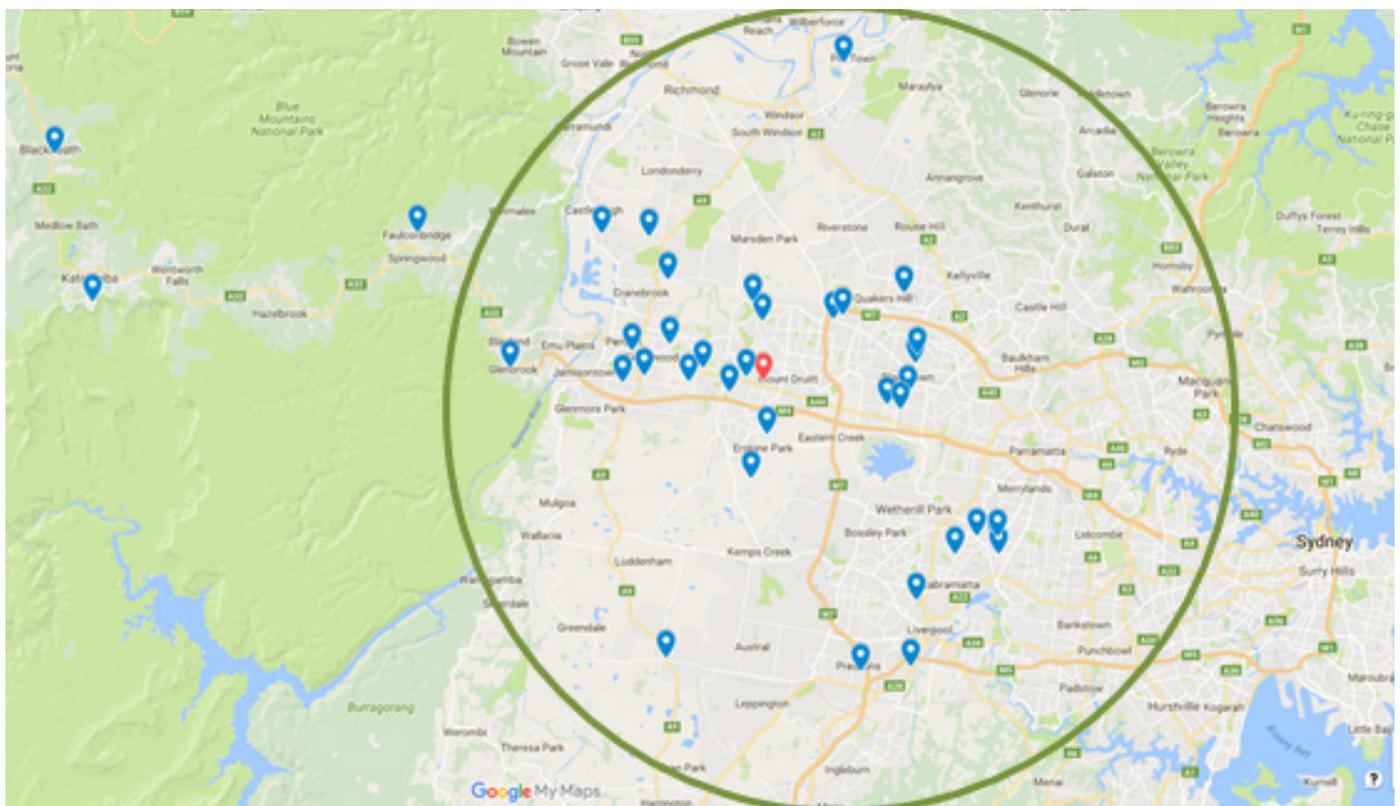
The following is a list of inquiries/ requests from schools presented in their communications with Greening Australia and indicates the level of concerns, risks and issues that schools face with regard to active and engaged programs. Their preference was for plants that DO NOT:

- produce flowers (they can attract bees);
- produce pollen (it can trigger allergic reaction);
- drop needles, e.g. Casuarina

- fronds (they make the ground messy);
- drop branches (a safety hazard for children);
- drop leaves, twigs or bark (the school's grounds assistant is unable to clean);
- drop fruits (they may attract rats, followed by snakes);
- grow branches (dangerous for students who may climb them);
- grow thorns (a safety issue for students);
- grow fruits that may be poisonous (students could put them in their mouths);
- need any water after the planting day (the school's grounds assistant has no time to water them); or
- have a strong root (which can break the garden edges or retention walls).

a mix of multiple choice and free answers. The survey was emailed to participating schools by Greening Australia. [It is attached in the appendices.] The survey had a 47% response rate (19 surveys). Web-based online surveys are increasingly prevalent but traditionally suffer from a lower response rate (10%–25%) for detailed surveys than other modes of surveys (Sauermann and Roach, 2013).

The data collected from the schools took the form of an online 'Survey Monkey' with 10 questions that were



Map 3: Participating CSS Schools: participating schools as indicated by the blue pins within the approximate Cumberland Plain Woodland area (green ring), noting also the location of the Greening Australia head office (red pin)

SCHOOL PROGRAM DATA

1. How many people participated in the planting?

Approximately 2,158 students participated in the CSS planting day, as well as 164 teachers and 74 parents or family members. A total of 2,396 were involved. Respondents were asked give a breakdown of the total number of students per year group, and include numbers of teachers and community. It should be noted that 3 surveys did not include figures, and that one school is a K-12 and did not indicate stage breakdown, so these numbers could be higher.

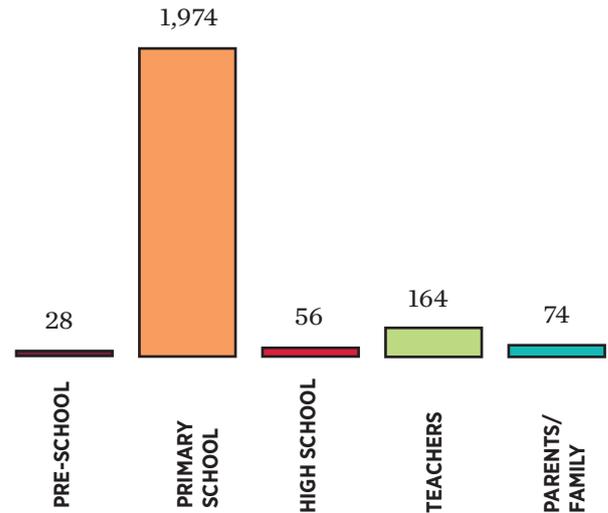


Figure 1: Number of students, teachers and community involved in planting (Question 1)

2. How long was spent on the planting activity?

2.75hrs on average

3. Why did the school undertake the planting?

Landscape vegetation (74% - 14 responses) and habitat construction (63% - 12 responses) were the main reasons that schools gave for undertaking the planting. Secondary reasons included garden infill (47% - 9 responses), screen planting (32% - 6 responses) and shade trees (26% - 5 responses). Respondents were asked to tick as many boxes as were relevant.

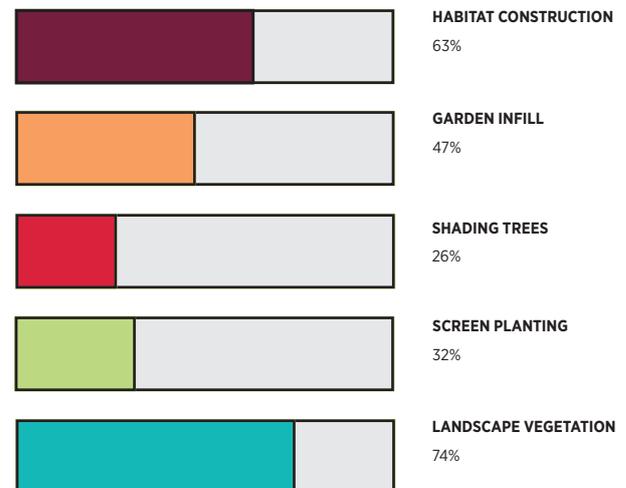


Figure 2: Purpose of school undertaking planting (Question 3)

4. What did the students do on the planting day?

While the large majority of the activity time was spent by students planting (90% - 17 responses) and watering (84% - 16 responses), to a lesser extent weeding was also undertaken (21% - 4 responses). Other responses reported students engaged in mulching, soil infill, cooking, arts, games, performances, garden tours, and learning about sustainable agriculture and the importance of biodiversity of farms during the event. Respondents were asked to tick as many boxes as were relevant.

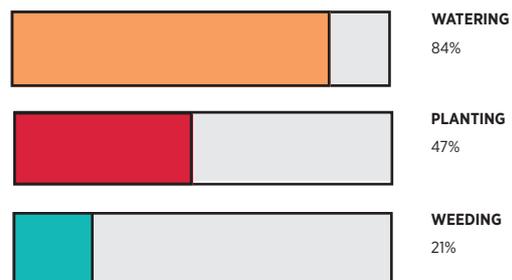


Figure 3: Planting activities undertaken (Question 4)

5. Were students having conversations about the activity or the natural environment during or soon after the planting activity?

All of the students conducted conversations about the planting activity and many linked this closely with conversations about the environment (90% – 17 responses) and local fauna (63% – 12 responses). Students’ conversations about their own gardens (68% – 13 responses) and future activities (58% – 11 responses) also featured strongly. Respondents were asked to tick as many boxes as were relevant.

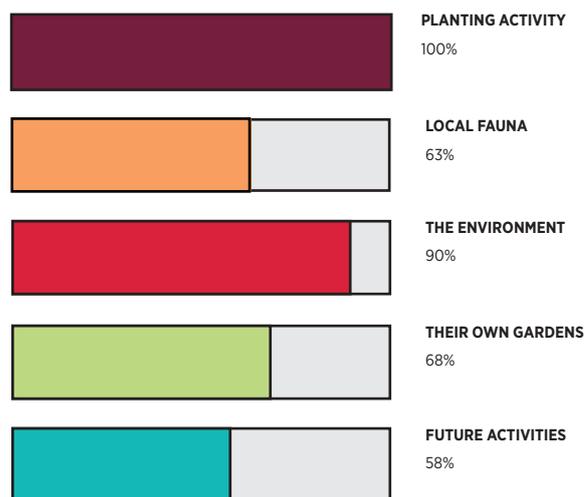


Figure 4: Conversations during planting (Question 5)

6. Did the school include the planting as part of a curriculum program or was the planting extra-curricular?

Extra-curricular activities such as student volunteering (58% – 11 responses) and student clubs (37% – 7 responses) were two ways schools incorporated the planting program, with a further 9 responses (47%) indicating that the program was implemented as a pedagogical tool. Respondents were asked to tick as many boxes as were relevant.

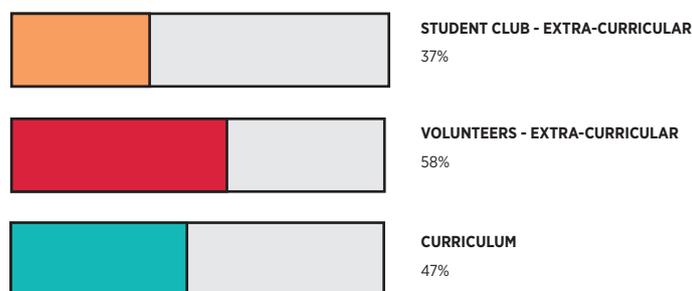


Figure 5: Inclusion in schools (Question 6)

Of the schools (47%) that indicated the planting event was incorporated as part of a curriculum program, responses from primary schools indicated the following types of class learning:

- Yr 4 has completed a unit on National Parks that included looking at habitats and threats. They have explored ways to protect habitats (including) within the school area.

- K-6 Sustainability, Aboriginal History, Geography, Science, English, Maths and Creative Arts
- K-6 Language, Maths, Science and Environment

7. Have the students continued to visit and be involved in the new garden?

A high percentage of students continued to visit the garden, with a majority indicating a continuing relationship with the site (90% – 17 responses). The responses from the schools indicated the following reasons:

- Performing ongoing maintenance
- Cleaning up rubbish, watering, monitoring progress
- A daily outdoor activity
- Part of a science class unit
- A showcase of the project as part of GOMAD 2016-17 creating a video about their planting and why they did it

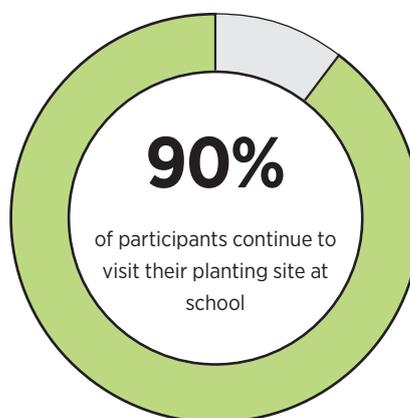


Figure 6: Continuation of involvement (Question 7)

8. In your opinion what were the main outcomes for the students participating?

This was an open response with the following points:

- Developing a greater understanding of their local environment and the importance of planting plants that are local to their environment
 - Developing a greater understanding of how the environments interact with each other; developing responsibility for looking after the garden; making better connections between the unit of study and reality by the hands-on nature of the program, which will benefit them in the long term as they watch the development that takes place
 - Improved self esteem, positive social interactions, greater understanding and appreciation of the natural environment
 - Connection to country for Aboriginal Australian and Torres Strait Islander students and increased awareness of change to local area fauna and flora
 - Increased knowledge of the local environment, the importance of biodiversity, teamwork and community mindedness
- Greater understanding of the importance of preserving our native species, especially considering that our local environment is undergoing massive urban development; a feel-good experience for many of our students as they are able to make a positive impact on our environment
 - Greater awareness of their school environment and of issues concerning the area; participating in problem solving; awareness of community involvement and how working together helps

9. In your opinion does this program enhance the natural environment of the school?

While one respondent indicated that the plants died during a heatwave, almost all (95% - 18 responses) of the other respondents indicated that the CSS project enhanced the natural environment of the school. The responses from the schools indicated the following reasons:

- Increased bird life
- Increased number of insects
- Visually appealing
- Positive comments of parents and guests
- Raised awareness of reforestation
- Adding to oxygen levels
- Promoting a sense of wellbeing
- Natural area for students to explore and play in
- Sense of pride in school
- Welcoming entry to school
- Increased biodiversity

10. How would you rate Greening Australia's management and on-ground performance of the program?

Their performance was rated at 91/100 (average of responses) with responses ranging from ratings of 70% to 100%.

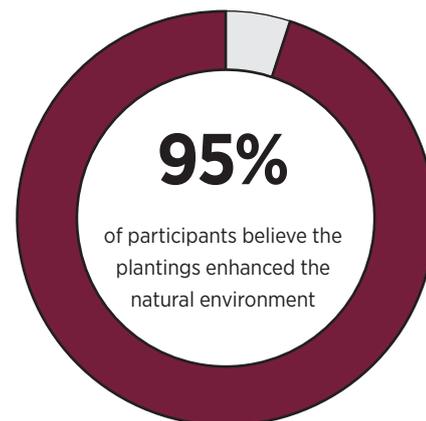


Figure 7: Enhancement of the natural environment (Question 9)

SCHOOL PROGRAM FINDINGS

- Schools engaged with the program for a number of reasons and 90% of the schools continue to care for their gardens either via student clubs and volunteers or class learning activities.
- School's involvement in the planting activity ranged widely, from a 'Green Club' to the inclusion of the whole school and the parents of the students.
- Overall, there was a high level of engagement and early results indicate that surviving gardens have started to create their own small ecosystems supporting microhabitats, birds and insects.
- Almost half of the schools embedded the planting activity as a pedagogical tool in the school curriculum, indicating their intention to use this as a living laboratory for education.

RECOMMENDATIONS:

- 1. Schools are well placed (with the right operational structures) to implement, support and, most importantly, maintain small scale plantings for biodiversity conservation on their sites and should continue to be a crucial target sector for biodiversity programs.**
- 2. Schools are important sites for biodiversity conservation education and, although not all schools participated equally, more investment in teachers' professional development would generate further positive outcomes on an ongoing basis.**
- 3. If these methodologies for biodiversity conservation are to be continued it is recommended that consideration be given to supporting expansion of the schools programs into the local community, to areas to which the students could walk.**



Photo 1: Pitt Town Public School planting day event
Image: Jen Dollin

FINDINGS AND DISCUSSION: TARGET GROUPS

Corporate Events



1

site located in
Western Sydney



10

planting events
were held



300

volunteers were
involved in planting



10,000

native tubestock
were planted

2016 - 2017

The CSS Community Corridor project delivered 10 corporate events which engaged 300 participants in planting activities located at the Greening Australia Oxley Park site in the Ropes and South Creek Corridor. Oxley Park is located on Melbourne Street, Oxley Park in the Penrith LGA and is bordered by housing, sporting fields, the Great Western Highway and Ropes Creek (a tributary to South Creek connecting upstream at Llandilo). Greening Australia occupies a site on Melbourne Street encompassing a small remnant patch of Cumberland Plain Woodland known as the Ropes Creek Green Corridor (Map 4). The site was set up for planting by qualified Greening Australia staff, with site preparation (weed control and hole digging) completed in advance. By the end of the corporate program 10,000 seedlings were planted with an overall survival rate of 80%.

The research team conducted 16 individual face to face interviews during these planting days at 3 separate events on 7 September 2016, 5 December 2016 and 6 March 2017. Interviews were conducted after the morning briefing and as a break from the planting process – responses to the questions were recorded and transcribed for analysis. Participants nominated themselves to be recorded. Participants were from the following organisations and all responses have been de-identified:

- Accenture
- Allianz Insurance
- Extensia
- IKEA
- NAB
- Teachers Mutual Bank
- Westpac



Map 4: Location of Ropes Creek, Oxley Park and corporate planting events

QUESTIONS AND RESPONSES

The following is a primary analysis of the findings.

1. Can you tell us about your company and its involvement in volunteering events?

Of the organisations participating, 3 companies were global and 3 national in governance and structures. All the organisations involved supported at least one employee volunteer day each year, with some encouraging their staff to do more in their personal time or also providing an extra day. Many of the participants described volunteering under an overarching 'corporate social responsibility' or 'corporate citizen activities' banner and as part of their company's strategy. The importance of corporates 'giving back to the community' was acknowledged as was the pride many of the participants had in being able to be part of these events.

The mechanisms and company structures for accessing and arranging participation in volunteering days varied with each organisation. Some organisations had formal engagement and volunteers committees in place, with opportunities broadcast via internal intranet, and for others volunteering days were arranged via small informal work groups (such as a graduate group) deciding collectively what they wanted to do. There were comments about the difficulty, for interested employers, of accessing information about environmental volunteering. Event organisers who were interviewed discussed finding out about the Greening Australia opportunity via internet searches, by contacting Planet Ark who personally referred them to Greening Australia, searching environmental volunteering websites, and cold calling:

"I Googled tree planting volunteering and it did not come up with Greening Australia. It came up with Planet Ark and LandCare."

The main forms of previous corporate volunteer activities listed by the participants were engagements with large charities and reputable not-for-profit organisations – the large non-government organisations Oz Harvest, RSPCA and Smith Family were specifically mentioned. The types of activities previously engaged in varied but had a strong focus on social responsibility and included assisting in soup kitchens, participating in community clean-up days and food drives and packing for homeless shelters and disadvantaged groups. Free corporate volunteering opportunities can also be difficult to access, with some organisations and NGOs charging groups up to \$100 per person to come in and help:

"We have quite a large corporate citizen program ... everyone is entitled to a day a year where they can go and do things. We have pretty big drives along with things like food for the needy and packing boxes. There is a good mix of things to do depending what you're interested in."

2. How do you feel about your participation in today's event?

All participants interviewed enjoyed the day and all but one were positive about the CSS Corporate Planting Day experience, seeing the day as a win-win-win for all involved. Many could see the mutual benefits of contributing to the planting efforts of Greening Australia and giving back to the community while also using the occasion as a team building exercise and an opportunity to network with other companies present on the day. The preparation by the Greening Australia team was appreciated:

"I think it's great. I think people who especially work in corporate land really need to have the opportunity to incorporate what they want to do in their life in their working environment. So the corporate partnerships are really important because people want to volunteer. People want to get out and plant trees but they're busy, because they are stuck at their desks and often

"We are a community responsible company ... they give us the opportunity to have one day a year as an employee to come out and do work within the community. I think it is pretty important for companies to be socially aware and corporate aware of not just the corporate environment but other environments. A good company, a good cause and happy we're here."

CORPORATE VOLUNTEER (Q1)

"I think it's great... People want to get out and plant trees but they're busy... It helps the organisations that are trying to do these things by giving them labour for free."

CORPORATE VOLUNTEER (Q2)

Q = Question number

“You never really stop and appreciate how diverse the country is, in terms of the species of plants and animals that there actually are here and the sorts of things that they are under threat by as well. Obviously urban growth is a huge factor but then just natural things like fire and flood I just didn’t realise ... you never really think to put it in perspective that the undergrowth needs a fire or flood to actually produce life.”

CORPORATE VOLUNTEER (Q3)

“Today alone ... we came and it was a blank canvas and we’ve kind of already started filling it up. You need a lot of hands to make light work and having a lot of people here all pitching in ... you’re helping the community by planting a few trees and getting to know new people ... you’re also helping each other along the way.”

CORPORATE VOLUNTEER (Q4)

“I think there’s an opportunity to sort of grow it further. There’s obviously a lot that we can do here but it’s not advertised. I wouldn’t have heard about this program unless we were looking to do a volunteer day. There is a potential for growing that noise.”

CORPORATE VOLUNTEER (Q5)

they won’t have a chance to do this outside of their working life because of time pressures. It helps the organisations that are trying to do these things by giving them labour for free.”

There was one concern voiced that there were ‘lots of people and not enough work’ and one participant would have liked to have ‘done more’ and been more actively involved in the ground preparation work:

“You genuinely wonder how much you could get out of these people to contribute and what you actually get out of them – it seems like there is a big imbalance. Like we could have covered that area over there and that area over there and we are kind of planting on top of other people’s plants at the moment.”

3. What have you learnt about the bushland of Western Sydney?

The educational component of the day was evident from all the participants interviewed. Prior to participation in the event, knowledge of Western Sydney’s bushland and the Western Sydney area in general was limited. Most of the participants cited facts they had learnt during their morning orientation, including that there is only ‘5% left’ or ‘it’s getting smaller’ when referring to the Cumberland Plain Woodland. Many could link their new-found knowledge back to the importance of restoration in a systemic way and spoke not just about planting native flora but about its importance for wildlife connectivity and mobility and the negative impacts of development occurring rapidly across the region:

“I think roughly about 5% is left at the moment. You can obviously see around you that there is a lot of urban and what not. So it’s important to try and rebuild some of this I guess.”

“I had a notion of lots of trees if you come this far out... still horses and cows running around and there is clearly not. I am really happy to be a part of something that’s going to help something that’s critically endangered. I’m passionate about

the mobility of native wildlife. So if we can provide pathways for them, fantastic, we need to do more of it.”

4. In your opinion do these corporate events enhance the natural environment?

All those interviewed agreed that their volunteer work enhanced the natural environment. The majority of the participants expressed a wish to come back in 5 to 15 years to see how ‘their’ seedlings have grown and what long-term impacts the work has had on the area:

“I think they really do. I think sometimes people tend to sugar-coat and white-glove the corporate volunteers and yes we’re desk people and there might be IT geeks but we actually want to do something. Put us to work properly. I think that more could be done that way.”

There was some scepticism about the planting activity, however:

“Yes I do, except it does feel like we are planting over other people’s plants. I see this block of land next to a building that isn’t moving and I’m wondering how many lots of volunteers have come in before us and planted the exact same stuff in the exact same spot and not achieved anything.”

5. Is there anything you would like to add about the program today and how it has been conducted?

The feedback on the event logistics, management and organisation was very positive. There were numerous comments about the professionalism and efficiency of Greening Australia, as well as compliments about the friendliness and helpfulness of its staff. For some, the issue of risk for these types of events can be a barrier for participation and the Greening Australia protocols and risk assessments assisted in navigating this space. Many could see the potential for further growth and further promotion of these activities to get more corporate groups from their own companies and others

involved in supporting the restoration efforts of the program:

“It’s conducted really well ... like it’s quite enjoyable just to get out and just to relax from the corporate environment. I’m happy with it. It’s good.”

“I am very impressed with the participation. I wish we could get more opportunities to do this sort of thing.”

FIELD STUDY NOTES AND OBSERVATIONS

The following are the observations and field notes from the researchers on site at the corporate planting events at Oxley Park. The events had 3 distinct phases:

1. Arrival and Orientation
2. Tuition
3. Planting

1. ARRIVAL AND ORIENTATION: OXLEY PARK NURSERY CAR PARK

“Can I ask a dumb question?” ... “I love dumb questions” ... “Which are the trees?!”

The introductory welcome and orientation given by Greening Australia staff was a critical part of the day as

it provided a proper context to the restoration work the volunteers were there to undertake. For each event, small groups and individuals arrived, mostly by car, from across Sydney and then loosely assembled in the Oxley Park Nursery car park. There was an air of excitement and energy at the beginning of each of these days. About a third of the participants wore corporate branded t-shirts and all were dressed in the required long pants, appropriate footwear and an assortment of hats. Knowledge about Greening Australia as an organisation was minimal and there was little or no understanding about the endangered status and importance of the Cumberland Plain Woodland. When asked what some risks may be with planting, aside from snakes and spiders (with nervous laughter) one inner city volunteer was worried about the risk of ‘broken glass buried’.

2. TUITION – ON SITE

“What’s wrong with blackberry?”
Corporate volunteer

“The idea isn’t to put all trees that are going to grow really big, or grasses that are going to grow low. We want to make layers.” Greening Australia staff

Once the orientation was concluded the groups walked to the planting site

in the paddock next door. The pre-event preparation was significant. All the holes were pre-dug so as to make the day run as smoothly as possible. Greening Australia staff demonstrated how to plant and secure the seedling and explained the different type of plants. The educational delivery by the Greening Australia staff about the planting process was informative, friendly and knowledgeable. While instruction was provided on how to plant, the volunteers also learned about how the Cumberland Plain Woodland was traditionally burnt by Aboriginal firestick farming and how changing land practices, such as paddock slashing, encouraged weeds to grow and proliferate, which is why the workers needed to install planting guards and mats with the tubestock. They also learnt how large the trees would eventually grow and how far apart to plant the different varieties. In this session and throughout the planting volunteers learned how the different sorts of soils of the Cumberland Plain Woodland produced different plant ecologies and that the whole purpose of the planting was to establish corridors following the lines of the creeks. These ecological concepts were later repeated by the volunteers in the recorded interviews, reflecting their new learning.



Photo 2: A choreography of space and place in the Cumberland Plains.
Image: Margaret Somerville

3. PLANTING – ON SITE

“Plant heaps of trees while I’m gone!”
Corporate volunteer walking off to get a drink

The participants primarily undertook planting with some watering on the day. The weather was a major influence on the overall mood: at the September and March events participants were lively and talkative, mixing between companies and working as small teams. However, during the very hot and humid event in December, with temperatures over 40 degrees Celsius, they were noticeably quieter and worked in isolation. All of the groups were very fast paced, with some friendly competition between organisations being promoted, to some extent, at the orientation. Throughout the day’s activity there was some natural uncertainty around the planting exercise which was well supported by Greening Australia advice – one participant thought the blackberry bush was ‘poison ivy’ and had a fear of being ‘stung’. While the experience was far removed from the city and the usual office environment there was an appearance of enjoyment and camaraderie, with volunteers taking lots of photos and ‘selfies’ of their work. At the end of each session the

site was a sea of planted tubestock and tree guards. All the corporate events were held at the site (Photo 2 and Photo 4) which is a low-lying corridor along the Ropes Creek waterway. The creekline is beyond the power lines and the foreground is newly planted.

This stretch of Ropes Creek runs through the back of the Cobcroft family’s property in Melbourne Street, close to the current Greening Australia site (Photo 3). It is evident from the photo that widespread clearing of undergrowth and river bank erosion have been part of the landscape for over 100 years.

CORPORATE EVENT FINDINGS:

- The CSS event planting had a strong educational and social benefit for the volunteers and resulted in an immediate onsite impact.
- Corporate volunteering events work well for large groups and substantial volumes of planting. However, with one-off events, there are obvious limitations in relation to ongoing weeding and maintenance.
- While the planting activity and the event as a whole were highly engaging for participants, volunteers suggested extending the day to include more activities – which could include weeding and site maintenance.
- Environmental volunteering and information about it are not widely or easily accessible for corporations and there are untapped opportunities in this sector.
- Volunteers were very interested in the future of the site and their particular planting efforts, expressing an interest in coming back to the site at a later date.



Photo 3: Ropes Creek, Oxley Park circa 1935
(Courtesy Penrith City Library)

RECOMMENDATIONS:

- 1. Acknowledging the issues of risk management and funding, future program designs for corporate events could give consideration to more than planting and be expanded to weeding and site maintenance. A long-term plan for site monitoring, maintenance and weeding should be in place for sites which host corporate planting events.**
- 2. Greening Australia could consider developing an advertising, promotional and social media campaign specifically targeting corporations, which would increase project accessibility.**
- 3. Greening Australia (depending on resources) could follow up the planting day with details of the site's progress and growth, and also outline further opportunities with participating corporates:** This could be done very simply via an appropriate platform and include details of increasing biodiversity as the site grows. Creating soft linkages that highlight the importance of the long-term implications and

requirements for biodiversity conservation expands the project's reach beyond the immediate funding period. This also develops reciprocity and a small connection to place and to the bushland activity.



Photo 4: Oxley Park Greening Australia revegetation site
Image: Brittany Hardiman

FINDINGS AND DISCUSSION: TARGET GROUPS

Bush Care Groups



2

sites located in
Western Sydney



12

planting events
were held



8

volunteers were
involved in
interviews



5,575

native tubestock
were planted

2016 - 2017

EMU GREEN, RUSSELL STREET, EMU PLAINS BUSH CARE

Bass Sydney Fishing Club were the pioneers of bush regeneration and inspired other clubs from the east coast of Australia to become involved in environmental volunteering. On 14 June 2017, 5 members of the club, who were present at their regular bush regeneration morning at Emu Green on the Nepean River, Penrith LGA, were interviewed. While they are beneficiaries of the CSS program in terms of plant give-aways, their responses are about their bush regeneration activities in general over their 6 years of operation and provide an insight into what contributes to a successful long-term Bush Care initiative. The following is a de-identified summary of their responses to the 8 questions asked in the interview.

QUESTIONS AND RESPONSES

The following is a primary analysis of the findings.

1. Can you tell us about your involvement with Bush Care?

All 5 interviewees had been involved in the Bass Sydney Fishers bush regeneration activities since 2011, when the club became involved with the site at Russell Street, Emu Plains, on the Nepean River. The reason for the club's involvement in bush care was the desire to help the native bass fish (*Macquaria novemaculeata*) by improving their habitat. One member added that his wife is a keen gardener and they are

involved in planting native plants in the park behind their home. Two of the members interviewed became involved because of their interest in bush regeneration as well as fishing. One, a keen landscape gardener, wanted to combine his love of fishing with giving 'something back to nature'. The other was specifically seeking involvement in bush care when he saw a presentation by Bass Sydney Fishers, following a course he had undertaken, 'fishers for fish habitat rehabilitation'. Three of the members are relatively recent migrants to Australia from Vietnam, Scotland and the Netherlands. The bush regeneration activities offer them the additional bonus of learning more about Australia and joining social networks around activities they believe in.

2. Who participates in this program?

The members of Bass Sydney Fishing Club, who come from north, south, east and west Sydney, take part in the bush care activities, joined by 2 members of the local community. They reported that there are normally about 6 people who attend, with more on planting days, as planting tends to be a bit more interesting than pulling weeds. The sense was that although they sometimes think of the numbers as being low, they are actually in line with most volunteer activities anywhere, with the numbers of volunteers that consistently turn up usually dropping to about 10% of the total membership. With 30 members in the club, a regular attendance of 20% 'should be applauded because

people have life going on so to make those commitments and turn up regularly is no easy feat’.

3. How does this program enhance the natural environment?

All interviewees agreed that the main way that their activities helped the natural environment was by removing noxious weeds such as lantana, privet and balloon vine – that are ‘choking the life out of our riparian growth’ – and replacing them with native plants. Removing the weeds also allows native plants to return through direct seeding. The interviewees understand the limitations of ‘the little pocket that we’re working on’ but see this as taking one step at a time as ‘it’s taken us two hundred years to get into the problem we have. We’re not going to fix it overnight, but you know, it’s like every journey, it starts with the first step’. While improving fish habitat is their main aim, this in itself participates in ‘a whole little cycle’:

“Forty per cent of bass feed comes from insects falling into the water. So, with more native trees around, it attracts more insects, more birds, the birds attack the insects, they fall in the water, it’s food for fish, so it’s a win-win for us. It’s a whole little cycle, eh? It is, yes, and it’s not just for the bass. If we have more trees planted along the banks, it also helps the habitat for platypus.”

One interviewee noted that the plants have to be maintained until they get established, ‘by keeping weeds away and in dry times watering them and trying to protect them from vandalism, from other animals like rabbits eating them... we’ve got covers around the plants’. So ‘the program enhances the natural environment because we’re limiting the impact of invasive species, we’re making space for native species, and by coming along every month for the last four years we’re able to get established native species and prevent them being recolonised by invasive species’.

4. How does this program help the local community?

Although this was a difficult question for the interviewees because of the lack of interest from the local community, they all agreed that their bush care regeneration activities improved the environment for the members of the local community who use the area for recreation, such as walking their dogs or riding bikes:

“If you’re a botanist or you enjoy plants, you can now see native species. You can now see those little husks from the cicadas, lizards, little colourful tree birds fly through. The last time I was here at the water’s edge there were kingfishers on my left, flying from a branch down into the water and ping-pong at fish and flying back up. Another thing I saw was a huge monitor lizard that had been drinking at the water and as I walked down it took off and climbed up a tree. The place is more open, you can feel the breeze, you can feel the wind.”

The interviewees noted that ‘many of the people we’ve spoken to over the last six years have been quite enthusiastic’, and remain ‘hopeful that some of that enthusiasm will rub off on them and they might come and help’. They think ‘it’s really good for the children, just the younger folk to come and see what’s happening and what we’re trying to achieve’. They note with regret the ‘hoons’ that drive their 4 wheel drives through the plantings but hope that eventually the improved beauty of this site will engage more of the community positively. Another interviewee referred to the local community of fishermen and the forces against them. He feels that ‘doing these little things not only helps the environment, helps our fishery, but also ... I hope to increase our standing within the community’.

5. How does the program contribute to biodiversity conservation?

The larger question of biodiversity conservation partially overlapped

with the question about enhancing the natural environment, with the positive impact on fish habitat and the increase in the number of trees, insects and birds being part of the whole ecological cycle. As fishers, they noted the specifics of how fish respond to the presence or absence of shade:

“They improve the habitat just by making shade, and you know, bugs and so on, in the spring, and when there’s hot weather, in the trees that fall in the water and the fish benefit from that. When you’re fishing for bass in the summer time and you’re using surface lures, you always generally fish under the overhanging branches of trees. That’s because during the day the bass don’t like to be out in the sunny water, they always head for the shade, so that’s why we do it, it definitely does improve the habitat.”

Another respondent explained in great detail the larger changes in biodiversity he had experienced as a result of the group’s bush regeneration work:

“I can still see a fantastic change. When balloon vine covers trees it blocks out the light and those lower branches get denied light, you don’t get birds, you don’t get so much insects, it’s almost nearly eerily quiet and dead. When you just cut it all at head height and all that foliage dies away and dies down and then falls down over time ... and then we could see more light coming through. We could see smaller birds from forests permeating and we could hear more birds, we could see the shells of cicadas whenever they come out and crawl up the tree, so we could actually see that there was more insect life. You could see lizards on the trees that weren’t there before sunning themselves. We see more butterflies coming through.”

The fishers group also believes that its work contributes to larger biodiversity conservation by setting an example for other groups to follow, and by the flow-on effect

“Forty per cent of bass feed comes from insects falling into the water. So, with more native trees around, it attracts more insects, more birds, the birds attack the insects, they fall in the water, it’s food for fish, so it’s a win-win for us. It’s a whole little cycle...”

BUSH CARE VOLUNTEER (Q3)

“I can still see a fantastic change. We could see smaller birds from forests permeating and we could hear more birds, we could see the shells of cicadas whenever they come out and crawl up the tree, so we could actually see that there was more insect life. You could see lizards on the trees that weren’t there before sunning themselves.”

BUSH CARE VOLUNTEER (Q5)

“I’ve learnt a few new things here that I didn’t know, like how deep to plant them, and you plant them 50mm below the surface, so there’s a natural pool if there’s rain and little things like that, I think, which help, you know.”

BUSH CARE VOLUNTEER (Q7)

of native plantings along the waterways.

6. How do you feel about your participation in this particular program?

Bass Sydney Fishing Club is proud of its achievements in taking the lead for fishing groups in bush regeneration. The club won a Fish Habitat Network Club of the Year Participation Award for what it has done at the Emu Green site, and personally the members feel proud of their participation. They feel satisfied when they remove noxious weeds and see native plantings thrive, and enjoy the socialising the work offers with a BBQ at the end of each bush regeneration day. They particularly noted the satisfaction of seeing plants grow over time, with some trees in the planting now over 10 metres tall. For those members who live in the city it provides them with an opportunity to be in a natural environment:

“I’m from the Bankstown area. I would love to live around here. We don’t hear a thing, just a bit of the water at the background and the birds and the crickets and the cicadas and stuff like that. So, yeah, it’s good to be out and be here.”

One interviewee mentioned the importance of acting on your beliefs and referred to the European Union Laws saying that countries had to restore the rivers to original function and health. The activity of bush regeneration provides an opportunity to be ‘not just wishing for things to get better or adhering to more say, healthier principles, but actually out here implementing them in practice’.

7. Have you learnt anything from this program?

The interviewees said they had learned a lot about the different weeds and the different native plants and trees and how they function in particular environments. They noted the practicalities of how to plant the native plants for the best chance of

survival. Some also commented that they had learned a lot more about the relationship between the planting and fish – ‘... 40% of what the bass eat and the fishes eat in the river comes from the trees that we planted along the river’. Another interviewee noted the motivation to learn more – ‘the knowledge isn’t that you’ve acquired absolute new knowledge, it’s that you’ve acquired new knowledge that allows you to access more knowledge and appreciate it even if you don’t fully understand it’.

8. Is there anything that you would like to add about the program and how it’s being conducted?

The Bass Sydney Fishing Club noted that they appreciate the support for their bush regeneration activities:

“... We got some trees and some help from a professional organisation, they helped put them in and look after them. So, that has been really good, and I think, hopefully it will continue or will go again, and I think more and more people, as I said, right across Australia, are getting involved, and it can only be a good thing.”

And, finally, one interviewee spoke about the significance of bringing his young daughter along and her early learning about fish habitat and bush regeneration:

“I can bring the family and they can muck in and pull some weeds or do some watering and my daughter likes to do the watering with the watering can. I hold it and she just pours it or they can just come and do nothing and then ... but they get to spend a wee bit of time and see something else that’s not Sydney inner west. They get to see something that’s a wee bit more country and hopefully they pick up on the enjoyment.”

MELBOURNE STREET, OXLEY PARK, ROPES CREEK BUSH CARE

“Ropes Creek Bush Care is an engagement and education program of Greening Australia to restore this piece of state and nationally significant bushland and to create community awareness. The group’s overall activities include tree planting and weed control to assist the regeneration of native bushland to restore Ropes Creek Green Corridor.”
Greening Australia

On 25 March 2017, a focus group was convened with Oxley Park Bush Care group – there was one volunteer along with two Greening Australia staff members who also participated in the activities. One of the staff members was the Bush Care supervisor for the day and the other was there as a volunteer. This is a new Bush Care group and attendance at this site has been inconsistent: some months no volunteers turn up and other months there will be 8 to 10 participants. The focus group’s responses are about their bush regeneration activities in general at the Oxley Park site and the CSS project. The following report is a de-identified summary of their responses to the 8 questions asked in the interview.

QUESTIONS AND RESPONSES

The following is a primary analysis of the findings.

1. Can you tell us about your involvement with Bush Care?

The 3 participants had differing levels of volunteer experience. One volunteer was very new and had participated only twice before in the Oxley Park program, while the other two had been volunteering for many years on a range of Bush Care programs, including this one. The new participant’s previous experience with volunteering was more socially based, for example, participating in a soup kitchen or a scouts program. The driver for the volunteers’ participation in this Oxley

Park program was the connection that environmental volunteering gave them to their surroundings – planting trees is ‘good for the soul’.

2. Who participates in this program?

The number of volunteers that participate in the Oxley Park program varies – ‘surprisingly sometimes we get seven or eight people’. Participants in the program come mostly from outside Western Sydney as these opportunities don’t exist closer to their homes.

3. How does this program enhance the natural environment?

The Bush Care program was identified as helping and enhancing both physically and socially. However it required ongoing funding and support:

“In a physical sense it enhances the natural environment by introducing more native species into the environment, removing weeds such as privet and noxious weeds. So, in a physical sense it removes threats and promotes natives and in a social sense, it encourages an environmental mindset in the volunteers and the participants.”

4. How does this program help the local community?

It is the view of the focus group participants that the local community is the ‘most important aspect of Bush Care’, not only for the physical labour that is required for carrying out a restoration program but because of the need to spread the message to their families and the community. There is a pressing need to ‘recruit more volunteers’ and for youth to take up these kinds of activities.

“Attracting volunteers, especially in the Western Sydney area, it’s rather difficult.”

5. How does the program contribute to biodiversity conservation?

“A self-sustaining bushland is what the goal is.”

“I’ve been working with Bush Care program for a very long time, and still love Bush Care. This is a nice way to understand the ecosystem, understand nature. I volunteer especially at Bush Care as one of the ways to get closer to nature.”

BUSH CARE VOLUNTEER (Q1)

“I feel confident that it’s a part of something that’s meaningful, it’s part of something that’s connecting to activities that other people are doing and, as I said, it feels like it’s the last buffer in Western Sydney almost. I quite like this because it’s got a nice feel.”

BUSH CARE VOLUNTEER (Q6)

“In the Cumberland Plains ... really harsh conditions ... you have baking sun or freezing winds, torrential downpours. So, it’s like, we’re going to be cooked, drowned, or flooded away.”

BUSH CARE VOLUNTEER (Q7)

The larger question of biodiversity conservation partially overlapped with the question about enhancing the natural environment.

6. How do you feel about your participation in this particular program?

"I feel confident that it's a part of something that's meaningful, it's part of something that's connecting to activities that other people are doing and, as I said, it feels like it's the last buffer in Western Sydney almost. I quite like this because it's got a nice feel."

One volunteer was more interested in the physical act of planting than in learning the scientific background of 'how and why'.

"When I did the first day ... he gave me some really good publications and - but I - look, I've put them to the side and I really just concentrated on digging holes and sort of planting."

It seems the satisfaction of participating in a program like Bush Care is personal and does not provide the 'stories' for when other people ask, that participation in a more overtly social program offers.

"When I was doing volunteering work in the soup kitchen, which was sort of three times a week, I'd come home and you meet a lot of interesting characters and people and things and so there were stories to tell them every single night ... whereas this is sort of once a month and they sort of say, what did you do and I said well, planted some plants and whatever, so, this is probably - does more for me but it doesn't do anything for them sort of yet."

7. Have you learnt anything from this program?

The volunteers had a broad range of knowledge, including the importance of plant selection, the impacts of urban development and the distinctiveness of the Cumberland Plain Woodland.

"I've just been learning stuff about certain plants not to plant under the powerlines because they're just going to cause problems down the track. I look around and go, oh, the plants are all the same, but I think the most important thing I've got out of it is that the bush here has its own look. It's not like bush you'll see somewhere else ... we walked down towards the creek this morning and he pointed out an area and said this is very typical of what it would have looked like a couple of hundred years ago."

"Sydney is going to doom a lot of this and if you follow through these discussions about children being locked out of housing ... there needs to be more supply, I guess land ... and this sort of land and other land around here is just going to ... it's going to win."

The resilience of the new seedlings and the existing stand of Cumberland Plain Woodland was apparent, with '50%' of the new plants managing to survive even in the extremely hot summer conditions in Sydney across 2016/17.

"In the Cumberland Plains ... really harsh conditions ... you have baking sun or freezing winds, torrential downpours. So, it's like, we're going to be cooked, drowned, or flooded away."

8. Is there anything that you would like to add about the program and how it's being conducted?

The program is being seen as 'creating connectivity' across the wide range of programs encompassed in the overarching Cumberland Stepping Stones program.

BUSH CARE FINDINGS:

- Community Bush Care groups can have a deep and personal connection to their local places that extends over time.
- Functioning Bush Care groups are well situated to offer both long-term, ongoing action and one-off planting events to improve connectivity in their local areas. However, the commitment of volunteers can be sporadic and this sector can struggle with volunteer numbers over the long term, which limits their on-ground capabilities.
- Bush Care groups offer the general community an opportunity for on-ground works at one site in their local place.
- The participants have learnt a broad range of new knowledge, including the importance of plants, differences between natives and weeds and information about the environment more generally. One of the main benefits of the program is its clearly evidenced educational potential over a long period of time - which is what is required for biodiversity conservation.

RECOMMENDATIONS:

1. **Dedicated Bush Care volunteers understand the long-term commitment required and need external support to enable them to continue their efforts.**
2. **Upscale the promotion of environmental volunteering opportunities and activities with the corporate sector and expand these networks.**

FINDINGS AND DISCUSSION: TARGET GROUPS

Private Landholders

MULGOA CREEK CORRIDOR

Mulgoa Creek Corridor (MCC) is located in the Penrith LGA. It is situated along private and public land encompassing 10km of Mulgoa Creek and adjoins Mulgoa Nature Reserve. Restoration and revegetation of MCC commenced 20 years ago and has been an ongoing story of challenge, collaboration and dedication. Twenty participating landholders have worked on the creek corridor itself and have also worked to raise the profile of the creek corridor amongst various government agencies. MCC now appears on the New South Wales Government's bio map, the Biodiversity Incentives Offset map. This has been good news for the MCC because of the flow of funding for weed management.

The work of the ongoing Bush Care group is supplemented by opportunities externally funded by a wide variety of organisations. On 22 February 2017, the research team walked over one of the properties with the owner (de-identified here), who had lived there almost her whole life. The following is a storyline summary, highlighting what discourses the story employs to create a narrative about long-term biodiversity conservation for this particular place. The story demonstrates the importance of projects such as CSS Community Corridor feeding into the specific requirements of local places and provides significant insights into how a concerted effort by local landholders, with the right leadership, commitment and knowledge, can generate ongoing

conservation outcomes on private property.

NARRATIVE

Fostering Connectivity Along 'Our Precious Creek'

"... As a community we've heavily invested already in establishing habitat and trying to improve the biodiversity of the vegetation on Mulgoa Creek."

Mulgoa Creek – 'our precious creek' – has itself generated a corridor opportunity as it remains one of the few places in the LGA with remnant vegetation that cannot be built on. The owner commented about this and is aware of the imbalance this causes for the terrestrial communities of CPW through the current emphasis on riparian zone restoration: 'terrestrial habitat is poorly represented in conservation on the Cumberland Plain'. Concurrently, she recognises that these undrained, flood prone areas exist only because they cannot have a house, road or factory built upon them and that they are therefore an opportunity for CPW restoration. She sees the value of the creek for landscape connectivity, community engagement and as a source of freshwater for the local wildlife during the long, hot summers. Mulgoa Nature Reserve is on the other side of her property and she stresses the importance of corridors and connectivity in a regenerating landscape:

"So we had a really big wildfire go through in 2001 and you need an ingress and an egress for wildlife



2

private landholdings in Western Sydney



50

native tubestock were planted

"... As a community we've heavily invested already in establishing habitat and trying to improve the biodiversity of the vegetation..."

PRIVATE LANDHOLDER 1

2016 - 2017

“... From where we stand here you wouldn’t have known there was a creek. It was literally dense – little ones, big ones, and it required a lot of chainsawing. There wasn’t much in the way of native species. It was a bit of a labour of love and we have done plantings. Even these big Eucs here, which are actually an incorrect species but when we planted them they were tiny and we didn’t realise we’d planted the wrong thing. But still they’re performing a function of providing some degree of habitat – shade for the native grasses coming up underneath.”

PRIVATE LANDHOLDER 1

“... We have got predominantly native grasses ... a nice little macrofauna lawn here – a marsupial lawn they call them I think – for your little swampy (wallaby) that came hopping through.”

PRIVATE LANDHOLDER 1

to escape that fire and that’s why these connected corridor links are so important so that they can move out of these areas and then when there’s regrowth they can all move back in again.”

Predominantly, the restoration work along Mulgoa Creek has been weed management with some plantings, although there has been an emphasis on natural resilience (Photo 5). The weeds are removed and the native seed bank that is left in the soil will then be able to germinate because of the changed sunlight conditions. The objective of the CSS Community Corridor is one that the owner sees as critical in raising awareness of the importance of connectivity in a fragmented and struggling landscape.



Photo 5: Mulgoa Creek running along private property
Image: Jen Dollin

Tree-sized Weeds and Marsupial Lawns: Learning over time

“And from where we stand here you wouldn’t have known there was a creek. It was literally dense – little ones, big ones, and it required a lot of chainsawing. There wasn’t much in the way of native species. It was a bit of a labour of love and we have done plantings. Even these big Eucs here, which are actually an incorrect species but when we planted them they were tiny and we didn’t realise we’d planted the wrong thing. But still they’re performing a function of

providing some degree of habitat – shade for the native grasses coming up underneath.”

The MCC has 8 target weed species which are the ‘real problem sort of ecosystem transforming type weeds’. These include woody weeds such as privet, African olive and tree of heaven and vines such as bridal creeper and cat’s claw creeper. The owner has taken a sustainable, long-term approach in terms of prioritising weed eradication in order to manage paddocks and livestock:

“We’ve left those ones because it’s shade for the horses and they’re in the paddock at the moment. But one day they will be gone as well because they’re seed producing, very mature, old African olives. Some – I think it was either National Parks or back in the day it was the Catchment Management Authority – someone came out to my property for a different reason and said, ‘Gee, you’ve got really bad olive’. That was twenty years ago. I didn’t even know what an olive was. I thought it was a native tree. I said, ‘You’re joking. Is that all weeds?’

The owner has learnt, through ongoing action, about the crucial connections between weed eradication, ongoing management and biodiversity conservation. She has accepted that this endeavour is ‘a labour of love’ over time and is not something ‘you could walk away from and take up knitting’. These knowledges have emerged and deepened with the seasons and through years of working on and with the MCC. They include a holistic understanding of the complex interactions of an endangered ecological community that comprises layers of grasses, shrubs and trees:

“So you can see through there that it’s taken a long time, but we have got predominantly native grasses. Obviously we’ve got some annual weeds coming back through, but a nice little macrofauna lawn here – a

marsupial lawn they call them I think – for your little swampy (wallaby) that came hopping through.”

Creating Wildlife Corridors

“Because the beauty of it – and it’s that old Aboriginal theory, it’s like you can’t take it with you. It’s not yours. The land is not yours; it’s not yours to keep. You can just enjoy it while you’re here and while the opportunity presents itself. But you have to pass it on ...”

The owner’s connection to the land and the wildlife moving through and living within it is a key inspiration for her work. She was very clear about her responsibility to, and relationship with, her environment and about her legacy in ensuring the ecological wellbeing of the property in the future. There was a deep understanding of the connectedness of this work and how, beyond her vision for the immediate creekline, this long-term dedication is part of a larger, strategic connection for Western Sydney biodiversity.

“It’s amazing, really, how well our wildlife have adapted to such massive change in Western Sydney. And to think that we could still see a swamp wallaby this morning, mid-morning, it gives an indication that there’s quite a viable population still and we just need to provide these core biodiversity [areas] ... We see possums and we’ve seen the odd wombat up my driveway. We’ve seen echidnas. I would love, dearly love to see platypus back in our creek. And it’s not just about the stuff that we see – we’ve got goannas and all sorts of stuff – but it’s about the stuff that we can’t see or reptiles and birds that are carrying on their activities of life that we don’t observe too often but we know that they’re there. So that’s reward enough. It’s been a long-term project. It’s going to be a very long-term project. We’re not finished yet.”

On the property there has been a loss of old trees providing hollows for possums, bats and parrots

(Photo 6). The CSS Community Corridor project supported Sydney Arbor Trees in installing a variety of artificial habitat hollows and, thereby, the Habitat Hollows program has provided the MCC with an important new focus on restoration of habitat directly aimed at mature old trees.



Photo 6: Trees over 100 years old are increasingly hard to find on the Cumberland Plain Woodland. Stringy bark (*Eucalyptus eugenioides*) at the end of a row of old gum trees
Image: Jen Dollin

The owner was very concerned about the issues associated with feral fox management and their impact on native wildlife. She sees evidence of the impact of foxes ‘everywhere’ – on her own and on other properties. However, she does not hold much hope that there would be a targeted program in an urban location such as Mulgoa, given the prioritising of areas that have ‘bilbies and bettongs and things like that, which is fair enough’. She sees foxes as creatures that are ‘not evil or nasty’ but simply surviving in an ecology where they do not belong. Given a choice between Western Sydney’s small mammals and native species and foxes she believes something needs to be done.

“... If the government tapped me on the shoulder and said, ‘Here’s another quarter of a million bucks, spend it,’ I would probably run a fox program on private properties

“It’s amazing, really, how well our wildlife have adapted to such massive change in Western Sydney. And to think that we could still see a swamp wallaby this morning, mid-morning, it gives an indication that there’s quite a viable population still and we just need to provide these core biodiversity [areas] ... We see possums and we’ve seen the odd wombat up my driveway. We’ve seen echidnas. I would love, dearly love to see platypus back in our creek ... that’s reward enough. It’s been a long-term project. It’s going to be a very long-term project. We’re not finished yet.”

PRIVATE LANDHOLDER 1

through here because – it was really sad, the other day I was out at another conservation property called Wallaroo and I saw three turtle nests dug up and the eggs eaten. And I just thought this had got to stop. The other day, just over the weekend, last weekend I took – I've got a photo of it if you need it for your reporting – just where we parked our cars, a sugar glider tail. That's all that was left."

Engaging Local Landholders

"... It certainly is something nice for community to meet the neighbours and have a common end-goal in terms of property management."

There are 'at least a dozen' active property owners involved in the MCC and up to 20 who are supportive of the initiative but 'don't really want to get down and pull out weeds on their own property – too busy'. This has been a process and project that has been very slow both with building neighbourly connections and chipping away at the weeds.

"People get quite suspicious of other people ringing them up and wanting to come onto their property and kill weeds. They're not quite sure ... it takes many years and lots and lots of newsletters each month being mailed out to people saying 'come and join in the fun and we can come to your house and kill your weeds if you want'."

When properties change ownership, as with the 100 acre historic holding across the road, new contacts have to be established and the process starts again. Among many neighbours there has developed a great rapport and friendship, which would otherwise not have happened.

"... That's where we're coming from – a real sort of encouraging mentality as opposed to a Big Brother type mentality where 'no, no, you can't do that'. And you need to be that way because at the end of the day property owners have rights, so you need to be encouraging as opposed to being a bully."

Shale Cliffs: Am I making a difference?

The story and walk along Mulgoa Creek finished at a new geological formation – the Shale Cliffs. These have recently been listed with the New South Wales heritage register, as the only remaining example of exposed shale cliffs in Western Sydney. The management of these, for both Land Care and National Parks and Wildlife Services, has been difficult due to their instability. There is concern that the root systems of the African Olive are possibly supporting the cliff walls – when a violent storm came through the area the larger olives fell down and took 'two huge chunks of this shale cliff with them'. Following a decision to deal with the issue, a team of 'abseiling bush regenerators' came in:

"It's such a project. And then the money runs out for five years so then I have to work out how we're going to – and then we get some more funding and we send the contractors back up the cliff and tell them to kill a few more weeds. So it's a bit sporadic but that's the nature of the beast, I'm afraid. There's never enough money really..."

The morning finished with the owner's self-reflection on her work, achievements and failures over the years, on the use of tax payers' money to support biodiversity conservation outcomes and on the question, 'Am I making a difference?'. Her ongoing intentions were clear:

"And you really can't stop ... So there is that degree of responsibly to keep marching forward and know that if a government makes a really bad decision, and they do, that in a couple of years' time there'll be another election, there'll be new faces, and a new government and people that will need convincing about what we're doing. And so I've been around long enough to know that things change for the worse, but with a change of government sometimes things change for the

better suddenly as well, so you've just got to hang in there, keep doing what you're doing, even if it's just turning up once a month on a Saturday morning, and wait for your moment."

REGENTVILLE LANDHOLDER

“You know my personal opinion is that a lot of money gets spent on policies and no money gets spent on actions, and it’s actions that are the only thing that will make a difference, and following through and taking land owners, making them carry out the regulations that are in place, and that’s just not done because it’s too difficult.”

The second private property visited comprised of 5 acres in Regentville in the Penrith LGA. The owners have been working along the creekline that borders the property for close to 20 years. They received their first external grant 16 years ago. They have long and deep connections to the area, dating from the 1960s and have a farming background and extensive Land Care experience. The property hosts a colony of wombats, and is a corridor for wallabies and a rich variety of birds, reptiles and frogs. The owners’ primary focus has been on weed eradication, weed management and flood mitigation. They have just been introduced to the CSS project and have planted their first lot of 50 tubestock. The interview took place on 22 May 2017 and provides other insights into the challenges landholders face over time in conserving CPW and their difficulties when owners of adjoining properties are not interested in restoration and conservation.

NARRATIVE

Assistance for Weeds and Neighbouring Properties

“... This is one of our comments, is that how governments target funding, it’s ‘Here’s some plants’, and we say, ‘Well what about the ongoing maintenance, what about the spraying, what about the preparation ...”

As the owners ‘got older and we got a little bit more time’ they began to look for assistance with their property and found out that there were grants available. Their

first grant was around \$10,000 and \$5,500 of that money was spent on chipping olive and privet:

“And we took all the wood out ourselves and, of course we could pull it all up from the creek with our tractor. And we would have – day after day we would have the paddock just laid out with privet and that, and olive that we’d taken out.”

The owners have found that the grants are ‘very prescriptive and do not respond to the needs of the localised place’.

The work at Regentville is done without ongoing action from neighbouring property owners, so there is little opportunity to create a connected corridor. One neighbour has been open to them working across the creek on his property:

“This neighbour, he knows we do all this, so we clear all of this because this used to all be blackberry, and they agreed we could put a gate in the fence, when it was a proper fence, and we’d just bring the tractor through with the slasher on it and slash. And then we’d come through periodically and try and take out more of the privet, and I’ve been coming through and spraying across those neighbours’ fence ...”

It is the owners’ view that peri-urban landholders have little knowledge about or incentive to manage their weeds and that farmers ‘try and control what’s not good for their property, whereas all these city slicker owners couldn’t care less’. For example, there is a 7 acre lot that backs onto the interviewees’ property that is infested with green cestrum:

“... It is probably five acres of cestrum, they don’t do anything about it. We had a talk to them the other day and they started to do something, and that’s all they need to do to keep the authorities happy – they don’t have to get rid of it, they just have to be deemed to be doing something about it.”

“... This is one of our comments, is that how governments target funding, it’s ‘Here’s some plants’, and we say, ‘Well what about the ongoing maintenance, what about the spraying, what about the preparation ...”

PRIVATE LANDHOLDER 2

“... They [neighbours] don’t do anything about it. We had a talk to them the other day and they started to do something, and that’s all they need to do to keep the authorities happy – they don’t have to get rid of it, they just have to be deemed to be doing something about it.”

PRIVATE LANDHOLDER 2

“If the landholders could be put in a position where they had to clear the privet and the olive and the cestrum...”

PRIVATE LANDHOLDER 2

Lucky Stones and Localised Flooding

The interviewees' property is downstream from Glenmore Park, where a new housing development commenced in the late 1970s. The development has altered downstream catchment flows and has had a significant impact on the Regentville property. This small creek system is impacted when heavy rains occur and the overflow from the Glenmore Park water retention basins sends a rush of water downstream, resulting in creek bank erosion and localised flooding. One of the ways the owners have tried to mitigate these impacts is by shoring up the creek beds with 'lucky stones' and logs. Lucky stones are round river rocks that have been polished smooth by grinding over other stones in the water over many years and they occur naturally at this site. The owners add to these by locating free river stones on the 'Gumtree' classifieds website and collecting and installing them (Photo 7). The logs have not been successful – despite being wired and staked down, 'by the time we'd had a couple of flushes of water ... the flow's been too great for them'. Erosion continues to be 'the biggest problem at this stage'.



Photo 7: Stone wall on creek bed
Image: Margaret Somerville
Wombat Hollow and Wildlife Habitat

"... I've lived in this area since 1960 and I've seen platypus and I know where they live, and it's just fortunate that this one had come upstream for a while and then has gone back downstream."

The owners' knowledge of, and interest in, the local wildlife is similar to that of the landholder in the first case study – a reflection of learning and observation over time. They have an intimate knowledge of the rhythm of the seasons, the birdlife and the local fauna. They have noticed in the last 12 months that deer have started to come through their holding. The site has been set up with biodiversity cameras and is monitored by Local Land Services (LLS). One of the local wombats had an infestation of mange and had to be put down, but LLS provided medication to assist the others. While the owners appreciate swamp wallabies now coming into the area they acknowledge the give and take that is associated with planting restoration:

"We have problems with young plantings – wallabies, swamp wallabies – they keep eating them, especially some of the particular species that – I just can't get it to grow. And I can't get a cover around it high enough to stop them sticking their heads over the top and still eating it. See, when we first started, the wallabies never came into this area ..."

The owners were not very familiar with the objectives of the CSS project. They expressed a desire to do more planting, however they require a lot more clearing before they can do so. Their one wish with regards to CPW restoration would be:

"If the landholders could be put in a position where they had to clear the privet and the olive and the cestrum – cestrum first then the others."

PRIVATE LANDHOLDER FINDINGS:



→The case study of MCC demonstrates what is possible on private property when there is a dedicated vision and local leadership – the CSS project feeds into and supports this work.

→Private landholders, like Bush Care groups, have a deep and connected understanding of the long term requirements for conservation gains and of the importance of committing patience and time to achieving their objectives.

→In attempting to form a successful collaboration network, private landholders are dependent on the interest of adjoining neighbours. When owners of adjacent properties are not engaged in the project, or do not understand the reasons for environmental action, the conservation work of the individual landholder can be isolating.

1. **Dedicated private landholders understand the long term commitment necessary to the task of conservation and require devolved and flexible funding that is responsive to their needs.**
2. **The promotion of environmental volunteering opportunities for, and activities, with the corporate sector should be upscaled and these networks expanded.**

Photo 8: Regentville property
Image: Margaret Somerville

FINDINGS AND DISCUSSION

CSS Meta Level Evaluation

This section contains an initial meta level evaluation of the program to answer the overarching study question: 'Is community engagement and education an effective methodology for biodiversity conservation?'. Key thematic considerations in this framework included a consideration of the CSS process in terms of participant experience and design, efficiencies with regards to different methods of engagement, effectiveness of the engagement method uptake, and outcomes regarding on-ground impacts and learnings, including future opportunities. This framework has been adapted for CSS from Davidson and Wehipeihana (2010) and the Europe Aid Cooperation Office. It is important to understand that while initial comments can be made about overall aspects of the CSS program, the delivery and design of the different group activities means that direct comparisons are not relevant.

1. PROCESS:

- **How was the CSS project designed and implemented from the perspective of participants? (i.e. What was its quality?)**
- **What was the participants' experience of the process?**

It is possible to make comments about the program process in relation to schools and corporate groups as a one-off activity on the day, but it is difficult to distinguish comments about the process of the CSS program from the ongoing activities of landholders and Bush Care groups. The online survey for schools offered a sliding scale of

0%-100% on which to rate Greening Australia's 'management and on-ground performance'. The average rating for all the responses compiled was 91%, with responses ranging from a low of 70% to a high of 100%. The interviews conducted during corporate events concluded with a general question asking, 'Is there anything you would like to add about the program or how it's been conducted today?' Responses to this question indicated a generally positive participant experience, with 50% of respondents commenting on the professional management of the project and the thorough knowledge and friendliness of the staff. These responses are backed up by the research team's field notes and observations. In relation to the Bush Care groups and landholder activities it is important to note that the CSS program was integrated into their ongoing activities and so supported their long-term conservation work in critical ways.

2. EFFICIENCY:

- **What is the relationship between the different methods of engagement?**
- **What is the benefit of each type of approach?**

The CSS project demonstrated that there is a complementary relationship between one-off engagement activities and ongoing long-term actions and how, when thoughtfully implemented, they can supplement each other. The schools sector can offer both long-term ongoing action and one-off planting events. However, for this to be significant in terms of biodiversity conservation

and enhancement of the Cumberland Plain Woodland, crucially, these activities need to involve more than just plantings within school grounds. The benefit of targeting schools for CSS is in the existing (and obvious) educational approach to biodiversity conservation. Targeting the corporate sector for one-off events fits within the corporate social responsibility and volunteering framework and is beneficial for single one day large scale planting events. The participant feedback indicated that there is an opportunity for further leveraging to be undertaken with this sector, which has potential to grow significantly with a targeted strategy for engagement and education. Both the Bush Care and private landholder sites are places where the participants have made a long-term commitment to biodiversity conservation. It is critical to recognise these ongoing commitments across local places and to continue to support these activities with larger initiatives such as the CSS project. The main benefits are to shore up local activities and link them to the larger vision of connectivity and connections.

3. EFFECTIVENESS:

- **To what extent did the engagement methods encourage the target groups to take part in the CSS?**
- **How self-sustaining was the activity?**

The answer to this question is different for each of the groups and to a certain extent overlaps with the findings above. For schools, it seems that where the program

is integrated into the curriculum it has better long-term prospects of ongoing engagement, but this is not clear-cut either, as student clubs and so on might be just as significant: this effectiveness should be further explored. By targeting schools, the CSS project was able to tap into a long-term institutional presence in local communities, supported by an in-situ stream of young environmental volunteers and dedicated grounds staff. The prospects for self-sustaining activity in the school sector are strong for this reason, with opportunities to extend beyond the school gates into the wider community.

For corporates, the engagement methods were highly effective, with the important dimension here being to 'convert the unengaged', which they seemed, to some extent, to do on the planting day. Information on the number of corporate participants who follow up the day with ongoing environmental action and volunteering is not available, but it would be good to know. The long-term viability of these events needs to be assessed over time and is directly linked to site capacity for ongoing weed maintenance and monitoring. For landowners, the engagement methods depend on support and commitment over a long period of time, but mostly, and crucially, on the involvement of adjoining property owners, as the lack of involvement and cooperation by neighbours means the task becomes difficult or impossible. This factor is really obvious in the comparison between Landholders 1 and 2. For Bush Care groups the level of engagement depends on a number of personal and individual factors, such as time available, other commitments, demographics, and social needs. However, support for the group, to enable them to sense the ongoing progress of their work, is crucial.

4. OUTCOMES:

→**Was there any significant change to on-ground biodiversity/vegetation as a result of the CSS project?**

→**How valuable were the outcomes to the participants?**

As a result of the CSS project, there was an immediate output of 75,000 seedlings planted across the target areas. How significant this will be to long-term biodiversity conservation remains to be seen. Again, the value of the outcomes for participants varies with the groups because of the questions concerning the one-off versus long-term engagement distinction. For schools, the high level of continued student engagement (90%) and high response by the teachers to the question of whether this project enhanced their natural environment (95%) indicate that the participants perceived a valuable outcome. Likewise, the corporate volunteers' responses and researchers' field study notes indicated that they had experienced a valuable and meaningful day. The Bass Fishers Bush Care and the private landholder participants witness substantial long-term changes in biodiversity because of their close involvement with the land over a long period of time – the CSS project is a contributor but not a driver for these groups.

5. LEARNINGS:

→**What worked and what did not?**

→**What were unintended consequences/challenges?**

→**What are future opportunities for CPW biodiversity conservation in Western Sydney for these methodologies?**

The CSS Community Corridor project was successful in its aims of engaging the general, school and corporate communities in practical and immediate environmental action. Due to time constraints the long-term impacts of this engagement are yet to be understood and this has been acknowledged at the beginning of the study as a limitation

of the evaluation. All the target sectors embraced the program for different but equally valid reasons. The performance of Greening Australia's staff in implementing the project should be considered central to the project's success with the school and corporate sectors. The provision of plants, logistics support, risk assessments and, importantly, funding ensured that the project was accessible and affordable.

This study provides empirical evidence, from a wide range of respondents, that supports the literature outlining the many challenges for long-term biodiversity conservation outside of protected areas and reserves in Western Sydney. Urban development restricts the viability of large tracts of Cumberland Plain Woodland to low-lying areas that are sometimes flood prone and are usually located along the region's riparian zones and creeklines. All the community interviews were conducted on site along creeklines and/or rivers.

The nature of each sector's learning which is directly attributable to the CSS project is difficult to determine. For schools and corporates this is because of the one-off nature of their engagement with the planting and the limitation of the study in terms of timing and gathering data. Learning gained is equally difficult to determine with regard to landholders, as they already know so much, and for Bush Care groups, as it is impossible to distinguish new learning from their ongoing learning. It is evident from these groups that ongoing learning and observation is essential for long-term biodiversity conservation. People need to learn what biodiversity is, how to recognise it, and what they can do in the long term to enhance biodiversity, beyond just the addition of more plants or more species of plants. In conclusion, education and observation, supported by strong networks of multi-sector alliances aligned with strategic policy are key to conserving biological diversity. Agencies need to understand the nature of ongoing learning over

a period of time and to develop strategies and action plans which align with this and include longer-term thinking and support for ongoing maintenance and care.

KEY FINDINGS:

- The Community Corridor project effectively engaged with environmental action and education across the target groups and sites. The study found that each action group is equally important and that the groups are complementary to each other as they bring different knowledges and strengths to their local places.
- Local commitments need to be supported by appropriate local, state and Commonwealth strategies and plans that align with a long-term vision and strategy for continued and effective local action.
- Short-term, highly localised and site specific biodiversity conservation outcomes are evidenced by the extent of new CSS plantings. However, ongoing maintenance and weed management is required to support these initial efforts and will need further evaluation.
- Effective biodiversity conservation requires a long-term commitment from the local community and a combination of knowledge, observation, leadership, patience and action. Functioning Bush Care groups and private landholders are community exemplars of how this learning is enacted and school sites have further potential.

RECOMMENDATIONS FOR POLICY AND STRATEGY:

- 1. Continue to support policy initiatives and mechanisms for the Cumberland Conservation Corridor via large scale initiatives, such as the Cumberland Stepping Stones, that recognise the key role played by community engagement and education.**
- 2. Recognise that enhancing ecological connectivity for long-term conservation of the Cumberland Plain Woodland requires an ongoing commitment for weed management, monitoring and maintenance as well as planting and education.**
- 3. Develop flexible funding mechanisms attuned to on-ground reality and to different requirements over time and in different places:** Flexible and on-going funding mechanisms that support weed management and maintenance are just as crucial for biodiversity outcomes as is the provision of plants. New funding arrangements could include more flexibility in devolved funding arrangements for on-ground organisations, as well as including the facility to fund more strategic initiatives, to further targeted research, provide assistance for local leaders and private landholders to develop networks, and direct funding into on-ground priorities.
- 4. Consider the development of a coherent framework for Western Sydney biodiversity conservation and action, encompassing land and water systems, in order to leverage government priorities across a range of agencies to achieve systemic environmental benefits and biodiversity outcomes:** Supporting a viable Cumberland Plain Woodland in Western Sydney requires facilitating the health of the waterways, as connectors with the larger terrestrial remnants of woodland, and liaising with private and public landholders. This will require a multi-stakeholder approach at all levels of government.

For example, there is a scattered range of well developed resources and opportunities available for local community and private landholders but these are not simple to access and are located across multiple agencies. Equally, there is a need to ensure that local communities are educated concerning the impacts of noxious weeds and land clearing and that requirements concerning these are clearly communicated and complied with at a very local level.

RECOMMENDATIONS FOR FURTHER ON-GROUND ACTIONS:

- 1. Recognise the institutional potential of schools as sites for long-term biodiversity conservation which supports enhanced connectivity:** Schools should be supported with teachers' professional development and given further opportunities to extend their conservation efforts into local areas, beyond their school grounds, to which students can walk. These efforts should be coordinated with Bush Care groups and local councils to undertake environmental restoration for ongoing beneficial environmental outcomes.
- 2. Upscale the promotion of environmental volunteering opportunities and activities within the corporate sector and expand these to Bush Care and private landholder networks:** Consideration should be given to broadening corporate activities to include ground preparation, watering and weeding. This would require further initial work and training but would provide additional and much needed intensive labour for dealing with weed infested areas. For large scale environmental restoration in areas with already established Bush Care groups and participating local landholders there is an opportunity for corporate volunteers to significantly add value to this work. Networking and organisation would be required at the local level; exemplars already exist in Western Sydney.

APPENDICES

PARTICIPATING SCHOOLS

- Blackheath Public School
- Blacktown Boys High School
- Blacktown North Public School
- Blacktown South Public School
- Bringelly Public School
- Cambridge Park High School
- Casula Public School
- Claremont Meadows Public School
- Dalmeny Public School
- Emmaus Catholic School
- Evans High School
- Fairfield High School
- Fairvale Public School
- Glenbrook Public School
- James Erskine Public School
- Jamison High School
- Katoomba High School
- Kingswood High School
- Kurambee Special School
- Les Powell Special School
- Lethbridge Park Public School
- Mary Immaculate Primary School
- Nagle College
- Oxley Park Public School
- Penrith Public School
- Pitt Town Public School
- Springwood High School
- St Francis of Assisi Catholic School
- St Marys South Public School
- St Pauls Grammar School
- The Lakes Christian College
- Teddy's Little Treasures
- Verona School
- Villawood North Public School
- Wattle Glen Childcare
- William Dean Public School
- Wilmott Public School
- Xavier College
- Yennora Public School




CUMBERLAND STEPPING STONES PROGRAM FOR SCHOOLS

From January 2016 to June 2017 we are running 80 tree planting events in schools across Blue Mountains, Penrith, Blacktown, Hawkesbury, Fairfield and Liverpool local government areas. All these events will be free and Greening Australia will provide all plants, supervision and hands on education experience about environmental restoration. The aim of this program is to develop school based habitat and to engage students in this environmental action.

Events per school	Plants per event	Plants to giveaway per event	Shared responsibilities
Up to 4 (or as per negotiation)	500 Shrubs (small to medium) and Trees	60 Selected native plants for teachers and students	<p>School teachers will</p> <ul style="list-style-type: none"> Induct Greening Australia's staff as per the school's safety management plan Provide personal supervision of students to ensure students maintain WHS as per instruction of Greening Australia's staff Be responsible for photo release formalities and emergency management Participate in a survey by Western Sydney University about the program <p>Greening Australia's staff members will</p> <ul style="list-style-type: none"> Offer talks to the students about Cumberland Plain Woodland Dig holes with mechanical augers for planting if required Induct students about Safe Work Method Statements (SWMS) and Supervise their planting activities <p>GA of the School will</p> <ul style="list-style-type: none"> Ensure 'Dial before Dig' formalities observed Help to facilitate planting events Maintain the plantings as per requirements
Students should wear closed shoes, full trousers, full-sleeve shirts and a hat during planting. Gloves will be provided.			
For further information and booking, please call 96776209 or email Rafiq rhuq@greeningaustralia.org.au			

This project is supported by Greening Australia through funding from the Australian Government's National Landcare Programme




www.greeningaustralia.org.au

Photo 9: CSS School Program invitation (Courtesy Greening Australia)

SURVEY MONKEY

Thank you for participating in the Cumberland Stepping Stones program. This short survey will take no longer than 10 minutes and allow us to evaluate the effectiveness of this program for biodiversity conservation. The research has been approved by the Human Ethics Officer (Application H11830).

* 1. Participating school name and planting date

* 2. How many people participated in the planting? How long did you spend?

Students (please list per year involved)

Teachers

Community/Parents

Average time spent on the activity (hours per group)

* 3. Why was planting undertaken at your school? Tick as many as relevant.

- Habitat Construction
- Garden infill
- Shade trees
- Screen Planting
- Landscape Revegetation

Other (please specify). Max 20 words.

* 4. What did the students do on the planting day? Tick as many as relevant.

- Watering
- Planting
- Weeding

Other (please specify). Max 20 words.

* 5. Were students having conversations about the activity or the natural environment during or soon after the planting activity? If so, what were they discussing? Tick as many as relevant.

- The tree planting activity
- Local fauna
- The environment
- Their own gardens
- Future activities they might want to do

Other (please specify). Max 20 words.

* 6. Did the school include the planting as part of a curriculum program or was the planting extra-curricula activity? Tick as many as relevant.

- Extra-curricula - student clubs
- Extra-curricula - volunteers
- In the curriculum

Please advise what year and/or groups, key learning areas, etc. Max 100 words.

* 7. Have students continued to visit and be involved in the new garden?

- Yes
- No

If yes, how and why? (Please specify). Max 50 words.

* 8. In your opinion what were the main outcomes for students participating in this program (e.g. greater understanding, enhanced motivation, etc). Max 300 words.

* 9. In your opinion does this program enhance the natural environment of the school grounds?

- Yes
- No
- If yes, how? For example increased bird, insects, biodiversity (please specify). Max 50 words.

* 10. How would your school evaluate Greening Australia's management and on-ground performance of the whole program

Very Poor **Average** **Very Good**

Done

A day at Greening Australia

Environmental Volunteering Event

Greening Australia NSW is dedicated to restore Cumberland Plain Woodland, a nationally significant 'critically endangered' ecosystem of Western Sydney. Greening Australia Community Nursery at Oxley Park specialises in growing plants native to the Cumberland Plain Woodland. We grow a range of beautiful plants, suitable for people's backyards as well as rehabilitation projects.

On the other hand, Ropes Creek Green Corridor area located behind the nursery is one of the high-priority areas of Cumberland Plain identified by the NSW Office of Environment and Heritage

We provide Workshops, Training days, Plant donations, Schools engagement, a Resource Library and Bushcare/Landcare support.



Yolanda; "As a metadata professional of a bank, I'm an indoor worker. I consider tree planning events are wonderful scopes to return something back to nature. I believe through tree planting I directly contribute to our precious environment and invest something for our future generation. For this reason this is so worthwhile and satisfying for myself."

This interactive day will engage your team in actively restoring Cumberland Plain Woodland.

The main activity of this day will be revegetating a disturbed but highly prioritised area of Cumberland Plain Woodland of Western Sydney. Greening Australia's staff members will prepare ground and will dig holes for planting with mechanical auger. Plants and planting materials will be supplied by Greening Australia free of cost.

Participants are required to plant supplied trees and shrubs and may need to install a plastic bag to protect the planted plants by inserting three bamboo canes in the ground.

All activities will be supervised by Greening Australia's qualified and experienced field staff.

Time	Activities
09-00am to 09-15 am	Registration & morning tea
09-15am to 9-30am	Welcome to Greening Australia and Safety Induction
9-30am to 10-00am	Tree Planting Demo
10-30am to 12-00 noon	Tree Planting
12:00 to 12-30pm	Lunch Break
12-30 to 2-00pm	Tree Planting
2-00 to 2-30pm	Watering and aftercare
2:30pm	End of day wrap up

*Short breaks will be provided with regular intervals...

Where:
100 Melbourne Street
Oxley Park, NSW 2760
Contact: 96776200



For any activities offered by Greening Australia, you are required to have your smiling-self and please

- Wear full-sleeve shirt, long trousers, safety boots or closed shoes and a broad-brimmed hat
- Bring your emergency prescription medicines, plenty of fluids to drink and your morning tea and lunch
- Disclose all medical conditions that may require emergency management.



www.greeningaustralia.org.au

This project is supported by Greening Australia, through funding from the Australian Government's National Landcare Programme.

Transforming our landscapes

CUMBERLAND STEPPING STONES CONSENT FORM:

Human Research Ethics Committee Office of Research Services

Office of Sustainability
Locked Bag 1797
Penrith NSW 2751
Australia
Telephone: 02 45 70 1001
Email: j.dollin@westernsydney.edu.au

WESTERN SYDNEY
UNIVERSITY



Participant Information Sheet

Project Title: Focus Group Cumberland Stepping Stones Community Engagement and Education

Project Summary:

Western Sydney University invites you to contribute in providing details of your experience in participating in the Cumberland Stepping Stones planting project conducted by Greening Australia. The project forms part of Australian Government's 20 Million Trees Cumberland Conservation Corridor which aims to enhance ecological connectivity by revegetating 267 HA of cleared land in 3 regional corridors across the Cumberland Plain in Greater Western Sydney. The research uses a place based methodology in seeking to understand the answers to the research question of "Is community engagement and education an effective methodology for biodiversity conservation?" The research study Principal Investigator is Ms Jen Dollin, Manager Office of Sustainability, Office of Pro Vice Chancellor (Education).

Who can participate in the Cumberland Stepping Stones Community Engagement and Education Project?

Individuals who have participated in a Greening Australia Cumberland Stepping Stone Corporate Volunteering planting event.

What will participants do?

You will be invited to participate in semi-structured interviews that will cover your involvement in the Cumberland Stepping Stones program. You will be asked about details of your experience with the planting program and to provide opinions on aspects of the project.

How is the study being paid for?

The study is being sponsored by the Australian Government's 20 Million Trees Cumberland Conservation Corridor project being implemented by Greening Australia.

How much of my time will I need to give?

The interviews will range in time and take no longer than 5 minutes.

What benefits will I, and / or the broader community, receive for participating?

The results will inform future projects and policy options for native revegetation of a critically endangered ecological community.

Will the study involve any discomfort or risk for me? If so, what will you do to rectify it?

No there is no discomfort or risk involved. Participation is voluntary and you may withdraw from the study at any time.

How do you intend to publish the results?

The report will be presented to the Greening Australia and the Australian Commonwealth and be publicly available. Approval can be sought from the funding body to use findings from the research for further publications. Please be assured that only the researchers will have access to the raw data you provide.

*Please note that the minimum retention period for data collection is five years.

Can I withdraw from the study?

Participation is entirely voluntary and you are not obliged to be involved. If you do participate, you can withdraw at any time without giving a reason. If you do choose to withdraw, any information that you have supplied will only be used with your informed consent.

Can I tell other people about the study?

Yes, you can tell other people about the study by providing them with the chief investigator's contact details.

Data storage

There are a number of government initiatives in place to centrally store research data and to make it available for further research. For more information, see <http://www.ands.org.au/> and <http://www.rdsi.uq.edu.au/about>. Regardless of whether the information you supply or about you is stored centrally or not, it will be stored securely and it will be de-identified before it is made to available to any other researcher.

What if I require further information?

Please contact Ms Jen Dollin should you wish to discuss the research further before deciding whether or not to participate.

Ms Jen Dollin
Manager of Sustainability, Office of Pro Vice Chancellor (Education)
Office of Sustainability
02 45 70 1001

What if I have a complaint?

This study has been approved by the Western Sydney University Human Research Ethics Committee. The Approval number is H11830.

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel +61 2 4736 0229 Fax +61 2 4736 0905 or email human-ethics@westernsydney.edu.au.

Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome. If you agree to participate in this study, you may be asked to sign the Participant Consent Form.

PARTICIPANT CONSENT FORM

**Human Research Ethics Committee
Office of Research Services**



This is a project specific consent form. It restricts the use of the data collected to the named project by the named investigators.

Project Title: Cumberland Stepping Stones Community Engagement and Education

I, _____ [name of participant] consent to participate in the research project titled Cumberland Stepping Stones Community Engagement and Education
I acknowledge that:

I have read the participant information sheet [or where appropriate, 'have had read to me'] and have been given the opportunity to discuss the information and my involvement in the project with the researcher/s.
The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

I consent to be (please tick)

Recorded

Interviewed

I would like a preview of the final report

This can be sent to: _____

I understand that my involvement is confidential and that the information gained during the study may be published but no information about me will be used in any way that reveals my identity.

I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher/s now or in the future.

Signed:

Name:

Date:

Return Address: Penrith (Kingswood) Campus: Building J, Level 1, Room: J.1. 18 Locked Bag 1797, Penrith NSW 2751

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