NATURAL HERITAGE TRUST
Project Final Report

Project No.

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Office Use Only
Commonwealth No.

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1. (a) Project Administration

Project Title (Use the same title as in original project application)	Economic Value of Ecosystem Services underpinning the Gwydir Valley Cotton Industry		
Name Of Organisation	Australian Cotton CRC / Gwydir Valley Irrigators Association Incorporated		
Contact Address	Kym Orman, Australian Cotton Cooperative Research Centre, PO Box 59 Narrabri NSW 2390		
Project Manager	Assoc. Prof. Nick Reid	**Ph:** 02 6773 2759	**Fax:** 02 6773 2769

		Month	Year		Month	Year
Project Duration	Actual Start	01	/ 01	Actual Finish	12	/ 02

1. (b) Total Project Funding Details

Please provide information over the life of the project on the actual financial and in-kind contributions of the various stakeholders in the project, as set out below. (in-kind employment contributions, operating costs and capital costs should be calculated according to the application guidelines that you used for your original funding application).

If you have unspent funds or retain assets these will have to be accounted for. Unspent funds should be returned to the Funding Unit, GPO Box 39, Sydney NSW 2001 with cheques made out to the Department of Land and Water Conservation.

Use form on following page

Expenditure Statement

	(a) **NHT Funds**	(b) **Proponent Contribution** (funds and in-kind)	(c) **Other Contributor 1** (funds and in-kind)	(d) **Other Contributor 2** (funds and in-kind)	**Total** (a+b+c+d)
INCOME					
Funds received Year 1	50,000	5,000	80,000	30,000	165,000
Funds received Year 2	50,000	5,000	80,000	30,000	165,000
Funds received Year 3					
Funds received Year 4					
Total Income	100,000	10,000	160,000	60,000	330,000
EXPENDITURE #					
(add to item description as per your application)					
- Paid employment					
Project Officer (Dr Tish Silberbauer)	20,000		75,000		
Project Manager (A/Prof Nick Reid)				60,000	
Economic consultants (commercially contracted)	45,000		15,000		
- Operating	35,000	10,000	70,000		
- Capital	0	0	0	0	
Total expenditure	100,000	10,000	160,000	60,000	330,000
Funds Remaining (Income minus Expenditure)	0	0	0	0	0

 # You may need to check your project application for actual expenditure categories

2(a). Describe the issues or problems addressed by the project

Provide a brief summary of the issues or problems that your project tackled, what you did in your project to resolve these and well it worked.

The cotton industry in the Gwydir Valley, like most forms of agriculture, is reliant on a range of 'free' ecosystem services such as clean irrigation water, breakdown of chemicals in soils and water storages, natural control of pests by beneficial fauna, and spray drift containment by adjacent vegetation. These services have hitherto been unpriced, but growers and the community incur substantial costs when such services are lost through ignorance or mismanagement. This project aimed to determine the economic value of some of the ecosystem services underpinning the cotton industry, and investigate the interaction between best-management practices and performance of these ecological services.

We consulted both the Gwydir community and the scientific community to establish a list of ecosystem services and processes threatening ecosystem services in the Gwydir catchment. This process was very successful and has given us a good working relationship with both the Gwydir Catchment Management Board and the community.

We took a "proof of concept" approach to appraising ecosystem services. We used a limited number of ecosystem services case studies related to cotton production to demonstrate our ability to develop a skills tool box that is useful to land managers, catchment management authorities and policy makers. We have had some set-backs related to the lack of ecological data and modelling of water allocation and sharing at catchment scales, but have developed bio-economic models of our exemplar ecosystem services at farm scale. Using the models of various land management and pest management scenarios at the farm scale and their impact on the ecosystem services of natural pest control and on-farm water use we have determined the ecological and economic impact of alternative management practices that utilize ecosystem services as inputs to irrigated cotton production or impact on ecosystem services as outputs of cotton production. We are also completing a series of simulations at catchment scale, in collaboration with NSW DLWC, to study the aspects of these ecosystem services more broadly.

2(b). Project Performance against objectives/milestones.

Please provide information on the overall achievements of your project against your planned objectives and milestones. Indicate important achievements you have made in addition to your planned objectives. In some cases you may have had difficulties, or were unable to meet all, or some of your objectives. This should not be regarded as a failure. Please indicate if this has occurred and give an assessment of factors contributing to the difficulties (eg climatic conditions, group dynamics, late arrival of funds, inappropriate planning, local government regulations).

ACHIEVEMENTS AND IMPEDIMENTS

What did you set out to do? (List the objectives stated on your funding application)	Comment on the extent to which your objectives were met.	How did you measure your achievements, eg photos, surveys, attendance at seminars.
1. To economically value the ecosystem services on which irrigators depend, and to identify farm management practices that safeguard or enhance these services, maximise grower profit and enhance ecosystem health at the local scale.	We have developed detailed bio-economic models for two ecosystem services so far (natural pest control and aquatic ecosystem services) – assessing the impact of different management practices on both the farm economics and the provision of the ecosystem services concerned. For example, we modelled the impact of pest control strategies on populations of beneficial insects and the way in which management practices related to the efficacy of beneficial insects as agents of natural pest control and the relative expense of the different pest control options and gross margins obtained. The model for this ecosystem service also has close links with other ecosystem services, such as provision of habitat.	We have shown the models and simulation outputs to a range of experts. We have shown the models to researchers from the Australian Cotton CRC (3 meetings, up to 20 people). We have also sought feedback from the cotton industry (ACGRA biannual conference 2002, growers meetings), from other Ecosystem Services projects (2 conferences, 4 meetings with CSIRO

	We also examined the provision of clean water (rivers) and the maintenance of clean ground water by modelling the impact of a range of irrigation technologies on the amount of water used, the yield of cotton, the amount of runoff from fields and the amount of deep drainage underneath cotton fields. We encountered difficulties with the biophysical modelling. The difficulties were associated with the absence of data and gaining access to data, and the need to develop our modelling expertise. These problems restricted us to modelling only two ecosystem services at the farm scale so far, however we feel that we have gained sufficient expertise and have made contacts that will allow us to significantly expand our modelling capacity.	Sustainable Ecosystems Ecosystem Services researchers) and from the Ecological Society of Australia (2 annual conferences involving several hundred people) and incorporated their comments and suggestions.
2. To value ecosystem services associated with the cotton industry at a regional scale, and identify environmental management strategies and policies that safeguard these services, maximise the industry's economic and social contribution to the region, and enhance regional ecosystem health.	We were able to meet this objective in a limited way. The only ecosystem services that operate at a catchment scale are the aquatic services. We attempted to construct a catchment scale water model. We succeeded to the stage of successfully modeling regulated flows through the system, but found that the complexity of unregulated water flows through the catchment was too great to model simply. To address this problem we approached the team at NSW Department of Land and Water Conservation who have developed the IQQM catchment water model. Water flow through the Gwydir catchment is now being modelled using the IQQM model and linked to our farm-scale model of water quantity and irrigation options. It is not appropriate to examine the ecosystem service of natural pest control at a catchment scale as it is, by its nature, a local phenomenon.	We have shown the model simulations to a range of experts from the Australian Cotton CRC, from the cotton industry and from CSIRO Sustainable Ecosystems (outlined in the box above). We are also collaborating with the scientists in NSW DLWC who developed the IQQM model.
3. To ensure growers, industry groups, neighbours, the community and government alike are informed of the best practice options and regional strategies, and that the information is used by industry in its accreditation systems and training schemes for improved environmental management.	We have kept farmers, industry groups (e.g. Australian Cotton CRC and the Australian Cotton Growers Association) and the Gwydir Catchment Management Board up to date with our progress and interim findings. We actively engaged all these groups in our analysis of ecosystem services, threats, management and priorities in a community forum.	We have conducted a community forum, attended meetings with the Gwydir CMB, and presented two Cotton CRC conferences. We have kept in touch with the Gwydir CMB, the CRC and cotton growers through regular phone, email and postal correspondence. We presented our approach and its potential to the ACGRA national conference in Brisbane in Sept. 2002.

3(a) On-ground Outputs (total outputs achieved since the start of the project. Use original application to supply whole of project targets)

Activity	Total outputs achieved	Project Target
Native vegetation/habitat		
1) Total area of native vegetation works (Should equal 2) + 3) + 4)	0 ha	0 ha
2) Remnant protection works (remnants in relatively good condition)	0 ha	0 ha
3) Remnant rehabilitation works (including restoring links)	0 ha	0 ha
4) Revegetation works (predominantly in cleared areas)	0 ha	0 ha
5) Number of plants (not seed) planted.	No. 0	No. 0
6) Length of direct seeding lines	0 km	0 km
7) Length of protective fencing	0 km	0 km
8) Area of voluntary management agreements established	0 ha	0 ha
9) Covenanted areas established to protect remnant native vegetation	0 ha	0 ha
10) Area of works that protect/enhance threatened species/community habitat	0 ha	0 ha
11) Area of 10) protected by agreements as in 8) or 9)	0 ha	0 ha
Waterway or water body management		
12) Waterway protected by fencing (usually both sides or divide by 2).	0 km	0 km
13) Length of fenced waterway revegetated.	0 km	0 km
14) Benefits downstream of waterway physical works (bed and banks,etc).	0 km	0 km
15) Benefits downstream of in-stream habitat works.	0 km	0 km
16) Benefits of environmental flows or water provided for wetlands.	0 ha/km	0 ha/km
17) Native fish restocking – number of fingerlings.	No. 0	No. 0
18) Native fish restocking – age of fingerlings.	0 months	0 months
19) Native fish restocking – native to .the area?	Yes/**No**	Yes/**No**
20) Other beneficial waterway activities Specify type:	0 km	0 km

21) Pollution Control

Target Pollutants	Main Source	Initial Levels	Current levels	Target levels	% Improved
					%
					%
					%
					%
					%

Activity	Total outputs achieved	Project Target
Control of Rising Watertables)		
22) Target area for ground water pumping systems installed	0 ha	0 ha
23) Area drained to control rising water tables	0 ha	0 ha
24) Area of planting/establishment in recharge areas	0 ha	0 ha
25) Area of planting/establishment in recharge areas	0 ha	0 ha
26) Using deep-rooted perennial crops/pastures.	0 ha	0 ha
27) Using local native species	0 ha	0 ha
28) Using non-local native species	0 ha	0 ha
29) Using exotic species	0 ha	0 ha
Water-use efficiency improvements		
On-farm efficiency? ❒ Or Off-farm efficiency? ❒		
30) By recycling treated effluent	0 ML %	0 ML %
31) By recycling drainage water	0 ML %	0 ML %
32) By use of wastewater	0 ML %	0 ML %
33) By use of stormwater	0 ML %	0 ML %
34) By more efficient water management systems	0 ML %	0 ML %
35) By refurbishment of water supply channels	0 ML %	0 ML %
Stabilisation of wind or water erosion – soil condition		
36) By revegetation (including fencing out).	ha %	ha %
37) By control of grazing pressure.	ha %	ha %
38) By use of cropping technologies.	ha %	ha %
39) Gully erosion control.	ha %	ha %
40) Other Specify:	ha %	ha %
Improving the use of land within its capability		
41) Area of land assessed for capability.	0 ha	0 ha
42) Area of land to be managed according to capability.	0 ha	0 ha
Improved weed and pest management		
43) Estimated area of effective weed control (including aquatic)?	0 ha	No. 0
44) Estimated area of effective vertebrate pest control	0 ha	0 ha
45) Other specify:	0 ha	0 ha
Farm Forestry for demonstration or trial purposes		
46) Number of landholders expected to be involved?	No. 0	No. 0
47) Area of native species for wood production	0 ha	0 ha
48) Area of native species primarily for non-wood production:	0 ha	0 ha
49) Area of exotic species for wood production?	0 ha	0 ha
50) Area of native forest for production?	0 ha	0 ha

3(b) Other Outputs

Achievements (product or service)	Description	Quantity	
		Total outputs achieved	**Project Target**
Education and awareness (including adoption of best management practices)			
Type of publication (report, brochure, book) or activity (demonstration, field day) and topic	Target audience and location	Quantity	
Community forum (2 days). This was an interactive forum with 42 community and stakeholder representatives. The aims of the Community Forum, addressed in four workshops, were to seek participants' opinions of: the ecosystem services concept; the most important ecosystem services to a range of resource uses and interests in the Gwydir catchment; the threats to, manageability and vulnerability of important ecosystem services; and the priorities for research on ecosystem services in the Gwydir catchment. The team also wanted to hear of people doing related work, either within the catchment, or on particular resource uses.	Stakeholders from the Gwydir catchment. Held in Moree, NSW. 42 participants from 150 people invited.	Feedback from the participants suggested that the educational aspects of the meeting had been outstanding.	
Publication of the outcomes of the community forum. Publication of a book arising from the community forum. (currently being edited; due for release by mid-2003)	Distribution of the report to all participants of the community forum, the Australian Cotton CRC, representatives of the Gwydir Valley Irrigators Assoc., the Gwydir Catchment Management Board, Gwydir catchment stakeholders, other Ecosystem Services projects, and other catchment management boards (e.g. Central West CMB, Border Rivers CMB). To be distributed to NSW DLWC offices (pertinent to their Environmental Services scheme), other Ecosystem Services projects within Australia and overseas, and to catchment management boards who express an interest.	150 copies 250 copies	
Training			
Purpose and type of training activity	Target audience and location	Number of courses/workshops and number of people trained (and target for project)	
Planning			
Name of plan or feasibility study (including project development and marketing strategies) and area of strategy (eg. regional, catchment, subcatchment)	Purpose of plan. Indicate priority issues identified (eg groundwater management, nutrient management, river restoration, salinity, farm forestry feasibility studies etc)	Number published	

Community forum (2 days) Using feedback from the community forum to establish ecosystem services priorities for the Gwydir Ecosystem Services Project.	Moree, NSW. Stakeholders from the Gwydir catchment	Community feedback was instrumental in setting priorities for studying ecosystem services in the Gwydir.	
Monitoring			
What is being monitored?	How many sites, how often? Indicate major activities undertaken (eg surveying, mapping, soil sampling) and at what stages.	Number of people who participated	
Resource inventory			
Purpose of inventory	Indicate location. How many sites, how often? Is data to be included on Geographical Information Systems?	Area inventoried	
Inventory of ecosystem services in the Gwydir catchment. This was to ask both the Gwydir community (including stakeholders) and the scientific community to list ecosystem services that were important for the Gwydir catchment and to assess the threats to, manageability and vulnerability of important ecosystem services within the Gwydir catchment.	We used both the community forum in Moree and an email forum of scientific experts to make an inventory of ecosystem services important to the Gwydir catchment. We surveyed the 42 participants of the Moree forum and surveyed 70 scientists from a range of organizations (Uni of New England, Uni of Sydney, Uni. Qld, Uni of Southern Qld, CSIRO, NSW National Parks and Wildlife, NSW Agriculture, NSW DLWC, NSW EPA, NSW State Forests, ecological consultants and some farmers) Data are not suitable for inclusion in a GIS.	Several ecosystem services were identified by the community and by the scientists as being important in the Gwydir catchment - maintenance of soil health; water filtration; prevention of soil erosion; waste absorption and break down; regulation of river flows and groundwater levels; maintenance of healthy waterways; pollination; maintenance and regeneration of habitat; maintenance and provision of natural genetic resources; regulation of climate; natural pest control. Most ecosystem services were regarded as being under some degree of threat. The manageability and vulnerability of ecosystem services was variable (according to the services being discussed), however the general view was that the know-how required to address problems with ecosystem services was largely available and that there was a lack of community education and incentives.	

3(c) Employee Information and Outputs: Indicate how many salaried staff and/or contract staff were employed in your project, and the length and level of their employment. For each person, indicate the outputs they were responsible for delivering, in order of importance.

	Salaried staff		**Contractors or consultants**	
	Total achieved	**Project Target**	**Total achieved**	**Project Target**
Number, description, length of employment	Full-time postdoctoral fellow (level A $40K – $50K for 2 years)	Full-time postdoctoral fellow (level A $40K – $50K for 2 years)	Consultant economist ($30K p.a. for 2 years)	Consultant economist ($30K p.a. for 2 years)
Outputs (in priority order)	Contribution to the day-to-day running of the project. Project	Contribution to the day-to-day running of the project. Project	Economic contribution to interim milestone and final technical	Economic contribution to interim milestone and final technical

	administration and financial administration. Developing the natural pest control model. Writing grant proposals and project reports. Liaison with other scientists, community members and other project personnel.	administration and financial administration. Developing the natural pest control model. Writing grant proposals and project reports. Liaison with other scientists, community members and other project personnel.	reports on the economic valuation of ecosystem services used by the cotton industry. The consultant economist has contributed greatly to the formulation of the bio-economic models for the ecosystem services. The consultant has been active in defining and prioritising the achievable goals, in consultation with the researchers.	reports on the economic valuation of ecosystem services used by the cotton industry.

4. Participation

How many people have been actively involved in your project (include employees and volunteers)?

120

Which stakeholder groups have been involved in the project? List major groups who contributed to the technical, practical, financial or administrative aspects of the project, eg community groups, schools, tertiary institute, research organisations, local government, State Government, business, Indigenous groups.

Category	Name of Group	Type of Involvement	Number of Participants
Research Organization	Australian Cotton Cooperative Research Centre	Technical, practical, financial and administrative	20 - 30 people
Community / Local government	Gwydir Catchment Management Board	Practical	16 people
Community / business	Gwydir Valley Irrigators Association Inc.	Practical, technical and administrative	5 - 10 people
Research Organization / Tertiary institute	University of New England	Technical, practical, financial and administrative	20 - 30 people
State Government / Research Organization	NSW Department of Land and Water Conservation	Practical, technical and financial	10 - 20 people
Federal Government/ Research Organization	CSIRO Sustainable Ecosystems	Practical, technical and financial	10 – 20 people
Research Organization	Cotton Research and Development Corporation	Technical and practical	5 – 10 people

5. Implementing Regional, Catchment and Local Area Planning

In what way has your project contributed to the development or implementation of a regional strategy or plan?

We have been in close consultation with the Gwydir Catchment Management Board.

We have formulated a proposal with NSW Department of Land and Water Conservation to investigate the economic and ecological impacts of changes in government water policy on water use for the environment and agriculture in the Gwydir catchment. This work has potential to be extended to other catchments in northern NSW

6. Use of Project Results

Has your project had any benefits for any other groups? If so, by whom and in what way. How has your project been publicised? Attach copies of media coverage or other publicity. Has acknowledgment been given to the Natural Heritage Trust? If you have a photographic record please provide copies.

Benefits to other groups:

The research done in this project has been of benefit to other ecosystem services projects (particularly the CSIRO / Myer Foundation ecosystem services project). Benefits have included sharing ideas and approaches, testing community inventory methodologies, and developing and testing modelling frameworks.

Collaboration with researchers within the Australian Cotton CRC (CSIRO Entomology, CSIRO Primary Industries and NSW Agriculture) sharing ideas and methodologies.

Collaboration with researchers within NSW DLWC – particularly staff involved with developing DLWC's Environmental Services initiative and IQQM.

Publicity:

Newspaper article (press release attached) and radio interviews (local Moree radio interviewed Assoc. Prof. **Nick Reid**).

Article in RIPRAP (attached)

Article in Australian Cotton CRC newsletter (attached)

Gwydir Ecosystem Services web site (http://www.ecoman.une.edu.au/gesp/index.html; attached)

Section on CSIRO Ecosystem Services web site (http://www.ecosystemservicesproject.org/html/case_studies/gwydir.html; attached)

Community forum report (see "Reports" section below; attached) was distributed to all participants of the Community Forum, other stakeholders within the Gwydir catchment and members of other ecosystem services projects.

Article in NSW DLWC's newsletter, *Conversation* (attached)

Conference presentations and abstracts:

Spoken presentation at the Ecological Society of Australia conference, Melbourne, Australia 2000. **Silberbauer L., Gregg P. and Reid N.** *The ecological service provided by generalist predators in an agroecosystem: small parts in a large jigsaw puzzle*.

Poster presentation at the Ecological Society of Australia conference, Wollongong, Australia 2001. **Reid N. and Silberbauer L.** *The Nature and Value of Ecosystem Services in the Gwydir Valley, northern NSW.*

Invited spoken presentation at the Ecological Society of Australia & Ecology Society of New Zealand combined conference, Cairns, Australia 2002. **Silberbauer L., Reid N. and Thompson D.** *Modelling pest management options in cotton within an ecosystem services framework.*

Spoken presentation at the 2000 Ecosystem Services workshop, Atherton, Qld. **Reid N., Silberbauer L. and Thompson D.** *The Gwydir Ecosystem Services Project*.

Spoken presentation at the 2001 Ecosystem Services workshop, Bunya, Qld. **Silberbauer L., Reid N. and Thompson D.** *Effectiveness of the Community Forum inventory approach for the Gwydir Ecosystem Services project*.

Conference proceedings:

Reid N., Silberbauer L. and Thompson D. (2002) *Cotton and the Environment – Ecosystem Services.* Australian Cotton Growers Association Biennial Conference Proceedings, Brisbane, August 2002

Reid N., Silberbauer L., Thompson D., Oliver I., and Prior J. (2003) Ecosystem Services in the Gwydir

Catchment, NSW: What the Stakeholders Think . In: Graham, J., I. Reeve and D. Brunckhorst (Eds), *Landscape Futures: Social and Institutional Dimensions*. Proceedings of the 2nd International Symposium on Landscape Futures, 4-6 December, 2001, Armidale. Institute for Rural Futures, University of New England. ISBN 1 86389 811 5

Reports:

Reid N., Silberbauer L., and Thompson D. (2002) Scoping Study for the Cotton Ecosystem Services Project. Report available at http://www.ecoman.une.edu.au/gesp/Cotton%20Scoping%20Study.pdf (attached)

Reid N., Silberbauer L., Thompson D., and Oliver I. (2001) Gwydir Ecosystem Services Project, Community Forum, Moree, 27-28 June 2001, Draft Summary of Meeting Outputs. Report for Community Stakeholders and the Review Committee of the Gwydir Ecosystem Services Project (attached)

Presentations to Catchment Management Boards and other stakeholders:

Presentation to the Board of the Australian Cotton Cooperative Research Centre, UNE, Armidale, NSW, 14 December 2000: *Ecosystem Services in the Gwydir Valley*, by **Nick Reid**

Presentation to Ecosystem Services Workshop, Atherton, Qld, 13 March 2001: *Nature and Value of Ecosystem Services in the Gwydir Catchment*, by **Nick Reid, Letitia Silberbauer, David Thompson, Peter Smith & Ken Hodgkinson**

Presentation to Gwydir Catchment Management Board, Moree, NSW, 9 May 2001: *Nature and Value of Ecosystem Services in the Gwydir Catchment*, by **Nick Reid, Letitia Silberbauer, David Thompson, Ian Oliver, & Ken Hodgkinson**

Presentation to the Community Forum of the Gwydir Ecosystem Services Project, Moree, NSW, 27 June 2001: *Nature and Value of Ecosystem Services in the Gwydir Catchment*, by **Nick Reid, Letitia Silberbauer, David Thompson, Ian Oliver, Brian Wilson & Ken Hodgkinson**

Presentation to Annual Review of the Australian Cotton Cooperative Research Centre, Narrabri, NSW, 9 July 2001: *Nature and Value of Ecosystem Services in the Gwydir Catchment*, by **Nick Reid, Letitia Silberbauer, David Thompson, Ian Oliver, Brian Wilson & Ken Hodgkinson**

Presentation to Australian Cotton Cooperative Research Centre, ACRI, Myall Vale, Narrabri, NSW, 29 October 2001: *Nature and Value of Ecosystem Services in the Gwydir Catchment, NSW – Modeling Approach, Farm-Scale*, by **Nick Reid, Letitia Silberbauer & David Thompson**

Presentation to UNE Institute for Rural Futures Conference, UNE, Armidale, NSW, 5 December 2001: *Ecosystem Services in the Gwydir Catchment, NSW – What the Stakeholders Think*, by **Nick Reid**

Presentation to CSIRO Sustainable Ecosystems, St Lucia, Qld, 11 December 2001: *Ecosystem Services in the Gwydir Catchment, NSW – What the Stakeholders Think*, by **Nick Reid**

Presentation to the Gwydir Catchment Workshop, Centre for Ecological Economics and Water Policy Research, UNE, Armidale, NSW, 4 March 2002: *Ecosystem Services Research in the Gwydir Catchment*, by **Nick Reid**

Presentation to Visiting US Cotton Growers, UNE, Armidale, NSW, 15 March 2002: *Environmental Research in Cotton-Growing Districts of North-West NSW: Tree Decline and Ecosystem Services*, by **Nick Reid**

Presentation to Border Rivers Catchment Management Association, Moonie, Qld, 5 June 2002: *Ecosystem Services: What are They, and How can They Help?* by **Nick Reid**

Presentation to Australian Cotton Growers Research Association Biennial Conference, Brisbane, Qld, 14 August 2002: *Cotton and the Environment - Ecosystem Services: What are They, and How can They Help?* by **Nick Reid**

Presentation to the Central West Catchment Management Board, Dubbo, NSW, 4 December 2002: by **David Thompson**

7. Program Administration

Please provide comments on administration of your project and your dealings with relevant government agencies.

Administration

The project was administered by the Australian Cotton CRC and the University of New England on behalf of the Gwydir Valley Irrigators Association.

Dealings with relevant government agencies

We have been collaborating with DLWC personnel, particularly the research scientists from the Ecosystem Processes and Biodiversity Unit and the Surface and Groundwater Processes Unit, who are developing the IQQM model.

We have collaborated with staff in several divisions of CSIRO. Staff in CSIRO Entomology and Plant Industries were very helpful in providing data necessary for the biophysical and economic modelling in cotton. We have worked closely with staff in CSIRO Sustainable Ecosystems, Canberra, in developing the community inventory, carrying out the community forum and in assisting us with the intricacies of the modelling software. They have also provided a nexus through which we have been able to communicate with other ecosystem services projects around the country.

We have collaborated with staff in NSW Agriculture who were very helpful in giving us data for the biophysical and economic modelling.

Much of the collaboration with CSIRO, Narrabri, and NSW Agriculture, Tamworth and Narrabri, was facilitated through our involvement with the Australian Cotton CRC.

8. Future Action

How is your group planning to maintain the project after funding has ceased?

We intend to extend the ecosystem services approach of combined ecological and economic assessments of the public good and private impacts of resource management decisions at farm and catchment scale to other catchments.

The expertise we've gained and the modelling we've done in the Gwydir can be readily transferred to other catchments, particularly ones in which irrigated agriculture is a prominent land use.

We have a commitment of ongoing funding from the Australian Cotton CRC provided additional external resources can be obtained. We intend to seek funding to support this through the NHT..

We are currently negotiating with the Central West Catchment Management Board, the Gwydir CMB and the Border Rivers CMB to continue the project from July 2003. We will intensify and extend the approach in these catchments.

Do you intend to seek further Natural Heritage Trust funding, or funding from other sources to undertake further activities?

We will seek further NHT funding through the catchment management boards identified above.

9. Group Declaration:

I declare that I am an authorised representative of the recipient organisation, that the information given on this form is complete and correct and that expenditure of moneys paid under the financial agreement has been solely upon the project and in accordance with the terms of the Agreement and its conditions.

Name (please print)	Nick Reid		**Name (please print)**	Kym Orman	
Position in Organisation		**Phone**	**Position in Organisation**		**Phone**
Signature		**Date**	**Signature**		**Date**

FORM RETURN

The Final Report satisfies the reporting requirements under the Terms and Conditions of the Project Agreement.
Please return this form to:
Landscape Investments, Room 215
Department of Land and Water Conservation
GPO Box 39
SYDNEY NSW 2001