

**ANNUAL UPDATE OF THE  
GOULBURN BROKEN  
SOIL HEALTH ACTION PLAN**

**ACTIVITY**

**February 2012**



## CONTENTS

Introduction.....	3
Strategic Framework .....	3
Progress against programs to Feb 2012 .....	5
Review of progress to date .....	13
Focus in 2012-2013.....	13
Agency focus in 2012-13.....	17

Review prepared by the Goulburn Broken CMA Land and Biodiversity Land Health Program.

With the assistance of:

Rhiannon Apted GB CMA

Mark Cotter GB CMA

Brad Costin DPI

Greg Bekker DPI

Steve Wilson GB CMA

Cath Botta PCB Consulting

Kate Roberts Roberts Evaluation

## INTRODUCTION

The Goulburn Broken Soil Health Action Plan (SHAP) was endorsed by the Goulburn Broken CMA Board in October 2006; this report is the second review of the SHAP. It will report on the progress to date in implementation of the action plan. It will identify relevant changes in the operating environment, and will identify adaptive response to changed operating circumstances and the funding profile.

In 2002, the Goulburn Broken Soil Health Steering Committee was established to prepare a Goulburn Broken Soil Health Strategy for the Goulburn Broken CMA (see Draft Goulburn Broken Soil Health Strategy). The draft Soil Health Strategy is a sub-strategy of the Regional Catchment Strategy (RCS) (2003). The SHAP guides implementation of the Soil Health Strategy.

From mid-2011 funding has been received through the Australian Government's *Caring for Our Country* program to work with the community on the promotion of soil health and the showcasing of best management practice to improve soil health and sequester soil carbon.

In 2010 the Department of Sustainability and Environment (DSE) commenced preparation of a statewide Soil Health Strategy. The Goulburn Broken CMA has been involved closely in its development and believes the approach promoting the ecosystem services provided by soils should frame the future development of the program.

The SHAP review of the history of soil health extension in the Goulburn Broken region highlights three key gaps requiring public investment in soil health:

- The need to assist farmers to develop sustainable, profitable, soil carbon conserving land management systems.
- The need for policies and programs that encourage the adoption of a stewardship philosophy of land management and ownership that includes the notion of soil health.
- The need to partner with industry and the private sector to promote soil health as an integral part of the production system.

The SHAP outlines actions to direct investment, reporting and program development. The main focus of the plan is on enabling the community in soil health action through awareness, education and information support.

The annual SHAP reviews ensure the directions of the Goulburn Broken CMA's Land Health Program remain focused and reflect the changing operational and investment environment.

## STRATEGIC FRAMEWORK

The SHAP sits under and guides implementation of the Soil Health Strategy.

The main objective of the program is to promote improved management practices in the community through forming working partnerships with the community to identify and evaluate appropriate management practices to enhance soil health.

These include:

soil testing and understanding test results  
land class fencing  
appropriate fertiliser use

whole farm planning  
rotational grazing systems  
liming of acid soils

inclusion of deep-rooted perennials into farming systems	retention and management of native grass pastures
reduced cultivation and improved fertilizer application	stubble management
erosion control	use of native pastures to manage erosive and acid soils and to enhance biodiversity outcome
options to improve soil biodiversity	options to improve organic carbon levels

The SHAP complements a number of regional and state land and water strategies. These are:

- Dryland Landscape Strategy 2009-2011
- Biodiversity Strategy for the Goulburn Broken Catchment 2010-2015
- Regional River Health Strategy 2005-2015 (updated with addendum 2010)
- GB Dryland Salinity Management Plan 1995-2001 Review
- Draft GB Soil Health Action Plan 2005
- Draft GB Soil Health Strategy 2005
- Review of GB Soil Health Action Plan 2011
- Draft DSE Soil Health Strategy 2012

The SHAP contains 7 action plan programs that focus on community education and the promotion of improved management practices to improve soil health.

Program 1 - Coordination

Program 2 - Community Education

Program 3 - Improved Management Practice

Program 4 - Whole Farm Planning for Soil Health

Program 5 - Local Government Planning

Program 6 - Monitoring and Evaluation

Program 7 - Research and Investigation

Each program contains a series of actions with an identified lead agency. The actions were given priority for implementation in 2006-07.

## PROGRESS AGAINST PROGRAMS TO FEB 2012

### Program 1 - Coordination

	Action	Priority	Imp. respon.	Time frame	Update on progress/Comments	Links to current initiatives
1.1	Coordinate linkages to other regional and statewide soil health programs	Mod High	DPI/CMA	Ongoing	This review and the "Review of soil health activities and evaluation methods in the Goulburn Broken Catchment" as well as joint preparation of investment program with partners.	GB CMA leading through development of Land Health Program. See Review Action 1.
1.2	Coordinate the development and implementation of staff training and community education, including the provision of relevant information	Mod High	DPI/CMA	Ongoing	Activities of Beyond SoilCare program to develop training packages for community members and delivery partners. Community education has been supported by CMA, DPI and Landcare.	CfOC sustainable farm practices – regional base. CfOC Beyond SoilCare – competitive NRIP DSE Regional Landcare Facilitator
1.3	Create an extension staff network for soil health (includes public agencies and private industry)	Mod Low	DPI/CMA	06/07	DPI group exists but the focus has been more in cropping areas (ie west of the State). NE/GB DPI contact has left the network and has not been replaced. We have limited capacity to auspice such a network. Australian Society of Soil Science Inc. is ramping up its activity; this would be an appropriate forum for the time being.	Maintain awareness of activity and initiatives.

1.4	Facilitate funding for soil health programs, and develop joint funding bids	Mod High	CMA/DPI	Ongoing	Recent successful CfOC bids include Beyond SoilCare. Funding also received through NRIP program and Land Health program through DSE.	CMA to continue to look at investment opportunities.
1.5	Report quarterly and annually on implementation progress through normal regional reporting processes	Mod High	DPI/CMA	Ongoing	Quarterly reporting has been program based and through funding bodies.	On-going.

#### Program 2 - Community Education

	Action	Priority	Imp. Respon	Time frame	Update on progress/Comments	Links to current initiatives
2.1	Provide training in soil health for agency extension staff, private sector staff, community groups, and local government staff	Mod High	DPI	Ongoing	See 1.2 above. The private sector relationship is limited and only possible where training is accredited, which is the status of the latest training packages. Local government will be involved in the development of GIS based tools for understanding and assessing land health and risks.	
2.2	Incorporate a soil health module into existing landholder extension programs	Mod High	DPI	Completed	Completed through WFP.	CfOC sustainable farm practices – regional base, Regional Landcare Facilitator, NRIP.
2.3	Develop soil health monitoring kits for the regional Landcare network. Organise field days and workshops to demonstrate the use of tools in kit	High	DPI	06/07	Action was completed. Kits are now being used as part of the Beyond SoilCare project.	Current Utilise kits for actions 2.1, 2.2 and 2.4.

2.4	Raise community awareness of soil health program. Organise and promote soil health awareness activities (eg. workshops, forums, field days, soil testing and mapping projects)	Mod High	CMA/DPI/Landcare		Community education opportunities are being supported by CMA, DPI and Landcare.	CMA (Land Health Coordinator/Regional Landcare Facilitator); DPI/Landcare core activity through CfOC Sustainable Practices and CfOC Beyond SoilCare. Also supports delivery of NRIP and DSE Land Health programs.
-----	--	----------	------------------	--	---	---

### Program 3 - Improved Management Practice

	Action	Priority	Imp. respon.	Time frame	Update on progress/Comments	Links to current initiatives
3.1	Establish and maintain a network of "Improved Management Practice" demonstration sites across the region as a tool for farmers to learn from farmers	Mod Low	Landcare and landholder groups	Ongoing	Landcare and DPI projects (e.g. EverGraze, steep hills grazing and pasture cropping) sites currently exist and are utilised as demonstration sites. This is being expanded to include existing on farm demonstration sites and to showcase IMP activities of landholders.	Funded through CfOC Beyond SoilCare project.
3.2	Develop partnerships with private enterprise to develop and promote a shared understanding of best management practices that minimise soil acidification and conserve organic carbon	Mod High	CMA	06/07	Part of the development of an accredited training package on soil health for land managers. Will be further developed in 2012.	Funded through CfOC Beyond SoilCare project.

3.3	<p>Promote current improved management practices for soil health including:</p> <ul style="list-style-type: none"> <li>- soil testing and understanding test results</li> <li>- whole farm planning</li> <li>- land class fencing</li> <li>- rotational grazing systems</li> <li>- appropriate fertiliser use</li> <li>- liming of acid soils</li> <li>- inclusion of deep-rooted perennials into farming systems</li> <li>- retention and management of native grass pastures</li> <li>- appropriate cultivation and cropping practices</li> <li>- stubble management</li> <li>- erosion control works - stream and gully stabilisation works</li> <li>- fencing and management of native vegetation</li> <li>- fencing and revegetation of priority locations (eg. slopes, recharge areas, drainage lines, streams, habitat linkages)</li> <li>- options to improve organic carbon levels</li> <li>- options to improve soil biodiversity</li> </ul>	Mod High	DPI/ CMA	Ongoing	<p>All remain relevant and unchanged. However the link to the preservation or enhancement of environmental outcomes is often weak.</p> <p>Need to review these to:</p> <ul style="list-style-type: none"> <li>• Augment ecosystem services</li> <li>• Protect assets</li> </ul>	Steering group discussion about where to with these.
-----	--	-------------	-------------	---------	---	--



**Program 4 - Whole Farm Planning for Soil Health**

	Action	Priority	Imp. Respon	Time frame	Update on progress/Comments	Links to current initiatives
4.1	Incorporate soil aspects into regional Whole Farm Planning activities (MYFOL). Include a 'fit for purpose' notion of soil health	High	DPI	06/07	Completed.	
4.2	Develop and deliver nationally-accredited training in Property Planning for soil health. Deliver courses to land managers in Soil Management (Natural Resource Management Training Package)	Mod High	DPI	Ongoing	Occurring through WFP. The delivery of accredited training packages in soil health is currently being overhauled and will be implemented in the next financial year.	On-going.
4.3	Encourage Landcare Groups to develop subcatchment plans	Mod Low	CMA/ Landcare	Ongoing	Process implemented; follow up lacking due to lack of resources.	This is not a priority for the SHAP.
4.4	Explore the issue of "What is the Duty of Care for landholders concerning soil health?" and incorporate into programs	Low	CMA		Some preliminary thinking has occurred. A Duty of Care/Stewardship approach needs to set standards. These standards would form the dialogue rather than "Duty of Care".	Un-funded priority for DLS (DLS action 3.1.1) and BS in 2010-11.

**Program 5 - Local Government Planning**

	Action	Priority	Imp. Respon	Time frame	Update on progress/Comments	Links to current initiatives
5.1	Assist Local Government to incorporate soil health issues into strategic and statutory planning processes	Mod High	DPI/ Shires	06/07	Linking land management to land use is required. Developing the land capability information for use by partners, including Local Government see 5.2.	Funded through NRIP.
5.2	Provide training and information to Local Government staff on soil health issues as they affect planning	Mod High	DPI/ Shires		Needs to be recognised as a need by local government.	Not currently funded.
5.3	Review municipal planning schemes and procedures to provide a process for input of land capability assessments into strategic local Government plans	Mod High	DPI/ Shires		Reviews undertaken through the Streamlining Property Management Systems project.	Not currently funded.
5.4	Assist Local Government to develop options which encourage landholders to adopt a stewardship philosophy of land management and ownership that includes the notion of soil health	Low	CMA/ Shires		Ambitious. See 4.4 above. Needs to be part of an overall plan of action with local government.	Not currently funded.

**Program 6 - Monitoring and Evaluation**

	Action	Priority	Imp. Respon	Time frame	Update on progress/Comments	Links to current initiatives
6.1	Compile baseline data to allow monitoring and evaluation of changing landholder attitudes, behaviour, and understanding of soil health issues and land use	Mod High	CMA/ Landcare		Review with Roberts Evaluation on Beyond SoilCare project. Training of staff to undertake workshop and field day evaluation.	CfOC Beyond SoilCare.
6.2	Link with Landcare groups to develop a database for compiling soil health information from regional demonstration sites and soil test data	Mod Low	DPI/ CMA		Part of "Review of soil health activities and evaluation methods in the Goulburn Broken Catchment". Also facilitated through Land Health Forum.	CfOC Beyond SoilCare. And development of Land and Biodiversity team in GB CMA.
6.3	Review existing soils data to develop a baseline for monitoring soil health – current status for acidification, soil carbon, biotic activity, soil structure, erosion, and salinity	Mod Low	DPI/ CMA		No progress.	Not currently funded. May come out of State Soil Health Strategy.
6.4	Establish appropriate regional Resource Condition Targets for soil health (pH and Organic Carbon), including definition of methodology, sampling site network, and reporting process	Mod Low	CMA		Developing baseline data through NRIP program. Analysis of the state of soil health measures not being developed.	Develop of Land Health Statement by GB CMA. Funded in part through NRIP and Land Health program.
6.5	Establish a network of sites to monitor the condition of our soils, as part of monitoring implementation of the Regional Catchment Strategy	Low	CMA/ DPI	Ongoing	No progress.	Not currently funded.

**Program 7 - Research and Investigation**

	Action	Priority	Imp. Respon	Time frame	Update on progress/Comments	Links to current initiatives
7.1	Identify the public benefits of ameliorating acidic soils: - quantify the offsite impacts of acidification - quantify the impacts of the 'do nothing' scenario for pH decline	Mod High	CMA/ Research bodies		No progress. Public benefits have been hard to define. Little research has occurred on acid soils, the focus has now shifted to soil carbon and the delivery and preservation of ecosystem services.	Not currently funded. The broader issues are dealt with in the DSE Soil Health Strategy Will be emphasised in the Land Health Statement.
7.2	Investigate the various roles of soil carbon and biology including impact on agricultural production	Mod ?	CMA/ Research bodies		Research is occurring at the state, national and international level. CMA business will focus on implementation.	Links with CEF program, particularly Carbon Farming Futures. And the CfOC Beyond SoilCare project.
7.3	Conduct further investigation into the impact of land management on the diversity and function of soil biota	Mod	CMA/ Research bodies		No progress at catchment level. Research occurring at state and national level.	Soil biology and carbon is an element of CFF project. Will be seeking investment to strengthen the effort in the catchment.
7.4	Identify and develop acid -tolerant perennial pastures which can be used as alternatives to lucerne and phalaris	Low	CMA/ Research bodies		No progress. Research occurring at state and national level.	Not currently funded. Not a CMA role.
7.5	Investigate the effects of using waste products as soil conditioners. Investigate capacity of bio-solids for increasing soil buffering capacity	Low	CMA/ Research bodies		No progress. Research occurring at state and national level.	Not currently funded.

7.6	Investigate definitions and measures of soil health	Low	CMA/Research bodies		Work by Richard MacEwan will provide definitions and, by limiting to those services we can measure, will also provide measures. Still leaves the problem of benchmarking standards and understanding trends in soil condition.	Will be managed in Land Health Statement.
-----	---	-----	---------------------	--	--	---

REVIEW OF PROGRESS TO DATE	FOCUS IN 2012-2013
<b>Program 1 - Coordination Program</b>	
The Goulburn Broken Land Health Program leads the reporting review of the SHAP. Land Health Program has instituted the Land Health Forum to guide deliberation on directions in soil health and facilitate communication and coordination.	The focus on community participation and influence in the Land Health program needs to be further supported by representation in a collaborative body and the Land Health forum provides the appropriate vehicle. Their role is to facilitate communication and build awareness of soil health program and the messages of good soil health through their own initiatives or in partnership where feasible and appropriate <i>Review Action 1: Broaden the representation on the Land Health Forum to include community networks.</i>
<i>Development of Land Health Statement</i> The DLS is coming to an end and there is a vacuum that provides a policy and investment framework for work on Land Health The operating environment is changing rapidly and the opportunity to invest more in soil health, particularly through soil carbon means that the position of the GBCMA needs to be stated clearly	Develop a Land health Statement in 2012 making clear the opportunities and challenges of the future operating environment and the key policies, programs and skill sets required to adapt to take advantage of future conditions <i>Review Action 2: Prepare Land Health Statement.</i>
<b>Program 2 - Community Education</b>	
<i>Education and training opportunities</i> DPI, through the CfOC Sustainable Farm Practices bid: Improving land management practices (increasing soil carbon) 2010-2012, deliver training to landholders. The Beyond Soil Care project (CfOC competitive) is developing more focused training package The DIY soil health test kits are being strongly promoted and used as an introduction	Training is a key component of building a legacy from project delivery and the longer term aim is to raise the awareness of the community of soil health and their responsibilities and opportunities. Training packages will be developed that: <ul style="list-style-type: none"> <li>facilitate the 'Reading of the landscape' promoting understanding of landforming and soil forming processes and how they influence the type</li> </ul>

to soil sampling and testing. Landcare networks and producer groups participate in the project by engaging the community and acting as a conduit for information transfer.	and characteristics of the soils and <ul style="list-style-type: none"> <li>the link between best management practice and soil science</li> </ul> <i>Review Action 3: Continue to coordinate community education opportunities across agencies and build the 'soil health' community network.</i>
<i>Soil health monitoring</i> The soil health monitoring kits have been used by extension officers to support community education opportunities and promote the Beyond Soil care project. They are available to landholders to undertake soil health monitoring on their properties. The kits are also available for education days and for groups/individuals to borrow.	Landholder understanding of soil testing and soil test interpretation needs to be further developed and linked to ongoing monitoring of their paddocks and to interpret changes to the condition of their paddocks and farm. There needs to be a strong link between soil test interpretation and the implementation of improved management practices <i>Review Action 4: Link training packages to promotion of improved management practices and soil test interpretation.</i>
<b>Program 3 Improved Management Practice</b>	
Many IMP elements have been picked up through core extension activities, e.g. land class fencing and native pasture management, erosion control. The Goulburn Broken CMA, Landcare and DPI initiatives cover off on most of the recommended practices; however, cross-pollination between agencies could be improved. The priority and resourcing of some management practice extension are reflected well in the funder's priorities, e.g. CfOC Business Plan, VIF.	<i>Review Action 5: Work on the identification of improved management practices within the framework of the Land Health Forum and through ongoing discussions with the community in the implementation of the program.</i>
<i>Soil Carbon</i> Sequestration of soil carbon to mitigate climate impacts is anticipated to become a major focus of investment in soil health. The link between increased soil carbon and the health of soils is well founded and supported by a good evidence base.	Need to link the objectives of soil health and improved provision of ecosystem services to increased soil carbon content. This is an area where the dynamics of soil carbon sequestration and soil health while well supported by evidence, needs to be integrated into promotion of IMP and benchmarking of condition. <i>Review Action 6: Make the argument for increasing soil carbon to improve soil health as part of the Land Health Statement.</i>
<b>Program 4 - Whole Farm Planning for Soil Health</b>	
<i>Whole Farm Planning</i> The Whole Farm Planning program has successfully incorporated soil health as an accredited component of all courses. It covers land classing, land capability, soil	<i>Review Action 7: Consider the implications of the WFP review and the most</i>

<p>characteristics, soil testing, interpretation of soil tests and monitoring techniques. This provides the basis for expanding the training and development in soil health linking to mosaic farming (see below)</p> <p>A review of WFP in the catchment is now available and provides some guidance on its future development. However the status of farm planning as a function within the main service delivery agency is unclear</p>	<p><i>appropriate mechanism to promote WFP for natural resource outcomes</i></p>
<p><b>Mosaic farming</b></p> <p>New closer integration across programs within the CMA and the need to link the management of farms with broader NRM outcomes. The challenge is to ensure that the demands of producing a living are recognised and accommodated whilst striving to build a mosaic of complementary land uses that result in improved natural resource condition.</p>	<p>Need to develop tools to support the broader understanding of soils and their formation and the associated risk factors with soil types.</p> <p>Emphasis on the community remains on matching land use to land capability first and responding to the challenges of managing soil health within that context. Important focus will be on aligning management of paddocks to complement natural resource assets and protect natural resource condition. This will be done through extending the farm planning concept to include complementary farm planning and analysis of the viability and sustainability of the farm system.</p> <p><i>Review Action 8: Extend the farm planning concept to focus more clearly on natural resource outcomes within the context of a working farm.</i></p>
<p><b>Program 5 - Local Planning</b></p>	
<p>Work with Local Government in the area of soil health has been limited, largely due to a lack of resources and personnel to develop the relationship and secure buy-in. We have not yet determined appropriate tools or mechanisms of support for Local Government due to a lack of consultation with appropriate Local Government staff. The regional information and mapping around land capability has been collated, with the statewide land capability layer applied, to produce a regional GIS land capability layer and the attribute tables are complete.</p> <p>This is being built into an GIS tool to provide information on landform and soil type and soil characteristics along with associated vegetation class and indicator species, and risks of degradation</p>	<p>Our interest remains in working with Local Government to address soil health issues but it needs to be in response to their needs. Supporting Local Government to effectively integrate land capability information into strategic planning and statutory.</p> <p><i>Review Action 9: Review the links with Local Government as part of developing the Land Health Statement to seek their input into appropriate progress and development of land capability assessment tools.</i></p>
<p><b>Program 6 - Monitoring and Evaluation</b></p>	
<p>The Land Health Program MERI Plan evaluates and monitors progress of the CfOC funded projects and the SHAP. It aims to establish baseline information on attitudes</p>	<p>Building MER activities in to core business and promoting closer engagement with community to develop and implement projects across the land health spectrum.</p>

to soil health and the extent and nature of changes to land management practices	MER will provide the data on the response to and success of the community involvement in changed land management practices. <i>Review Action 10: Continue to implement the MER activities in the CfOC project and build the skills of staff to undertake activity evaluation as part of a continuous improvement process.</i>
<b>Program 7 - Research and Investigation</b>	
There has been little progress in these actions at the regional level; however, many questions have been taken up at a state, federal or international level, for example the roles of soil carbon and biology in soil health and agricultural productivity. The Goulburn Broken CMA has linkages to research organisations and becomes involved in research where appropriate.	The soil health steering group will keep abreast of research outcomes and opportunities as they relate to soil health and the SHAP.



**Summary of Review Actions:**

Review Action 1: Broaden the representation on the Land Health Forum to include community networks.

Review Action 2: Prepare Land Health Statement.

Review Action 3: Continue to coordinate community education opportunities across agencies and build the 'soil health' community network.

Review Action 4: Link training packages to promotion of improved management practices and soil test interpretation.

Review Action 5: Work on the identification of improved management practices within the framework of the Land Health Forum and through ongoing discussions with the community in the implementation of the program.

Review Action 6: Make the argument for increasing soil carbon to improve soil health as part of the Land Health Statement.

Review Action 7: Consider the implications of the WFP review and the most appropriate mechanism to promote WFP for natural resource outcomes.

Review Action 8: Extend the farm planning concept to focus more clearly on natural resource outcomes within the context of a working farm.

Review Action 9: Review the links with Local Government as part of developing the Land Health Statement to seek their input into appropriate progress and development of land capability assessment tools.

Review Action 10: Continue to implement the MER activities in the CfOC project and build the skills of staff to undertake activity evaluation as part of a continuous improvement process.

**AGENCY FOCUS IN 2012-13****DPI**

- Implementation of Sustainable Practices bid: Improving land management practices (increasing soil carbon) 2010-2012 (regional base CfOC funding)
  - o Landholder training
  - o Whole Farm Planning around soils
  - o Implement on-ground works to improve soil carbon
- More broadly, including DPI restructure
  - o EverGraze, demonstration properties, farmer discussion groups
  - o FarmPlan21

**Regional Landcare Facilitator (CfOC base)**

- CfOC Business Plan 2012-2013
- Coordination, facilitation roles (content) will be determined by the community through a Steering Committee
- Pasture cropping

**GB CMA Land Health Program**

- Define and map dryland catchment soils as assets (biodiversity, structure, soil carbon storage etc) and as threats (salinity, erosion, soil acidity etc)
- Develop GIS tools to support communication packages
- Develop training packages to support promotion of IMP and build community skills
- Coordinate and promote community engagement through the LHF and promoting landholders showcasing IMP
- Promote role of highly modified agricultural landscapes in delivering NRM outcomes through provision of ecosystem services and management of disservices