A REVIEW OF PROGRESS AND CHALLENGES FROM 1999 to DECEMBER 2010

Written and Published by MCCG, June 2011

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1. EXECUTIVE SUMMARY

Moggill Creek Catchment Management Group Inc.

Incorporated on 8 December 1997, the Moggill Creek Catchment Management Group Inc. (hereinafter referred to as MCCG) is a volunteer community action group aiming to conserve and improve the natural environment of the Moggill Creek Catchment through works on private and public land, and provision of information for landholders responsible for land management. Moggill Creek and its tributaries are situated in the foothills of the D'Aguilar Range, in the outer western area of Brisbane. It comprises significant areas of conservation parks, acreage properties and urban areas.

Review Rationale

In 2003 MCCG developed a Strategic Plan, and in 2004 it developed a Business Plan for the period 2005-2008. By the end of 2009 the Management Committee deemed it timely to look at how well MCCG had performed against its earlier goals.

Objectives

This Review has been prepared for Members and other stakeholders with the following objectives in mind:

- To critically review activities of the group since formation;
- To provide an objective assessment of the challenges and possible future directions beyond 2010;
- To provide information about the Group to potential sponsors and funding bodies.

Methodology

The methodology comprised:

- An evaluation of the land and creek condition in each of the 13 sections (Figure 4.1, p. 17). across the catchment. This was compiled by the corresponding Section Leader for each Section and other informed MCCG members.
- An evaluation of the range of activities carried out by the MCCG with reference to the broad goals and strategies in Version 3 of the Strategic Plan developed in 2003.
- An MCCG member questionnaire which sought information from landholders regarding the management of environmental issues on their properties, including weed management, water quality, soil erosion and overall change in land condition in the last 11 years.
- Information from the above three sources was assessed and some key conclusions and recommendations were drawn.

Topics covered by the Review

Chapter 2: Introduction

The Introduction to the Review document covers the rationale behind the Review, provides background information about the formation of MCCG, a reference to other reviews, describes the catchment and introduces the reader to the environmental issues that affect it. The Review draws on information provided under the following broad headings:

Chapter 3: Finance

Income and expenditure for the period 1998-2010. For 2009-10 income is close to $100,000 and expenditure approximately $70,000. Income is derived primarily from grants, with additional income from membership fees, donations and interest earned. Expenditure, apart from work directly associated with income from grants, has been directed towards public relations and to the production of plants in the Nursery. The value of plants distributed from the Nursery (at approximately $1.50 each) is $186,511 for the period 1999-2010.

Chapter 4: Management and Administration

MCCG is an incorporated volunteer organisation and operates under Articles of Association. It is managed through a Management Committee consisting of a Chairman, a Treasurer, a Secretary, a Public Relations Representative and committee members. The Management Committee meets every month and two Public Meetings are held each year.

For administrative and practical purposes, MCCG split the large (57.6 km^2), diverse catchment area into 13 Sections, with the intention that each Section would be led by a Section Leader - a volunteer responsible for coordinating and managing restoration activities within that part of the catchment. At the time of writing three Sections remain without a Leader.

From 2004 MCCG has been assisted by a Creek Ranger, a full time Brisbane City Council employee. This assistance has been of great benefit. In 2008 the Council gave the MCCG a licence to use the caretaker's cottage below the Gold Creek Dam. This Cottage has become an invaluable asset to MCCG as an administrative and educational centre.

Chapter 5: Promoting MCCG and educational activities

Educational activities are seen as key to increasing knowledge of environmental issues in the community, and the activities undertaken by MCCG have resulted in a steady increase in membership over the period under review. MCCG currently has approximately 450 members.

The Friends of Moggill Creek, an initiative introduced in 2009, provides a forum for interested members to raise topics for discussion, and to become more involved in MCCG activities.

The quarterly Newsletter covers a wide range of articles on different environmental issues relating to the catchment. A number of reports and publications relating to the Moggill Creek catchment have been published since the formation of MCCG; most are available as reference documents at the Cottage. A variety of activities, presentations and exhibits are organised each year that reach out to the community, with the Photographic Competition attracting entrants from the greater Brisbane region.

The MCCG Website, launched in 2004, informs members and visitors about the group, the area, events and activities, and the wide range of resources available to them. The website provides links to many of the organisations with which MCCG interacts.

Chapter 6: Biodiversity, land and water care

This chapter provides a brief description of the Catchment, a report on the Nursery, and summaries of the condition of biodiversity, land and water and of achievements in each of the 13 Sections of the Moggill Creek Catchment. It also identifies the major issues affecting catchment health and some of the challenges facing Catchment residents in their maintenance and remedial activities. Detailed information about the environmental condition of the catchment is contained in Sub-section 6.4 *Summary of Section Achievements and Challenges*.

Chapter 7: Catchment-wide investigations

Several projects have been developed by small groups under the 2009 *Friends of Moggill Creek* initiative. They relate to water use from the creeks, including legislation and regulations, fish surveys and monitoring, restoring fish connectivity where barriers restrict the movement of fish up or downstream, monitoring stream health, dragonfly surveys, frog surveys, dung beetle surveys. In addition students of the University of Queensland have been carrying out stream condition surveys as part of their undergraduate courses.

Chapter 8: Major conclusions and recommendations of the current review.

This chapter outlines the conclusions drawn from the Review process and makes 7 recommendations for the future direction of MCCG. These conclusions and recommendations are provided in full below because of the succinct summary they provide.

Review Findings

Overall, a stand-out achievement of MCCG has been the energy and dedication of its members to improving the local environment, whether by active involvement in working bees or by

choosing to plant native species on their properties. On both public and private land many hours have been spent clearing weeds, re-planting with native species, and maintaining these areas. In some cases, this has resulted in a return, or increase, of native fauna. The involvement of local High School students, financial assistance from sponsors and grants, and the support of Habitat Brisbane have all contributed to a slow, but increasingly visible improvement to sections of the catchment. Community engagement through activities has raised MCCG's local profile and resulted in a growing membership. With changing attitudes in the catchment there is the hope that more attention will be paid to environmental issues.

However, despite over 10 years of sustained efforts on the part of catchment residents, considerable support from Council particularly on public lands, and financial support through several state and federal grants, the catchment remains under environmental stress due to habitat loss and fragmentation, weed invasion, soil degradation and erosion, and riparian zone degradation, creek bank instability and stormwater runoff.

Approximately 80% of the upper half of the catchment has remnant vegetation mainly on the hills and mid slopes, while the estimates for the middle and lower Sections are only 30% and 5% respectively. Most of this area was cleared for agriculture more than 70 years ago.

Much of the cleared land in the middle to upper part of the catchment has previously supported grazing, tree crops or cultivated crops and has suffered severe erosion on the middle and lower slopes. This is especially the case in the Wonga Creek sub-catchment, the mid-section of Gold Creek sub-catchment and the main Moggill Creek sub-catchment. The riparian zone vegetation has been severely degraded along approximately 50% of the streams in the mid to upper catchment, and upwards of 90% in the lower part. Stream bank erosion is a problem in a number of areas, and evidence of sediment accessions to the stream beds is found in many areas.

Creeping urbanisation, often with poor land management, has resulted in excessive land clearing and the proliferation of hard and impervious surfaces. As a consequence, severe flash flooding is more frequent and erosion is more prevalent. Urban development is a major land use in the lower part of the catchment (Sections 1, 2 and 3).

Major weeds in the middle and lower parts of the catchment are Chinese celtis and asparagus vine, while glycine, Madeira vine and cats claw are serious challenges throughout the entire catchment, particularly in the more fertile riparian zones. Glycine, Madeira vine and celtis represent the greatest threat to revegetation of the lower part of Moggill Creek. Notwithstanding the difficulties outlined, volunteers in Sections 1, 2, 3, 10, 11, 12 and 4 have achieved some very successful revegetation on public lands in riparian zones. However, all volunteers have emphasised the difficulties in long term weed control particularly from climbing vines and Chinese celtis.

Flooding is a major risk to revegetation work carried out by MCCG volunteers and Habitat Brisbane volunteers, particularly in Sections 1, 3, 4 in the lower part of the catchment.

Remnant vegetation in the higher parts of the landscape of Sections 6, 7, 8, 10 and 13 are in relatively good condition, although mining and forestry activities in the late 1800s and early 1900s have left reminders of erosion in some parts of Sections 7 and 9.

Significant restoration of riparian zones has been achieved in the upper and lower Gold Creek catchment, in the McKay Brook and Gap Creek catchments and on parts of the Moggill Creek riparian areas from above the Brookfield Road bridge near the showgrounds down to Huntington Park. These have been achieved largely from thousands of hours of mainly volunteer input.

Little has been achieved in restoring habitat corridors from the riparian zones, to the lower slopes which are largely cleared to the hills. There is currently no clear strategy to address this important goal anywhere in the catchment. Most of these lands are privately owned and many

owners do not have the resources and / or motivation to sustain the efforts required to achieve progress in restoration.

Major Conclusions

The assessment of the condition of the land and water resources of Moggill Creek and the achievements of MCCG since 1997 outlined in this document have led to the following conclusions:

1. Moggill Creek Catchment is a valuable natural asset to Brisbane; it is unique and deserves our care.

2. MCCG is well administered, financially stable, and has considerable support indicated by steadily increased membership since MCCG was formed, and by collaborative inputs from the Brisbane City Council, and the Queensland and Commonwealth Governments.

3. MCCG's educational & community engagement programs have developed well over the past ten years: the Newsletter has expanded; talks on environmental issues and displays are well patronized and presented; and the Photographic Competition has been a growing success.

4. Bushcare Volunteer groups in the Sections have carried out tens of thousands of hours of habitat restoration activities.

5. There are several very good examples of restored riparian zone restoration that appear to be relatively stable, in the upper and lower Gold Creek catchment, in the McKay Brook and Gap Creek catchments and on parts of the Moggill Creek riparian areas from above the Brookfield Road bridge near the showgrounds down to Huntington Park. These have been achieved largely from thousands of hours of mainly volunteer input.

6. Friends of Moggill Creek forums commenced in late October 2009 have been successful in encouraging more members of the Catchment Group to discussions on the key topics of: Landcare and Biodiversity; Watercare; and Community. As a result several new projects are under development, including creek health monitoring, bird monitoring, dragonfly monitoring, and frog monitoring.

7. The leased Cottage at the end of Gold Creek road has become a valuable asset and has become the MCCG administrative centre and the venue for an increased range of promotional and educational activities such as the monthly series of talks.

8. Financial support by Council has continued throughout the period and has played a significant role in revegetation of public land and in our educational activities.

9. Brisbane City Council's support through the introduction of the Creek Ranger program has significantly assisted MCCG's activities.

10. MCCG's nursery has supplied tens of thousands of plants to private land owners at no charge and has been a major success in supporting MCCG's activities. However there is a need to ensure that seed collection keeps pace with the demand for species.

11. MCCG considers the Brisbane Catchment Network to be a very useful forum for interaction between the City's Catchment Groups.

12. Remnant vegetation in the higher parts of the landscape of Sections 6, 7, 8,10 and 13 is in relatively good condition.

13. Little has been achieved in restoring habitat corridors from riparian areas across the largely cleared lower lands to the hills. There is currently no clear strategy to address this important goal anywhere in the catchment. Most of these lands are privately owned and many owners do not have the resources and motivation to sustain the efforts required to achieve progress in restoration.

14. Land management activities by many property owners and those responsible for maintenance, planning and regulation of natural and infrastructure assets are continuing to cause loss of plant communities resulting in loss of habitat for native fauna, and the degradation of soils and water.

15. Notwithstanding the above, there is increasing interest and concern in the Catchment over environmental issues and protecting and restoring native vegetation. MCCG contributes to this through free and expert advice from its Landcare Adviser and distribution of local native plants.

16. In spite of Federal, State and Council financial support and the thousands of hours of volunteer work, the catchment remains under environmental stress. Continued financial support from government agencies will be essential in the future to achieve greater environmental restoration outcomes.

17. Flooding has caused serious damage to the stream banks and beds and the restored riparian vegetation in parts of the lower banks and made weed control extremely difficult. As a result there have been major set-backs to extensive sustained revegetation activities on several of the parklands and other public lands in the catchment. The strategies used in these flood prone areas are being reviewed.

18. Aquatic weeds pose a particular threat to aquatic fauna and water quality. Improvements in the reduction of nutrient load and increased creek side restoration would reduce these threats.

19. Threats from weeds have increased on many rural properties, on public land along roads and power transmission lines, and along the riparian zones. Continued lack of effective management of exotic weeds poses the greatest threat to retention of existing vegetation communities native to the catchment. For example, long term sustainability of the riparian dry rainforest communities is threatened by the highly competitive weeds species.

20. Biological control agents are available for some weeds, notably lantana, salvinia and cat's claw, but their effectiveness is generally limited. MCCG is contributing to the raising and release of the cat's claw bio-control agent.

21. MCCG recognises there has been a cultural change in the catchment in recent times with increasing community awareness of the benefit of habitat restoration. Numbers of plants distributed by the MCCG Nursery (c. 85,500) exceeds the number planted by volunteers on public land (c. 49,000), so a larger area of private land should have been revegetated overall. However it is difficult to determine accurately:

    - how much sustained progress has been made in revegetation in many of the acreage properties of the catchment,

    - what impact the restoration efforts have had on fauna habitat,

- the quality of the aquatic habitats of the streams,
- the changes in riparian vegetation and stream bank conditions and their consequences across much of the catchment,
- the extent of ingress of exotic weeds such as cat's claw, parthenium weed, leucaena, and the introduced pasture species that have the potential to cause wide spread damage to our remnant vegetation including the Brisbane Forest Park and the Mt Coot-tha Forest Park.

22. The lack of support by government for revegetation work or weed maintenance on private land is a major impediment to the long term restoration of native flora and fauna in these areas, and is seen as a threat to the long term condition of the neighbouring conservation areas of Brisbane Forest Park and Mt Coot-tha Forest Park. Access to particular items required to manage weed ingress, etc. at tax free and wholesale prices is required to encourage private investment at a higher level.

23. Very little effective communication exists between MCCG and most parts of Council concerned with environmental issues in Brisbane Forest Park, Mt Coot-tha Forest Park, the Pest Plant Eradication Program, the 2 million trees program, and creek water quality activities.

24. The key strategies developed in 2003 (Table 8.1) have guided the main activities within the Catchment Group for the last 8 years, and were developed to ensure alignment with State and Commonwealth funding priorities at the time. The level of achievement within each of the strategies has been subjectively rated by members of the Management Committee. These ratings and the conclusions listed above will be inputs to the deliberations on future priorities.

Major Recommendations for the future direction of MCCG

In response to the conclusions from the review, the following recommendations are proposed to guide the Group over the next 5 years and to assist in consultation with stakeholders and likely partners, particularly those who might assist with resources.

1. MCCG should redevelop the existing Strategic Plan using information from this review, and ensure there is better communication with Council and State entities on environmental issues relevant to Moggill Creek Catchment.
2. MCCG should actively seek commercial sponsors, and lobby Governments at all levels for specific support arrangements.
3. MCCG should continue to review the revegetation methods in flood prone areas of the catchment, particularly in the higher parts of the catchment where the stream gradients result in very fast runoff velocities and turbulence.
4. A more strategic effort should be pursued by the MCCG to identify ways of assisting private land owners in their efforts with revegetation and weed control, and to identify opportunities for development of habitat corridors.
5. Bushcare Groups should be developed and supported in Sections 1, 6 and 10.
6. As a priority, MCCG should endeavour to undertake long term monitoring of:
    a. Riparian zone conditions, and the associated flora and fauna.
    b. Creek health using methods compatible with the Healthy Waterways Program
    c. Weed invasion in remnant areas, particularly those fringing conservation areas such as the Brisbane Forest Park and Mt Coot-tha Forest Park.
    d. Bird species and numbers in remnant vegetation as an input to designing strategies for revegetation activities.

7. A number of improvements are required to enhance the nursery's capability to keep pace with demand for plants by the Catchment members. These enhancements are:
    a. Better targeted and increased seed collection to widen the variety of species grown for use by catchment members.
    b. Studies on seed dormancy and storage requirements to increase the availability of plants throughout the year.
    c. Development of vegetative propagation options that could be employed as an alternative approach to supplying some of the species sought by members.
    d. Development of an improved inventory system.

2. INTRODUCTION

2. 1 The 2010 Review

After more than ten years activities (1998-2010) by the Moggill Creek Catchment Management Group Inc. (generally abbreviated to Moggill Creek Catchment Group (MCCG)), now is considered an appropriate time to present a review of activities to stakeholders (landowners, members, Brisbane City Council, State and Federal Governments, and other environmental groups within Brisbane).

This Review describes:

- The environmental condition of the Catchment in 2010,
- MCCG's activities relating to revegetation, community involvement, weed control and creek health.
- How MCCG is managed and financed.
- The educational and other awareness raising activities conducted by MCCG which promote environmental issues within the catchment.
- The major challenges facing the Group in achieving its objectives, and
- A number of recommendations for the Management Committee to consider.

This Review also attempts to make an assessment of whether:

- MCCG has made progress in improving the environmental condition of our Catchment.
- The levels of funding and volunteer participation are sufficient to allow progress at the desired level.
- MCCG has made progress in promoting environmental issues and raising environmental awareness within the catchment.
- Communication between MCCG and various Council departments or sections could be improved.

2.2 Earlier Strategic Plan and Reviews

In June 1997 Brisbane City Council published the 'Moggill Creek Catchment Management Plan'. Subsequently, a Moggill Creek Catchment Management Plan Supplement was published for the Planning Section, Waterway and Asset Management of BCC. These reports generated considerable community interest and as a result, at a community meeting in October, it was decided to form and subsequently incorporate the Moggill Creek Catchment Management Group Inc. (MCCG). MCCG was incorporated in December 1997.

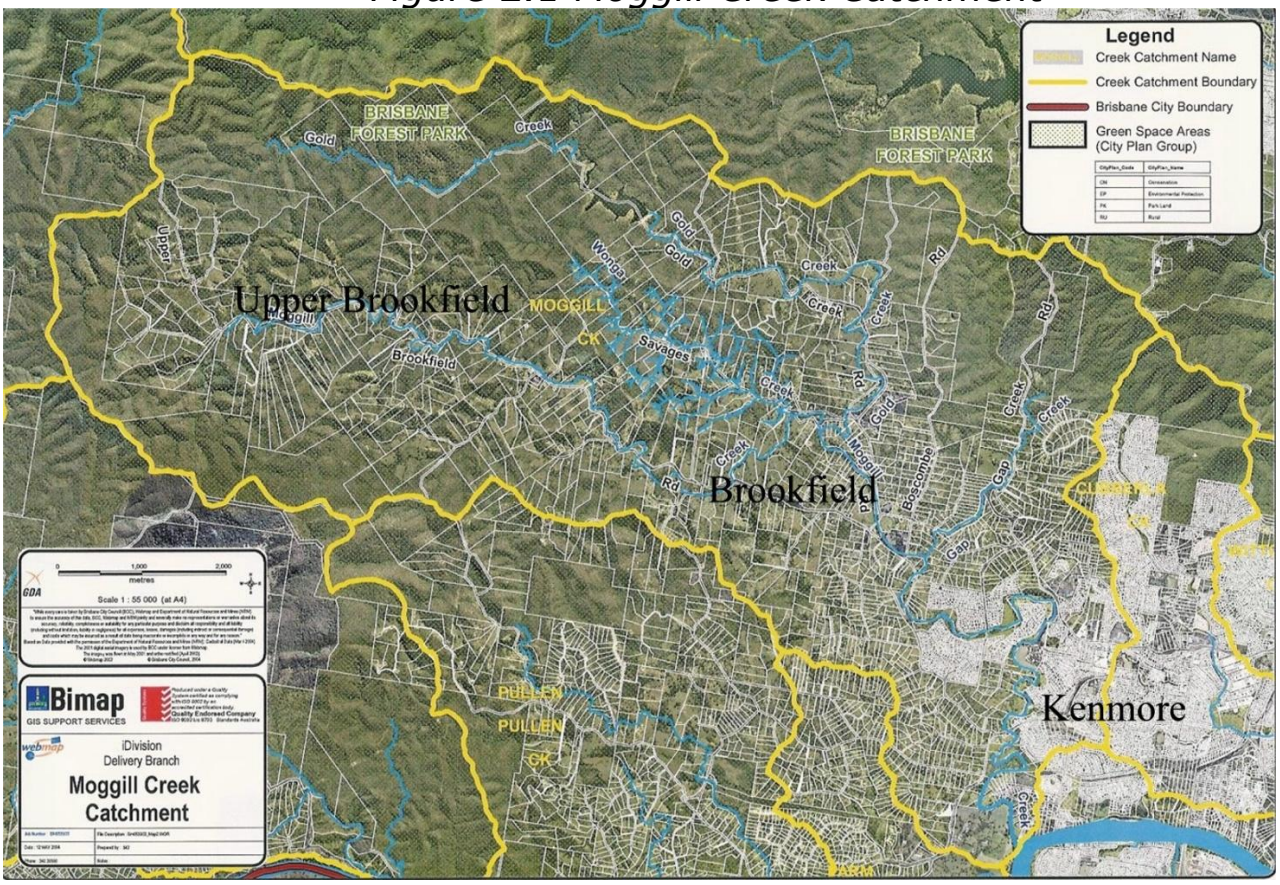
In late 2003 it became apparent that MCCG needed to demonstrate to its stakeholders and in particular to funding bodies such as the Natural Heritage Trust (NHT) and BCC, a program and direction based on a strategic plan. Such a plan was formulated and approved by MCCG in September 2003 (see Appendix1). In addition, MCCG published "A Review and Business Plan for 2005 - 2008". This report addressed issues relating to land care, water use, finance, administration and public relations. Finally, it addressed the concerns and challenges that confronted MCCG and presented its plans for the coming years.

The broad goals and strategies from the 2003 Strategic Plan Version 3 have been used in part to evaluate the degree of achievement over the last 8-10 years.

2.4 Description of catchment and introduction to environmental issues.

In Brisbane our catchment is unique and deserves our care. Its 57.6 km^2 represents about 7.6% of the total area of Brisbane City and it has more bushland than any other catchment in the city. Rural, public and urban areas constitute 69%, 23% and 8% respectively of the catchment.

Figure 2.1 Moggill Creek Catchment



The catchment has many significant ecological attributes. Its meandering creeks and rolling hills reaching up into the surrounding mountains are scenically very attractive. The rich variety of flora and fauna in the catchment is unusual, given its proximity to the centre of Brisbane. It remains semi-rural, probably because no main road leads through the catchment out to the north or west. In recent legislation (DERM, 2009) most of the Catchment is classified for koala habitat value as "Bushland Habitat Low Value Eastern SEQ LGA" with restricted areas of "Bushland Habitat Medium Value Eastern SEQ LGA" (source AKF mapping).

However, in spite of the Council's support, several state and federal grants and the dedicated work of volunteers and landowners, and a perception that the local community is becoming more environmentally aware, the catchment remains under environmental stress. There is a never ending struggle to mitigate the effects of past inappropriate agricultural and horticultural practices that included excessive tree felling and the introduction of many invasive plants. Similarly, the introduction of ornamental plants into gardens (including street flower beds) which now have spread into native areas, has caused damage which is proving very difficult to manage. Creeping urbanisation, often with poor land management has resulted in excessive land clearing and proliferation of hard and impervious surfaces. As a consequence, severe flash flooding is more frequent and erosion is more prevalent.

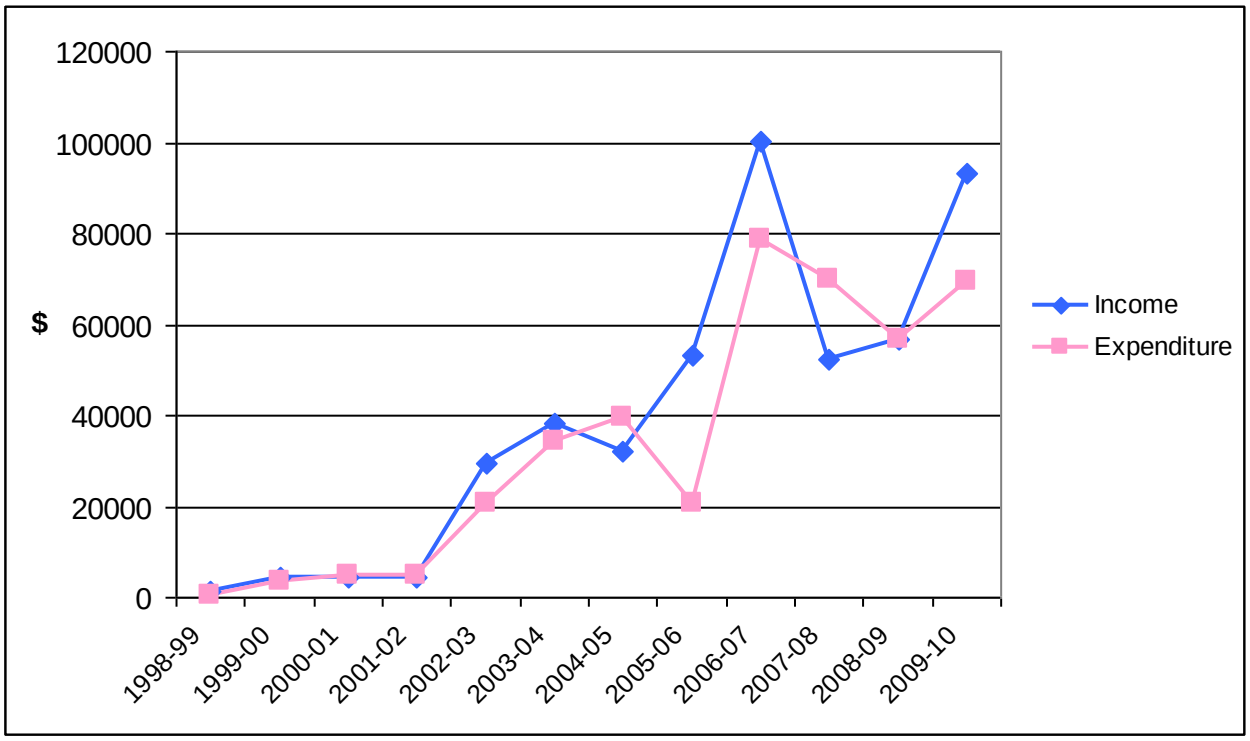
When MCCG began it was estimated that over 80% of the private acreage landholdings had a minor to major environmental weed problem. The only exceptions were properties very recently subdivided from upland eucalypt woodland and properties that are mown overall. Creeks and riparian zones are primarily public land, yet in spite of much revegetation work over the last 10 years, long stretches of creek bank remain heavily infested with weeds. Within suburban areas (Kenmore, Kenmore Hills and the Huntington and Kensington estates) most gardens contain weeds which are thought to have spread from weed infested public property, usually along creeks or roads.

3. FINANCE

3. 1 Annual Income and Expenditure

A summary of the audited income and expenditure figures for MCCG from 1998 – 2010 is presented in Appendix 2 and Figure 3.1 (this table and figure do not take into account funding for a coordinator over the period 1998–2002). Over this period a joint project between MCCG and Brisbane Forest Park (BFP) was funded by the NHT, and financial and other arrangements were managed by BFP.)

Figure 3.1: Income and Expenditure 1998-2010



Annual Profits or Losses are dependent on the timing of grant receipts and subsequent spending as some projects are carried over to the next financial year. From these figures it can be seen that both income and expenditure have risen significantly, mainly through grants but also through the rise in membership numbers, donations and interest earned. The main increase in expenditure, apart from work directly associated with income from grants, has been in public relations and in production of plants in the nursery. The more detailed income and expenditure figures shown in Appendix 2, do not reflect the total sums expended within the catchment but only those which are under direct control of MCCG. No details are provided of the significant financial support that is provided by BCC.

MCCG was registered as a charity in 2009 and can offer a tax deduction for donations over $10. Three Trustees have been appointed to oversee the Trust. A separate Trust Fund bank account has been set up to accept such donations and monies will be spent according to Management Committee recommendations. So far, from donations to date of $3,395 a brush-cutter has been purchased.

Plants have been sold at many promotional and educational events also to BCC and schools for revegetation project etc., generally at $2.00 each.

For the period from 1999 to April 2010, the value of plants donated from the nursery to members (based on $1.50 each) is as follows:

Table 3.2 Value of Plants Distributed from the MCCG Nursery

Year	**Value**
1999	$4,680
2000	$5,860
2001	$4,732
2002	$13,904
2003	$16,065
2004	$23,389
2005	$24,336
2006	$17,853
2007	$23,514
2008	$23,307
2009	$19,895
2010	$20,299
Total	**$186,511**

During 2003-2004 budget forecasting and a procedure for allocating funds was introduced. Over the years MCCG has built up substantial cash reserves, currently standing at $60,000, and is in a sound financial position. After meeting forecast spending requirements to June 2010, the group should still have a surplus of $40,000.

Grants for specific projects during 1998–2010 are shown in Appendix 2.

4. MANAGEMENT AND ADMINISTRATION

4.1 MCCG'S Current Management

MCCG is an incorporated volunteer organisation and operates under Articles of Association. As a result MCCG is managed through a Management Committee consisting of a Chairman, a Treasurer, a Secretary, a Public Relations Representative and committee members. The educational activities have become increasingly important and have increased over the last few years. The Management Committee meets every month and two Public Meetings are held each year.

Due to the size and diversity of the catchment, the 57.6km^{2}area was split into 13 Sections by MCCG (Figure 4.1) It was planned that each Section was to be led by a Section Leader- a volunteer responsible for coordinating and managing restoration activities within that part of the catchment. Section Leaders are also invited to be members of the MCCG's Management Committee.

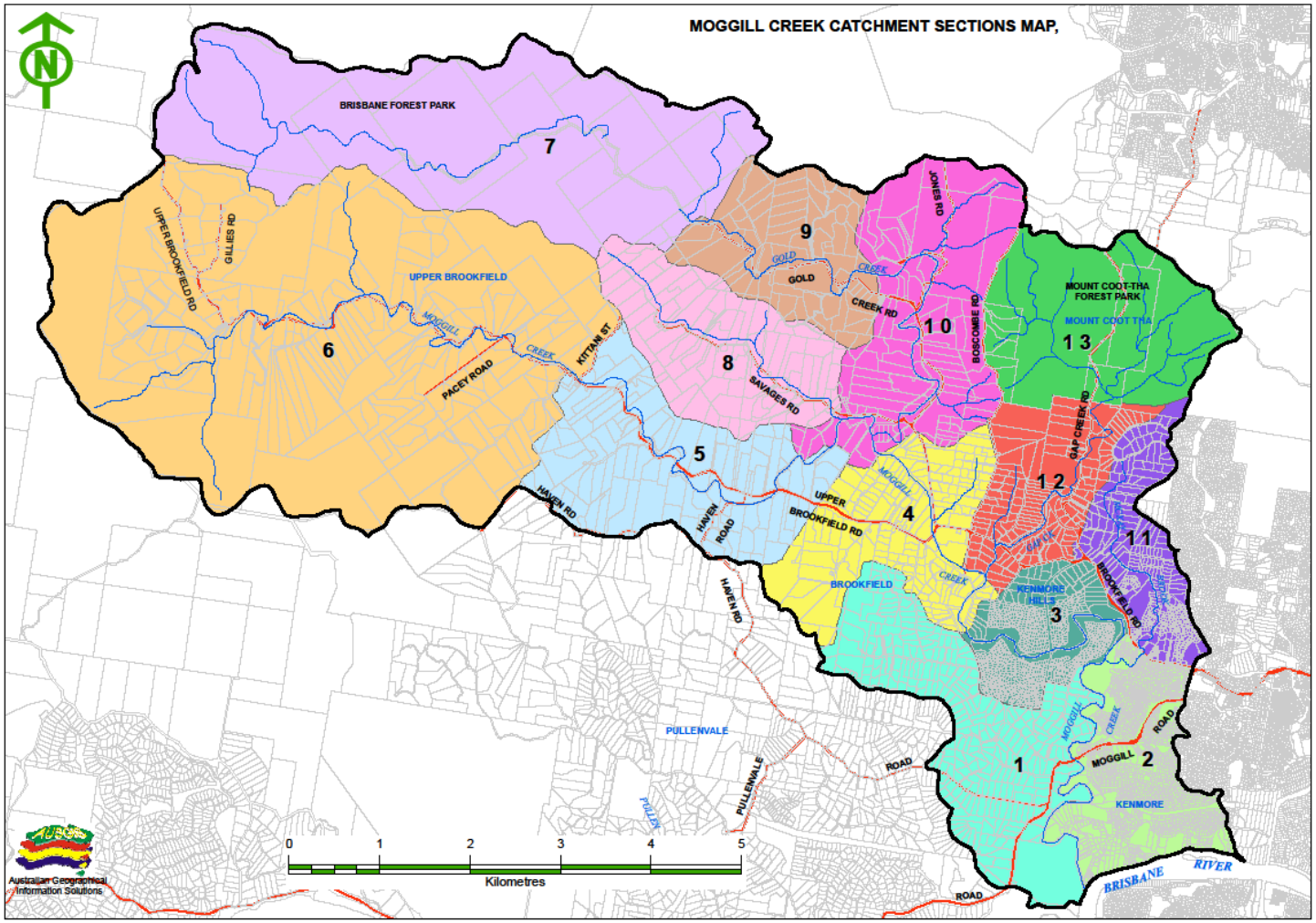
Seven of these Sections contain public land which is being improved through Bushcare activities supported by the BCC Habitat Brisbane Program and this support includes insurance cover. As each Section is classified as a Landcare Group they are also covered by insurance when involved with landcare activities on private land. Each Section has a Section Leader except for Sections 1 (the significant lower reaches of Moggill Creek and Rafting Ground Park); 6 and 10. Every Section of the Catchment, excluding Section 7 (Mt Coot-tha Forest Park) and 13 (D'Aguilar National Park), contains extensive areas owned by private land owners.

On public lands, decisions on the details of restoration programs, their methodology and resources required (plants, mulch, large scale clearing etc.) are usually made directly and independently between BCC's Habitat Brisbane Program and individual Section Leaders. The support that BCC has supplied through the Habitat Brisbane Program to seven of the Sections has been significant; without it MCCG would be much less effective with regard to its work on public land.

In addition to the combination of working on BCC owned land and privately owned land, MCCG's management is made more diverse through the catchment extending into the D'Aguilar National Park and Mount Coot-tha Forest. The former is managed by the Department of Environment Resources Management (DERM) and the latter by BCC. Although representatives from DERM and Council were initially active in MCCG's management, this has been discontinued. This is disappointing as MCCG considers communication regarding environmental issues and activities between the upper and lower reaches of the catchment very important.

From 1998 to about 2001 the NHT funded a full-time Field Officer to work within the Moggill Creek Catchment, for MCCG and Brisbane Forest Park. Because Habitat Brisbane provided direct support for the eight Bushcare Groups within the catchment during 2000 and 2001, the Field Officer focussed work on assisting private landowners. Now MCCG relies on appropriately qualified volunteers to coordinate this private property work; in addition up to 18 volunteers assist in operating the nursery that has and is still supplying private land owners with thousands of plants each year (see Section 5.3).

Figure 4.1 Moggill Creek Catchment Sections



In 2004 Council initiated a program whereby full time Council employees would be assigned to assist Catchment Groups. MCCG was one of the first to receive such assistance. Creek Rangers, originally called Catchment Coordinators, were first managed by Council through Water Resources but recently they have been managed through Local Asset Services. There is no doubt that MCCG has benefited greatly from such personnel.

Membership has increased steadily over the years. Email is one of the major communication tools used to keep members up to date with information on issues and activities. Monthly reports are sent out via email to all Management Committee members. The MCCG's web page has also been developed as a communication and administrative tool.

In 2008 Brisbane City Council gave the MCCG a licence to use the caretaker's cottage below the Gold Creek Dam. This Cottage has become an invaluable asset to MCCG as an administrative and educational centre.

4.2 MCCG's Strategic Plan

In 2003 MCCG developed a Strategic Plan which is presented in Appendix 1. Five Themes were identified, namely:

- Caring for biodiversity
- Caring for water
- Caring for land
- Understanding and participation
- Integrated planning and coordinated management

Strategies and main activities were defined and it was recommended that MCCG seek volunteers to act as Theme Coordinators.
The Strategies of the Strategic Plan are:

1. Increase community awareness and participation in the management of major weed infestations and the restoration of natural ecosystems on public and private land.
2. Adopt a planned and integrated approach to habitat restoration and maintenance.
3. Participate in water quality improvement and monitoring in conjunction with EPA, BCC, DNR&M and other responsible groups.
4. Adopt an integrated approach to the restoration and management of riparian zones.
5. Actively support ecologically sensitive housing, land and construction developments within the catchment.
6. Promote land use practices that account for suitability of land with focus on land stability, and soil conservation minimising nutrient losses.
7. Improve community understanding and knowledge through a comprehensive and educational communication program which reaches all sectors.
8. Increase MCCG visibility within the catchment through an active promotional program.
9. Work to a business plan which ensures continuity of activities and implementation of new activities.
10. Maintain a wide base of volunteers to enable effective management of day to day operations, and to enable expansion of activities.

In 2004 MCCG, in a review of its work, published a Review and Business Plan for 2005 - 2008. In this plan the following six future directions relating to MCCG's management and administration were listed:

1. Seek funding for the return of professional long-term support to assist volunteers inland and water care.
2. Ensure that MCCG continues to have a secretary
3. Appoint Theme Coordinators for Caring for Land and Caring for Water.
4. Develop better ways of making Committee meetings more relevant to Section Leaders.
5. Recruit a Section Leader for Section 10.

6. Recruit a Section Leader for Section 1 and obtain funding from Habitat Brisbane to fund an additional Bushcare Group.

Only the first two have been realised with the appointment of a Catchment Coordinator/Creek Ranger for Moggill catchment and the election of secretaries as required. Since 2008 the position of Landcare Adviser has been included on the Committee. However, two coordinator positions for land and water care, remain unfilled. As a result activities related to riparian zone management, water quality and creek health, erosion and sedimentation, and grazing management related to water and land management have not been actively pursued at the desired level.

Plans relating to Sectional activities are discussed in chapter 6.

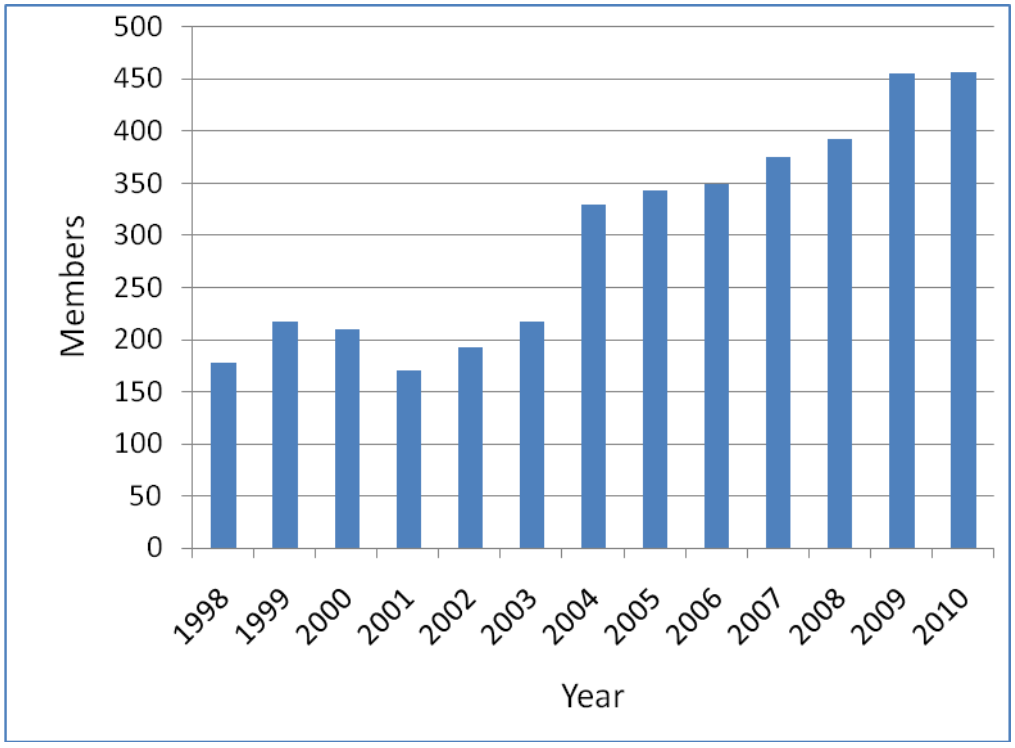
In this current review an attempt has been made to evaluate the achievements over the last 10 years against the 10 strategies above, and is provided in chapter 8.

5. PROMOTING MCCG AND OUR EDUCATIONAL ACTIVITIES

5.1 Developing our Membership

From the first year, 1998, MCCG has recognized the value of our educational activities in gaining recognition for the group, its identity, its aims, and its outcomes, and MCCG has always included a Publicity Officer. Whether it is because of our efforts or because of the growing awareness of environmental issues in the community, membership has increased steadily (see Figure 5.1).

Figure 5.1 Membership 1998-2010



MCCG greatly values its members. They offer a direct link into the community, allowing information to be provided and received on matters relating to environmental issues within the catchment. The general adoption of the internet and our web page permit easy communication.

5.2 Friends of Moggill Creek Catchment

Recently MCCG decided to introduce the idea of Friends of Moggill Creek (FMC). As an initial strategy, invitations were sent out to those members identified by members of the Management Committee as having demonstrated particular interest in the activities of the Group and having an interest in environmental conservation. The aim was to encourage a wider group of members to become more involved in MCCG's activities and particularly to encourage a willingness to contribute a small amount of time, expertise or knowledge in order to make our Group more effective. In the initial drive to get more active participation, 130 members were invited to participate in some forums to identify and discuss topics of interest to members. The forums commenced in late October 2009 on the key topics of: Landcare and Biodiversity; Watercare; and Community. These forums gave participants an opportunity to develop and share ideas on how the Group can expand its interests, as well as further our current activities. Our expectation is that developing from the forums there will be ongoing

groups that will identify and address catchment issues of specific interest to them. There is a plan to organise regular meetings. Through time it is hoped that more of the Group members will become more involved as the scope of activities is increased. More information on these FMC activities can be sought from the Secretary (*mccgsecretary@moggill.org*).

5.3 Newsletter

Starting as a single A4 sheet, the quarterly newsletter is a flagship for our group; it has evolved into a printed 8 page Newsletter with colour photos. There is now a mix of scientific and general information about our catchment and ways of caring for it. Through it we aim to inform and motivate the community to actively participate in improving the local environment. The Newsletter is mailed out to our membership, currently over 450, and to a PR list from the wider community, such as groups, schools, libraries and people with environmental interests.

Since 1997 there has been a wide variety of articles ranging across the various weeds and advice on control methods, descriptions of native plants, planting techniques, general interest articles on local fauna, specific articles on riparian zone conditions and management advice, results from various studies and surveys such as the Platypus survey, articles on quiet achievers, and annual results of our photography competition. Newsletters since 2000 can be seen at The Cottage, and issues since 2005 have been placed on the MCCG website and an index provided.

The Autumn 2006 edition brought in the first coloured photos and since then many detailed photos have been included, allowing for much improved display of the details of plants, flowers, animals and the wonderful group of volunteers that keep the Group functioning productively.

5.4 Publications and Reports

A number of reports and publications relating to the Moggill Creek catchment have been published since the formation of the MCCG, and several are listed below. Several of these relate to projects funded by the Commonwealth NHT Fund or its replacements. There have been two strategic Plans/Business Plans that described in detail the objectives and strategies of the Group and identified the specific issues and challenges facing the catchment community.

There have been three University Honours Thesis reports from students supported by the MCCG and partly supervised by Group members. These were particularly useful in bringing together information about the catchment's land and water resources, and the conclusions of the research provided useful insights into specific matters, which have subsequently been used by the Group.

The most recent reports or publications have provided practical guidelines on managing the land and water resources and horses in the Moggill Creek catchment and Pullen Pullen Catchments.

1. Moggill Creek Catchment Management Plan, 1997. BCC, Department of Works.
2. Monitoring of Moggill Creek Catchment Management Group Rehabilitation Sites on Public Land. 1999, M. Reif and S. Cumming.
3. A Preliminary Study of Land Use Impacts on the Water Quality in the Moggill Creek Catchment. 2000, Lucinda Eykamp, University of Queensland.
4. Butterfly Checklist for the Moggill Creek Catchment 2004. D.P.A. Sands. Publisher MCCG
5. Know Your Creek –Moggill Creek. 2005. Produced in conjunction with BCC Water Resources.
6. Managing Horses on Small properties in the Moggill Creek Catchment, 2007. Supported by BCC.

7. Our place in the country: Managing your acreage property in West Brisbane, 2009. In conjunction with Pullen Pullen Catchment Group with the support of the Gambling Community Benefit Fund.

5.5 Events, Education and Communications

MCCG organises and presents variety of presentations, exhibits and media material which are outlined below.

Exhibits in Kenmore Village – as well as the Photography Competition, each year MCCG provides a week-long exhibit in Kenmore Village covering environmental issues.

Major family events – an annual family day at the Brookfield Hall was initiated with 'Life in a Gum Tree', in 2005. With the participation of a range of wildlife groups, these events have attracted up to 300 people.

Contributions to other events – MCCG has frequently spread its message at other events, generally those with an environmental focus. These include the THECA Forum, Teddy Bear's Picnic, Brookfield Country Market and Opera at Brookfield.

Childrens' Education– experienced MCCG members have assisted with lessons on environmental issues at primary and secondary levels in the Catchment. Increasing use is being made of The Cottage for hosting events for children (see below).

Public meetings – MCCG holds two public meetings a year, one of which is the AGM, featuring guest speakers. These generally attract 50-70 people and are held in the Brookfield Hall, which can accommodate larger groups than The Cottage.

Media Articles - MCCG has contributed press articles in The Local Bulletin and Westside News – in some years ten or more articles have been accepted; they are aimed at promoting our objectives and activities to the wider community.

5.6 Photography Competition

The MCCG established a photography competition in 1999. The objectives for this annual event are:

- To promote both awareness, and the objectives, of the MCCG;
- To encourage membership recruitment; and
- To raise awareness of local environmental issues, especially with children.

The event is a very public presentation of the group and its work to the community, reminding residents of the area's natural beauty, and the need to address the many environmental issues.

The competition format is simple: labelled photographs can be submitted by adults and children for a nominal entry fee. Categories encourage photographs which focus not only on native flora and fauna, but also raise environmental issues. When first launched all photographs had to be of the Moggill Creek Catchment, but the competition has now expanded to allow the entry of any photographs taken in Brisbane Catchments.

Prizes are awarded by an independent judge who is a University photography lecturer (Dr Joseph McDowell). Photographs are prominently displayed at the Kenmore Village Shopping Centre, culminating in a public presentation to the prize-winners.

In 2009, a special Schools' competition was launched with the support of the BCC Lord Mayor, the local Councillor and State MP. Schools in the local council ward are encouraged to compete for the Lord Mayor's Perpetual Shield which is accompanied by a $100 library resources prize.

In 2010, the MCCG photography competition attracted 175 photographs taken by 60 photographers, including over 60 entries from the younger members of the community ('young peoples' entries were predominantly from students in year 7 and below).

The competition, receives good local media coverage over a number of months, particularly in The Local Bulletin.

The display in the shopping centre attracts significant attention, and the "People's Choice" prize attracts many hundreds of votes during the week. Local companies are involved in the event, many of whom have remained supporters of the event since its inception. Due to their generous support in 2010, cash prizes totalling $1,600 were presented to the winners. Sponsors are actively engaged with the event; many attend the prize-giving and those who do not donate money for the cash awards support the event by donating prizes for a raffle which is held to fund-raise and further promote the event at MCCG public meetings and the Brookfield Show stand.

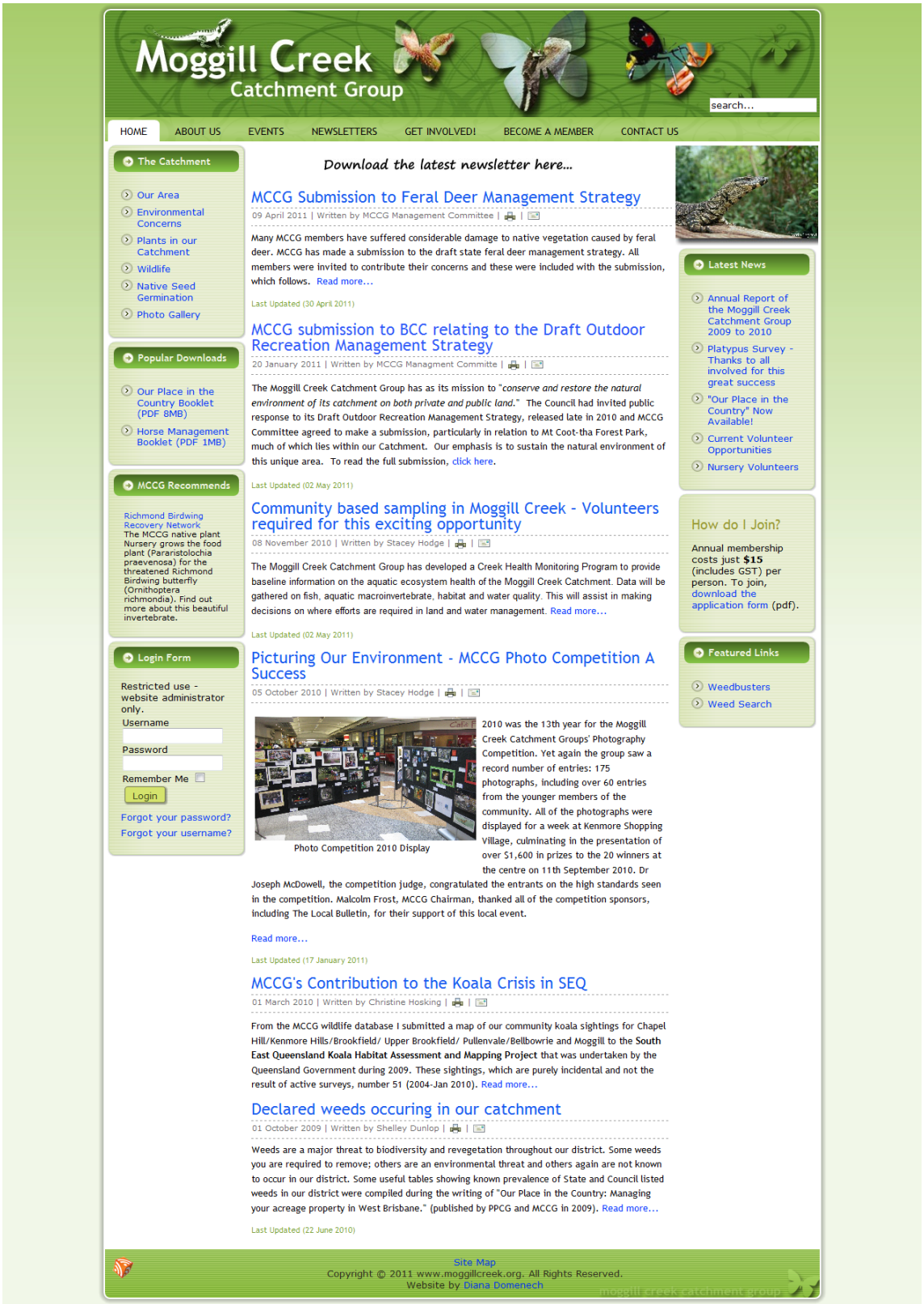
5.7 Website

Website – In 2004 MCCG launched its website – www.moggillcreek.org. With the rapid increase in information technology over recent years, the MCCG website has become an invaluable form of connecting and communicating with our stakeholders and members.

In 2008 it was redesigned primarily to accommodate the growth of information provided by the MCCG and also to create a website that would be easy for willing volunteers to add to and update content. The website includes important information about the group, the area, events and activities, contacts, becoming a member, plant lists, news and other items of interest, as well as giving access to our previous Newsletters. Interested people can apply for membership on-line and they can also be kept updated of the group's current and past activities and projects.

An important function of the website is to provide a means of educating visitors about our local environment, and to inform the members and others about the resources available such as a growing collection of articles on weeds, weed management, native seed germination, and information coming from our projects such as the recently commenced Creek Health Monitoring Project, and the annual the Platypus Survey. Also included is a flora database for the Catchment as well as outcomes from a workshop held by MCCG on effective weed control. Other important functions are feature events such as the annual photo competition, Moggill Creek Kids Day, cottage talks and nursery open days.

Figure 5.2 MCCG website home page



5.8 The Cottage

In 2008, the Lord Mayor opened "The MCCG Environmental Centre" fondly called "The Cottage". This excellent facility close to Gold Creek dam was generously made available by the City Council, and is proving invaluable as an educational centre. In 2009 and 2010 monthly **Talks at the Cottage** have been held, covering topics as varied as local bats and butterflies, figs and frogs, botanical art and dung beetles, grasses and gliders, water quality and photography, plant reproduction and park ranger duties. The focus is on locally relevant topics which raise awareness and encourage participation. The availability of The Cottage as an environmental centre has also made it possible to host larger events, such as a Family Fun Day in 2008 and the Kids Day at the Cottage in 2010 which attracted 260 children and parents.

A cottage garden has been established displaying many of the lower-growing native plants of the district, each labelled. A small but dedicated team cares for this garden.

Figure 5.3– Establishing a native garden at "The Cottage"

5.9 MCCG and Other Environmental Organisations

Within Brisbane there are 10 active catchment groups with very diverse objectives and administrative organisations. MCCG has informal links with all of these catchment groups through the Brisbane Catchment Network (BCN), initially set up by Brisbane City Council to foster partnerships, communication and information sharing.

MCCG interacts closely with Pullen Pullen Catchments Group (PPCG), members of which contribute to nursery activities and benefit from free local native plants, as do MCCG

members. The two groups also collaborated in producing the booklet "Our Place in the Country." In the past there have been shared projects with the Cubberla Witton Catchments Network (CWCN) and Save our Waterways Now (SOWN). MCCG, PPCG and CWCN members have also collaborated in mapping weed infestations in west Brisbane, most recently, cat's claw in inner suburbs. MCCG members have been strong supporters of The Hut Environmental and Community Association, giving talks at their annual forum and running workshops. THECA, MCCG and Rural Environment Planning Association (REPA) members have been active in community consultation groups relating to local developments – viz. upgrading Gap Creek Road and Rafting Ground Road, and contributing to Griffith University studies on road-kills along the former road. CWCN, THECA, REPA and MCCG also combine forces in producing and marketing an annual calendar. For many years MCCG members have actively participated in the SEQ Catchments Group.

6. BIODIVERSITY, LAND AND WATER CARE

6.1 Overview

This Chapter provides a brief description of the Catchment, a report on the Nursery, and summaries of the condition of biodiversity, land and water and of achievements in each of the 13 Sections of the Moggill Creek Catchment. It also identifies the major issues affecting catchment health and some of the challenges facing the Catchment residents in their maintenance and remedial activities.

Moggill Creek Catchment comprises residential and rural areas, parkland and conservation reserves. General descriptions of the soil and landscape features of the Moggill Creek Catchment have been provided in *The Soil Landscapes of Brisbane and South-eastern Environs* (Beckmann, Hubble and Thompson 1987).The hills and slopes on metamorphosed sediments and interbedded meta-volcanics of the Neranleigh–Fernvale Group have a variety of lithologies (rock types) related to the sediments in the different beds; the weathering of these different lithologies has resulted in a range of different soils which may occur in similar topographic positions. Hence, more detailed on-ground information at the local scale is usually required to give confidence in management decisions. The range of soils include gravelly shallow Rudosols (Isbell 1996) or Tenosols, shallow Chromosols and Sodosols all of which have low fertility. Included in this landscape are small areas of basic volcanic rock with Chromosols and Rudosols which are also of low fertility.

In the Gold Creek sub-catchment, the Wonga Creek sub-catchment and much of the main Moggill Creek catchment the remnant ecosystems are dominated by open forests of spotted gum (*Corymbia citriodora*) and grey ironbark (*Eucalyptus siderophloia*), with brush box (*Lophostemon confertus*), tallowwood (*E. microcorys*) and grey gum (*E. propinqua*) common in moister positions of the landscape.

On the eastern edge of the Moggill Creek catchment which includes the Gap Creek sub-catchment there is a major change of geology to the Bunya Phyllites which are also metamorphosed sediments. Many of the soils are similar to those on the Neranleigh-Fernvale beds. The most common remnant ecosystems are the Open forests dominated by spotted gum, and ironbarks. Open forests of brush box with tallowwood and grey gum occur in gullies and exposed ridges.

On the south western part of the catchment the Brookfield volcanics underlie the shallow gravelly clayey soils. There are small areas of remnant grey gums, grey ironbark and bloodwood (*Corymbia intermedia)* open forest with brush box open forest and sometimes tallowwood, grey ironbark and grey gum and small patches of Araucarian vine forest in the gullies and exposed ridges.

In the upper catchment on Neranleigh-Fernvale beds, are a similar suite of soils to those found in the other parts of the catchment, with spotted gum, grey ironbark, narrow leafed ironbark (*E. crebra*) open forests with open forest of brush box and tallowwood in gullies and exposed ridges. Small areas with deeper more fertile soils of hoop pines Auracarian microphyll vine forests occur on interbedded volcanics and metamorphics.

Currently, remnant vegetation is found mostly along creeks and waterways and in upland areas. Connectivity between upland and lowland areas was initially lost through widespread clearing for agriculture, horticulture and grazing more than 80 years ago and subsequently by residential development and rural land management practices. Riparian corridors are generally narrow and severely fragmented. Plant species lists for specific areas within the catchment indicate relatively high species diversity. These have been made available on the MCCG website. A fauna list published by Rural Environment Planning Association for the Moggill, Pullen Pullen and Pullen Creek Catchments is largely applicable to the Moggill Creek Catchment (see Appendix 2).

Extent of erosion on slopes since the land was first cleared is difficult to estimate. Little gully erosion is evident except where old mountain bike trails exist; however, sheet erosion would have been significant, associated with past farming practices (pawpaw, bananas and dairying) on steep slopes, and in specific log loading sites associated with the early forestry activities. Severe scouring of some creeks, associated with rapid run-off from housing and shopping areas, has resulted in down-cutting by up to 2m, and in other cases deposition of silt and coarser material is evident in-stream.

Most waterways in the catchment consist of a series of water holes, with varying degrees of permanency. With the exception of the lower reaches of Moggill Creek, water only flows in the various creeks following heavy rainfall events or extended wet periods. Catchment residents have commented that surface and ground water extraction through pumps and bores appears to be reducing water availability during periods of low runoff. Water quality varies within the catchment and there is some concern regarding stormwater management and seepage from septic systems. Despite this, platypus have been recorded in downstream reaches of Moggill Creek as well as McKay Brook. Infestations of the waterweeds *Salvinia molesta* and *Myriophyllum aquaticum* have been a concern for several years, particularly during drought periods.

Since the formation of the Moggill Creek Catchment Group, considerable community effort has gone into improving the condition of public and private land within the catchment. Initially Michael Reif and then Liz Gould provided technical advice on land management and revegetation to acreage landholders. With the cessation of NHT funding MCCG Committee Members with appropriate skills in native and exotic vegetation and land management took over the role. The Committee position of 'Landcare Adviser' was set up in 2008. The Landcare Adviser responds to enquiries, visiting properties, identifying species and recommending procedures for revegetation and weed control. Most years 10-15 properties are visited.

MCCG's Section Leaders provide the focal point for contact within sub-catchment areas and several also manage Habitat Brisbane Groups. There are currently eight Habitat Brisbane Groups within the catchment. Work with private landholders was initiated through successful grant applications to the Natural Heritage Trust, and continues through voluntary support from MCCG Committee members with appropriate appreciation of environmental issues.

6.2 The Nursery

Soon after the formation of MCCG, a representative of Brisbane Forest Park (BFP) who was also a member of the MCCG Management Committee, offered to build a nursery which is now one of our major assets. The well-equipped nursery comprises bench space, an automatic irrigation system and a building including office, storage room and covered working space. Two large benches have been added within the compound, one constructed by BFP and the other by Challenge Employment and Training, both at no cost to MCCG. More recently MCCG was given a shade house which had been used by the Richmond Birdwing Recovery Network (RBRN). This building had been seriously damaged by a flood but most of the materials were recovered by our members and then it was reconstructed immediately adjacent to the nursery compound. We installed benches and extended our irrigation system to it. It has become our greatly valued seedling raising area.

An area around the nursery has progressively been planted with a range of local native species. These serve to inform customers and some provide a source of seed.

With the nursery construction completed, in 1999 Michael Rief (then the MCCG Field Officer) took on management of the nursery, collecting seed, raising and potting seedlings and distributing plants to landholders. In December of that first year the first volunteer's day was held with 3 members, potting over 200 plants. By the end of the year Michael had distributed 3,120 plants, of 75 species, a great achievement. The following two year's plant production was similar.

In 2003 the NHT funding ran out. Subsequently MCCG volunteers have managed the nursery. With greater seed collection, increased numbers of volunteers at regular working bees and more demand from landholders, plant production and distribution increased greatly. Since 2002, numbers of plants produced and distributed have ranged from 10,710 to 16,224. Demand in each year has varied generally in relation to the rainfall conditions experienced.

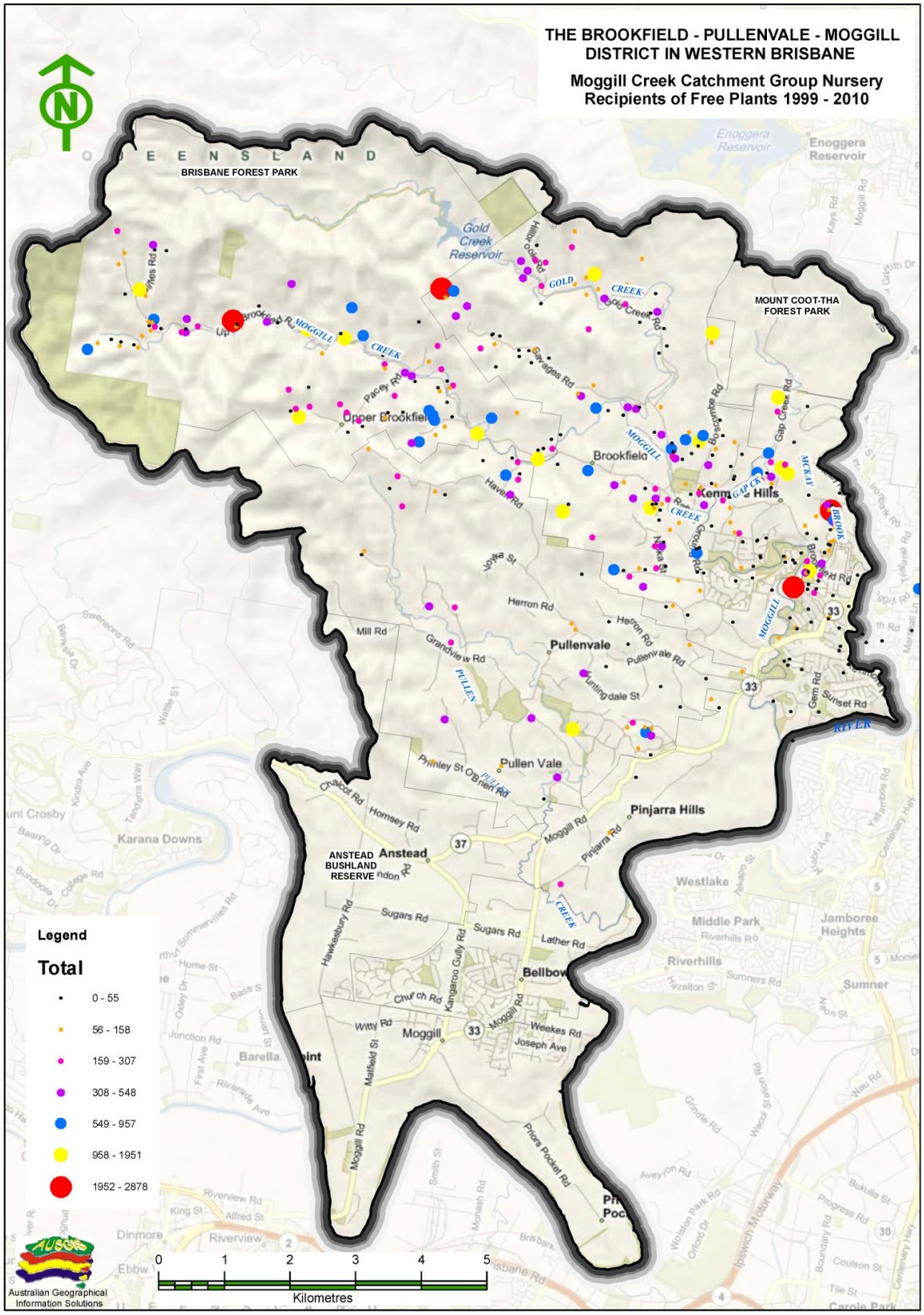
Figure 6.2.1 Volunteers potting up plants

Plants have been widely distributed (Fig. 6.2.2) across Moggill Creek catchment and also to a significant number of the Pullen-Pullen Catchments Group members, with whom MCCG has a close association. Records show that over the years, we have given out 428 species. Grasses, lomandras and dianellas together comprise approximately 15,000 of the total plants distributed, while a few trees predominate; the widely adaptable tulipwood and native frangipani totalling 4,000, with 1,500 creek sandpaper figs, much in demand for repairing creek banks.

Independent of the core business of the nursery, the nursery has also grown and distributed the protected Richmond Birdwing vine as a contribution to the Richmond Birdwing Conservation Network (this Network replaced the RBNR mentioned above under the umbrella of Wildlife Preservation Society of Queensland. Because this is a protected species. a permit is necessary to propagate it, and is currently held by our Nursery manager. The nursery gives plants to RBCN projects and sells them to MCCG and PPCG members. This charge is to cover the additional costs of growing plants to a larger size than our other stock, which generally takes two years. The price is well below that at commercial nurseries.

Another independent activity is the raising and distribution of the bio-control agent for the cat's claw vine, a tinged insect. This was initially a project managed by the MCCG Creek Ranger but was passed back to the Committee. About ten landholders with cat's claw infestations have received tinged-infested plants. MCCG is in the process of developing a system for monitoring effectiveness of the tinged.

Figure 6.2.2 Nursery Plant Distribution



6.3 Main Concerns in the Nursery

There are some refinements MCCG would like to add to the nursery capabilities. These cannot be addressed adequately without increasing the number of volunteers involved in the nursery.

A number of factors impact on our ability to supply a wider range of plants suitable for our needs, these are outlined below. The main limitation is the low supply of seeds from local native species, which is a result of only a few volunteers actively collecting seed over the

years. It is also exacerbated by irregular flowering of some species, and by failures in germination. We may be able to address the germination issues by close examination of our records of seed collection and potting of seedlings.

Seed collection and storage

At present, seed collection for the nursery depends on the interest and alertness of only a handful of people, not enough to sustain adequate seed stock. Several appeals have been made to members for volunteers to manage seed collection, storage, and inventory developments that would improve the running of the nursery and also assist in meeting the requests from members for the variety of species suited to the range of situations in the catchment. To date, these appeals have been unsuccessful in recruiting more volunteers to assist with these activities.

The seeds of many species have long periods of dormancy, some taking years to emerge after planting, often doing so very erratically. A search of the literature is required to provide further information on. It could lead to a person carrying out tests on other species.

As a general rule, species seed once a year. Seedlings are raised at that time but supply needs to be maintained at other times of the year. Those that are not distributed when they are seedlings may deteriorate or grow too large for the nursery to maintain or retain.

The seed of some species remains viable long enough to allow follow-up planting, but for many it does not. There are practicable methods whereby storage of some of these can be carried out. A search of the literature for methods known for some species is required, to apply them when seed is available.

Vegetative propagation

In cases where improvements in seed storage for follow up plantings cannot be organised, there may be suitable vegetative propagation options that could be developed and employed as an alternative approach to supplying some of the species sought by members. This is another aspect that warrants investigation and evaluation. Vegetative propagation has already been initiated on a small scale for a few species difficult to source as seed.

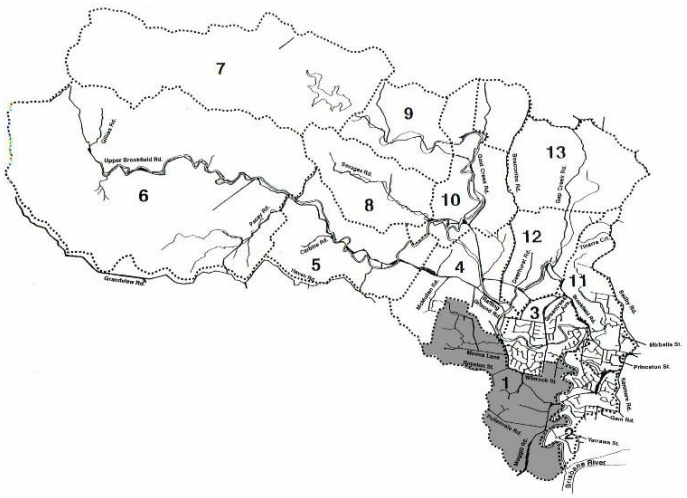
Inventory enhancement

It has been suggested that an improvement is required in inventory management. Whilst there are records of what is put on benches and what is given out, a better inventory system would allow easier tracking of the species available, where and when the seeds were sourced, and how they have been stored or treated.

6.4 Summary of Section Achievements and Challenges

Section 1: Pullenvale Road / Moons Lane

Section Leader: None



DESCRIPTION OF SECTION

This Section includes Rafting Ground Park and the Moons Lane Reserve(National Trust). In the area west of Moggill Creek and Moggill Road, apart from the Moons Lane reserve, which largely consists of a stand of mature Hoop pines, most of the land has been cleared of native vegetation and is mainly large private residences with wide expanse of lawn.

Biodiversity

Remnant vegetation in the section is estimated to be less than 5% of the original coverage. Whilst there are some patches that have relatively mature native vegetation it no longer represents the species diversity and coverage of the regional ecosystems.

Some native vegetation exists at the back of larger properties, or in gullies and ridges. Rafting Ground Park exhibits remnants of the rainforest species that used to line the creek, with a stand of mature trees including black bean (*Castanospermum australe*) and several other species. Near the mouth of Moggill Creek, stands of mangroves (*Aegiceras corniculatum*) occur.

A narrow strip of riparian vegetation occurs in parts along the creek, but it is estimated that 90% of the riparian zone is severely degraded in terms of vegetation, stream bank and stream bed conditions. Major weed infestations occur along the riparian zone along both sides of Moggill Creek. Weeds include Chinese celtis, privet, broad-leaved pepper, cats claw, bamboo, Singapore daisy, glycine, castor oil, green panic, Madeira vine and lantana.

Platypus are known to occur in Moggill Creek near Kilkivan Street and Dumbarton Street .

Water

Moggill Creek is tidal from the Moggill Road crossing to the junction with the Brisbane River. From Moggill Road upstream to the Section boundary, the creek is a permanent watercourse. Other ephemeral watercourses in the Section feed into Moggill Creek. Two small dams are known to have been constructed on ephemeral watercourses/gullies.

Most of Moggill Creek flows through private properties. Rafting Ground Park provides the only public access to the creek in this Section.

Land

City Plan (Brisbane City Council, 2000) designates most of the section as Rural Area. Rural Areas are now covered by the SEQ Regional Plan 2009-2031 (2009) as Regional Landscape and Rural Production Area, with minimum property size of 100 ha. (It should be noted that all existing properties are smaller than this). The section is mainly undulating land bordering the Brisbane River to the south and Moggill Creek to the east.

Rafting Ground Reserve is the only BCC Parkland Area in the Section.

Moons Lane Reserve, owned by the National Trust of Queensland, is an area, which comprises a hoop pine plantation, monuments, grassland and some naturally regenerating forest. The

Reserve lies to the north of Moons Lane. The National Trust gave a low priority to maintenance of this asset. Weeds infestations have been a major problem for many years on this site.

Community

In recent years the Section has been without a leader, and MCCG does not have a Habitat Brisbane supported bushcare group in the Section. No working bees have been organised in the Section. Members of Rural Environment Planning Association Inc. (REPA) planted an area of Rafting Ground Park in 1991 and 1992, and this was followed by BCC planting a larger area. These plantings still thrive, but weed control has been sporadic.

In August 2010, there were 14 Catchment Group members living within the Section.

MCCG provided the following numbers of plants to private landholders in this Section.

1999	**2000**	**2001**	**2002**	**2003**	**2004**
347	ND	236	302	700	422
2005	**2006**	**2007**	**2008**	**2009**	**Total**
1096	353	801	85	63	4405

ACHIEVEMENTS

Biodiversity

The majority of the Moggill Creek floodplain in Section 1 has been cleared of original vegetation with only a narrow strip of degraded riparian vegetation remaining along the creek. Rafting Ground Park exhibits remnants of the rainforest species that used to line the creek and substantial revegetation activities in the Park date from 1992. BCC carries out intermittent maintenance of the Park including replanting and some weed control. Vine weeds such as glycine are a particular problem in vegetation along the creek bank in the Park. Overall the Park is in reasonable condition considering its history, and its popularity as a community recreation asset.

In 2004/2005 MCCG held a working bee to reduce the weed infestation in Moon's Lane Reserve and Greening Australia also did some spraying work. Despite attempts to get a special Section running and a public meeting to discuss future maintenance there appeared to be no suitable arrangements for ongoing maintenance of the Reserve. There was no support from BCC as it was classified as private land. Richard Woodhead an MCCG member negotiated a lease with the National Trust and took over responsibility in 2005 for weed control and general maintenance. "Wet Wednesday" in May 2009 did a substantial amount of damage. It shredded the hoop pines and a large upstream dam broke causing a wave of water to sweep through the reserve causing erosion and depositing silt. Recently the Woodheads sold their property to D and C Rylance.

Early in 2010 a Public Meeting was held in which all interested parties put forward their ideas on how the Reserve might be managed in the future. Since there was appreciation that the leasehold arrangements negotiated with Richard Woodhead had been so successful, a continuation of a leasehold arrangement was supported. It is the MCCG understanding that the Rylance family is negotiating to take over the lease. None of the Reserve has been resumed for house building. Despite the work carried out by Richard Woodhead, weeds still remain an ongoing concern, particularly cats claw and asparagus vine.

Water

Small dams on feeder watercourses may be affecting water levels. There is no visible pollution. The small drainage channels that feed into Moggill Creek have no original riparian zone vegetation and act mainly as drains rather than ecological niches.

Land

Recent floods have caused serious bank erosion along the creek banks in the vicinity of Rafting Ground Park.

In the City Plan (Brisbane City Council, 2000)the Section includes land designated as Low Density Residential and Rural Minimum Lot sizes.

Community

There has been limited activity in the Section in recent years.

ISSUES OF CONCERN

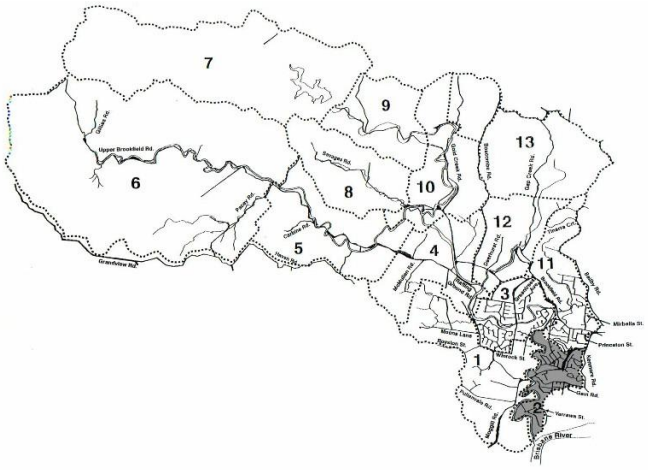
The major concerns identified are:

- There is no Bushcare group supported by Habitat Brisbane throughout Section 1.
- Severely degraded riparian zone along Moggill Creek including stream bank and bed instability
- Weed infestations mainly in or adjacent to the riparian zone
- Lack of habitat corridors
- Little original vegetation on the alluvial plain.
- Limited knowledge about restoration work by BCC that is occurring on land in this section.
- MCCG does not have a good knowledge of the extent and nature of weed infestation in this area.

Section 2: Lower Moggill Creek

Section Leader: Judy Petroeschevsky

DESCRIPTION OF SECTION



This Lower Moggill Section covers the areas of Moggill Creek catchment from the boundaries of the Kenmore State High School (KSHS) to where Moggill Creek flows into the Brisbane River. Apart from a few larger properties on the western part, the area is mostly covered by suburban housing development. Being the lower section of the creek, much of the area is flood prone and as such most of the land along the creek itself has been left as open space. This consists of parklands and reserves whose usage varies from playing fields to recreation areas. Moggill Creek is publicly accessible via reserves from Kenmore State High School (KSHS), from Rowena Street on the eastern/northern bank opposite Rafting Ground Park, and via a footbridge at Rafting Ground Park.

Biodiversity

Remnant vegetation in the section is estimated to be less than 5% of the original coverage and this is restricted to parkland along Moggill Creek. Within this there are a few small pockets of remnant native vegetation; however, the bulk of the flora along the creek consists of introduced weed species. There are some fine examples of mature native trees in the area, but very few native seedlings can be found because of the dominance of weeds. Isolated trees are all that remain in the remainder of the Section. Near the mouth of Moggill Creek, stands of mangroves (*Aegiceras corniculatum*) occur. A narrow strip of riparian vegetation occurs intermittently along the creek.

Several permanent waterholes support both native and introduced species of fish, waterfowl (ducks, spoonbills, herons and cormorants), reptiles (long-necked and saw-shelled turtles and water dragons) and aquatic mammals such as platypus and water rats. Platypus have been seen near Kilkivan Street and Dumbarton Street.

Water

Moggill Creek is tidal to Moggill Road crossing. From Moggill Road upstream to the Section boundary, the creek is a permanent watercourse. Substantial stormwater and road runoff are channelled through a gully parallel to Kilkivan Street and into Moggill Creek.

Land

In general soil quality is very poor as it is made up of clay and other fill which was generated by past land developments and road construction in the area. As home sites were established, the waste soil generated was pushed down along the creek banks and now forms the bulk of the level areas along Moggill Creek. Some riparian soils consist of gravel and sand scoured out of the creek itself by various floods, resulting in nutritionally poor soil. City Plan (Brisbane City Council, 2000) designates most of the Section as a Low Density Residential Area, with a small Emerging Community Area yet to be developed. Such areas are now covered by the SEQ Regional Plan 2009-2031 (2009) as Urban Footprint. KSHS and Our Lady of the Rosary School are the two Community Use Areas within the Section. A strip of Parkland Area adjoins Moggill Creek from south of KSHS to the Brisbane River.

ACHIEVEMENTS

Community

As of August 2010 there were 15 Catchment Group members living within the Section.
Monthly working bees are regularly attended by the same six people, with activities supported by Habitat Brisbane. New people come and go infrequently. A one-off 500 tree planting day in 2002-2003 attracted 25 people.

Habitat Brisbane provided the following number of plants for revegetating public land (financial year ending).

1999	**2000**	**2001**	**2002**	**2003**	**2004**
ND	ND	585	577	500	210
2005	**2006**	**2007**	**2008**	**2009**	**Total**
	110	120		383	**2485**

MCCG provided the following number of plants to 11 private landholders.

1999	**2000**	**2001**	**2002**	**2003**	**2004**
ND	ND	236	ND	45	54
2005	**2006**	**2007**	**2008**	**2009**	**Total**
21	101	194	70	246	967

In addition, during 2003, 5 private landholders within the Section received advice on vegetation and land management from MCCG.

KSHS is involved with weed control and revegetation along Moggill Creek and McKay Brook (Section 11). MCCG has provided advice, training and plants to KSHS through a Green Corps project in 2004. MCCG committee members have taught classes at KSHS and Our Lady of the Rosary School and led walks along nearby sections of Moggill Creek.

Biodiversity

There has been little restoration activity in the floodplain in the lower part of this section and only a narrow strip of riparian vegetation remains along the creek. Very few native seedlings can be found and weeds dominate most areas, causing concern that without intervention the native species will be replaced through slow attrition. Away from the creek, mature remnant trees are all that remain.

Major weeds along the creek include bamboo, glycine, Madeira vine, Chinese celtis, castor oil and guinea grass. The level of infestation varies, with some areas 99% weeds; weed control is an ongoing battle.

Lantana occurs in the Section but is limited to the east side of the creek below Moggill Road, where in parts it comprises 30% of the vegetation. Taro is rapidly increasing, extending further up the Creek. Salvinia accumulates in calmer sections of the Creek, often smothering the surface after prolonged low-flow periods, but is usually cleared out by occasional flooding. Infestations of the waterweed *Myriophyllum aquaticum* also occur.

Water

Water levels in the creek vary as a result of variable rainfall and evaporation from year to year; however water extraction by large properties along the western side may also contribute to the variations. No studies have been done to evaluate this.

Being the lower reach of Moggill Creek, this area tends to accumulate water quality problems from the upper reaches. While water quality appears "fair" and supports a reasonable variety of invertebrates and larger wildlife, there is strong evidence of sewage pollution. Sewage pollution of the Creek results from stormwater intrusion into the sewage system during heavy rain and overflow from manholes in the park (Brisbane City Council is aware of this problem). Occasionally some scum is visible on the water surface but the nature of this is unknown.

Rubbish in the creek from nearby KSHS is minimal and mainly due to crows and ibis raiding rubbish bins. Concern has also been expressed about the possibility of "grey water" from cleaning activities at the High School entering the Creek.

Land

Creek bank erosion occurs in the parkland areas just upstream and opposite Rafting Ground Park Reserve, exacerbated in part by removal of weeds as part of Council activities and lack of revegetation to stabilise the areas. It has been suggested this may be the result of maintenance activities by contractors to Council.

KENMORE STATE HIGH SCHOOL

Kenmore State High School (KSHS) occupies a considerable area of ground covering portions of Sections 2, 3 and 11. For convenience it is covered in this Section and is discussed as a separate entity owing to the considerable amount of work undertaken.

Water

Kenmore State High School grade nine and ten science programmes have conducted water quality monitoring activities every year for the last ten years (2000-2010). However, the technical results and data each year are not retained.

Biodiversity

The Student Stream Saver Project of 2009 conducted fish monitoring activities by the grade nine students, supervised by Griffith University PhD Student Leo Lee, for a ten week period and the overall result of the survey was that numbers of small native fish in Moggill Creek were very high, but no significant numbers of larger native fish were observed.

Kenmore State High School is actively involved in managing its approximately one kilometre of creek frontage (onto McKay Brook and Moggill Creek). A major expansion of revegetation work occurred during August 2004 with funding and volunteer help from ANZ Bank and a six-month Green Corps project. Catchment Group members were on the Steering Committee for this project.

This northern site occupies some 600 linear metres of old growth riparian dry rainforest extending from the western side of the sewerage pipe line crossing McKay Brook to downstream Moggill Creek (100 metres) then upstream 500 metres to Branton street car park, opposite the SPACE centre. The last 50 metres is BCC owned land.

Revegetation work was started with KSHS cooperation in the year 2000 when 220 plants were planted on National Tree Planting Day (NTPD) along a5 metre wide strip of the creek bank opposite the tennis court. Since then cooperative plantings on NTPD further along this section have taken place, and by 2010, 11,000 trees had been planted and 600 linear metres of creek bank restored.

With the funds from the 'Youngman Trust Grant' the last 150 metres of creek face are currently being revegetated as a project for KSHS grade nine students Health and Physical Education activity titled 'Student Stream Savers' project. This effort is supported by Habitat Brisbane, MCCG members and KSHS staff and students.

While this has been a tremendous effort for KSHS and MCCG, previous restoration work on the McKay Brook - Moggill Creek junction by Green Corps and corporate volunteers of 2004 has largely reverted back to its earlier weed infested state. Also the floods of November 2008 and May 2009 have severely set back the ongoing weed control maintenance of this section by several years.

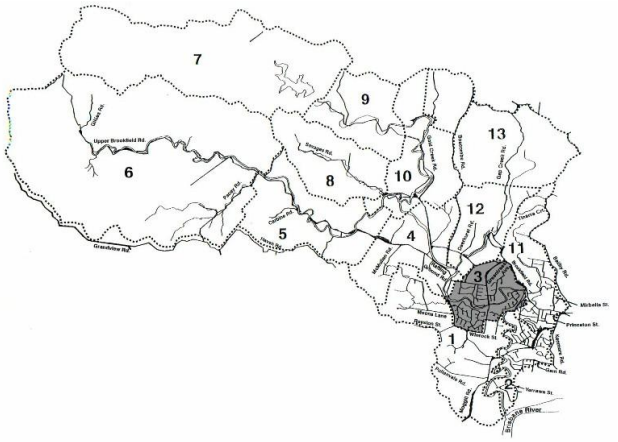
ISSUES OF CONCERN

- Areas of major restoration work have reverted to weed infested areas through lack of resources to control weeds and as a result of flood damage to planted vegetation.
- Periodic flooding has exacerbated difficulties in weed control efforts along riparian zones.

Section 3: Huntington

Section Leader: Malcolm Frost

DESCRIPTION OF SECTION



This Section consists predominantly of housing estates surrounding Moggill Creek (Huntington Estate to the south, Kenmore Hills to the north and Kensington Estate to the east); however some larger properties occur in the north and west. Moggill Creek meanders through parkland in the middle of housing, from the western border defined by Rafting Ground Road to the eastern border at the Kensington Estate and Brookfield Road. At an earlier time the creek has cut to a depth of 3-5m through an alluvial terrace which is now the Huntington and Creekside Parks. The creek banks to the water edge are normally steep but there are two areas where extensive erosion of the terrace has resulted in broad, sometimes 40m wide lower areas which are regularly flooded.

In 1998 about 20-30% of the section had degraded remnant vegetation; approximately 10-15% and the section in the northern part east of Greentrees Avenue was partly degraded remnant *Eucalyptus crebra*, *E. tereticornis* grassland, with smaller areas of open forest of spotted gum *Corymbia citriodora* and *E. siderophloia* or *E. crebra*. Approximately 5% was a narrow highly degraded riparian zone along Moggill Creek with remnant specimens including a few very large *Eucalyptus tereticornis* (one likely to be the largest in the catchment), several *Casuarina cunninghamiana* and rare *Castanospermum australe*. *Ficus coronata* and *Melaleuca salignus* were often found on the edge of the creek bank. One large *Ficus macrophylla*, and several *Grevillea robusta* were also present. *Lomandra longifolia* were common along the edge of the creek. The riparian zone was heavily infested with weeds including hundreds of mature

and juvenile Chinese elms. These together with camphor laurels were the predominant tree in most areas and completely dominated all other species. Ochna and castor oil were also common with one large infestation of broad leafed privet. Glycine, probably the most destructive vine as it tends to smother and kill large trees, and Madeira vine almost always covered the creek banks and trees. Many other weeds were found abundantly including Singapore daisy and climbing asparagus. Over 21 weed trees were growing on parkland.

Turtles and fish are frequently sighted in the creek and waterholes. Up to the May 2009 flash flood, platypus had been sighted regularly in several sites.

Water

Moggill Creek meanders for about 3.25km through this Section with lower creek banks ranging from 10m to 40m wide. On the eastern boundary the creek bends sharply south below a steep 30m bank below Brookfield Road and the terrace opposite Cromwell Close drops very steeply 20m to the creek.

There are several large water holes along this section of Moggill Creek. During dry times, such as over 2003-2004, the creek appeared to stop flowing for long periods but the numerous water holes did not completely empty.

Three very heavy rainfall events have occurred over the last 11 years. In 1996 heavy rain caused the creek's water level to rise between 5 and 10m. In November 2008 and May 2009 severe flash floods caused extensive soil erosion and damage to revegetation work along this part of Moggill Creek. The May flood caused the water to rise to the level of Creekside Street and extend from this street to the houses adjacent to Huntington Park on the other side of the floodplain. Water flow rates at the peak were estimated at about 1m/s. Soil erosion from the lower creek banks was extensive and large casuarinas were swept away. Some new shingle banks were formed but overall the stream bed did not change shape and the water holes were neither in-filled nor scoured. It is estimated that the flash floods have put back revegetation work by about 2 years.

Rapid discharge of street water has been exacerbated through the installation of large drains along Creekside Street and in parts of the Huntington Estate. At the eastern end of Huntington Park there is one swale which allows storm water to be filtered through the park.

No water quality studies measuring the condition of the Creek in this Section have been undertaken.

Land

There are about 600 households in the area. The City Plan (Brisbane City Council, 2000) designates most of the Section as a Low Density Residential Area, however Rural Areas occurs across the north of the section and in the west. The Rural Areas are now covered by the SEQ Regional Plan 2009-2031 (2009) as Regional Landscape and Rural Production Area, with minimum property size of 100 ha. (It should be noted that all existing properties are smaller than this). The six square kilometres of cleared land west of Jacaranda Avenue and bounded to the south by Brookfield Road is made up of properties between one and several hectares in area. Kensington Estate has been almost completely built during the last ten years

Community

The Huntington and Kenmore Hills Bushcare Group was created in 1998 and gradually local support has increased so that now usually over 20 volunteers take part in monthly working bees. Flyers providing details of working bees location and times are delivered to most households each month.

Prior to 1998 it was unlikely that the community was aware of the poor state of the riparian zone. Weed infestation often made it almost impossible to reach the water's edge although it is understood that many decades ago the main water hole, sometimes named Tuckett's Hole was used for swimming.

ACHIEVEMENTS

Biodiversity

Removal of the severe weed infestation along the whole creek bank that is adjacent to Huntington and Creekside Parks has been carried out. This also includes the ditch that runs from the swale to the far eastern end of Huntington Park and within the gully that runs from the bottom of Willowbank Street to the creek. In addition, removal of severe weed infestation has been carried out from the end of Creekside Street to the beginning of Tuckett Park. Habitat Brisbane and the National Heritage Trust have supported this clearing by funding the removal of the numerous large weed trees (Chinese elm and camphor laurels).

As stretches of creek bank were cleared of weeds so native trees, shrubs and grasses were planted. The table below present the number of plants provided by Habitat Brisbane which were planted throughout the riparian zone. Planting occurred throughout the year and plant fatalities during the first six months of planting were well below 10%. However, severe flooding has caused very high plant losses. In the lower banks approximately 80% have been lost but this figure is very much lower on the higher banks.

Habitat Brisbane provided the following number of plants (financial year ending).

1999	**2000**	**2001**	**2002**	**2003**	**2004**
ND	ND	120	1691	1000	2631
2005	**2006**	**2007**	**2008**	**2009**	**Total**
4,373	2,649	3,189	4,338	5,460	**25,451**

With the assistance of HB and NHT funding almost all of the several hundred large weed trees have been removed or poisoned. However, the creek banks up and down stream contain many large weed trees that will if permitted infest the areas already cleared. Maintenance of revegetated areas is essential as the seeds of the main weeds remain in the ground for many years; as an example, glycine is probably the most difficult weed to eradicate because of the seed bank.

Up to the time of the main flash floods quarterly passes by one or two volunteers through the areas that have been revegetated was found to be sufficient to control weeds to a point that would allow native plants to grow without too much competition.

After the flash floods it was found necessary to halt revegetation of untouched creek banks and to use volunteers within working bees to recover destroyed or partially destroyed natives and to re-plant areas.

MCCG provided the following number of plants to private landholders.

1999	**2000**	**2001**	**2002**	**2003**	**2004**
ND	ND	135	112	84	369
2005	**2006**	**2007**	**2008**	**2009**	**Total**
45	166	136	182	198	**1,427**

In addition, during 2003, 3 private landholders within the Section received advice, and assistance from MCCG comprising herbicide and bales of mulch.

Water

Water holes have been infested with weeds including salvinia and exotic water lilies but these have been washed out by the floods. The banks are dominated by taro and frequently Singapore daisy. MCCG is undertaking no restoration work related to waterweed infestation or water management. Habitat Brisbane has initiated some weed control within Tuckett Water hole and have released some salvinia weevils in the water hole at the west end of Creekside Street but there is no coordinated approach to its eradication.

Land

MCCG has provided 1427 plants to larger properties and it is anticipated that a high proportion of these would have survived to the present. Casual inspection of gardens about the parks suggests that most gardens contain numerous exotic weeds such as ochna, Singapore daisies, celtis and asparagus vine.

Community

At the end of 2010 there were37 Catchment Group members within the Section.

In this Section work supported by MCCG and Habitat Brisbane began in 1998. Local volunteer support with much financial encouragement by Habitat Brisbane gradually saw working bee attendances rising to over 20 volunteers. Since 2004 the Section has taken part in Planet Ark's National Tree Day which has grown in popularity; as a result over hundred volunteers have planted over 1,000 plants in this Section as part of these events.

A flyer is sent out to over 500 householders each month. These flyers provide information on the next working bee and some information to educate householders.

ACTIVITIES PLANNED OVER THE NEXT 5 YEARS.

Prior to the flash floods of 2008 and 2009 it had been planned to continue revegetation on the north bank of the creek bordering Tuckett Park. The severe damage caused by the flash floods now necessitates returning to the area that has been revegetated. Once this restoration of revegetated creek banks has been completed then work will continue in Tuckett Park.

ISSUES OF CONCERN

- Flooding is a major risk to revegetation work carried out by volunteers and Habitat Brisbane. Unless native trees are mature they commonly are swept away or flattened on the lower banks. Once this occurs weeds become established once more. These weeds then move up to the higher banks.
- Volunteers or Habitat personnel must continue maintenance or weeds will return and eventually over-run native plants. If the Bushcare group becomes inactive the riparian zone would probably revert back to the degraded condition that existed in1998.
- Glycine, Madeira vine and celtis represent the greatest threat to revegetation of this part of Moggill Creek.
- After 10 years of revegetation work with the strong support of Habitat Brisbane, parts of the public land along Moggill Creek are approaching a restored state, but much still needs to be done.

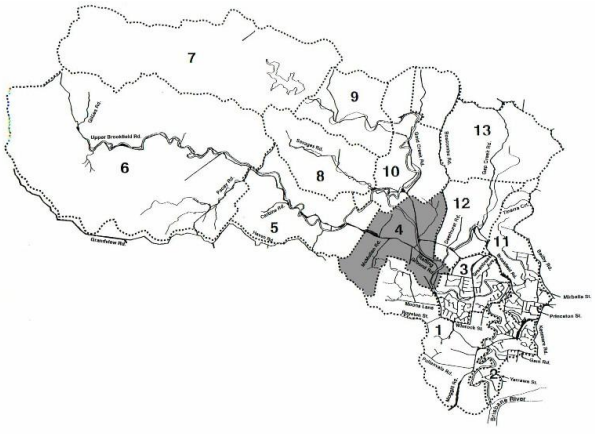
- As far as can be observed private land owners to the north of Rafting Ground Road, upstream to Section 3, do not significantly control infestation of any weeds. Unless these creek banks are revegetated then weeds will be spread downstream.

Section 4: Showgrounds

Section Leader: Damien Egan

DESCRIPTION OF SECTION

Section 4 is the central section of the Moggill Creek Catchment and includes the Brookfield Showground and associated public land, the Brookfield State Primary School, the Brookfield Produce Store and Brookfield Shop. It covers the stretch of Moggill Creek between the new (2010) culvert crossing by Wilunga Street and a location about 400 m south of Adavale Street. Considering local roads, the Section extends from Ballard's Hill on Upper Brookfield Road to the junction of Brookfield Road and Boscombe Road in the



east and on Gold Creek Road from the Brookfield Retirement Village in the north to Willunga Street in the south.

The Brookfield Showgrounds Bushcare site, supported by Habitat Brisbane, potentially covers about one kilometre of Riparian Rainforest from along Gold Creek Road, opposite the Brookfield cemetery, downstream from the Brookfield roundabout bridge, behind the Brookfield Produce Store and along Rafting Ground Road to Boscombe Road. Below the Brookfield Road bridge, the creek is, except during major flooding, only about ten meters wide or less, with low banks of approximately two meters in height. In times of drought only a few deeper pools survive with water in them. During recent floods (2009, 2010) some new water channels have formed, but on the whole the creek banks and channels are largely intact. There is only one private property owner along this reach (Brookfield Produce store). However this site forms a very important natural boundary to the Brookfield Showgrounds and the Brookfield Primary School. There are a number of wooded acreage home sites in this Section, generally about 1 ha in area.

Biodiversity

Much of this Section has been cleared, leaving comparatively few areas of intact native vegetation. Spotted gum forest occurs on the upper hillsides, particularly on the boundary with Boscombe Road. This changes to forest red gum communities closer to the Creek and dry rainforest occurs on the Creek banks and their immediate proximity, dominated by *Casuarina cunninghamiana, Melaleuca bracteata, Cryptocarya triplinervis, Castanospermum australe* and *Ficus coronata*. Infestation with Chinese celtis, Madeira vine, glycine and ochna is extreme throughout the stretch alongside Brookfield State Primary School, situated on the corner of Rafting Ground Road and Boscombe Road.

The majority of the floodplain has been cleared, with only a narrow strip of riparian vegetation along the creek. The extent and health of other vegetation depends on individual private landholders.

A decline and current loss of small birds, such as wrens and finches, in the local area was observed in 2003. This is presumably due to a combination of habitat loss and fragmentation and increased numbers of predatory birds (e.g. butcherbirds, kookaburras, crows), some of which are fed by residents.

Major weeds in the Section are Chinese celtis, Madeira vine and glycine. Though the level of infestation is moderate overall, Chinese celtis are particularly bad on Council land between the Produce Store and Boscombe Road along the Creek.

Brookfield Produce maintains their section of creek front, predominantly for access by horse riders. There has been very limited involvement by the School in catchment related activities other than the occasional excursion to the Creek for Waterwatch type activities.

No viable farming properties remain.

A variety of native fish still occur in the Creek, e.g. gudgeons, mullet, catfish, and eels. Platypus are seen occasionally.

Water

There are some fairly deep permanent waterholes, but in dry times the creek dries up in between. Some salvinia occurs at times upstream from the bridge, as well as the Class 2 weed, Senegal tea.

The areas alongside the creek including the Brookfield Showground are subject to flooding. The November 2008 and May 2009 floods caused major damage to the revegetated riparian zone on both sides of the bridge. Large ten year old trees were uprooted, new plantings washed away and the lower section fence of the Produce store was flattened. These events have put back the restoration of this site by some two years.

Land

Brisbane City Plan 2000 designates most of the Section as a Rural Area. A band of Environmental Protection Area runs around the south western boundary of the Section and another lies in its north-eastern corner. Both the EP and Rural Areas are now covered by the SEQ Regional Plan 2009-2031 (2009) as Regional Landscape and Rural Production Area, with minimum property size of 100 ha. (It should be noted that all existing properties are smaller than this). Community Use Areas within the Section are the Brookfield Showgrounds, the General Store, the Cemetery and adjoining Council Park, Brookfield State School, and a small reserve at the south western boundary of the Section.

Community

Very little restoration work was carried out on public land prior to the formation of MCCG.

ACHIEVEMENTS

Biodiversity

MCCG working bees started in 1997 directed by Habitat Brisbane and a small riparian area at the back of Brookfield Produce was revegetated. Since then, Envirofund and Water Grant monies have provided assistance to help with contracted clearing of the woody weed species and have eradicated most of the larger weed trees (camphor laurel, Chinese celtis, broad-leaved pepper) in 50% of this area. Weed control and revegetation activities are concentrated on public land adjoining Moggill Creek both downstream and upstream from the bridge. Members of MCCG have been working since 2006 at weed control and have planted approximately 3000 trees, shrubs and understorey plants on this site. This only accounts for 40% of this area; 60% is still in urgent need of controlled weeding. Some older plantings exist on the downstream side of Brookfield Produce and search and rescue working bees are still in progress since the damage caused by flooding in 2009 and 2010. MCCG Nursery and BCC Habitat Brisbane have supported this project by providing plants, mulch and workers.

A project supported by a Community Action Grant and Habitat Brisbane has enabled the restoration of about 100 m upstream from the bridge and a similar distance downstream is being prepared for planting in mid-November 2010.

A number of MCCG members in this Section have benefitted to varying degrees from membership in the group, with at least four having received landcare advice and substantial numbers of free plants from the Nursery.

Water

Council workers have been working in the creek in the past few years removing salvinia and taro. Recent floods have helped to remove these aquatic weeds, although it is highly probable they will re-occur in other lower reaches of Moggill creek.

No water quality studies measuring the condition of the Creek have been undertaken in this Section.

Community

The Section has had a succession of leaders since 1997 with very little improvement until a new section leader was appointed in May 2006. Now, it has regular monthly working bees on the last Sunday of every month, which are attracting an average of 4 workers to the bees and have made some good progress, that is, until the devastating November 2008 and May 2009 floods which have put the project work back a couple of years.

With funds from the Water and Open Garden grants and in-kind support from the Brookfield Produce store, two twenty thousand litre Water tanks were installed inside the Produce Store grounds and an open Bush tucker garden was established along the creek side fence of the produce store.

The water tanks proved to be a valuable asset particularly during the recent drought period, allowing watering of newly established plantings in the site and assisting all MCCG Sites in general.

The bush tucker garden has to date 34 species of bush tucker plants within it, and this will be extended over time to include more species and an area will be established along rock borders (provided by BCC Habitat Brisbane) on the lower creek side area.

There were 18 Catchment Group members within the Section at the end of 2010. MCCG provided the following number of plants to private landholders.

1999	**2000**	**2001**	**2002**	**2003**	**2004**
88	490	104	1260	376	647
2005	**2006**	**2007**	**2008**	**2009**	**Total**
504	225	594	1,353	1,403	7,044

Habitat Brisbane provided the following number of plants (financial year ending).

1999	**2000**	**2001**	**2002**	**2003**	**2004**
ND	ND	100	500	210	1
2005	**2006**	**2007**	**2008**	**2009**	**Total**
150	1,257	1,177	1,,880	1019	6,294

In addition, during 2003, 9 private landholders within the Section received assistance from MCCG, comprising advice, 12 bales of mulch and 2 litres of herbicide.

ACTIVITIES PLANNED OVER THE NEXT 5 YEARS.

- Replant the Bush Tucker Garden where flooding damage has occurred.
- Regenerate flood damaged areas of established plantings.
- Continue regeneration of areas upstream from the bridge
- Continue regeneration of areas downstream to Boscombe Road including co-operative support from the Brookfield State Primary School to regenerate both sides of the creek and grounds.

ISSUES OF CONCERN

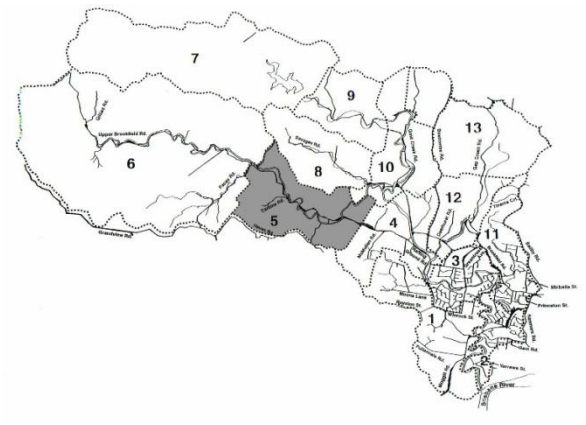
- There has been a lack of co-operation/ coordination between MCCG members of this section and the Brookfield Primary School with respect to revegetation of the bank areas of the creek on the school side, which occupies a significant portion of the creek-side in the area.
- Flooding is a major risk to revegetation work by volunteers and Habitat Brisbane. Unless native trees are mature they are commonly swept away or flattened on the lower banks. Once this occurs weeds become established once more. These weeds then move up to the higher banks.
- Volunteers or Council staff must continue maintenance on Council land or weeds will return and eventually over-run native plants. If the Bushcare group becomes inactive, the riparian zone would be in danger of reverting back to its earlier state similar to that occurring in 1998.
- After 10 years of revegetation work with the strong support of Habitat Brisbane, parts of the public land along Moggill Creek are approaching a restored state, but much still needs to be done.

Section 5: Haven Road

Section Leader: Richard Woodhead

DESCRIPTION OF SECTION

Eastern boundary starts at the top of Ballard's Hill running west to the Upper Brookfield School, a distance of around 3.6km. The northern boundary is midway between Upper Brookfield Road and Savages Road. The southern boundary mainly follows Haven Road, making the Section approximately 2.5km wide. Upper Brookfield Road runs through the middle of the Section, with side roads including Haven and Carbine Roads and Kittani Street, as well as Smiths Lane. Fig Tree Lane runs off Haven Road. A few private unnamed roads occur in the Section.



Biodiversity

Creek vegetation is characterised by a mix of river she oak (*Casuarina cunninghamiana)*, black bean (*Castanospermum australe*), *Melaleuca* spp. and weeping bottlebrush (*Melaleuca viminalis*). Adjoining vegetation is dominated by forest red gum (*Eucalyptus tereticornis*), wattles (*Acacia* spp.) and brush box (*Lophostemon confertus*). Patches of simple notophyll closed forest as well as cleared areas occur along the creek.

On the south side of the creek, some dry rainforest scrub is regenerating on the historically cleared slopes. There is a small portion of intact scrub off Smiths Lane. The ridge along Haven Road is open forest and though trees were removed for timber, it still remains relatively undisturbed.

Vegetation along Moggill Creek (as viewed from Upper Brookfield Road) is overgrown with lantana, Madeira vine and many other weeds. Some landholders have cleared and replanted the creek banks.

Plant species, and a bird and spider list exists for Smith's Rainforest Nature Refuge, an area that has never been cleared and which has not been logged since the 1940s. Bird lists also exist for at least 6 properties on Haven Road. Fauna known to occur in the area include water dragons, moorhens, rails, bandicoots, koalas, phascogales and platypus.

Water

Moggill Creek generally runs West to East through the middle of the section. There are numerous tributaries that flow from privately owned land.

There is very little public access to the Creek as it runs mainly through private property.
Siltation of the creek started in approximately 1931 and has continued particularly in the flooding events of 1974 and wet Wednesday in May 2009. The major cause seems to be exotic grasses which are now the predominant plant species in the Creek and run off caused by overstocking and running stock on steep land not suitable for grazing without specific conservation grazing management practices.

Flow in the creek usually ceases in the dry season each winter with only larger pools retaining any water. There are approximately 12 pumping licences from the creek but not all are used. The pumps are used for domestic and stock purposes and are generally used quite sparingly. It is highly probable that there is other unlicensed pumping but this is hard to determine due to the creek mostly running through private property. There are also approximately 15 farm dams, 11 bores and 3 wells which are located on private property.

Land

City Plan (Brisbane City Council, 2000) designates approximately half of the Section as a Rural Area (predominately the lower slopes and creek flats) and the remainder as Environmental Protection Area. Both the EP and Rural Areas are now covered by the SEQ Regional Plan 2009-2031 (2009) as Regional Landscape and Rural Production Area, with minimum property size of 100 ha. (It should be noted that all existing properties are smaller than this). Private Conservation Areas occur at the north eastern end of Kittani Street and in Haven Road. These

areas cover approximately 10 hectares and 13 hectares respectively totalling 23 hectares and are for dry eucalypt forest with the Brisbane City Council. There is also a Nature Refuge covenant of approximately 7.5ha for rainforest and a conservation agreement of approximately 2ha for remnant rainforest. Upper Brookfield State School is the only Community Use Area within the Section.
Before 1900 timber was harvested from the area by timber getters, prior to clearing for crops such as pawpaw, pineapple and bananas. Some grazing and dairying occurred in upland areas. By the mid-1960s most farms had become unprofitable and were subdivided.

Community

Approximately 110 landholders live within the Section, most with 4 ha blocks. Most blocks are regenerating from the previous farming practices. Most landholders have cleared around their houses; much of the land is covered in lantana, Madeira vine, glycine and a range of other weeds.

There are currently 20 Catchment Group members within the Section. In 2003 a local bush care group was formed but it lasted only 2 or 3 years.

ACHIEVEMENTS

Biodiversity

Most of the work which has been performed within the section has been performed by private landholders on their properties.

Land

Most subdivision likely to occur in the Section has already taken place. Early farming activities, where steep slopes were cleared for cultivation of bananas or pawpaws, would inevitably have led to erosion of topsoil. There is currently (2010) a proposal for sub-division of 3 x 4ha blocks however it is proposed that parts of such properties be utilised for BCC's 2,000,000 tree program.

Community

MCCG provided the following number of plants to private landholders.

1999	**2000**	**2001**	**2002**	**2003**	**2004**
750	763	537	852	1052	1267
2005	**2006**	**2007**	**2008**	**2009**	**Total**
925	481	445	443	230	7745

Habitat Brisbane provided the following number of plants (financial year ending).

1999	**2000**	**2001**	**2002**	**2003**	**2004**
ND	ND	100	500	210	150
2005	**2006**	**2007**	**2008**	**2009**	**Total**
ND	ND	ND	100	ND	1060

In addition, during 2003, 14 private landholders within the Section received 37 bales of mulch. There is scope to increase the involvement of Upper Brookfield State School in catchment activities.

ACTIVITIES PLANNED

The prospects of there being an active workgroup in this section are quite remote for a number of reasons which include most properties being 10 acres or larger and all having an abundance of their own weed and revegetation projects available. The current round of BCC pest notices have increased most landowners requirements for work on their properties and has created a degree of resentment which prejudices their willingness to work on public lands.

Public land within the section is restricted to road reserves which are regrettably given limited attention by BCC. Assistance by education, encouragement and the supply of plants seems to be the most beneficial area in which MCCG can assist landowners within this section.

ISSUES OF CONCERN

The main issues are:

- Weeds
- Livestock management issues particularly overstocking and the impacts on surface protection and effects on water quality in the creek.

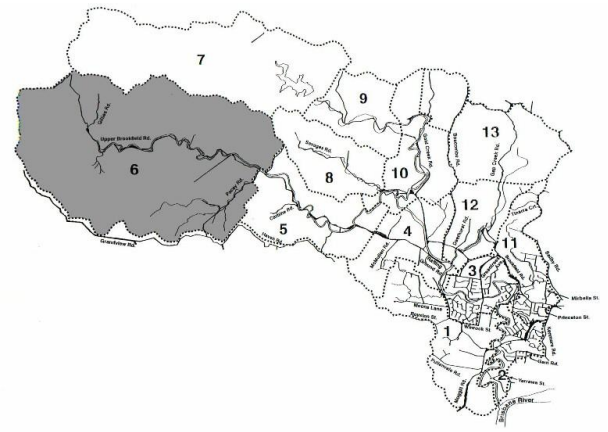
Section 6: Upper Brookfield

Section Leader: None

DESCRIPTION OF SECTION

Section 6 is the largest section within the Moggill Creek catchment. The section extends from the upper reaches of the Upper Brookfield Valley and continues for approximately 7 kilometres. Moggill Creek runs alongside Upper Brookfield road and is crossed by the road at various intervals. The upper end of the valley is flanked by steep hillsides, becoming less steep downstream with flattening flood plains.

This semi-rural area is sparsely populated with most landholders occupying large properties in excess of 4 hectares.



This section includes the headwaters of Moggill Creek and therefore can have significant downstream environmental impacts on the entire creek.

Biodiversity

High quality forest and woodland exists, particularly in the upper reaches. Creek vegetation is characterised by a mixture of black bean (*Castanospermum australe*), *Melaleuca* spp. and weeping bottlebrush (*Melaleuca viminalis*). The adjoining vegetation is dominated by forest red gum (*Eucalyptus tereticornis*), wattles (*Acacia* spp.) and brush box (*Lophostemon confertus*), but also contains rainforest pioneer species such as celerywood (*Polyscias elegans*) and remnant dry rainforest. Patches of simple notophyll closed forest, with *Syzygium* spp*,* as well as cleared areas occur along the creek.

Vegetation is generally heavily weed infested (but variable depending on the landholder), particularly along the creek banks where weeds comprise more than 50% of the vegetation. Major weed species include elephant grass (bana grass), Madeira vine, cat's claw, velcro weed, lantana, glycine, camphor laurel, asparagus vine, and morning glory. Also present are cobblers peg, purple succulent and mother of millions. The weed issue is likely to worsen with landholders continuing to plant environmental weeds such as large baby's tears and purple succulent.

Platypus are reported to occur in the creek near the Haven Road crossing.

Water

Moggill Creek in this section is periodically dry from late July to October, depending on rainfall. Historically, deep pools were a feature of the Creek in this area, however silting and water extraction (both creek and groundwater) have reduced creek flow. Waterholes trap sediment during "normal" years, but can be scoured out following high rainfall events. Underground flows occur through sand and gravel in the creek bed.

A small weir exists near Upper Brookfield State School. Some of the more open pools along the Creek are "green and slimy", indicating high nutrient levels. There is also a potential for

sullage from older properties upstream, where increased resident numbers may cause septic systems to exceed capacity and overflow.

The floods in May and November of 2009 resulted in severe loss of topsoil and vegetation, significant bank erosion, and large movements of sediment, gravel and rocks downstream. Many culverts and bridges were damaged, some catastrophically as was the case in upper Pacey Road. One significant issue was the large masses of uprooted elephant grass which wrapped around large established trees and creekside plants, ripping them from the ground and adding to the flood debris. This included large bottle brushes. During both flood events Upper Brookfield Road was flooded and access beyond Pacey Road was temporarily closed.

Land

City Plan (Brisbane City Council, 2000) designates most of the section as an Environmental Protection Area. Rural Areas are scattered on the lower slopes and creek flats. Both the EP and Rural Areas are now covered by the SEQ Regional Plan 2009-2031 (2009) as Regional Landscape and Rural Production Area, with minimum property size of 100 ha. (It should be noted that all existing properties are smaller than this). The lower slopes were cleared for agriculture, though currently only three farms remain in the section. Recent subdivision of ex-farming land has taken place.

Community

As far as is known there are no group activities directed towards restoring native vegetation on public land. This might be attributed to the current lack of an active Section Leader. It would appear that what little restoration work is being done is carried out by owners on their own land. 35 properties in this section are registered with the Land for Wildlife Program, of which 5 have a Voluntary Conservation Agreement and 1 has a Voluntary Conservation Covenant.

ACHIEVEMENTS

Biodiversity

Without a Section Leader there is no holistic view of the restoration that has been taking place in the section, so it is difficult to describe its achievements accurately. However, many MCCG members from this section have been receiving large numbers of plants from the MCCG Nursery, which indicates that improvement is taking place on private land. In 2009, 25 residents received plants, indicating a considerable level of activity. Almost 26,000 plants have been distributed over time from the MCCG Nursery to residents of this Section.

A number of local landholders, particularly along the Creek, have been making considerable progress with weed removal and revegetation. In one case, 100% restoration has been achieved on a 1 ha creek side property, which is now in maintenance phase. Further upstream, a resident has been working along the creek on her property. Assistance was received from BCC in weed removal and planting, however much of the recent and earlier work was lost in the 2009 floods. Remedial planting and staged restoration is currently underway with flood mitigation and erosion control being the primary focus.

Between 700 and 800 Upper Brookfield Rd, the owners of four properties, totalling 17 ha, have made good progress removing groundsel, lantana, glycine, cat's claw, Madeira vine, asparagus vine and weed grasses, and planted c. 14,000 native plants, over time.

A report from yet another landholder provides an overview of experiences of environmentally committed residents in this Section:

> "Since 2005, we have been rehabilitating the area around the creek area and controlling weeds in the dry rainforest areas. Last year we signed a Land for Wildlife voluntary agreement which covers the creek and dry rainforest areas of about 1.3 hectares. The creek area was covered with bana grass, lantana and a number of weed vines including glycine and Madeira. Some of this had been removed by BCC when we moved in and complete removal occurred about 3 years ago. Since then we have planted this area out with some help from corporate volunteers. Plants were provided by MCCG, Habitat Brisbane and recently LFW.

During the floods last year the creek banks were badly eroded. We have started to have the creek banks "restored" following the guidelines from natural stream designs with help from BCC. We are hoping to complete the bank restoration work over the next year."

On public land, significant restoration has been achieved along 400m of the creek near Galvin Road, a local resident having paid workers to do this restoration.

At another site, a little upstream from Upper Brookfield township, in 2007 BCC (Habitat Brisbane) cleared a considerable area alongside the Creek. The area was revegetated and maintenance was provided until mid-November 2009. During the May and November 2009 floods, the area suffered severe damage and much loss of plantings. This area is again becoming overtaken with weeds.

Approximately 5 years ago an elderly local resident cleared elephant grass from a large area along the creek on either side of the Kittani Street creek crossing. Subsequent maintenance and replanting occurred with assistance from BCC and a Commonwealth Government grant. The Upper Brookfield School also assisted with planting. The area has been seriously damaged by flooding but much of the planting remains intact.

Towards the end of Upper Brookfield Rd there are on-going plantings on the road side verges near the creek. Some sections have been planted out over the past 20 years and now have established plants alongside the creek. However some areas have been left and have become overgrown with the usual suspects. All of the areas along the creek require ongoing help with planting and maintenance.

Water

No known achievements

Community

In September 2010 there were 72 Catchment Group members within the Section.

MCCG provided the following number of plants to private landholders:

1999	**2000**	**2001**	**2002**	**2003**	**2004**
265	718	657	2057	2043	3129
2005	**2006**	**2007**	**2008**	**2009**	**Total**
3157	3565	3527	4470	2378	25966

Habitat Brisbane provided the following resources (financial year ending).

1999	**2000**	**2001**	**2002**	**2003**	**2004**
ND	ND	0	0	100	870
2005	**2006**	**2007**	**2008**	**2009**	**Total**
ND	ND	360	380	1880	3590

MAJOR CONCERNS

- There is no Section Leader to co-ordinate activities within the section. Whilst it seems that people in this section prefer to work on their own properties, they would benefit from having someone who proactively supports their efforts through education, arranging visits to properties, exploring possibilities for reciprocating working bees, looking at corridors etc.
- The escalating weed problem is a definite concern. There is no weed management strategy for this section and the areas of major glycine, Madeira vine and cat's claw infestation are increasing in size each year. Elephant grass (bana grass) continues to

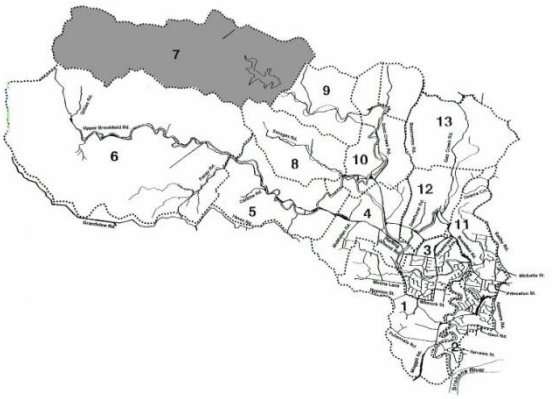
march down the creek and in some areas is impenetrable. It is encroaching also upon the road.

- Flooding and erosion cause damage to rehabilitation work as was demonstrated during the recent 'significant rainfall events'. Especially vulnerable are the areas cleared of all weeds, where the new plants have not established well enough to withstand flood flows.
- There is limited information on the impacts of pumping from the Creek.
- There is limited knowledge of the water quality of this section of the creek.
- Driveway erosion occurs from some properties, with sediment observed flowing directly into the Creek.
- There is concern that illegal dumping occurs at the end of Upper Brookfield Rd.
- Groups of trail bikers visit the area on the weekends and are also causing erosion and degradation of forested areas, particularly hill slopes.
- Two major subdivisions in this section have resulted in large clearing of the areas including hillsides.
- Loss of habitat and serious soil erosion are the major threats to the ecosystem and the creek.

Section 7: Gold Creek Reserve

Section Leader: SEQ Water – Justin Lee

DESCRIPTION OF SECTION



This Section comprises the headwaters of Gold Creek and includes the Gold Creek Dam. The whole area is managed by SEQ Water.

Biodiversity

High quality forest and woodland occurs throughout most of this section. Vegetation around the Gold Creek Reservoir contains many rainforest species and a species list exists for the area. A variety of fauna species have also been observed, noticeably Bettongs, other small mammals and Death Adders, which have all increased their presence since 2009. Whip-tail Wallabies were seen on the North side of the dam around 2000, but haven't been seen recently. Some fauna surveys were undertaken by Brisbane Forest Park staff in the 1980s.

Major weeds in the section are horse gram, white moth vine and exotic grasses such as signal grass. Lantana, glycine, coral berry and mistflower can also be found. Feral pigs and some wild dogs are present in small numbers.

Trail bikes, horse access and spray painting of the spillway are identified by SEQWater as further issues they are addressing in this section.

Water

Gold Creek rises within Enoggera State Forest above Gold Creek Reservoir. The creek is ephemeral above the Reservoir.

Gold Creek Reservoir was constructed in 1885 for the purpose of water supply, with a pipeline joining the reservoir to Enoggera Reservoir for water treatment. The catchment area of the dam is 10.5km^2 and its full supply capacity is 801ML. The pipeline has now been decommissioned and water in Gold Creek Reservoir is no longer used to supplement Brisbane's water supply.

The Reservoir and surrounding natural areas have been owned and managed by the Queensland Bulk Water Supply Authority (SEQWater) since July 2009. SEQWater are responsible for the holistic management of the dam and surrounding natural areas through

catching, storing and treating the water as appropriate. Since the large floods of 2009, the water level in the dam has been maintained at a low level, presumably as a flood mitigation measure. An environmental flow is maintained in Gold Creek throughout the year.

Land

This Section is contained within D'Aguilar National Park (formerly Brisbane Forest Park), which is a designated Conservation Area and allows for conservation and limited recreational use. However the land has been owned by the Queensland Bulk Water Supply Authority (SEQWater) since July 2009. This includes the land on which "The Cottage" is situated.

Community

The Queensland Bulk Water Supply Authority is the only landholder within the Section.

ACHIEVEMENTS

Biodiversity

SEQWater and D'Aguilar National Park have managed the area to control weeds and feral animals, as well as addressing fire management, flood mitigation and water quality in the dam. SEQWater has been conducting both aquatic and terrestrial weed control in the section since July 2009 as per the Gold Creek Reservoir pest management plan from 2005. This has included recently spraying the horse gram on the eastern side of the dam. They have also been conducting feral animal programs in this section, targeting wild pigs. There has been no active revegetation in this section by SEQWater.

In the past, both Brisbane City Council and the Queensland Parks and Wildlife Service have undertaken weed control in the section. They have particularly focused on horse gram, white moth vine and exotic grasses that have spread from road verges. They have also undertaken pig trapping and wild dog monitoring in the past.
Burning is conducted around the dam every 5 to 7 years. There was a bad wildfire around 2002, particularly around Browns Scrub, and some arson a few years ago. Regular road and fire trail maintenance is undertaken by D'Aguilar National Park.

Community

Volunteers visit the section weekly to maintain the track around the Gold Creek Reservoir. The fire trails and track around the reservoir are used recreationally for walking and horse riding by local residents.

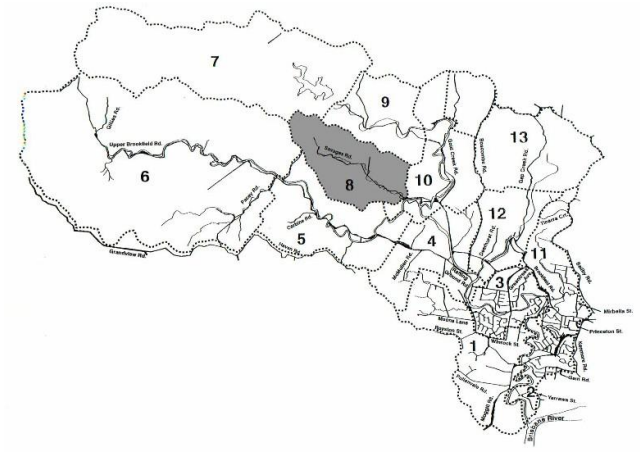
ISSUES OF CONCERN

The main issues of concern to the MCCG are:

- Fire, weed and feral animal management, especially pigs.
- Trail bikes, off-leash dogs.
- Graffiti on the dam wall.
- Since the walking track around the dam is open to the public, there can be issues associated with public safety.

Section 8: Wonga Creek

Section Leader: Adrian Webb



DESCRIPTION OF SECTION

Wonga Creek sub-catchment is approximately 4 square kilometres in area and is situated in the central part of the greater Moggill catchment. Savages Road runs the full length of the sub-catchment following the creek. There are 6-7 small culvert crossings of the creek which commonly are flooded in heavy rainfall runoff events.

Landscapes of the Wonga Creek sub-catchment include:

- Steep hills of basic volcanics in the upper western part of the sub-catchment with stony friable red soils and lithosols (shallow stony soils). This landscape was mapped by Beckmann, Hubble and Thompson (1987) as Elphinstone Soil Landscape.
- Low hilly lands of basaltic rock on the middle and upper part of the Wonga Creek sub-catchment with gravelly friable soils on crests and upper slopes and associated red friable soils on slopes. This landscape was mapped as the Brookfield Soil Landscape. The basaltic unit influence occurs as far down as the junction of Wonga Creek and Moggill Creek.
- Moderately sloping hilly lands formed on the Neranleigh – Fernvale weakly metamorphosed sedimentary rocks with inter-bedded volcanics on the northern side of the sub-catchment; soils vary from shallow loams on hill crests to shallow to moderately deep reddish chromosols and sodasols on weathered shale and phyllite on slopes, to a range of yellow and grey soils on shales and greywacke. A range of grey soils occur on some lower slopes and along creek flats. This landscape was mapped as the Kenmore Soil Landscape.

Approximately 70% of the sub-catchment has been cleared. Most of the cleared land is on elements of the Elphinstone and Brookfield Soil Landscapes on the southern side of Wonga Creek where the land tends to have lower slopes and more fertile soils. Original vegetation is reported to have been a mixture of dry open forests and dry rainforests on the southern side of the creek. Remnant open sclerophyll forests occur on the higher slopes and ridges on the Kenmore Soil Landscape on the northern side of the sub-catchment, and dry rainforests occur in several of the steep gullies draining down to the creek.

Sub-tropical riparian rainforest occurred along the Creek. Species typical of both moist and dry sub-tropics were included.

Up to the 1950s farming was conducted on the volcanic soils found on the lower slopes on the southern side of the sub-catchment. Since then land use has changed progressively to rural residential.

Only one farm is left in the area and this is not actively farmed. There are approximately 80 properties in the Section, five have Voluntary Conservation Agreements (four at the top of the catchment) and some others are with Land for Wildlife.

Biodiversity

There has been a dramatic loss of vegetation and connectivity throughout the sub-catchment as a result of clearing for agricultural land uses and timber getting in the early 1900s. Biodiversity has been severely degraded through loss of habitat, soil erosion, loss of soil fertility, weed invasion and stream degradation.

Wildlife corridors across the landscape have all but disappeared on the southern side of the creek. Subsequent land use involving removal of natural regeneration has reduced the potential to develop a habitat corridor to link the northern side of the sub-catchment with Smith's Rainforest Nature Refuge in the main Moggill Creek catchment. This would have provided opportunity to develop a northern link across to the Gold Creek sub-catchment and to the D'Aguilar National Park. The remnant vegetation and volunteer native species have been removed and the area is heavily infested with weeds.

Riparian zones have been very severely degraded in over 75% of the length of Wonga Creek. The remaining 25% of the riparian zone could be classed as highly degraded because of ingress of weed species, lack of vegetation cover over the streambed, stream bank erosion and sedimentation of water holes. In a heavily grazed area in the middle section of Wonga Creek the banks have been degraded over a long time, and consequently the channel is difficult to define and pasture has replaced all original species. Total clearing of native vegetation and unconstrained grazing are probably the main causes.

Where the Creek runs along the lower slope of the northern ridges, weed infestation is severe; climbing weeds such as glycine, *Ipomoea* species, and climbing asparagus are partially covering tree canopies.

Throughout the sub-catchment weeds are the most serious issue for remnant vegetation; they are escalating in number and extent of species. Pasture species such as green panic, signal grass and legumes such as glycine suppress natural regeneration of native species in the previously farmed or grazed land.

Replanting of old pasture, cropped areas or denuded riparian zones with tree and shrub species has been attempted on several properties with mixed success. Drought, floods and weeds have proved major challenges to broad area revegetation of agricultural land. In the Wonga Creek section better results have been observed from weed control and natural regeneration in scattered remnant vegetation than from full scale replanting. Mature trees provide roosting sites that are invaluable for regeneration of species dispersed by fruit-eating birds.

A wide variety of birds are common in the forests of the section including large birds such as the Pacific baza, emerald winged dove, wonga pigeons, channel billed cuckoo, whip birds and tawny frogmouth.

Small birds and reptiles (lace monitors, snakes) have declined noticeably in numbers. Removal of the few remaining dead old trees is likely to be affecting hollow-dependent species such as gliders and kingfishers.

As in other sections, foxes, cane toads and hares are pest species common in this Section. Feral deer have had an impact on vegetation in the forested areas.

No specific species list is available for this section; in recent years a platypus has been sighted in a waterhole in Wonga creek just upstream from the confluence with Moggill Creek.

Water

Wonga creek is ephemeral with some semipermanent waterholes. In the middle parts of the sub-catchment the creek becomes rather diffuse and lacks easily distinguishable banks and bed. Pastures and weeds predominate and are grazed by cattle and horses. Impacts on water quality have not been assessed. Past farming practices and more recent land-development activities have led periodically to serious erosion and consequent sediment inflow to the stream.

Mismanaged septic systems are a potential source of pollution, but there are no data on this aspect.

Some properties have small off-stream dams. An issue that has been raised several times relates to impacts on environmental flows from water pumping from the creek or from bores very close to the creek, during very low flow periods that have been prevalent in recent times.

Recently, weed removal from large areas of streambed and bank with herbicide have been of concern in relation to compromised bank and bed stability in high runoff events and to impacts on water quality. Again there are limited data available on which to make an assessment.

Development (clearing and disturbance) of flood zones has caused damage in the past. This issue relates to the whole of the Moggill Creek Catchment and warrants an assessment and communication of the statutory regulations relating to activities within stream banks and in riparian zones.

Land

City Plan (Brisbane City Council, 2000) designates most of the Section on the northern side of Savages Road as Environmental Protection Area. Rural Area designation covers most properties on the southern side of the road, except for a small Conservation Area. Both the EP and Rural Areas are now covered by the SEQ Regional Plan 2009-2031 (2009) as Regional Landscape and Rural Production Area, with minimum property size of 100 ha. (It should be noted that all existing properties are smaller than this).

ACHIEVEMENTS

Biodiversity

There is limited information on the success of vegetation replanting, weed management, and changes in land management on the 80 private properties in the sub-catchment. There have been over 6000 plants provided by the MCCG nursery for activities on the properties since 1999. The variation in the numbers of plants supplied in each year (see the Table below) is to a large extent related to the weather experienced over each year. In those years where there was sufficient rain to encourage planting, the numbers have increased. Changes in property ownership may also be a factor.

In a mail survey of members in 2010, information was sought on revegetation achievements and on aspects considered to be high priority for the Catchment group. The responses indicated that achievements related mainly to replanting of degraded remnant areas and weed management to foster natural plant regeneration.

Weed control, floods, fire risks, unreliable rainfall and lack of resources, particularly time, were identified as the main issues affecting achievements of the respondents.

The major weeds of concern to members were:

- Privet,
- Climbing asparagus,
- Lantana,
- Glycine,
- *Ipomoea* species
- Madeira vine,
- Mother-in–law's tongue
- Chinese celtis,
- Dutchman's pipe,
- Coral berry.
- Cat's claw creeper
- Ochna
- Elephant grass (particularly on the stream bank and in the stream bed)
- Broad leafed pepper

Property owners had put considerable effort into managing these weeds, but for some species such as climbing asparagus, Chinese celtis and privet, eradication is not likely to be achieved because birds inevitably bring seeds in from other infected areas. Madeira vine is also a problem because of the viable propagules that remain on dead treated vines in the tree

canopy; these provide a source of regrowth over time as they drop. There are several serious infestations along Savages Road, one of which is expanding in a large area of remnant forest on private land.

Work on public land by Section volunteers at the two Bushcare sites (supported by Habitat Brisbane) and a few other roadside sites has been restricted to areas of remnant vegetation; the activities have been aimed at weed control and targeted planting to increase the density and diversity of species. The two Bushcare sites were managed regularly for the first 8 years but have had limited input in the last 2 years. More than half of the team have Voluntary Conservation Agreement responsibilities. At the Bushcare sites establishment and growth of replanted species has been successful, despite the losses caused by drought, flood and weed competition. Weed control was relatively good until the drought broke in 2006. Since that time weeds including grasses have become a major issue again.

The main target species in two other roadside sites was climbing asparagus vine which has re-established.

Water

No specific in-stream-activities have been carried out beyond Platypus monitoring on an annual basis at a site near the junction of Wonga and Moggill Creeks. This same part of the riparian zone was a target for very successful revegetation at the first Bushcare site and the boundary of a private property.

Land

The main activities involved in reducing land degradation in the sub-catchment have been through actions by land holders on their own land.

Community

There were 22 Catchment Group members within the Section in September 2010.

Habitat Brisbane sites are located between Savages Road and the lower end of Wonga Creek and on the roadside on Savages Rd.

MCCG provided the following number of plants to private landholders.

1999	**2000**	**2001**	**2002**	**2003**	**2004**
270	558	286	427	1127	429
2005	**2006**	**2007**	**2008**	**2009**	**Total**
651	181	479	722	605	5735

Habitat Brisbane provided mulch in 1999-2000, and in 2003, 50 plants for activities at the Bushcare sites. In 2008 they provided Glyphosate herbicide for use at the various sites and associated roadside activities.

The provision of native plants through the MCCG nursery has been a major benefit to those property owners who have been active in addressing some of the land and vegetation degradation problems on their properties.

ACTIVITIES PLANNED

Opportunities to coordinate activities across neighbouring properties will be considered as part of a wider exercise in the whole Moggill Catchment to improve habitat corridors.

ISSUES OF CONCERN

- There is a need for strategies to support and encourage private landholders, who manage most of the land within the catchment, to increase the level of restoration of native vegetation. Age of landholders and lack of resources are key issues to address.

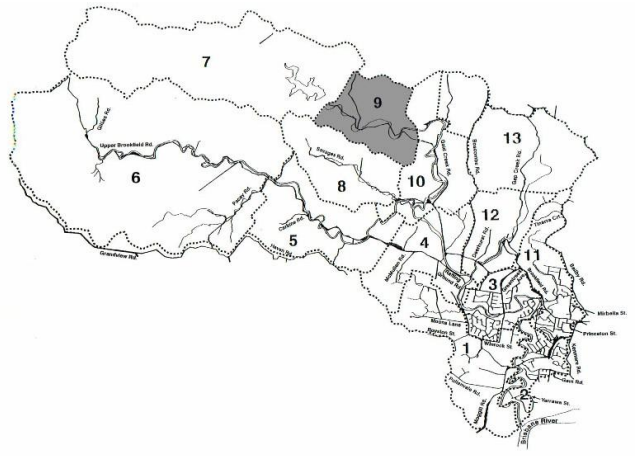
- Recent assessments have reinforced the need for collaborative planning with landholders to establish corridors along Wonga Creek and connecting upland and lowland areas.
- During dry times there has been concern about fire risks, and storm damage to homes from falling trees. In relation to these factors, several members have voiced concern about difficulties in obtaining permits to remove vegetation in areas identified by the BCC as having vegetation protection status. This will be raised with the MCCG Management Committee as an issue to be dealt with in the new Business Plan.
- Rural residential residents' fears regarding fire and snakes are probably leading to further clearing of denser patches of bush.
- Some landholders believe that if they keep their land cleared then they are likely to increase future subdivision potential compared with a vegetated block which is covered by Vegetation Protection laws. This becomes a barrier to restoration efforts.

Section 9: Upper Gold Creek

Section Leader: Gordon Grigg

DESCRIPTION OF SECTION

Section 9 sits below Gold Creek reservoir and includes the area down to about half way to the confluence of Gold Creek with Moggill Creek.



Biodiversity

A variety of rainforest species grow along Gold Creek in this Section. Dry sclerophyll is found on the ridges, whilst on the slopes eucalypt forest has a rainforest/vine forest understorey, particularly on south slopes.

A plant list exists for Gold Creek Reservoir. Many of these species are also found in this Section and the resulting plant list would be similar to that described in "Putting Back the Forest".

The Queensland Parks and Wildlife Service has conducted fauna surveys in the area. Notable species include both species of brushtail possums, a single koala, Regent bower birds, bandicoots and swamp wallabies. A bird list is available for the top of Gold Creek Road including the reservoir (this has >90 species).

Water

Gold Creek traverses this Section as a chain of pools except after rain. Periodically, releases of water from Gold Creek Reservoir provide a flow. The Section's goals include development and implementation of a water management plan to maintain a small flow, with the aim of eventually allowing re-colonisation by platypus now restricted to downstream

There are no weirs or dams below the reservoir, but there are bores, including some sunk very recently. During pumping the creek empties rapidly.

Land

City Plan (Brisbane City Council, 2000) designates most of the Section as Environmental Protection Area, with Rural Area designation covering areas close to Gold Creek Road. Both the EP and Rural Areas are now covered by the SEQ Regional Plan 2009-2031 (2009) as Regional Landscape and Rural Production Area, with minimum property size of 100 ha. (It should be noted that all existing properties are smaller than this).

Clusters of large lot estates and acreage properties, ranging in size from 2-25 hectares but mostly 5-10 acres, dominate this Section. From Hillbrook Road, the land has been

predominantly cleared, except for a narrow, but reasonably intact riparian corridor, and is used for horse grazing. One commercial property (a dairy farm) exists in the Section.

Community

There were 20 Catchment Group members within the Section at the end of 2010.

About half of the households within the Section have had at least one member at a working bee, but there is a core group of about a dozen regulars. Working bee participants have in common a definite interest in revegetation work, both on public and private land. There is a range of ages and, hence, abilities, and a range of knowledge and involvement.

The Bushcare Group has been active along roadsides and creek sides; maintenance of the sites already worked is a continuing activity, and that is much aided by landholders looking after their own road frontages. We believe that the activity of the group has assisted landholders in techniques and information, which has been useful for work on their own properties, and may even have stimulated them to do so.

ACHIEVEMENTS

Biodiversity

Most property owners have a positive interest in revegetation and most are in "Land for Wildlife".

MCCG provided the following number of plants to private landholders.

1999	**2000**	**2001**	**2002**	**2003**	**2004**
256	666	345	1530	690	310
2005	**2006**	**2007**	**2008**	**2009**	**Total**
379	328	351	405	614	5874

Habitat Brisbane provided the following number of plants (financial year ending).

1999	**2000**	**2001**	**2002**	**2003**	**2004**
		1060	704	1060	
2005	**2006**	**2007**	**2008**	**2009**	**Total**
158		220	282	120	3604

Cat's claw creeper is a serious smothering weed, with several large infestations, which act as a continuing seed source. Landholders are working to remove cat's claw creeper, but it will be a challenge without professional help. Glycine is a rapidly growing problem (arrived within the last 10 years and smothering many trees). Dutchman's pipe (*Aristolochis elegans*) is common. Lantana removal has been a priority for many landholders, but much remains. There are not many areas of Madeira vine, but these are increasing. There are also localised infestations of easter cassia, coral berry, freckle face, signal grass, morning glory and *Caesalpinia decapetala*. Coral berry seems to have been getting worse during the last 3-4 years, and has followed the removal of lantana.

Weed problems seem to be less than in either Upper Brookfield or Savages Road valleys. Management is at least possible, but will need to be continuous and will require more active participants than at present. A 0.5 ha paddock at the top of the road is identified for a joint effort with Habitat Brisbane.

Hares, foxes, wild dogs/dingoes, cats and pigs occur in the Section. Pigs are causing major damage at the moment (2010). Although cats, foxes and wild dogs are known to exist, particular problems from them have not been identified.

The exotic fish Gambusia are presumed to occur in the Creek.

Water

During dry periods pumping from the creek drops the water level rapidly. Occasionally there is algal growth in creek, but the creek is essentially unpolluted. *E. coli* counts were low but not zero, and thought to come from feral pigs.

Land

The population in the valley has at least doubled in the last 10 years, but further subdivision opportunities are few under current regulations, with the minimum size having increased to 100 ha.

Community

Numbers at working bees are a bit less than earlier (typically 12 now rather than the previous average of 17), but some of the 'lapsed' members are busy now on their own properties, so that is a good result. The group is still attracting small numbers of new people. Knowledge and skill levels are variable. Most attendees are interested in improving their knowledge, and experienced participants are willing to share.

ISSUES OF CONCERN

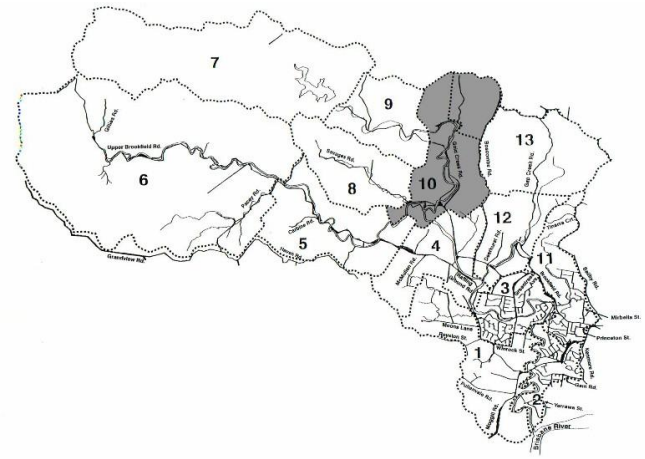
- An excellent opportunity for achieving a habitat corridor occurs in the lower part of Section 9 where Gold Creek runs across the valley between large stands of remnant forest on the hills to the east and west of the valley.
- Weed control continues to be a major challenge; of particular concern is cat's claw.
- Damage to creek crossings on Gold Creek road from flood runoff has been another issue in recent years and has resulted in particular negotiations with BCC.

Section 10: Lower Gold Creek

Section Leader: vacant

DESCRIPTION OF SECTION

This section is located in the mid-northern part of the Moggill Creek catchment. It forms the lower part of the Gold Creek sub-catchment and part of the Moggill Creek catchment below the junction with Gold Creek.



Biodiversity

Approximately 50% of the section has remnant vegetation mainly on the hills and lower slopes. The two main vegetation communities are mixed tall open forest of *Corymbia citriodora*, *Eucalyptus siderophloia* and *E. propinqua* on metamorphics and interbedded volcanics, or open forests of *Corymbia citriodora* and *E. crebra* on Mesozoic-Proterozoic igneous rocks.

Approximately 35% of the riparian zone vegetation in Section 10 is highly degraded. That part of the creek that fringes the remnant vegetation of the eastern side of the creek (approx. 25%) is in relatively good condition. However, much of the remainder (approx. 40%) is in poor condition with very narrow strips of vegetation along the edge of the creek.

The major weeds in remnant vegetation on the lower slopes and alluvial flats include lantana, broad leaved pepper, privet and ochna. Ochna is prevalent in the lower slopes of the remnant vegetation in the forest park adjoining Jones Road. Climbing vines such as glycine, climbing asparagus and Madeira vine are prevalent in some areas along the creek.

Most of the cleared land has pasture and is used for grazing of horses (and a few cattle). Consequently there is little natural regrowth of native species. There appears to be little effort on these properties to encourage natural regeneration.

Water

Section 10 contains the confluence of Gold and Moggill Creeks. Gold Creek can be ephemeral in prolonged dry periods with water collecting in pools. The dam in the upper reaches is managed to reduce the period of no flow and in some years the flow can be maintained to allow water to flow into Moggill Creek for the whole year.

Waterholes above the junction with Moggill Creek are infested with aquatic weeds. Salvinia has been a particular problem in recent times.

In general the water quality in Gold Creek meets the ANZEC Guidelines and is considered quite suitable for aquatic fauna. However in lower Gold Creek one water quality assessment project in 2000 during a prolonged dry period, reported nitrogen and phosphorus levels well above the ANZEC guidelines.

Land

This is a predominantly rural residential area where many properties graze horses on managed pastures. An aquatic plant nursery is located just upstream of the junction of Gold and Moggill Creeks. City Plan (Brisbane City Council, 2000) designates most of the section as a Rural Area. Rural Areas are now covered by the SEQ Regional Plan 2009-2031 (2009) as Regional Landscape and Rural Production Area, with minimum property size of 100 ha. (It should be noted that all existing properties are smaller than this).

Serious sedimentation of the creek has been noted over the last few years at the Jones Road culvert over Gold Creek. The access track from Jones road to the culvert/crossing has been very seriously eroded several times in recent years and all of the gravel used to repair previous damage was transported into the creek due to uncontrolled runoff from the road and grazing land. The sedimentation in the creek has been exacerbated by the transport of large gravels and rocks from a narrow gully draining the forest park. Brisbane City Council has recognised part of the problem and has built a concrete access track to the crossing and provided controlled delivery of water into the creek.

Community

There has been no active volunteer work in this section for more than 5 years.

ACHIEVEMENTS

Biodiversity

Volunteers from Section 10 and 7 carried out vegetation rehabilitation activities at two sites in lower Gold Creek section. One is on Gold Creek road opposite Brookfield Village, and just north of the junction with Savages Road. The other is at the bridge over Gold Creek at the beginning of Savages Road. In the first site an area that had been severely slashed for lantana and other weed removal beside Gold Creek road was replanted in approximately 2002 with assistance from Habitat Brisbane. It involved planting an area approximately 400 m^2at about 1 m^2spacing, heavily mulched and watered up to four times over the first four months. This was a high input project on very good soils adjacent to a riparian zone that was in reasonably good condition. Subsequently, a nearby infestation of Chinese celtis in the riparian zone was removed. The establishment of this area has been excellent, helped in the last couple of years by extra weed control carried out by the BCC. The density of the planting has prevented/limited the establishment of weeds. In a neighbouring area of approximately 1 ha of remnant vegetation, Habitat Brisbane has carried out extensive weed control and replanting over the last three years with considerable success in re-establishing the closed woodland adjacent to the riparian zone.

An earlier replanting program in the late 1990s at the site immediately upstream from the bridge at the beginning of Savages Road, was plagued with weed invasion on the highly fertile and moist alluvial site. A loss of volunteers made further progress difficult for several years. Subsequently an intensive effort was made using volunteers from Sections 10 and 8 to extend the restoration effort downstream. Drought, floods and frosts over the subsequent few years severely damaged the young seedlings, and glycine has proved extremely difficult to control. Despite some ongoing work by Habitat Brisbane success has been very limited.

This zone is one of the few in the catchment where there is good potential for establishment of a vegetation corridor from one ridge with remnant vegetation on the south western edge of the Gold Creek sub-catchment along Gold Creek to the eastern edge linking up with the Forest Park.

Water

There have been no achievements of note in relation to water quality.

Community

There is no active Section group operating.

In September 2010 there were 14 Catchment Group members within the Section.

MCCG has provided the following number of plants to private landholders.

1999	**2000**	**2001**	**2002**	**2003**	**2004**
502	188	345	116	543	610
2005	**2006**	**2007**	**2008**	**2009**	**Total**
392	72	356	63	293	3380

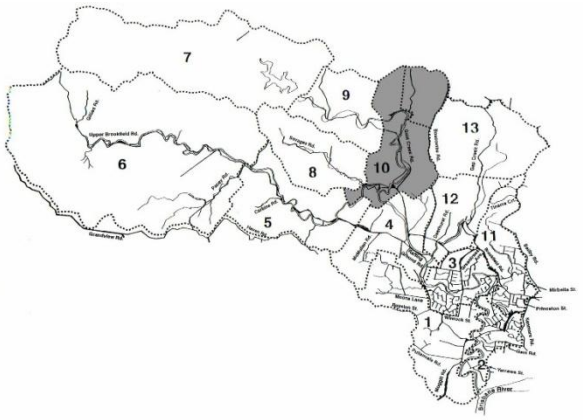
ISSUES OF CONCERN

- The lack of a Section leader limits the opportunities for communication of issues in the section and this has resulted in very limited work on public lands.
- Water weeds have been a concern for many years in the lower part of Gold Creek in the vicinity of the junction with Moggill Creek.
- The riparian zone condition is severely degraded through much of the Section.
- There appears to be little revegetation activity on private land throughout the Section.

Section 11: McKay Brook

Section Leader: Bryan Hacker

DESCRIPTION OF SECTION



McKay Brook rises on Mt Coot-tha and flows southwards for about four kilometres into Moggill Creek close to the northern extremity of Kenmore State High School. Bielby Road comprises the eastern watershed whereas the western watershed is a north-south ridge running a little to the east of Gap Creek Road. The southern part of the catchment is closely settled while the northern half mostly comprises acreage home sites on moderately steeply sloping eucalypt woodland on infertile skeletal soils.

There are four Council parklands in this Section:

- A small grassy park/playground close to McKay Brook and just to the northwest of Mirbelia Street.
- An irregularly shaped and generally narrow park running either side of the Creek from the bridge on Mirbelia Street to below Pamela Place.
- A park extending from the Brookfield Road Bridge across McKay Brook to Kenmore State High School (below Mabb Street). This park area includes a small playground adjacent to Brookfield Road. The park varies in width from a few metres at the end of Belford Street to perhaps 70 metres wide in the southern portion.
- A more or less square park to the west of Bozzato Place (Shaw Place) and contiguous with the irregularly shaped park mentioned above. This area was

passed over to the Council by developers of associated blocks in about 2005. The area includes a retention basin in a northerly extension.

Biodiversity

The woodlands in the north of the catchment are generally dominated by *Eucalyptus crebra* and *Corymbia citriodora*, with a range of other eucalypt species, and limited patches of rainforest in gullies. In general this woodland is not particularly weedy.

Parks 2 and 3 each contain forested areas along the creek (adjoined by grassy areas for walking and other recreation). Species found in the northern park (prior to work started by the Mirbelia Street Bushcare Group in 1998) include a number of trees of *Casuarina cunninghamiana, Jagera pseudo-rhus, Ficus coronata, Glochidion ferdinandii, Melaleuca bracteata, M. viminalis* and *Melia azedarach*. The southern park also had a number of mature native trees including numerous *Lophostemon suaveolens* and *Aphananthe philippinensis*, as well as *Eucalyptus tereticornis, Corymbia henryi, J. pseudo-rhus* and *Mallotus philippensis*.

Park 4 includes *Cryptocarya triplinervis, Guioa semiglauca and Syzygium smithii* close to the Creek and a large *Ficus rubiginosa* up the slope. Plantings by the developer in 2005 are not sustainable but some natural regeneration is occurring.

Woodland in the northern part of the Section is not particularly weedy, as infertile soils prevented clearing for dairying or horticulture. There has, however, been increasing pressure for development over the last 10-20 years, but minimum property sizes are restricted to acreage sites as a measure to preserve the integrity of the bushland area incorporating Mt Coot-tha. Areas of Mt Coot-tha are under increasing threat from exotic grasses such as *Urochloa decumbens* and *Melinis minutiflora*.

Platypus have been observed in 2003 in McKay Brook near Mirbelia Street and a Satin Bower Bird making a bower in a residential property in 2009.

Water

McKay Brook was re-routed below Hillcrest Place about 1990, resulting in destruction of a native vegetation community. Land management (excessive mowing/poisoning weeds) upstream from Billabong Street properties is believed to have been responsible for filling in of water holes. At the Brookfield Road bridge, two approximately 80 centimetre drains and a c. 30 cm drain bring runoff into the creek. One of the drains comes from the large sealed area of Kenmore Village Shopping Centre. These drains result in extremely rapid rises in water level in McKay Brook and consequent erosion with storm events. Below Belford Street, two sewerage manholes used to discharge raw sewerage down to the creek during storms. An ancillary sewerage line has been installed c. 2008 and overflow problems have not subsequently occurred.

The recent development at Bozzato Place/ Shaw Place includes a retention basin which collects run-off water from the new residential area. Whilst this successfully avoids excessive run-off into McKay Brook it also serves as a breeding ground for cane toads. On the positive side, various water birds may be seen on this pond.

There is little doubt that water quality in McKay Brook is deteriorating with increasing urban development. The three aforementioned drains at the Brookfield Road Bridge undoubtedly carry various pollutants as well as grosser rubbish and cause erosion that would be unlikely to occur in a natural creek. Visual signs of pollutants are reported to Council when seen.

Fortunately, the flooding events of November 2008 and May 2009 did not cause extensive damage to plantings. This was probably associated with the small size of the McKay Brook Catchment – about 6 km^2 and hence the more limited runoff.

Land

A mixture of designations under Brisbane City Plan 2000 occurs through the Section. At the northern end land is zoned Environmental Protection Area. Moving south this changes to Rural

Area and then Low Density Residential Area. Both the EP and Rural Areas are now covered by the SEQ Regional Plan 2009-2031 (2009) as Regional Landscape and Rural Production Area, with minimum property size of 100 ha. (It should be noted that all existing properties are smaller than this). Three large Community Use Areas occur in the Section: the Priory, the adjacent Iona Retirement Village and the Kenmore Christian Theological College. The Priory is nearly surrounded by a narrow strip of Conservation Area. A wider band of Rural Area surrounds the College. Other Community Use Areas include land adjoining Moggill Creek, west of Paley Street and the SPACE Centre and Men's Shed properties between Moggill Creek, Branton Street and Brookfield Road. Parkland areas occur along the western side of McKay Brook near Mirbelia Street, on McKay Brook near Mabb Street and along the western side of Paley Street. Kenmore Village in the south-eastern corner of the Section is the only area designated as a Suburban Centre.

Community

Prior to 1999 there was little volunteer work on Council land within this Catchment, other than that noted for Damien Egan (below), although local residents who were members of the Rural Environment Planning Association Inc. contributed to revegetation work in nearby Rafting Ground Park in 1991-94. The formation of the McKay Brook Bushcare Group in 1999, shortly followed by the Mirbelia Street Bushcare Group, and both supported by BCC's Habitat Brisbane, has led to a substantial improvement in biodiversity values along the c.900 m length of McKay Brook in Council hands.

From July – September 2008 the Council instigated a trial 'Urban Wildlife Corridors' project, involving residents of smaller acreage blocks towards the north of the Catchment. Advice and 20 plants were provided to landholders. This project was of short duration and was discontinued. No contact was made with MCCG.

As elsewhere in the Moggill Creek Catchment, many larger properties are included in the Council's "Land for Wildlife" scheme, which has been more strongly promoted since c. 2008.

ACHIEVEMENTS

Biodiversity

By 2008 about 900 m along McKay Brook had been largely revegetated with local native species. The improved habitat value has supported a range of bird and mammal species, including the aforementioned satin bower bird, brown pigeons, barking owls and orioles.

In 1996, Damien Egan started work on land below his property in Mondra Street, single-handedly clearing and replanting a substantial area with 4177 trees by November 2001, with support from Habitat Brisbane. In 1998 priorities for the McKay Brook catchment were determined at two public meetings and work started in the park below Mabb Street. Prior to the start of the Group's work, *Celtis sinensis*, *Lantana camara*, *Neonotonia wightii* and *Caesalpinia decapetala* were common along the creek. Around 20 large camphor laurels were present but have since been removed. *Pennisetum purpureum* was dominant in some areas. By 2010, these weeds have been replaced by a mixed rainforest planting c. 7m in height. Major weeds persisting in 2010 include *Neonotonia wightii*, *Anredera cordifolia* and some restricted areas of *Macfadyena unguis-cati*.

Together with Damien's plantings, the McKay Brook Bushcare Group has now removed weeds and revegetated almost the entire area between Kenmore State High School and Brookfield Road, with the exception of c. 20 m upstream from Belford Street on the eastern side.

Students from Kenmore State High School currently cross McKay Brook between Brookfield Road and Belford Street. This is causing damage to the creek banks and is potentially dangerous when the creek is in flood. A BCC plan to provide a culvert crossing at this point has been put on hold, initially associated with concerns regarding major damage to plantings and subsequently due to new regulations regarding fish passage. A concrete path extends from the culvert site to Brookfield Road and plans are that it should also extend south to Mabb Street on completion of the culvert.

In 1999, a decision was made to start work on the park at Mirbelia Street and Pamela Place and a second Bushcare Group was formed. Weeds were abundant in the park prior to the start of the Group, with *C. sinensis*, *L. camara*, *N. wightii* and *C. decapetala* dominating. This Group has largely completed the area from Mirbelia Street to Pamela Place, just omitting a steep corner of land to the west of this park. In addition, permission was obtained from the developers of townhouses immediately downstream from Pamela Place to revegetate their ~100 metre section of creek (to near Brookfield Road) and this has been completed. The area around the retention basin and small park (Park 4 – see above) has needed continuing attention due to the failure of the developers to plant adequate numbers of canopy trees and maintenance spray damage by Council contractors.

Ongoing maintenance of Bushcare Group sites is required for at least three years following planting. Since the Catchment Group has started work along the creek, dumping of garden rubbish has resulted in infestations of Singapore daisy as well as re-infestations of Madeira vine. Provision of a locked bar gate has now minimised re-infestations. The monthly working bees for each group, usually comprising 6-8 people, are largely concerned with controlling climbing weeds, particularly along margins of revegetated areas.

Natural regeneration, however, has also been observed: from existing trees of *Guioa semiglauca, A. philippensis, J. pseudo-rhus and Eucalyptus* spp. at the Mabb Street site; of *Grevillea robusta* at the Mirbelia Street site; and from planted *Hibiscus heterophyllus* at both sites.

A townhouse development at 78 Brookfield Road was permitted with the requirement that the developer revegetate the section of creek that ran across the company's land. The developer failed to do this, so forfeiting a $20,000 bond, which was made available to the McKay Brook Bushcare Group to undertake the work, in partnership with Habitat Brisbane. This work, predominantly associated with the removal of the aforementioned camphor laurels, has been completed successfully.
A number of private acreage landholders in the Section are also actively involved in revegetation.

Water

MCCG has not been carrying out any monitoring of water quality along McKay Brook. Kenmore State High School has been involved in managing its approximately one kilometre of creek frontage (onto McKay Brook and Moggill Creek) and has conducted water quality studies but data have not been maintained (see also Section 2).

Community

There were 60Catchment Group members within the Section at the end of 2010. Advice on land and vegetation management has been provided to many of these members through MCCG's Landcare Adviser.

MCCG provided the following number of plants to private landholders.

1999	**2000**	**2001**	**2002**	**2003**	**2004**
504	524	241	1672	1898	866
2005	**2006**	**2007**	**2008**	**2009**	**Total**
2780	2192	1329	1151	1992	15149

Two Bushcare Groups, supported by Habitat Brisbane, operate in the area: McKay Brook and Mirbelia Street. Each Group meets 12 times annually, alternating between Saturday afternoons and Sunday mornings.

Habitat Brisbane provided the following number of plants (financial year, June, ending). Number in parentheses indicated additional plants supplied by the Moggill Creek Catchment Group).

1999	2000	2001	2002	2003	2004
ND	ND	2238	3862	6100	1530
2005	**2006**	**2007**	**2008**	**2009**	**Total**
1600 (387)	409 (272)	94 (73)	268 (102)	940 (48)	3311 (882)

Numbers of plants planted after 2005 reflect the lesser need for planting and increasing concerns over maintenance. Significant numbers of plants were contributed by the Moggill Creek Catchment Group.

Numbers at working bees are comparatively constant, with six to eight people in attendance. Considerable time is also required on maintenance in between working bees, to control weed invasion.

ACTIVITIES PLANNED

- Continued control of environmental weeds, especially vines, will be necessary to ensure the lasting benefits of the work done over the past 11 years.
- A small section north of Belford Street will be planted after completion of the culvert crossing and cycle path.
- A new development is anticipated south of Park 4, noted above. Preliminary talks were held with the developer, c. 2008. Flood-prone areas of the site will require re-vegetation and maintenance.
- A major problem is infestation by the waterway itself by the herbaceous plant *Ruellia tweediana*. As the canopy of planted trees closes overhead we see opportunities to replace this weed with native *Lomandra hystrix, Carex* spp. etc.

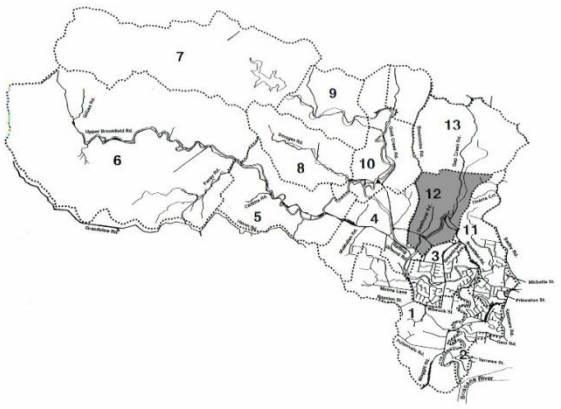
ISSUES OF CONCERN

- Control of weeds is a continuing problem, particularly glycine and Madeira vine.
- Council contractors charged with weed control frequently cause extensive damage to plantings.
- Group numbers are small and extra reliable members would be advantageous.

Section 12: Gap Creek

Section Leader**:** Michael Humphreys

DESCRIPTION OF SECTION



This section consists predominately of acreage properties. Most of them are one hectare in size but there are larger properties on the upper half of Brookfield Rd and the Western side of Deerhurst Rd. Gap Creek leaves Brisbane Forest Park and runs past several of the properties before joining Moggill Ck. Much of this section of Gap Creek is very rocky with some deep waterholes and natural stone weirs. The banks tend to be steep though some of the banks in the lower reaches are low. On the western and southern side of Gap Creek there is a narrow strip of nature reserve running alongside of the creek. This runs for almost 1 km from Brookfield road to a private property on Gap Creek Rd. past Kookaburra St. The total area is two hectares. On the eastern and northern side of the creek there is a road reserve of approximately three hectares. This reserve runs from Brookfield Rd to Gap Creek Rd. The road

reserve includes a small park with water, a barbecue and a picnic table at the Brookfield end. At this point the Council has no plans for the road reserve other than that of a park. It has been cleared of weeds and replanted. In addition a rough trail has been created which is attracting new park users.

Biodiversity

Gap Creek is a potentially significant corridor between Brisbane Forest Park (Mt Coot-tha) and Moggill Creek. However, this Section was largely cleared with Gap Creek lined with a mix of river she oak (*Casuarina cunninghamiana*), black tea tree (*Melaleuca bracteata*), *Syzygium smithii, Syzygium australe* and weeping bottlebrush (*Melaleuca viminalis*). *Cryptocarya obovata, Notelaea longifolia, Hymnospermum flavum, Rhodosphaera rhodanthema, Cryptocarya triplinervis, Aphananthe phillipinensis, Mallotus philippensis, Trema aspera, Streblus brunonianus, Ficus coronata, Ficus fraseri, Ficus macrophylla, Ficus rubiginosa*, and *Alchornia ilicifolia* were also present along the creek and in the surrounding bush, though generally in very small numbers. Dense vegetation was found along the Creek though only ~10% remnant native species (scattered individuals) occurred, the remainder were weeds.

Scattered forest red gum *(Eucalyptus tereticornis*), wattles (*Acacia* spp.) and brush box (*Lophostemon confertus*) remain away from the creek. Pockets of bush also occurred in larger acreage blocks, though their condition was unknown variable.

Major weeds along Gap Creek included camphor laurel, Chinese celtis, broad-leaved privet, broad-leaved pepper, lantana, ochna, silver-leaf desmodium (velcro weed), glycine, Singapore daisy, asparagus vine, Brazilian nightshade (*Solanum seaforthianum*), some Madeira vine, easter cassia and mulberry. Up to 90% of the vegetation along the Creek was weed.

Wildlife is abundant in this Section, with red-necked and swamp wallabies, lace monitors and various species of glider being locally abundant. Koalas are to be seen occasionally.

Water

Gap Creek is the major waterway through the Section and is joined by a significant tributary near the intersection of Deerhurst and Brookfield Roads. Gap Creek doesn't flow continuously, comprising a chain of waterholes for most of the year. Flooding occurs in heavy rain, particularly with the backing up of Moggill Creek during high tides.
Road culverts restrict water flow in some areas.

Land

City Plan (Brisbane City Council, 2000) designates most of the Section as Environmental Protection Area, with Rural Area designation covering southern and south-western areas. Both the EP and Rural Areas are now covered by the SEQ Regional Plan 2009-2031 (2009) as Regional Landscape and Rural Production Area, with minimum property size of 100 ha. (It should be noted that all existing properties are smaller than this). A narrow strip of Parkland Area runs along the eastern and western side of Gap Creek from Brookfield Road north to Kookaburra Street. One commercial property, Mappin Nursery, was located in the Section, but was closed in 2010.

Council zoning offers a measure of protection to most of the Section; however, subdivision of larger properties at the northern end of the section along Gap Creek Rd is a potential threat to the creek's corridor function, although current zoning disallows subdivision unless permits have already been granted.

Encroachment into public land by park neighbours is a concern and clear delineation of boundaries is needed.

Community

Between Kookaburra St and Moggill Creek all of the properties bordering the creek or the park are close to one hectare in size. Some larger properties are found further out along Gap Creek Rd. Only a few of the older generation that were in the area were interested in removing weeds and replanting with native vegetation. Many people kept horses on their property or

they simply used their relatively large blocks and their weed species to screen themselves from their neighbours. Over the last 30 years there has been an increasing number of landowners who have been interested in clearing and revegetating. However, relatively few of the local landowners have ever come out to a working bee or even to some of the information sessions that have been held.

ACHIEVEMENTS

Biodiversity

In 1990, a BCC work crew removed weeds from the south east side of the park and planted about one hectare of land. However, with no maintenance many of the plants died and weeds have regrown. Some *Grevillea robusta*, *Toona ciliata*, and *Acacia* spp. survived.

The current Habitat Brisbane project started in 1999. Since then the Bushcare Group has removed weeds and planted 80 to 90% of the southern and eastern side of the park. However, the two hectares on the northern and western side have not been touched and are a source of weed infestation for the rehabilitated land.

Habitat Brisbane installed a water line which was very helpful in maintaining the plantings. However, since water restrictions started it cannot be used. Habitat Brisbane also removed a number of large camphor laurels from the southern and eastern side of the park. A National Heritage Trust Grant in 2008 and 2009 was also used to remove and mulch a very large number of camphor laurels and privets from the area at the northern end of Kookaburra St. The grant was also used to partially support three private landowners to remove large weed trees. As part of the NHT grant the bushcare group planted over 100 Richmond Birdwing Butterfly vines in the Park. Unfortunately a significant number of these were washed away in the floods of 2008 and 2009.

Work has also been carried out on private land by the landowners. At times one or more members of the bushcare group have been able to assist. Between Moggill Creek and Brookfield Rd along the northern and western side of the creek all of the land immediately bordering the creek has been largely cleared of weeds (some camphor laurels remain) and has been planted. One of these properties has a Voluntary Conservation Agreement covering one hectare which is completely cleared of weed trees and planted. The other three properties have a combined total of about 0.5 hectare which has been largely cleared and planted. About 3 or 4 out of the 15 properties on Deerhurst Road are making serious efforts to clear weeds and revegetate. Six properties near the Kookaburra end of the park which either border the park or border a property which borders the park have also made serious efforts to clear weeds and replant. About 2.5 hectares on these 6 properties is now planted. Further properties along Gap Creek Rd and Boscombe Rd are revegetating their properties, some being Land for Wildlife and in one case, a Koala Nature Refuge, as recognised by DERM.

Water

A small amount of gully erosion, caused by overland flow, occurs within the park, extending from the creek to inside the fence of the adjoining private property. We have attempted to bring this under control in the park through planting of *Lomandra* spp and other species. The floods of 2008 and 2009 washed out new plantings (about 100 plants), flattened some old plantings and caused some creek side erosion. It knocked down trees which also made maintenance more difficult, slowing down the work of the bush care group. However, the park is recovering from these storms.

Community

There were 43catchment group members within the Section in September 2010. Three families (5-6 people) regularly attend Habitat Brisbane working bees. We have recently acquired two new workers and there is a possibility of another 2. On occasions we have been able to recruit others either from the local area or from relatives and workmates. Working bees have involved as many as 20 people.

Current knowledge and ability amongst working bee attendees is sufficient for the task at hand. Hands-on training by Habitat Brisbane staff, Catchment Group project staff and

experienced Catchment Group members was given to new members at the start of the creek project.

MCCG provided the following number of plants to private landholders.

1999	**2000**	**2001**	**2002**	**2003**	**2004**
87		614	1031	920	822
2005	**2006**	**2007**	**2008**	**2009**	**Total**
1092	777	974	692	800	7809

Habitat Brisbane provided the following number of plants (financial year ending).

1999	**2000**	**2001**	**2002**	**2003**	**2004**
ND	ND	150	601	150	500
2005	**2006**	**2007**	**2008**	**2009**	**Total**
244	16	299	536	380	2876

The rough track through the park completed by the bush care group is continuing to attract walkers. The water fountain installed when the water line was put in for the bush care group is also used by the community.

ACTIVITIES PLANNED

The bush care group plans to clear and replant the remaining land at the Kookaburra end of the park on the southern and eastern side. This may take as much as 2 years. Then they will start clearing the northern and western side starting at Brookfield Rd. In addition, they have to maintain the current plantings.

There are currently (2010) about 50 Richmond Birdwing Butterfly vines in the Park. This number will be doubled or tripled over the next few years.

ISSUES OF CONCERN

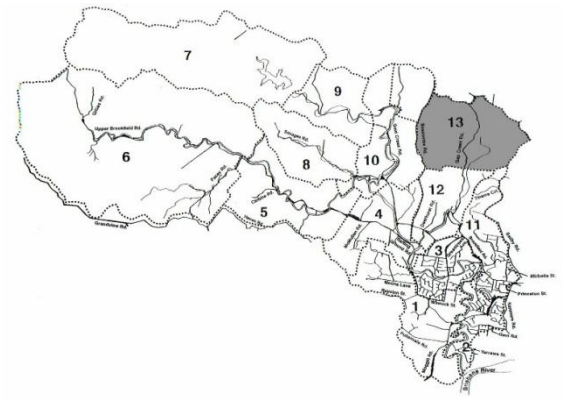
- The amount of maintenance work required is increasing and this will limit the ability of the bush care group to continue clearing and replanting. Some of the maintenance problem comes from the yet to be cleared weeds on the northern and western side of Gap Ck. However, weeds on private land adjacent to the park are also a problem. The weed seeds from the uncleared land on the northern and western side of Gap Ck. also pose a problem for the landowners on Deerhurst Rd who border the park. That is uncleared council land which acts as a deterrent to private land owners who otherwise might be willing to clear weeds from their own land. These problems need to be simultaneously addressed. The Brisbane City Council needs to enforce weed removal on those properties which adjoin the park and possibly adjacent properties as well. This could include all properties between Deerhurst Rd, Brookfield Rd, and Gap Creek Rd. This would stop with the two properties which adjoin Gap Creek at the northern end of the park. Weed ordinances might also be enforced for properties adjoining Gap Creek on the section between Brookfield Rd and Moggill Creek, at the same time Council needs to help clear at least some of the weeds from the northern and western side of the Creek. This will encourage the private landowners who are being required to clear their own land. It will also make it possible for the bushcare group to finish its job.
- Park boundaries need to be surveyed and private landowners who have encroached on the park need to be required to withdraw.
- The erosion gully needs to be stabilized though this may take some cooperation from the landowner at its head.
- Clearing a 0.5 hectare block of weeds without destroying the remaining native vegetation will probably take a landowner working 1 hour a week for 48 weeks a

year, 3 to 4 years. This can be a daunting task. If we do not want landowners to hire a bulldozer and clear everything the City Council needs to offer some support.

- While the park is only used by a few walkers and picnickers there is potential for increased use. Consideration should be given to improving the rough trail put in by the bush care group, including its extension to Gap Creek Rd.

Section 13: Mt Coot-tha Park

Section Leader: Tom McHugh (BCC)



DESCRIPTION OF SECTION

An area of approximately 546 ha of Mt Coot-t Forest (Brisbane's largest natural area and part of Brisbane Forest Park) lies within Moggill Creek Catchment, covering most of section 13. The area of Forest within the Section is freehold land owned by Brisbane City Council. A significant creek corridor exists in this Section between Gold and Gap Creeks

Biodiversity

The eucalypt woodland and open forest communities found throughout this Section are in relatively good condition, with weed infestations mostly restricted to riparian areas and road- and track-sides. Areas of the exotic signal grass (*Urochloa decumbens*) and other grasses are increasingly evident in some areas. Dominant tree species include: *Eucalyptus propinqua , E. microcorys, E.siderophloia, E. acmenoides, E. crebra, Corymbia henryi, C. citriodora* and *Lophostemon confertus*.

A small area of *C. citriodora - E. siderophloia* woodland opposite Gap Creek Road, is the only area of this community found within Mt Coot-tha Forest. Though cleared in 1949, the area has revegetated. Pockets of *E. moluccana* open forest occur on northerly slopes at three locations in the southwest of the Section. A total of 456 species of plants, lichens and cyanobacteria and 362 vertebrate fauna species have been recorded from Mt Coot-tha Forest (species lists are contained in the Mt Coot-tha Forest Management Plan, BCC 2003). These include rare and threatened species such as the powerful owl, as well as goshawks, eagles, koalas, wallabies, gliders, antechinus and bats. Weeds threaten the integrity of natural vegetation, reduce biodiversity and increase the risk of fire. Within the Section, lantana (*Lantana camara*) dominates or is co-dominant with *Megathyrsus maximus* (*Panicum maximum*) in weed communities found in many of the gullies and along some ridges. Dumping of garden waste and general rubbish is a problem, particularly along Gap Creek Road. Encroachment of weeds from adjoining land, and from roads and traffic) is an issue in some areas.

Water

Flooding in the storms of November 2008 and May 2009 caused extensive erosion, and high winds in the 2008 storm caused major damage to tree canopies along ridge lines in the vicinity of Highwood and Boscombe Roads. The extensive track and trail networks of Mt Coot-tha Forest Park are potential sites for erosion due to exposure of the soil surface and continual use or disturbance. To some extent this is mitigated by regular maintenance of the track and fire access trail network, however inappropriate and illegal use counteracts these efforts to some degree. Prior to 1996 there was limited success in the management of off road vehicles in this section. In the two years to 1998, through a combination of recurrent and capital funding, Local Asset Services had managed to secure the boundaries of the park and unauthorised vehicular activity decreased significantly. In order to facilitate service vehicle movement and improve water quality, culverts were installed at all vehicle crossings. This negated the former practice of fording creeks, disturbing the bed, damaging creek banks on the approach and exit and therefore led to a significant reduction in sediment loading. From 1998 to 2002, a total of eight culverts and a timber footbridge were installed in the Gap Creek, Boscombe and Jones Road areas.

Opportunities for further improvement include closing of tracks that cross creek lines, or providing simple bridges. MCCG sees protection of creek lines from traffic and burning, together with sensitive weed control, as essential for local wildlife.

Land

The Mt Coot-tha Forest Management Plan (BCC, 2003) identifies the underlying geology of the Park as predominantly Bunya Phyllite (slate, phyllite, arenite, metabasalt), with Neranleigh-Fernvale Beds (mudstone, shale, arenite, chert, jasper, basic metavolcanics, pillow lava, conglomerate) in the south-western corner. Soils in the Mt Coot-tha Forest Park are mostly a mix of lithosols and red podzolic soils (BCC, 2003). City Plan (Brisbane City Council, 2000, Feb 2010 update) designates almost all of this Section as Conservation Area, with a small area of Environmental Protection Area between Boscombe Road and the Forest in the southwest of the Section.

Gap Creek Road, which passes through Mt Coot-tha Forest Park, underwent an upgrade during January - July 2010. The gravel section through Mt Coot-tha Forest Park was sealed and the single-lane bridge near Gap Creek Reserve widened to two lanes, sharp bends were re-aligned, crests lowered, and the junction between Kookaburra St and Gap Creek Rd modified. The road is signposted to 50km/hr. In part in response to community consultation, including representatives of the Moggill Creek Catchment Group, the design of the Gap Creek Rd project also includes speed platforms and slow points to reduce traffic speeds and protect fauna, and five under-road culvert fauna crossings (including the creek crossing). In addition entry statements identifying the environmental significance of the area, and five tonne load limit signs to restrict heavy vehicles using the road are included. Areas disturbed by construction have been revegetated, and a Fauna Monitoring Program managed by Griffith University ecologists and supported by MCCG members is in place to identify any impacts as a result of the upgrade. MCCG has provided close to 2000 seedlings of local species for revegetating disturbed areas.

Members of the catchment group are concerned over the environmental impact of the upgrade, specifically (i) the insistence by the Council that all slow-down devices through the Forest Park should be lit at night; (ii) the construction of a 100 m long, 2-3 m high, vertical concreted wall opposite the car park, considered potentially lethal to local wildlife and (iii) reluctance of the Council to provide a slow-down device along a straight stretch of road a little to the south of Mt Coot-tha Forest Park.

Community

Gap Creek Reserve contains a picnic area with a toilet block and an extensive track network. The carpark has been sealed to stop the ingress of sediment and dirt into waterways. The track network as recognised in the Mt Coot-tha Forest Management Plan is comprised of multi-use, walking and mountain bike single-use tracks. The multi-use tracks are designed to allow for maintenance vehicles including wild fire suppression crews, horse riders, walkers and mountain bikes.

ACHIEVEMENTS

Biodiversity

The Mt Coot-tha Forest Management Plan was released in 2003, and stated actions included "continued identification of threatening processes; Restore and manage the vegetation and watercourses of the Forest to provide a variety of habitats required by the species which occur there; and Continue data gathering, monitoring and research to facilitate the long-term management of the forest."

A draft vision statement "Our Shared Vision Mt Coot-tha 2030" (BCC May 2010) reinforces the Council's commitment to sustainable management practices. Studies by Griffith University scientists over 2009-2010 revealed a particularly high level of biodiversity amongst cryptic local wildlife. Further, there have been a number of sightings of koalas over 2006-2010 on properties on the southern borders of the Forest, as well as feather-tailed gliders during the Gap Creek Road upgrade. It is to be hoped that management practices in the future will ensure the continued survival of these species.

Fire Management

Prescribed burns are held each year from February to August in Mt Coot-tha Forest Park. The Brisbane City Council aims to burn each section every 7-25 years, in their view to maintain the health of forests and lessen the impact of wild fires. Council aims to reduce the amount of fire fuel, such as dead wood, by 75 per cent in 60 to 80 per cent of the land being burned. Some areas of the forest are left untouched, which can be used by wildlife as a refuge and as seed sources to aid in re-establishment of vegetation in the burnt sections. Details of upcoming burns can be found on the Brisbane City Council website, and local residents are notified by letterbox drop. Council staff use weather and air-quality forecasts to determine the best day for each planned burn.

Whilst the Council seeks expert advice from the South-East Queensland Fire and Biodiversity Consortium in relation to burning practices, a number of MCCG ecologists favour micro-mosaic burning as a tool for retaining biodiversity, avoiding excessive weed regeneration and retaining safety considerations in this sub-tropical environment. Details are available in "Ecologically Sustainable Fire Management: An Advisory Code for Brisbane's Western Suburbs" (Sands, D.P.A. and Hosking, C.M., 2005, available on www.moggillcreek.org.au).

Community

Privately managed lands outside the boundaries of Mt Coot-tha Forest are subject to development pressure, however the Conservation Area designation over public land within the Section mitigates this. Some conflicts occur . Studies by Griffith University scientists over 2009-2010 revealed a particularly high level of biodiversity amongst cryptic local wildlife. Some conflicts occur over track use, however, these have been reduced following installation of signage identifying the purpose and allowed users of different stretches of the track network. Substantial areas of Mt Coot-tha Forest Park are now committed solely to mountain biking use. A draft vision for the future of Mt Coot-tha has been developed as a result of an extensive visioning process and community consultation with over 2,700 residents and stakeholders. The Mt Coot-tha 2030 draft vision will build on the unique and valued qualities of the Mt Coot-tha precinct, identifying key changes to transform Mt Coot-tha into a world-class area and guiding future sustainable investment. Community consultation included meetings of the Community Visioning Group; three general surveys that elicited over 2,000 responses; youth engagement through the Lord Mayor's Youth Advisory Council, primary school students and scout groups; and interactive community workshops with 102 participants. Results from the consultation show that the public values Mt Coot-tha's cultural significance, creating a sustainable environment and sustainable recreation, as well as ensuring safe access and a unique visitor experience. Respondents were keen to avoid overcommercialisation and development, instead choosing landscape and views, natural environment and sustainability as the guiding values for Mt Coot-tha's future planning. Bush walking and bird watching were the most popular nature based activities in the park, and many respondents cited observation decks and/or viewing places as their preferred facility improvements. "A Sustainable Retreat and Refuge" is one of the key values put forward in the Mt Coot-tha 2030 draft vision statement. A blog on Mt Coot-tha memories and stories is available at http://202.148.140.187/blogs/mountcoottha/

A specific Mountain Bike Trail Care Coordinator was recruited around 2003. This officer is responsible for the ongoing education of mountain bike users in the forest, as well as recruiting and training trail care volunteers directly from the mountain bike user group. These groups work on general track upgrades and sustainability as part of the BCC Mountain Bike Program. No new trails are expected to be approved.

A capital works project in 2003-2004 enabled BCC to install regulatory, directional and totem signage across Mt Coot-ha Forest, including the Gap Creek area. This has provided for a more informed public. A guiding Outdoor Recreation Strategy is soon to be released in 2010, which will cover many of the activities in the Mt Coot-tha Forest Park. Recreation monitoring will begin in 2010 with a track control auditing process to look at visitor patterns on walking trails and bike tracks, particularly inappropriate use of the tracks. There is some concern amongst MCCG members that over-use of Mt Coot-tha Forest as a mountain biking venue would be in

marked conflict with the aspirations expressed in Our Shared Vision Mt Coot-tha 2030, referred to above.

7. CATCHMENT WIDE INVESTIGATIONS

7.1 Overview

In 2009 a catchment wide call was made to find people interested in contributing to the work programs of the MCCG. This resulted in three workshops at which a wide range of aspects were considered as potential enhancements to the current MCCG activities. Subsequently those who responded were designated *Friends of Moggill Creek.*

Since then several projects have been developed by small groups. They relate to regulations concerning water and creek management; a creek health monitoring program of fish populations; macro invertebrate population; macrophyte populations and water quality throughout Moggill Creek catchment which will be used to inform management actions; dragonfly surveys, frog surveys, dung beetle surveys. Brief details of these new activities are outlined below. Note, the Platypus Survey is also outlined here, yet this monitoring program has been operating since 2005.

In addition students of the University of Queensland have been carrying out stream condition surveys as part of their undergraduate courses.

7.2 Regulations Concerning Water and Creek Management

A small working group was established in early 2010 to identify aspects of natural resource management legislation and regulation that should be made known to the Catchment Group members. This was in response to the number issues raised by members about aspects of riparian zone management activities and the pumping of water from creeks or bores. An information sheet has been drafted to inform catchment members about some of the legal and regulatory requirements on these aspects. It will be inserted in our website

7.3 Platypus Survey 2005-2010

Historical sightings of platypus in Moggill and Gold Creeks date back to 1901 (DERM, 2007). Since that time, there have been continued anecdotal sightings reported by the catchment's local community.

In 2005, the MCCG conducted its first platypus survey as part of Wildlife Queensland's (WPSQ) Platypus Watch program. The MCCG is now an established WPSQ PlatypusWatch Group and conducts an annual snapshot platypus survey.

This popular community-based event attracts increasing numbers of volunteers each year, with approximately 69 volunteers taking part in the 2010 survey. Since the cessation of the 10-year drought in 2008, there has been a sufficient number of volunteers to observe previously dry watercourses and pools, in addition to the long-term monitoring sites established in 2005.

Survey results have been varied (Table 7.1) and long-term biological and ecological platypus research and monitoring is required to determine the reasons. However some of the reasons determining the variations may be:

- Ongoing riparian rehabilitation work by MCCG volunteers.
- Ongoing riparian degradation in some creek sections due to cattle, horses and goats.
- Ongoing water extraction from creeks and pools to private properties.
- Remediation work on Gold Creek Dam wall in 2005, including increasing the height of the wall. Fluctuating environmental flow releases into Gold Creek.
- Drought conditions during the 2005-2007 platypus survey period.
- Return of good rainfall in 2008 and increase in number of monitoring sites.
- Severe flooding of all creeks in March 2009 prior to 2009 survey, causing significant reconfiguration, erosion and sedimentation of the creeks.
- Continued good rainfall 2009-2010 but no severe flooding prior to the 2010 survey.
- Surveys conducted at different times of year (winter and spring).

Table 7.1 Platypus Survey Results 2005-2010

Date	Section	Location of sighting	Number seen
20th August 2005	10 3	Gold Creek-Jones Rd culvert Huntington Estate	2 3 Total 5
6th May 2006	4 10 5 5 3 3	Lower Gold Creek Rd (Moggill Creek) Gold Creek/Jones Rd Upper Brookfield Upper Brookfield Huntington Estate Tuckett St	1 1 1 1 1 1 Total 6
22nd April 2007	7 5 3 2	Gold Creek Dam Upper Brookfield Huntington Estate Kilkivan St	1 1 1 2 Total 5
24th August 2008	2 2 3 3 4 10 5	Kilkivan St Branton St Tuckett St Huntington Estate Lower Gold Creek Rd (Moggill Creek) Mid-Gold Creek/Jones Rd Upper Brookfield	2 2 1 2 1 2 5 Total 15
13th September 2009	4 10 5	Lower Gold Creek Rd (Moggill Creek) Gold Creek/Jones Rd Upper Brookfield	1 2 4 Total 7
12th September 2010	3 2 2 2 4 10 5 4 2	Huntington Estate Lower Moggill Creek Lower Moggill Creek Lower Moggill Creek Lower Gold Creek Rd (Moggill Creek) Mid-Gold Creek Upper Brookfield Showgrounds Branton Street	2 1 1 1 2 7 5 1 1 Total 21

7.4 Creek Health Monitoring

Tim Howell.

What species of fish occur in Moggill Creek?

Twenty-two native species (table 7.4.1) and six foreign introduced fish species (hereafter called alien species; table 7.4.2) are known to occur in the Moggill Creek catchment based on the results of past sampling by Griffith University, University of Queensland and Dr Tim Howell.

One of the native species from the Murray-Darling Basin (silver perch) has been translocated to the Brisbane River catchment where a single individual has been recorded in Moggill Creek to date. The barred grunter (a translocated native fish species) is well established in the upper

reaches of the Brisbane River and is likely to invade Moggill Creek in the near future (table 7.4.3).

Considering the low number of freshwater species found in Australia relative to other regions of the world, this is quite a rich fish fauna. The Murray-Darling Basin, which covers over a million square kilometres and a seventh of Australia, contains only thirty-five native species of fish. The high native species diversity of Moggill Creek is likely to be largely attributable to the close proximity to the Brisbane River. While a few of the native species, such as sea mullet *Mugil cephalus*, blue catfish *Arius graeffei* and Pacific blue-eyes *Psuedomugil signifer*, are found in both freshwater and estuarine environments, many others such as the gudgeons (*Hypseleotris* spp*., Philynodon* spp*., Gobiomorphus australis*) have larval stages which may be facilitated in the estuarine environment. Further to this, large freshwater flows moving down the Brisbane River enable recruitment from other areas of the river system.

One of the current threats to our native fish fauna is the presence of introduced pest fish. Of the five introduced pest fish species, eastern gambusia *Gambusia holbrooki,* platys *Xiphophorus maculatus* and swordtails *Xiphophorus helleri* are amongst the most abundant of all fish species now found in Moggill Creek. It is highly likely that they strongly compete with native species for food and space. Recent illegal introductions of koi carp *Cyprinus carpio* are another potential threat, as they are strains of the same species as common carp. Despite years of persisting in Moggill Creek these koi carp do not appear to have been able to reproduce successfully.

What are the Threats to fish?

Threats faced by the native fish fauna include:

- impediments to movements due to barriers such as road crossings,
- changes to riparian vegetation structure and species,
- runoff from roads and urban areas,
- illegal dumping directly into Moggill Creek, and
- illegal releases of native fish originating from other catchments (including species which are already present in the creek).

A catchment wide creek health monitoring program

Plans are well advanced to begin an ongoing sampling program to assess the status and trends of fish communities in Moggill Creek as part of a larger creek in-stream health assessment. This program will be a community based sampling operation supported by a team of professional aquatic ecologists. The results of these surveys will help establish the current status of the fish communities throughout the catchment and provide a baseline against which future rehabilitation works can be effectively directed.

Table 7.2 Native fish species recorded to date

Common name	**Scientific name**	**Status**
Agassiz's Glassfish	*Ambassis agassizii*	Common
Australian smelt	*Retropinna semoni*	Common
Blue catfish	*Arius graeffei*	Common in estuarine reaches
Crimson spotted rainbowfish	*Melanotaenia duboulayi*	Abundant
Dwarf flathead gudgeon	*Philypnoden macrostomas*	Abundant
Eel-tail catfish	*Tandanus tandanus*	Abundant
Empire gudgeon	*Hypseleotris compressa*	Abundant
Fire-tailed gudgeon	*Hypseleotris gallii*	Abundant
Flathead gudgeon	*Philypnoden grandiceps*	Abundant
Fly-speckled hardyhead	*Craterocephalus stercusmuscarum*	Abundant
Long-finned eel	*Anguilla reinhardtii*	Abundant
Mouth Almighty	*Glossamia aprion*	Rare?
Pacific blue-eye	*Pseudomugil signifer*	Abundant
Purple-spotted gudgeon	*Mogurnda adspersa*	Abundant
Sea mullet	*Mugil cephalus*	Abundant

Silver perch*	*Bidyanus bidyanus*	Single specimen
Short-finned eel	*Anguilla australis*	Rare
Snub-nosed Garfish	*Arrhamphus sclerolepis*	Rare?
Spangled perch	*Leiopotherapon unicolor*	Common
Speckled goby	*Redigobius bikolanus*	Rare?
Striped gudgeon	*Gobiomorphus australis*	Abundant
Western carp gudgeon	*Hypseleotris klunzingeri*	Common

* non-native to Moggill Creek, translocated from other areas

Table 7.3 Exotic (from overseas) fish species recorded to date

Common name	**Scientific name**	**Status**
Swordtail	*Xiphophorus helleri*	Abundant
Platy	*Xiphophorus maculatus*	Abundant
Gambusia	*Gambusia holbrooki*	Abundant
Koi (carp)	*Cyprinus carpio*	Present in small numbers
Mozambique tilapia	*Oreochromis mossambicus*	Recently sighted, presently rare
Guppy	*Poecilia reticulata*	Likely to be locally extinct

Table 7.4 Translocated (non-native to Moggill Creek) fish species likely to invade

Common name	**Scientific name**	**Potential**
Barred grunter	*Amniataba percoides*	Likely invade in the near future

7.5 Bird Focus in Habitat Restoration

Jim Butler

Birds in the catchment, like birds throughout Australia, face a series of major threats. Those threats within the influence of the MCCG are:

- habitat destruction and degradation,
- fire and water disturbances and
- predation and competition from invasive fauna and flora species.

Sections of the remnant woodlands in the catchment are severely fragmented and degraded by historical and ongoing clearing and land use, resulting in severe habitat losses for our bird communities.

There is a growing recognition that our national reserve of habitat is inadequate to protect our national treasure of bird species and that it is imperative to augment the reserve by rehabilitating and protecting key areas of habitat. Since bird fauna at a given site is a function of the type and quality of the habitat present. revegetation designs need to provide the full range of habitat substrates required by the full range of possible bird species in the area. Within a revegetated woodland site from the first plantings to the climax structure there is a sequence of habitats made available to birds and therefore a predictable sequence of bird species. The key message from the research is that a mix of habitats is required to conserve a region's bird fauna. The target species are those in the adjacent remnant patches.

An example of the relationship between bird species and the structure of the vegetation is shown below using data collected from a gully in Gap Creek Reserve. This is a wet sclerophyll remnant forest habitat with sections of depauperate rainforest in the northern end. A representative sample of bird species is given for each substrate and guild.

Table 7.5 Habitat Substrate and Bird Species

1. Ground layer	Granivores – seed eaters • Wonga Pigeon • Pouncing insectivores • Eastern Yellow Robin
2. Shrub layer	Insectivores • Variegated Fairy Wren • White-browed Scrub Wren
3. Mid layer	Insectivores • Brown Thornbill • Rufous Fantail
4. Canopy Layer	Leaf insectivores • Olive-backed Oriole • Silvereye Leaf gleaners • Spotted Pardalote • Striated Pardalote
5. Bark Trunk	Specialist - insectivores • White-throated Treecreeper • Upper-branch specialists • Varied Sitella
6. Fruit and seeds on foliage at all levels	Frugivores & Granivores • Fig Bird • Lewin's Honeyeater
7.Flowers on vegetation at all levels	Nectarivores • Noisy Friarbird • Noisy Miner • White-throated Honeyeater
8. Vertebrates and Invertebrates at all levels	Vertebrate Carnivores • Sacred Kingfisher • Grey-backed Butcherbird • Pied Currawong

9. Aerial insects	Insectivores hawking from a perch • Satin Flycatcher – Migrant(M) • Spangled Drongo Continually flying insectivores • Welcome Swallow • White-throated Needletail (M)

Revegetation cannot restore these substrates quickly or completely. However, surveys of the birds in remnant forests can help design the process of revegetation.

Revegetation to restore habitat is costly to the community and a very long-term project. The obvious question is: *"Are the number of bird species present and the abundance of birds in the catchment increasing as a result of the work?"*

Resources are needed to answer this question. The Caring for our Country national program that is the major funding source for revegetation does not monitor the effects of its programs on biodiversity; rather it monitors the number of hectares revegetated. If MCCG wishes to monitor the biodiversity outcomes of its programs the resources will need to come from its volunteers. However, there are national organizations protecting the welfare of birds that offer support for birder volunteers, and there are people involved in the MCCG who already contribute to the national bird projects.

Birds Australia supports a standardised monitoring method for bird counts and collects nation-wide data from volunteers. The Birds Australia data base, Birdata, is used to write important biodiversity reports and to collate studies on bird distribution and abundance for national and local policy decisions. Birdata is already being used to monitor revegetation, and its methods and database infrastructure could be the basis of the MCCG efforts to monitor the impact of its revegetation projects on biodiversity in the catchment.

There are other public bird databases. Eremaea Birds is a free birding atlas on the web. On this data base there are bird lists for about 13 sites in the MCC that can be downloaded. This data would be important for the initial bird list for the MCC. The Queensland State Government's Department of Environment and Resource Management maintains a data base, Wildnet, from which data on the birds in the catchment can be retrieved.

The monitoring proposal being considered by the MCCG is based on a strategic grid of sites to be regularly visited by volunteer birders, existing and new. The grid would systematically cover the areas of most importance in the catchment. The volunteers would use the observation protocols of Birds Australia to collect systematic data for the use of the MCCG as well as the wider national database. Much of the present Australian-wide research focuses on the restoration of habitat in cleared agricultural areas.

Bird lists for specific sites in the MCC would also be very useful for community awareness programs. These lists could be distributed to interested people for their own use because without this prompt many walkers do not see all the birds that are around them in the bush. These lists would also be important to leaders and participants in public, guided bird watching walks that could be promoted.

7.6 Moggill Creek Catchment Frog Survey

Phil Bird

Current Knowledge:

Data provided by Gordon Grigg (MCCG) and Harry Hines (DERM) provide an historical baseline of what frog species are found in the catchment. Currently there are 16 frog species definitely *known to be* in the catchment, six species *likely to be* in the catchment and two possible species that *could be* found in the catchment.

The Queensland Museum has specimens of *Psueudophyrne major* (Great Brown Broodfrog) and *Limnodynastes terraereginae* (Scarlet-sided Pobblebonk) from the Brookfield Area, and there is also a single record of *Platyplectrum ornatum* (Ornate Burrowing Frog) from the Brookfield area on WildNet.

Table 7.6 Frog species occurring or likely to occur in the Moggill Creek Catchment

Frog species definitely in the catchment

Adelotus brevis	Tusked Frog
Crinia parinsignifera	Beeping Froglet
Crinia signifera	Clicking Froglet
Limnodynastes peronii	Striped Marshfrog
Mixophyes fasciolatus	Great Barred Frog
Pseudophryne raveni	Copper-backed Broodfrog
Uperoleia fusca	Sandy Gungan
Litoria latopalmata	Broad-palmed Rocketfrog
Litoria caerulea	Green Treefrog
Litoria gracilenta	Graceful Treefrog
Litoria fallax	Eastern Sedgefrog
Litoria dentata	Bleating Treefrog
Litoria rubella	Naked Treefrog
Litoria wilcoxii (Formerly Litoria lesueuri)	Stoney-creek Frog
Litoria peronii	Emerald-spotted Treefrog
Rhinella marina (Formerly Bufo marinus)	Cane Toad

Frog species likely to occur in the catchment

Platyplectrum ornatum (Formerly Limnodynastes ornatus)	Ornate Burrowing-frog
Limnodynastes tasmaniensis	Spotted Marshfrog
Limnodynastes terraereginae	Scarlet-sided Pobblebonk
Pseudophryne major	Great Brown Broodfrog
Litoria chloris	Southern Orange-eyed Treefrog
Litoria tyleri	Laughing Treefrog

Frog species that could possibly be found in the catchment

Litoria brevipalmata	Green-thighed Frog
Litoria pearsoniana	Cascade Treefrog

Frogs are found in and around creeks, dams and ephemeral ponds where they will use these areas as a refuge, to forage for food or reproduce. Frogs will breed in either or both permanent water (creeks and/or dams) or temporary (ephemeral) water bodies. What we don't know is where in the catchment they are breeding successfully

Possible aims of a frog monitoring program

- Determine what frogs are currently found in the catchment so we can determine the species richness
- Determine where these frogs are breeding.

One strategy would be to recruit interested landowners across the various parts of the catchment to record frog calls on a number of sites at agreed intervals.

7.7 Dragonflies and dragonfly monitoring in Moggill Creek

Sandy Pollock

Dragonflies and damselflies (Odonata) are a very powerful link in the public perception of waterways and their water quality. They are frequently a colourful symbol of the abundance and vibrancy of life within ponds, lakes, rivers and streams.

Within the northern hemisphere, dragonflies are much-studied insects, and their presence can be correlated with, or sometimes indicate important certain stream features, such as presence of running water, high dissolved oxygen content, shaded overhanging vegetation and many other in-stream characters. These characters can also be important for other stream-dwelling creatures, such as fish, frogs and crustaceans.

Within Moggill Creek, apparently little is known about the species present. Some 15-20 species are known by anecdote and casual observation. There is the potential for the presence of over 40 species. Anecdotal reports suggests that the presence of some species e.g. *Austrogomphus melaleucae* (Nattrass 2006), may indicate stream areas in good condition, with respect to shaded, flowing water with relatively low nutrient loadings and high dissolved oxygen content. Moggill Creek is regarded as a relatively high water-quality stream in a district that has consistently reported low water quality indices (EHMP 2009).

Systematic survey of species (as adults) should attempt to correlate their presence with in-stream features, some of which (shaded overhanging trees, presence of rush-like plants, fast-flowing water), appear to be important for dragonflies. Some of these features have been enhanced by on-going revegetation projects along some sections of Moggill Creek (e.g. shaded streamside trees, planting of rush-like *Lomandra* spp.).

The presumed high species richness and often colourful images of specimens likely to be found, would further promote interest of Moggill Creek as a special place to members of the public. More directed searches of species, using modern methods (including digital video and still photography), may provide an engaging method of involving volunteers in census of these interesting insects.

8. MAJOR CONCLUSIONS AND RECOMMENDATIONS OF THE CURRENT REVIEW

8.1 Conclusions

The assessment of the condition of the land and water resources of Moggill Creek and the achievements of MCCG since 1997 outlined in this document have led to the following conclusions:

1. Moggill Creek Catchment is a valuable natural asset to Brisbane; it is unique and deserves our care

2. MCCG is well administered, financially stable, and has considerable support indicated by steadily increased membership since MCCG was formed, and by collaborative inputs from the Brisbane City Council, and the Queensland and Commonwealth Governments.

3. MCCG's educational & community engagement programs have developed well over the past ten years: the Newsletter has expanded; talks on environmental issues and displays are well patronized and presented; and the Photographic Competition has been a growing success.

4. Bushcare Volunteer groups in the Sections have carried out tens of thousands of hours of habitat restoration activities.

5. There are several very good examples of restored riparian zone restoration that appear to be relatively stable, in the upper and lower Gold Creek catchment, in the McKay Brook and Gap Creek catchments and on parts of the Moggill Creek riparian areas from above the Brookfield Road bridge near the showgrounds down to Huntington Park. These have been achieved largely from thousands of hours of mainly volunteer input.

6. Friends of Moggill Creek forums commenced in late October 2009 have been successful in encouraging more members of the Catchment Group to discussions on the key topics of: Landcare and Biodiversity; Watercare; and Community. As a result several new projects are under development, including creek health monitoring, bird monitoring, dragonfly monitoring, and frog monitoring.

7. The leased Cottage at the end of Gold Creek road has become a valuable asset and has become the MCCG administrative centre and the venue for an increased range of promotional and educational activities such as the monthly series of talks.

8. Financial support by Council has continued throughout the period and has played a significant role in revegetation of public land and in our educational activities.

9. Brisbane City Council's support through the introduction of the Creek Ranger program has significantly assisted MCCG's activities.

10. MCCG's nursery has supplied tens of thousands of plants to private land owners at no charge and has been a major success in supporting MCCG's activities. However there is a need to ensure that seed collection keeps pace with the demand for species.

11. MCCG considers the Brisbane Catchment Network to be a very useful forum for interaction between the City's Catchment Groups.

12. Remnant vegetation in the higher parts of the landscape of Sections 6, 7, 8,10 and 13 is in relatively good condition.

13. Little has been achieved in restoring habitat corridors from riparian areas across the largely cleared lower lands to the hills. There is currently no clear strategy to address this important goal anywhere in the catchment. Most of these lands are privately owned and many owners do not have the resources and motivation to sustain the efforts required to achieve progress in restoration.

14. Land management activities by many property owners and those responsible for maintenance, planning and regulation of natural and infrastructure assets are continuing to cause loss of plant communities resulting in loss of habitat for native fauna, and the degradation of soils and water.

15. Notwithstanding the above, there is increasing interest and concern in the Catchment over environmental issues and protecting and restoring native vegetation. MCCG contributes to this through free and expert advice from its Landcare Adviser and distribution of local native plants.

16. In spite of Federal, State and Council financial support and the thousands of hours of volunteer work, the catchment remains under environmental stress. Continued financial support from government agencies will be essential in the future to achieve greater environmental restoration outcomes.

17. Flooding has caused serious damage to the stream banks and beds and the restored riparian vegetation in parts of the lower banks and made weed control extremely difficult. As a result there have been major set-backs to extensive sustained revegetation activities on several of the parklands and other public lands in the catchment. The strategies used in these flood prone areas are being reviewed.

18. Aquatic weeds pose a particular threat to aquatic fauna and water quality. Improvements in the reduction of nutrient load and increased creek side restoration would reduce these threats.

19. Threats from weeds have increased on many rural properties, on public land along roads and power transmission lines, and along the riparian zones. Continued lack of effective management of exotic weeds poses the greatest threat to retention of existing vegetation communities native to the catchment. For example, long term sustainability of the riparian dry rainforest communities is threatened by the highly competitive weeds species.

20. Biological control agents are available for some weeds, notably lantana, salvinia and cat's claw, but their effectiveness is generally limited. MCCG is contributing to the raising and release of the cat's claw bio-control agent.

21. MCCG recognises there has been a cultural change in the catchment in recent times with increasing community awareness of the benefit of habitat restoration. Numbers of plants distributed by the MCCG Nursery (c. 85,500) exceeds the number planted by volunteers on public land (c. 49,000), so a larger area of private land should have been revegetated overall. However it is difficult to determine accurately:

- how much sustained progress has been made in revegetation in many of the acreage properties of the catchment;
- what impact the restoration efforts have had on fauna habitat;
- the quality of the aquatic habitats of the streams;
- the changes in riparian vegetation and stream bank conditions and their consequences across much of the catchment;
- the extent of ingress of exotic weeds such as cat's claw, parthenium weed, leucaena, and the introduced pasture species that have the potential to cause wide spread damage to our remnant vegetation including the Brisbane Forest Park and the Mt Coot-tha Forest Park.

22. The lack of support by government for revegetation work or weed maintenance on private land is a major impediment to the long term restoration of native flora and fauna in these areas, and is seen as a threat to the long term condition of the neighbouring conservation areas of Brisbane Forest Park and Mt Coot-tha Forest Park. Access to particular items required to manage weed ingress, etc. at tax free and wholesale prices is required to encourage private investment at a higher level.
23. Very little effective communication exists between MCCG and most parts of Council concerned with environmental issues in Brisbane Forest Park, Mt Coot-tha Forest Park, the Pest Plant Eradication Program, the 2 million trees program, and creek water quality activities.
24. The key strategies developed in 2003 (Table 8.1) have guided the main activities within the Catchment Group for the last 8 years, and were developed to ensure alignment with State and Commonwealth funding priorities at the time. The level of achievement within each of the strategies has been subjectively rated by members of the Management Committee. These ratings and the conclusions listed above will be inputs to the deliberations on future priorities.

Table 8.1 Broad Rating of Achievement of Strategies (December 2010)*

Strategies	Achievement Rating**
Increase community awareness & participation in the management of major weed infestations and the restoration of natural ecosystems on public and private land	7
Adopt a planned and integrated approach to habitat restoration and maintenance	5
Participate in water quality improvement and monitoring in conjunction with EPA, BCC, DNR&M and other responsible Groups	5
Adopt an integrated approach to the restoration and management of riparian zones	5

Actively support ecologically sensitive housing, land and construction developments within the catchment	6
Promote land use practices that account for suitability of land with focus on land stability, soil conservation, minimising nutrient loss	6
Improve community understanding and knowledge through a comprehensive and educational communication program which reaches all sectors	8
Increase MCCG visibility within the catchment through an active promotional program	9
Work to a business plan which ensures continuity of activities and implementation of new activities	5
Maintain a wide base of volunteers to enable effective management of day to day operations, and to enable expansion of activities	6
*Strategies outlined in MCCG Strategic Plan Version 3 (2003) ** Ratings are 0-10, with 10 being very high achievement	

8.2 Recommendations

In response to the conclusions from the review, the following recommendations are proposed to guide the Group over the next 5 years and to assist in consultation with stakeholders and likely partners, particularly those who might assist with resources in certain specific aspects.

1. MCCG should redevelop the existing Strategic Plan using information from this review, and ensure there is better communication with Council and State entities on environmental issues relevant to Moggill Creek Catchment.
2. MCCG should actively seek commercial sponsors, and lobby Governments at all levels for specific support arrangements.
3. MCCG should continue to review the revegetation methods in flood prone areas of the catchment, particularly in the higher parts of the catchment where the stream gradients result in very fast runoff velocities and turbulence.
4. A more strategic effort should be pursued by the MCCG to identify ways of assisting private land owners in their efforts with revegetation and weed control, and to identify opportunities for development of habitat corridors.
5. Bushcare Groups should be developed and supported in Sections 1, 6 and 10.
6. As a priority, MCCG should endeavour to undertake long term monitoring of:
    a. Riparian zone conditions, and the associated flora and fauna.
    b. Creek health using methods compatible with the Healthy Waterways Program
    c. Weed invasion in remnant areas, particularly those fringing conservation areas such as the Brisbane Forest Park and Mt Coot-tha Forest Park.
    d. Bird species and numbers in remnant vegetation as an input to designing strategies for revegetation activities.
7. A number of improvements are required to enhance the nursery's capability to keep pace with demand for plants by the Catchment members. These enhancements are:
    a. Better targeted and increased seed collection to widen the variety of species grown for use by catchment members.
    b. Studies on seed dormancy and storage requirements to increase the availability of plants throughout the year.
    c. Development of vegetative propagation options that could be employed as an alternative approach to supplying some of the species sought by members.
    d. Development of an improved inventory system.

9. ACKNOWLEDGEMENTS

Many members of MCCG have made contributions to the writing and production of this Review. Special thanks must be given to the significant contributions made by Adrian Webb, Bryan Hacker, and Deb Ford. In addition MCCG thanks David Gooding of AUSGIS for the production of some of the maps presented in the Review, and our Creek Ranger Emma Maltby for assisting in the editing of the document.

Malcolm Frost (Chairman)

July 2011

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APPENDIX 1

MOGGILL CREEK CATCHMENT GROUP

Strategic Plan – Version 3

July 2003

Moggill Creek Catchment Group Strategic Plan July 2003

INTRODUCTION

WHY DOES MCCG NEED A STRATEGIC PLAN?

Discussions held at the Water and Land Carers Qld (WALC) meetings have made it clear that future grant applications will be considered in the context of regional priorities. It has been recommended by WALC that Catchment Groups revisit their Strategic Plans with a view to aligning them to the 6 core elements within the Strategic Guide to Natural Resource Management in SEQ (2000), to ensure consistency across the region. (This Guide is available to anyone who would like to read it)

An auxiliary advantage of revisiting the Strategic Plan is that it will enable MCCG to do a stock take of its activities, shortcomings, and achievements, with a view to realising its full potential.

WHO IS INVOLVED IN THE DEVELOPMENT OF THE PLAN?

Although everyone on the MCCG Committee was invited to participate in the strategic planning sessions, not everyone had the time available. Those who were able to participate included Bryan Hacker, Malcolm Frost, Adrian Webb, Graeme Wilson, Judy Gower and Kate McVicar, with non-Committee members Robyn Frost and Chris Hosking.

Two strategic discussion sessions were held over 2 Saturdays, totalling 6 1/2 hours. The result is this document, the third Draft Strategic Plan which is now being circulated amongst the rest of the Committee for review.

HOW WAS THE PLAN DEVELOPED?

The draft strategic plan started as a collection of ideas to generate discussion. The format is based on the guidelines supplied by the Dept of NR&M.

Using the 6 designated themes below, the guidelines include a high level goal, strategies to achieve the goal and the actions required to support the strategies:

6 Themes

- Caring for Biodiversity
- Caring for Water
- Caring for Land
- Caring for Coasts and Seas
- Understanding and Participation
- Integrated Planning and Co-ordinated Management.

Recommended Headings under each theme

- High level goal
- Key strategies to achieve goal outcomes
- Actions to implement strategies

Please note: The MCCG draft Strategic Plan does not include the theme of Caring for Coasts and Seas

MCCG High Level Strategic Plan – Version 3

Mission

MCCG is a volunteer action community group aiming to conserve & improve the local natural environment of its catchment on both private and public

Caring For Biodiversity	**Caring For Water**	**Caring For Land**	Understanding & Participation	Integrated Planning & co-ordinated management
Goal *To restore and maintain native biodiversity in the catchment area*	**Goal** *To improve, maintain and protect the health of the catchment watercourses*	**Goal** *To support and promote sustainable use and conservation of land resources*	**Goal** *To have a well informed and motivated community, actively participating in improving the local environment*	**Goal** *To have an overall MCCG activity plan which will enhance our impact and allow us to monitor our success*
Strategies 1. Increase community awareness & participation in the management of major weed infestations and the restoration of natural ecosystems on public and private land 2. Adopt a planned and integrated approach to habitat restoration and maintenance.	**Strategies** 3. Participate in water quality improvement and monitoring in conjunction with EPA, BCC, DNR and other responsible Groups 4. Adopt an integrated approach to the restoration and management of riparian zones.	**Strategies** 5. Actively support ecologically sensitive housing, land and construction developments within the catchment 6. Promote land use practices that account for suitability of land with focus on land stability, soil conservation, minimising nutrient loss.	**Strategies** 7. Improve community understanding and knowledge through a comprehensive and educational communication program which reaches all sectors 8. Increase MCCG visibility within the catchment through an active promotional program	**Strategies** 9. Work to a business plan which ensures continuity of activities and implementation of new activities. 10. Maintain a wide base of volunteers to enable effective management of day to day operations, and to enable expansion of activities.

CARING FOR BIODIVERSITY

Goal: To restore and maintain biodiversity in the catchment area

STRATEGY 1 Increase community awareness & participation in the management of major weed infestations and the restoration of natural ecosystems on public and private land

Actions

1. Conduct survey(s) of current suburban and rural landholders to gain opinions on and understanding of environmental matters
2. Increase number of MCCG members, thus widening our sphere of influence
3. Offer advice and guidance to landowners on an individual level (gratis)
4. Maintain nursery to propagate appropriate native plants for distribution to landholders
5. Provide additional support such as mulch, herbicide, equipment to landholders on a special projects basis, Maybe explore sponsorship
6. Education of private landholders through newsletters, flyers, fact sheets, information packs, workshops, field days. (See *Understanding and Participation*)
7. All 11 MCCG Sections to employ active Bushcare groups under the auspices of Habitat Brisbane
8. Improve reporting of achievements on public land in order to publicise our achievements, encouraging more community involvement
9. Encourage community involvement (See *Understanding and Participation)*
10. Develop a support program to assist Section Leaders in the management of their section - where the need exists
11. Lobby appropriate bodies for the continued development and use of biological controls for weed management

STRATEGY 2 Adopt a planned and integrated approach to habitat restoration and maintenance

Actions

1. Develop an understanding of the current condition of the catchment
2. Develop a Work Plan, which has an integrated approach, taking into consideration linkages covering both public and private land to establish corridors.
3. Co-ordinate work undertaken in accordance with the plan
4. Institute a review program to monitor progress (tri-annually) Incorporate monitoring from other sources e.g. wildlife monitoring

CARING FOR WATER

Goal: To improve, maintain and protect the health of the catchment watercourses

STRATEGY 3 Participate in water quality improvement and monitoring in conjunction with EPA, BCC, DNR&M and other responsible Groups

Actions

1. Determine which groups or departments are involved with water quality improvement and monitoring (quality and water flow)
2. Develop relationships and become involved with these groups in order to develop an understanding of the state of the catchment waterways
3. In conjunction with these groups, develop an action plan to actively manage water quality (including off stream influences)
4. An educational program which emphasises the importance of water quality and how to achieve high water quality. (In our overall educational curriculum)

STRATEGY 4 Adopt an integrated approach to the restoration and management of riparian zones

Actions

1. Develop an understanding of the current condition of the catchment and institute a planned approach (as with Biodiversity above)
2. Enhance public awareness of the importance of healthy riparian zones (water quality, wildlife, aesthetics) (in our overall educational program)
3. Assemble and promote locally relevant guidelines to assist private landholders and Bushcare groups in the management of riparian zones

CARING FORLAND

Goal: To support and promote sustainable use and conservation of land resources

STRATEGY 5 Actively support ecologically sensitive housing, land and construction developments within the catchment

Actions

1. Respond to development proposals and actively participate in discussions, forums regarding development within the catchment
2. Maintain partnerships with groups such as REPA thus remaining informed
3. Ensure communication of information to MCCG members and committee to ensure they are well informed

STRATEGY 6 Promote land use practices that account for suitability of land with focus on land stability, soil conservation, minimising nutrient loss

Actions

1. Source and assemble information on sustainable land use which could be distributed as set of guidelines
2. Provide this material to new landholders within the catchment, and to developers, where appropriate
3. Maintain an overview of land use across the catchment
4. Liaise with REPA where appropriate on development and planning proposals.

UNDERSTANDING AND PARTICIPATION

Goal: To have a well informed and motivated community, actively participating in improving the local environment

STRATEGY 7 Improve community understanding and knowledge through a comprehensive and educational communication program which reaches all sectors

Action

1. Identify community needs in terms of information
2. Develop a communication program which determines what, how and when we communicate with each community sector (e.g. schools, MCCG members, private landholders...)
3. Assemble and develop appropriate material for distribution and display
4. Expansion and promotion of MCCG website providing up to date and comprehensive information to the community
5. Exploration of, and application for, funding for development and printing of material (See Action item 3 under *Integrated Planning and co-ordinated management*)
6. Develop and implement educational activities such as field visits, workshops, demonstrations and presentations
7. Evaluate the feasibility of developing and using demonstration sites

STRATEGY 8 Increase MCCG visibility within the catchment through an active promotional program

Action

1. Cultivate local media to enable regular MCCG contributions and advertising of activities
2. Participate in public events wherever possible (e.g. Brookfield Show)
3. Link up with national environmental and regional initiatives e.g. National Tree Day, Clean Up Australia day, Weedbusters.eg.)
4. Increase the visibility of MCCG through the display of the MCCG logo, MCCG brochure and newsletters in public places
5. Develop motivational and engaging activities such as competitions (e.g. Photo Competition), field excursions, ‘drinks with residents’ evenings
6. Translate the Marketing Plan in to an Events Calendar to encourage planning and participation

INTEGRATED PLANNING AND COORDINATED MANAGEMENT

Goal: To have an overall MCCG Activity Management Plan, which will enhance our impact and allow us to monitor our success

STRATEGY 9 Work to a business plan which ensures continuity of activities and implementation of new activities

Action

1. Identify key projects and activities within MCCG and prioritise in accordance with regional and strategic priorities
2. Understand the operating financial needs of the group
3. Develop an understanding of key funding sources (including regional funding developments), and develop a funding strategy plan
4. Develop a process for management of funded projects (execution, monitoring, reporting)
5. Develop and execute a results-based marketing plan based on MCCG strategy (Description of all activities planned for the year, and reason for doing them)
6. Gain an understanding of workload, enabling recruitment of volunteers and distribution of
7. Investigate the possibility of employing a Co-ordinator for MCCG
8. Explore the possibility of a venue as a headquarters for MCCG at Brookfield Showgrounds
9. Monitoring and reporting of overall achievements and success of MCCG against its objectives

STRATEGY 10 Widen our base of volunteers to enable effective management of day to day operations, and to enable expansion of activities

Action

1. Compile a list of tasks, projects, activities in order of priority
2. Develop a plan to enlist volunteers (e.g. Committee members to source people within their sections)
3. Understand volunteer/member expertise and match volunteers with tasks
4. Succession Planning
5. Develop a reward or recognition process for volunteers as an incentive

APPENDIX 2

Income and Expenditure ($) for 1998-2010

Year	Income		Expenditure		Variance
1998 –1999	Grants Membership Merchandise **Total**	350 670 96 **1,116.34**	• Administration **Total**	534 **534**	581
1999 –2000	• Grants • Membership • Merchandise • Photo Comp **Total**	2,300 820 368 1,060 **4,549**	• Administration • Photo comp • Section Expenses **Total**	1,365 1,204 928 **3,497**	1,052
2000-2001	• Grants • Membership • Photo Comp • **Total**	2,200 1,252 1,248 **4,786**	• Administration • Photo comp • Section Expenses • PR expenses **Total**	703 1,480 800 122 **3,105**	(166.)***
2001 –2002	• Grants • Membership • Photo Comp **Total**	3,850 1,112 2,311 **8,491**	• Administration • Photo comp • Section Expenses • PR expenses **Total**	1,264 1,348 389 688 **3,669**	1,682

Year	Income		Expenditure		Variance
2002 –2003	• Grants • Membership • Photo Comp • Merchandise • Donation **Total**	20,059 2,438 961 1,872 3,947 **29,469**	• Administration • Photo comp • PR expenses • Section expenses • Mulch • Env expenses • Merchandise **Total**	4,938 1,659 5,810 781 1,207 5,069 1,386 **20,851**	8,617
2003 –2004	• Grants • Membership • Photo Comp • Merchandise • Donation • Plant Sales **Total**	29,584 3,330 1716 2,269 246 1,125.00 **38,363**	• Grants • Administration • Photo comp • PR expenses • Section expenses • Merchandise **Total**	25,305 1,917 1,548 3,105 577 1,799 **34,252**	4,103
2004-2005	• Grants • Membership • Photo Comp • Plant Sales • Donations **Total**	21,825 3,590 2,212 3,005 319 **32,041**	• Grants • Administration • Photo Comp • PR expenses • Section expenses • Nursery **Total**	29,527 1,803 2,034 3,372 580 1,455 **39,384**	(7,342)
2005-2006	• Grants • Membership • Photo Comp • Plant Sales • Donations • Interest **Total**	30,802 3,400 1,670 2,161 13,135 871 **53,249**	• Grants • Administration • Photo Comp • PR expenses • Section expenses • Nursery **Total**	8,895 891 1,267 6,169 540 1,236 **20,797**	32,452

Year	Income		Expenditure		Variance
2006-2007	• Grants • Membership • Photo Comp • Plant Sales • Donations • Interest **Total**	61,012 4,282 2,018 1,582 5,189 2,928 **100,308**	• Grants • Administration • Photo Comp • PR expenses • Section expenses • Nursery **Total**	45,832 1,466 1,608 5,292 802 1,195 **78,679**	21,629
2007-2008	• Grants • Membership • Photo Comp • Plant Sales • Donations • Interest **Total**	27,950 5,565 2,001 1,631 2,567 4,930 **52,119**	• Grants • Administration • Photo Comp • PR expenses • Section expenses • Nursery **Total**	51,647 2,742 1,828 5,731 544 1,420 **69,676**	(17,557)
2008-2009	• Grants • Membership • Photo Comp • Plant Sales • Donations • Interest **Total**	38,220 5,805 3,718 1,658 1,564 3,803 **56,629**	• Grants • Administration • Photo Comp • PR expenses • Section expenses • Nursery **Total**	35,707 7,623 2,205 6,447 600 2,337 **56,798**	(169)
2009-2010	• Grants • Membership • Photo Comp • Plant Sales • Donations • Interest **Total**	77,372 6,185 2,206 1,752 2,750 2,226 **93,252**	• Grants • Administration • Photo Comp • PR expenses • Section expenses • Nursery **Total**	48,594 8,436 2,141 8,936 808 2,641 **69,321**	23,932

***Note: Figures in brackets ( ) indicate over expenditure in that period.

Grants for Specific Projects

Year	Project Title	Project Number	Amount $	Final acquittal sent
2003	Restoration of Native Rainforest Vegetation along Upper Moggill Creek	43675 (Envirofund)	7,800	No
2002-2003	Focussed Habitat Restoration between Brisbane and D'Aguilar Range	38446 (Envirofund)	16,154	Yes
2002-2003	Gambling Community Benefit Fund		c. 3,000	Yes
2002-2003	BCC	NA	19,804	NA
2003	Envirofund – Elephant Grass	43675	7,800	Yes
2001-2002	Ranges to River Stage 2	2012427 (NHT)	45,000	Yes
1998-1999	Ranges to River Stage 1 Year 1	982529 (NHT)	74,000	NA
1999-2000	Year 2	"	77,000	NA
2000-2001	Year 3	"	80,000	YES
2004-2005	Improve participation in catchment management	20020011531	10,000	No
2006	NRMA Boscombe RD		4,450	Yes
2006	SEQ Catchments Kittani St	1061 510	9,200	Yes
2006	Gambling Fund Butterfly Cages		8,212	
2006-2007	BCC Environmental Admin		4,500	Yes
2007-2008	BCC Environmental Admin	13425	5,000	Yes

Year	Project Title	Project Number	Amount $	Final acquittal sent
2007	NRMA Bush Tucker		4,450	
2007	Aust. Govt Water Resources		40,842	Yes
2008	Small Equipment		2,750	N/A
2008	GVEHO Cottage Grounds Development		2,500	N/A
2008	Envirofund Platypus		15,950	Yes
2008-2009	Envirofund Gap Creek Butterflies		34,110	Yes
2008-2009	BCC Admin Grant	15580	4,500	Yes
2009	SEQ Carbine Rd	1434	4,017	Yes
2009	BCC Photo & Envirofest	16865	3,000	Yes
2009	BCC Photo Comp trophy	17321	450	Yes
2009	GVEHO Cottage Admin Exp.		2,300	N/A
2009	Gambling Fund Mower & Laptop Grant		10,343	Yes
2009	Student Streamsavers KSHS		16,700	N/A
2009	DFACS Small Equipment	1BXKAOM	1,906	No
2010	Kids Cottage Day		1,595	No
2010	NHT Brookfield restoration		16,800	No
2010	Dung Beetle Project		6,036	No
	Total		540,169	