



Jane Brook Catchment Group Action Plan 2012 – 2022



Jane Brook. Photo: Craig Wansbrough

Prepared by Eastern Catchment Management Program in consultation with the Jane Brook Catchment Group.



Acknowledgements

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The organisations and community members who have supported this document are:

Jane Brook Catchment Group

City of Swan

Eastern Metropolitan Regional Council

Perth Biodiversity Project

Perth Region NRM

Shire of Mundaring

Swan River Trust

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Summary

The *Jane Brook Catchment Group Action Plan 2012-2022* (the plan) proposes practical management actions taking account of the likely cause, remediation and priorities. The plan can be used by Jane Brook Catchment Group (JBCG) as a guide for on ground rehabilitation activities and as a supporting document in grant funding. It was developed with the involvement of the local community including Jane Brook Catchment Group, the City of Swan, Eastern Metropolitan Regional Council, Perth Region Natural Resource Management, Shire of Mundaring, and the Swan River Trust.

This action plan has been developed with the intention of incorporating both the physical environment and the human interaction within the catchment. Erosion and sediment deposition have been previously identified as management issues along the Jane Brook and associated tributaries. Restoration of fringing vegetation, with its bio-filtering and erosion control functions, can be expected to address this issue. Water quality samples are taken for analysis by the Swan River Trust. The sample site is located at the lower end of the catchment shortly before the Jane Brook's confluence with the Swan River at Herne Hill. Weed invasions are known to occur and actions are already under way to address this. By addressing these facets biodiversity will also be maintained, if not enhanced.

The human aspect of this plan addresses the need for an:

- Integrated approach by government and community bodies; and
- Increased and ongoing approach to education and awareness of those local to the catchment.

Acronyms

Units and Abbreviations

ANZECC	Australian and New Zealand Environment and Conservation Council	%	percent
ARRC	Australian River Restoration Centre	Ha	hectare
CoS	City of Swan	Km	kilometre
CSIRO	Commonwealth Scientific and Industrial Research	m	metre
DAFWA	Department of Food and Agriculture of Western Australia		
DPaW	Department of Parks and Wildlife		
DFES	Department of Fire and Emergency Services		
DAA	Department of Aboriginal Affairs		
DoW	Department of Water		
DRFA	Darling Range Forum Association		
EAC	Environmental Advisory Committee		
ECMP	Eastern Catchment Management Plan		
EHCMP	Eastern Hills Catchment Management Program		
EMRC	Eastern Metropolitan Regional Council		
ICM	Integrated Catchment Management		
ICMP	Integrated Catchment Management Plan		
JBC	Jane Brook Catchment		
JBCG	Jane Brook Catchment Group		
LCDC	Land Conservation District Committee		
NRM	Natural Resource Management		
PRNRM	Perth Region Natural Resource Management		
SALP	Swan River Trust Alcoa Landcare Program (replaced SCULP)		
SCULP	Swan Catchment Urban Landcare Program		
SMCCP	Swan-Mundaring Community Catchment Project		
SoK	Shire of Kalamunda		
SoM	Shire of Mundaring		
SWALSC	South West Aboriginal Land and Sea Council		
TCUP	Tree Canopy and Understory Program		
Trust	Swan River Trust		
WAPC	West Australian Planning Commission		
WSUD	Water Sensitive Urban Design		
WWF	World Wildlife Fund		

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1. Introduction

The *Jane Brook Catchment Group Action Plan 2012 - 2022* stemmed from the review of the *Integrated Catchment Management Plan (ICMP) 2000 - 2010*. The review was initiated in 2010, and the new plan has been renamed the *Eastern Catchment Management Plan 2012 – 2022* (ECMP). The ECMP is the overarching document that covers the Jane Brook, Helena River, Susannah Brook, Wooraloo Brook and Blackadder Woodbridge Catchment Group areas. The five catchments can be seen in Figure 1 below. Three of the five catchments within the ECMP have an associated Individual Catchment Action Plan (ICAP). Both the ECMP and ICAP are living documents that are designed to be updated as new information becomes available or redundant. The aim of these documents is to assist the catchment groups when applying for grant funding and also to help guide restoration activities.

This action plan is a partnership project between Eastern Hills Catchment Management Program (EHCMP) and the Jane Brook Catchment Group (JBCG). The project has been made possible through funding and in kind support provided by Shire of Mundaring (SoM), City of Swan (CoS), Shire of Kalamunda, Eastern Metropolitan Regional Council (EMRC), Perth Region Natural Resource Management (PRNRM) and the Swan River Trust (Trust). Friends groups and catchment groups are seen as the project custodians with the assistance of the relevant government bodies and the EHCMP Natural Resource Management (NRM) Officers.

1.1. Vision

To maintain and enhance the Jane Brook Catchment through best practice management of the environment and by raising the awareness and importance of landcare within the community.

1.2. Aims of this Plan

Though quite an active group with many achievements, the Jane Brook Catchment Group (JBCG) has not had a written action plan previously. Their aims and goals are as follows:

- To raise awareness in all sectors of the community and government on integrated catchment management (ICM) and landcare issues;
- Use best management practices across all landcare issues;
- To encourage the protection of remnant vegetation, the rehabilitation of bushland, reserves, riparian zones and suitable cleared areas;
- To improve water quality throughout the catchment waterways; and
- To have a positive impact on downstream waterways, including the Swan River.

The purpose of the plan is to provide direction and guidance to the group's endeavors over the next ten years. It is anticipated the plan will be altered, with objectives and actions changing over this period to suit the changing dynamics and circumstances of the Jane Brook Catchment Group to adapt to environmental change.

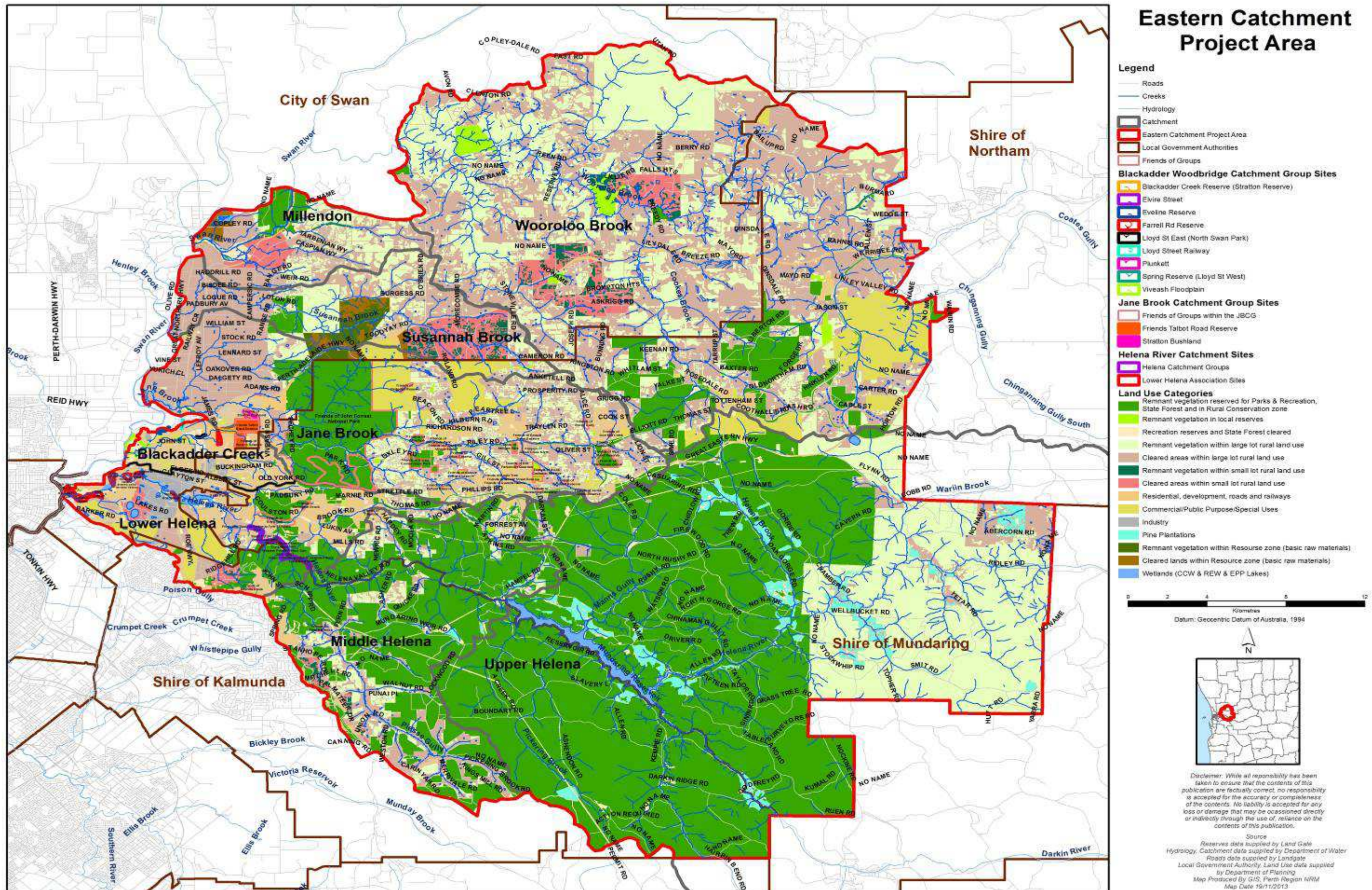


Figure 1: Eastern Hills Catchment Management Program area map

1.3. *Jane Brook Catchment*

Jane Brook is an ephemeral waterway with much of the riparian vegetation in the upper catchment intact. Below the Darling Scarp native vegetation along the waterways is scarce (see Figure 2). The catchment is fed primarily by surface runoff with groundwater being a relatively minor contributor. Soils in the catchment vary with lateritic and ironstone gravels in the upper area located in the east and red and yellow soils on the lower plains areas located in the west (Swan River Trust, 2010).

Remnant vegetation within the Jane Brook Catchment (JBC) makes up approximately 40% of the total land use area. Of this, 57% is within Parks and Recreation, State Forest and in Rural Conservation Zones and approximately 40% is within Large Lot Rural land use. This means that about half of the remaining vegetation is on Crown land and the remainder on private land. Particular attention should be aimed at these land use areas when managing remnant vegetation within the Jane Brook Catchment See Table 1 and Figure 3 for more information on land use within the JBC.

JBC has 16 sub-catchments, these being:

- Bugle Tree Creek;
- Charlotte Creek;
- Christmas Tree Creek;
- Clutterbuck Creek;
- Dowies Creek;
- Glen Brook
- Jarrah Creek;
- Lion Mill Creek
- Mahogany Creek;
- Marionvale Creek;
- May Brook;
- Priest Creek;
- Riley Road;
- Rocky Gully;
- Strelley Brook; and
- Talbot Road.

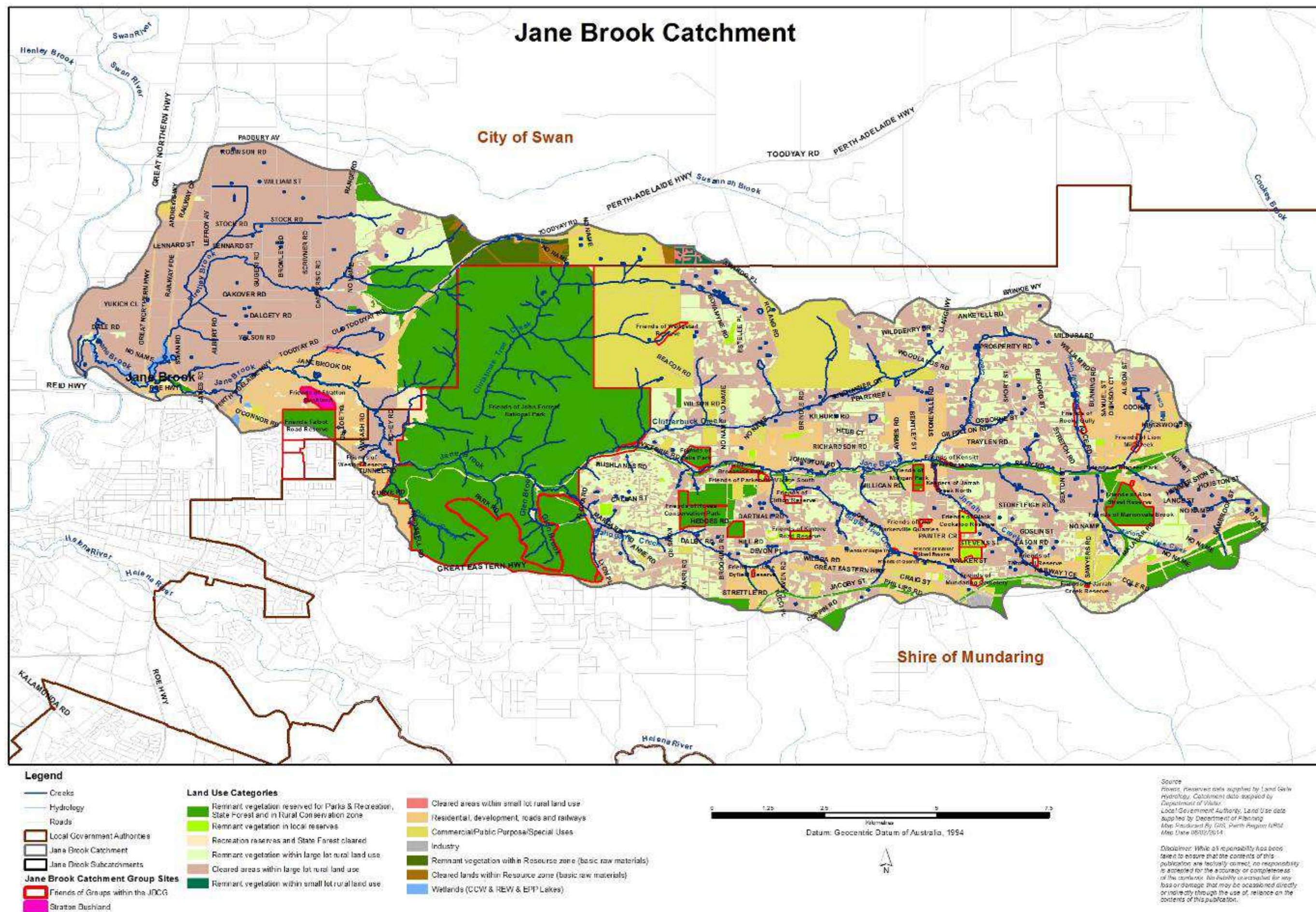


Figure 2: Land use within the Jane Brook catchment.

Please note the boundaries for Talbot Road and Christmas Tree Creek sub-catchments are incorrect and they will be updated as the maps become available.

Table 1: Breakdown of land use within the JBC in hectares (ha) and percent (%).

Type of Land Use		Area	
		ha	%
	Cleared areas within large lot rural land use	5,145.2	37.4
	Remnant vegetation reserved for Parks & Recreation, State Forest and in Rural Conservation zone	3,121.9	22.7
	Remnant vegetation within large lot rural land use	2,133.0	15.5
	Residential, development, roads and railways	1,565.8	11.4
	Commercial/Public Purpose/Special Uses	1,214.9	8.8
	Recreation reserves and State Forest cleared	253.6	1.8
	Remnant vegetation within Resource zone (basic raw materials)	114.4	0.8
	Remnant vegetation in local reserves	98.8	0.7
	Cleared lands within Resource zone (basic raw materials)	43.3	0.3
	Wetlands (CCW & REW & EPP Lakes)	33.7	0.2
	Industry	15.1	0.1
	Cleared areas within small lot rural land use	14.8	0.1
	Remnant vegetation within small lot rural land use	14.8	0.1
	Total	13,769.4	100.0

*these figures have been rounded up to one decimal place. Data source: Department of Planning.

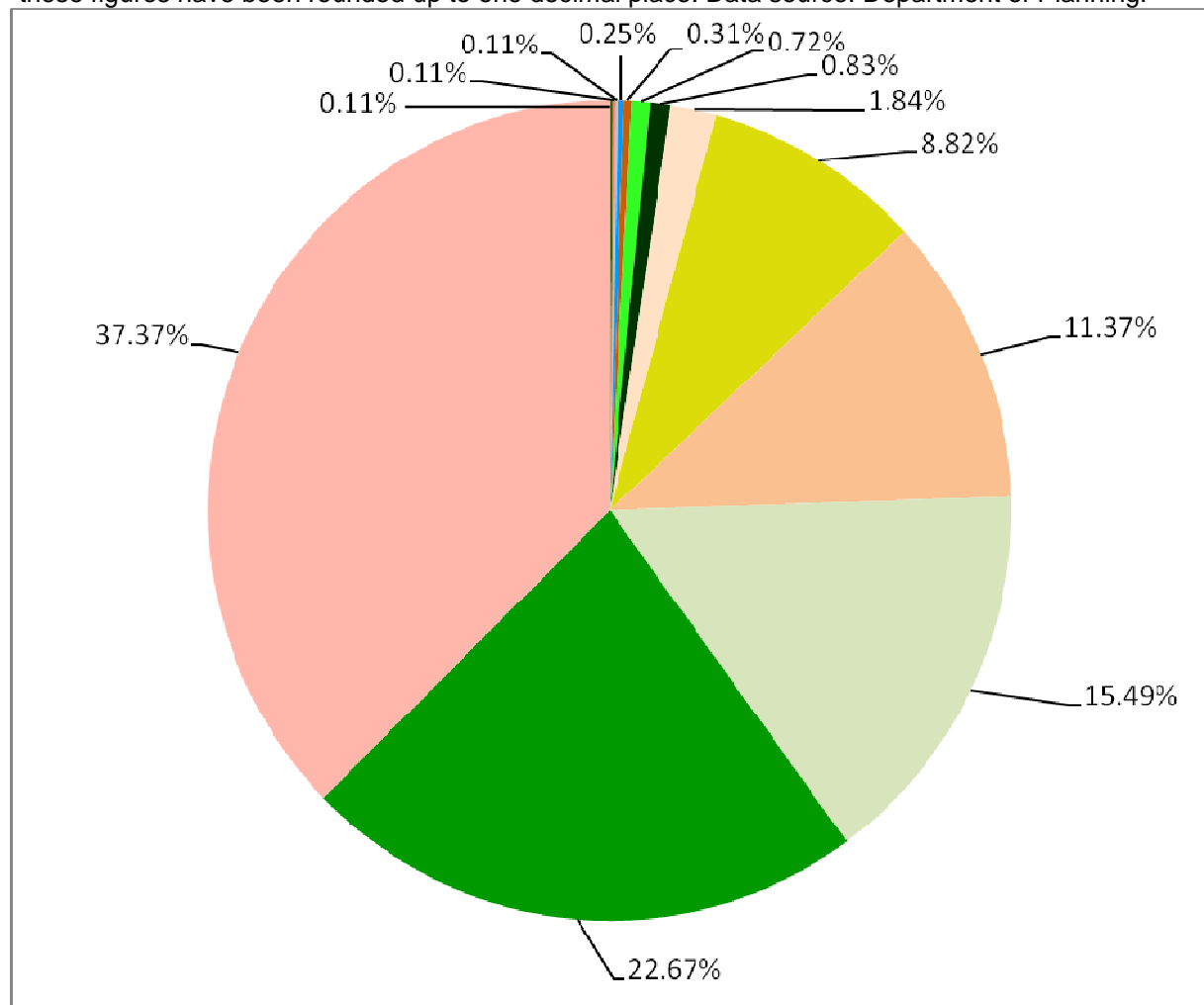


Figure 3: Land use break down in the Jane Brook catchment. Data Source: Department of Planning.

1.4. *Jane Brook Catchment Group*

The JBCG formed in July 1997 as a result of the Swan - Mundaring Community Catchment Project (SMCCP) and formally incorporated in March 1999. However there was much community action prior to its conception (Appendix 1). There are many active friends groups within the JBC. A list can be seen in (Appendix 2) and their distribution can be seen in Figure 4.

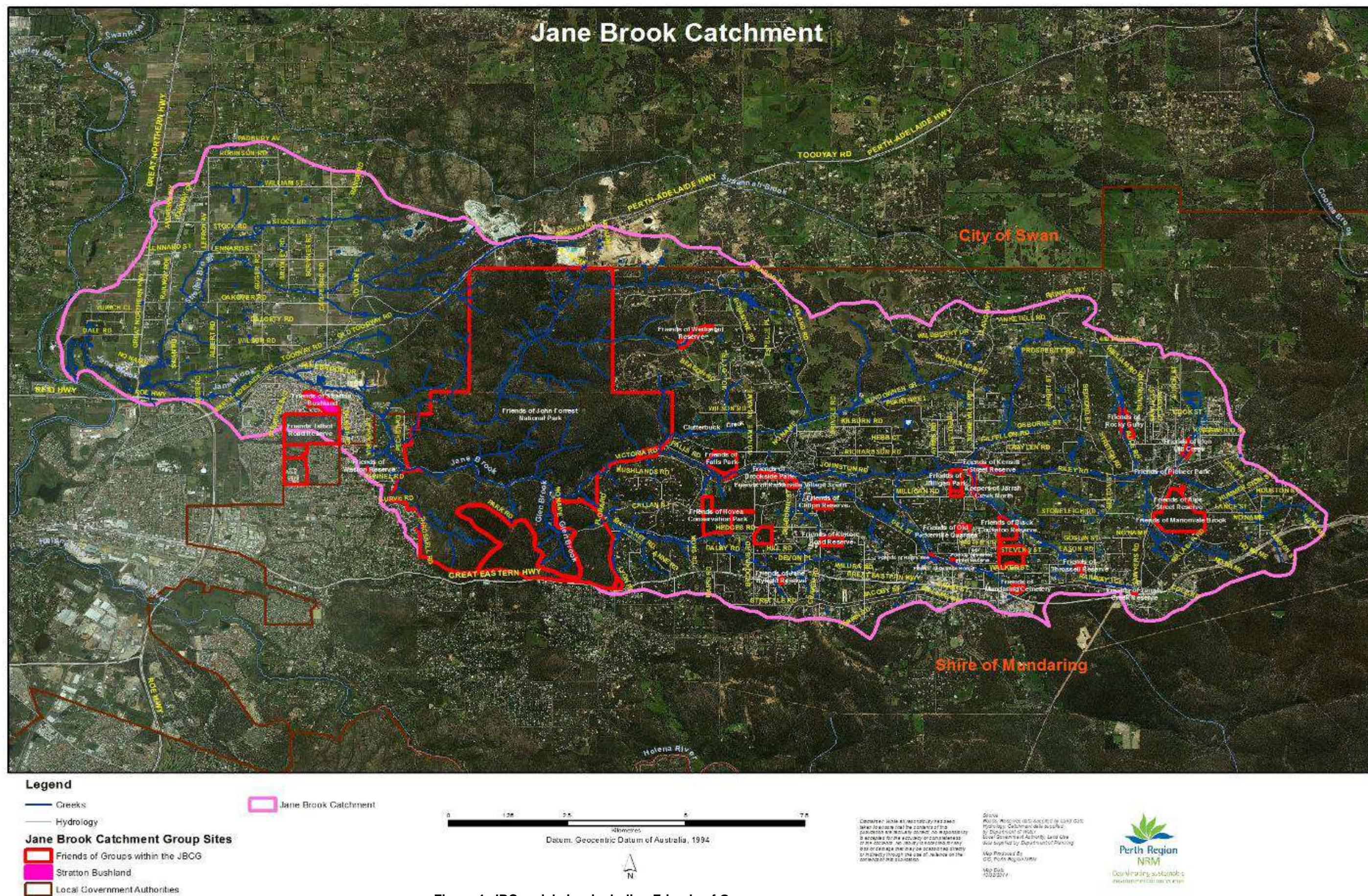
In 1998 JBCG received a Certificate of Appreciation from the Minister for Water Resources as part of Swan Integrated Catchment Management Program. The following year Hovea-Parkerville Community Conservation Group won the Living Streams Award for restoration projects along Jane Brook and Rocky Gully Catchment Group came third. In 2011, JBCG was a finalist in WA Landcare Awards for the “Toshiba Community Group Award” at the State Landcare Conference.

JBCG have participated and supported many assessment, survey and research projects as well as community education. For example, in 1999, JBCG participated in the Foreshore Assessment Project, Botanical Survey and release of Bridal Creeper Leaf Hoppers provided by Commonwealth Scientific and Industrial Research Organisation (CSIRO). There have been bus tours along the catchment and in a separate event by the Water and Rivers Commission there were river restoration workshops along sections of Jane Brook in Parkerville. External education institutions have also been involved with JBCG, for example Greencorps, Guildford Grammar and Midland TAFE (now Polytechnic West).

See Appendix 1 for a more detailed history.

Many of the JBCG’s projects have been focused around re-vegetation, weed control and fencing. However in the future JBCG would like to see the following aspects addressed:

- stormwater runoff in some areas, which the group would like to see managed better;
- better communication with local government;
- greater landholder and community involvement;
- protection of the waterways from quarrying; and
- introduction and enforcement of regulations to prevent habitat destruction when subdividing.



Focus Areas for Jane Brook Catchment Group

A combined effort to maintain and improve or enhance particular areas where possible will result in the overall betterment of the catchment. In developing this plan, members of JBCG identified biodiversity, vegetation, water quality, land management, climate change and heritage as focus areas requiring action. The group then developed actions for the purpose of maintaining and improving these focus areas.

1.5. Focus Area – Vegetation

As mentioned previously approximately 40% of the remnant vegetation within the JBC is located on private property. Remnant vegetation is under threat by a variety of factors including weed invasion, fragmentation, diseases and land use impacts (e.g. grazing and subdivision pressure). The actions JBCG would like to undertake are in Table 2.

Table 2: Vegetation objectives and actions

Objective	Action	Additional Information and Resources*	Support
1. Minimise further clearing of native vegetation	1.1. Promote awareness to private land holders.	<ul style="list-style-type: none"> SoM <i>Private Landholders Information Package</i>. 	CoS Private landholders SoM
	1.2. Advocate to local government for tighter restrictions.		
2. Protect, maintain and enhance all remnant vegetation.	2.1. Work with local government to identify areas for maintaining as bushland, riparian reserves, and further develop corridors.	<ul style="list-style-type: none"> Source funding for on-ground works. Australian River Restoration Centre (ARRC). 	EMRC SoM CoS Lotterywest
	2.2. Prepare management plans for bushland and riparian reserves.		
	2.3. Educate community members on priority weeds and local native species.		
	2.4. Retain, establish and maintain bushland coverage where possible		
	2.5. Appeal to relevant agencies as required.		
3. Increase native vegetation cover	3.1. Revegetate the creek line with local native vegetation.	<ul style="list-style-type: none"> Encourage landholders to access funding for native plants to revegetate pasture land. Encourage landholders to apply for seedlings 	Trust Department of Parks and Wildlife (DPaW) SoM
	3.2. Revegetate cleared pasture, grazing land wherever possible using local native species.		

Objective	Action	Additional Information and Resources*	Support
	3.3. Include the planting of middle and understory species where appropriate.	under the SoM - Tree Canopy and Understorey Program (TCUP). • COS - Rural Revegetation Program.	CoS
4. Minimise weed spread to protect the integrity of the remnant vegetation in the area.	4.1. Monitor the presence of known weeds and new invasions.	<ul style="list-style-type: none"> • Bradley Method. • Employ contractors where appropriate. • Department of Agriculture and Food Western Australia (DAFWA). • SoM Landcare Officer • CoS Bushcare Officer. 	DAFWA DPaW SoM CoS
	4.2. Report new infestation to the local government, particularly those in bushland reserves as they appear.		
	4.3. Undertake weed control as soon as possible where new incursions are found, to minimise broad scale disturbance, and maintain native vegetation.		
5. Increase awareness of the need for quality riparian vegetation.	5.1. Source funding for the publication of information regarding riparian vegetation.	<ul style="list-style-type: none"> • E.g. postcards, booklets. • DAFWA. 	SoM CoS Trust Lotterywest DAFWA

* See **Appendix 3** for links and resources.

1.6. Focus Area - Biodiversity

Biodiversity refers to the complete variety of life forms inhabiting terrestrial and aquatic environments. Indigenous biodiversity has come under significant pressure with habitat modification (Department of Sustainability, Environment, Water, Population and Communities, 2013). Modification of habitat can be a variety of factors such as introduction of invasive species and harmful pathogens, clearing of vegetation, altering fire regimes, changes to soil and waterway nutrients or changes to waterway flows (Department of Environment and Conservation, 2010 (now Department of Parks and Wildlife)).

The JBCG aims to protect local indigenous flora and fauna. To do this enhancement of existing remnant vegetation with a focus on corridors and linkages is imperative. As previously mentioned, a large portion of remnant bushland is found on private properties, thus encouragement of these landholders to protect, and enhance these areas is crucial to the betterment of the catchment. Landholders requiring assistance in enhancing remnant bushland can seek assistance through SoM and EMRC Environmental Officers. The actions JBCG would like to undertake to maintain and enhance biodiversity are in Table 3.

Table 3: Biodiversity objectives and actions.

Objective	Action	Additional Information and Resources*	Support
1. Development of fire management practices that do not impact adversely on biodiversity.	1.1. Advocate for a coordinated approach to fire management.	<ul style="list-style-type: none"> Bradley Method - Mosaic and cool burns wherever possible. Removal of dead material which could pose a hazard. This material could be mulched and put back (site specific to be used where possible). Wildlife Notes No:17 – The Use of Fire in Small Remnants. 	Community Department of Fire and Emergency Services (DFES) Volunteer fire brigade SoM CoS DPaW
	1.2. Advocate for fire management practices that do not impact adversely on biodiversity with better planning for bushfire hazard reduction.		
	1.3. Develop strategies to minimise clearing of native vegetation, bushland, and felling of trees as part of bushfire mitigation.		
2. Protect local indigenous flora and fauna through control and eradication of introduced invasive, feral and weedy species.	2.1. Include biodiversity protection into weed management strategies.	<ul style="list-style-type: none"> Bradley Method - Staged to prevent excessive areas of bare ground. 	SoM CoS
	2.2. Promote awareness to the community on feral animal and weed plant control programs.		
	2.3. Carry out weed control in bushland reserves to control and where possible eradicate introduced species.		

Objective	Action	Additional Information and Resources*	Support
3. Protect aquatic fauna.	3.1. Identify summer refuge pools.	<ul style="list-style-type: none"> Australian Rushes: Biology, Identification and Conservation of Restionaceae and Allied Families. 	CoS EMRC SoM Trust
	3.2. Protect native vegetation and re-vegetate fauna habitat in all tributaries.		
4. Protect corridor linkages, with particular focus on those which connect large bushland reserves to smaller bushland reserves.	4.1. Identify where corridors would be strategic, advocate for their protection and revegetate where necessary.	<ul style="list-style-type: none"> Wildlife friendly fencing website. 	CoS DPaW SoM World Wildlife Fund (WWF)
	4.2. Advocate for the use of wildlife friendly fencing methods where fences are deemed to be necessary.		

* See **Appendix 3** for links and resources.

1.7. Focus Area - Water quality

Jane Brook is an ephemeral waterway which drains the Darling Plateau prior to flowing down the Darling Scarp and into the upper sections of the Swan River (Swan River Trust, 2010). The water way has headwaters in the SoM, where some of the native vegetation is still intact. Jane Brook was flagged as a potential water source for Perth by 2010 (Water Authority of Western Australia, 1995), however this has not come about and no longer appears to be an avenue of interest to Water Corporation. The total nitrogen median and total phosphorus median is passing the Trust's long and short term goals (Swan River Trust, 2010) JBCG is interested in the protection and enhancement of the quality of surface water, including and not limited to the streams, rivers, wetlands, within the catchment. The actions JBCG would like to undertake are in Table 4.

Table 4: Water quality objectives and actions.

Objective	Action	Additional Information and Resources*	Support
1. Ensure water quality is maintained to acceptable environmental standards	1.1. Rehabilitate creeklines using river restoration principles and local native species.	<ul style="list-style-type: none"> • ARRC. • SoM <i>Private Landholder Information Package</i>. • Australian and New Zealand Environment and Conservation Council (ANZECC) Water Quality Guidelines. 	CoS EMRC Private landholders, SoM Trust
	1.2. Encourage adoption of best land management practices aimed at reducing erosion and nutrient export.		
2. Implement best management practices of water sensitive design for new and existing developments, rural and other land use.	2.1. Advocate for Water Sensitive Urban Design (WSUD) incorporation into all relevant planning proposals.	<ul style="list-style-type: none"> • Better Urban Water Management. • State Planning Policy 2.5 Agriculture and Rural Land Use Planning and 2.8 Bushland Policy for Perth Metropolitan. 	CoS Department of Water (DOW) Department of Planning (DoP) EMRC SoM
	2.2. Comment on planning proposals affecting JBC.		
3. Reduce the impact of storm water surges on riparian zones.	3.1. Work with Local government to identify opportunities for implementing WSUD principles into catchment areas to address storm surges	<ul style="list-style-type: none"> • <i>Stormwater Management Manual for WA</i>. • ARRC. 	CoS EMRC Land holders SoM Trust
	3.2. Encourage adoption of best land management practices aimed at bank		

Objective	Action	Additional Information and Resources*	Support
	stabilisation.		
4. Promote awareness and understanding of restoration and waterway health.	4.1. Plan and implement education days or event to promote all aspects of watercourse rehabilitation and management.	<ul style="list-style-type: none"> • Local show. • Shopping centre. • Libraries. 	CoS SoM Trust EMRC
	4.2. Promotional displays twice a year at shopping centers, libraries and events. Need to seek out people to man the stalls.		

* See **Appendix 3** for links and resources.

1.8. Focus Area - Land Management

Land management, in the context of this document, refers to items which cross boundaries of vegetation and or water way health. It also considers the conservation of topography. The actions JBCG would like to undertake are in Table 5.

Table 5: Land management objectives and actions.

Objective	Action	Additional Information and Resources*	Support
1. Minimise the impact of stock on the watercourses.	1.1. Fence creek lines to prevent stock access but still permit native fauna access.	<ul style="list-style-type: none"> Wildlife Friendly Fencing Project. ARRC. 	SoM DPaW WWF CoS
	1.2. Rehabilitate using river restoration principles and local native species.		
	1.3. Increase community and private landholder awareness on how to protect remnant vegetation from stock and destructive use.		
	1.4. Advocate for a greater buffer zones along waterways.		
2. Minimise the impact of subdivision and other developments on existing vegetation and waterways and the natural landforms.	2.1. Maintain and restore affected vegetation and waterways with best practice and locally native species.	<ul style="list-style-type: none"> ARRC. Stormwater manual. Better Urban Water Management. State Planning Policy. 	CoS DoW DoP EMRC SoM Western Australian Planning Commission (WAPC)
	2.2. Advocate for WSUD incorporation into all relevant planning proposals.		
	2.3. Advocate for retention of natural landforms in all relevant planning proposals.		
3. Reduce the impacts and spread of pathogens.	3.1. Implement best management strategies for protection of bushland from known causes of tree decline in the catchment e.g. dieback, marri canker, wandoo decline.	<ul style="list-style-type: none"> <i>Managing Phytophthora Dieback: Guidelines for Local Government.</i> Murdoch University's Centre of Excellence for Climate Change Woodland and Forest Health. 	SoM CoS EMRC Tertiary Institutions
	3.2. Implement Dieback Management Strategy Guidelines for on-ground works.		
	3.3. Source funding for treatment of infected		

Objective	Action	Additional Information and Resources*	Support
	areas of bushland from known causes of tree decline in the catchment e.g. dieback, marri canker, wandoo decline.		
	3.4. Treat trees and understory to increase likelihood of survival.		
	3.5. Source research partnership with research institutions regarding known causes of tree decline in the catchment e.g. dieback, marri canker, wandoo decline.		

* See **Appendix 3** for links and resources.

1.9. Focus Area - Climate Change

Scientific modelling indicates the south-west of Western Australia will continue to be affected by forecast reductions in rainfall, increased temperatures, increased extreme weather events, and further reductions in surface and groundwater resources (Department of Climate Change Energy and Efficiency, 2012). Therefore it is important to be mindful of changing climatic conditions when rehabilitating sites and review practices, to ensure best management practice is used. This will aid the environment to be in good stead for adapting to climatic changes. The actions JBCG would like to undertake to mitigate the impacts of climate change are in Table 6.

Table 6: Climate change objectives and actions.

Objective	Action	Additional Information and Resources*	Support
1. Investigate issues related to climate change to establish best practice.	1.1. Identify ways climate change could affect the catchment and other known impacts (e.g. bushfire).	<ul style="list-style-type: none"> • ARRC. • <i>Managing Australian landscapes in a changing climate.</i> • <i>Regional Climate Change Adaption Action Plan.</i> • <i>SoM Local Climate Change Adaption Action Plan.</i> 	CoS SoM EMRC Trust DPaW
	1.2. Trial strategies for flash flooding.		
	1.3. Investigate ways to protect and revegetate bushland reserves in light of changing circumstances.		
	1.4. Plant local native species along the northern banks of creeklines and summer refuge pools.		
	1.5. Have bushfire risk material mulched so the decomposition process remains on site wherever possible.		
	1.6. Review the use of local native species and provenance species.		

* See **Appendix 3** for links and resources.

1.10. *Focus Area – Heritage*

The National Trust define heritage as ‘all that we as a society, value today and wish to pass on to future generations’ (The National Trust, 2010). Historic social aspects are also captured here with the intention recognising both Aboriginal and European facets. The actions JBCG would like to undertake to enhance the social aspects of the catchment are in Table 7.

Table 7: Heritage objectives and actions.

Objective	Action	Additional Information and Resources*	Support
1. Promote both Aboriginal and historic social values of the catchment.	1.1. Investigate the historical importance, of work sites, to both Aboriginal and European people.	<ul style="list-style-type: none">• Department of Aboriginal Affairs.• Local libraries.• PRNRM.• South West Aboriginal Land and Sea Council (SWALSC).	CoS SoM EMRC DAA SWALSC
	1.2. Raise awareness of both Aboriginal and European Heritage within the catchment.		

* See **Appendix 3** for links and resources.

2. Monitoring and review

The JBCG Action Plan can be monitored annually to determine the progress against the plan. Monitoring can be in a variety of formats (e.g. report, photos etc). An example of a Monitoring and Review form can be found in Appendix 4. The EHCMP NRM Officer can assist with annual monitoring and review if needed. Reviews can be undertaken by JBCG to include or remove actions as required. A major review will be undertaken by EHCMP in collaboration with JBCG in 2021 – 2022 to identify any issues or actions that will need to be included in future plans.

3. Appendix

Appendix 1 - History of Jane Brook Catchment Group

- 1987
 - Growing community awareness of the need to protect the environment, including a successful petition presented to State Parliament to stop the building of a service station on a headwater stream of Bugle Tree Creek in Mundaring, as part of the new shopping centre on the old Mundaring Primary School site.
- 1988
 - Community concern in Mundaring about proposal to release raw sewage into Bugle Tree Creek from new Mundaring shopping centre; this resulted in the building of the Mundaring Waste Water Treatment Plant.
- 1989
 - Bugle Tree Creek-Jane Brook Protection Society formed.
 - SoM Environmental Contact Group formed; in 1992 became the Environment Advisory Committee (EAC).
 - Hovea-Parkerville Community Conservation Group formed as part of Hovea Residents and Ratepayers; main project controlling watsonia.
 - Watsonia control (“wattie bashing”) becomes a focus for individuals and groups.
 - Darling Range Forum Association (DRFA) formed in response to community concern over lack of protection for the conservation estate, and to prevent inappropriate development.
- 1990
 - Growing community concern and protests in Perth Hills about development and the need to protect the hills environment. SoM Residents and Ratepayers (Inc) takes SoM to court in an attempt to stop development on the Walker Street Reserve; development goes ahead. The remainder of reserve was raised from a C class to an A class reserve. The Mundaring Wastewater Treatment Plant was built on another section of same reserve which was later renamed Black Cockatoo Reserve. This reserve was later assessed and rated number 2 on the top 100 reserves list.
 - DRFA formed part of the Community Consultative Committee who provided comment to the Department of Planning and Urban Development (now the WAPC) on the planning of the Darling Range Regional Park.
- 1993
 - DRFA disbands after Darling Range Regional Park and Landscape Study was released for public comment to establish the Darling Range Regional Park.
- 1996
 - SoM Environmental Management Strategy includes the ICMP.
 - SMCCP formed as a partnership between the CoS, SoM, Wooroloo Brook Land Conservation District Committee (LCDC), Agriculture WA (now DAFWA), EMRC, and the community (funded by National Landcare Program, CoS and SoM). A management committee for the project is formed and meets at EMRC. Project aims at implementing the ICMP in CoS and SoM, as well as

educating the community about catchment issues.

- 1997
 - Start of the SMCCP which instigated the formation of the Mundaring Landcare Working Party and the following catchment groups as part of the strategy: Blackadder Woodbridge, Jane Brook, Rocky Gully, Guildford, Helena River. Landcare Catchment Officer (Liz Western) is appointed to co-ordinate.
 - Public meeting at Parkerville Primary School Library, Thursday July 21, with speakers from Water and Rivers Commission (now Department of Water), Swan-Avon ICM Project, Water Corporation, WA Municipal Association, Department of Conservation and Land Management (now DPaW), SMCCP, and Wooroloo Brook LCDC convened by Liz Western, the Catchment Landcare Officer. The forum decided to form a catchment group for the JBC.
 - Living Streams Workshop with Dr Luke Penn organised and hosted by Bugle Tree Creek-Jane Brook Protection Society, Hovea Residents and Ratepayers and the Eastern Hills Branch of the Wild Flower Society (August 16, Glen Forrest).
 - The JBCG first meeting was on September 11, with election of office bearers, and discussion of group structure.
- 1998
 - SoM Friends Group Manual for volunteers involved in bushland management activities on Shire vested reserves.
 - SoM Urban Drainage Strategy.
 - JBCG receives Certificates of Appreciation from Minister for Water Resources as part of Swan Integrated Catchment Management Program.
 - Water and Rivers Commission funding through the Natural Heritage Trust 1997/8 to undertake foreshore condition assessment for a number of tributaries in the Swan and Canning; Jane Brook will be assessed in 1999.
 - Suggestion JBCG seek incorporation as an LCDC; at present operating under Wooroloo Brook LCDC for insurance purposes as are all other catchment groups in the project area (minutes April 21); JBCG takes out own public liability insurance (minutes May 26).
 - Planning for Rocky Gully Catchment Group (minutes May 26).
 - Regional Land Conservation District held to discuss feasibility of a regional LCDC to cover the Urban Hills (minutes May 26); public meetings in CoS, SoK and SoM to progress establishment (minutes September 10).
 - Launch of Alcoa sponsorship for Swan Catchment Urban Landcare Program (SCULP)- \$250,000 annual funding program.
 - Swan Working Group notified JBCG that application for Department of Environmental Protection ICM administration grant of \$2,000 for administration and promotional support funding was successful (minutes November 4; correspondence).
- 1999
 - Urban Hills LCDC established as part of the SMCCP, mostly as an outcome of the Mundaring Landcare Working Party which then disbands.
 - SoM chooses not to nominate representative to JBCG (Minutes February 25).
 - SCULP grants to Bugle Tree Creek Protection Group, Hovea Ratepayers Association, Rocky Gully Sub-catchment Group for plants, earthworks and fencing.
 - JBCG formally incorporated March 30.

- Lion Mill Catchment Group forms.
 - Foreshore Assessment Project commenced April (report AGM August 25, 2000) and final report was completed by November (minutes November 25).
 - Botanical Survey as part of Urban Hills Bushland Corridor Plan (report AGM August 25, 2000).
 - Over \$26,000 funding gained by Friends and JBCG for community projects (report AGM August 25, 2000).
 - Catchment tours by SCULP and SoM EAC (report AGM August 25, 2000).
 - ICMP, of the SMCCP, completed in April by Liz Western, Catchment Landcare Officer at the end of her contract.
 - Lion Mill sub-catchment Group inaugural meeting (minutes July 29).
 - Urban Hills Bushland Corridors Project: surveys of local reserves (minutes July 29).
 - Greencorps team working in catchment e.g. Brookside Park (minutes July 29) as well as Guildford Grammar, Midland TAFE students (report AGM August 25, 2000).
 - SoM appoints first Friends Group co-ordinator (minutes July 29).
 - JBCG attended State Landcare Conference held at Esperance.
 - Hovea-Parkerville Community Conservation Group wins Living Streams Award for restoration projects along Jane Brook (minutes September 30).
 - Rocky Gully Catchment Group comes third in Living Streams Award (RGCG file).
 - SoM wins WA Telstra Landcare Local Government Award for its environmental programs and strategies at the State Landcare conference (minutes September 30).
 - Section of Jane Brook in Parkerville selected by Water and Rivers Commission as a site for their October River Restoration workshop (report AGM August 25, 2000).
 - Bridal Creeper Leaf Hoppers provided by CSIRO released in catchment at various locations (report AGM August 25, 2000).
 - Gordon Reid Foundation for Conservation grant \$2,543 (minutes November 25).
- 2000
- Administrative support grant from Swan Catchment Centre.
 - ICMP (Liz Western) finished as final stage of the SMCCP.
 - SoM Wildlife Corridor Strategy.
 - Ministerial ICM grant Department of Environmental Protection and SCC \$1,700 for administration and promotion (corr. November 5).
- 2001
- SoM Watercourse Protection Policy.
 - Premiers Award for Excellence in Public Sector management – Eastern Hills Catchment Management Program (EHCMP) won the Sustainable Environment Category.
 - Swan Catchment Centre relocated to Midland on October 12.

- Jane Brook Foreshore Assessment Report (minutes July 26).
- 2002 • Jane Brook Foreshore Assessment Project started (minutes April 18).
- Decided that a committee of 8 members constitutes a quorum; constitution to be amended to take into account this change (minutes AGM August 22).
- New committee of Urban Hills LCDC being formed.
- Guildford Catchment Group renamed to Lower Helena Catchment Group.
- Relocation of Community Landcare Centre to Stafford St, Midland.
- Survey of Jane Brook near Brookside Park commenced in May.
- 2003 • PRNRM starts Geographic Reference Groups: North, North-East, East, South and Coastal.
- Two Living Streams Workshops (July 23, 30).
- Centenary Grant from SoM to be used for planting.
- Quenda Hollow Project starts.
- Foreshore Assessment in the Jane Brook Catchment.
- Jane Brook Foreshore Assessment survey.
- Weed brochure completed.
- 2004 • Trek the Trail 1st year - (Chidlow to Wooroloo) Greencorps.
- Creekline Condition Assessments of JBC by EHCMP.
- EMRC conducted the Sub-Catchment Implementation Plans (SCIP) Consultation Draft.
- 2005 • JBCG Bus Tour October 2 (minutes August 30, October 27).
- 2006 • Urban Hills LCDC closing down as unable to meet statutory obligations (minutes February 23, April 27).
- SoM TCUP wins State Landcare Award, and a finalist in the National Landcare Awards (minutes October 26).
- 2007 • National Award for Innovation to EMRC for the Eastern Hills Volunteer Engagement Model, an extensive urban network for local government.
- Memorial jarrah bench for Florence Watson purchased by JBCG and installed in garden at Mundaring Sharing May 26 (minutes April 26).
- 2008 • EHCMP received Department of Transport and Regional Services National Local Government Award for Excellence (Natural Resource Management category), and the overall National Local Government Award for Innovation.
- 2009 • Jane Brook features on Garden Gurus (newsletter February 26).

- Urban Hills LCDDC becomes defunct.
 - JBCG Banners project; banners for promotion of activities (minutes April 23).
 - Wooroloo Brook LCDDC closing down after 20 years (minutes August 27).
 - Creekline vegetation poster (minutes August 27).
 - History project starts (minutes August 27).
 - Grant funds over \$42,000 to carry out environmental projects in the catchment.
 - Whim Festival, Pioneer Park Mt Helena; October 26.
- 2010
- Last Wooroloo Brook LCDDC Landcare Breakfast at Darlington Estate Winery on March 21 (minutes February 25).
 - Community Landcare Centre in Stafford St Midland closed down.
 - East Reference Group of PRNRM starts 10 year review of the ICMP (Western 2000); working group formed with representatives from community groups, officers from CoS, SoK, SoM, the Trust, EMRC; with governance review of PRNRM in 2011, this is transferred to EMRC.
 - Great Cocky Count April 7 Bugle Tree Gully 75 Carnabys roosting (newsletter April).
 - JBCG puts \$1,000 towards reprint of Common Native Grasses in South-West WA by Una Bell; other funding from SoM and Lotterywest (minutes April 22).
 - EMRC wins PRNRM Award for exemplary support of community groups through its support of the EHCMP.
- 2011
- East Reference Group of PRNRM holds a series of workshops as part of its review process, and work towards the Community Engagement Strategy with funding and support from PRNRM, SoM, and JBCG.
 - ICMP becomes ECMP to recognise the boundaries are not restricted to Perth Hills.
 - Wildflower Society State Conference (June 25 - 26) held at Octagonal Hall, Glen Forrest with one day of fieldwork and talks focusing on the work of the catchment and friends Groups, with Timbertop Reserve, Wedgetail Reserve, Blue Wren Reserve, and the Helena River Restoration Project featured.
 - JBCG finalist in the WA Landcare Awards for the “Toshiba Community Group Award” at the State Landcare Conference August; EHCMP winners of the “Local Government Landcare Partnership Award; EHCMP finalist in the National Landcare Awards.
 - Second Whim Festival in October at Pioneer Park, Mount Helena.
- 2012
- A ‘History of the Jane Brook Catchment Group to 2012’ compiled by Una Bell and Jenny Mackintosh. To be lodged with Mundaring and Hills Historical Society.

Appendix 2 - Friends Groups in the Jane Brook Catchment

Within the catchment there are many groups:

Group	Coordinator
Friends of Alps Street Reserve	Valerie J
Friends of Black Cockatoo Reserves	Kaylene W
Friends of Brookside Park	Jenny J
Friends of Bugle Tree Creek	Una B
Friends of Clifton Reserve	Jenny J
Friends of Falls Park South – Hovea	Jenny J
Friends of Hillside Reserve	Coordinator Required
Friends of Jane Byfield Reserve	Maureen T
Friends of Jarrah Creek	Gerard V
Friends of John Forest National Park	Craig W
Friends of Kensitt Street	Michelle Roach
Friends of Kintore Road	Jenny J
Friends of Lion Mill Creek	Jenny M
Friends of Marionvale Brook	Gwyn D
Friends of May Brook	Bill and Heather J
Friends of Milligan Park	Kaye Bannerman
Friends of Mundaring Cemetery	Jenny J & Maureen T
Friends of Old Parkerville Quarries	Jenny J
Friends of Parkerville Village South	Coordinator Required
Friends of Pioneer Park	Gwyn D
Friends of Quenda Hollow	Margaret W
Friends of Stratton Bushland	Eleanor F
Friends of Throssell Reserve	Una B
Friends of Walker Street Reserve	Una B
Friends of Wedgetail Reserve	Jenny J
Friends of Weston Reserve	Craig W
Hovea Conservation Park	Herbert T
Jarrah Creek Mouth Restoration Project	Toni B and Christine T
Rocky Gully Catchment Group	Jenny and Mike M
Keepers of Jarrah Creek North	Judi Payne
Friends of Talbot Road	Jan Lynn
Friends of the Railway bank	Hazel Williams

Appendix 3 - Useful links and resources.

Source	Link or contact
ANZECC Water Quality Guidelines	http://www.environment.gov.au/topics/water/water-quality/national-water-quality-management-strategy#guidelines
Bird Life Australia	http://www.birdlife.org.au
Centre of Excellence for Climate Change Woodland and Forest Health	http://www.foresthealth.com.au/
DFES	www.dfes.wa.gov.au
DAA	http://www.daa.wa.gov.au/
DoW	http://www.water.wa.gov.au/Managing+water/Urban+water/Stormwater/Stormwater+management+manual/default.aspx
DPaW	http://www.dpaw.wa.gov.au/
DSR	http://www.dsr.wa.gov.au/trailsfunding
Managing Australian landscapes in a changing climate	http://www.climatechange.gov.au/publications/adaptation/managing-australian-landscapes.aspx
Managing Australian landscapes in a changing climate	http://www.climatechange.gov.au/publications/adaptation/managing-australian-landscapes.aspx
SoM EAC	Staff Officer - Toni Burbidge Phone: 9290 6675 http://www.mundaring.wa.gov.au/ResidentServices/Environment/Pages/EnvironmentAdvisoryCommittee.aspx#contactslinks
State Planning Policy 2.5 Agriculture and Rural Land Use Planning	http://www.planning.wa.gov.au/dop_pub_pdf/SPP2_5.pdf
State Planning Policy 2.8 Bushland Policy for the Perth Metropolitan	http://www.planning.wa.gov.au/dop_pub_pdf/SPP_2.8_Bushland_policy.pdf
SWALSC	http://www.noongar.org.au/index.php
The Australian River Restoration Centre	http://australianriverrestorationcentre.com.au/resources/
Wildflower Society of WA	http://members.ozemail.com.au/~wildflowers/#
Wildlife Friendly Fencing	http://www.wildlifefriendlyfencing.com/WFF/Home.html

Appendix 4 – Monitoring and Review Form

Name of the site: _____

What timeframe is this review considering: _____

What work was undertaken in this period: _____

What fauna (bird, mammals, reptiles) was seen at the site? * represents new species to the site: _____

Photo monitoring

Photo from the start of timeframe.

Photo from the end of timeframe

Other information (issues, solutions, relevant information, points of interest etc.): _____

[illegible]

References

Department of Environment and Conservation (now Department of Parks and Wildlife). 2010. *Definitions, Categories and Criteria for Threatened and Priority Ecological Communities*. PDF version available for download at <http://www.dec.wa.gov.au/> (accessed 14th May 2013).

Department of Climate Change and Energy Efficiency. 2012. *Impacts of Climate Change*. <http://www.climatechange.gov.au/climate-change/impacts/national-impacts/wa-impacts.aspx> (accessed 28 September 2012).

Department of Sustainability, Environment, Water, Population and Communities. 2013. *Conservation of Australia's Biodiversity*. <http://www.environment.gov.au/biodiversity/index.html> (accessed 14th May 2013).

Swan River Trust. 2010. *Jane Brook Catchment Nutrient Report 2010 Update*. Perth, Western Australia.

The National Trust of Australia WA. 2010. *What is Heritage?* http://heritageatrisk.org.au/What_is_Heritage_.html (accessed 14th May 2013).

Water Authority of Western Australia. 1995. *Perth's Water Future- a Water Supply Strategy for Perth and Mandurah to 2021 (with a focus to 2010)*. Perth, Western Australia.